Stormwater Management Plan (SWMP)

As prepared under the 2016 Massachusetts Small MS4 General Permit

for the

Town of Southwick, MA



Issued July 10, 2019 Amended September 2023

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Amended September 2023

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Stormwater Management Program (SWMP)

Southwick, MA

DPW Office, 661 College Highway Southwick MA 01077

EPA NPDES Permit Number MAR041022

Certification

Authorized Representative (Optional): All reports, including SWPPPs, inspection reports, annual reports, monitoring reports, reports on training and other information required by this permit must be signed by a person described in Appendix B, Subsection 11.A or by a duly authorized representative of that person in accordance with Appendix B, Subsection 11.B. If there is an authorized representative to sign MS4 reports, there must be a signed and dated written authorization. The authorization letter is:

Attached to this document (document name listed below)

□ Publicly available at the website below

"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: | VRussell of FY | Dated: 7-10-19 |
|-------------------------|---|----------------|
| | Chairman, Select Board | |
| Signature: | Vice Chairman, Select Board | |
| Signature: [*] | Clerk, Select Board | |
| Revisions | (AD) | Dated: 1-17-20 |
| Signature: | Chairman, Select Board | |
| Signature: | Vice Chairman, Select Board Runsell 1 FK | |
| | Clerk, Select Board | |

Click Here for Revisions

Revisions, Continued

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| | | 1 |
|------------|--|-----------------------|
| Signature: | Chairman, Select Board | Dated: |
| Signature: | Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | |
| Signature: | Chairman, Select Beard | Dated: <u>9/13/14</u> |
| Signature: | VRussell & FY Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | * |
| Signature: | Chairman, Select Beard | Dated: |
| Signature: | Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | |
| Signature: | Chairman, Select Board | Dated: |
| Signature: | Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | |

Revisions, Continued

| Signature: | Runele J F-X Chairman, Select Board | Dated: <u>9-26-2022</u> |
|------------|--|-------------------------|
| Signature: | Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | |
| Signature: | Chairman, Select Board | Dated: 9/19/23 |
| Signature: | Vice Chairman, Select Board | |
| Signature: | Clerk, Select Board | -6 |
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| Signature: | Chairman, Select Board | Dated. |
| Signature: | Vice Chairman, Select Board | |
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| Signature: | Chairman, Select Board | |
| Signature: | Vice Chairman, Select Board | र अस |
| Signature: | Clerk, Select Board | |

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Background

Stormwater Regulation

The Stormwater Phase II Final Rule was promulgated in 1999 and was the next step after the 1987 Phase I Rule in EPA's effort to preserve, protect, and improve the Nation's water resources from polluted stormwater runoff. The Phase II program expands 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. Phase II is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the greatest likelihood of causing continued environmental degradation. 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.

Permit Program 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. This permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 general permit, which became effective on July 1, 2018.

Stormwater Management Program (SWMP)

The SWMP describes and details the activities and measures that will be implemented to meet the terms and conditions of the permit. The SWMP accurately describes the permittees plans and activities. The document should be updated and/or modified during the permit term as the permittee's activities are modified, changed or updated to meet permit conditions during the permit term. The main elements of the stormwater management program are (1) a public education program in order to affect public behavior causing stormwater pollution, (2) an opportunity for the public to participate and provide comments on the stormwater program (3) a program to effectively find and eliminate illicit discharges within the MS4 (4) a program to effectively control construction site stormwater discharges to the MS4 (5) a program to ensure that stormwater from development projects entering the MS4 is adequately controlled by the construction of stormwater controls, and (6) a good housekeeping program to ensure that stormwater pollution sources on municipal properties and from municipal operations are minimized.

Town Specific MS4 Background (optional)

According to EPA Region 1, the areas covered by both the 2000 census and the 2010 census are regulated by EPA under the MS4 program. Therefore, Southwick is primarily regulated in the center-east section of Town, from the southern boundary of Congamond Lakes to the northern Town boundary with Westfield. The majority of the western portion of Southwick is not regulated by EPA under the MS4 program.

The following paragraphs include brief descriptions of current practices the Town undertakes as part of its Stormwater Management Program. Appendix B summarizes the relationship between Best Management Practices (BMPs) undertaken by Southwick under the 2003 Small MS4 General Permit and 2016 Small MS4 General Permit BMPs.

MCM 1 - Public Education and Outreach:

The Town has been able to provide a robust multi-media public education program related to non-point source pollution and stormwater management targeted at multiple audiences by distributing handouts at lakeside kiosks, maintaining a community website with links to the pages of Citizens Restoring Congamond (CRC) and the Lake Management Committee (LMC), taping and televising "Town Cleanup" and "Annual Lake Cleanup" on the local cable access channel, and continuing active participation in the regional Pioneer Valley Planning Commission's Connecticut River Stormwater Committee (PVPC CRSWC).

MCM 2 – Public Involvement and Participation:

The Town of Southwick meets the requirements for the 2016 Small SM4 General Permit. The provision of notice for public meetings complies with State and Local public meeting notice requirements, as well as satisfying those of the General Permit. Additionally, many opportunities exist for residents of all ages to participate in Southwick's stormwater program and overall environmental stewardship. Town staff and local citizen groups are actively involved in monitoring the water quality of Southwick's surface waters like Lake Congamond through participation in and coordination with local groups such as CRC, LMC, and Canal Restoration Subcommittee.

MCM 3 – Illicit Discharge and Detection Elimination:

The Town has spent considerable effort on their IDDE Program over the past nine years. The Town has satisfied the mapping requirements of the 2003 General Permit, and continued mapping efforts ensure ongoing compliance with the 2016 Small MS4 General Permit requirements. The Town has mapped outfall locations throughout the Town, has implemented cartographic mapping, and continues to refine mapping as existing stormwater infrastructure is investigated.

Southwick adopted a bylaw that prohibits illicit discharges (Chapter 415, Article II: Southwick Illicit Connection Bylaw) in March of 2008, which regulates illicit discharges and illegal connections to the MS4. The Department of Public Works (DPW) serves as the enforcement agency. Town Staff have been trained on illicit discharges and stormwater outfall investigations and sampling, and continue to look for the presence of illicit discharges.

MCM 4 – Construction Site Stormwater Runoff Control and MCM 5 – Post Construction Stormwater Management in New Development and Redevelopment:

Southwick adopted the Erosion and Sediment Control for Stormwater Management Bylaw (Chapter 185, Section 36) in March of 2009. The Bylaw requires that all land disturbing activities greater than or equal to one acre obtain a stormwater permit, meet performance stormwater standards and develop a stormwater management plan. The Bylaw includes monetary penalties, requirements for installation of structural and non-structural Best Management Practices (BMPs), long term operation and maintenance of the BMPs, considerations to address water quality, and inspection procedures.

Procedures for site plan reviews are established and enforced via the Town of Southwick Zoning Bylaw, which includes the Stormwater Management Bylaw. Site plan reviews by the Planning Board, Building Department, Conservation Commission, and DPW include regular inspections and communication with the developer to ensure adherence to local requirements during construction. The Stormwater Management Bylaw also contains requirements for post-construction stormwater management.

In 2019 and 2020, DPW developed, in concert with PVPC consultation, a series of proposed changes to the Stormwater Management Bylaw, primarily to remove it from Zoning and place it within the Town's general bylaw. These changes are planned for implementation during FY2021, following ratification of EPA's proposed modification to the 2016 Small Municipal Separate Storm Sewer System General Permit.

MCM 6 – Pollution Prevention and Good Housekeeping

The Town implements numerous actions to reduce pollutant runoff from municipal operations, including catch basin cleaning, street sweeping, staff training, storing oil and hazardous materials properly, initiation of a 24/7 public access collection box for prescription pill collection, and coordination with the LMC and PVPC to obtain funding to implement stormwater quality improvements along Congamond Ponds.

Groundwater Recharge and Infiltration

Through implementation of the Stormwater Management Bylaw, the Town evaluates site conditions and design and promotes infiltration BMPs to the maximum extent practicable. Land development activities that require a stormwater management permit must submit a Stormwater Report to document compliance with the 10 MA Stormwater Management Standards. The Town also requires that site plans and landscape plans for all proposed projects must take appropriate steps to prevent pollution of surface or groundwater, and to maximize groundwater recharge.

Public Drinking Water Supply Requirements

In its Zoning Bylaw, the Town of Southwick has a Wellhead Protection District to ensure adequate drinking water quality and quantity, preserve and protect drinking water supplies, conserve natural resources, and prevent contamination of the environment. The Town has inventoried the outfalls within these areas and considers water supply sources and protection areas a priority for stormwater management.

Record Keeping

The Town maintains stormwater management program records and summarizes the actions taken under this MCM in the annual report to EPA.

Discharges to Water Quality Impaired Waters and Total Maximum Daily Load (TMDL) Allocations Southwick's stormwater program is addressing many of the current requirements for discharges to impaired water bodies. Through implementation of its current stormwater program, the Town is controlling the discharge of the pollutants of concern.

Small MS4 Authorization

The NOI was submitted on 9/28/18 (revised 5/28/19)

The NOI can be found at the following (document name or web address): Attached to this document - Appendix A Also online at - https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/southwick.pdf

Authorization to Discharge was granted on Jul 30, 2019

The Authorization Letter can be found (document name or web address): Attached to this document - Appendix A Also Online at - https://www3.epa.gov/region1/npdes/stormwater/ma/tms4noi/southwick-auth.pdf

Stormwater Management Program Team

SWMP Team Coordinator

| Name | Randal D. Brown, P.E. Title DPW Director |
|------------------------------------|--|
| Department | Department of Public Works (DPW) |
| Phone Number | (413) 569-6772 Email RBrown@SouthwickMA.net |
| Responsibilities | Manages the Town of Southwick's Stormwater Management Program and compliance wit the MS4 Permit. Oversees DPW stormwater operations, including outfall screening, IDDF employee training, and the Good Housekeeping program. |
| SWMP Team | |
| Name | Dick Grannells Title DPW Engineer |
| Department | DPW |
| Phone Number | (413) 569-6772 Email dpw@southwickma.net |
| Responsibilities | Assists with Town of Southwick's Stormwater Management Program and compliance with the MS4 Permit, including data collection, coordination of Congamond Ponds clean-up activities, and assistance with outreach. |
| Name | Karl Stinehart Title Chief Adminstrative Officer |
| Department | Select Board |
| Phone Number | (413) 569-5995 Email |
| Responsibilities | Annually provides the public with an opportunity to review the Stormwater Management Plan. |
| Name | Michael Doherty Title Chairperson |
| Department | Planning Board |
| Phone Number | (413) 569-6056 Email |
| Name Department Phone Number | Michael Doherty Title Chairperson Planning Board (413) 569-6056 Email |
| bilities | Assists in developing construction and post-construction regulations and procedures. |

| Name | Christopher Pratt | | Title Chair | |
|------------------|--|------------------------------------|---|------------------------|
| Department | Conservation Commission | | | |
| Phone Number | (413) 569-6907 | Email | | - |
| Responsibilities | Assists the Planning Board | and DPW in dev | veloping construction regulations and | procedures. |
| Name | Jonathan Goddard | | Title Stormwater Coordinator | ····· |
| Department | DPW | | | nagenaanse 1984 - Ad |
| Phone Number | (413) 569-3040 x305 | Email jgo | oddard@southwickma.net | |
| D 1111 | Refines MS4 mapping and IDDE investigations & culv | manages MS4 in vert assessments | nspections, sampling, and logging, inc . Assists in preparing stormwater doc | cluding cumentation |

Add SWMP Member

Receiving Waters

The following table lists all receiving waters, impairments and number of outfalls discharging to each waterbody segment. OR

The information can be found in the following document or at the following web address:

NOI in Appendix A

| Enterococcus impairments | Category 5 water: Eurasian Water Milfoil (Myriophyllum spicatum) - non-pollutant, TMDL not required | Category 5 water: Eurasian Water Milfoil (Myriophyllum spicatum) & Non-Native Fish/ Shellfish/Zooplankton (non- pollutants, TMDL not required); Harmful Algal Blooms | Category 5 water: Eurasian Water Milfoil (Myriophyllum spicatum) - non-pollutant, TMDL not required; Nutrient/ Eutrophication Biological Indicators |
|---|---|---|--|
| E. coli | | | |
| Solids/ TSS/ Turbidity | | | |
| Phosphorus | | | |
| PAH UII & Grease/ | | | |
| Nitrogen | | | |
| Dissolved Oxygen/ DO Saturation | \boxtimes | | |
| Сыогорнуіі-а | | | |
| Chloride | | | |
| Number of outfalls into receiving water segment | Ŋ | 20 | 7 |
| Waterbody segment that receives flow from the MS4 | Congamond Lakes, North Basin (MA32021) | Congamond Lakes, Middle Basin (MA32022) | Congamond Lakes, South Basin (MA32023) |

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| | Category 2 water - attaining | some uses, other uses not | assessed | | Category 3 water - No uses assessed | | | | | Category 2 water - attaining | some uses, other uses not | assessed | | | | Other pollutant(s) causing impairments | | | | |
|---------------------------------|------------------------------|---------------------------|----------|----------------------------------|--|-----------------------------------|-----------------|-------------------------------------|---|------------------------------|---------------------------|----------|---------------------------------|-------------|----------------------------------|---|-----------------------------|------------------------|--|--|
| | | | | | | | | | | | | | | | | Enterococcus | | | | |
| | | | | | | | | | | | | | | | | E. coli | | | | |
| | | | | | | | | | | | | | | | | Solids/ TSS/ Turbidity | | | | |
| | | | | | | | | | | | | | | | | Phosphorus | | | | |
| | | | | | | | | | | | | | | | | PAH UII & GFease | | | | |
| | П | | | Π | | | Π | Π | Π | | | | | | | Nitrogen | | | | |
| | | | | | | | | | | | | | | | | Dissolved Oxygen/ DO Saturation | | | | |
| | | | | | | | | | | | | | | | | Chlorophyll-a | | | | |
| | | · | | | | | | | | | | | | | | Chloride | | | | |
| 1 | | 20 | | 49 | 2 | 1 | 2 | 1 | | | 4 | | 3 | 1 | 1 | Number of outfalls into receiving water segment | 16 | 70 | | |
| Wetland/Tributary to Goose Pond | | Great Brook (MA32-25) | | Wetland/Tributary to Great Brook | Kellog Brook | Wetland/Tributary to Kellog Brook | Shurtleff Brook | Jack's Brook (Intermittent Portion) | | | Munn Brook (MA32-59) | | Wetland/Tributary to Munn Brook | White Brook | Wetland/Tributary to White Brook | Waterbody segment that receives flow from the MS4 | Outside Receiving Waterbody | Outside Urbanized Area | | |

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Click here to lengthen table

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Eligibility: Endangered Species and Historic Properties

*Reminder: The proper consultations and updates to the SWMP must be conducted for construction projects related to your permit compliance where Construction General Permit (CGP) coverage, which requires its own endangered species and history preservation determination, is NOT being obtained.

| Attach | ments: | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|
| \boxtimes | The results of Appendix C U.S. Fish and Wildlife Service endangered species screening determination | | | | | | | | | | | |
| Interesting the Appendix D historic property screening investigations | | | | | | | | | | | | |
| | If applicable, any documents from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other Tribal representative to mitigate effects | | | | | | | | | | | |
| These a | attachments are required within one year of the permit effective date and are: | | | | | | | | | | | |
| \boxtimes | Attached to this document (document names listed below) | | | | | | | | | | | |
| | Appendix C - Southwick Endangered Species Act Eligibility Certification Appendix D - Southwick National Historic Preservation Act Eligibility Certification | | | | | | | | | | | |
| | Publicly available at the website listed below | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Under Crit Below | what criterion did permittee determine eligibility for Historic Properties? terion A | | | | | | | | | | | |
| Not ap | oplicable | | | | | | | | | | | |
| Below listing | v add any additional measures taken to avoid or minimize adverse impacts on places listed, or eligible f g, on the NRHP, including any conditions imposed by the SHPO or THPO (if applicable): | | | | | | | | | | | |
| Not an | pplicable | | | | | | | | | | | |

MCM 1 Public Education and Outreach

Permit Part 2.3.2

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

Examples and Templates: EPA's Stormwater Education Toolbox MassDEP's Stormwater Outreach Materials

Other templates relevant to MCM 1 can be found here: <u>https://www.epa.gov/</u>npdes-permits/stormwater-tools-new-england#peo

BMP:Education and Outreach to Residents

BMP Number (Optional) 1

Document Name and/or Web Address:

Description:

Education and outreach goals for BMP 1 include:

• Increasing awareness of the impact of human activities on stormwater runoff and water quality;

· Changing residential behavior over time; and

• Reaching broad audiences with information that appeals to a diverse public.

Southwick will provide educational materials and general outreach to residents within Town for stormwater management topics relevant to Southwick and required by the Long Island Sound Nitrogen TMDL. The Town will utilize the materials and distribution methods planned by the Pioneer Valley Planning Commission Connecticut River Stormwater Committee (PVPC CRSWC), including:

• leaf litter brochures and door hangers to be distributed to garden centers and posted on social media and the Think Blue website

• cigarette butt/nip bottle/litter materials to be posted as panels on PVTA buses and issued as press releases

• flyer/brochure that promotes action for and enables proper disposal practice to be distributed to large lawn and garden centers in region and subject of press release/social media post

• brochure on how to create compost for garden use on Think Blue website

• flyer/social media post with key actions for lawn good practices, use of grass clippings

• press release/social media post indicating availability of brochure on soil testing, reading results, and proper follow-up that is available on the Think Blue website

• poster and letter on proper management of pet waste sent to veterinary offices, distributed as panel on PVTA buses

• pledge card on pet waste pick up issued through social media and Think Blue website

• letter to Board of Health to send to residents promoting proper septic system care

See Appendix E for additional information.

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal(s):

Distribute a minimum of two (2) educational messages spaced at least a year apart, and annual timed messages on specific topics required by Appendix F, Part B.I. for the Long Island Sound Nitrogen TMDL.

The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

Number of people reached, including:

• # brochures/door hangers distributed

- # flyers distributed / retrieved
- # of letters sent
- # of posters sent
- # of pledges sent
- PVTA's estimated exposure rates for panels
- # press releases sent and published

• # of "shares" or "likes" on social media such as Facebook or Twitter

• # of hits on the Connecticut River Think Blue website after message distribution

Message Date(s):

BMP:Education and Outreach to Businesses, Institutions, and Commercial Facilities

BMP Number (Optional) 2

Document Name and/or Web Address:

Description:

Education and outreach goals for BMP 2 include:

• Increasing awareness of business practices that may contribute to stormwater pollution;

• Changing behavior over time

• Improving compliance with local code.

Southwick will provide educational materials and general outreach to businesses, institutions, and commercial facilities within Town for stormwater management topics relevant to Southwick and required by the Long Island Sound Nitrogen TMDL. The Town will utilize the materials and distribution methods planned by the PVPC CRSWC, including:

• flyer and social media posting on the proper management of waste materials and dumpsters (cover and pollution prevention)

• letter to facility directors of properties with large parking lots regarding installation of hooded catch basins to keep fuels from local surface waters

• letter from PVPC CRSWC to landscapers on importance of proper disposal of leaf litter, with disposal locations

• letter from PVPC CRSWC to landscapers on importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

• workshop for large institutions to promote better lawns/turf management and awareness of MassDAR fertilizer regulations and nitrogen concerns in region

• workshop for professional landscapers on importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

• workshop for Garden Center staff in the region on best recommendations, including importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

• letter targeting certain businesses, commercial, and institutional property owners explaining strategies for geese management and resources

letter to larger properties with problem locations offering sign design template promoting pet waste pick up
distribution of updated pet waste poster as PVTA bus panel with press release and post on social media, Think Blue website

See Appendix E for additional information.

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal(s):

Distribute a minimum of two (2) educational messages spaced at least a year apart, and annual timed messages on specific topics required by Appendix F, Part B.I. for the Long Island Sound Nitrogen TMDL.

The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

Number of people reached, including:

- # of flyers distributed
- # of letters sent
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution
- # of workshop attendees
- PVTA's estimated exposure rates for panels
- # press releases sent and published

Message Date(s):

BMP:Education and Outreach to Developers

BMP Number (Optional) 3 & 5

Document Name and/or Web Address:

Description:

Education and outreach goals for BMP 3 and 5 include:

• Increasing awareness of the impact of construction activities on stormwater runoff and water quality;

• Changing developer behavior over time

• Improving compliance with local code.

Southwick will provide educational materials and general outreach to developers for stormwater management topics relevant to Southwick. The Town will utilize the materials and distribution methods planned by the PVPC CRSWC, including:

• workshop at regional conference on new MS4 development standards and E&S control

• workshop at regional conference on LID strategies and technologies

See Appendix E for additional information.

Targeted Audience: Developers (construction)

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal(s):

Distribute a minimum of two (2) educational messages spaced at least a year apart

The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

Number of people reached, including:

- # attending workshop
- results from post workshop survey

Message Date(s):

BMP:Education and Outreach to Industrial Facilities

BMP Number (Optional) 4 & 6

Document Name and/or Web Address:

Description:

Education and outreach goals for BMPs 4 and 6 include:

- Increasing awareness of industrial activities that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Southwick will provide educational materials and general outreach to industrial facilities within Town for stormwater management topics relevant to Southwick. The Town will utilize the materials and distribution methods planned by the PVPC CRSWC, including:

• fact sheet promoting fleet maintenance to be sent to local industrial facilities

• letter to facility directors of properties with large parking lots

See Appendix E for additional information.

Targeted Audience: Industrial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal(s):

Distribute a minimum of two (2) educational messages spaced at least a year apart

The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

Number of people reached, including:

• # of fact sheets sent

• # letters sent

• # of hits on the Connecticut River Think Blue website after message distribution

Message Date(s):

BMP:[BMP name here]

BMP Number (Optional)

Document Name and/or Web Address:

Description:

Targeted Audience:

| Responsible Department/Parties: | |
|-----------------------------------|---|
| Measurable Goal(s): | |
| | |
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| Message Date(s): | |
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| BMP Number (Optional) | |
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| Measurable Goal(s): | |
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| Message Date(s) | | | | | | |
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| BMP:[BMP Name Here] | |
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| BMP Number (Optional) | |
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| Description: | |
| | |
| Targeted Audience: | |
| Responsible Department/Parties: | |
| Measurable Goal(s): | |
| | |
| Message Date(s): | |
| | |
| Add BMP | |

MCM 2 Public Involvement and Participation Permit Part 2.3.3

Objective: The permittee shall provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP.

BMP: Public Review of Stormwater Management Program

BMP Number (Optional) 7

Location of Plan and/or Web Address: https://www.southwickma.org/sites/g/files/vyhlif1241/f/uploads/ stormwater managment plan.pdf

Responsible Department/Parties: DPW

Measurable Goal(s):

Southwick shall provide the public with an opportunity to review this SWMP prior to finalizing it, and with other opportunities to participate in the Town's Stormwater Program on an annual basis.

While the DPW is the responsible party for this BMP, multiple Town Departments can help aid in successful implementation, as public participation in stormwater management initiatives often crosses Departments.

This SWMP was presented at a public meeting on June 25, 2019 to solicit input from the general public. Additionally, the draft SWMP was made available to the public at the DPW office for public review. Subsequent amendments to the SWMP will be presented at public meetings and logged in Appendix I -Record Keeping.

BMP: Public Participation in Stormwater Management Program Development

BMP Number (Optional) 8

Description:

Public involvement and participation goals for BMP 8 include:

- Increasing public involvement in and knowledge of Southwick's stormwater program
- Improving water quality through local clean up and waste collection events.

Southwick shall continue to provide notice for public meetings per Massachusetts General Law requirements, including meetings pertaining to the Stormwater Management Program.

The Town shall continue to provide annual opportunities for public participation in the Program. These opportunities may include, but are not limited to:

• Storm drain stenciling;

• Hazardous waste collection through the Town's partnership with New England Disposal Technologies, Inc. (NEDT);

- Yard waste collection at the municipal Transfer Station (provided throughout the year); and
- Lake and beach clean-up events.

Responsible Department/Parties: All Town Departments, Boards, and Committees

Measurable Goal(s):

Ongoing compliance.

BMP: [BMP name here]

BMP Number (Optional)

Document Name and/or Web Address:

Description:

Responsible Department/Parties:

Measurable Goal(s):

Add BMP

MCM 3 Illicit Discharge Detection and Elimination (IDDE) Program Permit Part 2.3.4

Objective: The permittee shall implement an IDDE program to systematically find and eliminate illicit sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.

Examples and Templates: IDDE Program Template and SOPs

Other templates relevant to IDDE can be found here: <u>https://www.epa.gov/</u>npdes-permits/stormwater-tools-new-england#idde

BMP: IDDE Legal Authority

BMP Number (Optional) 9

Completed (by May 1, 2008)

Ordinances Link or Reference: https://ecode360.com/12606262

Department Responsible for Enforcement: DPW

BMP: Sanitary Sewer Overflow (SSO) Inventory

BMP Number (Optional) 10

Completed (by year 1)

Document Name and/or Web Address: Appendix G - SSO Inventory

Description:

Annually track and report the following SSO information in Appendix G: the location; a clear statement of whether the discharge entered a surface water directly or entered the MS4; date(s) and time(s) of each known SSO occurrence; estimated volume(s) of the occurrence; description of the occurrence indicating known or suspected cause(s); mitigation and corrective measures completed with dates implemented; and mitigation and corrective measures planned with implementation schedules.

This inventory must be kept up to date and appended to this SWMP. Each municipal Department can aid in the development and maintenance of the inventory by reporting instances of SSOs found during field work to the DPW.

Responsible Department/Parties: DPW

Measurable Goal(s):

Develop SSO inventory within one year of the permit effective date. Track number of SSOs identified and removed annually, and update in Annual Reports.

SSO Reporting:

In the event of an overflow or bypass, a notification 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.

| The MassDEP contacts are: | The EPA contacts are: |
|---------------------------------------|--------------------------------|
| Western Region (413) 784-1100 | EPA New England (617) 918-1510 |
| 436 Dwight Street | 5 Post Office Square |
| Springfield, MA 01103 | Boston, MA 02109 |
| 24-hour Emergency Line 1-888-304-1133 | |

BMP: Map of Storm Sewer System

Document Location and/or Web Address: Appendix A

Description:

A map of Southwick's drainage system has been developed, and the Town has met a large portion of the requirements of this BMP. Town staff should continue to update the map as necessary to reflect newly discovered information, corrections or modifications, improved connectivity, and progress made. BMPs 11 and 12 are ongoing.

Responsible Department/Parties: DPW

Measurable Goal(s):

Map 100% of outfalls and receiving waters, open channel conveyances, interconnections with other MS4s and other storm sewer systems, municipally-owned stormwater treatment structures, waterbodies identified by name and indication of all use impairments, and initial catchment delineations within 2 years of the permit's effective date.

Map 100% of outfall spatial locations, pipes, manholes, catch basins, refined catchment delineations, municipal sanitary sewer system (if available), and municipal combined sewer system (if applicable) within 10 years of the permit's effective date.

BMP: IDDE Program

BMP Number (Optional) 13

Written Document Completed (by year 1)

Document Name and/or Web Address: Appendix H

Description:

Southwick has developed and implemented a town-wide IDDE Plan, which includes procedures and timelines developed in accordance with the final General Permit (Appendix H). The Town should continue to update and modify the Plan on an as-needed basis.

Responsible Department/Parties: DPW

Measurable Goal(s):

Conduct 100% of outfall screening on High and Low Priority Outfalls within 3 years of the permit's effective date. Complete catchment investigations for 100% of the Problem Outfalls within 7 years of the permit's effective date. Complete 100% of all catchment investigations within 10 years of the permit's effective date.

The outfall/interconnection inventory and initial ranking and the dry weather outfall and interconnection screening and sampling results can be found:

The outfall/interconnection inventory and initial ranking can be found in the written Illicit Discharge Detection and Elimination Program at the DPW office located at 661 College Highway in Southwick. The dry weather outfall screening and sampling results will be included in the IDDE Program when complete.

BMP Number (Optional) 20

Description:

Employees involved in the IDDE Program must be trained annually on the Program, including how to recognize illicit discharges and SSOs in accordance with the IDDE Plan.

Responsible Department/Parties: DPW, PVPC CRSWC

Measurable Goal(s):

Training occurs annually. Track employees trained, training topics, date/time and materials presented.

BMP: Assessment and Priority Ranking of Outfalls & Interconnections

BMP Number (Optional) 14

Completed 🛛

Document Name and/or Web Address: Appendix H - IDDE Plan

Description:

Assess and priority rank all outfalls in terms of their potential to have illicit discharges and SSOs and the related health significance.

Responsible Department/Parties: DPW

Measurable Goal(s):

Complete initial priority ranking within 1 year of the effective date of permit and update as required. The initial assessment and priority ranking is described in the written IDDE Plan in Appendix H.

BMP: Dry Weather Screening

BMP Number (Optional) 15

Completed 🛛

Document Name and/or Web Address: Appendix H - IDDE Plan

Description:

Conduct in accordance with outfall screening procedures described in the written IDDE Plan.

Field investigations must be completed during dry weather conditions to confirm whether any Low or High Priority outfalls have dry weather flow, which may be indicative of illicit connections/discharges. All data gathered during implementation of this BMP must be reported annually.

Responsible Department/Parties: DPW

Measurable Goal(s):

Develop sampling and screening procedures within 1 year of the effective date of the permit. Track number of

illicit discharges identified and volume removed. Summarize screening/sampling results. All dry weather sampling shall be completed by Year 3.

BMP: Update rankings of outfalls and interconnections

BMP Number (Optional) 16

Document Name and/or Web Address:

Description:

Update priority rankings per results of dry weather sampling.

Responsible Department/Parties: DPW

Measurable Goal(s):

The initial catchment delineation and priority rankings must be updated by the end of Permit Year 3 based on the data gathered in the field.

BMP:Written catchment investigation procedure

BMP Number (Optional) 17

Document Name and/or Web Address: Illicit Discharge Detection & Elimination Plan

Description:

Develop a written catchment investigation procedure that 1) utilizes maps/record plans, 2) includes a manhole inspection methodology, and 3) establishes procedures to isolate and confirm sources of illicit discharges.

Responsible Department/Parties: DPW

Measurable Goal(s):

Develop plan within 18 months of the permit effective date.

BMP:Catchment areas investigations

BMP Number (Optional) 18

Document Name and/or Web Address:

Description:

Each catchment associated with an outfall or interconnection within the MS4 must be investigated based on

Completed 🛛

Completed \boxtimes

Completed 🗌

identified System Vulnerability Factors (SVF, i.e. the likelihood that illicit discharges/connections exist) in that particular area. For all catchments, key junction manholes shall be opened and inspected for evidence of illicit connections during dry weather conditions. For catchments with one or more SVF, wet weather monitoring must be completed. Investigations of catchments associated with Problem Outfalls shall begin no later than two years from the permit effective date and shall be completed with seven years of the permit effective date. Investigations of catchments where any information gathered on the outfall/interconnection identifies sewer input shall be completed within seven years of the permit effective date. Investigations of catchments associated with all Problem, High, and Low Priority Outfalls shall be completed within ten years of the permit effective date.

Responsible Department/Parties: DPW

Measurable Goal(s):

Complete 10 years after effective date of permit. The Town will identify the number of outfall catchments in the MS4 that have been evaluated using the catchment investigation procedure developed under this BMP. All data gathered during implementation of this BMP must be reported annually. Track number and percentage of MS4 catchments evaluated. Track number of illicit discharges identified and volume removed. Summarize screening/sampling results.

BMP:Ongoing screening

BMP Number (Optional) 19

Document Name and/or Web Address:

Description:

Reprioritize screening for each outfall and interconnection based on results of dry and wet weather screening.

Responsible Department/Parties: DPW

Measurable Goal(s):

Conduct ongoing screening once every five years.

BMP:Nitrogen Source Identification Report

BMP Number (Optional) 21

Document Name and/or Web Address:

Description:

Develop a Nitrogen Source Identification Report to identify sources of high nitrogen discharges and identify potential retrofit opportunities, in accordance with the requirements of the Long Island Sound TMDL for Nitrogen as described in Appendix F, Part B.1. of the Small MS4 General Permit.

Completed

Completed 🕅

| Measurable Goal(s): | | |
|-----------------------------------|---|--|
| | | |
| | | |
| <u>BMP:[BMP name here]</u> | | |
| BMP Number (Optional) | Completed | |
| Document Name and/or Web Address: | | |
| Description: | | |
| | | |
| Responsible Department/Parties: | | |
| Measurable Goal(s): | | |
| | | |
| | and the second se | |
| | | |

Add BMP

MCM 4

Construction Site Stormwater Runoff Control

Permit Part 2.3.5

Objective: The objective of an effective 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 the permittee's MS4.

Examples and Templates:

Examples and templates relevant to MCM 4, including model ordinances and site inspection templates, can be found here: <u>https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc</u>

| BMP: Sediment and Erosion Control Ordinance | | | |
|---|--|--|--|
| BMP Number (Optional) 22 | Completed (by May 1, 2008) | | |
| Ordinances Link or Reference: https://ecode360.com/13768195 | | | |
| Department Responsible for Enforcement: Planning Board, ConCom | | | |
| BMP: Site Plan Review Procedures | | | |
| BMP Number (Optional) 23 | Written procedures completed (by year 1) | | |
| Document Name and/or Web Address: | | | |
| Description: | | | |
| Develop a written plan to address roles/responsibilities | for site plan review, inspection, and enforcement. | | |
| Responsible Department/Parties: Planning Board, Co | onCom, DPW | | |
| Measurable Goal(s): | | | |
| Review current procedures and modify if necessary wit review of 100% of projects according to the procedures | thin 1 year of permit effective date. Conduct site plan s outlined above. | | |
| BMP: Site Inspections and Enforcement of Sedimen | t and Erosion Control Measures Procedures | | |
| BMP Number (Optional) 23 | Completed (by year 1) | | |
| Document Name and/or Web Address: | | | |
| Description: | | | |
| Southwick shall develop written procedures for site ins | pections and enforcement of sediment and erosion | | |

control measures. They will include procedures for tracking the number of site reviews, inspections, and enforcement actions. Refer to the CMRSWC SOPs in Appendix F.

Responsible Department/Parties: Planning Board, ConCom, DPW

Measurable Goal(s):

Inspect 100% of construction sites as outlined in the above document and take enforcement actions as needed.

BMP:[BMP name here]

| name (and the second |
|---|
| |

Add BMP
MCM 5

Post Construction Stormwater Management in New Development and Redevelopment Permit Part 2.3.6

Objective: The objective of an effective post construction stormwater management program is to reduce the discharge of pollutants found in stormwater to the MS4 through the retention or treatment of stormwater after construction on new or redeveloped sites and to ensure proper maintenance of installed stormwater controls.

Examples and Templates: Examples and templates relevant to MCM 5, including model ordinances and bylaw review templates and guidance can be found here: <u>https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm</u>

BMP: Post-Construction Ordinance

BMP Number (Optional) 24

Completed (by year 2)

Town Ordinances Link or Reference: https://ecode360.com/13768195

Department Responsible for Enforcement: Planning Board, DPW

BMP: Street Design and Parking Lot Guidelines Report

BMP Number (Optional) 25

Completed (by year 4)

Document Name and/or Web Address:

Description:

Develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. This assessment shall be used to provide information to allow the Town to determine if changes to design standards for streets and parking lots can be made to support low impact design (LID) options. Input will be gathered from multiple Town departments. The final report will be appended to this SWMP in Appendix I once completed.

Responsible Department/Parties: Planning Board, ConCom, DPW

Measurable Goal(s):

Complete report no later than 4 years of permit effective date. Implement recommendations by Permit Year 9 with progress reported annually.

BMP: Green Infrastructure Report

BMP Number (Optional) 26

Completed (by year 4)

Document Name and/or Web Address:

Description:

Develop a report assessing local regulations to determine the feasibility of making green roofs, infiltration practices, and water harvesting devices allowable when appropriate site conditions exist. The Town shall implement all recommendations in accordance with the schedules contained in the assessment.

Responsible Department/Parties: Planning Board, ConCom, DPW

Measurable Goal(s):

Complete report no later than 4 years of permit effective date and include in SWMP Appendix H. Implement recommendations by Permit Year 9 with progress reported annually.

BMP: List of Municipal Retrofit Opportunities

BMP Number (Optional) 27

Completed (by year 4)

Document Name and/or Web Address:

Description:

Conduct a detailed inventory of Town-owned properties and rank for retrofit potential. The Town must identify at least five town-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges through a reduction of impervious area. General Permit Section 2.3.6.d describes factors and considerations for selecting potential sites with the goal of reducing impervious area and improving water quality. The inventory must be updated annually starting in Permit Year 5.

Responsible Department/Parties: DPW, Park and Rec, Buildings & Grounds, School Department, Cemetery

Measurable Goal(s):

Complete report no later than 4 years of permit effective date, include in SWMP Appendix I, and update as needed. Beginning in year 5 keep running list of at least 5 retrofit sites.

BMP:Retrofit BMPs

BMP Number (Optional) 28

Document Name and/or Web Address:

Description:

Prepare a plan and schedule for implementing retrofit BMPs.

Responsible Department/Parties: DPW

Measurable Goal(s):

Complete a list of planned structural BMP retrofits no later than 5 years after the permit effective date. Within 6 years of the permit effective date, install a minimum of 1 structural BMP in a high nitrogen area. Install the remainder of the listed structural BMPs in accordance with the plan and schedule in the Year 5 Annual Report.

Add BMP

Completed

MCM 6

Good Housekeeping and Pollution Prevention for Permittee Owned Operations Permit Part 2.3.7

Objective: The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.

Examples and Templates:

Examples and templates relevant to MCM 6, including SOP templates for catch basin cleaning, street sweeping, vehicle maintenance, parks and open space management, winter deicing, and Stormwater Pollutoin Prevention Plans can be found here: <u>https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh</u>

PERMITTEE OWNED FACILITIES

BMP: Parks and Open Spaces Operations and Maintenance Procedures

| BMP Number (Optional) 29 & 30 | Written Document Completed (by year 2) |
|-----------------------------------|---|
| Document Name and/or Web Address: | Municipal Stormwater |
| | Operation and Maintenance Plan for |
| | Buildings & Facilities, Parks, Vehicles, and Open Space |

Description:

The Town of Southwick has developed and implemented a written Town-wide O&M program for municipal facilities and equipment, including:

- Parks and open space
- Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff
- Vehicles and equipment.

This plan includes an inventory of the municipally-owned parks and open spaces, building and facilities, and vehicles and equipment. The inventory and written O&M program has been appended to the SWMP in Appendix I.

Responsible Department/Parties: DPW, Buildings & Grounds, Park and Rec, School Dept., Cemetery

Measurable Goal(s):

Complete and implement the SOPs developed in the Town-wide O&M program on 100% of the jurisdictional parks and open spaces within 2 years of the effective date of the permit.

Properties List (Optional):

See Table 2-1: Sites within MS4 Regulated Area and Relevant SOPs within the aforementioned O&M Plan.

BMP: Buildings and Facilities Operations and Maintenance Procedures

BMP Number (Optional) 29 & 30

Written Document Completed (by year 2)

Document Name and/or Web Address: Municipal Stormwater Operation and Maintenance Plan for Buildings & Facilities, Parks, Vehicles, and Open Space

Description:

The Town of Southwick has developed and implemented a written Town-wide O&M program for municipal facilities and equipment, including:

• Parks and open space

• Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff

• Vehicles and equipment.

This plan includes an inventory of the municipally-owned parks and open spaces, building and facilities, and vehicles and equipment. The inventory and written O&M program has been appended to the SWMP in Appendix I.

Responsible Department/Parties: DPW, Buildings & Grounds, Park and Rec, School Dept., Cemetery

Measurable Goal(s):

Complete and implement the SOPs developed in the Town-wide O&M program on 100% of buildings and facilities within 2 years of the effective date of the permit.

Properties List (Optional):

See Table 2-1: Sites within MS4 Regulated Area and Relevant SOPs within the aforementioned O&M Plan.

BMP: Vehicles and Equipment Operations and Maintenance Procedures

BMP Number (Optional) 29 & 30

Written Document Completed (by year 2)

Municipal Stormwater

Document Name and/or Web Address: Operation and Maintenance Plan for

Buildings & Facilities, Parks, Vehicles, and Open Space

Description:

The Town of Southwick has developed and implemented a written Town-wide O&M program for municipal facilities and equipment, including:

- · Parks and open space
- Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff

• Vehicles and equipment.

This plan includes an inventory of the municipally-owned parks and open spaces, building and facilities, and vehicles and equipment. The inventory and written O&M program has been appended to the SWMP in Appendix I.

Responsible Department/Parties: DPW, Buildings & Grounds, Park and Rec, School Dept., Cemetery

Measurable Goal(s):

Complete and mplement the SOPs developed in the Town-wide O&M program for 100% of vehicles and equipment within 2 years of the effective date of the permit.

Properties List (Optional):

See Table 2-1: Sites within MS4 Regulated Area and Relevant SOPs within the aforementioned O&M Plan.

INFRASTRUCTURE

BMP: Infrastructure Operations and Maintenance Procedures

BMP Number (Optional) 31

Written Procedure Completed (by year 2)

| Document Name and/or Web Address: | Municipal Stormwater Infrastructure Operation and Maintenance Plan |
|-----------------------------------|---|
|-----------------------------------|---|

Description:

Establish and implement an MS4 Infrastructure Town-Wide O&M plan that describes the activities and procedures used to repair and rehabilitate MS4 infrastructure in a timely manner to reduce the discharge of pollutants from the MS4.

Responsible Department/Parties: DPW

Measurable Goal(s):

Complete O&M program within two years of effective date of permit. Maintain 100% of MS4 infrastructure to ensure proper function in accordance with the procedures above. Refer to the CMRSWC SOPs in Appendix F.

BMP: Catch Basin Cleaning Program

BMP Number (Optional) 33

Written Procedure Completed (by year 1)

| Deaument Name and/or Wab Address | Municipal Stormwater Infrastructure |
|-----------------------------------|-------------------------------------|
| Document Name and/or web Address: | Operation and Maintenance Plan |

Description:

Clean and inspect catch basins to make sure that catch basins are no more than 50% full, and develop and implement a program to optimize routine inspections, cleaning, and maintenance of catch basins. If a catch basin is consistently less than 50% fill, the Town can reduce the frequency of cleanings. If a catch basin is more than 50% full during two consecutive cleanings/inspections, the Town must investigate the contributing drainage area for sources of excessive sediment loading abate contributing sources when possible. Store and dispose/reuse catch basin cleanings according to MassDEP policies. The Town-Wide O&M Program will include additional recommendations and guidance for this BMP.

Responsible Department/Parties: DPW

Measurable Goal(s):

Clean all catch basins in accordance with the document above such that no catch basin is more than 50% full at any given time. Report number of catch basins cleaned and volume of material removed annually in Annual Reports. Refer to the CMRSWC SOPs in Appendix F.

BMP: Street Sweeping Program

BMP Number (Optional) 34

Written Procedure Completed (by year 1)

Document Name and/or Web Address: Municipal S

Municipal Stormwater Infrastructure Operation and Maintenance Plan

Description:

Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots. All streets must be swept and/or cleaned at least once per year in the spring and once per year in the fall (excluding rural streets with no curbs or catch basins). More frequent sweeping shall occur in targeted areas on the basis of pollutant load reduction potential. Store and dispose/reuse street sweepings according to MassDEP policies. For rural streets with no curbs or catch basins, the Town must sweep at least once per year

| or develop a targeted inspection and sweeping plan for those streets. The Town-Wide O&M Program will | |
|--|-----|
| include additional recommendations and guidance for this BMP. Refer to the CMRSWC SOPs in Appendix | xF. |

Responsible Department/Parties: DPW

Measurable Goal(s):

Sweep all streets and municipal parking lots in accordance with the schedule listed above.

BMP: Winter Road Maintenance Program

BMP Number (Optional) 35

Written Procedure Completed (by year 1)

Document Name and/or Web Address:

Municipal Stormwater Infrastructure **Operation and Maintenance Plan**

Description:

Establish and implement procedures for winter road maintenance, including the use and storage of salt and sand. The Town-Wide O&M Program plan will include additional recommendations and guidance.

Responsible Department/Parties: DPW

Measurable Goal(s):

Implement salt use optimization during the deicing season. Refer to the CMRSWC SOPs in Appendix F.

BMP: Stormwater Treatment Structures Inspection and Maintenance Procedures

BMP Number (Optional) 36

Completed (by year 1)

Municipal Stormwater Infrastructure Document Name and/or Web Address: **Operation and Maintenance Plan**

Description:

Develop inspection and maintenance procedures and frequencies for all stormwater treatment structures. An important first step will be to improve the inventory, mapping, and record keeping procedures for Townowned or operated stormwater BMPs, such as detention ponds and swales. All town-owned BMPs must be inspected annually at a minimum. Refer to the CMRSWC SOPs in Appendix F.

Responsible Department/Parties: DPW

Measurable Goal(s):

Inspect and maintain 100% of treatment structures to ensure proper function.

BMP: SWPPP

| BMP Number (Optional) 32 | Completed (by year 2) |
|--|--|
| Document Name and/or Web Address: | |
| Description: | |
| Create SWPPPs for maintenance garages, | transfer stations, and other waste-handling facilities. |
| Responsible Department/Parties: DPW | , Buildings & Grounds, Fire Department |
| Measurable Goal(s): | |
| Develop and implement SWPPPs for 100 | % of the above facilities. |
| BMP: Employee Training | |
| BMP Number (Optional) 37 | Completed 🗌 |
| Document Name and/or Web Address: | |
| Description: | |
| Train Town employees whose work activ | ities involve the stormwater system |
| Responsible Department/Parties: DPW | , ConCom, Planning Board, Building Department |
| Measurable Goal(s): | |
| Provide annual training of employees. Ke | ep records of attendees and training materials in Appendix H. |
| BMP: Fertilizer use and management o | f organic yard waste |
| BMP Number (Optional) 38 | Completed 🖂 |
| Document Name and/or Web Address: | Municipal Stormwater Operation and Maintenance Plan for Buildings & Facilities, Parks & Open Space, and Vehicles & Equipment |
| Description: | |
| Develop requirements for management fe | ertilizer use and grass cuttings on Town-owned properties |

Responsible Department/Parties: DPW, Buildings & Grounds, Park & Recreation

Measurable Goal(s):

Complete and implement two years after effective date of permit.

Add BMP

Annual Evaluation

Year 1 Annual Report

Document Name and/or Web Address:

Town of Southwick, Massachusetts Year 1 Report: Massachusetts Small MS4 General Permit

Year 2 Annual Report

Document Name and/or Web Address:

Town of Southwick, Massachusetts Year 2 Report: Massachusetts Small MS4 General Permit

Year 3 Annual Report

Document Name and/or Web Address:

Town of Southwick, Massachusetts Year 3 Report: Massachusetts Small MS4 General Permit

Year 4 Annual Report

Document Name and/or Web Address:

Year 5 Annual Report

Document Name and/or Web Address:

Year X Annual Report

Document Name and/or Web Address:

Add a Year

TMDLs and Water Quality Limited Waters

| <u>mpairment(s)</u> | | | |
|---|----------------------------|-------------------|---|
| ☐ Bacteria/Pathogens | 🗌 Chloride | 🗋 Nitrogen | Phosphorus |
| ☐ Solids/oil/grease (hydroc | arbons)/metals | | |
| | | | |
| MDL(s) | | | |
| T <mark>MDL(s)</mark> n State: | | | |
| TMDL(s) 1 State: Assabet River Phospho | rus 🗌 Bac | teria and Pathogo | en 🛛 Cape Cod Nitrogen |
| TMDL(s) <i>n State:</i> Assabet River Phospho Charles River Watersho | rus 🗌 Bac ed Phosphorus | teria and Pathogo | en 🗌 Cape Cod Nitrogen Pond Phosphorus |
| TMDL(s) n State: Assabet River Phospho Charles River Watersho Dut of State: | rus 🗌 Bac ed Phosphorus | teria and Pathogo | en 🗌 Cape Cod Nitrogen Pond Phosphorus |

Nitrogen

Combination of Impaired Waters Requirements and TMDL Requirements as Applicable

| Applicable Receiving Waterbody(ies) | TMDL Name (if applicable) | Add/Delete Row |
|-------------------------------------|--|-------------------|
| All | Long Island Sound TMDL for Nitrogen | + - |

Annual Requirements Beginning Year 1

Rank outfalls to these receiving waters as high priority for IDDE implementation in the initial outfall ranking

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMP 14 - Per Section 2.3.4.7.a.iii. of the 2016 Small MS4 General Permit, outfalls to receiving waters associated with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment should be identified as High Priority outfalls. As the entirety of the Town is located within the Connecticut River / Long Island Sound watershed, ranking all outfalls within the Town as High Priority does not allow for differentiation or priority use of resources in the IDDE Program. Therefore, upon the development of the final Nitrogen Source Identification Report in permit year four, potential catchments determined to have high nitrogen loading will be reassessed as High Priority catchments.

Public Education and Outreach

(Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information))

Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release fertilizers

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 1 & 2: Education and outreach to Residential and Business/Commercial/Institution stakeholders will be supplemented with annual timed messages on specific topics (grass clippings, fertilizers, pet waste, and leaf litter)

Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 1 & 2: Education and outreach to Residential and Business/Commercial/Institution stakeholders will be supplemented with annual timed messages on specific topics (grass clippings, fertilizers, pet waste, and leaf litter)

Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 1 & 2: Education and outreach to Residential and Business/Commercial/Institution stakeholders will be supplemented with annual timed messages on specific topics (grass clippings, fertilizers, pet waste, and leaf litter)

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

Establish requirements for the use of slow release fertilizers on permittee owned property currently using fertilizer, in addition to reducing and managing fertilizer use as provided in part 2.3.7.1

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMP 38: Written O&M procedures to be developed will include procedures for proper management of fertilizers, grass cuttings, and leaf litter on permittee-owned property.

Establish procedures to properly manage grass cuttings and leaf litter on permittee property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMP 38: Written O&M procedures to be developed will include procedures for proper management of fertilizers, grass cuttings, and leaf litter on permittee-owned property.

Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are: BMP 34: Street Sweeping of All Municipally-Owned Streets and Parking Lots

Nitrogen Reduction Tracking BMP

Any structural BMPs listed in Table 3 of Attachment 1 to Appendix H already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the nitrogen removal by the BMP consistent with Attachment 1 to Appendix H.

The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated nitrogen removed in mass per year by the BMP is found in the following document or website and is updated yearly at a minimum:

The annual report contains a table tracking existing structural BMPs installed in the Town from the Table 3 list in Attachment 1 of Appendix H, the total area treated by the design storage volume, and the estimated nitrogen removed per year.

Requirements Due by Year 2

Stormwater Management in New Development and Redevelopment

The requirement for adoption/amendment of the permittee's ordinance or other regulatory mechanism shall include a requirement that new development and redevelopment stormwater management BMPs be optimized for nitrogen removal

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMP 24 - The Town's existing Stormwater Management Bylaw will be modified to contain new provisions related to optimization of stormwater management BMPs for nitrogen removal. (Note - this requirement has been postponed until Year 3 owing to MS4 Permit changes to better align MassDEP Stormwater Standards and MS4 requirements.)

Requirements Due by Year 4

Complete a Nitrogen Source Identification Report

The document name (if attached) and/or web address is/are:

BMP 21 - Appendix F, part B.1 of the 2016 MA Small MS4 General Permit requires the development and submission of a Nitrogen Source Identification Report as part of the year 4 annual report, and the evaluation of all properties identified as presenting retrofit opportunities or areas for structural BMP installation as part of MCM 5 or identified in the Nitrogen Source Identification Report in the year 5 annual report.

Stormwater Management in New Development and Redevelopment

Retrofit inventory and priority ranking under 2.3.6.1.b. shall include consideration of BMPs to reduce nitrogen discharges

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 27 & 28: The report containing a detailed inventory of MS4-owned properties and a running list of at least 5 sites that have potential for retrofits that will be developed will include options for nitrogen-reduction BMPs

Requirements Due by Year 5

Potential Structural BMPs

Evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under Permit part 2.3.6.d.ii or identified in the Nitrogen Source Identification Report that are within the drainage area of the impaired water or its tributaries

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 27 & 28: The report containing a detailed inventory of MS4-owned properties and a running list of at least 5 sites that have potential for retrofits that will be developed will include options for nitrogen-reduction BMPs

Complete a listing of planned structural BMPs and a plan and schedule for implementation

The relevant BMP number(s) listed above in the Stormwater Management Program OR the description of implementation actions and document location(s) are:

BMPs 27 & 28: The report containing a detailed inventory of MS4-owned properties and a running list of at least 5 sites that have potential for retrofits that will be developed will include options for nitrogen-reduction BMPs

Appendix A

Notice of Intent and Authorization to Discharge Letter from EPA

Notice of Intent (NOI) for coverage under Small MS4 General Permit Page 1 of 22

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| Part I: | General Conditions | | | | | |
|---|---|---------------------|-------------------------|-----------------------------------|--|-----------------------------|
| Gener | al Information | | | | | |
| Name o | of Municipality or Organization: Town of South | nwick | | and the second | State | e: MA |
| EPA NP | DES Permit Number (if applicable): MAR04102 | 2 | | | | |
| Prima | ry MS4 Program Manager Contact Inf | formati | on | | | |
| Name: | Randal Brown |] Title: | DPW Direc | tor | |] |
| Street A | Address Line 1: 454 College Highway | | | | | - |
| Street A | Address Line 2: | | | | | |
| City: | Southwick | | State: | MA | Zip Code: 01077 | |
| Email: | rbrown@southwickma.net | Phone | Number: (4 | 13) 569-6772 | | |
| Fax Nu | nber: (413) 569-5001 | - | | | | |
| Other | Information | | | | | |
| Eligib i Endang Nationa | ility Determination pered Species Act (ESA) Determination Complete al Historic Preservation Act (NHPA) Determination | te? Yes on Comp | lete? Yes | Eli (ch Eli (ch | gibility Criteria eck all that apply): gibility Criteria eck all that apply): | |
| ☑ C | heck the box if your municipality or organizatio | on was co | vered under | the 2003 MS4 G | eneral Permit | |
| MS4 II Estima (Part II, Web ad If outfall n | Image: system of provide the internet on the in | 6 opy attacł | If 100% of estimated | 2003 requireme date of complet | nts not met, enter a ion (MM/DD/YY): | n |
| or paper c NOI subm | opy of the outfall map must be included with signal section V for submission options) | | | | | |
| Regula | atory Authorities (if covered under the 2003 per | mit) | | | | |
| Illicit D (Part II, I | ischarge Detection and Elimination (IDDE) A III, IV or V, Subpart B.3.(b.) of 2003 permit) | uthority | Adopted? | Yes Eff Da | ective Date or Estim te of Adoption (MM | aated //DD/YY): 03/15/08 |
| Constr (Part II,I | uction/Erosion and Sediment Control (ESC) A II,IV or V, Subpart B.4.(a.) of 2003 permit) | luthority | Adopted? | Yes Eff Da | ective Date or Estim te of Adoption (MM | ated //DD/YY): 03/16/09 |
| Post- C (Part II, I | onstruction Stormwater Management Adop III, IV or V, Subpart B.5.(a.) of 2003 permit) | ted? | | Yes Eff Da | ective Date or Estim te of Adoption (MM | ated //DD/YY): 03/16/09 |

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbody segments to which your MS4 discharges. For each waterbody segment, please report the number of outfalls discharging into it and, if applicable, any impairments.

Massachusetts list of impaired waters: Massachusetts 2014 List of Impaired Waters- http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf

Check off relevant pollutants for discharges to impaired waterbodies (see above 303(d) lists) without an approved TMDL in accordance with part 2.2.2.a of the permit. List any other pollutants in the last column, if applicable.

| Other pollutant(s) causing impairments | TMDL not required (non-pollutant): Eurasian Water Milfoll (Myriophyllum spicatum | TMDL not required (non-pollutant): Eurasian Water Milfoil (Myriophyllum spicatum | Category 4c water - impairment not caused by a pollutant, TMDL not required: Eurasian Water Milfoil (Myriophyllum spicatum)* | Category 4c water - impairment not caused by a pollutant, TMDL not required: Eurasian Water Milfoil (Myriophyllum spicatum)* | Category 2 water - attaining some uses, other uses not assessed | Category 2 water - attaining some uses, other uses not assessed | | | | | | | | | | |
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| ו ערטומוזץ E. coli | | | | | | | | | | | | | | | | |
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| snıoydsoya | | | | | | | | | | | | | | | | |
| Oil & Grease/ PAH | | | | | | | | | | | | | | | | |
| Nitrogen | | | | | Ц | | | | | Ш | | Ц. | Ц | Ц | Ш | |
| Dissolved Oxygen/ DO Saturation | \boxtimes | | | | | | | | | | | | | | | |
| Сһіогорһуіі-а | | | | | | | | | | | | | | | | |
| Chloride | | | | | | | | | | | | | | | | |
| Number of outfalls into receiving water segment | Э | 5 | 1 | L | 4 | 4 | 1 | 1 | 39 | | | | | | | |
| Waterbody segment that receives flow from the MS4 | Congamond Lakes, North Basin (MA32022) | Congamond Lakes, Middle Basin (MA32021 | Congamond Lakes, South Basin (MA32023) | Wetland/Tributary to Congamond Lakes, South Basin | Great Brook (MA32-25) | Wetland/Tributary to Great Brook | Kellogg Brook | Wetland/Tributary to Kellogg Brook | Outside Receiving Water Body | | | | | | | |

Click to lengthen table

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMs). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and an applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of part III.

employed (public education and outreach BMPs also requires a target audience). Use the drop-down menus in each table or enter your own text to override the drop down For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be menu.

+ 0 7 MCM 1. Dublic Edu

| Beginning Year of BMP Imple- mentation | 2019 | 2019 |
|--|--|--|
| Measurable Goal | Distribute a Distribute a minimum of four (4) annual timed educational messages. | Distribute a minimum of four (4) annual timed educational messages. |
| Responsible Department/Parties (enter your own text to override the drop down menu) | DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC | DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC |
| Targeted Audience | Residents | Businesses, Institutions and Commercial Facilities |
| BMP Description | Education of and outreach to residents on stormwater management topics of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.i. | Education of and outreach to businesses, institutions, and commercial facilities on stormwater management topics of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.ii. |
| BMP Media/Category (enter your own text to override the drop down menu) | 1 - Multi-media Methods | 2 - Multi-media Methods |

| Town of Southwick | | | | | age 5 of 22 |
|-------------------------|---|---------------------------|---|---|-------------|
| 3 - Multi-media Methods | Education of and outreach to developers (construction) on stormwater management of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.iii. | Developers (construction) | DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC | Distribute a minimum of two (2) educational messages spaced at least a year apart. This item covers the first message intended for developers. | FY20 |
| 4 - Multi-media Methods | Education of and outreach to industrial facilities on stormwater management of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.iv. | Industrial Facilities | DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC | Distribute a Distribute a minimum of two (2) educational messages spaced at least a year apart. This item covers the first message intended for industrial facilities. | 2019 |
| 5 - Multi-media Methods | Education of and outreach to residents on stormwater management topics of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.ili. | Developers (construction) | DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC | Distribute a minimum of two (2) educational messages spaced at least a year apart. This item covers the second message intended for developers. | FY22 |

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| FY21 | | | | | | | |
|--|--|--|--|--|--|--|--|
| Distribute a minimum of two (2) educational messages spaced at least a year apart. This item covers the second message intended for industrial facilities. | | | | | | | |
| DPW, Select Board, ConCom, Lake Management, CRSWC, PVPC | | | | | | | |
| Industrial Facilities | | | | | | | |
| Education of and outreach to industrial facilities on stormwater management of significance in Southwick, including impaired waterbodies. Educational topics will include but are not limited to those in Part 2.3.2.d.iv. | | | | | | | |
| - Multi-media Methods | | | | | | | |

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 2: Public Involvement and Participation

| 3MP Categorization | Brief BMP Description (enter your own text to override the drop down menu) | Responsible Department/Parties (enter your own text to override the drop down menu) | Additional Description/ Measurable Goal | Beginning Year of BMP Imple- |
|--------------------------|--|--|--|---------------------------------------|
| 7 - Public Review | SWMP Review | DPW | Annually provide the public with an opportunity to participate in the review and implementation of the SWMP. | 2019 |
| 8 - Public Participation | Provide opportunities for public involvement and participation | All Town Departments, Boards, and Committees | Provide opportunity for public to comment on stormwater management plan annually. | 2019 |
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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

| Beginning Year of BMP Imple- mentation | 2019 | 2019 | 2019 | FY21 | 2019 | 2019 | 2019 |
|--|---|--|---|---|--|--|--|
| Measurable Goal (all text can be overwritten) | Completed. | Complete within 1 year of effective date of permit. Track number of SSO's identified and remove immediately. | Complete within 2 years of the effective date of permit and update as required. | Complete within 10 years of the effective date of permit and update as required. | Complete within 1 year of the effective date of permit and update as required. | Complete initial priority ranking within 1 year of the effective date of permit and update as required. | Develop sampling and screening procedures within 1 year of the effective date of permit. All dry weather sampling shall be completed by Year 3. |
| Responsible Department/Parties (enter your own text to override the drop down menu) | DPW, Planning Board, Building Department, Board of Health | DPW | DPW | DPW | DPW | MdQ | DPW |
| BMP Description | Bylaw completed. Continue enforcement. | Develop SSO inventory in accordance of permit conditions. Develop plan to eliminate all SSO's. | Update system map with outfalls, receiving waters, open channel pipes, interconnections, and initial catchment delineations. | Update system map with pipes, manholes, catch basins, refined catchment delineations, and interconnections. | Create written IDDE program | Assess and priority rank all outfalls in terms of their potential to have illicit discharges and SSO's and the related public health significance. | Conduct in accordance with outfall screening procedure |
| BMP Categorization (enter your own text to override the drop down menu) | 9 - IDDE Ordinance/Bylaw | 10 - SSO inventory | 11 - Storm sewer system map, Phase I | 12 - Storm sewer system map, Phase II | 13 - Written IDDE program | 14 - Assessment and Priority Ranking of Outfalls & Interconnections | 15 - Dry weather screening |

| 16 - Update rankings of outfalls and interconnections | Update priority rankings per results of dry weather sampling. | DPW | Complete within 3 years of the effective date of permit and update as required. | FY21 |
|---|--|-----|---|------|
| 17 - Written catchment investigation procedure | Develop a written catchment investigation procedure that 1)utilizes maps/record plans, 2) includes a manhole inspection methodology, and 3) established procedures to isolate and confirm sources of illicit. | DPW | Develop plan within 18 months of the permit effective date. | FY20 |
| 18 - Catchment areas investigations | Investigate catchment areas in accordance with Part 2.3.4.8. | DPW | Investigations of catchments associated with Problem Outfalls shall begin no later than two years from the permit effective date. Investigations of catchments associated with Problem Outfalls shall be completed with seven years of the permit effective date. Investigations of catchments where any information gathered on the outfall/ interconnection identifies sever input shall be completed within seven years of the permit effective date. Investigations of catchments associated with all Problem, High- and Low- Priority Outfalls shall be completed within ten years of the permit effective date. | FY20 |
| 19 - Ongoing screening | Reprioritize screening for each outfall and interconnection based on results of dry and wet weather sampling. | DPW | Conduct ongoing screening once every five years. | FY21 |

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|--|---|---------------------|--|-----------|
| 20 - Annual employee training | Provide annual training to employees involved in IDDE program about the program, including how to recognize illicit discharges and SSOs. | DPW | Conduct training annually. | 2019 |
| 21 - Nitrogen Source Identification Report | Develop a Nitrogen Source Identification Report to identify sources of high nitrogen discharges and identify potential retrofit opportunities | DPW, Planning Board | Develop plan within 4 months of the permit effective date. | FY21 |
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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 4: Construction Site Stormwater Runoff Control

| asurable Goal t can be overwritten) t can be mentatio | eted. Update as 2019 ary. | lete within 1 year ctive date of 2019 | | | | |
|---|--|--|--|--|--|--|
| arties Mea | Comple | Comple of effect permit. | | | | |
| Responsible Department/Pa (enter your own text to override the drop o | DPW, Planning Board, Conservation Commission | DPW, Planning Board, Conservation Commission | | | | |
| BMP Description | Develop a bylaw addressing sediment and erosion controls from construction sites. | Develop a written plan to address roles/ responsibilities for site plan review, inspection, and enforcement. | | | | |
| BMP Categorization (enter your own text to override the drop down menu or entered text) | 22 - Construction site runoff control program | 23 - Written plan for site plan review and inspection | | | | |

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

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

| BMP Categorization enter your own text to override the drop down menu or entered text) | BMP Description | Responsible Department/Parties (enter your own text to override the drop down menu) | Measurable Goal (all text can be overwritten) | Beginning Year of BMP Imple- mentation |
|--|---|---|--|--|
| Program to address post-construction stormwater noff from all new development and re-development tes | Develop a bylaw to meet the criteria identified in Part 2.3.6.a and Nitrogen TMDL requirements in Appendix F, Part I.1.a.i.2. | DPW, Planning Board | Complete within 2 years of effective date of permit. | 2019 |
| - Street design and parking lot guidelines | Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options | DPW, Planning Board, ConCom | Complete within 4 years of effective date of permit. | FY21 |
| 5 - Green infrastructure | Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist | DPW, Planning Board, ConCom | Complete within 4 years of effective date of permit. | FY21 |

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

MCM 6: Municipal Good Housekeeping and Pollution Prevention

| BMP Categorization St your own text to override the drop down menu or entered text) | BMP Description | Responsible Department/Parties (enter your own text to override the drop down menu) | Measurable Goal (all text can be overwritten) | Beginning Year of BMP Imple- mentation |
|--|---|--|---|--|
| I procedures for municipal activities | Create written O&M procedures including all requirements contained in 2.3.7.a.ii for parks and open spaces, buildings and facilities, and vehicles and equipment | DPW, Buildings & Grounds, Park and Rec, School Dept, Cemetery | Complete and implement 2 years after effective date of permit | FY20 |
| ntory all permittee-owned parks and open ouildings and facilities, vehicles/equipment, and acilities | Create inventory | DPW, Buildings & Grounds, Park and Rec, School Dept., Cemetery | Complete 2 years after effective date of permit and update annually | FY20 |
| istructure O&M Plan | Establish and implement program for repair and rehabilitation of MS4 infrastructure (storm water structure replacement, catch basin inspection/cleaning, street sweeping program, winter road maintenance, etc.) | DPW | Complete 2 years after effective date of permit | FY20 |
| mwater Pollution Prevention Plan (SWPPP) | Create SWPPPs for maintenance garages, transfer stations, and other waste-handling facilities | DPW, Buildings & Grounds, Fire Department | Complete and implement 2 years after effective date of permit | FY20 |
| ch basin cleaning program | Establish annual schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule | DPW | Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually | 2019 |

| 34 - Street sweeping program Sweep all streets and permitee-owned parking permitee-owned parking permitee-owned parking permit conditions bew 35 - Road salt use optimization program Establish and implement a program to minimize the use of noad salt reatment structures Establish and implement implement program matterhance of stormwater Pw 36 - Inspections and maintenance of stormwater a program matterhance of stormwater Pw 37 - Employee training Pw Pw 38 - Fertilizer use and management of organic yard waste Power and power acting power training Pw 38 - Fertilizer use and management of organic yard waste Power acting power acting properties. Pw 39 - Fertilizer use and management of organic yard waste Pw Pw 100 Pw Pw < | | SW | uppen all streets and | |
|--|---|-------------------|---|------|
| 35 - Road salt use optimization program Establish and implement Establish and implement 36 - Inspections and maintenance of stormwater Establish and implement Inspection and 37 - Employee training Train Town employees Inspection and 37 - Employee training Inspection and Inspection and 38 - Fertilizer use and management of organic yard waste Interance procedures Inspection and 38 - Employee training Instructures Instructures Instructures 39 - Employee training Instructures Instructures Instructures 38 - Fertilizer use and management of organic yard waste Instructure Instructures 38 - Fertilizer use and management of organic yard waste Instructures Instructures 38 - Fertilizer use and management of organic yard waste Instructures Instructures 39 - Employee training Instructures Instructures Instructures 39 - Employee training Instructures Instructures Instructures 39 - Entilizer use and management of organic yard waste Instructures Instructures 10 - Instructures Instructures Instructures Instructures 10 - Instructures Instructures Instructures Instructures 10 - Instructures Instructures Instructures< | reets and wned parking dance with litions | Per agenting | rring lots twice per rking lots twice per ar in the spring. ads with no curbing by be swept once r year. | 2019 |
| 36 - Inspections and maintenance of stornwater Establish and implement 37 - Employee training Entenance proceduress 39 - Employee training Train Town employees 39 - Employee training Train Town employees 39 - Employee training Pow. Con. Planning Board, Building Department, siyrolw the stornwater 98 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 98 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 98 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 98 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 99 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 91 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 91 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 91 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the stornwater 91 - Fertilizer use and management of organic yard waste Dew. Con. Con., Planning Board, Building Department, siyrolw the | d implement o minimize bad salt | de b | plement salt use timization during icing season | 2019 |
| 37 - Employee training Train Town employees work activities involve the stormwater involve the stormwater involve the stormwater involve the stormwater systement. DPW, ConCom, Planning Board, Building Department, systement of organic yard waste 38 - Fertilizer use and management of organic yard waste Develop requirements for managing fertilizer use and grass cuttings on Town-owned DPW, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, Buildings & Grounds PPM, Buildings & Grounds 100 Town-owned PPM, PPM, PPM, PPM, PPM, PPM, PPM, PPM, | d implement nd e procedures cies | Ins tre lea | spect and maintain eatment structures at ast annually | 2019 |
| Be - Fertilizer use and management of organic yard waste Develop requirements Ba - Fertilizer use and management of organic yard waste Develop requirements Imagination Develop requ | employees DPW, ConCom, Planning Board, Building Department stormwater | Pro | ovide annual iining of employees | 2019 |
| | luirements g fertilizer ss cuttings vned | be att | implete and plement 2 years er effective date of rmit | FY20 |
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Town of Southwick

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, enter your own text to override drop-down menus.

| Applicable TMDL | Action Description | Responsible Department/Parties (enter your own text to override the drop down menu) |
|-----------------------------------|--|--|
| Long Island Sound TMDL (Nitrogen) | Adhere to requirements in part B.I of Appendix F | DPW |
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Town of Southwick

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, enter your own text to override drop-down menus.

| Pollutant | Waterbody ID(s) | Action Description | Responsible Department/Parties (enter your own text to override the drop down menu) |
|-----------|-----------------|--------------------|--|
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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.1 and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary. Also, provide any additional information about your MS4 program below.

ESA Eligibility Certification - as described in the attached ESA Eligibility Determination Memorandum, and, per the official species list from the USFWS New England Ecological Services Field Office, Small Whorled Pogonia and Northern Long-eared Bat may exist in the Town of Southwick. Based on an assessment of the discharge and discharge related activities, the discharge and discharge related activities will have "no affect" on listed species or critical habitat. if, during the course of the permit term, the Town plans to install a structural BMP not identified in the NOI, the Town will conduct an endangered species screening for the proposed site and will contact the USFWS if it is determined that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS."

Notice of Intent (NOI) for coverage under Small MS4 General Permit (continued)

Part V: Certification

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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 gather and evaluate 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, I certify that 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: | |
|------------|-----------------------------|
| | Chairman, Select Board |
| | |
| Signatura | Russell J. I-X |
| Signature. | Vice Chairman, Select Board |

5-28-19 Dated:

Signature:

Clerk, Select Board



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 1 5 POST OFFICE SQUARE, SUITE 100 BOSTON, MA 02109-3912

VIA EMAIL

July 30, 2019

Joseph J. Deedy Chairman, Select Board

And;

Randal Brown DPW Director 454 College Highway Southwick, MA. 01077 rbrown@southwickma.net

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041022, Town of Southwick

Dear Randal Brown:

The 2016 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 General Permit) is a jointly issued EPA-MassDEP permit. Your Notice of Intent (NOI) for coverage under this MS4 General Permit has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA and MassDEP to discharge stormwater from your MS4 in accordance with the applicable terms and conditions of the MS4 General Permit, including all relevant and applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2022.**

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA's concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.

Information about the permit and available resources can be found on our website: <u>https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit</u>. Should you have

any questions regarding this permit please contact Newton Tedder at <u>tedder.newton@epa.gov</u> or (617) 918-1038.

Sincerely,

Therma Murphy

Thelma Murphy, Chief Water Permits Branch Water Division United States Environmental Protection Agency, Region 1

and;

A

Lealdon Langley, Director Wetlands and Wastewater Program Bureau of Water Resources Massachusetts Department of Environmental Protection

Summary of 2003 and 2016 MS4 General Permit BMPs

Appendix B Summary of 2003 and 2016 Small MS4 General Permit BMPs

BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications; 2003 BMPs listed below are current as of the 2018 Annual Report. The intent of the 2003 BMPs are being met under the following 2016 General Permit BMPs per the NOI:

MCM 1: Public Education and Outreach

- 1A Classroom Education now under BMP 1
- 1B Westfield Evening News now under BMPs 1-6
- 1C Newspaper Press Releases now under BMPs 1-6
- 1D Local Cable Access now under BMPs 1-6
- 1E Lakeside Kiosks now under BMP 1
- 1F Community Website now under BMPs 1-6
- 1G CT River Stormwater Committee now under BMPs 1-6

MCM 2: Public Involvement and Participation

- 2A Wetland Clean-Up now under BMP 8
- 2B Student Water Quality Monitoring now under BMP 8
- 2C Annual Lake Clean-Up now under BMP 8
- 2D –Lakeside Maintenance now under BMP 8
- 2E Volunteer Water Quality Monitoring now under BMPs 8, 21
- 2F Weir Gate Replacement now under BMP 8
- 2G Town-wide Clean-Up now under BMP 8
- 2H Plantings for Erosion Control now under BMPs 8, 36
- 21 Household Hazardous Waste Day now under BMP 8
- 2J Storm Drain Labeling now under BMP 8

MCM 3: Illicit Discharge Detection and Elimination

- 3A Mapping Stormwater Outfalls now under BMPs 10, 11, 12
- 3B Develop Illicit Discharge Program now under BMP 13
- 3C Non-Stormwater By-Law now under BMP 9
- 3D Illegal Dumping now under BMPs 9
- 3E Water Quality Monitoring now under BMPs 15, 18, 19
- 3F Outfall Monitoring now under BMPs 15, 18, 19
- 3G Sediment Analysis now under BMP 21

MCM 4: Construction Site Stormwater Runoff Control

- 4A Construction Run-Off By-Law now under BMPs 22, 23
- 4B Plan Review now under BMP 23
- 4C Inspection / Reporting now under BMP 23

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

- 5A Post Construction Runoff By-Law now under BMP 24
- 5B Construction Site Plan Review now under BMP 24
- 5C Stormwater System Maintenance Plan now under BMP 36

MCM 6: Pollution Prevention and Good Housekeeping in Municipal Operations

- 6A Municipal Maintenance Activity Program now under BMPs 29, 31, 33, 34, 35, 36
- 6B Training of Municipal Employees now under BMP 20, 37
- 6C Catch Basin Cleaning Program now under BMP 33

- 6D Street Sweeping & Cleaning now under BMP 34 6E Used Oil Recycling now under BMP 8 6F Exotic Aquatics Bylaw now under BMP 8

- 6G Stormwater Management now under BMP 31, 32, 36 6H Waterfowl Bylaw now under BMP 8, 21
- 6I Nutrient Reduction now under BMP 21
- 6J Waste Oil and Antifreeze now under BMP 8
- 6K Recycling now under BMP 8
- 6L Stormwater BMPs now under BMP 31, 32, 36

Appendix C

Endangered Species Act Eligibility Certification Documentation

Endangered Species Act Eligibility Certification

| то: | Town of Southwick Stormwater Management Program Files | | | | | | |
|-------|---|--|--|--|--|--|--|
| FROM: | Tighe & Bond | | | | | | |
| Сору: | Randal Brown, P.E., DPW Director; Dick Grannells, Special Assistant to the Director | | | | | | |
| DATE: | August 23, 2018 | | | | | | |

Part 1.9.1 and Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018¹, requires communities covered by the Permit to certify eligibility regarding federal Endangered and Threatened Species and Critical Habitat Protection on the Notice of Intent (NOI) due to EPA and MassDEP by October 1, 2018, and to maintain documentation in the Stormwater Management Program records.

Tighe & Bond has completed the Endangered Species Eligibility Determination screening process, and determined that the **Town of Southwick** meets **Criterion C**, where informal consultation with U.S. Fish and Wildlife Service (USFWS) resulted in a finding that the stormwater discharges and discharge related activities will have "no affect" on listed species or critical habitat.

Tighe & Bond followed the Endangered Species Eligibility screening process described by Appendix C of the 2016 Small MS4 General Permit as follows:

Step 1: Determine if you can meet USFWS Criterion A

"USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC."

Tighe & Bond went to the IPaC website² and received an Official Species List for the urbanized area of the Town of Southwick from the New England Ecological Services Field Office of the USFWS, included in Attachment B to this memorandum.

The Official Species List documents that there are no critical habitats in Southwick, and lists the following species that may occur or could potentially be affected by activities in the urbanized area of the Town:

- Small Whorled Pogonia, and
- Northern Long-eared Bat.

Because the IPaC Official Species List indicates that the Small Whorled Pogonia and Northern Long-eared Bat may be present, **Criterion A cannot be met**.

¹ Revised General Permit effective date according to June 29, 2017 EPA memorandum from the EPA Region 1 Acting Regional Administrator.

² <u>http://ecos.fws.gov/ipac/</u>

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

"USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer "Yes" to **all** of the following questions:

 Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?"

Yes, the IPaC Official Species list identifies the potential presence of the **Small whorled Pogonia** in the Town of Southwick's action area.

2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities "may affect" or are "not likely to adversely affect" listed species or critical habitat?

No, the assessment of the discharge and discharge related activities as described below indicates that the discharge or discharge related activities would have "**no affect**" on listed species or critical habitat rather than "may affect" or "not likely to adversely affect", and therefore **Criterion B cannot be met**.

Per the USFWS endangered species consultation guidance, Tighe & Bond went to went to the New England Ecological Services Field Office of the USFWS website for Endangered Species Reviews/Consultations³ and selected the Massachusetts state list⁴ to review which Towns have federally-listed species. A copy of the list of Federally Listed Endangered and Threatened Species in Massachusetts is included in Attachment C to this memorandum. Based on review of this list, in Hampden County the Small Whorled Pogonia is listed in the Town of Southwick and the Northern Long-eared Bat is listed statewide.

As required by the USFWS endangered species consultation guidance, Tighe & Bond then visited the Massachusetts Natural Heritage and Endangered Species Program (NHESP) species information and conservation website for information regarding the Small Whorled Pogonia⁵ and the Northern Long-eared Bat⁶. Attachment D includes three maps showing there are no Northern Long-eared bat roost trees or hibernating locations within or adjacent to Southwick.

Per the NHESP Fact Sheet on the Small whorled Pogonia (*Isotria medeoloides*), the Small whorled pogonia is an orchid that requires a very specific habitat: "In Massachusetts, this plant is found on slightly sloping, previously logged forest land made up of extremely acidic and granitic soils [...] composed of seasonally moist areas above a fragipan."

The Official Species List generated by the New England Ecological Services Field Office of the USFWS for the Urbanized Area of the Town of Southwick documented that there are no critical habitats present. The Town of Southwick has been a regulated community since the implementation of the 2003 Massachusetts Small MS4 General Permit Massachusetts with existing stormwater infrastructure, a limited urbanized area relative to the overall area of the Town, and is not planning on installing structural BMPs not identified in the NOI.

³ <u>https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm</u>

⁴ <u>https://www.fws.gov/newengland/pdfs/MA%20species%20by%20town.pdf</u>

⁵ <u>http://www.mass.gov/eea/docs/dfg/nhesp/species-and-conservation/nhfacts/isotria-medeoloide.pdf</u>

⁶ <u>http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-</u> <u>conservation/rare-mammals/northern-long-eared-bat.html</u>

Based on the results of the NHESP website review and an evaluation of the potential effect of the stormwater discharge and discharge related activities, Tighe & Bond determined there is no potential habitat for the Northern Long-eared Bat within the action area and that the stormwater discharges and will have "no affect" on the Small whorled Pogonia and therefore no further coordination is required with the USFWS. Attachment E provides the results of Tighe & Bond's informal consultation on behalf of the Town of Southwick with USFWS "no species present" letter that states "no species are known to occur in the project area".

Step 3 – Determine if You Can Meet Eligibility USFWS Criteria C

"You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer "Yes" to both of the following questions:

1) Does your action area contain one or more of the following species: Northern Longeared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and does not contain any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

Yes, per the IPaC Official Species List, the Town of Southwick's action area contains the Small whorled Pogonia, and does not contain any of the other subsequent species.

2) Did the assessment of your discharge and discharge related activities and indicate that there would be "no affect" on listed species or critical habitat and EPA provided concurrence with your determination?

Yes, Tighe & Bond performed an informal consultation with USFWS and determined that the Town's discharges and discharge related activities will have "no affect" on listed species or critical habitat (see discussion above).

3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS.

Yes, during the course of the permit term the City of Weymouth agrees to conduct an endangered species screening for the proposed site and contact USFWS if they plan to install a structural BMP not identified in the NOI.

Tighe & Bond's review of all questions under Step 3 resulted in "Yes" and thereby we determined the Town of Southwick's action area meets the endangered species' eligibility requirements included in **Criterion C**.

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Attachment A

Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

APPENDIX C ENDANGERED SPECIES GUIDANCE

A. Background

In order to meet its obligations under the Clean Water Act and the Endangered Species Act (ESA), and to promote the goals of those Acts, the Environmental Protection Agency (EPA) is seeking to ensure the activities regulated by this general permit do not adversely affect endangered and threatened species or critical habitat. Applicants applying for permit coverage must assess the impacts of their stormwater discharges and discharge-related activities on federally listed endangered and threatened species ("listed species") and designated critical habitat ("critical habitat") to ensure that those goals are met. Prior to obtaining general permit coverage, applicants must meet the ESA eligibility provisions of this permit by following the steps in this Appendix¹.

Applicants also have an independent ESA obligation to ensure that their activities do not result in any prohibited "take" of listed species¹². The term "Take" is used in the ESA to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Many of the measures required in this general permit and in these instructions to protect species may also assist in ensuring that the applicant's activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the applicant has plans or activities in an area where endangered and threatened species are located, they may wish to ensure that they are protected from potential take liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Applicants that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS) office or the National Marine Fisheries Service (NMFS), (jointly the Services).

Currently, there are 20 species of concern for applicants applying for permit coverage, namely the Dwarf wedgemussel (*Alasmidonta heterodon*), Northeastern bulrush (*Scirpus ancistrochaetus*), Sandplain gerardia (*Agalinis acuta*), Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougallii*), Northern Red-bellied cooter (*Pseudemys rubriventis*), Bog Turtle (*Glyptemys muhlenbergii*), Small whorled Pogonia (*Isotria medeoloides*), Puritan tiger beetle (*Cicindela puritana*), American burying beetle (*Nicrophorus americanus*), Northeastern beach tiger beetle (*Cicindela dorsalis*), Northern Long-eared Bat (*Myotis septentriolis*)Atlantic Sturgeon (*Acipenser oxyrinchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), North Atlantic Right Whale (*Eubalaena glacialis*) Humpback Whale (*Megaptera novaengliae*), Fin Whale (*Balaenoptera physalus*), Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Loggerhead Sea Turtle (*Chelonia*)

¹ EPA strongly encourages applicants to begin this process at the earliest possible stage to ensure the notification requirements for general permit coverage are complete upon Notice of Intent (NOI) submission.

² Section 9 of the ESA prohibits any person from "taking" a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an "incidental take statement" as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan; or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.

mydas). The Atlantic Sturgeon, Shortnose Sturgeon, North Atlantic Right Whale, Humpback Whale, Fin Whale, Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle and Green Turtle are listed under the jurisdiction of NMFS. The Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle are listed under the jurisdiction of the U.S. Fish and Wildlife Service.

Any applicant seeking coverage under this general permit, must consult with the Services where appropriate. When listed species are present, permit coverage is only available if EPA determines, or the applicant determines and EPA concurs, that the discharge or discharge related activities will have "no affect" on the listed species or critical habitat, or the applicant or EPA determines that the discharge or discharge related activities are "not likely to adversely affect" listed species or critical habitat and formal or informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is "not likely to adversely affect" an endangered or threatened species or critical habitat.

EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the U.S. Fish and Wildlife Service. EPA has not designated operators as non-Federal representatives for the purpose of conducting formal consultation with the National Marine Fisheries Service. EPA has determined that discharges from MS4s are not likely to adversely affect listed species or critical habitat under the jurisdiction of the National Marine Fisheries Service. EPA has initiated informal consultation with the National Marine Fisheries Service on behalf of all permittees and no further action is required by permittees in order to fulfill ESA requirements of this permit related to species under the jurisdiction of NMFS

B. The U.S. Fish and Wildlife Service ESA Eligibility Process

Before submitting a notice of intent (NOI) for coverage by this permit, applicants must determine whether they meet the ESA eligibility criteria by following the steps in Section B of this Appendix. Applicants that cannot meet the eligibility criteria in Section B must apply for an individual permit.

The USFWS ESA eligibility requirements of this permit relating to the Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle may be satisfied by documenting that one of the following criteria has been met:

| USFWS Criterion A: | No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities. |
|--------------------|---|
| USFWS Criterion B: | In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and |

discharge related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation).

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 affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

1. The Steps to Determine if the USFWS ESA Eligibility Criteria Can Be Met

To determine eligibility, you must assess the potential effects of your known stormwater discharges and discharge related activities on listed species or critical habitat, PRIOR to completing and submitting a Notice of Intent (NOI). You must follow the steps outlined below and document the results of your eligibility determination.

Step 1 – Determine if you can meet USFWS Criterion A

USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC.

If you have met USFWS Criterion A skip to Step # 4.

If you have not met USFWS Criterion A, go to Step # 2.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer "Yes" to **all** of the following questions:

- Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle? AND
- 2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities "may affect" or are "not likely to adversely affect" listed species or critical habitat? AND
- 3) Did you contact the USFWS and did the formal or informal consultation result in either a "no jeopardy" opinion by the USFWS (for formal consultation) or concurrence by the

USFWS that your activities would be "not likely to adversely affect" listed species or critical habitat (for informal consultation)? AND

- 4) Do you agree to implement all measures upon which the consultation was conditioned?
- 5) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will re-initiate informal or formal consultation with USFWS as necessary?

Use the guidance below Step 3 to understand effects determination and to answer these questions.

If you answered "Yes" to all four questions above, you have met eligibility USFWS Criteria B. Skip to Step 4.

If you answered "No" to any of the four questions above, go to Step 3.

Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C

USFWS Criterion C: You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer "Yes" to both of the following question:

- Does your action area contain one or more of the following species: Northern Longeared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and **does not** contain one any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?³ OR
- 2) Did the assessment of your discharge and discharge related activities and indicate that there would be "no affect" on listed species or critical habitat and EPA provided concurrence with your determination?
- 3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS.

Use the guidance below to understand effects determination and to answer these questions.

If you answered "Yes" to both the question above, you have met eligibility USFWS Criterion C. Go to Step 4.

If you answered "No" to either of the questions above, you are not eligible for coverage by this permit. You must submit an application for an individual permit for your stormwater discharges. (See 40 CFR 122.21).

USFWS Effects Determination Guidance:

If you are unable to certify eligibility under USFWS Criterion A, you must assess whether your stormwater discharges and discharge-related activities "may affect", will have "no affect" or are "not likely to adversely affect" listed species or critical habitat. "Discharge-related activities" include: activities which cause, contribute to, or result in point source stormwater pollutant discharges; and measures to provide treatment for stormwater discharges including the siting, construction and operational procedures to control, reduce or prevent water pollution. Please be aware that no protection from incidental take liability is provided under this criterion.

The scope of effects to consider will vary with each system. If you are having difficulty in determining whether your system is likely to cause adverse effects to a listed species or critical habitat, you should contact the USFWS for assistance. In order to complete the determination of effects it may be necessary to follow the formal or informal consultation procedures in section 7 of the ESA.

Upon completion of your assessment, document the results of your effects determination. If your results indicate that stormwater discharges or discharge related activities will have "no affect" on threatened or endangered species or critical habitat and EPA concurs with your determination, you are eligible under USFWS Criterion C of this Appendix. Your determination may be based on measures that you implement to avoid, eliminate, or minimized adverse effects.

If the determination is "May affect" or "not likely to adversely affect" you must contact the USFWS to discuss your findings and measures you could implement to avoid, eliminate, or minimize adverse effects. If you and the USFWS reach agreement on measures to avoid adverse effects, you are eligible under USFWS Criterion B. Any terms and/or conditions to protect listed species and critical habitat that you relied on in order to complete an adverse effects determination, must be incorporated into your Storm Water Management Program (required by this permit) and implemented in order to maintain permit eligibility.

If endangered species issues cannot be resolved: If you cannot reach agreement with the USFWS on measures to avoid or eliminate adverse effects then you are not eligible for coverage under this permit. You must seek coverage under an individual permit.

Effects from stormwater discharges and discharge-related activities which could pose an adverse effect include:

- *Hydrological:* Stormwater discharges may cause siltation, sedimentation, or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- *Habitat:* Excavation, site development, grading and other surface disturbance activities, including the installation or placement of treatment equipment may adversely affect listed species or their habitat. Stormwater from the small MS4 may inundate a listed species habitat.

• *Toxicity:* In some cases, pollutants in the stormwater may have toxic effects on listed species.

Step 4 - Document Results of the Eligibility Determination

Once the USFWS ESA eligibility requirements have been met, you shall include documentation of USFWS ESA eligibility in the Storm Water Management Program required by the permit. Documentation for the various eligibility criteria are as follows:

- USFWS Criterion A: A copy of the IPaC generated preliminary determination letter indicating that no listed species or critical habitat is present within your action area. You shall also include a statement on how you determined that no listed species or critical habitat are in proximity to your stormwater system or discharges.
- USFWS Criterion B: A dated copy of the USFWS letter of concurrence on a finding of "no jeopardy" (for formal consultation) or "not likely to adversely affect" (for informal consultation) regarding the ESA section 7 consultation.
- USFWS Criterion C: A dated copy of the EPA concurrence with the operator's determination that the stormwater discharges and discharge-related activities will have "no affect" on listed species or critical habitat.

C. Submittal of Notice of Intent

Once the ESA eligibility requirements of Part C of this Appendix have been metyoumay submit the Notice of Intent indicating which Criterion you have met to be eligible for permit coverage. Signature and submittal of the NOI constitutes your certification, under penalty of law, of eligibility for permit coverage under 40 CFR 122.21.

D. Duty to Implement Terms and Conditions upon which Eligibility was Determined

You must comply with any terms and conditions imposed under the ESA eligibility requirements to ensure that your stormwater discharges and discharge related activities do not pose adverse effects or jeopardy to listed species and/or critical habitat. You must incorporate such terms and conditions into your Storm Water Management Program as required by this permit. If the ESA eligibility requirements of this permit cannot be met, then you may not receive coverage under this permit and must apply for an individual permit.

E. Services Information

United States Fish and Wildlife Service Office

National websites for Endangered Species Information: Endangered Species home page: <u>http://endangered.fws.gov</u> ESA Section 7 Consultations: <u>http://endangered.fws.gov/consultation/index.html</u> Information, Planning, and Conservation System (IPAC): <u>http://ecos.fws.gov/ipac</u>/

U.S. FWS – Region 5 Supervisor New England Field Office U.S. Fish and Wildlife Services 70 Commercial Street, Suite 300 Concord, NH 03301

Natural Heritage Network

The Natural Heritage Network comprises 75 independent heritage program organizations located in all 50 states, 10 Canadian provinces, and 12 countries and territories located throughout Latin America and the Caribbean. These programs gather, manage, and distribute detailed information about the biological diversity found within their jurisdictions. Developers, businesses, and public agencies use natural heritage information to comply with environmental laws and to improve the environmental sensitivity of economic development projects. Local governments use the information to aid in land use planning.

The Natural Heritage Network is overseen by NatureServe, the Network's parent organization, and is accessible on-line at:

<u>http://www.natureserve.org/nhp/us_programs.htm</u>, which provides websites and other access to a large number of specific biodiversity centers.

U.S. Fish and Wildlife IPaC system instructions

Use the following protocol to determine if any federally listed species or designated critical habitats under USFWS jurisdiction exist in your action area:

Enter your project specific information into the "Initial Project Scoping" feature of the Information, Planning, and Conservation (IPaC) system mapping tool, which can be found at the following location:

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

- a. Indicate the action area¹ for the MS4 by either:
 a. Drawing the boundary on the map or by uploading a shapefile. Select "Continue"
- c. Click on the "SEE RESOURCE LIST" button and on the next screen you can export a trust resources list. This will provided a list of natural resources of concern, which will include an Endangered Species Act Species list. You may also request an official species list under "REGULATORY DOCUMENTS" Save copies and retain for your records

For storm water discharges or discharge related activities, the action area should encompass the following:

¹ The action area is defined by regulation as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

The documentation used by a Federal action agency to initiate consultation should contain a description of the action area as defined in the Services' regulations and explained in the Services' consultation handbook. If the Services determine that the action area as defined by the action agency is incorrect, the Services should discuss their rationale with the agency or applicant, as appropriate. Reaching agreement on the description of the action area is desirable but ultimately the Services can only consult when an action area is defined properly under the regulations.

[•] The immediate vicinity of, or nearby, the point of discharge into receiving waters.

[•] The path or immediate area through which or over which storm water flows from the municipality to the point of discharge into the receiving water. This includes areas in the receiving water downstream from the point of discharge.

[•] Areas that may be impacted by construction or repair activities. This extends as far as effects related to noise (from construction equipment, power tools, etc.) and light (if work is performed at night) may reach.

The action area will vary with the size and location of the outfall pipe, the nature and quantity of the storm water discharges, and the type of receiving waters, among other factors.

Attachment B Southwick Designated MS4 Area IPaC Official Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104 <u>http://www.fws.gov/newengland</u>



In Reply Refer To: Consultation Code: 05E1NE00-2018-SLI-2439 Event Code: 05E1NE00-2018-E-05661 Project Name: Southwick MS4 July 18, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 (603) 223-2541

Project Summary

| Consultation Code: | 05E1NE00-2018-SLI-2439 |
|----------------------|--|
| Event Code: | 05E1NE00-2018-E-05661 |
| Project Name: | Southwick MS4 |
| Project Type: | Regulation Promulgation |
| Project Description: | This project is applying for coverage under the 2016 MS4 General Permit. The project consists of the Town of Southwick's small municipal separate storm sewer systems (MS4) that falls within the urbanized area of the town. Based on EPA's 2016 MS4 General Permit, the Town of Southwick must apply for permit coverage for the Town's MS4 stormwater discharges and assess the impacts of the stormwater discharges and discharge-related activities on endangered and threatened species, and designated critical habitats that fall within the areas that fall within the MS4. |

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/42.08649263300006N72.7576891341468W</u>



Counties: Hartford, CT | Hampden, MA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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

Mammals

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

| NAME | STATUS |
|---|------------|
| Small Whorled Pogonia Isotria medeoloides | Threatened |
| No critical habitat has been designated for this species. | |
| Species profile: https://ecos.fws.gov/ecp/species/1890 | |

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment C

Federally Listed Endangered and Threatened Species in Massachusetts

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

| COUNTY | SPECIES | FEDERAL STATUS | GENERAL LOCATION/HABITAT | TOWNS |
|------------|------------------------------------|----------------------------------|--|--|
| | Piping Plover | Threatened | Coastal Beaches | All Towns |
| Barnstable | Roseate Tern | Endangered | Coastal beaches and the Atlantic Ocean | All Towns |
| | Northeastern beach tiger beetle | Threatened | Coastal Beaches | Chatham |
| | Sandplain gerardia | Endangered | Open areas with sandy soils. | Sandwich and Falmouth. |
| | Northern Red- bellied Cooter | Endangered | Inland Ponds and Rivers | Bourne (north of the Cape Cod Canal) |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Bog Turtle | Threatened | Wetlands | Egremont and Sheffield |
| Berkshire | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| Bristol | Piping Plover | Threatened | Coastal Beaches | Fairhaven, Dartmouth, Westport |
| | Roseate Tern | Endangered | Coastal beaches and the Atlantic Ocean | Fairhaven, New Bedford, Dartmouth, Westport |
| | Northern Red- bellied Cooter | Endangered | Inland Ponds and Rivers | Taunton |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Roseate Tern | Endangered | Coastal beaches and the Atlantic Ocean | All Towns |
| | Piping Plover | Threatened | Coastal Beaches | All Towns |
| | Northeastern beach tiger beetle | Threatened | Coastal Beaches | Aquinnah and Chilmark |
| Dukes | Sandplain gerardia | Endangered | Open areas with sandy soils. | West Tisbury |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

| COUNTY | SPECIES | FEDERAL STATUS | GENERAL LOCATION/HABITAT | TOWNS |
|-----------|-----------------------------|----------------------------------|---|--|
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Gloucester, Essex and Manchester |
| Essex | Piping Plover | Threatened | Coastal Beaches | Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Northeastern bulrush | Endangered | Wetlands | Montague, Warwick |
| Franklin | Dwarf wedgemussel | Endangered | Mill River | Whately |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Hadley |
| Hampshire | Puritan tiger beetle | Threatened | Sandy beaches along the Connecticut River | Northampton and Hadley |
| | Dwarf wedgemussel | Endangered | Rivers and Streams. | Hatfield, Amherst and Northampton |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Southwick |
| Hampden | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Groton |
| Middlesex | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Piping Plover | Threatened | Coastal Beaches | Nantucket |
| | Roseate Tern | Endangered | Coastal beaches and the Atlantic Ocean | Nantucket |
| Nantucket | American burying beetle | Endangered | Upland grassy meadows | Nantucket |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

| COUNTY | SPECIES | FEDERAL STATUS | GENERAL LOCATION/HABITAT | TOWNS |
|-----------|---------------------------------|----------------------------------|---|---|
| Plymouth | Piping Plover | Threatened | Coastal Beaches | Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett |
| | Northern Red- bellied Cooter | Endangered | Inland Ponds and Rivers | Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke |
| | Roseate Tern | Endangered | Coastal beaches and the Atlantic Ocean | Plymouth, Marion, Wareham, and Mattapoisett. |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| Suffolk | Piping Plover | Threatened | Coastal Beaches | Revere, Winthrop |
| | Red Knot ¹ | Threatened | Coastal Beaches and Rocky Shores, sand and mud flats | Coastal Towns |
| | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |
| | Small whorled Pogonia | Threatened | Forests with somewhat poorly drained soils and/or a seasonally high water table | Leominster |
| Worcester | Northern Long- eared Bat | Threatened Final 4(d) Rule | Winter- mines and caves, Summer – wide variety of forested habitats | Statewide |

¹Migratory only, scattered along the coast in small numbers

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.

-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.

-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Attachment D

Northern Long-eared Bat Location Map and NHESP Fact Sheet Small Whorled Pogonia NHESP Fact Sheet

NHESP Northern Long Eared Bat Map



August 23, 2018



Hbernaalum

MA Northern Long-eared Bat Winter Hibernaoula (with 1/4 mile buffer)

Sources Esti, HERE, Garmin, Internap, increment P.Corp., GEBOO, USGS, FAO, NPS, NRCAN, GeoBæe, IGN, Kadaster NL, Orchance Survey, Esti

1.75

275

Ο

Ο

1:288,895

7mi

11 km

35

55



Massachusetts Division of Fisheries & Wildlife I Rabba Hill Rood, Westburough, MA 01581 Iel. (508) 389-6360, Jac. (508) 389-7891 www.nhesp.org

Description: The Northern Long-eared Bat is a small bat with large ears, which when pushed forward extend at least 4 mm past its nose. Its fur and wing membranes are light brown, giving it an overall somewhat uniform brown appearance. The hairs on its back are bicolored, with a dark base and lighter tip. The Northern Long-eared Bat averages 50-95 mm in total length, with a tail of 35-42 mm. In weight, it averages 5-8 g. This bat is typically found roosting in trees and feeding in forested habitats, but may occasionally be found in human habitations.

Similar Species: The best diagnostic character to distinguish the Long-eared Bat from other species in Massachusetts is its long ears. The Little Brown Myotis and rare Indiana Myotis are similar in appearance, but have shorter ears which typically do not extend beyond their nose when pushed forward. The Little Brown Myotis also has glossier fur and a shorter tail relative to its body length. The Indiana Myotis has a keeled calcar (a ridge of cartilage between the foot and the tail), which the Northern Long-eared Bat lacks. Other features of interest in identification include the bat's hairless interfemoral membrane (the skin stretching between the legs and tail) and lack of a black face mask (which is characteristic of Small-footed Myotis).



Northern Long-eared Bat

Myotis septentrionalis

State Status: Endangered Federal Status: Threatened



Photo: Tammy Ciesla, MassWildlife

Habitat in Massachusetts: In the warmer months, colonies of Northern Long-eared Bats may be found roosting and foraging in forested areas. Preferred roosts are in clustered stands of large trees, especially in live or dead hardwoods with large, tall cavities. These bats are found in other tree roosts as well, and occasionally in human-made structures. Northern Long-eared Bats forage under the forest canopy in structurally complex habitats, often above small ponds, vernal pools or streams, along gravel paths or roads, and at the forest edge. The bats are widespread in Massachusetts, and have been found in 11 of 14 counties. In winter, Northern Long-eared Bats hibernate in natural caves and abandoned mines, preferring habitats where the humidity is so high that water droplets sometimes cover their fur. Winter hibernacula (hibernation sites) have been reported in Berkshire, Franklin, Hampden, Middlesex, and Worcester counties.

Range: The Northern Long-eared Bat is found across forested parts of the eastern United States and Canada, west to British Columbia, Wyoming, and Montana, and south into Florida. It was historically common in New England, the Canadian Maritimes, Quebec and Ontario, and uncommon in the western extremes of its range.

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form as these donations comprise a significant portion of our operating budget. Life Cycle/Behavior: In the summer months, Northern Long-eared Bats emerge at dusk from daytime roosts for the first in a series of feeding flights. Their long tails and large wing membranes allow the bats to fly slowly and navigate through cluttered environments. These special adaptations also enable them to glean prey from foliage, in addition to catching insects on the fly. These bats locate resting insects through a combination of passive listening and the emission of high frequency echolocation calls.

Between August and October, the body weight of Northern Long-eared Bats increases by up to 45%, as they store fat for winter. In late summer, the bats begin to "swarm" around the entrances of caves, and are thought to be testing the air of possible hibernacula. This is the time when mating occurs, with females storing the sperm within their bodies until spring. By early November, the bats enter hibernation sites. Their metabolisms slow and they enter torpor, but will rouse occasionally throughout the winter to drink water. Northern Long-eared Bats share caves with a number of other species, but tend to hibernate singly or in small groups in deep cracks or crevices. They return to the same hibernacula in multiple years, but may not hibernate in the same location every year. Little data are available on migration, but the bats are known to travel up to 56 km from foraging sites to winter hibernacula.

Females bear and rear single young from mid-May through July. The longevity record for the Northern Long-eared Bat is 18 years.

Population status in Massachusetts, including

Threats: The Northern Long-eared Bat is listed as Endangered under the Massachusetts Endangered Species Act. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration.

Once a common species in the northern United States, populations of the Northern Long-eared Bat have been devastated by the spread of White-nose Syndrome. Populations in infected hibernacula in the Northeast have suffered catastrophic losses of 90-100%. Whitenose Syndrome is caused by *Geomyces destructans*, a species new to science, but closely related to fungi that naturally grow in caves. The fungus grows over bats while they hibernate, causing them to rouse from dormancy frequently, lose valuable stored fat, and fail to survive the winter. The fungus is believed to be passed from cave to cave primarily by the movements of breeding male bats, but human transport is also thought to be responsible for the infection of some hibernacula. Management Recommendations: The U.S. Fish & Wildlife Service is working in concert with government and non-profit groups to understand the spread of the fungus and potential for stopping its spread, as well as exploring opportunities for captive breeding of the most vulnerable species. Access to suitable, undisturbed hibernacula is essential to the survival of the Northern Long-eared Bat, and protection of known sites is paramount. Human disturbance of hibernacula can be discouraged or prevented with the use of gated entrances, in order to avoid arousal of hibernating bats and the spread of fungal spores.

References:

Caceres, M.C., and R.M. Barclay. 2000. Myotis septentrionalis. *Mammalian Species* 634: 1-4.

French, T.W., J.E. Cardoza, and G.S. Jones. *Homeowner's Guide to Bats*. Massachusetts Department of Fisheries & Wildlife: Westborough, MA,

Hamilton, Jr., W.J., and J.O. Whitaker, Jr. 1979. Mammals of the Eastern United States, Second Edition. Cornell University Press: Ithaca, NY.

U.S. Fish & Wildlife Service. 2012. "White-nose Syndrome." http://whitenosesyndrome.org/

> Updated 2012 Map Updated 2012

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form as these donations comprise a significant portion of our operating budget.


Natural Heritage & Endangered Species Program

www.mass.gov/nhesp

Massachusetts Division of Fisheries & Wildlife

DESCRIPTION: The Small Whorled Pogonia is a slender orchid which grows up to 10 inches tall when flowering and up to 14 inches when fruiting. The stem ends in a whorl of 4 to 6 pale-green elliptic leaves that are 1 to 3.5 inches in length. One or two lime-green flowers (about ³/₄ in. long) grow from the center of the whorl on short stalks. The flowers are composed of three petals, the lowest of the three having a greenish lip at its tip. Surrounding the petals are three separate, narrow, pale green sepals (outer floral leaves) which grow between 0.5 to 0.75 inches long. Fruiting capsules are erect; the fruit stalk length is approximately equal to that of the capsule (0.7-1.2 in. long).

LIFE HISTORY/ECOLOGY: The Small Whorled Pogonia can remain dormant for two years or more, making its reproductive history difficult to study and its age difficult to determine. Growth is initiated by mid-May and flowering by the second week of June. The flowers last for 7 to 10 days. The leaves turn yellow and die in September and seeds are expelled from their capsules after October 15. The buds which indicate the following year's growth are visible in mid-September.

SIMILAR SPECIES: *Isotria verticillata*, the Large Whorled Orchid, is similar to *Isotria medeoloides* but can be distinguished from the latter by the shape of the sepals. Sepals of *Isotria verticillata* are over 1.5 inches long, purplish, and wide-spreading. The sepals of *Isotria medeoloides* are much shorter, greenish, and are situated more closely to one another. Another species, Indian Cucumber Root (*Medeola virginiana*), a plant of the Lily Family, is also similar in appearance to the Small Whorled Pogonia. However, Indian Cucumber Root stems are wiry and often covered by a white fuzzy material.

Small Whorled Pogonia Isotria medeoloides

(Pursh) Ref.

State Status: **Endangered** Federal Status: **Threatened**



Photo by Jennifer Garret, NHESP

RANGE: The Small Whorled Orchid is found in Maine and Ontario in the north, west to Michigan, Illinois, and Missouri, and south along the eastern seaboard to Georgia. It is rare throughout its range, with the largest concentrations occurring in Maine and New Hampshire.

HABITAT IN NEW ENGLAND: Historically, the habitat supporting *Isotria medeoloides* was not well documented. In recent years, however, this species' habitat has been consistently reported as forested slopes

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget. www.mass.gov/nhesp composed of "Very Stony Fine Sandy Loam" soil types where water movement is restricted by a fragipan.

Fragipans are brittle loamy cement-like layers below the surface of the soil which are low in porosity and force the water to drain laterally instead of vertically. The soil above the fragipan is very acidic and very low in nutrients.

In Massachusetts, this plant is found on slightly sloping, previously logged forest land made up of extremely acidic and granitic soils. Like other sites known to support this orchid, the Massachusetts sites are composed of seasonally moist areas above a fragipan. Light conditions are usually filtered rather than shaded or open.

A significant number of plants are associated with this type of habitat and are considered indicator species for the rare orchid when they are found together in plentiful numbers. Associated forest species include: Red Maple (*Acer rubrum*), Hemlock (*Tsuga canadensis*), Canoe Birch (*Betula papyrifera*), Red Oak (*Quercus rubra*), White Pine (*Pinus strobus*), Beech (*Fagus grandifolia*), Large-toothed Aspen (*Populus grandidentata*). A natural community including Canoe Birch with dense fern undergrowth is often associated with *Isotria medeoloides*. Also, Witch-hazel (*Hamamelis virginiana*) is always abundant where *Isotria medeoloides* grows.

Associated herb species (when they are present) are woodland ferns such as *Dennstaedtia punctilobula*, *Thelypteris noveboracensis*, and *Osmunda* spp. Evergreen herbaceous species found are: Wintergreen (*Gaultheria procumbens*), Mayflower (*Epigaea repens*), Spotted Wintergreen (*Chimaphila maculata*), Partridge Berry (*Mitchella repens*), and Shinleaf species (*Pyrola* spp.). Other species of orchids which are often found with Small Whorled Pogonia are: Pink Lady's-slipper, (*Cypripedium acaule*), Rattlesnake Plantain (*Goodyera pubescens*), coralroot species (*Corallorhiza maculata* and *C. odontorhiza*), and Three Birds Orchid (*Triphora trianthophora*). **POPULATION STATUS:** The Small Whorled Pogonia is listed as Threatened by the U. S. Fish and Wildlife Service and as Endangered by the Massachusetts Division of Fisheries and Wildlife. This species is one of the rarest orchid species in northeastern North America. As of 2004, there were only 104 extant populations of *Isotria medeoloides* worldwide with fewer than 3,000 individuals total. Historically, this species was known in 22 states and Ontario. Today it is known from only 17 states and Ontario; Vermont, New York, Maryland, and Missouri are those states which formerly supported this orchid. Currently, there are only five populations known in Massachusetts. Historically, this plant was known from only two other sites in the state.

The lack of suitable habitat is the most significant factor contributing to this orchid's rarity. Specifically, habitat destruction and alteration combined with vandalism and illegal plant collection threaten *Isotria medeoloides*. As this species is so rare, it is much sought after by collectors who have illegally uprooted and destroyed individual plants for specimen collections. There is no evidence that this species can be successfully transplanted, so any plants that are uprooted are lost forever.

This orchid requires very specific habitat to succeed and will not occur in other areas. Although the plant is found along vernal streams and in thick, highly acidic organic duff, the surrounding land is equally important to the success of this orchid. This species relies on water moving from upslope regions down to its populations. When these vital buffer zones are altered, water movement is disrupted and the microclimate of the area often changes, creating a different habitat in which *Isotria medeoloides* cannot grow. It is believed that it is as important to preserve these peripheral areas as it is to preserve the habitat on which the plants occur.

Updated 2015

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget. www.mass.gov/nhesp

Appendix D National Historic Preservation Act Eligibility Certification Documentation

National Historic Preservation Act Eligibility Certification

| то: | Town of Southwick Stormwater Management Program Files |
|-------|--|
| FROM: | Tighe & Bond |
| Сору: | Randal Brown, P.E., DPW Director; Dick Grannells, DPW Engineer |
| DATE: | August 23, 2018 |

Tighe & Bond has completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits from Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2017, and determined that the **Town of Southwick** meets **Criterion A: The discharges do not have the potential to cause effects on historic properties.**

Tighe & Bond followed the screening process included in Appendix D and has determined Southwick is an existing facility authorized by the previous permit and therefore meets Criterion A (see Question 1 in Appendix D of the Permit) and is not, as part of developing and submitting the Notice of Intent for permit coverage, undertaking any activity involving subsurface land disturbance less than an acre. Based on this screening process, the Town of Southwick's stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities will not have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP) and no further action is necessary at this time.

Attachment B to this memorandum includes a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures downloaded from the Massachusetts Cultural Resource Information System (MACRIS) that is current as of August 23, 2018. If the Town undertakes construction on or around a property that is listed or eligible for listing, the Town will coordinate with the State Historic Preservation Officer (SHPO) (i.e. the Massachusetts Historical Commission) by submitting a Project Notification Form and associated documentation for the project. As applicable for each project, the Town will implement measures to avoid or minimize adverse impacts on places listed, or eligible for listing to document and implement such measures, those discharges are ineligible for coverage under EPA's Small MS4 General Permit.

J:\S\S1406\Permitting\MS4\NOI\NHPA Eligibility\National Historic Preservation Act Eligibility Certification.docx

Attachment A

Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts

Appendix D National Historic Preservation Act Guidance

Background

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of Federal "undertakings" on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal "undertaking" is defined in the NHPA regulations to include a project, activity, or program of a federal agency including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA's issuance of a National Pollutant Discharge Elimination System (NPDES) General Permit is a federal undertaking within the meaning of the NHPA regulations and EPA has determined that the activities to be carried out under the general permit require review and consideration, in order to be in compliance with the federal historic preservation laws and regulations. Although individual submissions for authorization under the general permit do not constitute separate federal undertakings, the screening processes provides an appropriate site-specific means of addressing historic property issues in connection with EPA's issuance of the permit. To address any issues relating to historic properties in connection with the issuance of this permit, EPA has included a screening process for applicants to identify whether properties listed or eligible for listing on the National Register of Historic Places are within the path of their discharges or discharge-related activities (including treatment systems or any BMPs relating to the discharge or treatment process) covered by this permit.

Applicants seeking authorization under this general permit must comply with applicable, State, Tribal, and local laws concerning the protection of historic properties and places and may be required to coordinate with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and others regarding effects of their discharges on historic properties.

Activities with No Potential to Have an Effect on Historic Properties

A determination that a federal undertaking has no potential to have an effect on historic properties fulfills an agency's obligations under NHPA. EPA has reason to believe that the vast majority of activities authorized under this general permit will have no potential effects on historic properties. This permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility. EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA's issuance of this general permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties.

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from

the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

Activities with Potential to Have an Effect on Historic Properties

EPA believes this permit may have some potential to have an effect on historic properties the applicant undertakes the construction and/or installation of control measures that involve subsurface disturbance that involves less than 1 acre of land. (Ground disturbances of 1 acre or more require coverage under the Construction General Permit.) Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. Therefore, if the applicant is establishing new or altering existing control measures to manage their discharge that will involve subsurface ground disturbance of less than 1 acre, they will need to ensure (1) that historic properties will not be impacted by their activities or (2) that they are in compliance with a written agreement with the SHPO, THPO, or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Examples of Control Measures Which Involve Subsurface Disturbance

The type of control measures that are presumptively expected to cause subsurface ground disturbance include:

- Dikes
- Berms
- Catch basins, drainage inlets
- Ponds, bioretention areas
- Ditches, trenches, channels, swales
- Culverts, pipes
- Land manipulation; contouring, sloping, and grading
- Perimeter Drains
- Installation of manufactured treatment devices

EPA cautions applicants that this list is non-inclusive. Other control measures that involve earth disturbing activities that are not on this list must also be examined for the potential to affect historic properties.

Certification

Upon completion of this screening process the applicant shall certify eligibility for this permit using one of the following criteria on their Notice of Intent for permit coverage:

Criterion A: The discharges do not have the potential to cause effects on historic properties.

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

Criterion C: The discharges and discharge related activities have the potential to have an effect on historic properties, and the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Authorization under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above. Small MS4s that cannot meet any of the eligibility criteria in above must apply for an individual permit.

Screening Process

Applicants or their consultant need to answer the questions and follow the appropriate procedures below to assist EPA in compliance with 36 CFR 800.

Question 1: Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?

YES - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.

The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

NO- Go to Question 2.

Question 2: Is the property listed in the National Register of Historic Places or have prior surveys or disturbances revealed the existence of a historic property or artifacts?

NO - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit. **The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage.** The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

YES - The applicant or their consultant should prepare a complete information submittal to the SHPO. The submittal consists of:

•Completed Project Notification Form- forms available at http://www.sec.state.ma.us/mhc/mhcform/formidx.htm;

•USGS map section with the actual project boundaries clearly indicated; and •Scaled project plans showing existing and proposed conditions.

(1) Please note that the SHPO does not accept email for review. Please mail a paper copy of your submittal (Certified Mail, Return Receipt Requested) or deliver a paper copy of your submittal (and obtain a receipt) to:

State Historic Preservation Officer Massachusetts Historical Commission 220 Morrissey Blvd. Boston MA 02125.

(2) Provide a copy of your submittal and the proof of MHC delivery showing the date MHC received your submittal to:

NPDES Permit Branch Chief US EPA Region 1 (OEP06-1) 5 Post Office Square, Suite 100 Boston MA 02109-3912.

The SHPO will comment within thirty (30) days of receipt of complete submittals, and may ask for additional information. Consultation, as appropriate, will include EPA, the SHPO and other consulting parties (which includes the applicant). The steps in the federal regulations (36 CFR 800.2 to 800.6, etc.) will proceed as necessary to conclude the Section 106 review for the undertaking. **The applicant should certify eligibility for this permit using Criterion C on their Notice of Intent for permit coverage.**

Attachment B

MACRIS Database Inventoried and State-Listed Properties and Districts in the Town of Southwick

Massachusetts Cultural Resource Information System

MACRIS Search Results

Search Criteria: Town(s): Southwick; Resource Type(s): Building, Area, Burial Ground, Object, Structure;

| Inv. No. | Property Name | Street | Town | Year |
|----------|--|-----------------------|-----------|--------|
| SOU.A | Gillett, Charles J. Cigar Factory and Warehouse | | Southwick | |
| SOU.B | Feeding Hills Road Post-World War II Houses | | Southwick | |
| SOU.73 | Castle, Jenny House | 5 Bugbee Rd | Southwick | c 1920 |
| SOU.74 | Janulewicz, William S. House | 31 Charles Johnson Rd | Southwick | c 1930 |
| SOU.4 | Rising, Abraham House | Coes Hill Rd | Southwick | c 1805 |
| SOU.75 | Pihl, John E. House | 57 Coes Hill Rd | Southwick | c 1933 |
| SOU.76 | Loomis, Henry House | 71 Coes Hill Rd | Southwick | c 1857 |
| SOU.800 | Southwick Old Cemetery | College Hwy | Southwick | 1771 |
| SOU.77 | State Line Filling Station | 4 College Hwy | Southwick | c 1934 |
| SOU.78 | Dibble, Chandler House | 19 College Hwy | Southwick | c 1810 |
| SOU.79 | Hills, Elwin C. Tobacco Farm Foreman's House | 22 College Hwy | Southwick | c 1880 |
| SOU.23 | Hills, Dea. Elwin House | 26 College Hwy | Southwick | 1906 |
| SOU.24 | Russell, S. House | 54 College Hwy | Southwick | r 1830 |
| SOU.25 | Moore, Roger Sherman House | 83 College Hwy | Southwick | c 1835 |
| SOU.26 | Moore, Roger House | 86 College Hwy | Southwick | c 1751 |
| SOU.27 | Mooretown Schoolhouse | 123 College Hwy | Southwick | r 1800 |
| SOU.28 | Gillett, Sardis House | 150 College Hwy | Southwick | c 1825 |
| SOU.80 | Campbell, Robert B. House and Cigar Manufactory | 167 College Hwy | Southwick | c 1860 |
| SOU.17 | Gillett, Almon House | 212 College Hwy | Southwick | r 1825 |
| SOU.19 | Gillett, Charles J. Cigar Factory and Warehouse | 215 College Hwy | Southwick | 1872 |
| SOU.61 | Gillett, Charles J. Cigar Factory Storage Building | 215 College Hwy | Southwick | c 1950 |
| SOU.62 | Gillett, Charles J. Cigar Factory Tobacco Barn | 215 College Hwy | Southwick | c 1880 |
| SOU.63 | Gillett, Charles J. Cigar Factory Tobacco Barn | 215 College Hwy | Southwick | c 1880 |
| SOU.16 | Southwick Methodist Episcopal Church | 222 College Hwy | Southwick | 1824 |
| SOU.13 | Southwick Methodist Church Parsonage | 230 College Hwy | Southwick | c 1882 |
| SOU.81 | Forward, Pliney M. House | 241 College Hwy | Southwick | c 1845 |

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| Inv. No. | Property Name | Street | Town | Year |
|---------------|---|------------------|-----------|-------------|
| SOU.15 | Holcomb, Amasa - Gillet, Levi House | 249 College Hwy | Southwick | r 1805 |
| SOU.14 | Miller, Dea. Herbert L. House | 257 College Hwy | Southwick | c 1860 |
| SOU.12 | Miller, Dea. Calvin S. House and Tobacco Farm | 264 College Hwy | Southwick | c 1845 |
| SOU.11 | Moore, Marcus A. House | 269 College Hwy | Southwick | c 1840 |
| SOU.10 | Forward, Robert House | 299 College Hwy | Southwick | c 1785 |
| SOU.9 | Lambson House | 356 College Hwy | Southwick | c 1835 |
| SOU.82 | Starr, Joseph Shaw House | 383 College Hwy | Southwick | c 1830 |
| SOU.8 | Forward, George - Vining, E. C. House | 384 College Hwy | Southwick | c 1825 |
| SOU.83 | Wilkinson, William House | 420 College Hwy | Southwick | c 1890 |
| SOU.192 | Homan, George Tobacco Barn | 420 College Hwy | Southwick | r 1900 |
| SOU.84 | Lee - Babb, Seymour House | 422 College Hwy | Southwick | c 1880 |
| SOU.30 | Humphrey, Dr. Levi Wooster House | 434 College Hwy | Southwick | c 1826 |
| SOU.31 | Granger, O. A. House | 435 College Hwy | Southwick | c 1870 |
| SOU.32 | Granger, A. House | 441 College Hwy | Southwick | c 1830 |
| SOU.33 | Forward, Joseph M. House | 442 College Hwy | Southwick | c 1820 |
| SOU.85 | Shinkwin, William House | 446 College Hwy | Southwick | c 1930 |
| SOU.34 | Southwick Congregational Church Parsonage | 448 College Hwy | Southwick | c 1853 |
| SOU.36 | Loomis, Richard Goodman House | 449 College Hwy | Southwick | c 1800 |
| SOU.37 | Southwick Consolidated School | 456 College Hwy | Southwick | 1928 |
| SOU.38 | Graves, Abner House | 457 College Hwy | Southwick | c 1762 |
| SOU.35 | Shurtleff, Carmi House | 462 College Hwy | Southwick | c 1845 |
| SOU.86 | Gillett Nursery Office | 463B College Hwy | Southwick | c 1890 |
| SOU.188 | Barnes, Allen House | 463 College Hwy | Southwick | c 1870 |
| SOU.39 | Gillett, Edward House | 467 College Hwy | Southwick | c 1875 |
| SOU.87 | Southwick Baptist Church Parsonage | 473 College Hwy | Southwick | 1886 |
| SOU.40 | Southwick Public Library | 475 College Hwy | Southwick | 1892 |
| SOU.42 | Doherty, George - Griffen, Cooley House | 476 College Hwy | Southwick | c 1840 |
| SOU.41 | Mills, John House | 478 College Hwy | Southwick | c 1800 |
| SOU.51 | Southwick Inn | 479 College Hwy | Southwick | 1906 |
| SOU.88 | Walt's Garage | 483 College Hwy | Southwick | c 1950 |
| SOU.50 | Southwick Congregational Church | 488 College Hwy | Southwick | 1824 |
| SOU.89 | Southwick Congregational Church Parsonage | 490 College Hwy | Southwick | 1948 |
| SOU.90 | Russell, Richard House | 508 College Hwy | Southwick | c 1921 |
| SOU.91 | Boyle, William House | 510 College Hwy | Southwick | c 1860 |
| SOU.52 | Boyle, John House | 526 College Hwy | Southwick | r 1875 |
| SOU.92 | Adams, Albert Clothing Store | 538 College Hwy | Southwick | 1947 |
| SOU.93 | Friendly's Restaurant | 552 College Hwy | Southwick | c 1955 |
| SOU.94 | Holcomb, Leon E. House | 562 College Hwy | Southwick | c 1926 |
| Friday, Febru | ıary 3, 2017 | | | Page 2 of 6 |

| Inv. No. | Property Name | Street | Town | Year |
|-----------------|---|----------------------|-----------|-------------|
| SOU.95 | Southwick Christ Lutheran Church | 568 College Hwy | Southwick | 1965 |
| SOU.53 | Fowler, Samuel Sardis House | 628 College Hwy | Southwick | c 1830 |
| SOU.54 | Boyington, Samuel - Miller, Albrow House | 636 College Hwy | Southwick | c 1800 |
| SOU.96 | General Cigar Company Tobacco Barns | 686 College Hwy | Southwick | c 1950 |
| SOU.55 | Poverty District Schoolhouse | 688 College Hwy | Southwick | 1886 |
| SOU.97 | Barnes, William S. Dairy Barn | 707 College Hwy | Southwick | c 1920 |
| SOU.56 | Boyington, Abigail - Barnes, Dea. John House | 717 College Hwy | Southwick | c 1850 |
| SOU.98 | Fowler, Raymond House | 739 College Hwy | Southwick | c 1926 |
| SOU.29 | Berkshire Ice Company Office | 107 Congamond Rd | Southwick | c 1905 |
| SOU.99 | Berkshire Ice Company Building | 108 Congamond Rd | Southwick | c 1900 |
| SOU.100 | Saunder's Boat Livery | 120 Congamond Rd | Southwick | c 1956 |
| SOU.101 | Franklin House Tavern | 127 Congamond Rd | Southwick | c 1935 |
| SOU.60 | Hathaway and Steen Tobacco Curing Barn | Copper Hill Rd | Southwick | 1948 |
| SOU.102 | Steere, Eliza House | 65 Davis Rd | Southwick | c 1860 |
| SOU.45 | Malone House | Depot St | Southwick | c 1845 |
| SOU.43 | Granger, Heaton - Wheeton, Walter House | 5 Depot St | Southwick | r 1775 |
| SOU.103 | Boyle, William House | 10 Depot St | Southwick | c 1860 |
| SOU.44 | Fowler, William - Rockwell, Dr. Joseph W. House | 17 Depot St | Southwick | c 1822 |
| * SOU.49 | Laflin - Phelps Homestead | 20 Depot St | Southwick | c 1821 |
| SOU.48 | Laflin, Roland House | 28 Depot St | Southwick | r 1820 |
| SOU.47 | Mills, John Law Office | 36 Depot St | Southwick | c 1800 |
| SOU.104 | Gilbert, Jane E. House | 37 Depot St | Southwick | c 1860 |
| SOU.46 | Malone, Timothy J. House | 42 Depot St | Southwick | 1912 |
| SOU.105 | Gelgut, Alexander House | 32 Feeding Hills Rd | Southwick | 1946 |
| SOU.106 | Light, Harold L. Jr. House | 41 Feeding Hills Rd | Southwick | 1947 |
| SOU.107 | Bowles, Ralph H. House | 43 Feeding Hills Rd | Southwick | 1947 |
| SOU.108 | Sullivan, Michael D. House | 45 Feeding Hills Rd | Southwick | 1947 |
| SOU.109 | Scibelli, Anna N. House | 84 Feeding Hills Rd | Southwick | c 1947 |
| SOU.110 | Arrowsmith, Edgar House | 129 Feeding Hills Rd | Southwick | 1945 |
| SOU.111 | Redfern, Arthur J. House | 131 Feeding Hills Rd | Southwick | 1945 |
| SOU.112 | Moncza, Rose M. House | 188 Feeding Hills Rd | Southwick | 1947 |
| SOU.113 | Micknak, Robert M. House | 198 Feeding Hills Rd | Southwick | 1946 |
| SOU.114 | Colson, Charles R. House | 206 Feeding Hills Rd | Southwick | 1947 |
| SOU.115 | Nutter, Charles A. House | 214 Feeding Hills Rd | Southwick | c 1920 |
| SOU.116 | Brady, Alice House | 215 Feeding Hills Rd | Southwick | c 1920 |
| SOU.117 | Goss, Warren House | 234 Feeding Hills Rd | Southwick | 1948 |
| SOU.118 | French, Timothy L. House | 257 Feeding Hills Rd | Southwick | c 1855 |
| SOU.119 | Hastings, Francis C. House | 268 Feeding Hills Rd | Southwick | c 1860 |
| Friday, Februa | ry 3, 2017 | | | Page 3 of 6 |

| Inv. No. | Property Name | Street | Town | Year |
|----------|--|-----------------------|-----------|--------|
| SOU.120 | Drake, Gilbert House | 50 Foster Rd | Southwick | c 1835 |
| SOU.121 | Taylor, James B Rising, Phoebe House | 71 Foster Rd | Southwick | c 1845 |
| SOU.122 | Ball, Frank A. House | 46 Fred Jackson Rd | Southwick | c 1920 |
| SOU.123 | Loomis, Walter House | 35 George Loomis Rd | Southwick | c 1835 |
| SOU.189 | Loomis, Walter Barn | 35 George Loomis Rd | Southwick | |
| SOU.190 | Loomis, Walter Barn | 35 George Loomis Rd | Southwick | |
| SOU.124 | Gillett, Edward Barn | 7 Granville Rd | Southwick | c 1900 |
| SOU.187 | Dickinson, John - Radwilowicz, Joseph House | 7 Granville Rd | Southwick | r 1940 |
| SOU.6 | Hollister, John Bennett House | 91 Granville Rd | Southwick | c 1850 |
| SOU.5 | Hollister, Hiram Strong House and Blacksmith Shop | 103 Granville Rd | Southwick | c 1790 |
| SOU.125 | Black, Quarters - Wright, Lucius W. House | 128 Granville Rd | Southwick | c 1857 |
| SOU.126 | Warner, Shearon House | 135 Granville Rd | Southwick | c 1835 |
| SOU.127 | Rising, Rainer House | 230 Granville Rd | Southwick | c 1835 |
| SOU.128 | Hutchinson, Abigail - Shurtleff, Frank House | 318 Granville Rd | Southwick | c 1850 |
| SOU.129 | Warner, T Sackett, L. J. House | 12 Hillside Rd | Southwick | c 1835 |
| SOU.130 | Hollister, Julius F. House | 31 Hillside Rd | Southwick | c 1860 |
| SOU.131 | Hollister, Julius F. Barn | 32 Hillside Rd | Southwick | c 1890 |
| SOU.132 | Battistoni, Thomas House | 58 Hillside Rd | Southwick | c 1920 |
| SOU.3 | Granger, George House | 337 Hillside Rd | Southwick | r 1765 |
| SOU.133 | Kent, Justus House | 15 John Mason Rd | Southwick | c 1850 |
| SOU.185 | Mason, John - Pierce, Chester Garage - Barn | 15 John Mason Rd | Southwick | r 1925 |
| SOU.186 | Kent, Justus Barn | 15 John Mason Rd | Southwick | |
| SOU.134 | Mason, Ebenezer K. House | 2 Klaus Anderson Rd | Southwick | c 1850 |
| SOU.7 | Root, John - Clark, Capt. Reuben House | 18 Klaus Anderson Rd | Southwick | c 1740 |
| SOU.135 | Root District Schoolhouse | 21 Klaus Anderson Rd | Southwick | 1886 |
| SOU.136 | Root, Charles J. House | 22 Klaus Anderson Rd | Southwick | c 1900 |
| SOU.137 | Kent, Josiah House | 150 Klaus Anderson Rd | Southwick | c 1835 |
| SOU.138 | Lobo, Dennis J. House | 216 Klaus Anderson Rd | Southwick | c 1975 |
| SOU.139 | Cork, William C Prifiti, Theodore House | 8 Kline Rd | Southwick | c 1880 |
| SOU.140 | Desmond, Donald House | 56 Kline Rd | Southwick | 1964 |
| SOU.141 | Easton, Lemuel J. House | 3 Laro Rd | Southwick | c 1850 |
| SOU.142 | Holcomb, Newton House | 38 Mort Vining Rd | Southwick | c 1835 |
| SOU.184 | Holcomb, Newton Barn | 38 Mort Vining Rd | Southwick | |
| SOU.143 | Gillett, Levi House | 49 Mort Vining Rd | Southwick | c 1850 |
| SOU.183 | Konopka, Frank Barn | 49 Mort Vining Rd | Southwick | c 1920 |
| SOU.22 | Vining, Hiram H Larson, Nils House | 72 Mort Vining Rd | Southwick | r 1800 |
| SOU.21 | Booth House | 173 Mort Vining Rd | Southwick | c 1815 |

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| Inv. No. | Property Name | Street | Town | Year |
|----------------|--|-----------------------|-----------|-------------|
| SOU.144 | Booth, Seldon House | 173 Mort Vining Rd | Southwick | c 1835 |
| SOU.902 | Southwick Tobacco Fields and Barns | North Longyard Rd | Southwick | |
| SOU.903 | Southwick Tobacco Fields and Barns | North Longyard Rd | Southwick | |
| SOU.57 | Newton, Pierpont E. House | 31 North Longyard Rd | Southwick | c 1863 |
| SOU.145 | Newton, P. E. House | 33 North Longyard Rd | Southwick | c 1860 |
| SOU.146 | Second North Longyard District Schoolhouse | 36 North Longyard Rd | Southwick | c 1886 |
| SOU.147 | Easton, Lemuel House and Tobacco Farm | 123 North Longyard Rd | Southwick | c 1830 |
| SOU.1 | | 331 North Loomis St | Southwick | r 1850 |
| SOU.148 | | 331 North Loomis St | Southwick | c 1925 |
| SOU.149 | Kellogg, Irene B. House | 353 North Loomis St | Southwick | c 1900 |
| SOU.150 | Kellogg, Hiram House and Tobacco Farm | 355 North Loomis St | Southwick | c 1850 |
| SOU.151 | Mazars, John A. Barn | 358 North Loomis St | Southwick | c 1950 |
| SOU.904 | Southwick Tobacco Fields and Barns | Point Grove Rd | Southwick | |
| SOU.152 | Brass Rail Restaurant | 90 Point Grove Rd | Southwick | c 1940 |
| SOU.153 | Pine Tree Restaurant and Club | 151 Point Grove Rd | Southwick | c 1930 |
| SOU.154 | Lee, Campbell House | 6 Powder Mill Rd | Southwick | 1835 |
| SOU.155 | Rockwell, Theron House | 7 Powder Mill Rd | Southwick | c 1815 |
| SOU.900 | Southwick Tobacco Fields and Barns | Rt 10 | Southwick | |
| SOU.901 | Southwick Tobacco Fields and Barns | Rt 10 | Southwick | |
| SOU.906 | Southwick Tobacco Fields and Barns | Rt 10 | Southwick | |
| SOU.907 | Route 10 Bridge over Johnson Brook | Rt 10 | Southwick | 1922 |
| SOU.156 | Cushman, Silas Canal Laborers Boarding House | 13 Sheep Pasture Rd | Southwick | c 1820 |
| SOU.58 | Arnold Tobacco Curing Barn #1 | 117 Sheep Pasture Rd | Southwick | c 1865 |
| SOU.59 | Arnold Tobacco Curing Barn #2 | 117 Sheep Pasture Rd | Southwick | 1850 |
| SOU.157 | Kavanaugh, John House | 117 Sheep Pasture Rd | Southwick | c 1835 |
| SOU.158 | French, Phillip N. House | 125 Sheep Pasture Rd | Southwick | c 1850 |
| SOU.181 | French, Phillip N. Barn | 125 Sheep Pasture Rd | Southwick | |
| SOU.182 | French, Phillip N. Barn | 125 Sheep Pasture Rd | Southwick | |
| SOU.159 | Arnold House | 130 Sheep Pasture Rd | Southwick | c 1920 |
| SOU.160 | Rockwell, Uzal - Saunders, Henry H. House | 217 Sheep Pasture Rd | Southwick | c 1850 |
| SOU.161 | Chapman, John P. House | 220 Sheep Pasture Rd | Southwick | c 1880 |
| SOU.905 | Southwick Tobacco Fields and Barns | South Longyard Rd | Southwick | |
| SOU.162 | Gilbert, Edwin House | 3 South Longyard Rd | Southwick | c 1840 |
| SOU.163 | Consolidated Cigar Corporation Tobacco Barns | 247 South Longyard Rd | Southwick | c 1920 |
| SOU.164 | Birge, Horace House | 253 South Longyard Rd | Southwick | c 1835 |
| SOU.180 | Birge, Horace Bank Barn | 253 South Longyard Rd | Southwick | |
| SOU.165 | Barker, Abner H. House | 309 South Longyard Rd | Southwick | c 1850 |
| SOU.179 | Barker, Abner H. Barn | 309 South Longyard Rd | Southwick | |
| Friday, Februa | ry 3, 2017 | | | Page 5 of 6 |

| Inv. No. | Property Name | Street | Town | Year |
|----------|--|---------------------|-----------|--------|
| SOU.166 | Blood, Eleazer House | 53 South Loomis St | Southwick | c 1820 |
| SOU.167 | Erickson, Aron House | 84 South Loomis St | Southwick | c 1930 |
| SOU.178 | Gillett, Samuel - Ogden, H. Barn | 84 South Loomis St | Southwick | r 1890 |
| SOU.168 | Fuller, Arial House | 126 South Loomis St | Southwick | c 1860 |
| SOU.2 | Stevens, S. R Lambson, L. A. House | 261 South Loomis St | Southwick | c 1800 |
| SOU.169 | Crane, Robert B. House | 65 Sunnyside Rd | Southwick | c 1897 |
| SOU.175 | Crane, Robert B. Barn | 65 Sunnyside Rd | Southwick | c 1897 |
| SOU.176 | Crane, Robert B. Barn | 65 Sunnyside Rd | Southwick | c 1897 |
| SOU.177 | Crane, Robert B. Barn | 65 Sunnyside Rd | Southwick | c 1897 |
| SOU.170 | Lombella, John House | 72 Tannery Rd | Southwick | c 1920 |
| SOU.174 | Lombella, John Barn | 72 Tannery Rd | Southwick | |
| SOU.171 | Kellogg, Alva House | 77 Tannery Rd | Southwick | c 1815 |
| SOU.172 | Kellogg, Alva House | 78 Tannery Rd | Southwick | c 1850 |
| SOU.64 | Gillett, Socrates House | 8 Vining Hill Rd | Southwick | c 1835 |
| SOU.65 | Gillett's Cigar Factory Stripping Room & Warehouse | 8 Vining Hill Rd | Southwick | c 1880 |
| SOU.66 | Steere, Elisha House | 18 Vining Hill Rd | Southwick | c 1840 |
| SOU.67 | Steere, Abel House | 72 Vining Hill Rd | Southwick | c 1835 |
| SOU.18 | Gillett, Rodolphus House | 73 Vining Hill Rd | Southwick | c 1800 |
| SOU.69 | Steere, Alice House | 81 Vining Hill Rd | Southwick | c 1880 |
| SOU.20 | Vining, Hidjah House | 108 Vining Hill Rd | Southwick | r 1820 |
| SOU.70 | Vining, Gaius House | 139 Vining Hill Rd | Southwick | c 1850 |
| SOU.191 | Vining, Gaius Barn | 139 Vining Hill Rd | Southwick | |
| SOU.71 | Southwick District Schoolhouse #4 | 146 Vining Hill Rd | Southwick | c 1870 |
| SOU.72 | Winchell, Eli House | 180 Vining Hill Rd | Southwick | c 1855 |
| SOU.173 | Palmer, Franklin E. House | 43 Will Palmer Rd | Southwick | c 1860 |

Appendix E

Education & Outreach Program

Draft – Clean Water Starts With You / Think Blue Connecticut River: Education and Outreach to Comply with Massachusetts MS4 Permit, Pioneer Valley Planning Commission Connecticut River Stormwater Committee

DRAFT – Clean Water Starts With You / Think Blue Connecticut River: Education and Outreach to Comply with Massachusetts MS4 Permit

| Target Audience | Topics | Year 1 July 2018 – June 2019 | Year 2 July 2019 – June 2020 | Year 3 July 2020– June 2021 | Year 4 July 2021– June 2022 | Year 5 July 2022– June 2023 | |
|---|---|---|---|---|--|---|--|
| Residents | | | | | | | |
| MCM1 - General permit requirement (all MS4s in region) | Message 2x during permit term. Permit suggested topics: Benefits of on-site stormwater infiltration Lawn care best practices without pesticides, herbicides Impacts of automotive work and car washing Septic system maintenance Proper disposal of pet waste, swimming pool water <u>Measurable goal:</u> Increased awareness of stormwater pollution based on estimated audience and materials distributed. | General education using: <u>Videos</u> • 15 to the River video • Think Blue video <u>Radio</u> • Interviews on local radio <u>Website</u> • Launch of Think Blue CT River | X – Cigarette butts Panels on PVTA buses, issue press release post on social media and website Update Butts materials from previous Think Blue campaign (Responsible party: PVPC/SWC) | | X – Litter / nip bottles Panels on PVTA buses, issue press release post on social media and website Create new ad based on previous CT River Think Blue materials (Responsible party: PVPC/SWC) | | |
| Appendix F - Communities with nitrogen TMDL (all MS4s in region) and phosphorous impaired waters without TMDL** | <u>Message each Fall (AugOct.)</u> : proper disposal of leaf litter <u>Measurable goal:</u> Increased awareness about composting and value of leaf litter based on estimated audience and materials distributed. | X - Proper disposal of leaf litter (based on what each town has) <u>Flyer</u> distributed to lawn and garden centers Posted in each town, on website, and social media (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter <u>Press release and social media</u> <u>post</u>, indicating availability of <u>brochure</u> on website on the value of leaf litter and how to create compost for use in the garden (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter Reprise and update Year 1 flyer as brochure and door hanger_to be distributed to homes along waterways where observing issues (Responsible party: PVPC will produce brochure and door hanger/SWC distribute in respective communities perhaps through use of interns) | X – Proper disposal of leaf litter Reprise and update Year 2 <u>press</u> <u>release and social media post</u> (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter <u>PSA</u> to air locally and <u>social</u> <u>media post</u> (Responsible party: PVPC/SWC) | |
| | <u>Message each Spring (April - May)</u> : proper use and disposal of grass clippings and encourage proper use of slow-release fertilizers <u>Measurable qoal:</u> Increased awareness about connection between fertilizers and polluted rivers, streams, lakes, and use of grass clipping as fertilizers based on estimated audience and materials distributed. | X – Importance of soil test, proper use of fertilizers, and value/disposal of grass clippings <u>Flyer</u> distributed locally where able and posted on <u>social media</u> and <u>website</u> with key actions for good practice (Responsible party: PVPC to produce and post/SWC to distribute locally where able) | X – Importance of soil test, proper use of fertilizers, and value/disposal of grass clippings <u>Press release and social media</u> <u>post</u> , indicating availability of brochure on soil testing, reading results, and proper follow up. <u>Brochure</u> will be posted on website. (Responsible party: PVPC/SWC) | X - Importance of soil test, proper use of fertilizers, and value/disposal of grass clippings Reprise and update Year 1 flyer and social media post on key actions for good practice. (Responsible party: PVPC/SWC) | X - Importance of soil test, proper use of fertilizers, and value/disposal of grass clippings <u>Fact sheet and social media posts</u> on grass clippings = free fertilizer. Fact sheet will be posted on website. (Responsible party: PVPC/SWC) | X - Importance of soil test, proper use of fertilizers, and value/disposal of grass clippings <u>PSA</u> to air locally and post on social media and website (Responsible party: PVPC/SWC) | |
| Also, Appendix H - Communities with bacteria/pathogen impaired waters | <u>Message each Summer (June-July</u>): proper management of pet waste, including noting any existing ordinance and penalties. Also info to owners of septic systems on proper management. <u>Measurable goal:</u> Increased awareness about connection between dog waste and-polluted rivers based on estimated audience, materials distributed, and pledges. As able, survey parks and DPW officials to identify problem locations for pet waste and quantify nature of problem (Responsible party: PVPC/SWC) | X – Pet waste <u>Posters</u> and letters to veterinary offices with follow up by each stormwater coordinator <i>Update Spike materials</i> Distribute information on <u>bylaws/ordinances</u> to members and promote updating if needed. (Responsible parties: PVPC to provide information and local stormwater coordinator to ensure adoption/update if needed) | X – Pet waste Pledge card on pet waste pick up (get dog owners to pledge always properly pick up after dog). Also promote message that pet waste is not a fertilizer (Responsible party: PVPC/SWC) Prepare <u>design template for sign</u> and fabricate (think about using humor). SWC members will install at known problem locations. (Responsible party: PVPC/SWC) | X–Pet waste Panels on PVTA buses, issue press release post on social media and website Update Spike materials from previous Think Blue campaign (Responsible party: PVPC/SWC) Septic Prepare letter for Boards of Health to promote best practices for homes on septic systems in problem catchments (Responsible Party: PVPC to draft letter; Boards of Health to refine and send) | X-Pet waste Flyer insert announcing new signs with mailing of dog licenses and that this is the law (based on adopted bylaw/ordinance) Also, post on website and social media NEED WINTER DISTRIBUTION ON THIS MESSAGE. (Responsible party: PVPC/SWC) | X– Pet waste Reissue Year 2 <u>pledge card</u> and tally all pledges Also, post on website and social media (Responsible party: PVPC/SWC) | |

| Target Audience | Topics | Year 1 July 2018 – June 2019 | Year 2 July 2019 – June 2020 | Year 3 July 2020– June 2021 | Year 4 July 2021– June 2022 | Year 5 July 2022– June 2023 | |
|---|---|---|--|--|---|--|--|
| Businesses/Commercial/Institution | | | | | | | |
| MCM1 - General permit requirement (all MS4s in region) | Permit suggested topics: Benefits of on-site infiltration Lawn care best practices without pesticides, herbicides, and info. on new state fertilizer regulations. Building maintenance best practices Deicing best practices Proper storage of materials, waste management, car care activities <u>Measurable goal</u> : Estimated audience, materials distributed. | | X – Dumpster waste and avoiding contaminated flows <u>Flyer</u> to be provided to waste management companies in region for distribution to business customers <i>Customize Think Blue MA</i> <i>material</i> (Responsible Party: PVPC/SWC) | | X – Installation of hooded catch basins to keep fuels from local surface waters Letter to facility directors of properties with large p-lots See Industry below (Responsible Party: PVPC to prepare letter; SWC member to identify property owners and send letter) | | |
| Communities with nitrogen TMDL (all MS4s in region) and phosphorous impaired waters Collaborate with UMass Extension where possible | <u>Fall (AugOct.)</u> : proper disposal of leaf litter <u>Measurable goal</u> : Estimated audience, materials distributed. | X – Proper disposal of leaf litter <u>Letter</u> from SWC to landscapers in region on importance of proper disposal to avoid contamination of stormwater and local waterways. (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter <u>Fact sheet:</u> List locations for disposal of leaf litter and send laminated resource to landscapers. (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter Reprise and update Year 1<u>letter</u> from SWC to landscapers in region on importance of proper disposal to avoid contamination of stormwater and local waterways. (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter Reprise and update Year 2 <u>fact</u> <u>sheet:</u> List locations for disposal of leaf litter and send laminated resource to landscapers. (Responsible party: PVPC/SWC) | X – Proper disposal of leaf litter Reprise and update Year 3 letter from SWC to landscapers in region on importance of proper disposal to avoid contamination of stormwater and local waterways. (Responsible party: PVPC/SWC) | |
| | <u>Spring (April - May</u>): proper use and disposal of grass clippings and encourage proper use of slow-release fertilizers <u>Measurable goal</u> : Estimated audience, materials distributed. | X - Grass clippings and slow-release fertilizers Letter from SWC to professional landscapers in region (Responsible party: PVPC/SWC) | X – Best fertilizing practices <u>Workshop</u> for <u>large institutions</u> to promote better turf management practices, and awareness of DAR fertilizer regs and Nitrogen concerns in region (Responsible party: PVPC/SWC) | X – Best fertilizing practices <u>Workshop</u> with UMass Cooperative Extension for <u>professional</u> <u>landscapers</u> (Responsible party: PVPC/SWC) | X - Best fertilizing practices <u>Workshop</u> with UMass Cooperative Extension for <u>garden centers</u> (Responsible party: PVPC/SWC) | X - Grass clippings and slow- release fertilizers <u>Letter</u> from SWC to professional landscapers in region (Responsible party: PVPC/SWC) | |
| | <u>Summer (June - July)</u> : proper management of animal waste <u>Measurable goal</u> : Estimated audience, materials distributed. As able, survey parks and DPW officials to identify problem locations for geese waste and quantify nature of problem | X – Geese <u>Letter</u> to businesses, commercial, and institutional property owners explaining strategies for geese management and resources (Responsible party: PVPC to write letter; municipalities to distribute) | X – Pet waste Letter offering <u>design template</u> <u>for signs</u> to larger properties at problem locations (Responsible party: PVPC to prepare letter, SWC member to reach out to property owners) | X–Pet waste Panels on PVTA buses, issue press release Promote on social media, website Update Spike materials from previous Think Blue campaign (Responsible party: PVPC/SWC) | X – Geese Reprise and update Year 1 <u>letter</u> to businesses, commercial, and institutional property owners explaining strategies for geese management and resources (PVPC to write letter; municipalities to distribute) | X – Pet waste Prepare <u>design template for signs</u> as above; offer design to larger properties, problem locations (Responsible party: PVPC to prepare sign template, SWC member to reach out to property owners) | |
| Developers (construction) | | | | | | | |
| MCM1 - General permit requirement (all MS4s in region) | Permit suggested topics: Proper sediment and erosion control practices Information about LID principles and technologies Information about EPA's construction general permit <u>Measurable goal</u> : Improved understanding about stormwater management requirements after workshop | | X – New MS4 development standards and E&S control Workshop at regional conference w/ survey at end (Responsible Party: PVPC/SWC to hire consultant) | X – LID strategies and technologies <u>Workshop</u> at regional conference -survey at start w/ survey at end (Responsible Party: PVPC/SWC to hire consultant) | | | |
| Industrial Facilities | | | | | | | |
| MCM1 - General permit requirement (all MS4s in region) | Permit suggested topics: Equipment inspection and maintenance Proper storage of industrial materials Proper waste management Benefits of appropriate on-site infiltration <u>Measurable goal</u> : Estimated audience, materials distributed | | X – Fleet maintenance <u>Fact sheet</u> for industrial facility directors <i>Customize Think Blue MA</i> <i>material</i> (Responsible Party: PVPC/SWC) | | X – Installation of hooded catch basins to keep fuels from local surface waters Letter to facility directors of properties with large p-lots See Business above | | |

* Permit reads, "The program shall show evidence of focused messages for specific audiences as well as evidence that progress toward the defined educational goals of the program has been achieved. The permittee shall identify methods that it will use to evaluate the effectiveness of the educational messages and the overall education program. Any methods used to evaluate the effectiveness of the program shall be tied to the defined goals of the program and the overall objective of changes in behavior and knowledge. **Note: Communities with phosphorous TMDL must do Lake Phosphorous Control Plan, which may itself include education and outreach elements (non structural controls) implemented in Year 6. See Appendix F, starting on page 18)

MCM 1 Public Education and Outreach Additional Details, Pioneer Valley Planning Commission Connecticut River Stormwater Committee **BMP Name:** Proper disposal of leaf litter

BMP Number: 1

Document Name and/or Web Address: "Get wise about leaf litter. Consider your options."

Description: Prepared <u>flyer</u> that promotes action for and enables proper disposal practice and distribute to large lawn and garden centers in region.

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- flyers distributed / retrieved
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Fall of Year 1: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: <u>Press release and social media post</u>, indicating availability of <u>brochure</u> on the value of leaf litter and how to create compost for use in your garden on Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of letters sent
- # of clicks on website
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Fall of Year 2: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 1

Document Name and/or Web Address: "Get wise about leaf litter. Consider your options."

Description: Reprise Year 1 flyer as <u>brochure</u> and <u>door hanger</u> that can be distributed to homes in known problem locations along rivers, streams, lakes, and ponds, and promoted on social media and website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # brochures and door hangers distributed
- # of "shares" or "likes" on social media such as Facebook or Twitter
- *#* of hits on the Connecticut River Think Blue website after message distribution

Message Date: Fall of Year 3: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: Reprise press release and social media post from Year 2, indicating availability of brochure on the value of leaf litter and how to create compost for use in your garden on Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of letters sent
- # of clicks on website
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Fall of Year 4: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: PSA to air locally and social media post

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of people reached based on estimate of exposure from radio stations
- # of "shares" or "likes" on social media such as Facebook or Twitter •
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date:

Fall of Year 5: August/September/October

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 1

Document Name and/or Web Address: "Get wise about your lawn. Consider your options"

Description: Flyer and social media post with key actions for good practice **Targeted Audience:** Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of flyers distributed
- # of "shares" or "likes" on social media such as Facebook or Twitter

Message Date: Spring of Year 1: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: <u>Press release and social media post</u>, indicating availability of brochure on soil testing, reading results, and proper follow up that is available on Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- *#* of press releases distributed and *#* of times published
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Spring of Vear 2: April/May

Message Date: Spring of Year 2: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: Reprise <u>flyer and social media post</u> from Year 1 on key actions for good practice

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of flyers distributed
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Spring of Year 3: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: <u>Fact sheet and social media posts</u> on grass clippings = free fertilizer to be posted on Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Spring of Year 4: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: Public service announcement to air locally and post on social media and Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of people reached based on estimate of exposure from radio stations
- # of "shares" or "likes" on social media such as Facebook or Twitter

• # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Spring of Year 5: April/May

BMP Name: Proper management of pet waste

BMP Number: 1

Document Name and/or Web Address: To be provided once completed **Description:** Update Spike <u>poster</u> and send with <u>letter</u> to veterinary offices **Targeted Audience:** Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of letters and posters sent
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Summer of Year 1: June/July

BMP Name: Proper management of pet waste

BMP Number: 1

Document Name and/or Web Address: To be provided once completed **Description:** Issue <u>pledge card</u> on pet waste pick up through social media and Connecticut River Think Blue website. Will include messaging that pet waste is not a fertilizer.

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of pledges
- # of hits on the Connecticut River Think Blue website after message distribution **Message Date:** Summer of Year 2: June/July

BMP Name: Proper management of pet waste **BMP Number:** 1 **Document Name and/or Web Address:** To be provided once completed **Description:** Update Spike poster from Think Blue campaign and distribute as panels on PVTA buses, press release, and post on social media and Think Blue Connecticut River website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- PVTA's estimated exposure rates for panels
- # press releases sent and published
- # of "shares" or "likes" on social media such as Facebook or Twitter
- *#* of hits on the Connecticut River Think Blue website after message distribution

Message Date: Summer of Year 3: June/July

BMP Name: Proper management of pet waste

BMP Number: 1

Document Name and/or Web Address: To be provided once completed **Description:** Flyer insert or e-mail with dog licenses announcing new local signs and local regulations on pet waste pick up

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of flyers distributed
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Winter of Year 4: Change from June/July so that can time with issuance of dog licenses

BMP Name: Proper management of pet waste

BMP Number: 1

Document Name and/or Web Address: To be provided once completed

Description: Reprise issuance of <u>pledge card</u> from Year 2 on pet waste pick up through social media and Connecticut River Think Blue website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of pledges
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Summer of Year 5: June/July

BMP Name: Cigarette butts message

BMP Number: 1

Document Name and/or Web Address: To be provided once completed **Description:** Update Butts material from Think Blue campaign and distribute as <u>panels</u> <u>on PVTA buses</u>, also issue press release, and post on social media and Think Blue Connecticut River website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- PVTA's estimated exposure rates for panels
- *#* press releases sent and published
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Year 2

BMP Name: Nip bottles message

BMP Number: 1

Document Name and/or Web Address: To be provided once completed **Description:** Develop message on nip bottles (and possibly litter generally) and distribute as <u>panels on PVTA buses</u>, also issue press release, and post on social media and Think Blue Connecticut River website

Targeted Audience: Residents

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- PVTA's estimated exposure rates for panels
- # press releases sent and published
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Year 4

BMP Name: Dumpster waste and avoiding contaminated flows message **BMP Number:** 2

Document Name and/or Web Address: To be provided once completed **Description:** Customize Think Blue MA material to create attractive <u>flyer</u> for waste management companies in the region to distribute to business customers. Provide further related instruction/information on Connecticut River Think Blue website.

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of flyers distributed
- # of "shares" or "likes" on social media such as Facebook or Twitter

• # of hits on the Connecticut River Think Blue website after message distribution **Message Date:** Year 2

BMP Name: Installation of hooded catch basins to keep fuels from local surface waters **BMP Number:** 2

Document Name and/or Web Address: To be provided once completed **Description:** <u>Letter</u> to facility directors of properties with large parking lots. **Targeted Audience:** Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of letters sent
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Year 4

BMP Name: Proper disposal of leaf litter

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Letter from Stormwater Committee to landscapers in region on importance of proper disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Fall of Year 1: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Mailing to landscapers in the region that lists locations for proper disposal of commercial leaf litter

Targeted Audience: Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Fall of Year 2: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Reprise and update Year 1 letter from Stormwater Committee to

landscapers in region on importance of proper disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Fall of Year 3: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Reprise and update Year 2 mailing to landscapers in the region that lists locations for proper disposal of commercial leaf litter

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Fall of Year 4: August/September/October

BMP Name: Proper disposal of leaf litter

BMP Number: 2

Document Name and/or Web Address: To be provided once completed **Description:** Reprise and update Year 3 letter from Stormwater Committee to landscapers in region on importance of proper disposal

Targeted Audience: Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Fall of Year 5: August/September/October

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: <u>Letter</u> from Stormwater Committee to landscapers in region on importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Spring of Year 1: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 2

Document Name and/or Web Address: To be provided once completed **Description:** <u>Workshop</u> for large institutions to promote better lawns/turf management and awareness of MassDAR fertilizer regulations and nitrogen concerns in region **Targeted Audience:** Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC Measurable Goal: Number of people reached, including:

• # of attendees

Message Date: Spring of Year 2: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Workshop for professional landscapers on importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC

CRSWC working with UMass Extension

- Measurable Goal: Number of people reached, including:
 - # of attendees

Message Date: Spring of Year 3: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 2

Document Name and/or Web Address: To be provided once completed **Description:** Workshop for Garden Center staff in the region on best recommendations, including importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

Targeted Audience: Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC working with UMass Extension

Measurable Goal: Number of people reached, including:

• # of attendees

Message Date: Spring of Year 4: April/May

BMP Name: Importance of soil test, proper use of fertilizers, and value of grass clippings/proper disposal

BMP Number: 2

Document Name and/or Web Address: To be provided once completed **Description:** Reprise and update Year 1 letter from Stormwater Committee to landscapers in region on importance of soil testing, proper use of fertilizers, and value of grass clippings/proper disposal

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters sent

Message Date: Spring of Year 5: April/May

BMP Number: 2

Document Name and/or Web Address: To be provided once completed

Description: Letter targeting certain businesses, commercial, and institutional property owners explaining strategies for geese management and resources

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• *#* of letters distributed

Message Date: Summer of Year 1: June/July

BMP Name: Proper management of animal waste (pet and geese) **BMP Number:** 1

Document Name and/or Web Address: To be provided once completed

Description: Letter to larger properties with problem locations offering sign design template promoting pet waste pick up

Targeted Audience: Businesses, institutions and commercial facilities **Responsible Department/Parties:** DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters distributed

Message Date: Summer of Year 2: June/July

BMP Name: Proper management of animal waste (pet and geese) **BMP Number:** 2

Document Name and/or Web Address: To be provided once completed **Description:** Piggyback on messaging for residents in Year 3 on pet waste, updating Spike poster from Think Blue campaign and distribute as panels on PVTA buses, press release, and post on social media and Think Blue Connecticut River website

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- PVTA's estimated exposure rates for panels
- *#* press releases sent and published
- # of "shares" or "likes" on social media such as Facebook or Twitter
- # of hits on the Connecticut River Think Blue website after message distribution

Message Date: Summer of Year 3: June/July

BMP Name: Proper management of animal waste (pet and geese) **BMP Number:** 2

Document Name and/or Web Address: To be provided once completed **Description:** Reprise and update Year 1 letter targeting certain businesses, commercial, and institutional property owners explaining strategies for geese management and resources

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• # of letters distributed

Message Date: Summer of Year 4: June/July

BMP Name: Proper management of animal waste (pet and geese) **BMP Number:** 2

Document Name and/or Web Address: To be provided once completed **Description:** Reprise and update Year 2 letter to larger properties with problem locations offering sign design template promoting pet waste pick up

Targeted Audience: Businesses, institutions and commercial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

• *#* of letters distributed

Message Date: Summer of Year 5: June/July

BMP Name: New MS4 development standards and E&S control **BMP Number:** 3

Document Name and/or Web Address: To be provided once completed **Description:** <u>Workshop</u> at regional conference (Western Mass Developers Conference would be good target if held) on new MS4 development standards and E&S control **Targeted Audience:** Developers (construction)

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # attending workshop
- results from post workshop survey

Message Date: Year 2

BMP Name: LID strategies and technologies

BMP Number: 5

Document Name and/or Web Address: To be provided once completed

Description: <u>Workshop</u> at regional conference (Western Mass Developers Conference would be good target if held) on LID strategies and technologies

Targeted Audience: Developers (construction)

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # attending workshop
- results from post workshop survey

Message Date: Year 4

BMP Name: Fleet maintenance

BMP Number: 4

Document Name and/or Web Address: To be provided once completed **Description:** Customize Think Blue MA material to create attractive <u>fact sheet</u> promoting best practices for fleet maintenance and send to local industrial facilities. **Targeted Audience:** Industrial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of fact sheets sent
- # of hits on the Connecticut River Think Blue website after message distribution Message Date: Year 2

BMP Name: Installation of hooded catch basins to keep fuels from local surface waters

BMP Number: 6

Document Name and/or Web Address: To be provided once completed **Description:** <u>Letter</u> to facility directors of properties with large parking lots. Provide further related instruction/information on Connecticut River Think Blue website. **Targeted Audience:** Industrial facilities

Responsible Department/Parties: DPW, Select Board, ConCom, CRC, LMC, PVPC CRSWC

Measurable Goal: Number of people reached, including:

- # of letters sent
- # of hits on the Connecticut River Think Blue website after message distribution **Message Date:** Year 4



Reference Documents

Massachusetts MS4 First-Year Stormwater Management Program (SWMP) Checklist (For Permittees Authorized Under the Previous Permit), EPA Region 1



Massachusetts MS4 First-Year Stormwater Management Program (SWMP) Checklist (For Permittees Authorized Under the Previous Permit)

The Massachusetts MS4 First-Year SWMP Checklist sets out Minimum Control Measure (MCM) elements that must be included in SWMPs by July 1, 2019 for all permittees that were covered under the previous MS4 permit. MCM incorporation deadlines for newly designated MS4s differ from MCM deadlines for MS4s authorized under the previous permit. Deadlines for newly designated permittees are set out in Section 1.10.3. Deadlines for previously authorized permittees are set out in Section 1.10.2. Use this checklist as a guide as you review and update your SWMP to address these requirements.

SMALL MS4 AUTHORIZATION

 $\hfill\square$ Date that the NOI was submitted and the location of the NOI

 $\hfill\square$ Date that authorization was granted and the location of the authorization letter

RECEIVING WATERS

□ Identify all receiving waters and impairments to waterbodies

 $\hfill \Box$ Identify the number of outfalls that discharge to each waterbody segment

ELIGIBILITY DETERMINATION UNDER THE ENDANGERED

SPECIES ACT (Attach and reference your NOI)

- □ Appendix C determination under the U.S. Fish and Wildlife Endangered Species Act (ESA)
- □ The Criterion used to certify ESA eligibility
- □ Additional measures required by the U.S. Fish and Wildlife Service (if any)

ELIGIBILITY DETERMINATION UNDER THE NATIONAL HISTORIC PRESERVATION ACT (NHPA)

(Attach and reference your NOI)

- □ Appendix D property screening determination
- □ The Criterion used to certify NHPA eligibility
- □ Additional documents from the State Historic Preservation Officer (SHPO) or Tribal Historic

Preservation Officer (THPO)

□ Additional measures required by the SHPO/THPO to avoid/minimize adverse impacts (if any)

MCM 1: PUBLIC EDUCATION AND OUTREACH

□ Identify all planned BMPs

 $\hfill\square$ Identify the locations of applicable materials for each BMP

- □ Identify the target audience(s)
- □ Identify the measurable goals
- □ Identify the dates that message(s) are sent to each target audience

 $\hfill\square$ Identify the responsible parties involved in ensuring the completion of the BMP

MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION

- □ The location of the SWMP for public access
- □ Provisions for public participation in SWMP development

□ Identify any additional planned BMPs, responsible party or parties, location of the documents required to complete the BMP, and measurable goals

MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

□ Reference legal authority

□ Identify the department responsible for illicit connection enforcement

- □ Annual Sanitary Sewer Overflow (SSO) Inventory
- □ MS4 system map
- □ IDDE Program Document
- □ Outfall/interconnection inventory and ranking
- Employee training content and dates

MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

- □ Reference legal authority
- □ Site plan review procedures
- □ Procedures for site inspection and enforcement of

sediment and erosion control measures

MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

- □ Reference legal authority
- □ Green infrastructure report
- □ List of municipal retrofit opportunities
- □ Guidelines for street design and parking lots

MCM 6: GOOD HOUSEKEEPING AND POLLUTION PREVENTION FOR PERMITTEE-OWNED OPERATION

- Catch basin cleaning program
- □ Street sweeping program
- □ Stormwater treatment structure inspection and maintenance procedures
- □ Winter road maintenance program
Illicit Discharge Detection and Elimination Plan Implementation Timeline, EPA Region 1



Potential Pollutants Associated with Municipal Activities, California Stormwater BMP Handbook

| Pollutant Impac | cts on Water Quality |
|-------------------------|--|
| Sediment | Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter. |
| Nutrients | Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish. |
| Bacteria and Viruses | Bacteria and viruses are common contaminates of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming. |
| Oil and Grease | Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal. |
| Metals | Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies. |
| Organics | Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways. |
| Pesticides | Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds. |
| Gross Pollutants | Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic "eye sore" in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills. |
| Vector Production | Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP's for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002). |

Source: California Stormwater Quality Association, Stormwater BMP Handbook, 2003.

Potential pollutants likely associated with specific *municipal facilities*

| | | | | Poter | ntial P | olluta | nts | | |
|--|----------|-----------|-------|--------|----------|--------------|----------|------------|-----------------------------------|
| Municipality Facility Activity | Sediment | Nutrients | Trash | Metals | Bacteria | Oil & Grease | Organics | Pesticides | Oxygen Demanding Substances |
| Building and Grounds Maintenance and Repair | Х | Х | Х | Х | Х | Х | Х | Х | Х |
| Parking/Storage Area Maintenance | Х | Х | Х | Х | Х | Х | Х | | Х |
| Waste Handling and Disposal | Х | Х | Х | Х | Х | Х | Х | Х | Х |
| Vehicle and Equipment Fueling | | | Х | Х | | Х | Х | | |
| Vehicle and Equipment Maintenance and Repair | | | | Х | | Х | Х | | |
| Vehicle and Equipment Washing and Steam Cleaning | Х | Х | Х | Х | | Х | Х | | |
| Outdoor Loading and Unloading of Materials | Х | Х | Х | Х | | Х | Х | Х | Х |
| Outdoor Container Storage of Liquids | | Х | | Х | | Х | Х | Х | Х |
| Outdoor Storage of Raw Materials | Х | Х | Х | | | Х | Х | Х | Х |
| Outdoor Process Equipment | Х | | Х | Х | | Х | Х | | |
| Overwater Activities | | | Х | Х | Х | Х | Х | Х | Х |
| Landscape Maintenance | Х | Х | Х | | Х | | | Х | Х |
| Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/)(slightly modified) | | | | | | | | | |

Potential pollutants likely associated with *municipal activities*

| | | | | | Pote | ntial l | Pollut | ants | | |
|---|---|----------|-----------|------------|--------|----------|--------------|----------|------------|-----------------------------------|
| Municipal Program | Activities | Sediment | Nutrients | Trash | Metals | Bacteria | Oil & Grease | Organics | Pesticides | Oxygen Demanding Substances |
| | Sweeping and Cleaning | Х | | Х | Х | | Х | | | Х |
| Roads, Streets, and Highways Operation | Street Repair, Maintenance, and Striping/Painting | | | Х | Х | | Х | Х | | |
| and Maintenance | Bridge and Structure Maintenance | X | | Х | Х | | Х | Х | | |
| Plaza, Sidewalk, and | Surface Cleaning | Х | Х | | | Х | Х | | | Х |
| Parking Lot | Graffiti Cleaning | | Х | | Х | | | Х | | |
| Maintenance and | Sidewalk Repair | Х | | Х | | | | | | |
| Cleaning | Cleaning Controlling Litter | | | Х | | Х | Х | | | Х |
| Fountains, Pools, | Fountain and Pool Draining | | Х | | | | | Х | | |
| Lakes, and Lagoons Maintenance | Lake and Lagoon Maintenance | X | X | X | | Х | | | Х | Х |
| Landscape Maintenance | Mowing/Trimming/Planting | Х | Х | Х | | Х | | | Х | Х |
| | Fertilizer & Pesticide Management | X | X | | | | | | Х | |
| | Managing Landscape Wastes | | | Х | | | | | Х | Х |
| | Erosion Control | X | X | | | | | | | |
| | Inspection and Cleaning of Stormwater Conveyance Structures | X | X | X | | X | | X | | X |
| Operation and | Controlling Illicit Connections and Discharges | X | X | X | Х | Х | Х | Х | Х | X |
| Maintenance | Controlling Illegal Dumping | Х | Х | Х | Х | Х | Х | Х | Х | Х |
| | Maintenance of Inlet and Outlet Structures | X | | Х | Х | | Х | | | X |
| | Solid Waste Collection | | X | X | Х | Х | Х | Х | | Х |
| Waste Handling and Disposal | Waste Reduction and Recycling | | | X | Х | | | | | Х |
| | Household Hazardous Waste Collection | | | X | Х | | Х | X | Х | |
| | Controlling Litter | | | Х | X | X | | Х | | Х |
| | Controlling Illegal Dumping | Х | | X | _ | X | Х | | Х | X |
| W. 10 | Water Line Maintenance | X | | | | Х | Х | | | |
| Water and Sewer | Sanitary Sewer Maintenance | Х | 1 | 1 | | Х | Х | | | Х |
| Maintenance | Spill/Leak/Overflow Control, Response and Containment | X | X | | | Х | | X | | Х |
| Sources California Storm | water PMD Handbook (http://www | u cab | mpha | ı ndhaa | ks oo | m /) | 1 | I | I | |

Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/)

Tips for Organizing and Conducting Volunteer Clean-up Events, Manchester Urban Ponds Restoration Program

Tips for Organizing and Conducting Volunteer Clean-up Events

By: Jen Drociak – Acting Coordinator / Volunteer, Manchester Urban Ponds Restoration Program (UPRP)

Step 1: Plan Your Clean-Up Event

A. Land and / or Shore? Determine the Location(s): Determine where, in proximity to the waterbody, your group wishes to concentrate its efforts on during a clean-up event. To find heavily-littered areas, and / or areas that are prone to illegal dumping, walk along the shore, in advance, to identify location(s) for the clean-up event. Identify accessible paths along the shoreline and / or on public trails that are easy for people to walk. The location(s) may be largely determined by public (or lake / homeowner association) access points such as a public beach, boat-launch, or park. If the location is large, consider identifying smaller locations within the larger location which can be managed by individual group leaders and groups. Determining the location(s) will provide you with an idea of the footwear that may be needed for the task based upon



the terrain. If the clean-up event will be located at a beach or a dry area, sandals or sneakers may be adequate. If it will be located in a wetland or mucky area, knee-boots may be appropriate. If it will be located in water, hipboots may be most appropriate. Determining the location(s) will also provide you with a sense of how many volunteers your group is seeking for the clean-up event.

The UPRP typically focuses clean-up efforts in the parks adjacent to the ponds by skirting around the ponds themselves. This involves differing terrain, and thus footwear. There have been occasions, however, where one or more volunteers have also used a small fishing boat to retrieve trash from the water that is too deep to obtain via hip-waders.

B. Obtain Landowner Permission: Whether the location(s) of your clean-up event is / are municipally-owned or privately-owned, determine who owns the property in advance in order to obtain permission. If you do not know who the property owner is, visit your municipality's on-line assessor's website to review the tax map(s) and property card(s) associated with the area. It is typically easy to obtain permission to organize a clean-up on municipally-owned / public land. If the location(s) are on privately-owned land, talk to the land owner(s) and explain why you are organizing a clean-up in that area, along with the benefits of doing so. Obtain permission from them in writing, if you can, by considering they sign a form. Verbal permission may be adequate, however.



The UPRP organizes clean-up events on land owned by Public Works and Parks, Recreation, and Cemetery Departments. We have not had to seek private landowner permission. We simply notify the Manchester Public Works Department and Parks, Recreation, and Cemetery Department of the dates of the clean-up events.

C. Determine the Task(s) at Hand: Determine what you will request of your volunteers. Will it be the removal of trash only? If so, will it be the removal of large items only or all items including the minutia? Will it be the removal of yard waste only? Graffiti removal or other vandalism? All of the above? Determining the task(s) at hand will provide you with an idea of the supplies (and hours) you will need to perform the task(s).

The UPRP typically removes trash only. We typically do not pick up the minutia (cigarette butts, bottle caps, etc.) due to the large volume of trash we collect and the limited amount of time and volunteers we have at each clean-up event.



D. Determine the Check-In Location: Based upon the chosen location(s) of the clean-up event, consider and determine the most appropriate location for volunteers to initially gather to check in and obtain supplies, as well as to reconvene at the end of the clean-up event. This may be a kiosk, boat-launch, or specific location on a beach or in a park. Try to stay away from busy roads or areas that are difficult to access.

The UPRP typically requests that volunteers meet in one central / wellknown location such as a kiosk in a parking lot or boat-launch. We have kept the initial meeting location at each clean-up event consistent over the years.

E. Determine the Most Appropriate Age(s) of Your Volunteers: Based upon the task(s) at hand, determine the most appropriate age(s) of your volunteers. Are you seeking adults only? Children? Both? Do you have tasks that all can partake in, or are the tasks age-specific?

The UPRP generally seeks volunteers of all ages for clean-up events and encourage everyone, despite their age or ability, to participate in a manner of how they most feel comfortable.

F. Determine the Desired Number of Volunteers: Based upon the number and location(s) that are chosen for the clean-up event, determine the desired number of volunteers to partake in the event.

The UPRP typically splits the area adjacent to the ponds into several areas, or groups of volunteers.

G. Create Map(s) of the Location(s) <u>OR</u> Plan on Designating a "Group Leader" for Each Location: If the location(s) is / are large enough to break into more than one group during the clean-up event, consider making aerial photographic "maps" (or using topographic maps) of each group's area, indicating on the map the original meeting location, and the group's start and end point.

> The UPRP has created aerial maps to use in the past. However, what we consider to be more helpful is having a "group leader" (returning volunteer or someone familiar with the area) lead a small group of other volunteers in each designated area.

Step 2: Schedule Your Clean-Up Event

A. Choose a Date: Choose a date for the clean-up event at a time of year that makes the most sense to your group. Keep in mind that while lakes and ponds have year-round residents, the majority of residents are likely seasonal and may not arrive for the season, or on or around Memorial Day weekend. Thus, a late-spring or late-fall cleanup may not be the most appropriate time as it may not garner the most volunteers. An early or mid-summer cleanup may be the most appropriate. Consider, perhaps, scheduling the event in conjunction with an annual lake association meeting or holiday barbeque. Also consider scheduling the date of the clean-up event at least a

month in advance to allow time to prepare (gather supplies and recruit volunteers). Lastly, consider a rain date.

The UPRP typically schedules annual pond and park cleanups on Saturday mornings during the last two weeks in April and the first one or two weeks in May. This is because a) this time of year is typically after the snow has melted and b) this time of year is typically before "leaf-in" (and in the case of some of these areas, this is important, as the areas are overtaken with thick stands of invasive species). We do not offer rain dates.







B. Choose a Time: Determine the amount of time it may take to clean up the area(s) of your choosing. Will it take one hour? Two hours? More? This is also a factor of the number of volunteers that attend (typically the more volunteers that attend the least amount of time the clean-up will take). If you believe the area(s) may take more than two hours, it may be best to schedule a two-part clean-up event. Also consider the time of day most appropriate to your group, especially if it is scheduled in conjunction with (or before or after) another event such as an annual meeting or holiday barbeque.



The UPRP has realized that 1 $\frac{1}{2}$ - 2 hours is a sufficient amount of time to allot to clean-up events. We also realize that volunteers typically do not have the time or patience to commit to any more time in one day than that. We have also typically scheduled the clean-up events from 9:00AM to 11:00AM, with a meeting time of no later than 8:50AM. Early-morning clean-up events afford volunteers to have the remainder of the day for other things.

Step 3: Determine and Obtain Necessary Supplies

A. Determine the Necessary Supplies: Determining the task(s) at hand will determine your necessary supplies. If your clean-up event is strictly a trash removal cleanup, you may only need to obtain latex gloves and trash bags. If your clean-up event also includes yard-waste removal, you may need to obtain paper yard-waste bags, rakes and / or other tools.

Since the UPRP clean-up events are strictly focused on trash-removal, the only supplies we must procure are latex gloves (medium sized) and trash bags. We also have a few hand-held trash-grabbers since some volunteers find them helpful in reaching difficult areas and / or to prevent excessive bending.



B. Obtain the Necessary Supplies: Determine how you will obtain the necessary supplies. Does your group have a budget? Will your group be purchasing your supplies? Will your group fundraise to purchase supplies? Will your group borrow supplies, from perhaps the town or city?

The UPRP typically obtains supplies from the Manchester Parks, Recreation, and Cemetery Department. These supplies typically only include latex gloves and trash bags, but have included, in the past, rakes, other tools and yard waste bags. We also typically have a large container of hand-sanitizer available.

C. Obtain a First-Aid Kit: Consider obtaining one or more First Aid kits (for one or more groups of volunteers) in case it is needed. It is better to be proactively safe!

The UPRP has one First-Aid kit for use.

D. Consider Providing Water and Snacks: If your group has the financial means, consider providing water and snacks to your volunteers for afterwards. If your group does not have the financial means, consider soliciting donations from local establishments or having your group bake some treats, and bring a large cooler of ice water (or iced-tea) and some paper (or reusable plastic) cups.

> The UPRP does not regularly provide water and snacks to volunteers since we do not have a budget to do so. On occasion, we have been able to obtain donations for yogurt snacks from Stonyfield Farm. On occasion we have also brought or made a baked good.



Step 4: Determine Your Waste Disposal Options

A. Determine Your Waste Disposal Options: At the end of your cleanup event, determine how and where you will dispose of the trash that was collected. Is there a dumpster on site that your group has permission to use? Are there already trash and / or recycling carts on site that your group has permission to use? If not, consider contacting your municipality's Highway Department, Parks & Recreation Department, or Road Agent, at least a month in advance, who may be able to coordinate trash and / or recycling pickup from your municipality's vendor (i.e. Waste Management, Pinard, etc.). Determine when the trash and / or recycling will be picked up and what the requirements for pickup are (especially with items such as vehicular tires and batteries, etc.). In addition, consider recruiting volunteers with pick-up trucks, especially if your group is cleaning multiple areas, and trash must be stockpiled in one area at the end of the event. Similarly, if you cannot obtain trash pick-up services, volunteers with pickup trucks, and a municipal sticker (or permission) may be able to haul the trash and / or recycling to your local landfill or transfer station for free.

> The UPRP typically sends notification of the clean-up schedule to the Manchester Public Works Director as soon as the dates are calendared. The Public Works Director, or staff, has coordinated with Manchester's solid waste collection staff to collect the trash on



08/11/2013 10:39

the Monday following the cleanup event (which have been held on Saturdays). While there have been a few times the Public Works Department has made one or more 95-gallon recycling carts available for the clean-up events, they are generally not available, and therefore, recycling is not typically sorted from other debris. All (tied / secure) bags of trash have been neatly placed in the same locations over the years; typically underneath or adjacent to the informational kiosks. Trash collected that does not fit into bags is also neatly placed adjacent to the bagged trash. We also recruit volunteers with pick-up trucks so that trash from different areas of the cleanup can be taken to one designated location at the end of the event. In addition, one of our volunteers separates steel and other scrap metal and takes it to a scrap metal recycling facility.

Step 5: Advertise Your Clean-Up Event / Recruit Volunteers

A. Determine Any Project Partners: In addition to volunteers who live around the waterbody, and any other residents of the town, determining any existing local groups or clubs that may be able to assist with the clean-up event is always helpful. Is there a local middle school, high school, or even college (if nearby) environmental club? A local chapter of the Student Conservation Association (SCA)? Any other organization, volunteer group, or club? A lot of these groups and / or clubs seek new community service projects and can help you garner additional / new volunteers.



The UPRP has partnered with the Student Conservation Association, local high school ecology clubs, local boy-scout troops, trout-fishing clubs, geo-cashing groups, and others in the past. This has helped garner additional / new volunteers.

B. Determine the Best Way(s) to Advertise Your Clean-Up Event: Determine the target audience of volunteers and consider the best way(s) to advertise your clean-up event. Is it by e-mail? Website? Post-card? Posting of a flyer on a community bulletin board and / or kiosk? An annual lake association newsletter? An advertisement in a local newspaper? TV? Radio? facebook / social media? All of the above? Remember, printed materials and postage cost money, as typically do newspaper and radio advertisements. If your group has available funds for this, that is one thing. If not, instead of



Tips for Organizing and Conducting Volunteer Clean-Up Events (01/25/2016)

simply placing a paid advertisement in a newspaper, try reaching out to a local news reporter to see if s/he will write a story about your cleanup (or write and submit an op-ed piece). This is usually good, free, advertisement. Also determine the most appropriate time to advertise for the clean-up event. Will you be advertising only once, or multiple times before the event?

The UPRP has typically advertised clean-up events in the following manners: 1) The UPRP webpage, 2) The City of Manchester website "Calendar of Events", 3) the UPRP facebook page, and 4) E-newsletter / e-mail. Local newspapers are also always gracious to cover the event(s) in a story beforehand. The UPRP typically sends posts the clean-up events on the website, and sends out an e-mail approximately three weeks in advance of the cleanup. The UPRP will then send weekly e-mails.

C. Create an E-Mail Distribution List: If you don't already have an email distribution list, consider creating one. This may include names and e-mail addresses of lake association members, conservation commissioners, selectmen, municipal employees / department heads and others you know who may be interested. You can add to this with each clean-up event your group coordinates. If you have access to Constant Contact, Mailer, Mail Chimp, or other similar e-mail platform, this may be easier and more appropriate to use. If not, e-mail is a good starting place.



The UPRP has an e-mail distribution list which consists of approximately 200 individuals consisting of city aldermen, city

department heads, conservation commissioners, media contacts, active school groups and other environmental organizations, and former volunteers. With every e-mail sent, an option is sent to opt-out of receiving e-mails by having a name and e-mail address removed from the list. This list is updated at least twice a year.

D. Before You Mail, Post, (or Hit the Send Button): Before you mail or post your flyer, or hit the send button to your e-mail distribution list, be sure to include the Who, What, Where, When, Why, and How to ensure all information is readily available. Why are you seeking volunteers? Who are you seeking as volunteers? What tasks are you seeking of volunteers? Where (general location and specific meeting location) are you seeking volunteers? When (date / time) are you seeking volunteers? Is there a rain date? How will the tasks be conducted? What should the volunteers wear or bring? What will be provided? Are you requesting an RSVP? For more information, who should they contact? Prepare your volunteers by letting them know what time to arrive, what to wear (clothes that can get dirty or wet, long pants, work gloves, boots or sturdy shoes, etc.), what to bring (sunscreen, insect repellant, water) and what to do in case of bad weather (rain date or cancellation information / phone number).

For Example: Seeking volunteers of all ages to assist in an annual trash clean-up at Black Brook and Blodget Park in Manchester on Saturday, April 23, 2016 from 9:00AM – 11:00AM. Volunteers will



partner to clean the park and skirt the edges of the brook and wetland complex to remove accumulated trash. Please dress appropriately for weather as no rain date is scheduled. Latex gloves and trash bags will be provided, but please wear knee-boots, or hip-waders if you have them. No RSVP necessary. For more information, please visit <u>www.manchesternh.gov/urbanponds</u> or contact Jen Drociak at <u>email@gmail.com</u> or (603) ### - #####. We look forward to seeing you there!

Step 6: Conduct Your Clean-Up Event

A. Arrive Early: Consider arriving 15 minutes to one hour earlier than your volunteers so that you can set up at your check in location. Consider setting up the following: "Clean-Up Attendance Sheet", water and / or refreshments, first aid and safety, trash bags and clean-up supplies, organizational information (flyers, fact sheets, reports, etc.). Consider also walking around the location(s) to identify any new trash and / or safely concerns that may have accrued / arisen since your last visit.

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The UPRP coordinator(s) typically meet on-site approximately 15-30 minutes in advance of volunteers to set up trash bags, latex gloves, and the "Clean-Up Attendance Sheet". We also survey the site to identify any new trash or safety hazards to relay to volunteers.

B. Welcome Your Volunteers and Ask Them to Sign-In: Welcome each volunteer upon arrival and ask that they sign a "Clean-Up Attendance Sheet" so that your group may account for number of volunteers and volunteer hours contributed to the cleanup event. Consider leaving the "Clean-Up Attendance Sheet" at the check-in location for those volunteers who may have to leave (and sign out) earlier than the full allotted time.

> The UPRP "Clean-Up Attendance Sheet" typically notes the location and date of the event, and has room to tally the number of volunteers, number of volunteer hours, number of bags of trash and other debris. It also has fields for volunteers to print their name, address, and e-mail, and note the time they checked in, and the time they checked out.

| Location: Date: Hours at Event:# Volunteers:# Volunteer Hours: | | | | | | |
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- **C.** Ask Volunteers to Sign a Liability Waiver and Photo-Release Form: Trash found in a waterbody will likely be dirty, rusty, slimy, and sharp. In addition, your group may find broken glass, hypodermic needles and hazardous wastes. Heavy items should not be lifted alone. Caution is needed when handling all trash in order to avoid cuts and other injuries. Consider asking volunteers to sign a liability waiver and photo-release form. These can be two documents, or combined into one. The form should explain any dangers associated with the clean-up event and reminds volunteers to act responsibly for their own safety. The form helps protect you and your organization from potential liability if a volunteer is injured. In addition, with their permission, it allows you to use photographs taken that day. Examples of these forms can be found on-line.
- **D.** Introduce Yourself and Provide Opening Remarks: Introduce yourself, thank special guests, sponsors / project partners (who have helped by providing goods or services), and volunteers. If the media is there, they may want to interview you or for you to provide a brief quote. Consider preparing remarks ahead-of-time, and allowing any special guests to also provide opening remarks to the group.

The UPRP coordinators typically introduce themselves, and thank any special guests (city aldermen, city employees, etc.), sponsors (municipal and local), and volunteers themselves.

E. Provide Volunteers with a Brief Background / History of the Area(s): To acquaint new volunteers to your group / program and to the area, consider providing a brief background / history about the waterbody / area, distinguishing features, and its importance to the community. Consider showing volunteers a map of the waterbody and / or watershed. Also consider providing information such as points of interest, recent (or upcoming) restoration projects in the area, and / or information relative to water quality / monitoring, exotic species, other volunteer opportunities, etc.



Many of the UPRP volunteers are returning volunteers. However, with any new volunteers, we typically offer basic information on the program itself, as well as the watershed, inlet / outlet, history fun-facts, and any recent / upcoming restoration projects. We have fact sheets on each of our ponds on our website, which we can also direct them to for more information.







Tips for Organizing and Conducting Volunteer Clean-Up Events (01/25/2016)

F. Provide Necessary Supplies to Your Volunteers: Ensure your volunteers have ample supplies for the duration of the clean-up event. If they did not bring their own work gloves, request that they take two pairs of Latex gloves (in case one pair rips), and more than one trash bag, depending on the designated location(s). If your group is also removing yard waste, provide your volunteers with rakes and lawn-waste bags. Request that they return any unused pair of gloves, trash bags, and any supplies to you at the end of the clean-up event. Consider also leaving supplies out in a designated location along with the "Clean-Up Attendance Sheet" for volunteers who may show up late.



Many of the UPRP bring their own work gloves. We then issue two pairs of Latex gloves to each volunteer as well as multiple trash bags, depending on the specific area they will be cleaning up. We request that all unused supplies be returned at the end of the clean-up.

G. Provide Your Volunteers with Instructions for the Clean-Up Event: Provide your volunteers with instructions for the clean-up event such as what they will be retrieving (large trash only, all trash, etc.) what not to pick up (hypodermic needles, cigarette butts, etc.), if they are to separate trash from recycling or not (in which case they may carry two bags at once – different colors may be helpful - one for trash and one for recycling), what is considered recyclable if they are separating recycling from trash (this differs in each community and some vendors may not accept unclean / dirty recyclables from clean-up events), etc. Also provide your volunteers with safety tips and a general schedule of the clean-up event including the location to reconvene at the end and where to place trash. Ensure everyone knows there to focus their efforts and then to stop.

The UPRP typically only picks up large items, and does not typically separate trash from recycling, due to limited means. However, we have done so in the past and have provided volunteers with two trash bags – one for recycling, and one for trash.

H. Make It Fun! Play One or More Games While You're at It! Why not make things fun while you're out there picking up trash? Consider playing one or more games (especially if some of the volunteers are children) such as a scavenger hunt, who can find the most interesting or unusual piece of trash, who can find the largest piece of trash, who collects the most trash, etc. Consider offering a prize and / or certificate to the winner(s) of one or more of the games you play.

The UPRP has, for many years, asked volunteers to find the "Most Interesting or Unusual Piece of Trash" at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for "judging" by the coordinator(s) of the clean-up event. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken. We have found some really interesting an unusual pieces of trash over the years, and have kept a list!



I. Relinquish Groups of Volunteers / Group Leader(s) to Designated Area(s): If you are separating

volunteers into more than one group for your clean-up event, relinquish the groups to their designated location(s). If you don't have a group leader for each group, relinquish them with their maps in hand. If you have a group leader be sure to introduce the volunteers in each group to their group leader before relinquishing them to their designated location(s). Remember to consider that not all locations may need the same number of volunteers.

The UPRP typically asks one or more returning volunteers if they would agree to be group leaders. Not all locations require the same amount of volunteers, however. This is decided based upon the area of the designated location(s), as well as the amount of trash to be removed in the designated location(s). For example, one small area along the shoreline may only require two volunteers, but a larger area in another location with a lot of trash may require 4-6 or more volunteers.



J. Reconvene at Initial Check-In Area at Designated Time: After the allotted period of time has elapsed for the clean-up event, reconvene at your initial check-in area. Account for all volunteers that did not sign out early.

The UPRP always meets at our initial check-in area. We then account for each group leader and group of volunteers (who did not sign out early) to ensure all have safely returned.

K. Count Full Bags of Trash (or Weigh All Trash): Count all full bags of trash that were collected and returned. If one or more bags are returned and are not considered full, consider consolidating them to make full bags of trash. That way, your measurements of "full bags" collected for this, and any other clean-up events, are consistently measured / counted. If your group has access to a scale, you consider weighing your bags of trash, and any other trash, to account for pounds of trash collected. Another option is to ask if the vendor who is charged with collecting the trash after the event can inform your group of the weight of the collection when the truck enters the scale at the weigh-station before drop-off at the refuse facility.

Since trash collected at UPRP clean-up events has not been weighed by a scale, and trash has been weighed by vendor truck only occasionally, to be consistent, we always count full bags at the site, and consolidate bags of trash that are returned not full in order to make full bags.

L. Account for and Count Other Items: Account for and count the quantity of other items of trash collected that cannot fit into bags.

The UPRP always accounts for and counts any trash that is collected that cannot be bagged. This typically includes vehicular tires, shopping carts, wood debris, construction debris, or any other items that have been illegally dumped.

M. Share the Data with Volunteers: Once you have tallied the final numbers of bags of trash and other items collected during the clean-up event, announce them to your volunteers so they know just how much trash

and other debris they removed from the area, know how important their contribution of time and efforts were, and have immediate results of their work!

N. Tally Final Numbers on Clean-Up Attendance Sheet: Once you have tallied everything collected, write these numbers on your "Clean-Up Attendance Sheet".

O. Take Photographs: To commemorate the success of your clean-up event, take a photo of the trash collected, and of the group of volunteers who helped collect it!

The UPRP always photographs the trash collected (in and out of bags), as well as takes a group photograph in front of or aside the trash collected.









P. Award a Prize, or Two, or Three: If you played one or more games during the clean-up event, consider awarding a certificate or prize to your winner(s) and photographing them with their winning piece of trash!

The UPRP has, for many years, asked volunteers to find the "Most Interesting or Unusual Piece of Trash" at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for "judging" by the coordinator(s) of the clean-up. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken.



Q. Thank the Volunteers: Before parting ways, be sure to thank your volunteers for their assistance! Encourage them to volunteer again. Be sure to individually thank any special guests (aldermen / selectmen, city employees, media, etc.).

At the end of each clean-up event, the UPRP notes upcoming clean-up events in order to encourage volunteers to return for the next event.



Above Left: Volunteers at the 100th Cleanup of the Manchester Urban Ponds Restoration Program. Above Right: Cake served to volunteers at the 100th official cleanup of the Manchester Urban Ponds Restoration Program .

R. Consider Having a Picnic / Cookout / or Lunch: If you have the financial means, consider having a picnic / cookout / lunch afterwards to celebrate your accomplishment. Or, consider soliciting local vendors for food donations in exchange for sponsor / partnership recognition at your clean-up event. If you're not able to make or supply lunch, consider encouraging volunteers to bring a brown-bag lunch for afterwards.

Step 7: Follow Up After the Clean-Up Event

A. Update Your Electronic Records: Now is the time to transpose the information collected on the "Clean-Up Attendance Sheet" into an electronic record-retention system if you have access to one. Perhaps you have access to a database. If not, consider using a Microsoft Excel workbook / spreadsheet system to track measurements from your clean-up events. Now is also the time to update your existing e-mail distribution list with the names and e-mail addresses of those volunteers who participated in your clean-up event.

The UPRP has consistently used Microsoft Excel to track clean-up measurements. In the first worksheet of the workbook, we account for the number of our clean-up event, the location, date, hours spent at the event, numbers of bags of trash collected at the event, number of volunteers at the event, number of volunteer hours at the event, total value of volunteer time for the event, and other items retrieved at the event. For each year tracked, we created a "total" line with auto-calculations to account for the total of each year. To account for the value of volunteer time, we use figures taken from <u>www.independentsector.org</u>. In the second worksheet of the workbook, we account for pond cleanup attendees, where, for each clean-up event, we list the location, date, names (in alphabetical order), address, and hours at event. Similarly, for each year tracked, we created a "total" line. In the third worksheet of the workbook, we have created graphs based upon each year's total metrics. We then transpose these graphs to a Microsoft Word document, then an Adobe PDF document, and post on our website, and at the kiosks.







B. Follow Up With an E-mail or Thank-You Note: It is always nice to follow up with your new (and / or returning) volunteers by sending them a formal personalized thank-you via e-mail or US Postal Service. Besides, who doesn't like receiving a letter in the letter box, especially in this electronic day-in-age?

The UPRP, has, on occasion, sent personalized thank-you cards in the mail. Typically, however, we send a group thank-you via e-mail and attach photographs taken at the event(s), as well as re-cap tallies from the clean-up event(s).

C. Consider Writing an Article for Your Newsletter or the Newspaper: Consider writing an article for your newsletter, if you have one, or a local newsletter or newspaper, summarizing the event with photographs and tallies from the event. Volunteers who helped out at your clean-up event will feel proud of their accomplishment and the results. This is a good way to garner publicity about your group and its event as well as garner additional volunteers in the future.





The UPRP has often written newspaper articles and / or shared summary

information about the clean-up events (at the end of the season) listing sponsors / project partners and volunteers, and including photographs of volunteers at the event, via an electronic newsletter.

From 2000 - 2005 The Manchester Urban Ponds Restoration Program (UPRP) was part of the Supplemental Environmental Projects Plan (SEPP) which was part of an agreement between the City of Manchester, NH Department of Environmental Services, and the US Environmental Protection Agency to address combined sewers in the City. Seven (7) waterbodies in Manchester have been evaluated and monitored for restoration potential. Specific restoration projects to meet the program's goals have also been identified, funded, and completed through this project. Since 2000, the Manchester Urban Ponds Restoration Program has organized 101 clean-up events. Over the past 15 years, 800 volunteers have spent 2,298.50 hours collecting 2,093 bags of trash! This does not include the items illegally "dumped" such as shopping carts (91), tires (388), car batteries, other car parts, construction debris, and other items. In addition, the value of volunteer time spent at these clean-ups has amounted to over \$54,000 over the past 15 years! The Manchester Urban Ponds Restoration Program was awarded an EPA "Environmental Merit Award" in 2011. More information on the Manchester Urban Ponds Restoration Program can be found visiting by www.manchesternh.gov/urbanponds.



Jen Drociak lives in Manchester, NH and holds a Bachelor of Science degree in Environmental Conservation from the University of New Hampshire. She is employed with the New Hampshire Department of Environmental Services where she has worked as a program specialist for the Pollution Prevention Program, a restoration specialist for the NH Coastal Program where she established a monitoring program for pre- and post-restoration projects in NH's salt marshes, and as the Volunteer River Assessment Program Coordinator

where she provided technical assistance to approximately 200 volunteers who collected water quality samples for surface water quality assessments on NH's rivers and streams. Jen has also worked for the Wastewater Engineering Bureau as a grants management specialist and is currently working for the Land Resources Management Bureau as a compliance specialist. Since 2000, Jen has also been involved with the Manchester Urban Ponds Restoration Program, and has served as acting coordinator since 2006 where she largely coordinates annual clean-up events and water quality monitoring.

Standard Operating Procedures for Construction Inspection, Erosion and Sedimentation Inspection, and Constructed BMP Inspection, Central Massachusetts Regional Stormwater Coalition

SOP 5: CONSTRUCTION SITE INSPECTION

Construction sites that lack adequate stormwater controls can contribute a significant amount of sediment to nearby bodies of water. This Standard Operating Procedure describes the major components of a municipal Stormwater Construction Inspection Plan, as well as procedures for evaluating compliance of stormwater controls at construction sites.

Stormwater Construction Inspection Plan

A stormwater Construction Site Inspection program is a program developed by municipalities to track, inspect, and enforce local stormwater requirements at construction sites.

This SOP assumes that the municipality has legal authority (i.e., a bylaw or ordinance) in place, per the requirements of the 2003 Massachusetts MS4 Permit, to require sediment and erosion control at construction sites. This legal authority must require construction site operators "to implement a sediment and erosion control program which includes [Best Management Practices] that are appropriate for the conditions at the construction site, including efforts to minimize the area of the land disturbance." The legal authority must also give inspectors the authority to enter the site.

A municipal stormwater Construction Site Inspection program should include or address the following:

- 1. Construction Site Inventory
 - A tracking system to inventory projects and identify sites for inspection.
 - Track the results of inspection and prioritize sites based on factors such as proximity to waterways, size, slope, and history of past violations.
- 2. Construction Requirements and BMPs
 - Municipalities provide contractors with guidance on the appropriate selection and design of stormwater BMPs.
- 3. Plan Review Procedures
 - Submitted plans must be reviewed to ensure they address local requirements and protect water quality.
- 4. Public Input
 - Per the 2003 Massachusetts MS4 Permit, a program must allow the public to provide comment on inspection procedures, and must consider information provided by the public.
- 5. Construction Site Inspections
 - Identify an inspection frequency for each site.
 - See more detailed information below.
- 6. Enforcement Procedures
 - A written progressive enforcement policy for the inspection program.



- Sanctions, both monetary and non-monetary, shall be utilized to ensure compliance with the program
- 7. Training and Education
 - Municipal staff conducting inspections should receive training on regulatory requirements, BMPs, inspections, and enforcement.

Conducting Stormwater Inspections at Construction Sites

The role of the construction inspector is to ensure that site operations match the approved site plans and the Stormwater Pollution Prevention Plan (SWPPP) for the project, and that all precautions are taken to prevent pollutants and sediment from the construction site from impacting local waterways. The inspector is also expected to determine the adequacy of construction site stormwater quality control measures.

The attached Construction Site Stormwater Inspection Report shall be used by the inspector during site visits. Construction site inspectors should abide by the following guidelines:

- Inspections to monitor stormwater compliance should be performed at least once per month at each active construction site, with priority placed on sites that require coverage under the USEPA 2012 Construction General Permit (i.e., that disturb one or more acres), and sites that are located in the watershed of any 303(d) water bodies.
- 2. The inspection shall begin at a low point and work uphill, observing all discharge points and any off-site support activities.
- 3. Written and photographic records shall be maintained for each site visit.
- 4. During the inspection, the inspector should ask questions of the contractor. Understanding the selection, implementation, and maintenance of BMPs is an important goal of the inspection process, and requires site-specific input.
- 5. The inspector should not recommend or endorse solutions or products. The inspector may offer appropriate advice, but all decisions must be made by the contractor.
- 6. The inspector shall always wear personal protective equipment appropriate for the site.
- 7. The inspector shall abide by the contractor's site-specific safety requirements.
- 8. The inspector has legal authority to enter the site. However, if denied permission to enter the site, the inspector should never force entry.

Prior to planning a site visit, the inspector shall determine if the project is subject to USEPA's 2012 Construction General Permit, which is true if the the project disturbs one or more acres, total. The 2012 Construction General Permit replaces the 2008 Construction General Permit , which expired on February 15, 2012. Operators of sites that required coverage under the USEPA's 2008 Construction General Permit but continue to be active should have submitted a new Notice of Intent (NOI) under the 2012 Permit.



If the site requires this coverage, the inspector shall visit the USEPA Region 1 eNOI website (http://cfpub.epa.gov/npdes/stormwater/cgpenoi.cfm or http://cfpub.epa.gov/npdes/stormwater/ noi/noisearch.cfm) to determine if the contractor filed for coverage under the 2012 and/or 2008 Construction General Permits, respectively. Print a copy of the project's NOI.

If the project disturbs one or more acres and is under construction, but does not show up in either database, the project is in violation of the Construction General Permit. Call the contractor to determine if the NOI process has been started. If not, notify the contractor verbally of this requirement and the violation. Work cannot proceed on the site until a Notice of Intent (NOI) for coverage under the 2012 Construction General Permit has been approved by USEPA. The inspector may choose to print instructions on how to file an NOI and meet with the contractor to review these. Issue a written Stop Work Order until the NOI has been approved by USEPA.

Once it has been determined that the site is in compliance with the 2012 Construction General Permit, the site inspection process can continue. The Construction Site Inspection process shall include the following:

- 1. Plan the inspection before visiting the construction site
 - a. Obtain and review permits, site plans, previous inspection reports, and any other applicable information.
 - b. Print the approved NOI from the USEPA 2012 Construction General Permit NOI website, listed previously.
 - c. Inform the contractor of the planned site visit.
- 2. Meet with the contractor
 - a. Review the Construction SWPPP (if the site includes over one acre of disturbance) or other document, as required by the municipality's legal authority. Compare BMPs in the approved site plans with those shown in the SWPPP.
 - b. Review the project's approved NOI and confirm that information shown continues to be accurate.
 - c. Get a general overview of the project from the contractor.
 - d. Review inspections done by the contractor.
 - e. Review the status of any issues or corrective actions noted in previous inspection reports.
 - f. Discuss any complaints or incidents since the last meeting.
- 3. Inspect perimeter controls
 - a. Examine perimeter controls to determine if they are adequate, properly installed, and properly maintained.
 - b. For each structural BMP, check structural integrity to determine if any portion of the BMP needs to be replaced or requires maintenance.
- 4. Inspect slopes and temporary stockpiles
 - a. Determine if sediment and erosion controls are effective.
 - b. Look for slumps, rills, and tracking of stockpiled materials around the site.
- 5. Compare BMPs in the site plan with the construction site conditions



- a. Determine whether BMPs are in place as specified in the site plan, and if the BMPs have been adequately installed and maintained.
- b. Note any areas where additional BMPs may be needed which are not specified in the site plans.
- 6. Inspect site entrances/exits
 - a. Determine if there has been excessive tracking of sediment from the site.
 - b. Look for evidence of additional entrances/exits which are not on the site plan and are not properly stabilized.
- 7. Inspect sediment basins
 - a. Look for signs that sediment has accumulated beyond 50% of the original capacity of the basin.
- 8. Inspect pollution prevention and good housekeeping practices
 - a. Inspect trash areas and material storage/staging areas to ensure that materials are properly maintained and that pollutant sources are not exposed to rainfall or runoff.
 - b. Inspect vehicle/equipment fueling and maintenance areas for the presence of spill control measures and for evidence of leaks or spills.
- 9. Inspect discharge points and downstream, off-site areas
 - a. Walk down the street and/or in other directions off-site to determine if erosion and sedimentation control measures are effective in preventing off-site impacts.
 - b. Inspect down-slope catch basins to determine if they are protected, and identify whether sediment buildup has occurred.
- 10. Meet with the contactor again prior to leaving
 - a. Discuss the effectiveness of current controls and whether modifications are needed.
 - b. Discuss possible violations or concerns noted during the site inspection, including discrepancies between approved site plans, the SWPPP, and/or the implementation of stormwater controls.
 - c. Agree on a schedule for addressing all discrepancies, and schedule a follow-up inspection.
- 11. Provide a written copy of the inspection report to the contractor.
- 12. Follow up, as determined, and provide copy of subsequent inspection to the contractor.
- 13. Use Stop Work orders, as needed, until compliance with the 2012 Construction General Permit and/or other document, as required by the municipality's legal authority, can be achieved.

Attachments

1. Construction Site Stormwater Inspection Report

Related Standard Operating Procedures

1. SOP 9, Inspecting Constructed Best Management Practices



CONSTRUCTION SITE STORMWATER INSPECTION REPORT

General Information

| Project Name | | | | | |
|---|---------------------------------------|----------------------------|------------------|--|--|
| Project Location | | | | | |
| Site Operator | | | | | |
| Inspector's Name | | | | | |
| Date of Inspection | | Date of Last Inspection | | | |
| Start Time | | End Time | | | |
| Subject to USEPA Construction General Permit? Yes No | | | | | |
| If yes, has NOI been appr | If yes, has NOI been approved? Yes No | | | | |
| If yes, attach approved N | OI to this report. | | | | |
| If no, co | ontact site operator immedi | iately to determine status | of NOI. | | |
| Type of Inspection: Regular Pre- | -Storm Event Duri | ng Storm Event 🗌 🛛 F | Post-Storm Event | | |
| Describe the weather conditions at time of inspection | | | | | |
| Describe the current phase of construction | | | | | |

Site-Specific BMPs

Customize the following BMPs to be consistent with the SWPPP for the site being inspected.

| | BMP Description | Installed and Operating Properly? | Corrective Action Needed |
|---|-----------------|---|--------------------------|
| 1 | | Yes 🗌 No 🗌 | |
| 2 | | Yes 🗌 No 🗌 | |



(continued)

| | BMP Description | Installed and Operating Properly? | Corrective Action Needed |
|----|-----------------|---|--------------------------|
| 3 | | Yes 🗌 No 🗌 | |
| 4 | | Yes 🗌 No 🗌 | |
| 5 | | Yes 🗌 No 🗌 | |
| 6 | | Yes 🗌 No 🗌 | |
| 7 | | Yes 🗌 No 🗌 | |
| 8 | | Yes 🗌 No 🗌 | |
| 9 | | Yes 🗌 No 🗌 | |
| 10 | | Yes 🗌 No 🗌 | |
| 11 | | Yes 🗌 No 🗌 | |
| 12 | | Yes 🗌 No 🗌 | |
| 13 | | Yes 🗌 No 🗌 | |
| 14 | | Yes 🗌 No 🗌 | |
| 15 | | Yes 🗌 No 🗌 | |
| 16 | | Yes 🗌 No 🗌 | |
| 17 | | Yes 🗌 No 🗌 | |
| 18 | | Yes No | |
| 19 | | Yes No | |
| 20 | | Yes No | |



Erosion and Sedimentation Control

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

| Issue | Stat | us | Corrective Action Needed |
|--|-------|------|--------------------------|
| Have all ESC features been constructed before initiating other construction activities? | Yes 🗌 | No 🗌 | |
| Is the contractor inspecting and maintaining ESC devices regularly? | Yes 🗌 | No 🗌 | |
| Is existing vegetation maintained on the site as long as possible? | Yes 🗌 | No 🗌 | |
| Is construction staged so as to minimize exposed soil and disturbed areas? | Yes 🗌 | No 🗌 | |
| Are disturbed areas restored as soon as possible after work is completed? | Yes 🗌 | No 🗌 | |
| Is clean water being diverted away from the construction site? | Yes 🗌 | No 🗌 | |
| Are sediment traps and sediment barriers cleaned regularly? | Yes 🗌 | No 🗌 | |
| Are vegetated and wooded buffers protected and left undisturbed? | Yes 🗌 | No 🗌 | |
| Are soils stabilized by mulching and/or seeding when they are exposed for a long time? | Yes 🗌 | No 🗌 | |
| Has vegetation been allowed to establish itself before flows are introduced to channels? | Yes 🗌 | No 🗌 | |
| Is regular, light watering used for dust control? | Yes 🗌 | No 🗌 | |
| Is excessive soil compaction with heavy machinery avoided, to the extent possible? | Yes | No 🗌 | |



(continued)

| Issue | Status | Corrective Action Needed |
|---|------------|--------------------------|
| Are erosion control blankets used when seeding slopes? | Yes 🗌 No 🗌 | |
| Are trees and vegetation that are to be retained during construction adequately protected? | Yes 🗌 No 🗌 | |
| Are areas designated as off-limits to construction equipment flagged or easily distinguishable? | Yes 🗌 No 🗌 | |
| If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected? | Yes 🗌 No 🗌 | |
| Are temporary slope drains or chutes used to transport water down steep slopes? | Yes 🗌 No 🗌 | |
| Do all entrances to the storm sewer system have adequate protection? | Yes No | |

Overall Site Conditions

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

| Issue | Status | Corrective Action Needed |
|---|------------|--------------------------|
| Are slopes and disturbed areas not being actively worked properly stabilized? | Yes 🗌 No 🗌 | |
| Are material stockpiles covered or protected when not in use? | Yes 🗌 No 🗌 | |
| Are natural resource areas protected with sediment barriers or other BMPs? | Yes 🗌 No 🗌 | |
| Are perimeter controls and sediment barriers installed and maintained? | Yes 🗌 No 🗌 | <u>.</u> |



(continued)

| Issue | Status | Corrective Action Needed |
|---|------------|--------------------------|
| Are discharge points and receiving waters free of sediment deposits and turbidity? | Yes 🗌 No 🗌 | |
| Are storm drain inlets properly protected? | Yes 🗌 No 🗌 | |
| Is there evidence of sediment being tracked into streets? | Yes 🗌 No 🗌 |] |
| Is trash/litter from the construction site collected and placed in dumpsters? | Yes 🗌 No 🗌 | |
| Are vehicle/equipment fueling and maintenance areas free of spills and leaks? | Yes 🗌 No 🗌 | |
| Are potential stormwater contaminants protected inside or under cover? | Yes 🗌 No 🗌 | |
| Is dewatering from site properly controlled? | Yes 🗌 No 🗌 | |
| Are portable restroom facilities properly sited and maintained? | Yes 🗌 No 🗌 | |
| Are all hazardous materials and wastes stored in accordance with local regulations? | Yes 🗌 No 🗌 |] |

Non-Compliance Actions

The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.



SOP 6: EROSION AND SEDIMENTATION CONTROL

Erosion and sedimentation from land-disturbing human activities can be a significant source of stormwater pollution. This Standard Operating Procedure describes methods for reducing or eliminating pollutant loading from such activities.

Controlling Erosion and Sediment through Design and Planning

Prevention of erosion and sedimentation is preferable to installing treatment devices. Consistent application and implementation of the following guidelines during the design and review phases can prevent erosion and sedimentation:

- 1. Avoid sensitive areas, steep slopes, and highly erodible soils to the maximum extent possible when developing site plans.
- 2. Identify potential problem areas before the site plan is finalized and approved.
- 3. Plan to use sediment barriers along contour lines, with a focus on areas where short-circuiting (i.e., flow around the barrier) may occur.
- 4. Use berms at the top of a steep slopes to divert runoff away from the slope's edge.
- 5. Design trapezoidal or parabolic vegetated drainage channels, not triangular.
- 6. Use vegetated channels with rip rap check dams, instead of impervious pavement or concrete, to reduce the water velocity of the conveyance system.
- 7. Design a check dam or sediment forebay with level spreader at the exit of outfalls to reduce water velocity of the discharge and collect sediment.
- 8. Use turf reinforcement matting to stabilize vegetated channels, encourage vegetation establishment, and withstand flow velocities without scouring the base of the channel.
- 9. Plan open channels to follow land contours so natural drainage is not disrupted.
- 10. Use organic matting for temporary slope stabilization and synthetic matting for permanent stabilization.
- 11. Provide a stable channel, flume, or slope drain where it is necessary to carry water down slopes.

Controlling Erosion and Sediment on Construction Sites

During the construction phase, it is important to inspect active sites regularly to ensure that practices are consistent with approved site plans and the site's Stormwater Pollution Prevention Plan (SWPPP) or other document, as required by the municipality's legal authority. The following guidelines apply:

- 1. Erosion and sediment control features should be constructed before initiating activities that remove vegetated cover or otherwise disturb the site. These shall be installed consistent with the approved site plans and with manufacturer's instructions.
- 2. Erosion and sediment control devices shall be inspected by the contractor regularly, and maintained as needed to ensure function.



- 3. In the SWPPP or other document, the contractor shall clearly identify the party responsible for maintaining erosion and sediment control devices.
- 4. An inspection should be completed of active construction sites every month, at a minimum, to check the status of erosion and sedimentation controls. Refer to SOP 5, "Construction Site Inspection", for construction site stormwater inspection procedures.
- 5. Existing vegetation should be maintained on site as long as possible.
- 6. Construction should proceed progressively on the site in order to minimize exposed soil, and disturbed areas should be restored as soon as possible after work has been completed.
- 7. Stockpiles shall be stabilized by seeding or mulching if they are to remain for more than two weeks.
- 8. Disturbed areas shall be protected from stormwater runoff by using protective Best Management Practices (BMPs).
- 9. Clean water shall be diverted away from disturbed areas on construction sites to prevent erosion and sedimentation.
- 10. Sediment traps and sediment barriers should be cleaned out regularly to reduce clogging and maintain design function.
- 11. Vegetated and wooded buffers shall be protected.
- 12. Soils shall be stabilized by mulching and/or seeding when they would be exposed for more than one week during the dry season, or more than two days during the rainy season.
- 13. Vegetation shall be allowed to establish before introducing flows to channels.
- 14. Regular light watering shall be used for dust control, as this is more effective than infrequent heavy watering.
- 15. Excessive soil compaction with heavy machinery shall be avoided, to the extent possible.
- 16. Construction activities during months with higher runoff rates shall be limited, to the extent possible.

Controlling Erosion and Sediment by Proper Maintenance of Permanent BMPs

Many construction phase BMPs can be integrated into the final site design, but ongoing inspection and maintenance are required to ensure long-term function of any permanent BMP. Refer to SOP 9, "Inspection of Constructed Best Management Practices", for more information. The following guidelines summarize the requirements for long-term maintenance of permanent BMPs.

- 1. Responsibility for maintaining erosion and sediment control devices shall be clearly identified.
- 2. Erosion and sediment control devices shall be inspected following heavy rainfall events to ensure they are working properly.
- 3. Erosion control blankets shall be utilized when seeding slopes.
- 4. Vegetated and wooded buffers shall be protected, and left undisturbed to the extent possible.
- 5. Runoff shall not be diverted into a sensitive area unless this has been specifically approved.
- 6. Sedimentation basins shall be cleaned out once sediment reaches 50% of the basin's design capacity.
- 7. Snow shall not be plowed into, or stored within, retention basins, rain gardens, or other BMPs.



8. Easements and service routes shall be maintained, to enable maintenance equipment to access BMPs for regular cleaning.

Related Standard Operating Procedures

- 1. SOP 5, Construction Site Inspection
- 2. SOP 9, Inspection of Constructed Best Management Practices



EROSION AND SEDIMENTATION CONTROL INSPECTION REPORT

General Information

| Project Name | | | | | |
|--|---------------------|-------------------------|------------------|--|--|
| Project Location | | | | | |
| Inspector's Name | | | | | |
| Site Operator | | | | | |
| Date of Inspection | | Date of Last Inspection | | | |
| Start Time | | End Time | | | |
| Subject to USEPA Construction General Permit? Yes No If yes, has NOI been approved? Yes No If yes, attach approved NOI to this report. If no. contact contractor immediately to determine status of NOI. | | | | | |
| Type of Inspection: Regular Pre- | -Storm Event 🗌 Duri | ng Storm Event 🗌 🛛 I | Post-Storm Event | | |
| Describe the weather conditions at time of inspection | | | | | |
| | | | | | |



Erosion and Sediment Control (ESC) on Construction Sites

Document any of the following issues found on the construction site, and the corrective action(s) required for each.

| Issue | Status | | Corrective Action Needed |
|--|--------|------|--------------------------|
| Have all ESC features been constructed before initiating other construction activities? | Yes 🗌 | No 🗌 | |
| Is the contractor inspecting and maintaining ESC devices regularly? | Yes 🗌 | No 🗌 | |
| Is existing vegetation maintained on the site as long as possible? | Yes 🗌 | No 🗌 | |
| Is construction staged so as to minimize exposed soil and disturbed areas? | Yes 🗌 | No 🗌 | |
| Are disturbed areas restored as soon as possible after work is completed? | Yes 🗌 | No 🗌 | |
| Is clean water being diverted away from the construction site? | Yes 🗌 | No 🗌 | |
| Are sediment traps and sediment barriers cleaned regularly? | Yes 🗌 | No 🗌 | |
| Are vegetated and wooded buffers protected and left undisturbed? | Yes 🗌 | No 🗌 | |
| Are soils stabilized by mulching and/or seeding when they are exposed for a long time? | Yes 🗌 | No 🗌 | |
| Has vegetation been allowed to establish itself before flows are introduced to channels? | Yes 🗌 | No 🗌 | |
| Is regular, light watering used for dust control? | Yes 🗌 | No 🗌 | |
| Is excessive soil compaction with heavy machinery avoided, to the extent possible? | Yes | No 🗌 | |



(continued)

| Issue | Status | Corrective Action Needed |
|---|------------|--------------------------|
| Are erosion control blankets used when seeding slopes? | Yes 🗌 No 🗌 | |
| Are trees and vegetation that are to be retained during construction adequately protected? | Yes 🗌 No 🗌 | |
| Are areas designated as off-limits to construction equipment flagged or easily distinguishable? | Yes 🗌 No 🗌 | |
| If excavated topsoil has been salvaged and stockpiled for later use on the project, are stockpiles adequately protected? | Yes 🗌 No 🗌 | |
| Are temporary slope drains or chutes used to transport water down steep slopes? | Yes 🗌 No 🗌 | |
| Do all entrances to the storm sewer system have adequate protection? | Yes No | |

Non-Compliance Actions

The municipality shall provide the site operator with a copy of this report, and notice of the corrective action(s) to be taken. The site operator shall have thirty days from the receipt of the notice to commence curative action of the violation.



SOP 9: INSPECTING CONSTRUCTED BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are policies, procedures and structures designed to reduce stormwater pollution, prevent contaminant discharges to natural water bodies, and reduce stormwater facility maintenance costs. Constructed BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body.

This Standard Operating Procedure provides a general summary of inspection procedures for eight common constructed BMPs, including:

- 1. Bioretention Areas and Rain Gardens
- 2. Constructed Stormwater Wetlands
- 3. Extended Dry Detention Basins
- 4. Proprietary Media Filters
- 5. Sand and Organic Filters
- 6. Wet Basins
- 7. Dry Wells
- 8. Infiltration Basins

This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace that document. This SOP is also not intended to replace the Stormwater BMP Operation and Maintenance (O&M) Plan required by the Massachusetts Wetlands Protection Act, Order of Conditions.

Bioretention Areas and Rain Gardens

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch and planted with dense native vegetation. There are two types of bioretention cells:

- 1. Filtering bioretention area: Areas that are designed solely as an organic filter; and
- 2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter.

Inspection & Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.



| Activity | Time of Year | Frequency |
|--|--------------------------|--------------------|
| Inspect for soil erosion and repair | Year round | Monthly |
| Inspect for invasive species and remove if present | Year round | Monthly |
| Remove trash | Year round | Monthly |
| Mulch Void Areas | Spring | Annually |
| Remove dead vegetation | Fall and Spring | Bi-Annually |
| Replace dead vegetation | Spring | Annually |
| Prune | Spring or Fall | Annually |
| Replace all media and vegetation | Late Spring/Early Summer | As Needed |

Maintenance Schedule: Bioretention Areas and Rain Gardens

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a bioretention area or rain garden. This would prevent required water quality treatment and the recharge of groundwater.

Constructed Stormwater Wetlands

Constructed stormwater wetlands maximize the pollutant removal from stormwater through the use of wetland vegetation uptake, retention and settling. Constructed storm water wetlands must be used in conjunction with other BMPs, such as sediment forebays.

Inspection & Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.



survival rate of plants

| Activity | Time of Year | Frequency |
|---|-------------------|--------------------|
| Inspect for invasive species and remove if present | Year round | Monthly |
| Record and Map: | Year round | Annually |
| Types and distribution of dominant wetland plants | Year round | Bi-Annually |
| Presence and distribution of planted wetland species | Spring | Annually |
| Presence and distribution of invasive species | Fall and Spring | Bi-Annually |
| Indications other species are replacing planted wetland | | |
| species | Spring | Annually |
| Percent of standing water that is not vegetated | Spring or Fall | Annually |
| | Late Spring/Early | |
| Replace all media and vegetation | Summer | As Needed |
| Stability of original depth zones and micro-topographic | | |
| features | | |
| Accumulation of sediment in the forebay and micropool and | | |

Maintenance Schedule, Constructed Stormwater Wetlands: Years 0-3

Maintenance Schedule, Constructed Stormwater Wetlands: Years 4-Lifetime

| Activity | Time of Year | Frequency |
|--|--------------------------|---------------------|
| Inspect for invasive species and remove if present | Year round | Monthly |
| Clean forebays | Year round | Annually |
| Clean sediment in basin/wetland system | Year round | Once every 10 years |
| Mulch Void Areas | Spring | Annually |
| Remove dead vegetation | Fall and Spring | Bi-Annually |
| Replace dead vegetation | Spring | Annually |
| Prune | Spring or Fall | Annually |
| Replace all media and vegetation | Late Spring/Early Summer | As Needed |

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Never store snow within a constructed stormwater wetland. This would prevent required water quality treatment and the recharge of groundwater.

Extended Dry Detention Basins

Extended dry detention basins are designed to control both stormwater quantity and quality. These BMPs are designed to hold stormwater for at least 24 hours, allowing solids to settle and to reduce local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The


outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

Inspection & Maintenance

Annual inspection of extended dry detention basins is required to ensure that the basins are operating properly. Potential problems include: erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway and sediment accumulation around the outlet. Should any of these problems be encountered, necessary repairs should be made immediately.

| Activity | Time of Year | Frequency |
|---|-----------------|-----------------------------------|
| | Spring and | Bi-Annually, and during and after |
| Inspect basins | Fall | major storms |
| Examine outlet structure for clogging or high | Spring and | |
| outflow release velocities | Fall | Bi-Annually |
| Mow upper stage, side slopes, embankment and | Spring through | |
| emergency spillway | Fall | Bi-Annually |
| Remove trash and debris | Spring | Bi-Annually |
| Remove sediment from basin | Year round | At least once every 5 years |

Maintenance Schedule: Extended Dry Detention Basins

Proprietary Media Filters

Media Filters are designed to reduce total suspended solids and other target pollutants, such as organics, heavy metals or nutrients, which are sorbed onto the filter media, which is contained in a concrete structure. The substrate used as filter media depends on the target pollutants, and may consist of leaf compost, pleated fabric, activated charcoal, perlite, amended sand in combination with perlite, and zeolite. Two types of Media Filters are manufactured: Dry Media Filters, which are designed to dewater within 72 hours; and Wet Media Filters, which maintain a permanent pool of water as part of the treatment system.

Inspection & Maintenance

Maintenance in accordance with the manufacturer's requirements is necessary to ensure stormwater treatment. Inspection or maintenance of the concrete structure may require OSHA confined space training. Dry Media Filters are required to dewater in 72 hours, thus preventing mosquito and other insect breeding. Proper maintenance is essential to prevent clogging. Wet Media Filters require tight fitting seals to keep mosquitoes and other insects from entering and breeding in the permanent pools. Required maintenance includes routine inspection and treatment.



| Activity | Time of Year | Frequency |
|---|---------------------------|--------------------|
| Inspect for standing water, trash, sediment and | Per manufacturer's | Bi-Annually |
| clogging | schedule | (minimum) |
| Remove trash and debris | N/A | Each Inspection |
| Examine to determine if system drains in 72 hours | Spring, after large storm | Annually |
| | Per manufacturer's | Per manufacturer's |
| Inspect filtering media for clogging | schedule | schedule |

Maintenance Schedule: Proprietary Media Filters

Sand and Organic Filters

Sand and organic filters, also known as filtration basins, are intended for quality control rather than quantity control. These filters improve water quality by removing pollutants through a filtering media and settling pollutants on top of the sand bed and/or in a pretreatment basin. Pretreatment is required to prevent filter media from clogging. Runoff from the filters is typically discharged to another BMP for additional treatment.

Inspection & Maintenance

If properly maintained, sand and organic filters have a long design life. Maintenance requirements include raking the sand and removing sediment, trash and debris from the surface of the BMP. Over time, fine sediments will penetrate deep into the sand requiring replacement of several inches or the entire sand layer. Discolored sand is an indicator of the presence of fine sediments, suggesting that replacement of the sand should be completed.

Maintenance Schedule: Proprietary Media Filters

| Activity | Frequency |
|-----------------------------------|--|
| Inspect filters and remove debris | After every major storm for the first 3 months after |
| | construction completion. Every 6 months thereafter. |

Wet Basins

Wet basins are intended to treat stormwater quality through the removal of sediments and soluble pollutants. A permanent pool of water allows sediments to settle and removes the soluble pollutants, including some metals and nutrients. Additional dry storage is required to control peak discharges during large storm events, and if properly designed and maintained wet basins can add fire protection, wildlife habitat and aesthetic values to a property.



Inspection & Maintenance

To ensure proper operation, wet basin outfalls should be inspected for evidence of clogging or excessive outfall releases. Potential problems to investigate include erosion within the basin and banks, damage to the emergency spillway, tree growth on the embankment, sediment accumulation around the outlet and the emergence of invasive species. Should any of these problems be encountered, perform repairs immediately. An on-site sediment disposal area will reduce sediment removal costs.

Maintenance Schedule: Wet Basins

| Activity | Time of Year | Frequency |
|--|---------------------|---------------------------|
| Inspect wet basins | Spring and/or Fall | Annually (Minimum) |
| Mow upper stage, side slopes, embankment and | | |
| emergency spillway | Spring through Fall | Bi-Annually (Minimum) |
| Remove sediment, trash and debris | Spring through Fall | Bi-Annually (Minimum) |
| | | As required, but at least |
| Remove sediment from basin | Year round | once every 10 years |

Dry Wells

Dry wells are used to infiltrate uncontaminated runoff. These BMPs should never be used to infiltrate stormwater or runoff that has the potential to be contaminated with sediment and other pollutants. Dry wells provide groundwater recharge and can reduce the size and cost required of downstream BMPs or storm drains. However, they are only applicable in drainage areas of less than one acre and may experience high failure rates due to clogging.

Inspection & Maintenance

Proper dry well function depends on regular inspection. Clogging has the potential to cause high failure rates. The water depth in the observation well should be measured at 24 and 48 hour intervals after a storm and the clearance rate calculated. The clearance rate is calculated by dividing the drop in water level (inches) by the time elapsed (hours).

Maintenance Schedule: Dry Wells

| Activity | Frequency |
|-------------------|--|
| Inspect dry wells | After every major storm for the first 3 months after |
| | construction completion. Annually thereafter. |



Infiltration Basins

Infiltration basins are designed to contain stormwater quantity and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site, however high failure rates often occur due to improper siting, inadequate pretreatment, poor design and lack of maintenance.

Inspection & Maintenance

Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation and turf health.

Maintenance Schedule: Infiltration Basins

| Activity | Time of Year | Frequency |
|---|-----------------|---|
| Preventative maintenance | Spring and Fall | Bi-Annually |
| | | After every major storm for the first 3 |
| | | months after construction completion. |
| | | Bi-annually thereafter and discharges |
| Inspection | Spring and Fall | through the high outlet orifice. |
| Mow/rake buffer area, side slopes and | | |
| basin bottom | Spring and Fall | Bi-Annually |
| Remove trash, debris and organic matter | Spring and Fall | Bi-Annually |



INSPECTION OF BIORETENTION AREAS / RAIN GARDENS

General Information

| BMP Description | Bioretention Area / Rain Garden | | |
|---|---------------------------------|-------------------------|------------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre- | Storm Event 🗌 Duri | ng Storm Event 🗌 🛛 F | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for soil erosion and repair | Monthly | Yes No | |
| Inspect for invasive species and remove if present | Monthly | Yes 🗌 No 🗌 | |
| Remove trash | Monthly | Yes No | |
| Mulch void areas | Annually | Yes 🗌 No 🗌 | |
| Remove dead vegetation | Bi-Annually | Yes 🗌 No 🗌 | |
| Replace dead vegetation | Annually | Yes 🗌 No 🗌 | |
| Prune | Annually | Yes 🗌 No 🗌 | |
| Replace all media and vegetation | As Needed | Yes No | |



INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Years 0-3 of Operation

General Information

| BMP Description | Constructed Stormwater Wetland | | |
|---|--------------------------------|-------------------------|------------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre- | Storm Event 🗌 Durin | ng Storm Event 🗌 🛛 F | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | |

Specific Information

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for invasive species and remove if present | Monthly | Yes No | |
| Replace all media and vegetation | As Needed | Yes No | |

In addition, the following information should be recorded and mapped at least once per year:

- Types and distribution of dominant wetland plants
- Presence and distribution of planted wetland species
- Presence and distribution of invasive species
- Indications other species are replacing planted wetland species
- Percent of standing water that is not vegetated
- Replace all media and vegetation
- Stability of original depth zones and micro-topographic features
- Accumulation of sediment in the forebay and micropool and survival rate of plants



INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Year 4 - Lifetime of Operation

General Information

| BMP Description | Constructed Stormwater W | etland | |
|---|--------------------------|-------------------------|------------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre- | Storm Event 🗌 Durin | ng Storm Event 🗌 🛛 F | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for invasive species and remove if present | Monthly | Yes 🗌 No 🗌 | |
| Clean forebays | Annually | Yes D No D | |
| Clean sediment in basin/wetland system | Once every 10 years | Yes 🗌 No 🗌 | |
| Mulch void areas | Annually | Yes D No D | |
| Remove dead vegetation | Bi-Annually | Yes 🗌 No 🗌 | |
| Replace dead vegetation | Annually | Yes 🗌 No 🗌 | |
| Prune | Annually | Yes 🗌 No 🗌 | |
| Replace all media and vegetation | As Needed | Yes No | |



INSPECTION OF EXTENDED DRY DETENTION BASINS

Inspections should be conducted bi-annually, and during and after major storm events.

General Information

| BMP Description | Extended Dry Detention Basin | | | |
|---|------------------------------|-------------------------|--|--|
| BMP Location | | | | |
| Inspector's Name | | | | |
| Date of Inspection | | Date of Last Inspection | | |
| Start Time | | End Time | | |
| Type of Inspection: Regular Pre-Storm Event During Storm Event Post-Storm Event | | | | |
| Describe the weather conditions at time of inspection | | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------------|-----------------------------------|--------------------------|
| Examine outlet structure for clogging or high outflow release velocities | Bi-Annually | Yes 🗌 No 🗌 | |
| Mow upper stage, side slopes, embankment and emergency spillway | Bi-Annually | Yes 🗌 No 🗌 | |
| Remove trash and debris | Bi-Annually | Yes No | |
| Remove sediment from basin | At least once every 5 years | Yes No | |



INSPECTION OF PROPRIETARY MEDIA FILTERS

General Information

| BMP Description | Media Filter | | |
|---|-------------------|-------------------------|------------------|
| BMP Location | | | |
| Media Type | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: | | | |
| Regular Pre- | Storm Event Durin | ng Storm Event 🗌 🛛 I | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|---|-----------------------------------|-----------------------------------|--------------------------|
| Inspect for standing water, trash, sediment and clogging | Bi-Annually (minimum) | Yes No | |
| Remove trash and debris | Each Inspection | Yes No | |
| Examine to determine if system drains in 72 hours | Annually | Yes No | |
| Inspect filtering media for clogging | Per manufacturer's schedule | Yes 🗌 No 🗌 | |



INSPECTION OF SAND AND ORGANIC FILTERS

Inspections should be conducted after every major storm event for the first 3 months following completion, then every 6 months thereafter.

General Information

| BMP Description | Sand/Organic Filter | | |
|---|---------------------|-------------------------|-----------------|
| BMP Location | | | |
| Media Type | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre- | Storm Event 🗌 Durin | ng Storm Event 🗌 🛛 F | ost-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|-----------------------|-----------------------------------|--------------------------|
| Remove sediment, trash, and debris | Every 6 months | Yes 🗌 No 🗌 | |
| Rake sand | Every 6 months | Yes 🗌 No 🗌 | |



INSPECTION OF DRY WELLS

Regular inspections should be conducted after every major storm event for the first 3 months following completion, then annually thereafter.

General Information

| BMP Description | Dry Well | | |
|---|-------------------|-------------------------|------------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre- | Storm Event Durin | ng Storm Event 🗌 🛛 P | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | |
| Describe condition of dry well at time of inspection | | | |

After a major storm event, the water depth in the observation well should be measured at 24 and 48 hour intervals and the clearance rate calculated.



INSPECTION OF WET BASINS

Inspections should be conducted after every major storm event for the first 3 months following completion, then biannually thereafter.

General Information

| BMP Description | Wet Basin | | | |
|---|---------------------|-------------------------|-----------------|--|
| BMP Location | | | | |
| Inspector's Name | | | | |
| Date of Inspection | | Date of Last Inspection | | |
| Start Time | | End Time | | |
| Type of Inspection: | Type of Inspection: | | | |
| Regular Pre- | Storm Event Duri | ng Storm Event P | ost-Storm Event | |
| Describe the weather conditions at time of inspection | | | | |
| Describe condition of wet basin at time of inspection | | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|---|-----------------------------------|--------------------------|
| Preventative maintenance | Bi-Annually | Yes 🗌 No 🗌 | |
| Mow/rake buffer area, side slopes and basin bottom | Bi-Annually | Yes 🗌 No 🗌 | |
| Remove trash, debris and organic matter | Bi-Annually | Yes No | |
| Inspect and clean pretreatment devices | Every other month and after every major storm event | Yes 🗌 No 🗌 | |



INSPECTION OF OTHER BMP

General Information

| BMP Description | | | | |
|---|---------------|----------------------|------|------------------|
| BMP Location | | | | |
| Inspector's Name | | | | |
| Date of Inspection | | Date of Last Inspect | tion | |
| Start Time | | End Time | | |
| Type of Inspection: Regular Pre- | Storm Event D | During Storm Event | I | Post-Storm Event |
| Describe the weather conditions at time of inspection | | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|----------------------|--------------------------|-----------------------------------|--------------------------|
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |



Appendix G

Sanitary Sewer Overflow Inventory

Town of Southwick, MA Summary of All Known Sanitary Sewer Overflows

| Location | Date | Approx. Start Time | Approx. End Time | Did Flow Enter Water Body or MS4? | Estimated Volume of Release | Description of Occurrence | Was MassDEP/EPA/ BOH Notified? | Mitigation Measures Completed | Future Mitigation Measures Planned |
|-----------------|-----------|--------------------|------------------|--------------------------------------|--|--|-----------------------------------|----------------------------------|---------------------------------------|
| 6 Second Street | 12/5/2017 | 5:00 PM | 6:00 PM | No | 6 cu. yds. of contaminated material | Low pressure service line broke during construction/excavation on property. | Yes | Broken pipe immediately repaired | None |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Appendix H Written Illicit Discharge Detection & Elimination Plan

Illicit Discharge Detection & Elimination Plan

for

Town of Southwick, MA

Issued: June 30, 2019

Revised: September 11, 2023

| Table | of Revisions | |
|-------|---|------------|
| No. | Description | Date |
| 1 | General Format, Initial SVF Matrix | 12.26.2019 |
| 2 | Revised List of Receiving Waters & SVF Matrix per New Mapping | 8.31.2020 |
| 3 | Revised Training Log, List of Receiving Waters, SVF Matrix, & Outfall Inventory per Revised | 9.8.2021 |
| | Mapping | |
| 4 | Revised Training Log, SVF Matrix, & Outfall Inventory per Revised Mapping | 9.22.2022 |
| 5 | Revised Training Log, SVF Matrix, & Outfall Inventory per Revised Mapping | 9.11.2023 |
| | | |
| | | |

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- Appendix D Water Quality Analysis Instructions, User's Manuals and
 - Standard Operating Procedures
- Appendix E IDDE Employee Training Record
- Appendix F Source Isolation and Confirmation Methods: Instructions, Manuals, and SOPs

1 Introduction

1.1 MS4 Program

This Illicit Discharge Detection and Elimination (IDDE) Plan has been developed by Town of Southwick (Town) to address the requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

The 2016 Massachusetts MS4 Permit requires that each permittee, or regulated community, address six Minimum Control Measures. These measures include the following:

- 1. Public Education and Outreach
- 2. Public Involvement and Participation
- 3. Illicit Discharge Detection and Elimination Program
- 4. Construction Site Stormwater Runoff Control
- 5. Stormwater Management in New Development and Redevelopment (Post Construction Stormwater Management); and
- 6. Good Housekeeping and Pollution Prevention for Permittee Owned Operations.

Under Minimum Control Measure 3, the permittee is required to implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges. The IDDE program must also be recorded in a written (hardcopy or electronic) document. This IDDE Plan has been prepared to address this requirement.

1.2 Illicit Discharges

An "illicit discharge" is any discharge to a drainage system that is not composed entirely of stormwater, with the exception of discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire-fighting activities.

Illicit discharges may take a variety of forms. Illicit discharges may enter the drainage system through direct or indirect connections. Direct connections may be relatively obvious, such as cross-connections of sewer services to the storm drain system. Indirect illicit discharges may be more difficult to detect or address, such as failing septic systems that discharge untreated sewage to a ditch within the MS4, or a sump pump that discharges contaminated water on an intermittent basis.

Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters. Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps

1 Introduction

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Some illicit discharges are intentional, such as dumping used oil (or other pollutant) into catch basins, a resident or contractor illegally tapping a new sewer lateral into a storm drain pipe to avoid the costs of a sewer connection fee and service, and illegal dumping of yard wastes into surface waters.

Some illicit discharges are related to the unsuitability of original infrastructure to the modern regulatory environment. Examples of illicit discharges in this category include connected floor drains

in old buildings, as well as sanitary sewer overflows that enter the drainage system. Sump pumps legally connected to the storm drain system may be used inappropriately, such as for the disposal of floor washwater or old household products, in many cases due to a lack of understanding on the part of the homeowner.

Elimination of some discharges may require substantial costs and efforts, such as funding and designing a project to reconnect sanitary sewer laterals. Others, such as improving self-policing of dog waste management, can be accomplished by outreach in conjunction with the minimal additional cost of dog waste bins and the municipal commitment to disposal of collected materials on a regular basis.

Regardless of the intention, when not addressed, illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to surface waters.

1.3 Allowable Non-Stormwater Discharges

The following categories of non-storm water discharges are allowed under the MS4 Permit unless the permittee, USEPA or Massachusetts Department of Environmental Protection (MassDEP) identifies any category or individual discharge of non-stormwater discharge as a significant contributor of pollutants to the MS4:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground water
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20))
- Uncontaminated pumped groundwater
- Discharge from potable water sources
- Foundation drains

- Air conditioning condensation
- Irrigation water, springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual resident car washing
- De-chlorinated swimming pool discharges
- Street wash waters
- Residential building wash waters without detergents

If these discharges are identified as significant contributors to the MS4, they must be considered an "illicit discharge" and addressed in the IDDE Plan (i.e., control these sources so they are no longer significant contributors of pollutants, and/or eliminate them entirely).

1.4 Receiving Waters and Impairments

Table 1-1 lists the "impaired waters" within the boundaries of Southwick regulated area based on the 2016 Massachusetts Integrated List of Waters produced by MassDEP every two years. Impaired waters are water bodies that do not meet water quality standards for one or more designated use(s) such as recreation or aquatic habitat.

| Water Body Name | Segment ID | Category | Impairment(s) | Associated Approved TMDL |
|-----------------------------------|------------|------------|--|-----------------------------|
| Great Brook | MA32-25 | Category 2 | | |
| Kellogg Brook | MA32-55 | Category 3 | | |
| Munn Brook | MA32-59 | Category 2 | | |
| Congamond Lakes – South Basin | MA32023 | Category 5 | Eurasian Water Milfoil, Myriophyllum spicatum; Nutrient/Eutrophication Biological Indicators; Oxygen, Dissolved | |
| Congamond Lakes – Middle Basin | MA32021 | Category 5 | Eurasian Water Milfoil, Myriophyllum spicatum; Nonnative Fish, Shellfish, or Zooplankton; Harmful Algal Bloom; Oxygen, Dissolved | |
| Congamond Lakes – North Basin | MA32022 | Category 5 | Eurasian Water Milfoil, Myriophyllum spicatum; Oxygen, Dissolved | |

Table 1-1. Impaired WatersSouthwick, Massachusetts

Category 2 Waters - "Attaining some uses; other uses not assessed"

Category 3 Waters – "No uses assessed"

Category 5 Waters – "Waters requiring a TMDL"

"Approved TMDLs" are those that have been approved by EPA as of the date of issuance of the 2016 MS4 Permit.

1.5 IDDE Program Goals, Framework, and Timeline

The goals of the IDDE program are to find and eliminate illicit discharges to municipal separate storm sewer system and to prevent illicit discharges from happening in the future. The program consists of the following major components as outlined in the MS4 Permit:

- Legal authority and regulatory mechanism to prohibit illicit discharges and enforce this prohibition
- Storm system mapping
- Inventory and ranking of outfalls
- Dry weather outfall screening
- Catchment investigations

- Identification/confirmation of illicit sources
- Illicit discharge removal
- Follow-up screening
- Employee training

The IDDE investigation procedure framework is shown in **Figure 1-1.** The required timeline for implementing the IDDE program is shown in **Table 1-2**.



Figure 1-1. IDDE Investigation Procedure Framework

Table 1-2. IDDE Program Implementation Timeline

| IDDF Program Requirement | Completion Date from Effective Date of Permit | | | | | | | | | | |
|--|---|-----------|---------|---------|---------|----------|--|--|--|--|--|
| | 1 Year | 1.5 Years | 2 Years | 3 Years | 7 Years | 10 Years | | | | | |
| Written IDDE Program Plan | X | | | | | | | | | | |
| SSO Inventory | X | | | | | | | | | | |
| Written Catchment Investigation Procedure | | x | | | | | | | | | |
| Phase I Mapping | | | X | | | | | | | | |
| Phase II Mapping | | | | | | X | | | | | |
| IDDE Regulatory Mechanism or By- law (if not already in place) | | | | X | | | | | | | |
| Dry Weather Outfall Screening | | | | X | | | | | | | |
| Follow-up Ranking of Outfalls and Interconnections | | | | x | | | | | | | |
| Catchment Investigations – Problem Outfalls | | | | | X | | | | | | |
| Catchment Investigations – all Problem, High and Low Priority Outfalls | | | | | | x | | | | | |

1.6 Work Completed to Date

The 2003 MS4 Permit required each MS4 community to develop a plan to detect illicit discharges using a combination of storm system mapping, adopting a regulatory mechanism to prohibit illicit discharges and enforce this prohibition, and identifying tools and methods to investigate suspected illicit discharges. Each MS4 community was also required to define how confirmed discharges would be eliminated and how the removal would be documented.

The Town has completed the following IDDE program activities consistent with the 2003 MS4 Permit requirements:

- Developed a map of outfalls and receiving waters
- Adopted an IDDE bylaw or regulatory mechanism
- Developed procedures for locating illicit discharges (i.e., visual screening of outfalls for dry weather discharges, dye or smoke testing)
- Developed procedures for locating the source of the discharge
- Developed procedures for removal of the source of an illicit discharge
- Developed procedures for documenting actions and evaluating impacts on the storm sewer system subsequent to removal

In addition to the 2003 MS4 Permit requirements, other IDDE-related activities that may have been completed include:

- SSO inventory
- Additional storm system mapping, including the locations of catch basins, manholes and pipe connectivity

2 Authority and Statement of IDDE Responsibilities

2.1 Legal Authority

The Town has adopted the Southwick Illicit Connection Bylaw which was adopted by Town Meeting on March 15, 2008. A copy of the Southwick Illicit Connection Bylaw is provided in at the following link: <u>https://www.ecode360.com/12606262</u>. The Southwick Illicit Connection Bylaw provides the Town with adequate legal authority to:

- Prohibit illicit discharges
- Investigate suspected illicit discharges
- Eliminate illicit discharges, including discharges from properties not owned by or controlled by the MS4 that discharge into the MS4 system
- Implement appropriate enforcement procedures and actions

The Town will review its current Southwick Illicit Connection Bylaw and related land use regulations and policies for consistency with the 2016 MS4 Permit.

2.2 Statement of Responsibilities

The Southwick Department of Public Works (DPW) is the lead municipal agency or department responsible for implementing the IDDE program pursuant to the provisions of the Southwick Illicit Connection Bylaw. The DPW includes the Highway Department, Sewer Department, & Engineering Department, amongst others. Other agencies or departments with responsibility for various aspects of the program include:

- Select Board
- Building Inspector and/or Code Enforcement Officer
- Conservation Commission
- Planning Board
- Health Department
- Licensed Plumbing Inspector

3 Stormwater System Mapping

The Town originally developed mapping of its stormwater system to meet the mapping requirements of the 2003 MS4 Permit. The 2016 MS4 Permit requires a more detailed storm system map than was required by the 2003 MS4 Permit. The revised mapping is intended to facilitate the identification of key infrastructure, factors influencing proper system operation, and the potential for illicit discharges.

The 2016 MS4 Permit requires the storm system map to be updated in two phases as outlined below. The DPW is responsible for updating the stormwater system mapping pursuant to the 2016 MS4 Permit. The Town will report on the progress towards completion of the storm system map in each annual report. A map of the existing stormwater infrastructure in the Town of Southwick is found here: <u>https://tinyurl.com/ms4-public-viewer-southwick</u>.

3.1 Phase I Mapping

Phase I mapping must be completed within two (2) years of the effective date of the permit and include the following information:

- Outfalls and receiving waters (previously required by the MS4-2003 permit)
- Open channel conveyances (swales, ditches, etc.)
- Interconnections with other MS4s and other storm sewer systems
- Municipally owned stormwater treatment structures
- Water bodies 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. Topographic contours and drainage system information may be used to produce initial catchment delineations.

The Town will update its stormwater mapping to include the remaining Phase I information.

3.2 Phase II Mapping

Phase II mapping must be completed within ten (10) years of the effective date of the permit and include the following information:

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

The Town has partially completed the following updates to its stormwater mapping in an effort to meet the Phase II requirements:

- Outfall spatial location (latitude and longitude with a minimum accuracy of +/-30 feet)
- Pipes
- Manholes
- Catch basins

4 Sanitary Sewer Overflows (SSOs)

The 2016 MS4 Permit requires municipalities to prohibit illicit discharges, including sanitary sewer overflows (SSOs), to the separate storm sewer system. SSOs are discharges of untreated sanitary wastewater from a municipal sanitary sewer that can contaminate surface waters, cause serious water quality problems and property damage, and threaten public health. SSOs can be caused by blockages, line breaks, sewer defects that allow stormwater and groundwater to overload the system, power failures, improper sewer design, and vandalism.

The Town has completed an inventory of SSOs (**Table 4-1**) that have discharged to the MS4 within the five (5) years prior to the effective date of the 2016 MS4 Permit, based on review of available documentation pertaining to SSOs. The inventory includes all SSOs that occurred during wet or dry weather resulting from inadequate conveyance capacities or where interconnectivity of the storm and sanitary sewer infrastructure allows for transfer of flow between systems.

Upon detection of an SSO, the Town will eliminate it as expeditiously as possible and take interim measures to minimize the discharge of pollutants to and from its MS4 until the SSO is eliminated. Upon becoming aware of an SSO to the MS4, the Town will provide oral notice to EPA within 24 hours and written notice to EPA and MassDEP within five (5) days of becoming aware of the SSO occurrence.

The inventory in **Table 4-1** will be updated when new SSOs are detected. The SSO inventory will be included in the annual report, including the status of mitigation and corrective measures to address each identified SSO.

Table 4-1. Sanitary Sewer Overflow (SSO) Inventory

Summary of All Known Sanitary Sewer Overflows (Within the past 5 years) Town of Southwick, Massachusetts Last Revised: June 26, 2020

| Location | Date | Approx. Start Time | Approx. End Time | Did Flow Enter Water Body or MS4? | Estimated Volume of Release | Description of Occurrence | Was MassDEP/ EPA/ BOH Notified? | Mitigation Measures Completed | Future Mitigation Measures Planned |
|--------------------|-----------|-----------------------|---------------------|--|---|---|--|--|--|
| 6 Second Street | 12/5/2017 | 5:00 PM | 6:00 PM | No | 6 cu. yds. of contaminated material | Low pressure service line broke during construction/ excavation on property. | Yes | Broken pipe immediately repaired | None |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

5 Assessment and Priority Ranking of Outfalls

The 2016 MS4 Permit requires an assessment and priority ranking of outfalls in terms of their potential to have illicit discharges and SSOs and the related public health significance. The ranking helps determine the priority order for performing IDDE investigations and meeting permit milestones.

5.1 Outfall Catchment Delineations

A catchment is the area that drains to an individual outfall or interconnection. The catchments for each of the MS4 outfalls will be delineated to define contributing areas for investigation of potential sources of illicit discharges. Catchments are typically delineated based on topographic contours and mapped drainage infrastructure, where available. As described in **Section 3**, initial catchment delineations will be completed as part of the Phase I mapping, and refined catchment delineations will be completed as part of the Phase II mapping to reflect information collected during catchment investigations

5.2 Outfall and Interconnection Inventory and Initial Ranking

The Town has completed an initial outfall and interconnection inventory and priority ranking to assess illicit discharge potential based on existing information. The initial inventory and ranking (**Table 5-1**) was completed within one (1) year from the effective date of the permit, with an updated inventory and ranking to be provided in each annual report thereafter. Annual updates to the inventory will be updated annually to include data collected in connection with dry weather screening and other relevant inspections.

The outfall and interconnection inventory identifies each outfall and interconnection discharging from the MS4, records its location and condition, and provides a framework for tracking inspections, screenings and other IDDE program activities.

Outfalls and interconnections will be classified into one of the following categories:

- 1. **Problem Outfalls**: Outfalls/interconnections with known or suspected contributions of illicit discharges based on existing information shall be designated as Problem Outfalls. This shall include any outfalls/interconnections where previous screening indicates likely sewer input. Likely sewer input indicators are any of the following:
 - Olfactory or visual evidence of sewage,
 - Ammonia ≥ 0.5 mg/L, surfactants ≥ 0.25 mg/L, and bacteria levels greater than the water quality criteria applicable to the receiving water, or
 - Ammonia \geq 0.5 mg/L, surfactants \geq 0.25 mg/L, and detectable levels of chlorine.

Dry weather screening and sampling, as described in **Section 6** of this IDDE Plan and Part 2.3.4.7.b of the MS4 Permit, is not required for Problem Outfalls.

- **2. High Priority Outfalls**: Outfalls/interconnections that have not been classified as Problem Outfalls and that are:
 - Discharging to an area of concern to public health due to proximity of public beaches, recreational areas, drinking water supplies or shellfish beds
 - Determined by the permittee as high priority based on the characteristics listed below or other available information.
- **3.** Low Priority Outfalls: Outfalls/interconnections determined by the permittee as low priority based on the characteristics listed below or other available information.
- 4. Excluded outfalls: Outfalls/interconnections with no potential for illicit discharges may be excluded from the IDDE program. This category is limited to roadway drainage in undeveloped areas with no dwellings and no sanitary sewers; drainage for athletic fields, parks or undeveloped green space and associated parking without services; cross-country drainage alignments (that neither cross nor are in proximity to sanitary sewer alignments) through undeveloped land.

Outfalls have been ranked into the above priority categories (<u>except for excluded outfalls, which</u> <u>may be excluded from the IDDE program</u>) based on the following characteristics of the defined initial catchment areas, where information is available. Additional relevant characteristics, including location-specific characteristics, may be considered but must be documented in this IDDE Plan.

- **Previous screening results** previous screening/sampling results indicate likely sewer input (see criteria above for Problem Outfalls).
- Past discharge complaints and reports.
- **Poor receiving water quality** the following guidelines are recommended to identify waters as having a high illicit discharge potential:
 - Exceeding water quality standards for bacteria
 - Ammonia levels above 0.5 mg/l
 - Surfactants levels greater than or equal to 0.25 mg/l
- **Density of generating sites** Generating sites are those places, including institutional, municipal, commercial, or industrial sites, with a potential to generate pollutants that could contribute to illicit discharges. Examples of these sites include, but are not limited to, car dealers; car washes; gas stations; garden centers; and industrial manufacturing areas.
- Age of development and infrastructure Industrial areas greater than 40 years old and areas where the sanitary sewer system is more than 40 years old will probably have a high illicit discharge potential. Developments 20 years or younger will probably have a low illicit discharge potential.

- Surrounding density of aging septic systems Septic systems thirty years or older in residential land use areas are prone to have failures and may have a high illicit discharge potential.
- **Culverted streams** Any river or stream that is culverted for distances greater than a simple roadway crossing may have a high illicit discharge potential.
- Water quality limited waterbodies that receive a discharge from the MS4 or waters with approved TMDLs applicable to the permittee, where illicit discharges have the potential to contain the pollutant identified as the cause of the water quality impairment.

Town of Southwick, MA

Stormwater Outfall Inventory and Priority Ranking Matrix - MS4 Permit Year 5: Update for Annual Report

MS4 Outfalls

| Street | GIS | Receiving Water | Previous Screening Results Indicate Likely Sewer | Discharging to Area of Concern to Public | Frequency of Past | Receiving Water | Density of | Age of Development/ | Historic Combined | Aging Septic? | Culverted Streams? | | | | |
|-----------------------------------|------------|---|---|---|--|----------------------------------|--|--|-------------------------|-------------------------|------------------------------|-------|------------------|-------------------------------------|--|
| | Outrain ID | | Input? | Health? | Discharge Complaints | Quanty | Generating Sites | Infrastructure | Sewers or Septicr | | | | | | |
| | | Information Source | Outfall inspections and sample results | GIS Maps | Town Staff | Impaired Waters List | Land Use/GIS Maps, Aerial Photography | Land Use Information, Visual Observation | Town Staff, GIS Maps | Land Use, Town Staff | GIS and Storm System Maps | | | Exhibiting Flow | |
| | | Scoring Criteria | Yes = 3 (Problem Outfall) No = 0 | Yes = 3 No = 0 | Frequent = 3 Occasional = 2 None = 0 | Poor = 3 Fair = 2 Good = 0 | High = 3 Medium = 2 Low = 1 | High = 3 Medium = 2 Low = 1 | Yes = 3 No = 0 | Yes = 3 No = 0 | Yes = 3 No = 0 | Score | Priority Ranking | During Dry Weather Screening? | Flagged by Dry Weather Sampling? |
| Point Grove Road | 0584 | Congamond Lakes, Middle Basin | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Brauton Drivo | 0968 | Congamond Lakes, Middle Basin | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| South Longyard | 1208 | (MA32021) Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard | 1216 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| | 1246 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Laro Road Revere Road | 1345 | Kellog Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Depot Street | 1419 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | Yes | No |
| Depot Street | 1421 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | Yes | Yes |
| George Loomis Road | 1752 | Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| George Loomis Road | 1755 | Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Ham Hill Road | 1773 | Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Powder Mill Road | 1866 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | Yes | Yes |
| School Road | 1903 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | Low Priority | No | |
| School Road | 1904 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | Low Priority | No | |
| Whalley Park - Rear | 1905 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Whalley Park - Practice Fields | 1906 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Whalley Park - Front | 1907 | Unnamed Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Veteran Street | 1911 | Congamond Lakes, North Basin (MA32022) | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 10 | High Priority* | No | |
| Lauren Lane | 1914 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Pine Knoll | 1916 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Deer Run Road | 1917 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Hunter's Ridge Circle | 1918 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Liquori Drive | 1919 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Partridge Lane | 1920 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | Yes | Yes |
| North Pond Road | 1926 | Outside Receiving Waterbody | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 7 | High Priority* | No | |
| South Longyard Road | 1927 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 1928 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Woodland Ridge | 1929 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Patriot's Way | 1931 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | Yes | Yes |
| Patriot's Way | 1935 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Berkshire Avenue | 1936 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Judy Lane | 1937 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Harvest Lane | 1938 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 10 | High Priority* | No | |
| Lexington Circle | 1939 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |

Town of Southwick, MA

Stormwater Outfall Inventory and Priority Ranking Matrix - MS4 Permit Year 5: Update for Annual Report

MS4 Outfalls

| Street | GIS Outfall ID | Receiving Water | Previous Screening Results Indicate Likely Sewer Input? | Discharging to Area of Concern to Public Health? | Frequency of Past Discharge Complaints | Receiving Water Quality | Density of Generating Sites | Age of Development/ Infrastructure | Historic Combined Sewers or Septic? | Aging Septic? | Culverted Streams? | | | | |
|------------------------|-------------------|--|---|--|--|----------------------------------|--|--|--|-------------------------|------------------------------|-------|------------------|-------------------------------------|--|
| | | Information Source | Outfall inspections and sample results | GIS Maps | Town Staff | Impaired Waters List | Land Use/GIS Maps, Aerial Photography | Land Use Information, Visual Observation | Town Staff, GIS Maps | Land Use, Town Staff | GIS and Storm System Maps | | | Exhibiting Flow | |
| | | Scoring Criteria | Yes = 3 (Problem Outfall) No = 0 | Yes = 3 No = 0 | Frequent = 3 Occasional = 2 None = 0 | Poor = 3 Fair = 2 Good = 0 | High = 3 Medium = 2 Low = 1 | High = 3 Medium = 2 Low = 1 | Yes = 3 No = 0 | Yes = 3 No = 0 | Yes = 3 No = 0 | Score | Priority Ranking | During Dry Weather Screening? | Flagged by Dry Weather Sampling? |
| Liberty Lane | 1940 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |
| Island Pond Road | 1941 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Berkshire Avenue | 1942 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Eagle Street | 1943 | Congamond Lakes, North Basin (MA32022) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Castle Street | 1944 | Congamond Lakes, North Basin (MA32022) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Shore Road | 1949 | Congamond Lakes, South Basin (MA32023) | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Revere Road | 1981 | Kellog Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Concord Road | 1982 | Wetland/Tributary to Kellog Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Will Palmer Road | 1986 | Jack's Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Island Pond Road | 1989 | Congamond Lakes, Middle Basin | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Miller Road | 1990 | Wetland/Tributary to Goose Pond | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Granaudo Circle | 1992 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Sefton Drive | 1999 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | No | |
| Sefton Drive | 2000 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | Yes | Yes |
| Gargon Terrace | 2001 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Gargon Terrace | 2002 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Fernwood Drive | 2003 | Unnamed Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Buckingham Drive | 2008 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| North Longyard Road | 2014 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Arcadia Lane | 2018 | Shurtleff Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 4 | Low Priority | No | |
| White Street | 2019 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Berkshire Avenue | 2021 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Berkshire Avenue | 2030 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Evergreen Street | 2031 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Depot Street | 2032 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 3 | 8 | High Priority | Yes | Yes |
| Point Grove Road | 2033 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Powder Mill Road | 2034 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | Yes | Yes |
| Powder Mill Road | 2035 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | Yes | Yes |
| Depot Street | 2036 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 3 | 8 | High Priority | No | |
| Depot Street | 2037 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | No | |
| Depot Street | 2038 | Great Brook (MA32-25) | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 5 | Low Priority | No | |
| Point Grove Road | 2039 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| White Street | 2040 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |

Town of Southwick, MA

Stormwater Outfall Inventory and Priority Ranking Matrix - MS4 Permit Year 5: Update for Annual Report

MS4 Outfalls

| Street | GIS | Receiving Water | Previous Screening Results Indicate Likely Sewer | Discharging to Area of Concern to Public | Frequency of Past | Receiving Water | Density of | Age of Development/ | Historic Combined | Aging Septic? | Culverted Streams? | | | | |
|------------------------|------------|---|---|---|--|----------------------------------|--|--|-------------------------|-------------------------|------------------------------|-------|------------------|-------------------------------------|--|
| | Outfall ID | | Input? | Health? | Discharge Complaints | Quality | Generating Sites | Infrastructure | Sewers or Septic? | | | | | | |
| | | Information Source | Outfall inspections and sample results | GIS Maps | Town Staff | Impaired Waters List | Land Use/GIS Maps, Aerial Photography | Land Use Information, Visual Observation | Town Staff, GIS Maps | Land Use, Town Staff | GIS and Storm System Maps | | | Exhibiting Flow | |
| | | Scoring Criteria | Yes = 3 (Problem Outfall) No = 0 | Yes = 3 No = 0 | Frequent = 3 Occasional = 2 None = 0 | Poor = 3 Fair = 2 Good = 0 | High = 3 Medium = 2 Low = 1 | High = 3 Medium = 2 Low = 1 | Yes = 3 No = 0 | Yes = 3 No = 0 | Yes = 3 No = 0 | Score | Priority Ranking | During Dry Weather Screening? | Flagged by Dry Weather Sampling? |
| Crescent Circle | 2042 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 3 | 0 | 8 | High Priority | Yes | Yes |
| Lakamant Straat | 2044 | Congamond Lakes, North Basin | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 10 | High Priority* | No | |
| North Longyard Road | 2045 | (MA32022) Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Maple Street | 2046 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Grove Street | 2049 | Congamond Lakes - Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Granville Road | 2050 | Outside Receiving Waterbody | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Granville Road | 2051 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Granville Road | 2052 | Outside Receiving Waterbody | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| South Longyard Road | 2053 | Outside Receiving Waterbody | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| South Longyard Road | 2302 | Outside Receiving Waterbody | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Granville Road | 2303 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Point Grove Road | 2304 | Congamond Lakes - Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Point Grove Road | 2306 | Congamond Lakes - Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Point Grove Road | 2307 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| School Road | 2308 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Rebecca Lobo Lane | 2310 | Outside Receiving Waterbody | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2311 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2312 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2313 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2315 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Gargon Terrace | 2319 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2320 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 6 | Low Priority | No | |
| Feeding Hills Road | 2321 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2322 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2333 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Congamond Road | 2335 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Granville Road | 2336 | Outside Receiving Waterbody | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Sawgrass Lane | 2337 | Outside Receiving Waterbody | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | Low Priority | No | |
| North Lake Avenue | 2344 | Congamond Lakes, North Basin (MA32022) | 0 | 3 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 10 | High Priority* | No | |
| Berkshire Avenue | 2345 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| South Longyard Road | 2346 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Crescent Circle | 2353 | Wetland/Tributary to Great Brook | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 3 | 0 | 8 | High Priority | Yes | Yes |
| Foster Road | 2354 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| North Longyard Road | 2357 | Outside Receiving Waterbody | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
Town of Southwick, MA

Stormwater Outfall Inventory and Priority Ranking Matrix - MS4 Permit Year 5: Update for Annual Report

MS4 Outfalls

| Street | GIS Outfall ID | Receiving Water | Previous Screening Results Indicate Likely Sewer Input? | Discharging to Area of Concern to Public Health? | Frequency of Past Discharge Complaints | Receiving Water Quality | Density of Generating Sites | Age of Development/ Infrastructure | Historic Combined Sewers or Septic? | Aging Septic? | Culverted Streams? | | | | |
|------------------------|-------------------|--|---|--|--|----------------------------------|--|--|--|-------------------------|------------------------------|-------|------------------|-------------------------------------|--|
| | | Information Source | Outfall inspections and sample results | GIS Maps | Town Staff | Impaired Waters List | Land Use/GIS Maps, Aerial Photography | Land Use Information, Visual Observation | Town Staff, GIS Maps | Land Use, Town Staff | GIS and Storm System Maps | | | Exhibiting Flow | |
| | | Scoring Criteria | Yes = 3 (Problem Outfall) No = 0 | Yes = 3 No = 0 | Frequent = 3 Occasional = 2 None = 0 | Poor = 3 Fair = 2 Good = 0 | High = 3 Medium = 2 Low = 1 | High = 3 Medium = 2 Low = 1 | Yes = 3 No = 0 | Yes = 3 No = 0 | Yes = 3 No = 0 | Score | Priority Ranking | During Dry Weather Screening? | Flagged by Dry Weather Sampling? |
| Powder Mill Road | 2364 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Iroquis Drive | 2371 | Congamond Lakes, South Basin (MA32023) | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| Rebecca Lobo Lane | 2373 | Outside Receiving Waterbody | 0 | 3 | 0 | 0 | 1 | 1 | 3 | 0 | 0 | 8 | High Priority* | No | |
| North Loomis Street | 2375 | Wetland/Tributary to Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| North Loomis Street | 2379 | White Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| North Loomis Street | 2380 | Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| George Loomis Road | 2381 | Wetland/Tributary to Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| George Loomis Road | 2383 | Wetland/Tributary to Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | Yes | Yes |
| Feeding Hills Road | 2385 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Feeding Hills Road | 2386 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Granville Road | 2389 | Shurtleff Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Foster Road | 2392 | Wetland/Tributary to White Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Partridge Lane | 2394 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | Yes | Yes |
| South Longyard Road | 2408 | Outside receiving waterbody | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 2409 | Outside receiving waterbody | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| White Street | 2411 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| White Street | 2413 | Congamond Lakes, Middle Basin (MA32021) | 0 | 3 | 0 | 2 | 1 | 1 | 3 | 0 | 0 | 10 | High Priority* | No | |
| Gloria Drive | 2418 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Powder Mill Road | 2420 | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 2421 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 2422 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 2423 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| South Longyard Road | 2424 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| Woodside Circle | 2430 | Wetland/Tributary to Great Brook | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 8 | High Priority* | No | |
| George Loomis Road | 2453 | Wetland/Tributary to Munn Brook | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 5 | Low Priority | No | |
| Covote Glen | 1913b | Great Brook (MA32-25) | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | High Priority* | No | |

* "High Priority" by virtue of discharge to an area of concern to public health due to proximity of public beaches and/or drinking water supplies.

Last Revised: 9/7/2023

6 Dry Weather Outfall Screening and Sampling

Dry weather flow is a common indicator of potential illicit connections. The MS4 Permit requires all outfalls/interconnections (excluding Problem and excluded Outfalls) to be inspected for the presence of dry weather flow. The DPW is responsible for conducting dry weather outfall screening, starting with High Priority outfalls, followed by Low Priority outfalls, based on the initial priority rankings described in the previous section.

6.1 Weather Conditions

Dry weather outfall screening and sampling may occur when no more than 0.1 inches of rainfall has occurred in the previous 24-hour period and no significant snow melt is occurring. For purposes of determining dry weather conditions, program staff will use precipitation data from a weather station at Barnes Airport (KBAF) in Westfield, MA.

6.2 Dry Weather Screening/Sampling Procedure

6.2.1 General Procedure

The dry weather outfall inspection and sampling procedure consists of the following general steps:

- 1. Identify outfall(s) to be screened/sampled based on initial outfall inventory and priority ranking
- 2. Acquire the necessary staff, mapping, and field equipment (see **Table 6-1** for list of potential field equipment)
- 3. Conduct the outfall inspection during dry weather:
 - a. Mark and photograph the outfall
 - b. Record the inspection information and outfall characteristics (using the Survey 123 app developed specifically for Southwick on a tablet or similar device)
 - c. Look for and record visual/olfactory evidence of pollutants in flowing outfalls including odor, color, turbidity, and floatable matter (suds, bubbles, excrement, toilet paper or sanitary products). Also observe outfalls for deposits and stains, vegetation, and damage to outfall structures.
- 4. If flow is observed, sample and test the flow following the procedures described in the following sections.
- 5. If no flow is observed, but evidence of illicit flow exists (illicit discharges are often intermittent or transitory), 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. Other techniques can be used to detect intermittent or transitory flows including conducting inspections during evenings or weekends and using optical brighteners.

- 6. Input results from screening and sampling into spreadsheet/database. Include pertinent information in the outfall/interconnection inventory and priority ranking.
- 7. Include all screening data in the annual report.

Previous outfall screening/sampling conducted under the 2013 MS4 Permit may be used to satisfy the dry weather outfall/screening requirements of the 2016 MS4 Permit only if the previous screening and sampling was substantially equivalent to that required by the 2016 MS4 Permit, including the list of analytes outlined in Section 2.3.4.7.b.iii.4 of the 2016 permit.

6.2.2 Field Equipment

 Table 6-1 lists field equipment commonly used for dry weather outfall screening and sampling.

| Equipment | Use/Notes |
|--|---|
| Clipboard | For organization of field sheets and writing surface |
| Field Sheets | Field sheets for both dry weather inspection and Dry weather sampling should be available with extras |
| Chain of Custody Forms | To ensure proper handling of all samples |
| Pens/Pencils/Permanent Markers | For proper labeling |
| Nitrile Gloves | To protect the sampler as well as the sample from contamination |
| Flashlight/headlamp w/batteries | For looking in outfalls or manholes, helpful in early mornings as well |
| Cooler with Ice | For transporting samples to the laboratory |
| Digital Camera | For documenting field conditions at time of inspection |
| Personal Protective Equipment (PPE) | Reflective vest, Safety glasses and boots at a minimum |
| GPS Receiver | For taking spatial location data |
| Water Quality Sonde | If needed, for sampling conductivity, temperature, pH |
| Water Quality Meter | Hand held meter, if available, for testing for various water quality parameters such as ammonia, surfactants and chlorine |
| Test Kits | Have extra kits on hand to sample more outfalls than are anticipated to be screened in a single day |
| Label Tape | For labeling sample containers |
| Sample Containers | Make sure all sample containers are clean. Keep extra sample containers on hand at all times. Make sure there are proper sample containers for what is being sampled for (i.e., bacteria requires sterile containers). |
| Pry Bar or Pick | For opening catch basins and manholes when necessary |
| Sandbags | For damming low flows in order to take samples |
| Small Mallet or Hammer | Helping to free stuck manhole and catch basin covers |
| Utility Knife | Multiple uses |
| Measuring Tape | Measuring distances and depth of flow |
| Safety Cones | Safety |
| Hand Sanitizer | Disinfectant/decontaminant |

Table 6-1. Field Equipment – Dry Weather Outfall Screening and Sampling

| Equipment | Use/Notes |
|---------------------------------------|---|
| Zip Ties/Duct Tape | For making field repairs |
| Rubber Boots/Waders | For accessing shallow streams/areas |
| Sampling Pole/Dipper/Sampling Cage | For accessing hard to reach outfalls and manholes |

6.2.3 Sample Collection and Analysis

If flow is present during a dry weather outfall inspection, a sample will be collected and analyzed for the required permit parameters listed in **Table 6-2**. The general procedure for collection of outfall samples is as follows:

- 1. Fill out all sample information on sample bottles and field sheets
- 2. Put on protective gloves (nitrile/latex/other) before sampling
- 3. Collect sample with dipper or directly in sample containers. If possible, collect water from the flow directly in the sample bottle. Be careful not to disturb sediments.
- 4. If using a dipper or other device, triple rinse the device with distilled water and then in water to be sampled (not for bacteria sampling)
- 5. Use test strips, test kits, and field meters (rinse similar to dipper) for most parameters (see **Table 6-2**)
- 6. Place laboratory samples on ice for analysis of bacteria and pollutants of concern
- 7. Fill out chain-of-custody form for laboratory samples
- 8. Deliver samples to State certified laboratory for analysis
- 9. Dispose of used test strips and test kit ampules properly
- 10. Decontaminate all testing personnel and equipment

In the event that an outfall is submerged, either partially or completely, or inaccessible, field staff will proceed to the first accessible upstream manhole or structure for the observation and sampling and report the location with the screening results. Field staff will continue to the next upstream structure until there is no longer an influence from the receiving water on the visual inspection or sampling.

Field test kits or field instrumentation are permitted for all parameters except indicator bacteria and any pollutants of concern. Field kits need to have appropriate detection limits and ranges. **Table 6-2** lists various field test kits and field instruments that can be used for outfall sampling associated with the 2016 MS4 Permit parameters, other than indicator bacteria and any pollutants of concern.

| Analyte or Parameter | Instrumentation (Portable Meter) | Field Test Kit |
|---|--|---|
| Ammonia | CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II | CHEMetrics™ K-1410 CHEMetrics™ K-1510 (series) Hach™ NI-SA Hach™ Ammonia Test Strips |
| Surfactants (Detergents) | CHEMetrics [™] I-2017 | CHEMetrics™ K-9400 and K- 9404 Hach™ DE-2 |
| Chlorine | CHEMetrics™ V-2000, K-2513 Hach™ Pocket Colorimeter™ II | NA |
| Conductivity | CHEMetrics™ I-1200 YSI Pro30 YSI EC300A Oakton 450 | NA |
| Temperature | YSI Pro30 YSI EC300A Oakton 450 | NA |
| Salinity | YSI Pro30 YSI EC300A Oakton 450 | NA |
| Indicator Bacteria: <i>E. coli</i> (freshwater) or Enterococcus (saline water) | EPA certified laboratory procedure (40 CFR § 136) | NA |
| Pollutants of Concern ¹ | EPA certified laboratory procedure (40 CFR § 136) | NA |

Table 6-2. Sampling Parameters and Analysis Methods

¹ Where the discharge is directly into a water quality limited water or a water subject to an approved TMDL, the sample must be analyzed for the pollutant(s) of concern identified as the cause of the water quality impairment.

Testing for indicator bacteria and any pollutants of concern must be conducted using analytical methods and procedures found in 40 CFR § 136. Samples for laboratory analysis must also be stored and preserved in accordance with procedures found in 40 CFR § 136. **Table 6-3** lists analytical methods, detection limits, hold times, and preservatives for laboratory analysis of dry weather sampling parameters.

| Analyte or Parameter | Analytical Method | Detection Limit | Max. Hold Time | Preservative |
|--|---|--|------------------------------|---|
| Ammonia | EPA : 350.2, SM : 4500- NH3C | 0.05 mg/L | 28 days | Cool \leq 6°C, H ₂ SO ₄ to pH <2, No preservative required if analyzed immediately |
| Surfactants | SM : 5540-C | 0.01 mg/L | 48 hours | Cool ≤6°C |
| Chlorine | SM : 4500-Cl G | 0.02 mg/L | Analyze within 15 minutes | None Required |
| Temperature | SM : 2550B | NA | Immediate | None Required |
| Specific Conductance | EPA: 120.1, SM: 2510B | 0.2 μs/cm | 28 days | Cool ≤6°C |
| Salinity | SM : 2520 | - | 28 days | Cool ≤6°C |
| Indicator Bacteria: <i>E.coli</i> Enterococcus | <i>E.coli</i> EPA : 1603 SM : 9221B, 9221F, 9223 B Other : Colilert *, Colilert- 18* <i>Enterococcus</i> EPA : 1600 SM : 9230 C Other : Enterolert* | E.coli EPA: 1 cfu/100mL SM: 2 MPN/100mL Other: 1 MPN/100mL Enterococcus EPA: 1 cfu/100mL SM: 1 MPN/100mL Other: 1 MPN/100mL | 8 hours | Cool ≤10°C, 0.0008% Na₂S₂O₃ |
| Total Phosphorus | EPA: Manual-365.3, Automated Ascorbic acid digestion-365.1 Rev. 2, ICP/AES4-200.7 Rev. 4.4 SM: 4500-P E-F | EPA : 0.01 mg/L SM : 0.01 mg/L | 28 days | Cool ≤6°C, H₂SO₄ to pH <2 |
| Total Nitrogen (Ammonia + Nitrate/Nitrite, methods are for Nitrate-Nitrite and need to be combined with Ammonia listed above.) | EPA : Cadmium reduction (automated)-353.2 Rev. 2.0, SM : 4500-NO ₃ E-F | EPA : 0.05 mg/L SM : 0.05 mg/L | 28 days | Cool ≤6°C, H₂SO₄ to pH <2 |

Table 6-3. Required Analytical Methods, Detection Limits, Hold Times, and Preservatives

SM = Standard Methods

6.3 Interpreting Outfall Sampling Results

Outfall analytical data from dry weather sampling can be used to help identify the major type or source of discharge. **Table 6-4** shows values identified by the U.S. EPA and the Center for Watershed Protection as typical screening values for select parameters. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. Screening values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.

| Analyte or Parameter | Benchmark |
|---|---|
| Ammonia | >0.5 mg/L |
| Conductivity | >2,000 μS/cm |
| Surfactants | >0.25 mg/L |
| Chlorine | >0.02 mg/L (detectable levels per the 2016 MS4 Permit) |
| Indicator Bacteria: E.coli Enterococcus | <i>E.coli</i> : the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 126 colonies per 100 ml and no single sample taken during the bathing season shall exceed 235 colonies per 100 ml |
| | <i>Enterococcus:</i> the geometric mean of the five most recent samples taken during the same bathing season shall not exceed 33 colonies per 100 ml and no single sample taken during the bathing season shall exceed 61 colonies per 100 ml |

Table 6-4. Benchmark Field Measurements for Select Parameters

6.4 Follow-up Ranking of Outfalls and Interconnections

The Town will update and re-prioritize the initial outfall and interconnection rankings based on information gathered during dry weather screening. The rankings will be updated periodically as dry weather screening information becomes available, but will be completed within three (3) years of the effective date of the permit.

Outfalls/interconnections where relevant information was found indicating sewer input to the MS4 or sampling results indicating sewer input are highly likely to contain illicit discharges from sanitary sources. Such outfalls/interconnections will be ranked at the top of the High Priority Outfalls category for investigation. Other outfalls and interconnections may be re-ranked based on any new information from the dry weather screening.

7 Catchment Investigations

Once stormwater outfalls with evidence of illicit discharges have been identified, various methods can be used to trace the source of the potential discharge within the outfall catchment area. Catchment investigation techniques include but are not limited to review of maps, historic plans, and records; manhole observation; dry and wet weather sampling; video inspection; smoke testing; and dye testing. This section outlines a systematic procedure to investigate outfall catchments to trace the source of potential illicit discharges. All data collected as part of the catchment investigations will be recorded and reported in each annual report.

7.1 System Vulnerability Factors

The Town will review relevant mapping and historic plans and records to identify areas within the catchment with higher potential for illicit connections. The following information will be reviewed:

- Plans related to the construction of the drainage network
- Plans related to the construction of the sewer drainage network
- Prior work on storm drains or sewer lines
- Board of Health or other municipal data on septic systems
- Complaint records related to SSOs
- Septic system breakouts

Based on the review of this information, the presence of any of the following **System Vulnerability Factors (SVFs)** will be identified for each catchment:

- History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- Common or twin-invert manholes serving storm and sanitary sewer alignments
- Common trench construction serving both storm and sanitary sewer alignments
- Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
- Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- Areas formerly served by combined sewer systems
- Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations
- Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- Any sanitary sewer and storm drain infrastructure greater than 40 years old
- Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)

• History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance).

A SVF inventory has been documented for each catchment (see **Table 7-1**), retained as part of this IDDE Plan, and included in subsequent annual reports.

Outfall Catchment System Vulnerability Factor (SVF) Inventory Town of Southwick, MA Last Revised: September 7, 2023

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------------------|--|-----------------|-----------------------------------|-------------------------------|---|------------------------------------|---|--|---------------------------------------|---|---|--|--|
| GIS Outfall ID | Receiving Water | History of SSOs | Common or Twin Invert Manholes | Common Trench Construction | Storm/Sanitary Crossings (Sanitary Above) | Sanitary Lines with Underdrains | Inadequate Sanitary Level of Service | Areas Formerly Served by Combined Sewers | Sanitary Infrastructure Defects | SSO Potential In Event of System Failures | Sanitary and Storm Drain Infrastructure >40 years Old | Septic with Poor Soils or Water Table Separation | History of BOH Actions Addressing Septic Failure |
| 0584 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | No | No | No | No |
| 0968 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1208 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1216 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1246 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1345 | Kellog Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1419 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1421 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1752 | Munn Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1755 | Munn Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1773 | Munn Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1866 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1903 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1904 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1905 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1906 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1907 | Unnamed Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1911 | Congamond Lakes, North Basin (MA32022) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1914 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1916 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1917 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1918 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1919 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1920 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1926 | Outside Receiving Waterbody | No | No | No | No | No | No | No | No | No | No | No | No |
| 1927 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1928 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1929 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1931 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1935 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1936 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1937 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 1938 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | No | No | No | No |
| 1939 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |

| 1940 | Wetland/Tributary to Great | No | No | No | No | No | No | No | No | No | No | No | No |
|-------|---|----|----|----|-----|----|----|----|----|-----|-----|----|----|
| 1941 | Congamond Lakes, Middle | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1942 | Basin (MA32021) Congamond Lakes, Middle | No | No | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 1943 | Basin (MA32021) Congamond Lakes, North | No | No | No | No | No | No | No | No | No | No | No | No |
| 1944 | Basin (MA32022) Congamond Lakes, North | No | No | No | No | No | No | No | No | No | No | No | No |
| 19/19 | Basin (MA32022) Congamond Lakes, South | No | No | No | No | No | No | No | No | No | Ves | No | No |
| 1949 | Basin (MA32023) Kellog Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1982 | Wetland/Tributary to Kellog | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 1986 | Brook Jack's Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| | Congamond Lakes, Middle | | | | | | | | | | | | |
| 1989 | Basin (MA32021) | No | No | No | No | No | No | No | No | Yes | No | No | No |
| 1990 | Pond | No | No | No | No | No | No | No | No | No | No | No | No |
| 1992 | Great Brook (MA32-25) Wetland/Tributary to Great | No | No | No | No | No | No | No | No | No | No | No | No |
| 1999 | Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2000 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2001 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2002 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2003 | Unnamed Tributary to Great Brook | No | No | No | No | No | No | No | No | No | No | No | No |
| 2008 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2014 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2018 | Shurtleff Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2019 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | No | No | No | No |
| 2021 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2030 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | Yes | No | No | No | No | Yes | Yes | No | No |
| 2031 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | Yes | Yes | No | No |
| 2032 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2033 | Congamond Lakes, Middle Basin (MA32021) | No | No | No | No | No | No | No | No | Yes | No | No | No |
| 2034 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2035 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2036 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2037 | Great Brook (MA32-25) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2038 | Great Brook (MA32-25) Congamond Lakes, Middle | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2039 | Basin (MA32021) Congamond Lakes, Middle | No | No | No | No | No | No | NO | No | No | No | No | No |
| 2040 | Basin (MA32021) Wetland/Tributary to Great | No | No | No | No | No | No | No | No | No | NO | No | No |
| 2042 | Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2044 | Basin (MA32022) | No | No | No | No | No | No | No | No | No | No | No | No |
| 2045 | Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2046 | Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2049 | Basin (MA32021) | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2050 | Outside Receiving Waterbody | No | No | No | No | No | No | No | No | No | Yes | No | No |
| 2051 | Wetland/Tributary to Great Brook | No | No | No | No | No | No | No | No | No | Yes | No | No |

| 2052 | Outside Receiving Waterbody | No | Yes | No | No |
|------|---|----|----|----|----|----|----|----|----|-----|-----|----|----|
| 2053 | Outside Receiving Waterbody | No | Yes | No | No |
| 2302 | Outside Receiving Waterbody | No | Yes | No | No |
| 2303 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2304 | Congamond Lakes - Middle Basin (MA32021) | No | No | No | No |
| 2306 | Congamond Lakes - Middle Basin (MA32021) | No | No | No | No |
| 2307 | Wetland/Tributary to Great Brook | No | No | No | No |
| 2308 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2310 | Outside Receiving Waterbody | No | Yes | No | No |
| 2311 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2312 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2313 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2315 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2319 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2320 | Great Brook (MA32-25) | No | Yes | No | No |
| 2321 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2322 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2333 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2335 | Congamond Lakes, Middle Basin (MA32021) | No | Yes | No | No | No |
| 2336 | Outside Receiving Waterbody | No | Yes | No | No |
| 2337 | Outside Receiving Waterbody | No | No | No | No |
| 2344 | Congamond Lakes, North Basin (MA32022) | No | Yes | No | No |
| 2345 | Congamond Lakes, Middle Basin (MA32021) | No | Yes | No | No |
| 2346 | Great Brook (MA32-25) | No | Yes | No | No |
| 2353 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2354 | Wetland/Tributary to Great Brook | | | | | | | | | | | | |
| 2357 | Outside Receiving Waterbody | No | Yes | No | No |
| 2358 | Outside Receiving Waterbody | No | Yes | No | No |
| 2359 | Outside Receiving Waterbody | No | Yes | No | No |
| 2360 | Outside Receiving Waterbody | No | Yes | No | No |
| 2361 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2362 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2363 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2364 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2371 | Congamond Lakes, South Basin (MA32023) | No | No | No | No |
| 2372 | Outside Receiving Waterbody | No | Yes | No | No |

| 2373 | Outside Receiving Waterbody | No | Yes | No | No |
|-------|--|----|----|----|----|----|----|----|----|----|-----|----|----|
| 2375 | Wetland/Tributary to Munn Brook | No | Yes | No | No |
| 2379 | White Brook | No | Yes | No | No |
| 2380 | Munn Brook | No | Yes | No | No |
| 2381 | Wetland/Tributary to Munn Brook | No | Yes | No | No |
| 2383 | Wetland/Tributary to Munn Brook | No | Yes | No | No |
| 2385 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2386 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2389 | Shurtleff Brook | No | Yes | No | No |
| 2392 | Wetland/Tributary to White Brook | No | Yes | No | No |
| 2394 | Wetland/Tributary to Great Brook | No | No | No |
| 2408 | Outside receiving waterbody | No | Yes | No | No |
| 2409 | Outside receiving waterbody | No | Yes | No | No |
| 2411 | Congamond Lakes, Middle Basin (MA32021) | No | No | No |
| 2413 | Congamond Lakes, Middle Basin (MA32021) | No | No | No |
| 2418 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2420 | Great Brook (MA32-25) | No | Yes | No | No |
| 2421 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2422 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2423 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2424 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2430 | Wetland/Tributary to Great Brook | No | Yes | No | No |
| 2453 | Wetland/Tributary to Munn Brook | No | No | No |
| 1913b | Great Brook (MA32-25) | No | No | No |

Presence/Absence Evaluation Criteria:

- 1. History of SSOs, including, but not limited to, those resulting from wet weather, high water table, or fat/oil/grease blockages
- 2. Common or twin-invert manholes serving storm and sanitary sewer alignments
- 3. Common trench construction serving both storm and sanitary sewer alignments
- 4. Crossings of storm and sanitary sewer alignments where the sanitary system is shallower than the storm drain system
- 5. Sanitary sewer alignments known or suspected to have been constructed with an underdrain system
- 6. Inadequate sanitary sewer level of service (LOS) resulting in regular surcharging, customer back-ups, or frequent customer complaints
- 7. Areas formerly served by combined sewer systems

8. Sanitary sewer infrastructure defects such as leaking service laterals, cracked, broken, or offset sanitary infrastructure, directly piped connections between storm drain and sanitary sewer infrastructure, or other vulnerability factors identified through Inflow/Infiltration Analyses, Sanitary Sewer Evaluation Surveys, or other infrastructure investigations

- 9. Sewer pump/lift stations, siphons, or known sanitary sewer restrictions where power/equipment failures or blockages could readily result in SSOs
- 10. Any sanitary sewer and storm drain infrastructure greater than 40 years old
- 11. Widespread code-required septic system upgrades required at property transfers (indicative of inadequate soils, water table separation, or other physical constraints of the area rather than poor owner maintenance)
- 12. History of multiple Board of Health actions addressing widespread septic system failures (indicative of inadequate soils, water table separation, or other physical constraints of the area rather that poor owner maintenance)

Note: Catchments with at least one (1) system vulnerability factor are subject to Wet Weather Screening requirements of the Draft Permit

7.2 Dry Weather Manhole Inspections

The Town will implement a dry weather storm drain network investigation that involves systematically and progressively observing, sampling and evaluating key junction manholes in the MS4 to determine the approximate location of suspected illicit discharges or SSOs.

The Town will be responsible for implementing the dry weather manhole inspection program and making updates as necessary. Infrastructure information will be incorporated into the storm system map, and catchment delineations will be refined based on the field investigation, where necessary. The SVF inventory will also be updated based on information obtained during the field investigations, where necessary.

Several important terms related to the dry weather manhole inspection program are defined by the MS4 Permit as follows:

- 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 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.

For all catchments identified for investigation, during dry weather, field crews will systematically inspect **key junction manholes** for evidence of illicit discharges. This program involves progressive inspection and sampling at manholes in the storm drain network to isolate and eliminate illicit discharges.

The manhole inspection methodology will be conducted in one of two ways (or a combination of both):

- By working progressively up from the outfall and inspecting key junction manholes along the way, or
- By working progressively down from the upper parts of the catchment toward the outfall.

For most catchments, manhole inspections will proceed from the outfall moving up into the system. However, the decision to move up or down the system depends on the nature of the drainage system and the surrounding land use and the availability of information on the catchment and drainage system. Moving up the system can begin immediately when an illicit discharge is detected at an outfall, and only a map of the storm drain system is required. Moving down the system requires more advance preparation and reliable drainage system information on the

upstream segments of the storm drain system, but may be more efficient if the sources of illicit discharges are believed to be located in the upstream portions of the catchment area. Once a manhole inspection methodology has been selected, investigations will continue systematically through the catchment.

Inspection of key junction manholes will proceed as follows:

- 1. Manholes will be opened and inspected for visual and olfactory evidence of illicit connections.
- 2. If flow is observed, a sample will be collected and analyzed at a minimum for ammonia, chlorine, and surfactants. Field kits can be used for these analyses. Sampling and analysis will be in accordance with procedures outlined in **Section 6**. Additional indicator sampling may assist in determining potential sources (e.g., bacteria for sanitary flows, conductivity to detect tidal backwater, etc.).
- 3. Where sampling results or visual or olfactory evidence indicate potential illicit discharges or SSOs, the area draining to the junction manhole will be flagged for further upstream manhole investigation and/or isolation and confirmation of sources.
- 4. Subsequent key junction manhole inspections will proceed until the location of suspected illicit discharges or SSOs can be isolated to a pipe segment between two manholes.
- 5. If no evidence of an illicit discharge is found, catchment investigations will be considered complete upon completion of key junction manhole sampling.

7.3 Wet Weather Outfall Sampling

Where a minimum of one (1) System Vulnerability Factor (SVF) is identified based on previous information or the catchment investigation, a wet weather investigation must also be conducted at the associated outfall. The Town will be responsible for implementing the wet weather outfall sampling program and making updates as necessary.

Outfalls will be inspected and sampled under wet weather conditions, to the extent necessary, to determine whether wet weather-induced high flows in sanitary sewers or high groundwater in areas served by septic systems result in discharges of sanitary flow to the MS4.

Wet weather outfall sampling will proceed as follows:

- 1. At least one wet weather sample will be collected at the outfall for the same parameters required during dry weather screening.
- 2. Wet weather sampling will occur during or after a storm event of sufficient depth or intensity to produce a stormwater discharge at the outfall. Sampling should not take place during the initial "first flush" flow of stormwater. There is no specific rainfall amount that will trigger sampling, although minimum storm event intensities that are likely to trigger

sanitary sewer interconnections are preferred. To the extent feasible, sampling should occur during the spring (March through June) when groundwater levels are relatively high.

- 3. If wet weather outfall sampling indicates a potential illicit discharge, then additional wet weather source sampling will be performed, as warranted, or source isolation and confirmation procedures will be followed as described in **Section 7.4**.
- 4. If wet weather outfall sampling does not identify evidence of illicit discharges, and no evidence of an illicit discharge is found during dry weather manhole inspections, catchment investigations will be considered complete.

7.4 Source Isolation and Confirmation

Once the source of an illicit discharge is approximated between two manholes, more detailed investigation techniques will be used to isolate and confirm the source of the illicit discharge. The following methods may be used in isolating and confirming the source of illicit discharges

- Sandbagging
- Smoke Testing
- Dye Testing
- CCTV/Video Inspections
- Optical Brightener Monitoring
- IDDE Canines

These methods are generally described in the sections below.

Public notification is an important aspect of a detailed source investigation program. Prior to smoke testing, dye testing, or TV inspections, the Town will notify property owners in the affected area. Smoke testing notification will include a combination of Code Red calls (robo-calls), public notices, press releases, postings on Public Access TV, etc.

7.4.1 Sandbagging

This technique can be particularly useful when attempting to isolate intermittent illicit discharges or those with very little perceptible flow. The technique involves placing sandbags or similar barriers (e.g., caulking, weirs/plates, or other temporary barriers) within outlets to manholes to form a temporary dam that collects any intermittent flows that may occur. Sandbags are typically left in place for 48 hours, and should only be installed when dry weather is forecast. If flow has collected behind the sandbags/barriers after 48 hours it can be assessed using visual observations or by sampling. If no flow collects behind the sandbag, the upstream pipe network can be ruled out as a source of the intermittent discharge. Finding appropriate durations of dry weather and the need for multiple trips to each manhole makes this method both time-consuming and somewhat limiting.

7.4.2 Smoke Testing

Smoke testing involves injecting non-toxic smoke into drain lines and noting the emergence of smoke from sanitary sewer vents in illegally connected buildings or from cracks and leaks in the system itself. Typically a smoke bomb or smoke generator is used to inject the smoke into the system at a catch basin or manhole and air is then forced through the system. Test personnel are place in areas where there are suspected illegal connections or cracks/leaks, noting any escape of smoke (indicating an illicit connection or damaged storm drain infrastructure). It is important when using this technique to make proper notifications to area residents and business owners as well as local police and fire departments.

If the initial test of the storm drain system is unsuccessful then a more thorough smoke-test of the sanitary sewer lines can also be performed. Unlike storm drain smoke tests, buildings that do not emit smoke during sanitary sewer smoke tests may have problem connections and may also have sewer gas venting inside, which is hazardous.

It should be noted that smoke may cause minor irritation of respiratory passages. Residents with respiratory conditions may need to be monitored or evacuated from the area of testing altogether to ensure safety during testing.

7.4.3 Dye Testing

Dye testing involves flushing non-toxic dye into plumbing fixtures such as toilets, showers, and sinks and observing nearby storm drains and sewer manholes as well as stormwater outfalls for the presence of the dye. Similar to smoke testing, it is important to inform local residents and business owners. Police, fire, and local public health staff should also be notified prior to testing in preparation of responding to citizen phone calls concerning the dye and their presence in local surface waters.

A team of two or more people is needed to perform dye testing (ideally, all with two-way radios). One person is inside the building, while the others are stationed at the appropriate storm sewer and sanitary sewer manholes (which should be opened) and/or outfalls. The person inside the building adds dye into a plumbing fixture (i.e., toilet or sink) and runs a sufficient amount of water to move the dye through the plumbing system. The person inside the building then radios to the outside crew that the dye has been dropped, and the outside crew watches for the dye in the storm sewer and sanitary sewer, recording the presence or absence of the dye.

The test can be relatively quick (about 30 minutes per test), effective (results are usually definitive), and inexpensive. Dye testing is best used when the likely source of an illicit discharge has been narrowed down to a few specific houses or businesses.

7.4.4 CCTV/Video Inspection

Another method of source isolation involves the use of mobile video cameras that are guided remotely through stormwater drain lines to observe possible illicit discharges. IDDE program staff can review the videos and note any visible illicit discharges. While this tool is both effective and

usually definitive, it can be costly and time consuming when compared to other source isolation techniques.

7.4.5 Optical Brightener Monitoring

Optical brighteners are fluorescent dyes that are used in detergents and paper products to enhance their appearance. The presence of optical brighteners in surface waters or dry weather discharges suggests there is a possible illicit discharge or insufficient removal through adsorption in nearby septic systems or wastewater treatment. Optical brightener monitoring can be done in two ways. The most common, and least expensive, methodology involves placing a cotton pad in a wire cage and securing it in a pipe, manhole, catch basin, or inlet to capture intermittent dry weather flows. The pad is retrieved at a later date and placed under UV light to determine the presence/absence of brighteners during the monitoring period. A second methodology uses handheld fluorometers to detect optical brighteners in water sample collected from outfalls or ambient surface waters. Use of a fluorometer, while more quantitative, is typically more costly and is not as effective at isolating intermittent discharges as other source isolation techniques.

7.4.6 IDDE Canines

Dogs specifically trained to smell human related sewage are becoming a cost-effective way to isolate and identify sources of illicit discharges. While not widespread at the moment, the use of IDDE canines is growing as is their accuracy. The use of IDDE canines is not recommended as a standalone practice for source identification; rather it is recommended as a tool to supplement other conventional methods, such as dye testing, in order to fully verify sources of illicit discharges.

7.5 Illicit Discharge Removal

When the specific source of an illicit discharge is identified, the Town will exercise its authority as necessary to require its removal. The annual report will include the status of IDDE investigation and removal activities including the following information for each confirmed source:

- The location of the discharge and its source(s)
- A description of the discharge
- The method of discovery
- Date of discovery
- Date of elimination, mitigation or enforcement action OR planned corrective measures and a schedule for completing the illicit discharge removal
- Estimate of the volume of flow removed.

7.5.1 Confirmatory Outfall Screening

Within one (1) year of removal of all identified illicit discharges within a catchment area, confirmatory outfall or interconnection screening will be conducted. The confirmatory screening will be conducted in dry weather unless System Vulnerability Factors have been identified, in which case both dry weather and wet weather confirmatory screening will be conducted. If confirmatory

screening indicates evidence of additional illicit discharges, the catchment will be scheduled for additional investigation.

7.6 Ongoing Screening

Upon completion of all catchment investigations and illicit discharge removal and confirmation (if necessary), each outfall or interconnection will be re-prioritized for screening and scheduled for ongoing screening once every five (5) years. Ongoing screening will consist of dry weather screening and sampling consistent with the procedures described in **Section 6** of this plan. Ongoing wet weather screening and sampling will also be conducted at outfalls where wet weather screening was required due to System Vulnerability Factors and will be conducted in accordance with the procedures described in **Section 7.3**. All sampling results will be reported in the annual report.

8 Training

Annual IDDE training will be made available to all employees involved in the IDDE program. This training will at a minimum include information on how to identify illicit discharges and SSOs and may also include additional training specific to the functions of particular personnel and their function within the framework of the IDDE program. The frequency and type of training will be included in the annual report.

9 Progress Reporting

The progress and success of the IDDE program will be evaluated on an annual basis. The evaluation will be documented in the annual report and will include the following indicators of program progress:

- Number of SSOs and illicit discharges identified and removed
- Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure
- Number of dry weather outfall inspections/screenings
- Number of wet weather outfall inspections/sampling events
- Number of enforcement notices issued
- All dry weather and wet weather screening and sampling results
- Estimate of the volume of sewage removed, as applicable
- Number of employees trained annually.

The success of the IDDE program will be measured by the IDDE activities completed within the required permit timelines.

Appendix A Legal Authority (IDDE Bylaw)

Town of Southwick, MA Monday, November 18, 2019

Chapter 415. Sewers

Article II. Southwick Illicit Connection Bylaw

[Adopted STM 3-15-2008 by Art. 6]

§ 415-9. Purpose.

- A. The purpose of this by-law is to regulate illicit connections and discharges to the storm drainage system, which is necessary for the protection of the Town of Southwick's water bodies, wetlands, and groundwater, and to safeguard the public health, safety, welfare and the environment.
- B. The objectives of this by-law are:
 - (1) To prevent pollutants from entering the separate storm sewer system in the Town of Southwick;
 - (2) To prohibit illicit connections and unauthorized discharges to the stormwater system;
 - (3) To require the removal of all such illicit connections;
 - (4) To comply with state and federal statutes and regulations relating to stormwater discharges;
 - (5) To establish the legal authority to ensure compliance with the provisions of this by-law through inspection, monitoring, and enforcement.
- C. Increased and contaminated stormwater runoff are major causes of:
 - (1) Impairment of water quality and flow in lakes, ponds, streams, rivers, wetlands and groundwater;
 - (2) Contamination of drinking water supplies;
 - (3) Alteration or destruction of aquatic and wildlife habitat; and flooding.

§ 415-10. Definitions.

For the purposes of this by-law, the following shall mean:

ACTIVE GROUNDWATER DEWATERING (AGD) DEVICE

Any active device used to transport groundwater, i.e. a sump pump.

AUTHORIZED ENFORCEMENT AGENCY

The Director of the Department of Public Works or designated representative, its employees or agents designated to enforce this by-law.

BEST MANAGEMENT PRACTICE (BMP)

An activity, procedure, restraint, or structural improvement that helps to reduce the quantity or improve the quality of stormwater runoff.

CLEAN WATER ACT

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) as hereafter amended.

DISCHARGE OF POLLUTANTS

The addition from any source of any pollutant or combination of pollutants into the municipal storm drainage system or into the waters of the United States or Commonwealth from any source.

GRANDFATHERED

Exempt from new legislation, restrictions, or requirements.

GROUNDWATER

All water beneath the surface of the ground.

ILLEGAL DISCHARGE

Any direct or indirect non-stormwater discharge to the municipal storm drainage system, except as specifically exempted in Section 7 or permitted pursuant to Section 8 of this by-law. The term does not include a discharge in compliance with an NPDES Storm Water Discharge Permit or resulting from fire fighting activities exempted pursuant to Section 7, subsection 4, of this by-law.

ILLICIT CONNECTION

Any surface or subsurface drain or conveyance, which allows an illegal discharge into the municipal storm drainage system. Illicit connections include conveyances which allow a non-stormwater discharge to the municipal storm drainage system including sewage, process wastewater or wash water and any connections from indoor drainages sinks, or toilets, regardless of whether said connection was previously allowed, permitted, or approved before the effective date of this by-law.

IMPERVIOUS SURFACE

Any material or structure on or above the ground that prevents water from infiltrating the underlying soil.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OR MUNICIPAL STORM DRAINAGE SYSTEM

The system of conveyances designed or used for collecting or conveying stormwater, including any road with a drainage system, street, gutter, curb, inlet, piped storm drain, pumping facility, retention or detention basin, natural or man-made or altered drainage channel, reservoir, and other drainage structure that together comprise the storm drainage system owned or operated by the Town of Southwick.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT

A permit issued by United States Environmental Protection Agency or jointly with the State that authorizes the discharge of pollutants to waters of the United States.

NON-STORMWATER DISCHARGE

Any discharge to the municipal storm drain system not composed entirely of stormwater.

PERSON

Any individual, partnership, association, firm, company, trust, corporation, and, any agency, authority, department or political subdivision of the Commonwealth or the federal government, to the extent permitted by-law, and any officer, employee, or agent of such person.

POLLUTANT

Any element or property of sewage, agricultural, industrial or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or nonpoint source, that is or may be

introduced into any sewage treatment works or waters of the Commonwealth. Pollutants shall include:

- A. paints, varnishes, and solvents;
- B. oil and other automotive fluids;
- C. liquid and solid wastes and yard wastes;
- D. refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordnances, accumulations and floatables;
- E. pesticides, herbicides, and fertilizers;
- F. hazardous materials and wastes; sewage, fecal coliform and pathogens;
- G. dissolved and particulate metals;
- H. animal wastes;
- I. rock; sand; salt, soils;
- J. construction wastes and residues;
- K. and noxious or offensive matter of any kind.

PROCESS WASTEWATER

means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any material, intermediate product, finished product, or waste product.

RECHARGE

The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

STORMWATER

Runoff from precipitation or snow melt.

TOXIC OR HAZARDOUS MATERIAL OR WASTE

Any material, which because of its quantity, concentration, chemical, corrosive, flammable, reactive, toxic, infectious or radioactive characteristics, either separately or in combination with any substance or substances, constitutes a present or potential threat to human health, safety, welfare, or to the environment. Toxic or hazardous materials include any synthetic organic chemical, petroleum product, heavy metal, radioactive or infectious waste, acid and alkali, and any substance defined as Toxic or Hazardous under M.G.L. Ch.21C and Ch.21E, and the regulations at 310 CMR 30.000 and 310 CMR 40.0000.

WATERCOURSES

A natural or man-made channel through which water flows or a stream of water, including a river, brook or underground stream.

WATERS OF THE COMMONWEALTH

all waters within the jurisdiction of the Commonwealth, including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, costal waters, and groundwater.

WASTEWATER

any sanitary waste, sludge, or septic tank or cesspool overflow, and water that during manufacturing, cleaning or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct or waste product.

§ 415-11. Applicability.

This by-law shall apply to all flows entering the storm drainage system in the Town of Southwick.

§ 415-12. Responsibility for administration.

The Director of the Department of Public Works or designated representative shall administer, implement and enforce this by-law. Any powers granted to or duties imposed upon the Director of the Department of Public Works may be delegated in writing by the Director of the Department of Public Works to employees or agents of the Department of Public Works.

§ 415-13. Regulations.

The Director of the Department of Public Works may promulgate rules and regulations to effectuate the purposes of this by-law. Failure by the Director of the Department of Public Works to promulgate such rules and regulations shall not have the effect of suspending or invalidating this by-law.

§ 415-14. Prohibited activities.

- A. Illegal Discharges. No person shall dump, discharge, cause or allow to be discharged any pollutant or non-stormwater discharge into any storm drainage system, watercourse, or into the waters of the Commonwealth. Emergency pumping performed by the Fire Department must utilize appropriate best management practices (BMPs) and follow hazardous materials disposal guidelines to prevent contamination of the municipal storm drainage system with hazardous materials. If hazardous materials are observed within the flooded area from the activities noted above, or are suspected to be contained therein, a qualified hazmat technician and applicable state and local agencies must be consulted. These agencies will be responsible for implementing the BMPs to the contamination of nearby water ways and the municipal storm drainage system.
- B. Illicit Connections. No person shall construct, use, allow, maintain or continue any illicit connection to the municipal storm drainage system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection with no grandfathering permitted.
- C. Obstruction of Municipal Storm Drainage System. No person shall obstruct or interfere with the normal flow of stormwater into or out of the storm drainage system without prior approval from the Director of the Department of Public Works or designated representative.
- D. Exemptions. This section shall not apply to any of the following non-stormwater discharges or flows provided that the source is not a significant contributor of a pollutant to the storm drainage system.
 - (1) Waterline flushing;
 - (2) Flows from potable water sources;
 - (3) Springs;
 - (4) Natural flows from riparian habitats and wetlands;
 - (5) Diverted stream flows;
 - (6) Rising groundwater;

- (7) Uncontaminated groundwater infiltration as defined in 40 CFR 35.2005(20), or uncontaminated pumped groundwater;
- (8) Water from exterior foundation drains, footing drains (not including active groundwater dewatering systems);
- (9) Discharges from landscape irrigation or lawn watering;
- (10) Water from individual residential car washing;
- (11) Discharges from de-chlorinated swimming pool water (less than one part per million chlorine) provided it is allowed to stand for one week prior to draining and the pool is drained in such a way as not to cause a nuisance;
- (12) Discharges during street sweeping and other storm drainage system maintenance;
- (13) Discharges or flows resulting from fire fighting activities;
- (14) Dye testing, provided notification is given to the Director of the Department of Public Works or designated representative prior to the time of the test;
- (15) Non-stormwater discharges permitted under an NPDES permit, waiver, or waste discharge order administered under the authority of the United States Environmental Protection Agency, provided that the discharge is in full compliance with the requirements of the permit, waiver, or order and applicable laws and regulations;
- (16) Discharges for which advanced written approval is received from the Director of the Department of Public Works or designated representative if necessary to protect public health, safety, welfare or the environment.

§ 415-15. Emergency suspension of storm drainage system access.

The Director of the Department of Public Works or designated representative may suspend storm drainage system access to any person or property without prior written notice when such suspension is necessary to stop an actual or threatened illegal discharge that presents or may present imminent risk of harm to the public health, safety, welfare or the environment. In the event any person fails to comply with an emergency suspension order, the Director of the Department of Public Works or designated representative may take all reasonable steps to prevent or minimize harm to the public health, safety, welfare or the environment.

§ 415-16. Notification of spills.

Notwithstanding any other requirements of local, state or federal law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials at that facility operation which is resulting or may result in illegal discharge of pollutants that person shall take all necessary steps to ensure containment, and cleanup of the release. In the event of a release of oil or hazardous materials, the person shall immediately notify the municipal fire and police departments, the Director of the Department of Public Works or designated representative, and the Massachusetts Department of Environmental Protection (if release is reportable as defined by 310 CMR 40.00). In the event of a release of non-hazardous material, said person shall notify the Director of the Department of Public Works or designated representative no later than the next business day. Written confirmation of all telephone, facsimile or in person notifications shall be provided to the Director of the Department of Public Works or designated representative within three business days thereafter. If the discharge of

prohibited materials is from a commercial or industrial facility, the facility owner or operator of the facility shall retain on-site a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

§ 415-17. Enforcement.

- A. The Director of the Department of Public Works or an authorized agent of the Department of Public Works shall enforce this by-law, and the regulations promulgated thereunder, as well as the terms and conditions of all permits, notices, and orders, and may pursue all civil and criminal remedies for such violations.
- B. Orders
 - (1) The Director of the Department of Public Works or designated representative may issue a written order to enforce the provisions of this by-law or the regulations thereunder, which include, but are not limited to:
 - (a) Elimination of elicit connections or discharges to the storm drainage system;
 - (b) Termination of access to the storm drainage system;
 - (c) Performance of monitoring, analyses, and reporting;
 - (d) Cessation of unlawful discharges, practices, or operations;
 - (e) Remediation of contamination in connection therewith.
 - (2) If the Director of the Department of Public Works or designated representative determines that abatement or remediation of contamination is required, the order shall set forth a deadline for completion of the abatement or remediation. Said order shall further advise that, should the violator or property owner fail to abate or perform remediation within the specified deadline, the Town of Southwick may, at its option, undertake such work and expenses thereof shall be charged to the violator or property owner.
 - (3) Within thirty (30) days after completing all measures necessary to abate the violation or to perform remediation, the violator and the property owner will be notified of the costs incurred by the Town of Southwick, including administrative costs. The violator or property owner may file a written protest objecting to the amount or basis of costs with the Board of Selectmen within thirty (30) days of receipt of the notification of the costs incurred. If the amount due is not received by the expiration of the time in which to file a protest or within thirty (30) days following a decision of the Board of Selectmen or designated representative affirming or reducing the costs, or from a final decision of a court of competent jurisdiction, the costs shall become a special assessment against the property owner and shall constitute a lien on the owner's property for the amount of said costs. Interest shall begin to accrue on any unpaid costs at the statutory rate provided in M.G.L. Ch. 59 § 57 after the thirty-first day at which the costs first become due.
- C. Equitable Remedy. If anyone violates the provisions of this by-law, regulations, permit, notice, or order issued thereunder, the Director of the Department of Public Works or designated representative may seek injunctive relief in a court of competent jurisdiction to restrain the person from activities which would create further violations or compelling the person to abate or remediate the violation.
- D. Non-Criminal Disposition. As an alternative to criminal prosecution or civil action, the Town of Southwick may elect to utilize the non-criminal disposition procedure set forth in M.G.L. Chapter 40, § 21D or in the Town of Southwick Code § 1-5. The Director of the Department of Public Works or designated representative shall be the enforcing person. The penalty for the 1st violation

shall be \$50. The penalty for the 2nd violation shall be \$100. The penalty for the 3rd and subsequent violations shall be \$300.00. Each day or part thereof that such violation occurs or continues shall constitute a separate offense.

- E. Right-of-Entry. To the extent permitted by state law, or if authorized by the owner or other party in control of the property, the Director of the Department of Public Works or designated representative, its agents, officers, and employees may enter upon privately owned property for the purpose of performing their duties under this by-law and regulations and may make or cause to be made such examinations, surveys or sampling as the Director of the Department of Public Works or designated representative deems reasonably necessary
- F. Appeals.
 - (1) The decisions or orders of the Director of the Department of Public Works or designated representative shall be final unless a Notice of Protest has been filed with the Board of Selectmen and the decision of the majority of the Board of Selectmen shall be final unless an appeal is filed with a Court of Competent Jurisdiction within thirty (30) days of the filing of the Written Decision of the Board of Selectmen with the Town Clerk. Further appeals shall be to a Court of Competent Jurisdiction.
 - (2) Notices of Protest pursuant to this section must be in writing and shall follow the following procedure:
 - (a) The aggrieved party wishing to protest a decision of either the Director of the Department of Public Works or its authorized Agent as to the amount or basis of the cost necessary to abate a violation of this By-Law, shall file a written protest with the Town Clerk and the Board of Selectmen within thirty (30) days of receipt of notification of the costs incurred from either the Director or an authorized agent of the Southwick Department of Public Works. Such Notice of Protest must be received by the Board of Selectmen's office and Town Clerk on or before said thirty (30) day period.
 - (b) Such Notice of Protest shall include a copy of the Notification the aggrieved party received from either the Director of authorized agent of the Department of Public Works and the grounds upon which such notice of protest is based.
 - (c) The Board of Selectmen will schedule a meeting with the aggrieved party at a regularly scheduled Board of Selectmen's meeting to be held within sixty (60) days of the receipt of such Notice of Protest. The Board of Selectmen shall notify in writing both the aggrieved party and the Director or authorized agent of the Department of Public Works of the time, place and date of the meeting.
 - (d) At the meeting, the aggrieved party shall have the right to produce evidence in support of such party's protest and have witnesses testify under oath in support of such protest. The Director of the Department of Public Works or its authorized agent shall also have the right to produce evidence and witnesses under oath in support of the original decision of the Department of Public Works.
 - (e) Upon closure of the meeting with the Board of Selectmen over the Notice of Protest, the Board of Selectmen, by a majority of the Selectmen present at such meeting, shall render a written decision on the Notice of Protest within thirty (30) days of the date of the meeting setting forth their decision and reasons supporting said decision, and file a copy of said decision with the Town Clerk and send a copy of said decision by first class mail to the aggrieved party within said thirty (30) days period.
- G. Remedies Not Exclusive. The remedies listed in this by-law are not exclusive of any other remedies available under any applicable federal, state or local law.

If any provision, paragraph, sentence, or clause, of this by-law shall be held invalid for any reason, all other provisions shall continue in full force and effect.

§ 415-19. Transitional provisions.

Property owners shall have 120 days from the effective date of the by-law to comply with its provisions provided good cause is shown for the failure to comply with the by-law during that period unless local, state, or federal agencies deem that immediate actions are warranted.



Storm System Mapping

The stormwater system map for the Town of Southwick can be found at:

https://tinyurl.com/ms4-public-viewer-southwick.

Appendix C

Field/Laboratory Forms, Sample Bottle Labels, and Chain of Custody Forms

| Outfall ID: | Town: | | | | R ^{ot} | un of So southwi | LL & JA HAVIE |
|--|--|--------------------------|-----------------------|--------------------|-----------------|-------------------------------|--|
| Inspector: | Date: | | | | | Incorporated - Nov. | . 7, 1770 SETTS |
| Street Name | | | | | | | Conn 4 |
| Last rainfall event | | | | | | | |
| DRY WEATHER OUT | FALL INSPECTION | SURVEY | | | | Seal | |
| Type of O | utfall (check one): | | Pipe | Outfall | | Open S | wale Outfall |
| Outfall La | ibel: Ste | ncil | Ground Ins | set | Sign 🗌 | None | Other |
| Pipe Material: | Concrete Corrugated metal Clay Tile Plastic Other: | | Pipe Cond | ition: | | Good Fair | Poor Crumbling |
| Swale Material: | Paved (asphalt) Concrete Earthen Stone Other: | | Swale Con | dition: | | Good Fair | Poor Crumbling |
| Shape of Pipe/Swale (c | heck one) | | | . | | | |
| | | h h t | | | | | |
| Rounded | Pipe/Swale | Recta | ingular Pipe | /Swale | Triangu | lar Swale | Trapezoidal Swale |
| Tipe Weasurements. | Swale Meas | ui ements. | | a iicauwai | | Location Sketch | |
| Inner Dia. (in): $d=$ | Swale Width | (in): $T=$ | = | Yes | No 🗌 | | |
| Outer Dia. (iii). D_{-} | | (III). t – | | Conditio |)11; | | |
| Pipe Width (in): T= _ | Swale Heigh | t (in): H= | = | Good Fair | PoorCrumb | ing | |
| Pipe Height (in): $H=$ | Flow Height | (in): h= | * | | | | |
| Flow Width (in): h= _ | * Bottom Widt | h (in): b= | = <u> </u> | | | | |
| Description of Flow: | Heavy D M | Ioderate | | Trickling | g 🗌 | Dry [| |
| If the outlet is submerg above the outlet invert | ged check yes and indice habove invert (in): | cate appro | oximate heig | ht of wat | er C | Circle All M Present: | aterials |
| Odor: Optical enhancers susp Has channelization occ Has scouring occurred | pected? curred? below the outlet? | Yes Yes Yes Yes | No No No | | R F S | ip rap xcessive ediment | Sheen: Bacterial Sheen: Petroleum Floatables |
| Required Maintenance | e: Tree Work Ditch Work | | Remove 7 Blocked F | l'rash/Deb Pine | oris F | oam | Algae |
| | Structural Corrosio | n | Erosion at | t Structure | e S | anıtary Was | Excessive |
| Commenter | N/A | | Other | | C | Trange taining | Vegetation |
| Comments: | | | | | | 0 | |

| Outfall I.D. | |
|--------------------|----------------|
| Outfall Location | |
| Inspector's Name | |
| Date of Inspection | Last Inspected |
| Start Time | End Time |
| Most Recent Storm | |



WET WEATHER OUTFALL INSPECTION & WATER QUALITY SCREENING SURVEY

| Visual Inspection: | Yes | No | No Comments (Include probable source of observed contamination): | | | | | | | | |
|--------------------------------|-------------|-------------|--|------------------------|------------------|--|--|--|--|--|--|
| Color | | | | | | | | | | | |
| Odor | | | | | | | | | | | |
| Turbidity | | | | | | | | | | | |
| Excessive Sediment | | | | | | | | | | | |
| Sanitary Waste | | | | | | | | | | | |
| Pet Waste | | | | | | | | | | | |
| Floatable Solids | | | | | | | | | | | |
| Oil Sheen | | | | | | | | | | | |
| Bacterial Sheen | | | | | | | | | | | |
| Foam | | | | | | | | | | | |
| Algae | | | | | | | | | | | |
| Orange Staining | | | | | | | | | | | |
| Excessive Vegetation | | | | | | | | | | | |
| Optical Enhancers | | | | | | | | | | | |
| Other | | | | | | | | | | | |
| Sample Parameters ¹ | Analytical | Test Method | Benchmark ² | Field Screening Result | Full Analytical? | | | | | | |
| Ammonia | EPA 350.2/S | M4500-NH3C | >0.5 mg/L | | Yes No | | | | | | |
| Chlorine | SM 45 | 500-Cl G | >0.02 mg/L | | 🗌 Yes 🗌 No | | | | | | |
| Conductivity | EPA 120. | 1/SM 2510B | >2,000 µs/cm | | 🗌 Yes 🗌 No | | | | | | |
| Salinity | SM | 2520 | n/a | | 🗌 Yes 🗌 No | | | | | | |
| Surfactants | SM | 5540C | > 0.25 mg/L | | 🗌 Yes 🗌 No | | | | | | |
| Temperature | SM | 2550B | n/a | | Yes No | | | | | | |
| pH ³ | EPA 150. | I/SM 4500H | <5 | | Yes No | | | | | | |
| Comments: | | | | | | | | | | | |

¹ – Parameters (except pH) referenced from 2016 Massachusetts Small MS4 General Permit. Any required bacteria or nitrogen testing (listed separately in Water Quality Screening Report) shall only be performed by MassDEP-approved laboratory.

² – Benchmarks referenced from 2016 Massachusetts Small MS4 General Permit, except for pH and Conductivity (see *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection and Robert Pitt of University of Alabama, 2004, p. 134, Table 45).

³ – Parameter not required under 2016 Massachusetts Small MS4 General Permit; data to be logged for reference purposes.

| Date | |
|------------|--|
| Outfall ID | |

WATER QUALITY ANALYTICAL TEST RESULT SUMMARY

(attach laboratory results as applicable)

| Sample Parameter | Analytical Test Method ¹ | Sample Collection (Time/Date) | Testing Facility (Public Works or Agent/Laboratory Name) | Analytical Testing Result |
|-------------------|--|-------------------------------------|---|---------------------------------|
| Ammonia | EPA 350.2/SM4500-NH3C | | | |
| Bacteria | E coli: 1103.1; 1603 Enterococcus: 1106.1; 1600 | | | |
| Chlorine | SM 4500-Cl G | | | |
| Color | EPA 110.2 | | | |
| Conductivity | EPA 120.1/SM 2510B | | | |
| Nitrogen | EPA Cadmium reduction (automated)-353.2 Rev. 2.0/SM 4500-NO ₃ E-F | | | |
| Salinity | SM 2520 | | | |
| Surfactants | EPA 425.1/SM5540C | | | |
| Optical Enhancers | N/A ² | | | |
| рН | EPA 150.1/SM 4500H | | | |

¹ Methods provided for laboratory reference, as applicable. Per the 2016 MA Small MS4 GP: All analyses with the exception of indicator bacteria and pollutants of concern can be performed with field test kits or field instrumentation and are not subject to 40 CFR part 136 requirements.

² There is presently no USEPA Standard Method for analysis of optical enhancers. Typically, sample pads are described as "Present" or "Not Present" for fluorescing dye when exposed to UV light or a fluorometer.

| Job No.: | Town: | | | | SOUTHWICK Incorporated Nov. 7, 1770 MASSACHUSETTS | | | | | | |
|---|--|---|--------------------------------------|--|---|-----------------------------------|--|--|--|--|--|
| Inspector: | Date: | | | | | | | | | | |
| CATCH BASIN INSPEC | | Se/a1 | | | | | | | | | |
| Catch Basin I.D. | | _ | arge from Struct harge to Outfall | cture? Yes | | | | | | | |
| Catch Basin Label: | Stencil | Ground Inse | ign 🗌 Non | ne Other | | | | | | | |
| Basin Material: S E | Concrete Corrugated metal Stone Brick Dther: | | Catch Basin | n Condition: | Good [Fair [|] Poor 🗌] Crumbling 🗌 | | | | | |
| C Fipe Material: C C | Concrete HDPE PVC Clay Tile Dther: | | Pipe Measu | rements: | Inlet Dia. (in): d= Outlet Dia. (in): D= | | | | | | |
| Required Maintenance/ P Tree Work Required New Grate is Required Pipe is Blocked Frame Maintenance is Remove Accumulated Pipe Maintenance is Re Basin Undermined or H | nnot Remove Cov cch Work rrosion at Structu osion Around Stru move Trash & De ed Cement Aroun | over ure ructure Debris Ind Grate | | | | | | | | | |
| Catch Basin Grate Type :Sediment BuildupBar: \Box 0-6 (in):Cascade: \Box 6-12(in):Other:12-18 (in):Properly Aligned:Yes24 + (in):No \Box | | | epth : | Description of Heavy Moderate Slight Trickling | Flow: Street Name/ Structure Location: | | | | | | |
| *If the outlet is submerge above the outlet invert. | d check yes and i h above invert (in) | ndicate appr | oximate heig | ght of water | Yes | No 🗌 | | | | | |
| Flow | Observations | : | | | Circle those p | resent: | | | | | |
| Standing Water | Color: | | | | Foam | Oil Sheen | | | | | |
| (check one or both) Weather Conditions : | (check one or both) Odor: ather Conditions : Drv > 24 hours Wet | | | | | Bacterial Sheen | | | | | |
| Sample of Screenings Col | Orange Stainir | g Floatables | | | | | | | | | |
| Comments: | | | | | Excessive sediment Other: | Pet Waste Optical Enhancers | | | | | |

| (S) MICF | ROBAC [®] 80 Run Way, Lee, | MA 01238 41 | 3.776.5025 p | | | | | | | | | | | | CHA Numb | AIN O Der Inctions | F CU | STODY RECORD |
|-------------------|--|--|----------------------------------|-------------------------|--|----------------------------------|---------------------------------|--|---------------------------------|---|-------------------|-------------------|-------------------------------------|------------------------|-----------------------|--------------------------|---------|------------------|
| Lab Report | Invoice Address | | | | Turnaround Time | | | | | TO BE COMPLETED BY MICROBAC | | | | | | | | |
| Client Name | Client Name: | | | | ☐ Routine (5 to 7 business days) ☐ RUSH* (notify lab) | | | | ;) | Temperature Upon Receipt (°C) Therm ID | | | | | | | | |
| Address: Address: | | | | | | | | | | | | | Holding Time | | | | | |
| City, State, | Zip: | | City, State, Zi | p: | | | | | (needed | (needed by) Samples Received or | | | | | on Ice? Yes No N/A | | | |
| Contact: | | | Contact: | | | | | Report Type | | | | | Custody Seals Intact? Yes No N/A | | | | | |
| Telephone N | lo.: | | Telephone No.: | | | | | Results Only Level 1 Level 2 Level 3 Level 4 EDD | | | | | evel 4 🗌 EDD | | | | | |
| Send Report | t via: 🗌 Mail 🗌 Fax 🗌 e-mail | (address) | Send Invoice via: | | | | | 🗌 Mail | □ Mail □ Fax □ e-mail (address) | | | | | | | | | |
| Project: | | I | Location: | | | | | PO No.: | | | | Comp | liance ency/F | Monit Progra | oring? m | □ Ye | s 🗌 | No |
| Sampled by | (PRINT): | | Sampler Signa | ture: | | | | | Sample | r Phon | e No.: | | | | | | | |
| ** | * Matrix Types: Soil/Solid (S), S * Preservative Types: (1) HNO3, (2) F | ludge, Oil, Wipe, 12SO4, (3) HCl, (| Drinking Water 4) NaOH, (5) Z | (DW), inc Ac | Ground etate, | dwater (6) Me | (GW), Surface thanol, (7) So | e Water (dium Bisu | SW), Was Ilfate, (8) | te Wa Sodiu | ter (W Im Thio | W), Ot osulfat | her (s e, (9) | pecify Hexan |) e, (U) | Unpres | served | |
| | | | | | | | | | | K | EQUES | IED A | NALTS | 5 | | | | |
| Lab ID | Client Sample ID | Date Collected | Time Collected | No. of Containers | Matrix | Grab / Comp | Preservative Types ** | | | | | | | | | | | Additional Notes |
| | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | |
| Possible Haz | zard Identification 🗌 Hazai | rdous □ Non-Ha | azardous 🗆 Ra | adioact | ive | | | Sample Di | isposition | | Dispos | se as a | raorac | iate | Ret | urn 🗆 |] Archi | ive |
| Comments | | | | | | | | | - | | | | . 1 1. | | | | | |
| | Relinquished By (signature) Date/Time | | | Received By (signature) | | | | ature) |) Date/Time | | | | | | | | | |
| | | | Relinquished E | 8y (sigi | nature) |) | Date/T | ime | | Received By (signature) | | | | | Date/Time | | | |
| | | Relinquished By (signature) Date/Time | | | | Received By (signature) Date/Tin | | | | Date/Time | | | | | | | | |
Sample Acceptance Policy for Environmental Chemistry and Microbiology

Chain of Custody

A chain of custody MUST accompany all samples received at the laboratory. The following information on the Chain of Custody must be complete: client name and address, sample collector's name, sample description/identification, matrix, date and time of collection, number of containers, preservative and requested analysis. Any missing receipt information will be documented in the final report. The laboratory will analyze those target analyses identified by the client on a project-specific basis. If project-specific information is not available, then the laboratory's default reference methods and target list of analyses will be used.

Sample Containers

Upon receipt at the laboratory sample containers will be evaluated to ensure that all of the containers are intact, that the container type meets the requirement of the specific analytical method, and that the Sample Containers are properly filled.

Preservatives

Chemical preservatives are required by many analytical methods in order to render a specific analyte stable until analysis can be performed at the laboratory. Chemical preservatives are to be added AT THE TIME OF SAMPLING (either added directly or via pre-preserved bottles), unless it is unsafe to do so.

Transport/Receipt Temperature

Many of the analytical methods utilized require that samples be kept cool during sample transport. Microbac will assess and document the receipt temperature of each cooler received at the laboratory. Where thermal preservation is required, the receipt temperature must be in a range of $0.1 - 6^{\circ}$ C for environmental chemistry samples or <10 $^{\circ}$ C for environmental microbiology samples. Samples received on the same day as collection will be measured for temperature but will be evaluated based on the sample transport conditions. Samples delivered on the same calendar day as collection must be presented to the lab such that an attempt has been made to cool the samples, such as storage in a cooler on ice.

Holding Time

Samples should be provided to the laboratory as soon as possible after collection to ensure that analysis can be performed within the method specified Holding Time. Upon receipt at the laboratory, the sample date and time as well as the required chemistries will be evaluated to identify if any of the samples may be past the maximum holding time.

If it is determined that a container or sample condition has been compromised, is inappropriate for the requested analysis, improperly filled, improperly preserved or received outside of the required temperature range or received with inadequate holding time available, your Microbac Project Manager will contact you for direction. Documentation of decisions made to proceed with analysis will be provided to you as part of the Cooler Inspection form in the final report.

In the absence of a written agreement to the contrary, by delivering or arranging for delivery of samples to the lab, the customer agrees to our standard terms and conditions which can be found at https://www.microbac.com/standard-terms-conditions.

| LOCATION: |
|-----------------------|
| DESCRIPTION: |
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Appendix D

Water Quality Analysis Instructions and Standard Operating Procedures

SOP 13: WATER QUALITY SCREENING IN THE FIELD

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality within the MS4 system under both dry weather and wet weather conditions. SOP 1, "Dry Weather Outfall Inspection" and SOP 2, "Wet Weather Outfall Inspection", cover the objectives of these activities and how water quality parameters can be collected during both types of inspections. SOP 3, "Catch Basin Inspection and Cleaning", describes how this operations and maintenance activity can serve as an additional opportunity to collect water quality data.

SOP 2 included detailed information on how to collect discrete analytical samples to be processed by a laboratory. In contrast, this SOP addresses screening-level measurements than can be collected at outfalls, catch basins, receiving waters, or other water bodies. The measurements can be collected with field test kits or with portable meters.

Water quality screening data collected in this manner can feed into an illicit discharge detection and elimination investigation, like the process described in SOP 10, "Locating Illicit Discharges".

Visual Condition Assessment

SOP 1, SOP 2, and SOP 3 describe a Visual Condition Assessment to collect observations related to the quality of stormwater conveyed by an engineered storm drain system. These observations may include such visual evidence and/or potential pollutants as:

- Foaming (detergents)
- Discoloration
- Evidence of sanitary waste
- Optical enhancers (fluorescent dyes added to laundry detergent); and
- Turbidity

If a Visual Condition Assessment indicates the presence of these pollutants, it may be necessary to quantify the extent of each, and gather data on other parameters that cannot be visually observed but can be measured using field kits or meters. These parameters include:

- Ammonia
- Chlorine (present in treated drinking water but not groundwater)
- Conductivity
- Nitrogen
- Salinity
- Surfactants
- Temperature
- pH

Field Kits and Sampling Methods Available

In recent drafts of new MS4 Permits, U.S. EPA Region 1 has identified several test kits that are acceptable for use in the field, and other regulatory agencies have also completed similar reviews. The following table shows field test kits and portable meters that can be used for screening parameters.

| | Instrumentation | |
|--|--|---|
| Analyte or Parameter | (Portable meter) | Field Test Kit |
| Ammonia | CHEMetrics™ V-2000 Colorimeter Hach™ DR/890 Colorimeter Hach™ Pocket Colorimeter™ II | CHEMetrics [™] K-1410 CHEMetrics [™] K-1510 (series) Hach [™] NI-SA Hach [™] Ammonia Test Strips |
| Surfactants (Detergents) | CHEMetrics™ I-2017 | |
| Chlorine | CHEMetrics [™] V-2000, K-2513 Hach [™] Pocket Colorimeter [™] II | NA |
| Conductivity | CHEMetrics [™] I-1200 YSI Pro30 YSI EC300A Oakton 450 | NA |
| Salinity | YSI Pro30 YSI EC300A Oakton 450 | NA |
| Temperature | YSI Pro30 YSI EC300A Oakton 450 | NA |
| Indicator Bacteria: <i>E. coli</i> (freshwater) | EPA certified laboratory procedure (40 CFR § 136) | NA |
| Nitrogen (the cited "Pollutant of Concern", among others as may be identified) | EPA certified laboratory procedure (40 CFR § 136) | NA |

Table SOP 13-1Field Measurements, Test Kits, and Instrumentation

Each field test kit will include instructions specific to that test kit, and most kits are available in configurations that detect different ranges of the parameter. For example, the CHEMetricsTM detergents kit K-9400 shown above detects concentrations of 0 to 3 milligrams per liter (mg/L) while the K-9404 kit detects concentrations of 0 to 1,400 mg/L.

The table below shows values identified by the 2016 Massachusetts Small MS4 General Permit and the Center for Watershed Protection as typical field screening values for select parameters. These represent the typical concentration (or value) of each parameter expected to be found in stormwater. Screening values that exceed these benchmarks may be indicative of pollution and/or illicit discharges.

As noted in Table SOP 13-1, bacteriological testing and nitrogen (the local "pollutant of concern" under a Long Island Sound TMDL) testing are restricted to EPA-certified laboratory procedures and do not have applicable field tests.

| Analyte or Parameter | Benchmark |
|----------------------|--|
| Ammonia | >0.5 mg/L |
| Chlorine | >0.02 mg/L |
| | (detectable levels per the 2016 MS4 Permit) |
| Conductivity | >2,000 µS/cm |
| Salinity | n/a |
| Surfactants | >0.25 mg/L |
| Temperature | n/a |
| рН | <5 |

Table SOP 13-2 Benchmark Field Measurements for Select Parameters

If and when water quality screening samples exceed these benchmark concentrations, whether using field test kits or portable meters, the inspector should consider collecting analytical samples for laboratory analysis.

Advantages and Disadvantages of Field Testing

Field test kits can be convenient for use as a screening tool, initial purchase costs are low (typically \$0.50 to \$5.00 for the kits included in Table SOP 13-1), and the costs are far less than full analyses at a laboratory. However, some disadvantages of this screening method include:

- Limited shelf life
- Labor cost associated with inspector's time
- Generation of wastes, including glass vials and used reagent
- Steps and processes for each kit can vary widely, resulting in errors
- Trained staff are required in order to effectively utilize kits
- Not all kits are accepted by all regulatory agencies
- Limited useful detection range

Portable instrumentation such as the colorimeters shown in Table SOP 13-1 have the benefit of providing accurate readings, measure to low detection limits, and can be purchased pre-programmed to measure concentrations of most parameters required. Disadvantages of portable instrumentation include:

- High initial purchase cost
- Requirement for ongoing calibration and maintenance
- Individual probes require periodic replacement
- Specific storage requirements to maintain calibration
- Trained staff are required in order to effectively utilize meters

Related Standard Operating Procedures

- 1. SOP 1, Dry Weather Outfall Inspection
- 2. SOP 2, Wet Weather Outfall Inspection
- 3. SOP 3, Catch Basin Cleaning and Inspection
- 4. SOP 10, Locating Illicit Discharges

Appendix E IDDE Employee Training Record

Illicit Discharge Detection and Elimination (IDDE) Employee Training Record

Town of Southwick, Massachusetts

Date of Training:May 7, 2020Training By:Fuss & O'Neill (W. Guenther)

PLEASE PRINT CLEARLY

| Name | Department |
|------------------|--------------|
| Jonathan Goddard | Public Works |
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Appendix F

Source Isolation and Confirmation Methods: Instructions and Standard Operating Procedures

SOP 1: DRY WEATHER OUTFALL INSPECTION

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality from these outfalls under both dry weather and wet weather conditions. SOP 2, "Wet Weather Outfall Inspection", covers the objectives of that type of inspection. This SOP discusses the dry weather inspection objectives, and how they differ from wet weather inspection objectives.

During a dry weather period, it is anticipated that minimal flow from stormwater outfalls will be observed. Therefore, dry weather inspections aim to characterize any/all flow observed during a dry weather period and identify potential source(s) of an illicit discharge through qualitative testing; further described in SOP 13, "Water Quality Screening in the Field".

Objectives of Dry Weather Inspections

A dry weather period is a time interval during which less than 0.1 inch of rain is observed across a minimum of 72 hours. Dry weather inspections are intended to identify any/all discharges from a stormwater outfall during a period without recorded rainfall. The objective of inspections during a dry weather period is to characterize observed discharges and facilitate detection of illicit discharges.

Visual Condition Assessment

The attached Dry Weather Outfall Inspection Survey is a tool to assist in documenting observations related to the both quantitative and qualitative characteristics of any/all flows conveyed by the structure during a dry period.

For any visual observation discharge from a stormwater outfall, an investigation into the pollution source should occur, but the following are often true:

- 1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
- 2. Oil sheen: result of a leak or spill.
- 3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
- 4. Color or odor: Indicator of raw materials, chemicals, or sewage.
- 5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
- 6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicators of illicit discharge.
- 7. Orange staining: indicator of high mineral concentrations.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Many of these observations are indicators of an illicit discharge. Examples of illicit discharges include: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Additional guidelines for illicit discharge investigations are included in SOP 10, "Locating Illicit Discharges". If dry weather flow is present at the outfall, and the flow does not appear to be an obvious illicit discharge (e.g. flow is clear, odorless, etc.) attempt to identify the source of flow (e.g. intermittent stream, wetlands drainage, etc.) and document the discharge for future comparison.

Although many of the observations are indicators of illicit discharge it should be noted that several of these indicators may also occur naturally. Orange staining may be the result of naturally occurring iron, and thus unrelated to pollution. Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

- 1. Wind direction or turbulence: natural foam occurrences on the beach coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
- 2. Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
- 3. Feeling: natural foam is typically persistent, light, not slimy to the touch.
- 4. Presence of decomposing plants or organic material in the water.

Optical enhancers, fluorescent dyes added to laundry detergent, are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried then viewed under a UV light. If the cotton pad displays fluorescent patches, optical enhancers are present. Optical enhancers are occasionally visible as a bluish-purple haze on the water surface; however the testing method should be used to confirm the presence of optical enhancers.

The Dry Weather Outfall Inspection Survey includes fields where these and other specific observations can be noted. The inspector shall indicate the presence of a specific water quality indicator or parameter

by marking "Yes". If "Yes" is marked, provide additional details in the comments section. If the indictor in question is not present, mark "No".

Within the comments section, provide additional information with regard to recorded precipitation totals, or more detailed descriptions of observations made during the inspection and corrective actions taken.

Measuring Water Quality

Based on the results of the Visual Condition Assessment, it may be necessary to collect additional data about water quality. Water quality samples can be in the form of screening using field test kits and instrumentation, or by discrete analytical samples processed by a laboratory.

Information on selecting and using field test kits and instrumentation is included in SOP 13, "Water Quality Screening in the Field." The Inspection Survey also provides values for what can be considered an appropriate benchmark for a variety of parameters that can be evaluated in the field.

If the results of screening using field test kits indicate that the outfall's water quality exceeds the benchmarks provided, collection of discrete analytical samples should be considered.

Analytical Sample Collection

Sample collection methods may vary based on specific outfall limitations, but shall follow test procedures outlined in 40 CFR 136. A discrete manual or grab sample can classify water at a distinct point in time. These samples are easily collected and used primarily when the water quality of the discharge is expected to be homogeneous, or unchanging, in nature. A flow-weighted composite sample will classify water quality over a measured period of time. These samples are used when the water quality of the discharge is expected to be heterogeneous, or fluctuating, in nature. Grab samples are more common for dry weather outfall inspections due to the time-sensitive nature of the process.

Protocols for collecting a grab sample shall include the following:

- 1. Do not eat, drink or smoke during sample collection and processing.
- 2. Do not collect or process samples near a running vehicle.
- 3. Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
- 4. Always wear clean, powder-free nitrile gloves when handling sample containers and lids.
- 5. Never touch the inside surface of a sample container or lid, even with gloved hands.
- 6. Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
- 7. Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
- 8. Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.

- 9. Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
- 10. Do not allow any object or material to fall into or contact the collected water sample.
- 11. Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
- 12. Replace and tighten sample container lids immediately after sample collection.
- 13. Accurately label the sample with the time and location.
- 14. Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

Analytical Sample Quality Control and Assurance

Upon completion of successful sample collection, the samples must be sent or delivered to a MassDEPapproved laboratory for analytical testing. Quality control and assurance are important to ensuring accurate analytical test results.

Sample preservation is required to prevent contaminate degradation between sampling and analysis, and should be completed in accordance with 40 CFR 136.3.

Maximum acceptable holding times are also specified for each analytical method in 40 CFR 136.3. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times.

Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples. Custody seals, which are dated, signed and affixed to the sample container, may be used if the samples are shipped in a cooler via courier or commercial overnight shipping.

Attachments

1. Dry Weather Outfall Inspection Survey

Related Standard Operating Procedures

- 1. SOP 2, Wet Weather Outfall Inspection
- 2. SOP 10, Locating Illicit Discharges
- 3. SOP 13, Water Quality Screening in the Field

SOP 2: WET WEATHER OUTFALL INSPECTION

Introduction

Outfalls from an engineered storm drain system can be in the form of pipes or ditches. Under current and pending regulations, it is important to inspect and document water quality from these outfalls under both dry weather and wet weather conditions. SOP 1, "Dry Weather Outfall Inspection", covers the objectives of that type of inspection. This SOP discusses wet weather inspection objectives and how they differ from dry weather inspection objectives. The primary difference is that wet weather inspection aims to describe and evaluate sustained stormwater discharge from an outfall during a storm event.

Definition of Wet Weather

A storm is considered a representative wet weather event if greater than 0.1 inch of rain falls. In some watersheds, based on the amount of impervious surface present, increased discharge from an outfall may not result from 0.1 inch of rain. An understanding of how outfalls respond to different events will develop as the inspection process proceeds over several months, allowing the inspectors to refine an approach for inspections.

The evaluation and any samples collected should occur after the first 30 minutes of discharge to exclude the "first flush" condition.

Typical practice is to prepare for a wet weather inspection event when weather forecasts show a 40% chance of rain or greater. If the inspector intends to collect analytical samples, coordination with the laboratory for bottleware and for sample drop-off needs to occur in advance.

Visual Condition Assessment

The attached Wet Weather Outfall Inspection Survey should be used to document observations related to the quality of stormwater conveyed by the structure. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash and debris

For any visual observation of pollution in a stormwater outfall discharge, an investigation into the pollution source should occur, but the following are often true:

- 1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
- 2. Oil sheen: result of a leak or spill.
- 3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.

- 4. Color or odor: indicator of raw materials, chemicals, or sewage.
- 5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
- 6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicators of illicit discharge.
- 7. Orange staining: indicator of high mineral concentrations.

Many of these observations are indicators of an illicit discharge. Examples of illicit discharges include: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Additional guidelines for illicit discharge investigations are included in SOP 10, "Locating Illicit Discharges".

Although many of the observations are indicators of illicit discharge it should be noted that several of these indicators may also occur naturally. Orange staining may be the result of naturally occurring iron, and thus unrelated to pollution. Foam can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

- 1. Wind direction or turbulence: natural foam occurrences on the beach coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site.
- 2. Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and fire fighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
- 3. Feeling: natural foam is typically persistent, light, not slimy to the touch.
- 4. Presence of decomposing plants or organic material in the water.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Optical enhancers, fluorescent dyes added to laundry detergent, are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried then viewed under a UV light. If the cotton pad displays fluorescent patches, optical enhancers are present. Optical enhancers are occasionally visible as a bluish-purple haze on the water surface; however the testing method should be used to confirm the presence of optical enhancers.

The Wet Weather Outfall Inspection Survey includes fields where these and other specific observations can be noted. The inspector shall indicate the presence of a specific water quality indicator or parameter by marking "Yes". If "Yes" is marked, provide additional details in the comments section. If the indictor in question is not present mark "No".

Within the comments section, provide additional information with regard to recorded precipitation totals, or more detailed descriptions of observations made during the inspection and corrective actions taken.

Measuring Water Quality

Based on the results of the Visual Condition Assessment, it may be necessary to collect additional data about water quality. Water quality samples can be in the form of screening using field test kits or by discrete analytical samples processed by a laboratory.

Information on how to use field test kits is included in SOP 13, "Water Quality Screening with Field Test Kits", and the Wet Weather Outfall Inspection Survey includes fields to document the results of such screening. The Inspection Survey also provides values for what can be considered an appropriate benchmark for a variety of parameters that can be evaluated with field test kits.

If the results of screening using field test kits indicate that the outfall's water quality exceeds the benchmarks provided, collection of discrete analytical samples should be considered.

The 2016 Massachusetts Small MS4 General Permit required instances for when field testing and laboratory testing of specified parameters/analytes must be undertaken, regardless of findings from visual and olfactory assessments. When required, bacteriologic and nitrogen tests must be performed by a certified laboratory.

Analytical Sample Collection

Sample collection methods may vary based on specific outfall limitations but shall follow test procedures outlined in 40 CFR 136. A discrete manual or grab sample can classify water at a distinct point in time. These samples are easily collected and used primarily when the water quality of the discharge is expected to be homogeneous, or unchanging, in nature. A flow-weighted composite sample will classify water quality over a measured period of time. These samples are used when the water quality of the discharge is expected to be heterogeneous, or fluctuating, in nature. Grab samples are more common for wet weather outfall inspections due to the time-sensitive nature of the process.

Protocols for collecting a grab sample shall include the following:

- 1. Do not eat, drink or smoke during sample collection and processing.
- 2. Do not collect or process samples near a running vehicle.
- 3. Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
- 4. Always wear clean, powder-free nitrile gloves when handling sample containers and lids.

- 5. Never touch the inside surface of a sample container or lid, even with gloved hands.
- 6. Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
- 7. Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
- 8. Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.
- 9. Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
- 10. Do not allow any object or material to fall into or contact the collected water sample.
- 11. Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
- 12. Replace and tighten sample container lids immediately after sample collection.
- 13. Accurately label the sample with the time and location.
- 14. Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

Analytical Sample Quality Control and Assurance

Upon completion of successful sample collection, the samples must be sent or delivered to a MassDEPapproved laboratory for analytical testing. Quality control and assurance are important to ensuring accurate analytical test results.

Sample preservation is required to prevent contaminant degradation between sampling and analysis and should be completed in accordance with 40 CFR 136.3.

Maximum acceptable holding times are also specified for each analytical method in 40 CFR 136.3. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times.

Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples. Custody seals, which are dated, signed and affixed to the sample container, may be used if the samples are shipped in a cooler via courier or commercial overnight shipping.

Town of Southwick

Attachments

1. Wet Weather Outfall Inspection & Water Quality Screening Survey, with attached Water Quality Analytical Test Result Summary Sheet

Related Standard Operating Procedures

- 1. SOP 1, Dry Weather Outfall Inspection
- 2. SOP 10, Locating Illicit Discharges
- 3. SOP 13, Water Quality Screening in the Field

SOP 10: LOCATING ILLICIT DISCHARGES

Introduction

An "illicit discharge" is any discharge to an engineered storm drain system that is not composed entirely of stormwater unless the discharge is defined as an allowable non-stormwater discharge under the 2003 Massachusetts MS4 Permit. Illicit discharges may enter the engineered storm drain system through direct or indirect connections, such as: cross-connections of sewer services to engineered storm drain systems; leaking septic systems; intentional discharge of pollutants to catch basins; combined sewer overflows; connected floor drains; and sump pumps connected to the system (under some circumstances). Illicit discharges can contribute high levels of pollutants, such as heavy metals, toxics, oil, grease, solvents, nutrients, and pathogens to receiving streams.

Illicit discharges can be located by several methods, including routine dry weather outfall inspections and catch basin inspections, which are described in detail in SOP 1, "Dry Weather Outfall Inspection" and SOP 3, "Catch Basin Inspection and Cleaning", respectively, as well as from citizen reports.

This SOP assumes that the municipality has legal authority (i.e., a bylaw or ordinance) in place, per the requirements of the 2003 Massachusetts MS4 Permit, to prohibit the connection of non-stormwater discharges into the storm drain system. The authority or department for addressing illicit discharge reports would be clearly identified in the municipality's legal authority. In Massachusetts, this is typically a combination of the Board of Health, the Department of Public Works (or Highway Department), and the local sanitary sewer department or commission. In some communities, the Conservation Commission may also play a role. This SOP refers to "appropriate authority" generically to reflect differences in how municipalities have identified these roles.

Identifying Illicit Discharges

The following are often indicators of an illicit discharge from stormwater outfall:

- 1. Foam: indicator of upstream vehicle washing activities, or an illicit discharge.
- 2. Oil sheen: result of a leak or spill.
- 3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
- 4. Color or odor: Indicator of raw materials, chemicals, or sewage.
- 5. Excessive sediment: indicator of disturbed earth of other unpaved areas lacking adequate erosion control measures.
- 6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent): indicator of the cross-connection of a sewer service.
- 7. Orange staining: indicator of high mineral concentrations.

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in

a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial sheen is not a pollutant but should be noted.

Citizen Call in Reports

Reports by residents and other users of a water body can be effective tools in identifying the presence of illicit discharges. Many communities have set up phone hotlines for this purpose, or have provided guidance to local police departments and dispatch centers to manage data reported in this manner. Municipal employees and the general public should receive education to help identify the signs of illicit discharges and should be informed how to report such incidents.

When a call is received about a suspected illicit discharge, the attached IDDE Incident Tracking Sheet shall be used to document appropriate information. Subsequent steps for taking action to trace, document, and eliminate the illicit discharge are described in the following sections.

Potential illicit discharges reported by citizens should be reviewed on an annual basis to locate patterns of illicit discharges, identify high-priority catchments, and evaluate the call-in inspection program.

Tracing Illicit Discharges

Whenever an illicit discharge is suspected, regardless of how it was identified, the attached IDDE Incident Tracking Sheet should be utilized. The Incident Tracking Sheet shall be provided to the appropriate authority (i.e., Board of Health, Department of Public Works, etc.), which shall promptly investigate the reported incident.

If the presence of an illicit discharge is confirmed by the authority, but its source is unidentified, additional procedures to determine the source of the illicit discharge should be completed.

- 1. Review and consider information collected when illicit discharge was initially identified, for example, the time of day and the weather conditions for the previous 72 hours. Also consider and review past reports or investigations of similar illicit discharges in the area.
- 2. Obtain storm drain mapping for the area of the reported illicit discharge. If possible, use a tracking system that can be linked to your system map, such as GIS.
- 3. Document current conditions at the location of the observed illicit discharge point, including odors, water appearance, estimated flow, presence of floatables, and other pertinent information. Photograph relevant evidence.
- 4. If there continues to be evidence of the illicit discharge, collect water quality data using the methods described in SOP 13, "Water Quality Screening in the Field". This may include using field test kits or instrumentation, or collecting analytical samples for full laboratory analysis.
- 5. Move upstream from the point of observation to identify the source of the discharge, using the system mapping to determine infrastructure, tributary pipes, and drainage areas that contribute. At each point, survey the general area and surrounding properties to identify potential sources of the illicit discharge. Document observations at each point on the IDDE Incident Tracking Sheet as well as with photographs.
- 6. Continue this process until the illicit discharge is no longer observed, which will define the boundaries of the likely source. For example if the illicit discharge is present in catch basin 137

Town of Southwick

but not the next upstream catch basin, 138, the source of the illicit discharge is between these two structures.

If the source of the illicit discharge could not be determined by this survey, consider using dye testing, smoke testing, or closed-circuit television inspection (CCTV) to locate the illicit discharge.

Dye Testing

Dye testing is used to confirm a suspected illicit connection to a storm drain system. Prior to testing, permission to access the site should be obtained. Dye is discharged into the suspected fixture, and nearby storm drain structures and sanitary sewer manholes observed for presence of the dye. Each fixture, such as sinks, toilets, and sump pumps, should be tested separately. A third-party contractor may be required to perform this testing activity.

Smoke Testing

Smoke testing is a useful method of locating the source of illicit discharges when there is no obvious potential source. Smoke testing is an appropriate tracing technique for short sections of pipe and for pipes with small diameters. Smoke added to the storm drain system will emerge in connected locations. A third-party contractor may be required to perform this testing activity.

Closed Circuit Television Inspection (CCTV)

Televised video inspection can be used to locate illicit connections and infiltration from sanitary sewers. In CCTV, cameras are used to record the interior of the storm drain pipes. They can be manually pushed with a stiff cable or guided remotely on treads or wheels. A third-party contractor may be required to perform this testing activity.

If the source is located, follow steps for removing the illicit discharge. Document repairs, new sanitary sewer connections, and other corrective actions required to accomplish this objective. If the source still cannot be located, add the pipe segment to a future inspection program.

This process is demonstrated visually on the last page of this SOP.

Removing Illicit Discharges

Proper removal of an illicit discharge will ensure it does not recur. Refer to Table SOP 10-1, attached for, for examples of the notification process.

In any scenario, conduct a follow up inspection to confirm that the illicit discharge has been removed. Suspend access to the storm drain system if an "imminent and substantial danger" exists or if there is a threat of serious physical harm to humans or the environment.

Attachments

1. Illicit Discharge Incident Tracking Sheet

Related Standard Operating Procedures

- 1. SOP 1: Dry Weather Outfall Inspection
- 2. SOP 2: Wet Weather Outfall Inspection
- 3. SOP 3: Catch Basin Inspection
- 4. SOP 13: Using Field Test Kits For Outfall Screening
- **5.** SOP 15: Private Drainage Connections

Table SOP 10-1

Notification and Removal Procedures for Illicit Discharges into the Municipal Separate Storm Sewer System

| Financially | | Enforcement | Procedure to |
|------------------------------|------------------------------|-----------------------|-----------------------|
| Responsible | Source Identified | Authority | Follow |
| | | | Contact Owner |
| | One-time illicit | Ordinance enforcement | • Issue Notice of |
| | discharge (e.g. spill, | authority (e.g. Code | Violation |
| Private Property Owner | dumping, etc.) | Enforcement Officer) | • Issue fine |
| | | | Contact Owner |
| | | | • Issue Notice of |
| | Intermittent or | | Violation |
| | continuous illicit | Ordinance enforcement | • Determine schedule |
| | discharge from legal | authority (e.g. Code | for removal |
| Private Property Owner | connection | Enforcement Officer) | • Confirm removal |
| | Intermittent or | | |
| | continuous illicit | | |
| | discharge from illegal | | |
| | connection or indirect | Plumbing Inspector or | |
| Driveta Drenarty Oyunan | (e.g. infiltration or failed | ordinance enforcement | • Notify plumbing |
| Private Property Owner | Septic) | autionity | Inspector |
| | continuous illicit | | • Issue work order |
| | discharge from illegal | Ordinance enforcement | Schedule removal |
| | connection or indirect | authority (e.g. Code | Remove connection |
| Municipal | (e.g. failed sewer line) | Enforcement Officer) | Confirm removal |
| 1 | | | • Notify exempt third |
| | | | party and USEPA of |
| Exempt 3 rd Party | Any | USEPA | illicit discharge |



¹ – Guidelines and Standard Operating Procedures: Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping for Stormwater Phase II Communities in New Hampshire, New Hampshire Estuary Project, 2006, p. 25, Figure 2-1.



Record Keeping

Select Board **Meeting Minutes REMOTE PARTICIPATION** for all or some Select Board Members Tuesday, September 15, 2020

5:30 p.m.

All meetings of the Select Board are recorded

Date of this Meeting: September 15, 2020

Pursuant to the Governor Baker's March 12, 2020 Order Suspending Certain provisions of the Open Meeting Law, G.L. C.30A, 18, and the Governor's March 15, 2020 Order imposing strict limitations on the number of people that may gather in one place, this meeting of the Town of Southwick Select Board is being conducted both at Town Hall and via remote participation by some members.

No in-person attendance of members of the public will be permitted, but every effort will be made to ensure that the public can adequately access the proceedings as provided for the Order.

Despite our best efforts, we are not able to provide for real-time access, and will post a record of the meeting on the Town's website as soon as we are able.

ATTENDANCE:

Chairman, Doug Moglin-Remote Vice-Chairman, Joseph J. Deedy-Remote Clerk, Russell S. Fox-Remote Chief Administrative Officer-Town Hall Administrative Assistant, Cindy Pendleton-Town Hall

OTHERS REMOTELY IN ATTENDANCE:

Chief Bishop Dennis Hackett Mike McMahon Sergeant Bannish Hope Trembley Annilia Hanson

Jon Goddard Randy Brown Joe Mitchell Deh Deputy Chief Stefanowicz Chris Boyd

Public Comments: None.

5:30 p.m. DPW Director & Jon Goddard

RE: MS4 Annual Report discussion & approval

Mr. Brown and Mr. Goddard discussed the MS4 Annual Report. The Department of Public Works (DPW) has been working on the various aspects of the NPDES MS4 Stormwater Permit. The following list includes some of the activities performed by DPW over the past year as summarized in the Annual Report:

- Updated GIS-based stormwater maps by field inspections and record plan reviews .
- Continued education and outreach activities to the general public thru collaboration with the CT River Stormwater Committee and local resources
- Performed annual street sweeping and catch basin cleanings
- Conducted site plan reviews and assisted in enforcement actions in coordination with the Planning Board and Conservation Commission
- Continued record keeping for all completed activities

Mr. Brown and Mr. Goddard then discussed the Stormwater Management Plan (SWMP). This document was originally developed in 2019 and is required to be updated annually and submitted to MassDEP and EPA. Overall, there were minor changes to the original SWMP. Some of these edits include:

- Updated the IDDE prioritization list and system vulnerabilities based on mapping updates
- Added Operation & Maintenance plans for the MS4 areas and Town properties in the appendices Updated list of current activities and proposed future activities

A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve and sign the NPDES MS4 Stormwater Permit Application and the Stormwater Management Plan (SWMP) update. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

9152020 Select Board Zoom Meeting Minutes September 15. 2020 Page 2

<u>5:45 p.m.</u> Police Chief Position discussion

The Board stated that the official retirement date for Chief Bishop will be 6/30/2021. A MOTION was made by Mr. Fox, seconded by Mr. Deedy (Vote-Unanimous) to appoint Lt. Robert Landis as the next Chief of Police. Mr. Moglin stated it was a great motion ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to grant permission to Mr. Moglin and Mr. Stinehart to negotiate a contract for same. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

Chief Bishop thanked the Board for appointing Lt. Landis to become the next Chief of Police.

6:00 p.m. Eversource update by Deborah Boucher and Joseph Mitchell

RE: LED program street lights and Capital projects in town

The above came to the meeting to discuss the LED program, street lights and capital projects. They presented a copy of the tariff for the lighting owned by Eversource. See Attached "A" 9 Page(s).

<u>6:15 p.m</u>. High Speed Internet

RE: MLP option/poles

The above came to the meeting to discuss a MLP options/poles. The Committee would like to move forward with this, however, the technology will be big competition.

Payables, Payroll and Minutes:

- The Board acknowledged Payables Warrant #2107B, dated 9/8/2020, in the amount of \$318,647.41.
- The Board acknowledged Payroll Warrant #2105, dated 9/3/2020, in the amount of \$227,062.10.
- The Board acknowledged Payroll Warrant #2106, dated 9/15/2020, in the amount of \$234,258.12.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve the Open Session Minutes #1 for 8/31/2020. ROLL CALL VOTE: Mr. Moglin-Yes Mr. Deedy-Yes, Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve the Open Session Minutes #2 for 8/31/2020. ROLL CALL VOTE: Mr. Moglin-Yes Mr. Deedy-Yes, Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve the Executive Session Minutes for 8/31/2020. ROLL CALL VOTE: Mr. Moglin-Yes Mr. Deedy-Yes, Mr. Fox-Yes.

<u>Meeting Discussion Items, Action Items, Bills, Mail, Correspondence, Vendor and/or Personnel</u> <u>Contracts, Personnel Decisions, Policy Adoptions, Payroll Actions, Old Business, New Business,</u> <u>Etc.-Possible Motions/Votes:</u>

 Greens of Southwick Road Name Changes-Approval per TOS Code Ch.52, Section 9: A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve the following name changes for Greens East:

Blackstone Drive to Silvergrass Lane

Doral Lane to HoneyBird Run

Pebble Beach Circle top Tall Pines Trail

- ROLL CALL VOTE: Mr. Moglin-Yes Mr. Deedy-Yes, Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to ratify the signing of a PVPC Invoice #5 for CDBG Grant Admin Fees for \$10,190.67. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- The Southwick Police Department Reserve and Auxiliary Officer Policy Revision will be addressed at the next meeting.
- Reorganization vote for Auxiliary Police//Firefighters: I, Mr. Joseph J. Deedy, move to authorize the Select Board establish and appoint Auxiliary Firemen and Policemen in accordance with the Massachusetts Civil Defense Act as set forth in Sections 11 and 11A of the acts of 1950, Chapter 639 and further to authorize the Select Board to establish any positions it deems necessary to effectuate the same. Training will be through the Southwick Police Department. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

<u>Meeting Discussion Items, Action Items, Bills, Mail, Correspondence, Vendor and/or Personnel</u> <u>Contracts, Personnel Decisions, Policy Adoptions, Payroll Actions, Old Business, New Business,</u> <u>Etc.-Possible Motions/Votes continued:</u>

- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve a revised Job Description for the SEMA Director. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to appoint the following 6 Southwick Fire Department per diem paramedics per meeting State HRD Standard and paid at established rates by Fire Commission. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes. See Attachment "B" – 1 Page(s)

Jessica Bishop Pavel Gut Nicholas Laroche Michael Marafuga Timothy O'Keefe Clarke Robinson

- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve a \$100.00 donation from Janet and Norm Blakely for the K9 and a \$600.00 donation to the Police Department Gift Account from Run Walk of Southwick. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to sign the Water Systems Improvements Project, Change Order #3, with Ludlow Construction, in the amount of \$151,370.18 reduction. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to approve the FY 21 Paving Projects bid awards for Tannery Road, Lexington Circle and Patriots Way, etc. as follows:

<u>Cold-in-Place Recycling Asphalt Paving on Tannery Road</u> Palmer Paving - \$407,332.00 <u>Surface Treatments on Lexington Circle and Patriots Way</u> Indus - \$172,478.00 <u>Crack Sealing on Various Roads</u> Indus - \$59,950.00

ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

- A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to authorize the Chief Administrative Officer and Chairman to pursue the FY 21 Community Compact IT Grant. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- Preparation is under way getting ready for the Town Hall for voting for the 11/3/2020 Election. A **MOTION** was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to shut down the Treasurer/Collector/Clerk and Assessors part of the lobby for the day to keep the traffic at a steady flow and help with the elections. **ROLL CALL VOTE:** Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- DPW chipper unit repair or replacement: A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to purchase a rebuilt chipper and purchase a new chipper for the Transfer Station. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.
- There was a conversation regarding the water ban. When the Town renews their permit with Mass DOT they will seek an increase in water that can be drawn.

Old Business & Dates to Remember:

- Approve Conservation Restriction for Greens East Subdivision on College Highway on hold
- The Road Name Change for Southwick Hill Road to Iron Horse Lane will have a hearing in October.
- Water Commissioner Vacancy-waiting on Letters of Interest-due date by 9/25/2020
- Adhoc Cable Advisory-Finance Committee will be contacted and possibly designate 2 members
- Green Energy Program-on hold
- Request to reprogram funds Capital from I-Plan Table to complaint software tracking program-Mr. Moglin is in agreement with this and it will now be sent to Finance Committee.
- Mr. Stinehart will ask the Town Planner to put a potential time line in writing with regards to a cell
 phone tower on Town property.

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New Business:

- Mr. Deedy brought up Halloween-he will touch base with the Board of Health. •
- Mr. Stinehart asked the Board for any amendments to the Department Heads Goals and Objectives. . .
- The Board will have the Union Proposals for next meeting.

Being no further business to be brought before the Board A MOTION was made by Mr. Deedy, seconded by Mr. Fox (Vote-Unanimous) to adjourn at 7:42 p.m. ROLL CALL VOTE: Mr. Moglin-Yes, Mr. Deedy-Yes and Mr. Fox-Yes.

There was no Executive Session.

Respectfully submitted. Sondra S. Pendleton Administrative Assistant

CC: T/C/C

Select Board Meeting Minutes Town Hall - Select Board's Conference Room

Town Hall - Select Board's Conference Room

Monday September 13, 2021 @ 6:00 p.m.

All meetings of the Select Board are recorded

ATTENDANCE: Chairman, Joseph J. Deedy - Auditorium Vice-Chairman, Russell S. Fox - Auditorium Clerk, Doug Moglin - Auditorium Chief Administrative Officer, Karl J. Stinehart – Auditorium Acting Administrative Assistant, Robin A. Solek – Auditorium

Location: Town Hall Auditorium

All meetings of the Select Board are recorded except Executive Session Date of this meeting: September 13, 2021 Meeting Notice: This meeting held Pursuant to Chapter 20, Acts of 2021 Notice: Hybrid meeting with limited technology until new equipment comes in the future. In the event of any technical difficulties, we will ensure a recorded tape of the proceedings is placed upon the Town Web page after the meeting.

The Public Body convened in Open Session according to M.G.L. c.30A, S21 (b) (1). The scheduled meeting of the Select Board was called to order by Chairman Joe Deedy at 6:00 p.m.

Chairman roll call attendance of Board Members present for meeting. All present

Public Comments: There was none.

- Acknowledge Payables Warrant #2206B, dated 09/07/21 in the amount of \$221,283.95.
- Acknowledge Payroll Warrant #2206, dated 08/31/21, in the amount of \$242,437.45.
- Special Payables Warrant #2207B, dated 9/8/2021, in the amount of \$167.55.

<u>Meeting Discussion Items, Action Items, Bills, Mail, Correspondence, Vendor</u> and/or Personnel Contracts, Personnel Decisions, Policy Adoptions, Payroll Actions, Old Business, New Business, Etc.-Possible Motions/Votes:

 A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve the Open Session Minutes dated 08/24/21.
 Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

<u>6:05 p.m. Public Hearing Road re-name for Southwick Hill Section to Iron Horse Hill</u> <u>SPD & SFD and Town Counsel:</u>

Mr. Deedy read the legal ad in its entirety.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to open the hearing. Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

Mr. Deedy asked for the Police and Fire Department input. Lt. Bannish reported they hand delivered the notices to the property owners. Mr. Deedy read the joint signed letter recommending the road re-name change written by the Police and Fire Chiefs.

Mr. Deedy asked for any input not in favor of the road name change. Ms. Chantelle Sole, 32 Southwick Hill Road explained that it has taken years for Amazon, UPS and other delivery services that have been unsuccessful earlier on with GPS and Google maps. Chief Anderson re-assured that it will work its course and Google maps will update within a reasonable amount of time. The Police and Fire have been working to resolve this for quite some time and recommend the re-name for emergency services.

The Select Board supports the re-name change it has been reviewed for 2 years.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to close the hearing. . Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

MOTION:

I, Russ Fox, seconded by Mr. Moglin (Vote – Unanimous) do after the public hearing held on Monday,

September 13, 2021 in accordance with the Town of Southwick Code, Chapter 52-10 and M.G.L. c. 85, §3B and

any other enabling authority hereby move that the Select Board approve the renaming and renumbering of

Southwick Hill to Iron Horse Hill as follows:

| Existing Number and Name | Proposed Number and Name |
|--------------------------|--------------------------|
| 17 Southwick Hill | 9 Iron Horse Hill |
| 19 Southwick Hill | 7 Iron Horse Hill |
| 21 Southwick Hill | 5 Iron Horse Hill |
| 22 Southwick Hill | 12 Iron Horse Hill |
| 23 Southwick Hill | 3 Iron Horse Hill |
| 24 Southwick Hill | 10 Iron Horse Hill |
| 26 Southwick Hill | 8 Iron Horse Hill |
| 28 Southwick Hill | 6 Iron Horse Hill |
| 30 Southwick Hill | 4 Iron Horse Hill |
| 32 Southwick Hill | 2 Iron Horse Hill |
| 33 Southwick Hill | 1 Iron Horse Hill |

And I further move that the Select Board issue an Order of the aforementioned renaming and renumbering to be filed with the Town Clerk, sent to all Town Boards and/or Commissions; be recorded in the Hampden County Registry of Deeds and sent USPS and emergency services, forthwith.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

Please see the attached NOTICE of Re-Naming and Re-Numbering.

<u>6:20 p.m. Planning Board Re: Master Plan discussion and action on subcommittee appointments:</u>

Planning Board members met with the Select Board to discuss subcommittee appointments. Planning Board Chairman Doherty proposed their idea of who should represent the subcommittee of a maximum of 15 people to the Planning Board for 2 year terms.

Mr. Fox emphasized that is of importance to have a representative of Agriculture. Southwick is a farming community. The Planning Board recognizes the significance but at this time it is unclear if any of the applicants are farmers, or knowledgeable with agriculture.

Mr. Moglin stressed the importance of an acceptable document of the Master Plan. Mr. Deedy and Mr. Fox agreed for Mr. Moglin as the Select Board representative.

Mr. Doherty expressed that subcommittee members should have some experience and knowledge of what area they are representing.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to authorize the Planning Board to form the subcommittee for the Master Plan.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

6:40 p.m. DPW Director & Stormwater Coordinator MS4 Report discussion and approval:

R. Brown, DPW Director and J. Goddard, Stormwater Coordinator updated the Select Board on the MS4 Report that is due on September 28, 2021. This shows accountability to the State. Additionally, the Town's Stormwater Management Plan was updated and required annually.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to authorize the Select Board to sign the MS4 Report and Town's Stormwater Management Plan. Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to appoint Jon Goddard as the PVPC Alternate.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

<u>6:50 p.m. Library Trustee: Interview for new candidate (Cynthia Warner) to fill a vacancy:</u>

Members of the Library Trustees met with the Select Board to support Cynthia Warner as a candidate to fill the vacancy of the Library Trustee due to the resignation of Carol Geryk until the next election in May of 2022.

A MOTION was made by Mr. McMahon, seconded by Mr. Moglin (Vote – Unanimous) to appoint Cynthia Warner as Library Trustee until the election of May 2022.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes, M. McMahon: Yes, T. Meczywor: Yes

7:00 p.m. C.O.A. and Park & Rec Discussion of Park & Rec vacancy and duties realignment options:

The Select Board, Park & Rec, COA Members, and Finance Committee Liaison Members (A. Pinell & S. Chamberlin)

There was dialogue of realignment of maintenance and operational duty assignments at Whalley Park, Rail/Trail and Park & Rec activities. This would also include reorganization of duties and operations. It would require revisions of COA Director L.O.U. and new job descriptions for Assistant and Department Head positions. It would require approval of C.O.A. & Park & Rec Boards. There was positive feedback from both boards. There was no formal vote until their perspective next board meetings. A. Pinell, Finance Committee Vice-Chairman and Liaison to Park & Rec. thoughts were 1. Consideration of benefits and contracts, 2. Proposed hourly changes, 3. New requirements, 4. Concerns for multiple titles. Finance Committee will discuss at their 9/28/21 meeting.

Park & Rec will be meeting on September 15, 2021 to discuss the proposed options.

<u>Meeting Discussion Items, Action Items, Bills, Mail, Correspondence, Vendor and/or Personnel Contracts, Personnel Decisions, Policy Adoptions, Payroll Actions, Old Business, New Business, Etc.-Possible Motions/Votes:</u>

• A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve the sale/transfer of old surplus 1999 Pierce Fire Department engine to Spencer Fire Department.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

- A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to appoint Iain White to SEMA, R.A.C.E.S. and C.E.R.T.
- Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.
 A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to
- A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve the FY 22 DPW road paving and treatment bids.
 Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.
- A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to authorize the Chairman to sign \$728,300.00 MVP climate change resiliency project grant for Klaus Anderson Road and sign project Designer Contract amendment w/ Fuss & O'Neill.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

• A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve a 1 day Liquor License and Entertainment License for One Call Away at Whalley Park on 9/18/21.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve (2) 1 day Liquor License for Rugged Mania at American Legion #338 on 9/25/21 & 9/26/21 as amended on 9/26/21 12:00 p.m. – 9:00 p.m.(Sunday serving hours).

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

• A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to accept a grant award in the amount of \$70,384.76 for FY 2020 Assistance to Firefighters Grant.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

• **A MOTION** was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to authorize Chairperson to execute CDBG program Discharge of Lien or real estate for 403 College Highway.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

- Community Compact Grant report on 5 year forecast model.
- Notification of State letter on Cable TV renewal process and required Ascertainment Hearing. Current contract expires next September 2022.

New Business:

- SFD Juniors Program review with Chief Anderson. Chief Anderson gave an overview of the program and presented a hand out. Mr. Fox took the opportunity to commend Chief Anderson on his achievements and successes from applying for grants to offset costs through grants, trainings, overseeing new ideas and serving the needs of the Town of Southwick.
- **A MOTION** was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve the SFD Juniors Program.

Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

- Update on Suffield Sewer Connection discussion from DPW. Conversations are taking place.
- DPW Director submitted a report on projects completed for roadway and infrastructure improvements for FY20 and FY21 budgets. There is \$153,392.41 in available funds. DPW requests to allocate \$70,000.00 for Cedar Street and Tannery Road projects. Balance would be crack sealing.
- A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to approve \$70,000.00 for Cedar Street and Tannery Road projects. Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.

Old Business:

- Green Energy draft vehicle policy was voted to adopt at first reading. Second reading on 9/27/21.
- A MOTION was made by Mr. Fox, seconded by Mr. Moglin (Vote-Unanimous) to adopt the first reading of the Green Energy draft vehicle policy.
 Roll Call Vote: J. Deedy: Yes, R. Fox: Yes, D. Moglin: Yes.
- Town Boards waiting for update with TCC on Onboarding software package was received.
- Appointments for Town Boards/Committees.
- School District Vacancy 9/27/21 5:30 p.m. interviews.
- End of Summer Staff picnic October.
- ARPA Funds Discussion for DPW Projects and BOH items.
- Select Board Policy for Hybrid Meeting Format added to Old Business.

A MOTION to go into Executive Session Pursuant to M.G.L. Chap. c. 30A, S21 (2) & (3) Ch. 214, Section 1B and; CMR 20.03 (1) B. at 8:00 p.m.

RE: Non-Union, Dispatch, and Clerical Unit for Strategy Collective Bargaining, Collective Bargaining and Litigation

Executive Session RE: M.G.L. Chap. c. 30A, S21 (2) & (3) Ch. 214, Section 1B and; CMR 29.03 (1)(b).

RE: Non-Union Strategy Collective Bargaining and Litigation Exception #2: Move to go into Executive Session

Move to go into Executive Session to conduct strategy sessions in preparation for negotiations with nonunion personnel, and to:

X not to reconvene in Open Session

Move to go into Executive Session to conduct collective bargaining sessions, with nonunion personnel and to:

X not to reconvene in Open Session

Move to go into Executive Session to conduct contract negotiations with nonunion personnel, and to:

X not to reconvene in Open Session

Exception #3: Move to go into Executive Session to discuss strategy with respect to collective bargaining and that the Chair declare that an open meeting may have a detrimental effect on the bargaining position of the body, and to X not to reconvene in Open Session (Chair Must Declare).
Move to go into Executive Session to discuss strategy with respect to potential / threatened litigation, and that the Chair declare that an open meeting may have a detrimental effect on the litigating position of the body, and to:
X not to reconvene in Open Session (Chair Must Declare).

RE: Ch. 214, Section 1B

A person shall have a right against unreasonable, substantial or serious interference with their privacy. The superior court shall have jurisdiction in equity to enforce such right and in connection therewith to award damages.

Respectfully submitted,

Robin A. Solek Administrative Assistant

Appendix J Stormwater Management Plan Amendment Log
SWMP Amendment Log

| Amend. No. | Description of Amendment | Date of Amendment | Prepared by (Name/Title) |
|---------------|---|----------------------|--|
| 1 | Incorporate 2016 MS4 GP Year 2 Documents: Written Catchment Investigation Procedure, Municipal O&M Plan & Site Inventory, MS4 O&M Plan, and Municipal Vehicle/Equipment Inventory | August 2020 | Randal Brown, DPW Director; Jon Goddard, Stormwater Coordinator |
| 2 | <u>Updated:</u> List of receiving waters; training log; SWMP per goals achieved; IDDE plan with updated outfall list and prioritization; Bylaw References | September 2021 | Randal Brown, DPW Director; Jon Goddard, Stormwater Coordinator |
| 3 | <u>Updated:</u> List of receiving waters; training log; IDDE plan with updated outfall list and prioritization <u>Added:</u> Nitrogen Source ID Report; Street Design and Parking Lot Guidelines and LID Barriers Report | September 2022 | Randal Brown, DPW Director; Jon Goddard, Stormwater Coordinator |
| 4 | <u>Updated:</u> List of receiving waters; training log; IDDE plan with updated outfall list and prioritization | September 2023 | Randal Brown, DPW Director; Jon Goddard, Stormwater Coordinator |
| | | | |

Appendix K

Good Housekeeping Program Documents

- Operations & Maintenance Plan for MS4 Infrastructure
- Operations & Maintenance Plan for Parks & Open Space, Buildings & Facilities, and Vehicles & Equipment

Municipal Stormwater Infrastructure Operation and Maintenance Plan

for

Town of Southwick, MA

Updated February 17, 2020

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Town of Southwick, MA Municipal Stormwater Infrastructure Operation and Maintenance Plan

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| 5 | Winter Road Maintenance | 3 |
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Appendices

<u>Appendix A</u> – Inventory of Structural Stormwater Best Management Practices (BMPs) <u>Appendix B</u> – Standard Operating Procedures (SOPs)

- SOP 3: Catch Basin Inspection & Cleaning
- SOP 9: Inspecting Constructed Best Management Practices
- SOP 16: Streets & Parking Lots

1 Introduction

This Operation and Maintenance (O&M) Plan has been prepared by the Town of Southwick to address stormwater infrastructure O&M requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

This O&M Plan addresses Minimum Control Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, by describing the activities and procedures the Town of Southwick will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. The O&M Plan outlines inspection and maintenance procedures for catch basins, municipally-owned streets and parking lots, and structural stormwater Best Management Practices (BMPs).

The Town of Southwick is responsible for inspection and maintenance of the stormwater infrastructure in Southwick. A map of the existing stormwater infrastructure in the Town of Southwick is found at the following link: <u>https://tinyurl.com/ms4-public-viewer-southwick</u>.

2 Catch Basins

The Town of Southwick Department of Public Works (DPW) performs routine inspections, cleaning, and maintenance of the approximately <u>685±</u> catch basins that are located within the MS4 regulated area. The Town of Southwick will implement the following catch basin inspection and cleaning procedures to reduce the discharge of pollutants from the MS4:

- Routine inspection and cleaning of catch basins. Catch basins should be cleaned such that they are no more than 50 percent full at any time. The DPW will initially inspect all catch basins within the regulated area within two (2) years of the effective date of the permit to evaluate sediment or debris accumulation and establish optimal inspection and maintenance frequencies to meet the "50 percent" goal.
- Catch basin inspection and inspection logs will be collected and maintained via the *ESRI Collector App*, which is an integrated mobile data collection and mapping system that integrates with *ESRI ArcGIS for Desktop*.
- If a catch basin sump is more than 50 percent full during two consecutive routine inspections or cleaning events, the finding will be documented, the contributing drainage area will be investigated for sources of excessive sediment loading, and to the extent practicable, contributing sources will be addressed. If no contributing sources are found, the inspection and cleaning frequency will be increased.

- Catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment) will be inspected and cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings (i.e., catch basins more than 50 percent full). Priority will also be given to catch basins that discharge to impaired waters.
- The following information will be included in each annual report:
 - Any action taken in response to excessive sediment or debris loadings
 - Total number of catch basins
 - Number of catch basins inspected
 - Number of catch basins cleaned
 - Total volume or mass of material removed from catch basins.

See *SOP 3:* Catch Basin Inspection & Cleaning as attached herewith in Appendix B for detail on catch basin inspection and cleaning procedures.

3 Streets and Parking Lots

Streets and municipally-owned parking lots are swept yearly (typically in April).

Town of Southwick will implement the following street and parking lot sweeping procedures to reduce the discharge of pollutants from the MS4:

- All streets (including rural uncurbed roads with no catch basins) will be swept and/or cleaned a minimum of once per year in the spring (following winter activities).
- More frequent sweeping will be considered for targeted areas based on pollutant load reduction potential, inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired waters, or other factors.
- The following information will be included in each annual report:
 - Number of miles cleaned or the volume or mass of material removed

See SOP 16: Streets & Parking Lots as attached herewith in Appendix B for further detail on street and parking lot sweeping procedures and record keeping.

4 Catch Basin Cleanings and Street Sweepings

Catch basin cleanings (i.e., solid materials such as leaves, sand and twigs removed from stormwater collection systems during cleaning operations) and street sweepings will be managed in compliance with current Massachusetts Department of Environmental Protection policies:

• Catch Basin Cleanings

http://www.mass.gov/eea/agencies/massdep/recycle/regulations/management-of-catchbasin-cleanings.html

Street Sweepings
 <u>http://www.mass.gov/eea/docs/dep/recycle/laws/stsweep.pdf</u>

Prior to disposal or reuse, catch basin cleanings and street sweepings will be stored indoors or using proper controls such that they do not discharge to receiving waters.

See SOP 3: Catch Basin Inspection & Cleaning and SOP 16: Streets and Parking Lots as attached herewith in Appendix B for detail on street and parking lot sweeping procedures, catch basin cleanings disposal, and record keeping.

5 Winter Road Maintenance

The Town of Southwick performs a variety of maintenance activities to ensure safe winter driving conditions on its roads and parking lots. The following winter maintenance procedures will be implemented to reduce the discharge of pollutants from the MS4:

- Minimize the use and optimize the application of sodium chloride and other salt (while maintaining public safety) and consider opportunities for use of alternative materials.
- Optimize sand and/or chemical application rates through the use, where practicable, of automated application equipment (e.g., zero velocity spreaders), anti-icing and pre-wetting techniques, implementation of pavement management systems, and alternate chemicals. Maintain records of the application of sand, anti-icing and/or de-icing chemicals to document the reduction of chemicals to meet established goals.
- Prevent exposure of deicing product (salt, sand, or alternative products) storage piles to precipitation by enclosing or covering the storage piles. Implement good housekeeping, diversions, containment or other measures to minimize exposure resulting from adding to or removing materials from the pile. Store piles in such a manner as not to impact surface water resources, groundwater resources, recharge areas, and wells.
- The MS4 Permit prohibits snow disposal into waters of the United States. Snow disposal activities, including selection of appropriate snow disposal sites, will adhere to the Massachusetts Department of Environmental Protection Snow Disposal Guidance, Guideline No. BWR G2015-01 (Effective Date: December 21, 2015), located at: http://www.mass.gov/eea/agencies/massdep/water/regulations/snow-disposal-guidance.html
- Provide periodic training for municipal employees on winter roadway maintenance procedures.

For additional detail, refer to the *Town of Southwick, MA Snow & Ice Removal Policy* adopted October 2, 2017.

6 Structural Stormwater BMP's

An inventory of structural stormwater Best Management Practices (BMPs) owned and/or maintained by Town of Southwick is provided in **Appendix A**. The stormwater infrastructure map referred to in Section 1 also lists the type and locations of the structural BMPs. This inventory will be updated as new BMP's are installed or replaced.

Structural stormwater BMPs will be inspected annually at a minimum. Recommended inspection procedures and checklists will be provided by guidance from the manufacturer and the Massachusetts Stormwater Handbook (<u>https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards</u>).

Refer to SOP 9: Inspecting Constructed Best Management Practices_as attached herewith for additional details and forms for inspecting structural stormwater BMPs.

Appendix A

Inventory of Structural Stormwater Best Management Practices (BMPs)

| Location | Stormwater Management Description | Approx. Storage Volume (cu. ft.) | Equiv. Storage Area for 1" rainfall (sq. ft.) | Estim. Imperv. Area (sq. ft.) | Actual Area <u><</u> Equiv. Area | Regulated Under MS4 GP? | MS4 GP BMP Classification for Nitrogen Reduction | Total Nitrogen Load to BMP (Pounds per Year) | Percentage Nitrogen Load Reduction | Nitrogen Reduction (Pounds Per Year) |
|---|---|---|---|--|--|-------------------------------|---|--|--|---|
| 160 Berkshire Avenue (former Town Beach) | Retention pond with sediment forebay | 8,500 | 102,000 | 40,000 | Yes | Yes | Infiltration Basin (Surface) | 12.95 | 95% | 12.30 |
| 4 Oak Street | Deep sump catch basin with linear infiltrator | 150 | 1,800 | 900 | Yes | Yes | Infiltration Basin | 0.29 | 95% | 0.28 |
| 5R South Longyard Road | Retention pond with sediment forebay and stormwater treatment unit | 720 | 8,640 | 7,000 | Yes | Yes | Infiltration Basin (Surface) | 2.27 | 88% | 1.99 |
| 140 Summer Drive | Deep sump catch basins, stormwater treatment unit, and horizontal infiltrators | 900 | 10,800 | 6,000 | Yes | Yes | Infiltration Basin | 1.94 | 94% | 1.83 |
| 36 Grove Street | Deep sump catch basin, drop manholes, and four linear infiltrators | 350 | 4,200 | 1,800 | Yes | Yes | Infiltration Basin | 0.58 | 95% | 0.55 |
| 146 Berkshire Ave | Deep sump catch basin and adjacent linear infiltrators | 150 | 1,800 | 1,200 | Yes | Yes | Infiltration Basin | 0.39 | 90% | 0.35 |
| 7 Oak Street | Linear infiltrator added to replace failed slotted CMP serving existing catch basin | 150 | 1,800 | 1,000 | Yes | Yes | Infiltration Basin | 0.32 | 94% | 0.30 |
| 93 Feeding Hills Road | Four (4)vertical infiltrators at Town Library | 2,000 | 24,000 | 15,000 | Yes | No | - | - | - | - |
| 93 Feeding Hills Road | Network of horizontal & vertical infiltrators and bioretention basins | 46,500 | 558,000 | 180,000 | Yes | No | - | - | - | - |
| 93 Feeding Hills Road | Network of horizontal & vertical infiltrators | 10,367 | 124,404 | 30,000 | Yes | No | - | - | - | - |
| Bugbee Road | Deep sump catch basins with linear infiltrator | 5,000 | 60,000 | 18,000 | Yes | Yes | Infiltration Basin | 5.83 | 95% | 5.54 |

| Location | Stormwater Management Description | Approx. Storage Volume (cu. ft.) | Equiv. Storage Area for 1" rainfall (sq. ft.) | Estim. Imperv. Area (sq. ft.) | Actual Area <u><</u> Equiv. Area | Regulated Under MS4 GP? | MS4 GP BMP Classification for Nitrogen Reduction | Total Nitrogen Load to BMP (Pounds per Year) | Percentage Nitrogen Load Reduction | Nitrogen Reduction (Pounds Per Year) |
|---------------------------------------|--|---|---|--|--|-------------------------------|---|--|--|---|
| 16 - 21 Lakeview Street | Three (3) new deep sump catch basins, DMH, and fourteen (14) linear infiltrators | 1,100 | 13,200 | 1,800 | Yes | Yes | Infiltration Basin | 0.58 | 95% | 0.55 |
| 12 & 14 Woodside Circle | One (1) new deep sump catch basin, DMH, and nine (9) MC3500 linear infiltrators | 1,800 | 8,640 | 12,000 | Yes | Yes | Infiltration Basin | 3.88 | 94% | 3.65 |
| 21 Woodside Circle | One (1) new deep sump catch basin and seven (7) SC740 linear infiltrators | 600 | 7,200 | 5,000 | Yes | Yes | Infiltration Basin | 1.62 | 90% | 1.46 |
| 98 Feeding Hills Road | New stormwater system with deep sump CBs, DMHs, and linear infiltrators (2500' of road between Powder Mill & Hudson Drive) | 2,200 | 26,400 | 28,000 | No | No | - | - | - | - |
| 38 - 48 Point Grove Rd | Deep sump catch basins and underground infiltrators | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| 56-58 Buckingham Dr | Three (3) MC3500 linear infiltrators | 3,000 | 36,000 | 32,000 | No | Yes | Infiltration Basin | 10.36 | 87% | 9.01 |
| 63 Congamond Road | Subsurface infiltrators | 2,410 | 28,920 | 47,800 | | No | - | - | - | - |
| 20 Congamond Road | Detention Pond | 22,440 | | 5,350 | | No | - | - | - | - |
| 37 Pineywood Road | Deep sump catch basins with underground infiltrators | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| Nicholson Hill Road | Deep sump catch basins, stormwater treatment units, and infiltrators | 1,500 | 18,000 | 12,000 | Yes | No | - | - | - | - |
| 42 Powder Mill Road (Whalley Park) | Deep sump catch basins and retention ponds with sediment forebays | 122,000 | 1,464,000 | 300,000 | Yes | No | - | - | - | - |

| Location | Stormwater Management Description | Approx. Storage Volume (cu. ft.) | Equiv. Storage Area for 1" rainfall (sq. ft.) | Estim. Imperv. Area (sq. ft.) | Actual Area <u><</u> Equiv. Area | Regulated Under MS4 GP? | MS4 GP BMP Classification for Nitrogen Reduction | Total Nitrogen Load to BMP (Pounds per Year) | Percentage Nitrogen Load Reduction | Nitrogen Reduction (Pounds Per Year) |
|---|--|---|---|--|--|-------------------------------|---|--|--|---|
| Lexington Circle | Outfall structure and forebay reconstructed at existing retention pond/forebay, 5 drop manholes, plunge pool & grassed swale | 50,000 | 600,000 | 200,000 | Yes | Yes | Infiltration Basin (Surface) | 64.74 | 95% | 61.50 |
| 93 Point Grove Road | Grassed infiltration area serving public parking area & boat ramp parking | 8,333 | 100,000 | 37,000 | Yes | Yes | Data Pending | - | - | - |
| Amberleaf Manor | (Existing Subdivision - Data Pending) | | | | | No | - | - | - | - |
| Deer Run | Subsurface Infiltration | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| Hunters Ridge | Subsurface Infiltration | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| Laurel Ridge | Retention pond with sediment forebay | | | | | No | - | - | - | - |
| Pearl Brook | Retention pond with sediment forebay | | | | | No | - | - | - | - |
| Pine Knoll II | Surface Infiltration Basin | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| Pine Knoll III | Subsurface Infiltration | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| Secluded Ridge | Retention Pond with forebay | | | | | No | - | - | - | - |
| The Greens - West (Under Construction) | Subsurface Infiltration System | | | | | Yes | Infiltration Basin | Data Pending | - | - |
| The Greens - West (Under Construction) | Detention Pond | | | | | Yes | Infiltration Basin (Surface) | Data Pending | - | - |
| The Greens - West (Under Construction) | Infiltration units at homes | | | | | No | - | - | - | - |

| Location | Stormwater Management Description | Approx. Storage Volume (cu. ft.) | Equiv. Storage Area for 1" rainfall (sq. ft.) | Estim. Imperv. Area (sq. ft.) | Actual Area <u><</u> Equiv. Area | Regulated Under MS4 GP? | MS4 GP BMP Classification for Nitrogen Reduction | Total Nitrogen Load to BMP (Pounds per Year) | Percentage Nitrogen Load Reduction | Nitrogen Reduction (Pounds Per Year) |
|----------------------------|--------------------------------------|---|---|--|--|-------------------------------|---|--|--|---|
| Noble Steed Crossing | Surface Infiltration Basin | | | | | No | - | - | - | - |
| (Under Construction) | | | | | | | | | | |
| 56 Buckingham Drive | Catch basins with ten (10) | 2,400 | 28,800 | 25,000 | Yes | Yes | Infiltration | 8.09 | 87% | 7.04 |
| | MC3500 infiltrator units | | | | | | Basin | | | |
| 23 - 55 Point Grove Road | Catch basins with infiltrator units | 2,800 | | 30,000 | | Yes | Infiltration | 9.71 | 86% | 8.35 |
| | | | | | | | Basin | | | |
| 31 Hillside Road/Coes Hill | Catch basins with four (4) MC3500 | 850 | 10,200 | 8,000 | Yes | No | - | - | - | - |
| Road Intersection | infiltrator units | | | | | | | | | |
| Vining Hill Road | Catch basin with infiltrator units | 650 | | 6,000 | | No | - | - | - | - |
| (near entrance to | | | | | | | | | | 1 |
| shopping plaza) | | | | | | | | | | |
| Veteran Street/Point | Catch basins with infiltrator units | | | | | Yes | Infiltration | Data Pending | - | - |
| Grove Road | | | | | | | Basin | | | |
| Woodland Ridge | (Existing Subdivision - Data | | | | | Yes | - | Data Pending | - | - |
| | | | | | | | | | | l |
| Great Brook Drive | Surface Infiltration Basin | | | | | NO | - | - | - | - |

Appendix B

Standard Operating Procedures (SOPs) & Forms

- SOP 3: Catch Basin Inspection & Cleaning
- SOP 9: Inspecting Constructed Best Management Practices
 - SOP 16: Streets & Parking Lots

SOP 3: Catch Basin Inspection and Cleaning

Introduction

Catch basins help minimize flooding and protect water quality by removing trash, sediment, decaying debris, and other solids from stormwater runoff. These materials are retained in a sump below the invert of the outlet pipe. Catch basin cleaning reduces foul odors, prevents clogs in the storm drain system, and reduces the loading of suspended solids, nutrients, and bacteria to receiving waters.

During regular cleaning and inspection procedures, data can be gathered related to the condition of the physical basin structure and its frame and grate and the quality of stormwater conveyed by the structure. Observations such as the following can indicate sources of pollution within the storm drain system:

- Oil sheen
- Discoloration
- Trash and debris

Both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by a oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial sheen is not a pollutant but should be noted.

Observations such as the following can indicate a potential connection of a sanitary sewer to the storm drain system, which is an illicit discharge.

- Indications of sanitary sewage, including fecal matter or sewage odors
- Foaming, such as from detergent
- Optical enhancers, fluorescent dye added to laundry detergent

Each catch basin should be inspected at least annually and cleaned when the sump is 50% full. Catch basins in high-use areas may require cleaning several times a year while others may go several years between cleaning. Performing street sweeping on an appropriate schedule will reduce the amount of sediment, debris, and organic matter entering the catch basins, which will in turn reduce the frequency with which structures need to be cleaned.

Procedures

Catch Basin Cleaning

Catch basin inspection and cleaning procedures should address both the grate opening and the sump. Document any and all observations about the condition of the catch basin structure and water quality on the Catch Basin Inspection Form.

Typical catch basin inspection and cleaning procedures include the following:



- 1. Work upstream to downstream.
- 2. Clean sediment and trash off grate.
- 3. Visually inspect the outside of the grate.
- 4. Visually inspect the inside of the catch basin to determine cleaning needs.
- 5. Inspect catch basin for structural integrity.
- 6. Determine the most appropriate equipment and method for cleaning each catch basin.
 - a. Manually use a shovel to remove accumulated sediments on the street surface, or
 - b. Use a bucket loader to remove accumulated sediments on the street surface, or
 - c. Use a high pressure washer to clean any remaining material out of catch basin while capturing the slurry with a vacuum.
 - d. If necessary, after the catch basin is clean, use the rodder of the vacuum truck to clean downstream pipe and pull back sediment that might have entered downstream pipe.
- 7. If contamination is suspected, chemical analysis will be required to determine if the materials comply with the Massachusetts DEP Hazardous Waste Regulations, 310 CMR 30.000 (<u>http://www.mass.gov/dep/service/regulations/310cmr30.pdf</u>). Chemical analysis required will depend on suspected contaminants. Note the identification number of the catch basin on the sample label, and note sample collection on the Catch Basin Inspection Form.
- 8. Properly dispose of collected sediments. See following section for guidance.
- 9. If fluids collected during catch basin cleaning are not being handled and disposed of by a third party, dispose of these fluids to a sanitary sewer system, with permission of the system operator.
- 10. If illicit discharges are observed or suspected, notify the appropriate Department.
- 11. Document the location and number of catch basins cleaned, amount of waste collected, and disposal method for all screenings.
- 12. Report additional maintenance or repair needs to the appropriate Department head.

Disposal of Screenings

Catch basin cleanings from storm water-only drainage systems may be disposed at any landfill that is permitted by MassDEP to accept solid waste. MassDEP does not routinely require stormwater-only catch basin cleanings to be tested before disposal, unless there is evidence that they have been contaminated by a spill or some other means.

Screenings may need to be placed in a drying bed to allow water to evaporate before proper disposal. In this case, ensure that the screenings are managed to prevent pollution.

Attachments

1. Catch Basin Inspection Form



CATCH BASIN INSPECTION FORM

| Job No.: | Town: _ | | Inspector: | Dat | te: | | | |
|---|---|---|--|--|------------------------|----------------------|-------------------|----------------------|
| Catch Basin I.D. | | | Final Discharge from S If Yes, Discharge to O | Structure atfall No: | ?Yes | | No - | |
| Catch Basin Label: | Stencil 🗌 | Ground In | set 🗌 Sign 🗌 | None | Othe | er | | |
| Basin Material: | Concrete Corrugated metal Stone Brick Other: | | Catch Basin Conditior | 1: | Good Fair | | Poor Crumb | oling |
| Pipe Material: | Concrete HDPE PVC Clay Tile Other: | | Pipe Measurements: | | Inlet Dia Outlet Di | . (in): ia. (in): | d= D= | : = |
| Required Maintenance/ Pro Tree Work Required New Grate is Required Pipe is Blocked Frame Maintenance is Required Accumulated Second Pipe Maintenance is Required Basin Undermined or By Catch Basin Grate Type: Bar: Cascade: Other: Properly Aligned: Yes No | Sediment uired /passed Sedimert 0-6 (in): 6-12(in): 12-18 (ir) 18-24 (ir) 24 + (ir) | at apply): at apply): at Buildup at Buildup at Buildup b: b: b: | Cannot Remove Ditch Work Corrosion at Stru Erosion Around Remove Trash & Need Cement An Other: Yes No No | Cover acture Structure z Debris cound Grat Descrip Flow: Heavy Moderat Slight Trickling | te tion of g | Stree Struc | t Name ture Lo | ;/ ocation: |
| *If the outlet is submerged outlet invert. h above invert | check yes and indi rt (in): | cate approxima | te height of water abov | e the | Yes | | No | |
| Flow | Observations: | | | | Circle those | presen | it: | |
| Standing Water | Color: | | |] | Foam | | Oil Sh | leen |
| (check one or both) | Odor: | D == > 241 | | | Sanitary Was | te | Bacter | rial Sheen |
| Sample of Screenings Co | ollected for Analys | $rac{1}{1}$ Dry > 24 ho sis? Yes | No No | | Orange Stain | ino | Floata | hles |
| Amount of sediment rem | ioved: | | | | Grange Stall | шg | Tioata | 0169 |
| Comments: | | | | [] ? | Excessive sediment | | Pet W Optica | aste al Enhancers |
| | | | | | Other: | | 1 | |



Catch Basin Inspection and Cleaning Log Southwick, Massachusetts

| Date | Inspector | Weather | Number of Catch | Amount of Material | Catch Basins More Than | Corrective Action |
|------|-----------|------------|-------------------|--------------------|------------------------|-----------------------|
| | | Conditions | Basins | Removed | 50% Full | Taken/Recommended |
| | | | Inspected/Cleaned | | | if More Than 50% Full |
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SOP 9: Inspection and Maintenance of Structural Stormwater Best Management Practices (BMPs)

Introduction

Best Management Practices (BMPs) are policies, procedures and structures designed to reduce stormwater pollution, prevent contaminant discharges to natural water bodies, and reduce stormwater facility maintenance costs. Structural BMPs are permanent site features designed to treat stormwater before infiltrating it to the subsurface or discharging it to a surface water body. Regular inspection and maintenance of structural stormwater BMPs is critical for these engineered systems to function as designed (e.g., provide benefits to water quality, groundwater recharge, and peak flow attenuation).

This Standard Operating Procedure (SOP) provides general inspection and maintenance frequencies and procedures for eight common structural stormwater BMPs, including:

- 1. Bioretention Areas and Rain Gardens
- 2. Constructed Stormwater Wetlands
- 3. Extended Dry Detention Basins
- 4. Proprietary Media Filters
- 5. Sand and Organic Filters
- 6. Wet Basins
- 7. Dry Wells
- 8. Infiltration Basins

This SOP is based on the Massachusetts Stormwater Handbook and is not intended to replace the stormwater BMP Operation and Maintenance guidance contained in the Handbook. This SOP is also not intended to replace the Stormwater BMP Operation and Maintenance (O&M) Plan required by the Massachusetts Wetlands Protection Act, Order of Conditions. Additional guidance and/or maintenance procedures of relevance may also be provided by the manufacturer of proprietary stormwater BMPs.

The Southwick Department of Public Works (DPW) is responsible for inspection and maintenance of structural stormwater BMPs and other stormwater infrastructure in Southwick. A list of existing structural stormwater BMPs is included in Appendix A of the Municipal Stormwater Infrastructure Operation and Maintenance Plan, along with inspection and maintenance checklists for each type of BMP as attached herewith.

Structural stormwater BMPs will be inspected annually at a minimum. Inspection checklists for each type of structural BMP are provided in the attachments.

Procedures

Bioretention Areas and Rain Gardens

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch, and planted with dense native vegetation. There are two types of bioretention cells:

1. Filtering bioretention area: Areas that are designed solely as an organic filter.



2. Exfiltration bioretention area: Areas that are configured to recharge groundwater in addition to acting as a filter.

Inspection and Maintenance

Regular inspection and maintenance are important to prevent against premature failure of bioretention areas or rain gardens. Regular inspection and maintenance of pretreatment devices and bioretention cells for sediment buildup, structural damage and standing water can extend the life of the soil media.

| Maintenance Schedule. Dioretenno | Maintenance Schedule. Distriction fileas and Rain Gardens | | | | | | |
|--|---|-------------|--|--|--|--|--|
| Activity | Time of Year | Frequency | | | | | |
| Inspect for soil erosion and repair | Year round | Monthly | | | | | |
| Inspect for invasive species and remove if present | Year round | Monthly | | | | | |
| Remove trash | Year round | Monthly | | | | | |
| Mulch Void Areas | Spring | Annually | | | | | |
| Remove dead vegetation | Fall and spring | Bi-annually | | | | | |
| Replace dead vegetation | Spring | Annually | | | | | |
| Prune | Spring or fall | Annually | | | | | |
| Replace all media and vegetation | Late spring/early summer | As needed | | | | | |

Maintenance Schedule: Bioretention Areas and Rain Gardens

When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation, and mulch the surface.

Never store snow within a bioretention area or rain garden. This would prevent the recharge and water quality treatment of ground water.

Constructed Stormwater Wetlands

Constructed stormwater wetlands maximize pollutant removal from stormwater through the use of wetland vegetation uptake, retention, and settling. Constructed storm water wetlands must be used in conjunction with other BMPs, such as sediment forebays.

Inspection and Maintenance

Regular inspection and maintenance are important for the health of constructed stormwater wetlands. They help identify the need for replacement of vegetation and media, detect potentially harmful invasive species, and ensure the overall health of the wetland.

| Activity | Time of Year | Frequency |
|---|-----------------|-------------|
| Inspect for invasive species and remove if present | Year round | Monthly |
| Record and Map: | Year round | Annually |
| Types and distribution of dominant wetland plants | Year round | Bi-annually |
| Presence and distribution of planted wetland species | Spring | Annually |
| Presence and distribution of invasive species | Fall and spring | Bi-annually |
| Indications other species are replacing planted wetland | Spring | Annually |
| species | | |
| Percent of standing water that is not vegetated | Spring or fall | Annually |

Maintenance Schedule, Constructed Stormwater Wetlands: Years 0-3



| Replace all media and vegetation | Late spring/early | As needed |
|---|-------------------|-----------|
| | summer | |
| Stability of original depth zones and micro-topographic | | |
| features | | |
| Accumulation of sediment in the forebay and micropool | | |
| and survival rate of plants | | |

Maintenance Schedule, Constructed Stormwater Wetlands: Years 4-Lifetime

| Activity | Time of Year | Frequency |
|--|-------------------|-------------|
| Inspect for invasive species and remove if present | Year round | Monthly |
| Clean forebays | Year round | Annually |
| Clean sediment in basin/wetland system | Year round | Once every |
| | | 10 years |
| Mulch Void Areas | Spring | Annually |
| Remove dead vegetation | Fall and spring | Bi-annually |
| Replace dead vegetation | Spring | Annually |
| Prune | Spring or fall | Annually |
| Replace all media and vegetation | Late spring/early | As needed |
| | Summer | |

Never store snow within a constructed stormwater wetland. This would prevent required water quality treatment and the recharge of groundwater.

Extended Dry Detention Basins

Extended dry detention basins are designed to control both stormwater quantity and quality. These BMPs are designed to hold stormwater for at least 24 hours, allowing solids to settle and reducing local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

Inspection and Maintenance

Annual inspection of extended dry detention basins is required to ensure that the basins are operating properly. Potential problems include: erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway, and sediment accumulation around the outlet. Should any of these problems be encountered, necessary repairs should be made immediately.



| Activity | Time of Year | Frequency |
|---|-----------------|----------------------------------|
| Inspect basins | Spring and fall | Bi-annually and during and after |
| | | major storms |
| Examine outlet structure for clogging or high outflow | Spring and fall | Bi-annually |
| release velocities | | |
| Mow upper stage, side slopes, embankment and | Spring through | Bi-annually |
| emergency spillway | fall | |
| Remove trash and debris | Spring | Bi-annually |
| Remove sediment from basin | Year round | At least once every 5 years |

Maintenance Schedule: Extended Dry Detention Basins

Proprietary Media Filters

Media Filters are designed to reduce total suspended solids and other target pollutants, such as organics, heavy metals, or nutrients – these materials are sorbed onto the filter media, which is contained in a concrete structure. The substrate used as filter media depends on the target pollutants, and may consist of leaf compost, pleated fabric, activated charcoal, perlite, amended sand in combination with perlite, and zeolite. Two types of Media Filters are manufactured: Dry media filters, which are designed to dewater within 72 hours, and wet media filters, which maintain a permanent pool of water as part of the treatment system.

Inspection and Maintenance

Maintenance in accordance with the manufacturer's requirements is necessary to ensure stormwater treatment. Inspection or maintenance of the concrete structure may require OSHA confined space training. Dry media filters are required to dewater in 72 hours, thus preventing mosquito and other insect breeding. Proper maintenance is essential to prevent clogging. Wet media filters require tight fitting seals to keep mosquitoes and other insects from entering and breeding in the permanent pools. Required maintenance includes routine inspection and treatment.

| Activity | Time of Year | Frequency |
|---|---------------------------|-----------------------|
| Inspect for standing water, trash, sediment and | Per manufacturer's | Bi-annually (minimum) |
| clogging | schedule | |
| Remove trash and debris | N/A | Each inspection |
| Examine to determine if system drains in 72 hours | Spring, after large storm | Annually |
| Inspect filtering media for clogging | Per manufacturer's | Per manufacturer's |
| | schedule | schedule |

Maintenance Schedule: Proprietary Media Filters

Sand and Organic Filters

Sand and organic filters, also known as filtration basins, are intended for stormwater quality control rather than quantity control. These filters improve water quality by removing pollutants through a filtering media and settling pollutants on top of the sand bed and/or in a pretreatment basin. Pretreatment is required to prevent filter media from clogging. Runoff from the filters is typically discharged to another BMP for additional treatment.

Inspection and Maintenance



If properly maintained, sand and organic filters have a long life. Maintenance requirements of the filters include raking the sand and removing sediment, trash, and debris from the surface of the BMP. Over time, fine sediments will penetrate deep into the sand requiring replacement of several inches or the entire sand layer. Discolored sand is an indicator of the presence of fine sediments, suggesting that the sand should be replaced.

Maintenance Schedule: Sand and Organic Filters Activity Frequency Inspect filters and remove debris After every major storm for the first 3 months after construction completion. Every 6 months thereafter.

Wet Basins

Wet basins are intended to treat stormwater quality through the removal of sediments and soluble pollutants. A permanent pool of water allows sediments to settle and removes the soluble pollutants, including some metals and nutrients. Additional dry storage is required to control peak discharges during large storm events. If properly designed and maintained, wet basins can add fire protection, wildlife habitats, and aesthetic values to a property.

Inspection and Maintenance

To ensure proper operation, wet basin outfalls should be inspected for evidence of clogging or excessive outfall releases. Potential problems to investigate include erosion within the basin and banks, damage to the emergency spillway, tree growth on the embankment, sediment accumulation around the outlet, and the emergence of invasive species. Should any of these problems be encountered, perform repairs immediately. An on-site sediment disposal area will reduce sediment removal costs.

| Maintenance Schedule: Wet Basins | | | |
|--|---------------------|---------------------|--|
| Activity | Time of Year | Frequency | |
| Inspect wet basins | Spring and/or fall | Annually (Minimum) | |
| Mow upper stage, side slopes, embankment and | Spring through fall | Bi-annually | |
| emergency spillway | | (Minimum) | |
| Remove sediment, trash and debris | Spring through fall | Bi-annually | |
| | | (Minimum) | |
| Remove sediment from basin | Year round | As required, but at | |
| | | least once every 10 | |
| | | years | |

Dry Wells

Dry wells are used to infiltrate uncontaminated runoff. These BMPs should never be used to infiltrate stormwater or runoff that has the potential to be contaminated with sediment and other pollutants. Dry wells provide groundwater recharge and can reduce the size and cost required of downstream BMPs or storm drains. However, they are only applicable in drainage areas of less than one acre and may experience high failure rates due to clogging.



Inspection and Maintenance

Proper dry well function depends on regular inspection. Clogging has the potential to cause high failure rates. The water depth in the observation well should be measured at 24 and 48 hour intervals after a storm and the clearance rate calculated. The clearance rate is calculated by dividing the drop in water level (inches) by the time elapsed (hours).

Maintenance Schedule: Dry Wells

| Activity | Frequency |
|-------------------|--|
| Inspect dry wells | After every major storm for the first 3 months after |
| | construction completion. Annually thereafter. |

Infiltration Basins

Infiltration basins are designed to contain stormwater and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site. High failure rates, however, often occur due to improper siting, inadequate pretreatment, poor design, and lack of maintenance.

Inspection and Maintenance

Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction, or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation, and turf health.

| Activity | Time of Year | Frequency |
|---|-----------------|---|
| Preventative maintenance | Spring and fall | Bi-annually |
| Inspection | Spring and fall | After every major storm for the first 3 |
| - | | months after construction completion. Bi- |
| | | annually thereafter and discharges |
| | | through the high outlet orifice. |
| Mow/rake buffer area, side slopes and basin | Spring and fall | Bi-annually |
| bottom | | |
| Remove trash, debris and organic matter | Spring and fall | Bi-annually |

Employee Training

- Employees who perform inspection or maintenance on structural BMPs are trained at least once per year on proper procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Structural BMP Inspection and Maintenance Checklists



INSPECTION OF BIORETENTION AREAS / RAIN GARDENS|

General Information

| BMP Description | Bioretention Area / Rain Garden | | |
|---|---------------------------------|-------------------------|----------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 During | g Storm Event 🗌 Pos | st-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for soil erosion and repair | Monthly | Yes 🗌 No 🗌 | |
| Inspect for invasive species and remove if present | Monthly | Yes 🗌 No 🗌 | |
| Remove trash | Monthly | Yes D No D | |
| Mulch void areas | Annually | Yes D No D | |
| Remove dead vegetation | Bi-Annually | Yes No | |
| Replace dead vegetation | Annually | Yes No | |
| Prune | Annually | Yes No | |
| Replace all media and vegetation | As Needed | Yes 🗌 No 🗌 | |



INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Years 0-3 of Operation

General Information

| BMP Description | Constructed Stormwater Wetland | | |
|---|--------------------------------|-------------------------|----------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | torm Event During | g Storm Event 🗌 Pos | st-Storm Event |
| Describe the weather conditions at time of inspection | | | |

Specific Information

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for invasive species and remove if present | Monthly | Yes 🗌 No 🗌 | |
| Replace all media and vegetation | As Needed | Yes 🗌 No 🗌 | |

In addition, the following information should be recorded and mapped at least once per year:

- Types and distribution of dominant wetland plants
- Presence and distribution of planted wetland species
- Presence and distribution of invasive species
- Indications other species are replacing planted wetland species
- Percent of standing water that is not vegetated
- Replace all media and vegetation
- Stability of original depth zones and micro-topographic features
- Accumulation of sediment in the forebay and micropool and survival rate of plants



INSPECTION OF CONSTRUCTED STORMWATER WETLANDS Year 4 - Lifetime of Operation

General Information

| BMP Description | Constructed Stormwater Wetland | | |
|---|--------------------------------|-------------------------|---------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event During | g Storm Event 🗌 Pos | t-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------|-----------------------------------|--------------------------|
| Inspect for invasive species and remove if present | Monthly | Yes 🗌 No 🗌 | |
| Clean forebays | Annually | Yes No | |
| Clean sediment in basin/wetland system | Once every 10 years | Yes 🗌 No 🗌 | |
| Mulch void areas | Annually | Yes D No D | |
| Remove dead vegetation | Bi-Annually | Yes No | |
| Replace dead vegetation | Annually | Yes No | |
| Prune | Annually | Yes No | |
| Replace all media and vegetation | As Needed | Yes No | |



INSPECTION OF EXTENDED DRY DETENTION BASINS

Inspections should be conducted bi-annually, and during and after major storm events.

General Information

| BMP Description | Extended Dry Detention Basin | | |
|---|------------------------------|-------------------------|----------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 During | g Storm Event 🗌 Pos | st-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|--------------------------------|-----------------------------------|--------------------------|
| Examine outlet structure for clogging or high outflow release velocities | Bi-Annually | Yes 🗌 No 🗌 | |
| Mow upper stage, side slopes, embankment and emergency spillway | Bi-Annually | Yes 🗌 No 🗌 | |
| Remove trash and debris | Bi-Annually | Yes No | |
| Remove sediment from basin | At least once every 5 years | Yes No | |



INSPECTION OF PROPRIETARY MEDIA FILTERS

General Information

| BMP Description | Media Filter | | |
|---|----------------------|-------------------------|---------------|
| BMP Location | | | |
| Media Type | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 During | g Storm Event 🗌 Pos | t-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|---|-----------------------------------|-----------------------------------|--------------------------|
| Inspect for standing water, trash, sediment and clogging | Bi-Annually (minimum) | Yes 🗌 No 🗌 | |
| Remove trash and debris | Each Inspection | Yes 🗌 No 🗌 | |
| Examine to determine if system drains in 72 hours | Annually | Yes 🗌 No 🗌 | |
| Inspect filtering media for clogging | Per manufacturer's schedule | Yes 🗌 No 🗍 | |



INSPECTION OF SAND AND ORGANIC FILTERS

Inspections should be conducted after every major storm event for the first 3 months following completion, then every 6 months thereafter.

General Information

| BMP Description | Sand/Organic Filter | | |
|---|----------------------|-------------------------|---------------|
| BMP Location | | | |
| Media Type | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 During | g Storm Event 🗌 Pos | t-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|-----------------------|-----------------------------------|--------------------------|
| Remove sediment, trash, and debris | Every 6 months | Yes 🗌 No 🗌 | |
| Rake sand | Every 6 months | Yes No | |



INSPECTION OF DRY WELLS

Regular inspections should be conducted after every major storm event for the first 3 months following completion, then annually thereafter.

General Information

| BMP Description | Dry Well | | |
|---|----------------------|-------------------------|---------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 During | g Storm Event 🗌 Pos | t-Storm Event |
| Describe the weather conditions at time of inspection | | | |
| Describe condition of dry well at time of inspection | | | |

After a major storm event, the water depth in the observation well should be measured at 24 and 48 hour intervals and the clearance rate calculated.



INSPECTION OF WET BASINS

Inspections should be conducted after every major storm event for the first 3 months following completion, then biannually thereafter.

General Information

| BMP Description | Wet Basin | | |
|---|--------------------|-------------------------|---------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event During | g Storm Event 🗌 Pos | t-Storm Event |
| Describe the weather conditions at time of inspection | | | |
| Describe condition of wet basin at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|--|---|-----------------------------------|--------------------------|
| Preventative maintenance | Bi-Annually | Yes No | |
| Mow/rake buffer area, side slopes and basin bottom | Bi-Annually | Yes 🗌 No 🗌 | |
| Remove trash, debris and organic matter | Bi-Annually | Yes 🗌 No 🗌 | |
| Inspect and clean pretreatment devices | Every other month and after every major storm event | Yes 🗌 No 🗌 | |



INSPECTION OF OTHER BMP

General Information

| BMP Description | | | |
|---|------------------|-------------------------|-----------------|
| BMP Location | | | |
| Inspector's Name | | | |
| Date of Inspection | | Date of Last Inspection | |
| Start Time | | End Time | |
| Type of Inspection: Regular Pre-S | Storm Event 🗌 Du | ring Storm Event 🔲 🛛 F | ost-Storm Event |
| Describe the weather conditions at time of inspection | | | |

| Maintenance Activity | Maintenance Frequency | Is Status of BMP Satisfactory? | Corrective Action Needed |
|----------------------|--------------------------|-----------------------------------|--------------------------|
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes 🗌 No 🗌 | |
| | | Yes D No D | |
| | | Yes D No D | |
| | | Yes 🗌 No 🗌 | |
| | | Yes No | |



SOP 16: Streets and Parking Lots

Introduction

Regular sweeping of streets and municipally-owned parking lots is important for maintaining clean and safe roadways. It also plays a vital role in keeping pollutants like sand, trash, and leaves out of the MS4. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees on street and parking lot sweeping procedures and frequencies to reduce the discharge of pollutants to the storm drainage system and receiving waters. If sweeping services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

Streets and municipally-owned parking lots are swept annually by a contractor utilizing mechanical broom sweepers in the Spring. The date of sweeping activity, location, and volume of sweepings generated are logged for reference in the annual MS4 report to EPA.

Procedures

The Town of Southwick will implement the following street and parking lot sweeping procedures to reduce the discharge of pollutants from the MS4:

Sweeping Frequency

- All streets should be swept and/or cleaned a minimum of once per year in the spring (with the exception of rural uncurbed roads with no catch basins or high speed limited access highways).
- Sweep as soon as possible after snow melt and following winter activities such as sanding to capture sand and debris before it is washed into the storm drainage system.
- Consider more frequent sweeping for targeted areas based on pollutant load reduction potential, inspections, pollutant loads, catch basin cleaning or inspection results, land use, impaired waters, or other factors.
- For rural uncurbed roadways with no catch basins and limited access highways, the Town of Southwick will either meet the minimum frequencies above, or develop and implement an inspection, documentation, and targeted sweeping plan outlining reduced frequencies within two (2) years of the effective date of the MS4 Permit, and submit such plan with its year one annual report.
 - The Town of Southwick currently sweeps and/or cleans all municipally-managed paved streets, *including rural uncurbed roads with no catch basins*, a minimum of one (1) time per year in the spring. Refer to Section 3: Streets and Parking Lots in the *Municipal Stormwater Infrastructure Operation and Maintenance Plan* for further detail on the Town's sweeping goals and practice.

Sweeping Practices

- Street sweeping should be conducted in dry weather. Sweeping should not be conducted during or immediately after rain storms.
- Dry cleaning methods should be used whenever possible, with the exception of very fine water spray for dust control. Avoid wet cleaning or flushing of the pavement.



- When necessary, enact parking bans to facilitate sweeping on busy streets.
- Sweep in a manner that avoids depositing debris into storm drains.
- Sweeping equipment (mechanical, regenerative air, vacuum filter, tandem sweeping) should be selected depending on the level of debris. Brush alignment, sweeper speed, rotation rate, and sweeping pattern should be set to optimal levels to manage debris.
- Routinely inspect and perform maintenance on sweeping equipment to reduce the potential for leaks. See SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment (when sweeping is performed by the Town) for more information.

Sweepings Reuse and Disposal

- The reuse of sweepings is recommended by MassDEP. If street sweepings are reused (e.g., as antiskid material or fill in parking lots), they should be properly filtered to remove solid waste, such as paper or trash, in accordance with their intended reuse. All reuse and/or disposal of street sweepings will be managed in accordance with current MassDEP policies and regulations.
- Sweepings intended for reuse can be stored for up to one year in approved temporary storage areas. Storage areas should be protected to prevent erosion and runoff and should be located away from wetland resource areas and buffer zones, surface water, or groundwater.
- Sweepings are classified as solid waste. If not reused, they should be disposed of at solid waste disposal sites.
- For additional information on approved reuses of sweepings and storage/disposal policies, refer to MassDEP policy #BAW-18-001: Reuse and Disposal of Street Sweeping (https://www.mass.gov/files/documents/2018/05/14/street-sweepings.pdf).
- The Town of Southwick will store sweepings intended for reuse at the Southwick Transfer Station (22 Industrial Road, Southwick) in accordance with MS4 regulations.

Documentation and Reporting

The following information should be documented and included in each annual report:

• Number of miles cleaned or the volume or mass of material removed (refer to the sweeping log in the attachments).

Employee Training

- Employees who perform street and parking lot sweeping are trained at least once per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.



Attachments

1. Street and Parking Lot Sweeping Log

Related Standard Operating Procedures

1. SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment


Street Sweeping Log Southwick, Massachusetts

| Date | Operator | Weather Conditions | Streets/Parking Lots | Number of Miles Swept | Volume/Mass of Material Removed | Corrective Action |
|------|----------|-----------------------|----------------------|-----------------------|------------------------------------|---------------------|
| | | conditions | Jucht | | | rancin neconinciaca |
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Municipal Stormwater Operation and Maintenance Plan for Buildings & Facilities, Parks & Open Space, and Vehicles & Equipment

As regulated under the 2016 Massachusetts Small MS4 General Permit

for the

Town of Southwick, MA



August 2020

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Town of Southwick, MA Municipal Stormwater Operation and Maintenance Plan for Buildings & Facilities, Parks & Open Space, and Vehicles & Equipment

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| 2 | Area of Jurisdiction | 2 |
| 3 | Applicable Operations | 4 |
| 4 | Operations & Maintenance Procedures | 4 |

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Appendices

Appendix A – Building & Facility Maps

Note: Refer to Figure 1: MS4 Regulated Area & Site Index for Individual Site Locations

Appendix B – Standard Operating Procedures:

- SOP 19: Operations and Maintenance of Parks and Open Spaces
 - Inventory of Municipal Parks and Open Spaces
- SOP 20: Operations and Maintenance of Municipal Buildings and Facilities
 Inventory of Municipal Buildings and Facilities
- SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment
 - o Inventory of Municipal Vehicles and Equipment

1 Introduction & Regulatory Framework

This Operation and Maintenance (O&M) Plan has been prepared by the Town of Southwick to address stormwater infrastructure O&M requirements of the United States Environmental Protection Agency's (USEPA's) 2016 National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) in Massachusetts, hereafter referred to as the "2016 Massachusetts MS4 Permit" or "MS4 Permit."

This O&M Plan addresses Minimum Control Measure 6, Good Housekeeping and Pollution Prevention for Permittee Owned Operations, by describing the activities and procedures the Town of Southwick will implement so that the MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4. This O&M Plan outlines the relevant procedures as applicable to buildings and facilities, parks and open space, and vehicles and equipment that are located within the MS4 regulated area and may discharge stormwater to Waters of the United States.

Regulatory Framework

Part 2.3.7.a.i:

Within two (2) years from the effective date of the permit, the permittee shall develop, if not already developed, written (hardcopy or electronic) operations and maintenance procedures for [Parks, Open Space, Buildings, and Facilities where pollutants are exposed to stormwater runoff]. These written procedures shall be included as part of the SWMP.

Part 2.3.7.a.ii:

Within two (2) year of the effective date of this permit, the permittee shall develop an inventory of all permittee owned facilities within the categories listed below. The permittee shall review this inventory annually and update as necessary.

1. Parks and open space: Establish procedures to address the proper use, storage, and disposal of pesticides, herbicides, and fertilizers including minimizing the use of these products and using only in accordance manufacturer's instruction. Evaluate lawn maintenance and landscaping activities to ensure practices are protective of water quality. Protective practices include reduced mowing frequencies, proper disposal of lawn clippings, and use of alternative landscaping materials (e.g., drought resistant planting). Establish pet waste handling collection and disposal locations at all parks and open space where pets are permitted, including the placing of proper signage concerning the proper collection and disposal of pet waste. Establish procedures to address waterfowl congregation areas where appropriate to reduce waterfowl droppings from entering the MS4. Establish procedures for management of trash containers at parks and open space (scheduled cleanings; sufficient number). Establish procedures to address erosion or poor vegetative cover when the permittee becomes aware of it; especially if the erosion is within 50 feet of a surface water.

- 2. Buildings and facilities where pollutants are exposed to stormwater runoff: This includes schools (to the extent they are permittee-owned or operated), town offices, police, and fire stations, municipal pools and parking garages and other permittee-owned or operated buildings or facilities. Evaluate the use, storage, and disposal of petroleum products and other potential stormwater pollutants. Provide employee training as necessary so that those responsible for handling these products know proper procedures. Ensure that Spill Prevention Plans are in place, if applicable, and coordinate with the fire department as necessary. Develop management procedures for dumpsters and other waste management equipment. Sweep parking lots and keep areas surrounding the facilities clean to reduce runoff of pollutants.
- 3. Vehicles and Equipment: Establish procedures for the storage of permittee vehicles. Vehicles with fluid leaks shall be stored indoors or containment shall be provided until repaired. Evaluate fueling areas owned or operated by the permittee. If possible, place fueling areas under cover in order to minimize exposure. Establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters. This permit does not authorize such discharges.

2 Area of Jurisdiction

Regulatory requirements under the MS4 permit are only applicable to the activities taking place within the MS4 regulated area as depicted in Figure 1. Sites managed by the Town of Southwick, categorized either as "Buildings and Facilities" or "Parks and Open Space" and falling within the regulatory framework above, are inventoried in Appendix B as listed alongside the relevant Standard Operating Procedure(s) and jurisdiction under the MS4 permit. This inventory will be evaluated during the annual Storm Water Management Plan (SWMP) review. Maps of the sites – both inside and outside MS4 permit jurisdiction – are shown in Appendix A.



Figure 1: MS4 Regulated Area - Southwick, Massachusetts

Southwick DPW

3 Applicable Operations

The O&M Plan covers operations that pollutants can be exposed to stormwater, such as:

- Road and parking lot maintenance practices, which include deicing and snow removal;
- Vehicle Storage, fueling areas and washing procedures;
- External building maintenance, which includes exterior cleaning, washing, painting, and other maintenance activities;
- Grounds maintenance, which includes the usage of fertilizer, pesticide, herbicide, green waste disposal, trash management, pet waste, waterfowl maintenance, and sediment and erosion control; and
- Material storage, which includes stockpiling of debris such as gravel, and heavy equipment storage.

4 **Operations & Maintenance Procedures**

All Town of Southwick operations listed in Section 3 are to be conducted in accordance with the applicable Standard Operating Procedures included in Appendix B.

Appendix A

Building & Facility Maps

Map 1: 56C Berkshire Avenue



8/22/2020

Sewer Manhole

Sewer Gravity Main

Stormwater Structure Other MassGIS Level 3 Parcels (Feature Service)

0.01 Map data © OpenStreetMap contributors, Map layer by Esri, Source: Esri,

0.01

0

0.01

n

0.01 mi

0.02 km

Map 2: Goose Pond Conservation Area



8/22/2020

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Sewer Manhole MassGIS Level 3 Parcels (Feature Service)



 \odot Outfall

Map 3: Graville Gorge





Inlet

8/22/2020



Map 4: Keenan Park





Map 5: Loupinski WMA



8/22/2020

Outfall



Storm Gravity Main

Culvert

MassGIS Level 3 Parcels (Feature Service)



Map data © OpenStreetMap contributors, Map layer by Esri, Source: Esri,

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Map 6: Miller Road





Map 7: N. E. National Scenic Trail







Other 🧿 Outfall —— Storm Gravity Main





MassGIS Level 3 Parcels (Feature Service)



Map 8: North Pond Conservation Area



8/22/2020





Map 9: Old Town Beach







Map 10: Pauline Circle



8/23/2020



Storm Gravity Main

MassGIS Level 3 Parcels (Feature Service)

\oplus Inlet

Sewer Gravity Main

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.04

0.03

0.05 mi

0.09 km

0.01

0.02

0

0

Map 11: Prifti Park



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Storm Gravity Main







Map data © OpenStreetMap contributors, Map layer by Esri, Source: Esri,

Inlet

Map 12: Southwick Rail Trail (1 of 2)



8/3/2020

MassGIS Level 3 Parcels (Feature Service)

UrbanArea_2010

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and

Map 12: Southwick Rail Trail (2 of 2)



8/3/2020

MassGIS Level 3 Parcels (Feature Service)

UrbanArea_2010

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and

Map 13: Sodom Mountain





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8/22/2020

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Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Map 14: Sofinowski Preserve



8/22/2020



Storm Gravity Main



MassGIS Level 3 Parcels (Feature Service)

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Inlet

Map 15: Sterrett Farm Nature Walk





• Outfall — Storm Gravity Main



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.06

0.09

0.11 mi

0.18 km

0.03

0.04

0

0

Map 16: Tobacco Road Lot



8/22/2020

Sewer Gravity Main

MassGIS Level 3 Parcels (Feature Service)

Storm Gravity Main

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Map 17: Town Beach



8/22/2020



Storm Gravity Main

MassGIS Level 3 Parcels (Feature Service)

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0.04 Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.03

0.05 mi

0.09 km

0.01

0.02

0

0

Sewer Gravity Main

Map 18: Town Hall Campus



Sewer Gravity Main MassGIS Level 3 Parcels (Feature Service)

Storm Drain Manhole

Esri, HERE, Garmin, (c) <code>OpenStreetMap</code> contributors, Map data $\ensuremath{\mathbb{C}}$

Map 19: Water Tower



8/22/2020



MassGIS Level 3 Parcels (Feature Service)

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Map 20: Well Field & Pumping Station





Map 21: West Springfield Wells



8/22/2020



MassGIS Level 3 Parcels (Feature Service)

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.11 mi

0.18 km

Map 22: Whalley Park





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Storm Gravity Main

Stormwater Structure Other

Storm Drain Manhole

MassGIS Level 3 Parcels (Feature Service)

0.09 Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.18 km

0.04

0

Map A: Berkshire Avenue Pump Station



Open Channel

Map B: Berkshire Avenue Boat Ramp



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Sewer Manhole ۲

Outfall

Open Channel

MassGIS Level 3 Parcels (Feature Service)



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Sewer Gravity Main

Map C: Town Beach



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MassGIS Level 3 Parcels (Feature Service)

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Map D, E, F, G: Town Hall Campus





Maps H, I: New & Old Cemeteries



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Stormwater Structure Other Culvert





 \oplus Inlet

MassGIS Level 3 Parcels (Feature Service)

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©
Map J: Powder Mill School



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- Stormwater Structure Other
- Storm Gravity Main
- Storm Drain Manhole
- Culvert
- MassGIS Level 3 Parcels (Feature Service)



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

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Maps K, M: Powder Mill School & STGRSD Garage



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Storm Gravity Main

Culvert

MassGIS Level 3 Parcels (Feature Service)



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

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Map L: Southwick Regional School





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Storm Drain Manhole MassGIS Level 3 Parcels (Feature Service)



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

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Map N: Southwick Public Library



8/22/2020

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Stormwater Structure Other



Inlet

Culvert

Treatment Structures

MassGIS Level 3 Parcels (Feature Service)



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Storm Gravity Main

Map O: Southwick DPW Garage









Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.04

0.03

0.05 mi

0.09 km

0.01

0.02

0

0

Map P: Southwick Transfer Station



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Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Map Q: Jarry Drive Pump Station



8/22/2020



) ____ Storm Gravity Main





Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

Inlet

Map R: N Longyard Rd. Pump Station





Storm Gravity Main

Map S: Coes Hill Road Pump Station





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Esri, HERE, Garmin, (c) <code>OpenStreetMap</code> contributors, Map data $\ensuremath{\mathbb{C}}$

Map T: Great Brook Wells & Pump Station







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Map U: Water Tower



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Map V: Powder Mill Road Pump Station



8/22/2020



Storm Gravity Main

MassGIS Level 3 Parcels (Feature Service)

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0.02 Esri, HERE, Garmin, (c) OpenStreetMap contributors, Map data ©

0.01 0.01

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0.02 mi

0.04 km

Sewer Gravity Main

Map W: Prifti Park Pump Station







r Manhole Sewer Gravity Main



- Storm Drain Manhole
- AssGIS Level 3 Parcels (Feature Service)

Storm Gravity Main



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Map X: Point Grove Pump Station





Map Y: Granville Road Pump Station







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Map Z: Echo Road Pump Station



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Outfall

Storm Gravity Main

Map AA: Bioxide Injection Station





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Sewer Manhole MassGIS Level 3 Parcels (Feature Service)



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Map BB: Island Pond Road Pump Station





Appendix B

Standard Operating Procedures

- SOP 19: Operations and Maintenance of Parks and Open Spaces
 Inventory of Municipal Parks and Open Spaces
- SOP 20: Operations and Maintenance of Municipal Buildings and Facilities o Inventory of Municipal Buildings and Facilities
- SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment

 Inventory of Municipal Vehicles and Equipment

SOP 19: Operations and Maintenance of Parks and Open Spaces

Introduction

Parks and open space operations and maintenance activities commonly involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning, and trash collection; application of pesticides, herbicides, and fertilizers; cleaning and maintenance of park amenities such as play equipment, restrooms, and structures; and snow removal. These activities have the potential to generate contaminants such as sediments and toxic chemicals that may be picked up by rainwater, thereby entering the storm drainage system and receiving waters. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to reduce the discharge of pollutants from the MS4 and to receiving waters as a result of parks and open space operations and maintenance. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

The Town of Southwick performs a variety of operations and maintenance activities at its municipal parks and open spaces.

Within two years of the effective date of the MS4 Permit, the Town of Southwick will create an inventory of all jurisdictional municipal parks and open spaces and update this inventory annually.

Procedures

The Town of Southwick will implement the following procedures at municipal parks and open spaces to reduce the discharge of pollutants from the MS4:

General

- Repair damage to landscaped or mulch or vegetated bare areas as soon as possible to prevent erosion. If there are areas of erosion or poor vegetation, repair them as soon as possible, especially if they are within 50 feet of a surface water (e.g., pond, lake, or river).
- Remove (sweep or shovel) materials such as soil, mulch, and grass clippings from parking lots, streets, curbs, gutters, sidewalks, and drainage-ways.
- Do not clean up any unidentified or possibly hazardous materials found during maintenance; notify a supervisor immediately.



Maintenance

- Wastewater from power washing signs, structures, or bleachers cannot be discharged into the stormwater system.
- When painting park equipment, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Sweep parking lots with a street sweeper and dispose of street sweepings in designated areas (see SOP 16: Streets and Parking Lots).
- Never wash debris from parking lots into the storm drain.

Mowing

- Remove debris and trash from landscaped areas prior to mowing.
- Collect grass clippings and leaves after mowing. Do not blow or wash them into the street, gutter, or storm drains.
- Properly recycle or dispose of organic waste after mowing, weeding, and trimming.
- Reduce mowing frequencies wherever possible by establishing low/no-mow areas in lesser-used spaces.
- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas.
- Leave clippings on grassy areas or dispose of them in the trash or by composting.
- Do not hose off mowers over paved areas that drain into the MS4 or directly to surface waters.
- Follow proper vehicle and equipment maintenance procedures to prevent leaks (see SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment)
- Do not allow grease from mowers to fall onto areas where they can be washed into the stormwater system.

Irrigation

- Repair broken sprinkler heads as soon as possible.
- Only irrigate at a rate that can infiltrate into the soil to limit run-off.
- Avoid irrigating close to impervious surfaces such as parking lots and sidewalks.

Landscaping

- When establishing new plantings, use alternative landscaping materials, such as drought resistant or native plants to reduce the need for irrigation and extensive application of fertilizers and pesticides.
- Follow proper fueling procedures for all equipment to ensure that petroleum products do not enter the stormwater system (see SOP 7: Fuel and Oil Handling Procedures).
- Fertilizers, herbicides, and pesticides should be properly used, stored, and handled (see SOP 12: Storage and Use of Pesticides and Fertilizer).
- In accordance with Nitrogen TMDL requirements for the Long Island Sound requirements, the Town of Southwick will use slow-release fertilizers in addition to reducing fertilizer use to reduce runoff to waters draining to the Long Island Sound.
- Under MS4 Permit requirements, the Town of Southwick acknowledges that blowing organic waste material (grass cuttings, leaf litter) into the MS4 system, onto wetlands and waterbodies/waterways, or onto adjacent impervious surfaces is strictly prohibited.



Snow Removal

- Store salt or sand for snow removal indoors under a roof or in a covered container and on impervious surfaces.
- See SOP 18: Winter Road Maintenance for more information on proper snow disposal and storage procedures.
- Any damage done to vegetated areas caused by plows or deicing materials should be repaired as early as possible in the spring.

Trash Management

- All waste and recycling containers must be leak-tight with tight-fitting lids or covers.
- Place waste and recycling containers indoors or under a roof or overhang whenever possible.
- Clean and sweep up around outdoor waste containers regularly.
- Arrange for waste and recyclables to be picked up regularly and disposed of at approved disposal facilities.
- Do not wash out waste or recycling containers outdoors or in a parking lot.
- Conduct periodic inspections of waste areas to check for leaks and spills.
- Ensure there are enough trash and recycling containers at appropriate areas.
- Monitor waste and recycling containers at heavily-used sites and on holidays to ensure that there is no overflow.

Other Activities

- Provide pet waste stations with bags and trash receptacles where pets are permitted. Post signs describing the proper disposal of pet waste.
- All portable toilets should be staked down in flat, secure locations where they are less likely to be knocked down or blown over. They should be placed in a location that would retain any spillage from washing into the MS4 or receiving waters. Ensure routine maintenance and cleaning of portable toilets.
- Identify undesirable waterfowl congregation areas and take steps to prevent waterfowl droppings from entering the stormwater system or surrounding waterbodies.
 - Take measures to discourage congregation near waterbodies and the storm system (e.g., use strobe lights or reflective tape, establish no-mow zones to reduce available feeding areas, or plant thick vegetation along waterlines). If waterfowl congregation cannot be managed, then isolate the drainage from congregation areas away from the storm system and waterbodies.
 - Install signage to educate the public on the negative effects of waterfowl feces entering the stormwater system or nearby waterbodies in order to discourage public feeding. Alternatively, enact feeding bans.

Employee Training

- Employees who perform maintenance or other applicable work at municipal parks and open spaces are trained at least once per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to



SOP 19: Operations and Maintenance of Parks and Open Spaces

ensure compliance with MS4 regulations.

Attachments

1. Inventory of Municipal Parks and Open Spaces

Related Standard Operating Procedures

- SOP 7: Fuel and Oil Handling Procedures
- SOP 12: Storage and Use of Pesticides and Fertilizer
- SOP 16: Streets and Parking Lots
- SOP 18: Winter Road Maintenance
- SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment



Inventory of Municipal Parks and Open Spaces Southwick, Massachusetts

| Site No. | Name of Park/ Open Space | Location (Map/Parcel) | Management | Potential Stormwater Pollutant Sources (e.g., trash containers, fertilizers, fuel) | MS4 |
|-------------|---------------------------------------|---|---|---|------------------|
| 1 | Berkshire Avenue | 56C Berkshire Avenue (None Listed) | Select Board | None Apparent (Wildlife Habitat) | Yes |
| 2 | Goose Pond Conservation Area | Goose Pond (162/002, 162/003/ & 163/001) | Conservation Commission | None Apparent (Wildlife Habitat) | Yes (Partial) |
| 3 | Granville Gorge | 374 Granville Road (034/004) | Conservation Commission | Trash (Passive Recreation, Hiking) | No |
| 4 | Keenan Park | 44 South Longyard Road (099/030) | Conservation Commission | None Apparent (Wildlife Habitat) | Yes |
| 5 | Loupinski Wildlife Management Area | 456 North Loomis Street (004/001, 004/004) | Massachusetts Division of Fish & Wildlife; Conservation Commission | Trash (Wildlife Habitat, Hunting) | No |
| 6 | Miller Road | 59R Miller Road (159/023); South Road (162/001) | Conservation Commission | None Apparent (Wildlife Habitat) | Yes (Partial) |
| 7 | New England National Scenic Trail | 5R Rising Corner Road (119/001) | Conservation Commission | Trash (Wildlife Habitat, Hiking) | No |

| 8 | North Pond Conservation Area | 49 South Longyard Road (099/038) | Conservation Commission | Trash (Passive Recreation, Wildlife Habitat) | Yes (Partial) |
|----|---------------------------------|-------------------------------------|------------------------------|---|------------------|
| 9 | Old Town Beach | 160 Berkshire Avenue (124/011) | Park & Recreation Commission | Trash, Fertilizer (Picnicking, Canoeing/Kayaking, Passive Recreation – also see Buildings & Facilities) | Yes |
| 10 | Pauline Circle | Off Pauline Circle (135/047) | Conservation Commission | None Apparent (Wildlife Habitat) | Yes |
| 11 | Prifti Park | 454 College Highway (099/001) | Park & Recreation Commission | Trash, Fertilizer (Active Recreation) | Yes |
| 12 | Rail Trail Corridor | Various (089/031) | Park & Recreation Commission | Trash, Pet Waste, Fertilizer | Yes (Partial) |
| 13 | Sodom Mountain | Off Granville Road (056/008) | Conservation Commission | None Apparent (Wildlife Habitat) | No |
| 14 | Sofinowski Preserve | 55 Mort Vining Road (144/011) | Conservation Commission | None Apparent (Wildlife Habitat) | No |
| 15 | Sterrett Farm Nature Walk | Coes Hill Road (053/004) | Conservation Commission | Trash (Nature Walk) | No |
| 16 | Tobacco Road Vacant Lot | Field Street (135/057) | Conservation Commission | None Apparent (Habitat) | Yes |

SOP 19: Operations and Maintenance of Parks and Open Spaces

| 17 | Town Beach | 14 Beach Road (149/004) | Park & Recreation Commission | Trash, Parking Lot Runoff, Fertilizer (Public Beach – also see Buildings & Facilities) | Yes |
|----|---------------------------------|---|------------------------------|---|------------------|
| 18 | Town Hall Campus | 454 College Highway (088/001) | Select Board | Trash, Parking Lot Runoff, Fertilizer (Passive Recreation – also see Buildings & Facilities) | Yes |
| 19 | Water Tower | Off Juniper Road (077/003 & 077/004) | Water Commission | None Apparent (Water Tower Site, Wildlife Habitat – also see Buildings & Facilities) | No |
| 20 | Well Field & Pumping Station | 159R Feeding Hills Road (068/054) | Water Commission | None Apparent (Wildlife Habitat – also see Buildings & Facilities) | Yes (Partial) |
| 21 | West Springfield Wells | Off North Longyard Road (043/002) | Water Commission | None Apparent (Wildlife Habitat) | Yes (Partial) |
| 22 | Whalley Park | 42 Powder Mill Road (090/014) | Park & Recreation Commission | Trash, Parking Lot Runoff, Fertilizer (Active Recreation – also see Buildings & Facilities) | Yes |
| | | | | | |
| | | | | | |
| | | | | | |

SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

Introduction

Municipal buildings and facilities (schools, municipal offices, police and fire stations, pump stations, etc.) often house various chemicals, such as petroleum products and hazardous materials. As a result, these buildings and facilities are potential sources of pollutant discharges to the storm drainage system. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees on the use, storage, and disposal of chemicals and other stormwater pollutants to reduce the discharge of pollutants from the MS4. If services are contracted, this SOP should be provided to the contractor. The contract should specify that the contractor is responsible for compliance with all applicable laws.

Within two years of the effective date of the MS4 Permit, the Town of Southwick will create an inventory of all jurisdictional municipal buildings and facilities and update this inventory annually (refer to the attached buildings and facilities inventory sheet).

Procedures

The Town of Southwick will implement the following procedures for municipally owned or operated buildings and facilities to reduce the discharge of pollutants from the MS4:

Handling, Storage, Transfer, and Disposal of Trash and Recyclables

All liquid and solid waste must be disposed of properly. Some of the most common sources of pollution at municipal facilities are a result of littering, improper collection of debris, and improper disposal of solid or liquid waste.

- All waste and recycling receptacles must be leak-tight with tight-fitting lids or covers.
- Keep lids on dumpsters and containers closed at all times unless adding or removing material. If using an open-top roll-off dumpster, cover it and tie it down with a tarp unless adding materials.
- Place waste or recycling receptacles indoors or under a roof or overhang whenever possible.
- Locate dumpsters on a flat, paved surface and install berms or curbs around the storage area to prevent run-on and run-off.
- Do not locate dumpsters over or adjacent to catch basins.
- Prior to transporting waste, trash, or recycling, ensure that containers are not leaking (double bag if needed) and properly secure containers to the vehicle.
- Clean and sweep up around outdoor waste containers regularly.
- Clean up any liquid leaks or spills with dry cleanup methods.
- Arrange for waste or recycling to be picked up regularly and disposed of at approved disposal facilities.
- Never place hazardous materials, liquids, or liquid-containing wastes in a dumpster or recycling or trash container (see SOP 17: Hazardous Materials Storage and Handling).
- Do not wash trash or recycling containers outdoors or in parking lots.



Standard Operating Procedures Central Massachusetts Regional Stormwater Coalition

- SOP 20: Operations and Maintenance of Municipal Buildings and Facilities
- Conduct periodic inspections of solid and liquid waste storage areas to check for leaks and spills.
- Conduct periodic inspections of work areas to ensure that all wastes are being disposed of properly.
- In dumpster areas, regularly pick up surrounding trash and debris and regularly sweep the area.
- In compactor areas, regularly check the hydraulic fluid hoses and reservoir to ensure that there are no cracks or leaks. Regularly sweep the area.

Building Maintenance

- When power washing buildings and facilities, ensure that the wash water does not flow into the storm system. Containment or filtering systems should be provided.
- Paint and other chemicals should not be applied on the outside of buildings when it is raining or prior to expected rain.
- When sanding, painting, power washing, etc., ensure that sites are properly prepared (e.g., use tarps) and cleaned (e.g., use dry cleaning methods) especially if they are near storm drains. Protect catch basins when maintenance work is conducted upgradient of them.
- When painting, use a drop cloth and clean up any spills immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Buildings should be routinely inspected for areas of potential leaks.
- Do not discharge chlorinated pool water into the stormwater system. Water must be properly dechlorinated and tested before it is discharged.
- Streets and parking lots surrounding municipal buildings and facilities should be swept and kept clean to reduce runoff of pollutants and debris to the stormwater system.
- Streets and parking lots around buildings and facilities will be swept in accordance with the procedures in SOP 16: Streets and Parking Lots.

Storage of Petroleum Products and Potential Pollutants

- Floor drains in storage areas should be disconnected from the stormwater system.
- Routinely inspect buildings and facilities for areas of potential leaks.
- For storage and handling procedures of petroleum products and potential pollutants, refer to SOP 17: Hazardous Materials Storage and Handling and SOP 7: Fuel and Oil Handling Procedures.
- For storage and handling procedures for fertilizers, pesticides, and herbicides, refer to SOP 12: Fertilizers, Pesticides, and Herbicides.
- All municipal buildings and facilities should be periodically inspected to address potential pollutant sources (e.g., leaks).



Spill Prevention Plan

- Spill prevention plans such as Spill Prevention Control and Countermeasure (SPCC) Plans should be in place where applicable, based on inventories of material storage and potential pollutants. Coordinate with the local fire department if necessary.
- Spill SOPs are outlined in SOP 4: Spill Response and Cleanup.

Employee Training

- Employees who perform maintenance or other applicable work at municipal buildings and facilities are trained at least once per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.

Attachments

1. Inventory of Municipal Buildings and Facilities

Related Standard Operating Procedures

- 1. SOP 4: Spill Response and Cleanup
- 2. SOP 7: Fuel and Oil Handling
- 3. SOP 12: Storage and Use of Pesticides and Fertilizer
- 4. SOP 16: Streets and Parking Lots
- 5. SOP 17: Hazardous Material Storage and Handling



Inventory of Municipal Buildings and Facilities Southwick, Massachusetts

| Item | Name of Building/Facility | Location (Map/Parcel) | Management | Potential Stormwater Pollutant Sources (e.g., trash containers, fertilizers, fuel) | MS4? |
|------|--|-------------------------------------|---------------------------------|---|------|
| A | Berkshire Avenue Sewer Pump Station (Old Town Beach) | 160 Berkshire Avenue (124/011) | Public Works; Park & Recreation | Building Maintenance, Parking Area Runoff (See also Park & Open Space Inventory) | Yes |
| В | Berkshire Avenue Boat Ramp | Berkshire Avenue (148/064) | Lake Management Committee | Trash, Parking Area Runoff | Yes |
| С | Town Beach | 14 Beach Road (149/004) | Park & Recreation Commission | Trash, Building Exterior, Fertilizer, Parking Area Runoff (See also Park & Open Space Inventory) | Yes |
| D | Town Hall Campus (Municipal Offices & Senior Center) | 454 College Highway (088/001) | Building Maintenance | Trash, Building Exterior, Fertilizer, Parking Area Runoff (See also Park & Open Space Inventory) | Yes |
| E | Southwick Police Department | 11 Depot Street (088/001) | Building Maintenance | Trash, Building Exterior, Fertilizer, Parking Area Runoff | Yes |
| F | Southwick/Polverari Animal Shelter | 11 Depot Street (Rear) (088/001) | Building Maintenance | Trash, Building Exterior, Fertilizer, Parking Area Runoff | Yes |
| G | Southwick Fire Department | 15 Depot Street (088/001) | Building Maintenance | Trash, Building Exterior, Fertilizer, Parking Area Runoff | Yes |

Town of Southwick SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

| Н | New Cemetery | 332 College Highway (111/004) | Cemetery Commission | Trash, Building Exterior, Fertilizer, Impervious Area Runoff, Fuel | No |
|---|--|------------------------------------|----------------------|---|-----|
| I | Old Cemetery | 332 College Highway (111/004) | Cemetery Commission | Trash, Building Exterior, Fertilizer, Impervious Area Runoff | No |
| J | Powder Mill School | 94 Powder Mill Road (075/002) | School Department | Trash, Building Exterior, Fertilizer, Impervious Area Runoff | Yes |
| к | Woodland School | 80 Powder Mill Road (075/002) | School Department | Trash, Building Exterior, Fertilizer, Impervious Area Runoff | Yes |
| L | Southwick Regional School | 93 Feeding Hills Road (067/132) | School Department | Trash, Building Exterior, Fertilizer, Impervious Area Runoff | Yes |
| Μ | STGRSD Bus Garage | 80B Powder Mill Road (075/002) | School Department | Trash, Building Exterior, Fertilizer, Impervious Area Runoff, Fuel | Yes |
| Ν | Southwick Public Library | 93 Feeding Hills Road (067/132) | Building Maintenance | Trash, Building Exterior, Fertilizer, Impervious Area Runoff | Yes |
| 0 | Southwick Department of Public Works Garage | 661 College Highway (051/002) | DPW | Trash, Building Exterior, Fertilizer, Impervious Area Runoff, Fuel | No |
| Ρ | Southwick Transfer Station | 22 Industrial Road | DPW – Solid Waste | Trash, Building Exterior, Fertilizer, Fuel, Impervious Area & Gravel Road Runoff | No |

Town of Southwick SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

| Q | Jarry Drive Booster Pump Station | 813 College Highway | DPW - Water | Building Exterior, Access Road/Area Runoff | No |
|---|-------------------------------------|--|-------------|--|------------------|
| R | North Longyard Road Pump Station | 110 North Longyard Road (044/014) | DPW - Water | None Apparent (No active use) | Yes (Partial) |
| S | Coes Hill Road Pump Station | 627 College Highway (065/014) | DPW - Water | Building Exterior, Access Road/Area Runoff | No |
| т | Great Brook Pump Station | Off Feeding Hills Road (074/005) | DPW - Water | Building Exterior, Access Road/Area Runoff | Yes |
| U | Water Tank | Off Juniper Road (077/003 & 077/004) | DPW – Water | Structure Exterior, Access Road/Area Runoff (See also Parks & Open Space Inventory) | No |
| v | Powder Mill Road Pump Station | Powder Mill Road at Depot Street (089/041) | DPW – Sewer | Building Exterior, Access Road/Area Runoff | Yes |
| w | Prifti Park Pump Station | 476 College Highway (089/054) | DPW - Sewer | Building Exterior, Access Road/Area Runoff | Yes |
| x | Point Grove Road Pump Station | 85-97 Point Grove Road (114/175) | DPW - Sewer | Building Exterior, Access Road/Area Runoff | Yes |
| Y | Granville Road Pump Station | 475 College Highway (089/002) | DPW - Water | Building Exterior, Access Road/Area Runoff | Yes |

Town of Southwick SOP 20: Operations and Maintenance of Municipal Buildings and Facilities

| z | Echo Street Pump Station | End of Echo Street (138/048) | Sewer Commission | Building Exterior, Access Road/Area Runoff | Yes |
|----|----------------------------|----------------------------------|------------------|--|-----|
| АА | Bioxide Injection Building | 111 Congamond Road (148/085) | DPW - Sewer | Building Exterior, Access Road/Area Runoff | Yes |
| BB | Island Pond Pump Station | 15 Island Pond Road (138/064) | DPW – Sewer | Building Exterior, Access Road/Area Runoff | Yes |

SOP 21: Operations and Maintenance of Municipal Vehicles and Equipment

Introduction

Regular maintenance of both municipal and contracted vehicles and heavy equipment not only prolongs the life of municipal assets but also helps reduce the potential for leaking of fluids associated with normal wear and tear. Potential pollutants include fuels, oil, antifreeze, brake fluid, solvents, and battery acid. The goal of this written Standard Operating Procedure (SOP) is to provide guidance to municipal employees to help reduce the discharge of pollutants from the MS4 as a result of leaks from vehicles and equipment. If services are contracted with respect to vehicles and equipment, this SOP should be provided to the contractor. The contract should also specify that the contractor is responsible for compliance with all applicable laws.

Within two years of the effective date of the MS4 Permit, the Town of Southwick will create an inventory of all municipal vehicles and equipment and update this inventory annually (refer to the attached vehicles and equipment inventory).

Procedures

The Town of Southwick will implement the following procedures for municipally owned and operated vehicles and equipment to reduce the discharge of pollutants from the MS4:

Vehicle and Equipment Maintenance

Vehicle Storage

- Monitor vehicles and equipment for leaks and use drip pans as needed until repairs can be performed.
- When drip pans are used, avoid overtopping.
- Drain fluids from leaking or wrecked vehicles and parts as soon as possible. Dispose of fluids properly.
- Store and park vehicles on impervious surfaces and/or under cover or indoors whenever possible.

Vehicle Maintenance

- Conduct routine inspections of heavy equipment and vehicles to proactively identify maintenance needs or potential leaks.
- Perform routine preventive maintenance to ensure heavy equipment and vehicles are operating optimally.
- Recycle or dispose of waste properly and promptly.
- Sweep and pick up trash and debris as needed.



• Do not dump any liquids or other materials outside, especially near or in storm drains or ditches.

Body Repair and Painting

- Conduct all body repair and painting work indoors.
- Minimize waste from paints and thinners. Calculate paint needs based on surface area.
- Use dry cleanup methods (vacuum, sweep) to clean up metal filings and dust and paint chips from grinding, shaving, and sanding. Sweep debris from wet sanding after allowing it to dry overnight on the shop floor. Dispose of waste properly; never dump waste into storm or sanitary sewers.
- Use sanding tools equipped with vacuum capability to pick up debris and dust.

Fueling

- Fueling areas owned or operated by the municipality should be covered.
- Fueling areas should be evaluated to ensure that pollutants (e.g., gasoline or oil) do not enter the MS4. Follow the procedures in SOP 7: Fuel and Oil Handling.

Material Management

- Store materials and waste in labeled containers under cover and in secondary containment.
- Chemicals should not be combined in containers.
- Hazardous waste must be labeled and stored according to hazardous waste regulations. Follow the procedures in SOP 17: Hazardous Materials Storage and Handling.
- Carefully transfer collected fluids from containers into designated storage areas as soon as possible.
- Store new and used batteries securely to avoid breakage. Store indoors or in secondary containment to contain potential acid leaks. Recycle used batteries.
- Conduct periodic inspections of storage areas to detect possible leaks.
- Do not wash or hose down storage areas unless there is prior approval to collect and discharge the water into the sanitary sewer. Use dry cleanup methods whenever possible.
- Keep lids on containers. Store them indoors or under cover to reduce exposure to rain.
- Inspect and maintain all pretreatment equipment, including interceptors, according to the manufacturer's maintenance schedule and at least once per year.
- Proper spill protocol should be followed to prevent chemicals from entering the stormwater system. Follow the procedures in SOP 4: Spill Response and Cleanup.

Parts Cleaning

- Use designated areas for engine, parts, or radiator cleaning. Do not wash or rinse parts outdoors. If parts cleaning equipment is not available then capture parts cleaning fluids.
- Recycle cleaning solution. Never discharge waste to the sanitary sewer or storm sewer.
- Use steam cleaning or pressure washing of parts instead of solvent cleaning. Cleaning equipment must be connected to an oil/water interceptor prior entering the sanitary sewer.
- When using solvents for cleaning, drain parts over the solvent tank to avoid drips to the floor. Catch excess solutions and divert them back to tank. Allow parts to dry over the hot tank.



Vehicle and Equipment Washing

Vehicle washing can result in the discharge of nutrients, sediment, petroleum products, and other contaminants to a surface water body or to a stormwater system. The MS4 Permit does not authorize the discharge of municipal vehicle washing byproducts into the MS4.

Outdoor Vehicle Washing Procedures

Outdoor washing of municipal vehicles should be avoided unless wash water is contained in a tight tank or similar structure. Where no alternative wash system is available, and full containment of wash water cannot be achieved, adhere to the following procedures:

- Avoid discharge of any wash water directly to the storm drainage system or surface water (e.g., stream, pond, or drainage swale)
- Minimize the use of water to the extent practicable.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Do not use solvents except in dedicated solvent parts washer systems or in areas not connected to a sanitary sewer.
- Do not power wash, steam clean, or perform engine or undercarriage cleaning.
- Grassy and pervious (porous) surfaces may be used to promote direct infiltration of wash water, providing treatment before recharging groundwater and minimizing runoff to an adjacent stormwater system. Pervious surfaces or other infiltration-based systems should not be used within wellhead protection areas or within other protected resources.
- Impervious surfaces discharging to the storm drainage system should not discharge directly to a surface water unless treatment is provided. The treatment device should be positioned such that all drainage must flow through the device, preventing bypassing or short-circuiting.
- Periodic sweeping and/or cleaning should be completed to prevent accumulation from forming on the washing area.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Heavily soiled vehicles or vehicles dirtied from salting or snow removal efforts should follow the SOPs in the "Heavy Equipment Washing Procedures" below.

Indoor Vehicle Washing Procedures

- Vehicles and equipment should be washed inside whenever possible to reduce runoff to the stormwater system.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface water bodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Designate separate areas for routine maintenance and vehicle cleaning. This helps prevent contamination of wash water by motor oils, hydraulic lubricants, greases, or other chemicals.


- Dry cleanup methods are recommended within garage facilities. Do not wash down floors and work areas with water.
- Bring smaller vehicles to commercial washing stations.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

Heavy Equipment Washing Procedures

- Mud and heavy debris removal should occur on impervious surfaces or within a retention area.
- Maintain these areas with frequent mechanical removal and proper disposal of waste.
- Impervious surfaces with engineered storm drain systems should not discharge directly to a surface water.
- Floor drains should be connected to a sanitary sewer or tight tank. Floor drains discharging to adjacent surface waterbodies or engineered storm drain systems should be permanently plugged or otherwise abandoned before any vehicle wash activities are completed.
- Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of biodegradable, phosphate-free detergent is preferred.
- Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.
- Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities. Follow the procedures in SOP 4: Spill Response and Cleanup.

Engine and Steam Washing Procedures

- Do not wash parts outdoors.
- Maintain drip pans and smaller containers to contain motor oils, hydraulic lubricants, greases, etc. and to capture and collect spills or noticeable leaks observed during washing activities, to the extent practicable. Follow the procedures in SOP 4: Spill Response and Cleanup.
- Where use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
- Avoid cleaning with solvents except in dedicated solvent parts washer systems. Make use of pressure washing and steam cleaning.
- Recycle clean solutions and rinse water to the extent practicable.
- Wash water should discharge to a tight tank or a sanitary sewer via an oil/water separator. Detergents should not be used in areas where oil/water separators provide pre-treatment of drainage.

Employee Training

- Employees who perform work on/with municipal vehicles or equipment are trained at least once per year on these procedures and the proper operation of related equipment.
- Employees are also trained on stormwater pollution prevention, illicit discharge detection and elimination (IDDE) procedures, and spill and response procedures.
- If services are contracted, the contractor should be given a copy of this and any applicable SOPs to ensure compliance with MS4 regulations.



Attachments

1. Inventory of Municipal Vehicles and Equipment

Related Standard Operating Procedures

- 1. SOP 4: Spill Response and Cleanup
- 2. SOP 7: Fuel and Oil Handling
- 3. SOP 17: Hazardous Material Storage and Handling



Inventory of Municipal Vehicles and Equipment Southwick, Massachusetts

| Department/Division | Year | Make & Model/Desc. | Model | Storage Location | Last Updated |
|---------------------|------|--------------------|-----------------------------------|---------------------|-----------------|
| ANIMAL CONTROL | 2003 | Ford | Explorer | 11 Depot Street | 11/2019 |
| | | | | | |
| BUILDING | 2009 | Ford | Crown Victoria | 454 College Highway | 11/2019 |
| | | | | | |
| CEMETERY | | Husqvarna | YT 48DXLS Lawn Tractor | 332 College Highway | 8/2020 |
| CEMETERY | | Kubota | BX2230 Tractor/Loader | 332 College Highway | 8/2020 |
| CEMETERY | | Simplicity | Broadmoor Lawn Tractor | 332 College Highway | 8/2020 |
| CEMETERY | | Allis-Chalmers | AC130 Lawn Tractor | 332 College Highway | 8/2020 |
| CEMETERY | | Echo | SRM-225 String Trimmer | 332 College Highway | 8/2020 |
| CEMETERY | | Echo | SRM-225 String Trimmer | 332 College Highway | 8/2020 |
| CEMETERY | | Echo | SRM-225 String Trimmer | 332 College Highway | 8/2020 |
| CEMETERY | | John Deere | M03006X Brush Cutter | 332 College Highway | 8/2020 |
| CEMETERY | | Bobcat | 22" Mower | 332 College Highway | 8/2020 |
| CEMETERY | | (n/a) | Walk-Behind 6HP String Trimmer | 332 College Highway | 8/2020 |
| CEMETERY | | Scag | 36" Walk-Behind Mower | 332 College Highway | 8/2020 |
| CEMETERY | | Scag | 36" Walk-behind Mower | 332 College Highway | 8/2020 |
| CEMETERY | | Giant Vac | 8 HP Leaf Blower | 332 College Highway | 8/2020 |

| CEMETERY | | Husavarna | ST2224P Snow Blower | 332 College Highway | 8/2020 |
|----------|---------|------------------------------|------------------------|---------------------|---------|
| CEWETER | | | FB2850D | 332 College Highway | 8/2020 |
| CEMETERY | | RedMax | Backpack Blower | 002 0011080 m8mmuy | 0,2020 |
| | | | | | |
| COA | 2006 | Ford Van | | 454 College Highway | 11/2019 |
| | | | | | |
| DPW | 2019 | Ford (1 Ton Dump #3) | F550 | 661 College Highway | 11/2019 |
| DPW | 2018 | John Deere Backhoe | 410L | 661 College Highway | 11/2019 |
| DPW | 2010 | Falcon RME (Hotbox) | | 661 College Highway | 11/2019 |
| DPW | 1997 | Husqvarna Chain Saw | | 661 College Highway | 11/2019 |
| DPW | [1980s] | Bandit Chipper (Diesel) | 1590 | 661 College Highway | 11/2019 |
| DPW | | Gas Cut-off Saw | | 661 College Highway | 11/2019 |
| DPW | | Husqvarna Brush Saw | | 661 College Highway | 11/2019 |
| DPW | | Leaf Blower | | 661 College Highway | 11/2019 |
| DPW | | Leaf Blower | | 661 College Highway | 11/2019 |
| DPW | | Husqvarna Chain Saw | | 661 College Highway | 11/2019 |
| DPW | | Husqvarna Chain Saw | | 661 College Highway | 11/2019 |
| DPW | 2019 | Bobcat | S595 | 661 College Highway | 11/2019 |
| | | | | | |
| DPW-HWY | 2019 | Asphalt Recycler | | 661 College Highway | 11/2019 |
| DPW-HWY | 2019 | Freightliner (#69) | 108-SD | 661 College Highway | 11/2019 |
| DPW-HWY | 2019 | Buyers Stainless Spreader | 1400500SS | 661 College Highway | 11/2019 |
| DPW-HWY | 2019 | Wacker-Neuson Roller | RD12A-90 | 661 College Highway | 11/2019 |
| DPW-HWY | 2019 | Stihl Hedge Trimmer | HS82T | 661 College Highway | 11/2019 |
| DPW-HWY | 2019 | Wacker-Neuson Diaphragm Pump | PDT3A | 661 College Highway | 11/2019 |
| DPW-HWY | 2018 | Freightliner (#7) | 108-SD | 661 College Highway | 11/2019 |
| DPW-HWY | 2017 | Wacker Rammer | BS50-4AS | 661 College Highway | 11/2019 |
| DPW-HWY | 2017 | Echo Crack Cleaner/Edger | PAS-280 | 661 College Highway | 11/2019 |
| DPW-HWY | 2016 | Ford (#1) | F550 | 661 College Highway | 11/2019 |

| DPW-HWY | 2016 | Towmaster Trailer | T-12DT | 661 College Highway | 11/2019 |
|---------|------|-------------------------------|------------------|---------------------|---------|
| DPW-HWY | 2016 | Stihl Chain Saw | 661C | 661 College Highway | 11/2019 |
| DPW-HWY | 2014 | Stihl Cut-off Saw | TS800 | 661 College Highway | 11/2019 |
| DPW-HWY | 2014 | Stihl String Trimmer | FS56RCE | 661 College Highway | 11/2019 |
| DPW-HWY | 2014 | International (#10) | 7400 | 661 College Highway | 11/2019 |
| DPW-HWY | 2013 | Wacker Loader | WL-30 | 661 College Highway | 11/2019 |
| DPW-HWY | 2012 | Wacker-Neuson Loader | WL-30 | 661 College Highway | 11/2019 |
| DPW-HWY | 2012 | Ford (#2) | F450 | 661 College Highway | 11/2019 |
| DPW-HWY | 2006 | Bandit Chipper | (Trailer) | 661 College Highway | 11/2019 |
| DPW-HWY | 2006 | International | 7500SER Aquatech | 661 College Highway | 11/2019 |
| DPW-HWY | 2006 | International (#666) | 7400SFA 4x2 | 661 College Highway | 11/2019 |
| DPW-HWY | 2006 | John Deere Boom Tractor | | 661 College Highway | 11/2019 |
| DPW-HWY | 1999 | Freightliner (#24 Dump) | FL-80 | 661 College Highway | 11/2019 |
| DPW-HWY | 1999 | John Deere Loader | 544H | 661 College Highway | 11/2019 |
| DPW-HWY | 1995 | Kubota | | 661 College Highway | 11/2019 |
| DPW-HWY | 1993 | Centerville Trailer | | 661 College Highway | 11/2019 |
| DPW-HWY | 1990 | Dynapak Roller | | 661 College Highway | 11/2019 |
| DPW-HWY | 1984 | John Deere Loader | 544C | 661 College Highway | 11/2019 |
| DPW-HWY | 1971 | John Deere Grader | | 661 College Highway | 11/2019 |
| DPW-HWY | 1970 | SULLI SCREW TRL | (Trailer) | 661 College Highway | 11/2019 |
| DPW-HWY | 1970 | (Pipe Trailer) | | 661 College Highway | 11/2019 |
| DPW-HWY | | Echo Telescoping Power Pruner | | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna Cut-off Saw | 371K | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna String Trimmer | 225RJ | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna String Trimmer | 225RJ | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna Leaf Blower | PB2100 | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna String Trimmer | 322C | 661 College Highway | 11/2019 |
| DPW-HWY | | Stihl Concrete Saw | TS500i | 661 College Highway | 11/2019 |
| DPW-HWY | | Husqvarna Chain Saw | 350 | 661 College Highway | 11/2019 |

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| DPW-HWY | | Husqvarna Chain Saw | 288 | 661 College Highway | 11/2019 |
|--------------|------|--------------------------------------|-------------|---------------------|---------|
| DPW-HWY | | Stihl String Trimmer | FS56RCE | 661 College Highway | 11/2019 |
| | | | | | |
| DPW-SEWER | 2014 | Simplicity Snowblower | P2138E | 661 College Highway | 11/2019 |
| DPW-SEWER | 2010 | Ford Pickup (Sewer-1) | F-150 | 661 College Highway | 11/2019 |
| | | | | | |
| DPW-SUPRV | 2011 | Ford Pickup (D-2) | F150 | 661 College Highway | 11/2019 |
| | | | | | |
| DPW-TRANSFER | 2016 | Freightliner (Roll-Off) | 114SD | 661 College Highway | 11/2019 |
| DPW-TRANSFER | | John Deere Backhoe | 310D | 661 College Highway | 11/2019 |
| DPW-TRANSFER | 2014 | Stihl Chain Saw | MS150 | 661 College Highway | 11/2019 |
| DPW-TRANSFER | 2014 | Stihl Backpack Blower | BR600 | 661 College Highway | 11/2019 |
| DPW-TRANSFER | 2014 | Stihl String Trimmer | FS40CE | 661 College Highway | 11/2019 |
| DPW-TRANSFER | 2014 | Stihl String Trimmer | FS40CE | 661 College Highway | 11/2019 |
| DPW-TRANSFER | 2014 | Stihl Hedge Trimmer | HS81R | 661 College Highway | 11/2019 |
| | | | | | |
| DPW-WTR | 2017 | Ford (DPW-WTR-1) | F350 | 661 College Highway | 11/2019 |
| DPW-WTR | 2017 | Wacker Mudsucker Pump | PDT3A | 661 College Highway | 11/2019 |
| DPW-WTR/SWR | 2016 | Exmark Lazer "5" 52" Zero Turn Mower | | 661 College Highway | 11/2019 |
| DPW-WTR | 2014 | Ford (DPW-WTR-3) | F350 | 661 College Highway | 11/2019 |
| DPW-WTR | 2014 | Stihl String Trimmer | FS56RC | 661 College Highway | 11/2019 |
| DPW-WTR | 2014 | Stihl String Trimmer | FS56RC | 661 College Highway | 11/2019 |
| DPW-WTR | 2012 | Huskee/MTD Lawn Mower | 11A-8290731 | 661 College Highway | 11/2019 |
| DPW-WTR | 2011 | Cross Country Manufacturing | (Trailer) | 661 College Highway | 11/2019 |
| DPW-WTR | 2005 | John Deere Backhoe | 410G | 661 College Highway | 11/2019 |
| DPW-WTR | 2006 | Ford (DPW-WTR-2) | F350 | 661 College Highway | 11/2019 |
| DPW-WTR | | Stihl Cut-off Saw | TS420 | 661 College Highway | 11/2019 |
| DPW-WTR | | Stihl Brush Cutter | FS55RC | 661 College Highway | 11/2019 |
| DPW-WTR | | Husqvarna Road Saw | K960 | 661 College Highway | 11/2019 |

| DPW-WTR | | Trailer-Mounted Air Compressor | | 661 College Highway | 11/2019 |
|---------|------|---|----------------|----------------------|---------|
| DPW-WTR | | Sullivan Air Compressor (Diesel) | | 661 College Highway | 11/2019 |
| DPW-WTR | | Honda Generator | EU2000i | 661 College Highway | 11/2019 |
| DPW-WTR | | Soil Compactor | | 661 College Highway | 11/2019 |
| DPW-WTR | | Sump Pump | | 661 College Highway | 11/2019 |
| | | | | | |
| FIRE | 2012 | Car Mate Trailer | (Trailer) | 15 Depot Street | 11/2019 |
| FIRE | 2010 | Ford (S-10) | Explorer | 15 Depot Street | 11/2019 |
| FIRE | 2010 | Ford Ambulance (A-1) | E450 | 15 Depot Street | 11/2019 |
| FIRE | 2009 | Pierce Tanker | | 15 Depot Street | 11/2019 |
| FIRE | 2007 | American Liberty Pumper | | 15 Depot Street | 11/2019 |
| FIRE | 2006 | GMC Ambulance | | 15 Depot Street | 11/2019 |
| FIRE | 2006 | Chevrolet | Silverado | 15 Depot Street | 11/2019 |
| FIRE | 2004 | Ford Brush Truck | F550 | 15 Depot Street | 11/2019 |
| FIRE | 2003 | Boat Trailer | (Trailer) | 15 Depot Street | 11/2019 |
| FIRE | 2002 | Safe Boat | (Boat) | 15 Depot Street | 11/2019 |
| FIRE | 2000 | Grand Raid | MK2 (Boat) | 15 Depot Street | 11/2019 |
| FIRE | 1999 | Wayne Utility Trailer | (Trailer) | 15 Depot Street | 11/2019 |
| FIRE | 1998 | Freightliner Rescue (R-1) | | 15 Depot Street | 11/2019 |
| FIRE | 1994 | Pierce Pumper (E-1) | | 15 Depot Street | 11/2019 |
| FIRE | 1990 | Pierce Ladder (L-1) | | 15 Depot Street | 11/2019 |
| | | | | | |
| FLEET-2 | 2009 | Ford | Crown Victoria | | 11/2019 |
| FLEET-1 | 2006 | Ford | Five Hundred | | 11/2019 |
| | | | | | |
| LMC | 2011 | Crest 25' Tri-toon Boat (50 HP Mercury Outboard) | (Boat) | 148 Berkshire Avenue | 12/2019 |
| LMC | 1997 | Sea-Lion Boat Trailer | (Trailer) | 11 Depot Street | 12/2019 |
| LMC | | Gravely Lawn Tractor | | 93 Point Grove Road | 12/2019 |

| LMC | | Backpack Blower | | 93 Point Grove Road | 12/2019 |
|------------|------|---------------------------------------|----------------|---------------------|---------|
| LMC | | String Trimmer | | 93 Point Grove Road | 12/2019 |
| | | | | | |
| MAINT. | 2013 | Ford | F150 | | 11/2019 |
| | | | | | |
| PARK & REC | 2010 | Carry Utility Trailer | (Trailer) | | 8/2020 |
| PARK & REC | | Cub Cadet CC 46 ES | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Echo GT-225 String Trimmer | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Echo SRM-266 String Trimmer | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Homelite 26cc String Trimmer | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Husqvarna 350BT Backpack Blower | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | John Deere Gator 625i XUV | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Lesco Ride-On Spreader | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Little Wonder Optimax 9hp Leaf Blower | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Scag 52" Zero-Turn Mower | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Scag 52" Zero-Turn Mower | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Scag 52" Zero-Turn Mower | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Stihl FS94R String Trimmer | GAS | 42 Powder Mill Road | 8/2020 |
| PARK & REC | | Toro Groundsmaster 455-D | DIESEL | 42 Powder Mill Road | 8/2020 |
| | | | | | |
| POLICE | 2015 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |
| POLICE | 2014 | Ford | Explorer | 11 Depot Street | 11/2019 |
| POLICE | 2014 | Ford | Explorer | 11 Depot Street | 11/2019 |
| POLICE | 2014 | Ford | Explorer | 11 Depot Street | 11/2019 |
| POLICE | 2011 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |
| POLICE | 2011 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |
| POLICE | 2011 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |
| POLICE | 2010 | Ford | Expedition | 11 Depot Street | 11/2019 |
| POLICE | 2008 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |

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| POLICE | 2008 | ATS-5 Trailer | (Traffic Solutios Trailer) | 11 Depot Street | 11/2019 |
|--------|------|----------------------|-------------------------------|----------------------|---------|
| POLICE | 2006 | Ford | Explorer | 11 Depot Street | 11/2019 |
| POLICE | 2004 | Utility Trailer | (Trailer) | 11 Depot Street | 11/2019 |
| POLICE | 2003 | Polaris ATV | (ATV) | 11 Depot Street | 11/2019 |
| POLICE | 2003 | Polaris ATV | (ATV) | 11 Depot Street | 11/2019 |
| POLICE | 2001 | Ford | Crown Victoria | 11 Depot Street | 11/2019 |
| POLICE | 1995 | TRAILER | (Trailer) | 11 Depot Street | 11/2019 |
| POLICE | 1985 | Boston Whaler | (Boat) | 11 Depot Street | 11/2019 |
| POLICE | 1985 | Shoreland | (Boat Trailer) | 11 Depot Street | 11/2019 |
| POLICE | 1981 | Chevrolet (Truck #8) | CK3100 | 11 Depot Street | 11/2019 |
| | | | | | |
| SEMA | 2005 | TRI Utility Trailer | (Trailer) | 661 College Highway | 11/2019 |
| SEMA | 1997 | Mobile Command Unit | ? | 661 College Highway | 11/2019 |
| SEMA | 1984 | American General | M-35? | 661 College Highway | 11/2019 |
| SEMA | | 6500W Generator | | 661 College Highway | 11/2019 |
| | | | | | |
| | | Bus/Van No. | Fuel | | |
| STGRSD | 2019 | 1 MID | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2012 | 2 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2012 | 3 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2012 | 4 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2020 | 5 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2014 | 6 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2015 | 7 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2010 | 8 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2008 | 9 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2020 | 10 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2009 | 11 | DIESEL | 80B Powder Mill Road | 12/2019 |

| STGRSD | 2009 | 12 | DIESEL | 80B Powder Mill Road | 12/2019 |
|--------|------|--------|--------|----------------------|---------|
| STGRSD | 2009 | 14 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2017 | 15 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2019 | 16 MID | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2009 | 17 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2009 | 18 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2005 | 19 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2015 | 20 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 21 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2018 | 23 MID | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2013 | 24 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2011 | 25 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2011 | 26 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2019 | 27 MID | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2012 | 28 | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2011 | 29 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2011 | 30 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 31 MID | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 32 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2010 | 33 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2011 | 34 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 35 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2014 | 36 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2008 | 37 Van | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2014 | 38 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2018 | 39 | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2017 | 40 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2013 | 41 | DIESEL | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2014 | 42 | DIESEL | 80B Powder Mill Road | 12/2019 |

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| STGRSD | 2016 | 43 | DIESEL | 80B Powder Mill Road | 12/2019 |
|--------|------|---------|--------|----------------------|---------|
| STGRSD | 2016 | 44 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 45 MB | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 46 TR V | GAS | 80B Powder Mill Road | 12/2019 |
| STGRSD | 2016 | 47 TR V | GAS | 80B Powder Mill Road | 12/2019 |

Appendix L

As-Built Plan & Long-Term Operations & Maintenance Requirements (Town of Southwick Bylaws §183 and §315-12, -24, & -30; Southwick Stormwater Regulations)

Chapter 183. Stormwater Management and Erosion and Sediment Control

[HISTORY: Adopted by the Annual Town Meeting 5-18-2021 by Art. 29. Amendments noted where applicable.]

§ 183-1. Purpose.

- A. The purpose of this bylaw is to better manage land development and redevelopment in order to protect, maintain, and enhance the public health, safety, and general welfare of the citizens of Southwick by establishing minimum requirements and procedures to control the adverse impacts associated with stormwater runoff, and to promote adherence to permit filing requirements for the U.S. Environmental Protection Agency (EPA) mandated National Pollutant Discharge Elimination System (NPDES) Phase II Program.
- B. The proper management of stormwater runoff will meet the following objectives:
 - Reduce the adverse water quality impacts of stormwater discharges to rivers, lakes, reservoirs, streams, and other bodies of water or wetlands in order to meet or exceed federal water quality standards;
 - (2) Prevent the discharge of pollutants, including hazardous chemicals, into stormwater runoff;
 - (3) Minimize the volume and rate of stormwater which is discharged to rivers, streams, reservoirs, lakes, and storm sewers that flows from any site during and following development or redevelopment;
 - (4) Prevent erosion and sedimentation from land development or redevelopment, and reduce stream channel erosion caused by increased runoff;
 - (5) Provide for the non-polluted recharge of groundwater aquifers and maintain the base flow of streams;
 - (6) Provide stormwater facilities that are attractive, maintain the natural integrity of the environment, and are designed to protect public safety;
 - (7) Maintain or reduce pre-development runoff characteristics after development to the extent feasible;
 - (8) Minimize damage to public and private property from flooding; and
 - (9) Ensure that these management controls are properly maintained.

§ 183-2. Authority.

The Planning Board shall administer and implement this bylaw. Enforcement will be by the Director of the Department of Public Works. Any powers granted to or duties imposed upon the Planning Board may be delegated in writing by the Planning Board to its employees or agents, or to the Director of the Department of Public Works or the Conservation Commission after review by the Select Board.

§ 183-3. Definitions.

Unless otherwise expressly stated, the following definitions describe the meaning of the terms used in this bylaw:

ADVERSE IMPACT

Any deleterious effect on waters or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity, or stability or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation.

AGRICULTURAL ACTIVITY

Same definition as definition in Chapter 140 of the Southwick Code Right to Farm bylaw.

AUTHORIZED ADMINISTRATIVE AGENCY

The Planning Board, its employees or its agents designated to administer this bylaw.

AUTHORIZED ENFORCEMENT AUTHORITY

The Director of the Department of Public Works.

BEST MANAGEMENT PRACTICES (BMP)

The best technologies currently available at that point in time. These include, but are not limited to, structural or biological devices that temporarily store or treat stormwater runoff to reduce flooding, remove pollutants, and provide other amenities. They can also be non- structural practices that reduce pollutants at their source. Some examples of BMPs are described in the stormwater design manual: Massachusetts Stormwater Management Handbook, Volume 2, Chapter 2: Stormwater Best Management Practices (February 2008, Mass. Department of Environmental Protection, as updated or amended).

CONSTRUCTION ACTIVITY

The disturbance of the ground by removal of vegetative surface cover or topsoil, grading, excavation, clearing or filling.

DETENTION

The temporary storage of storm runoff which is used to control the Peak Discharge rates, and which provides gravity settling of pollutants.

DISTURBANCE

Any land clearing, grading, bulldozing, digging or similar activities.

DRAINAGE AREA

An area contributing runoff to a consolidated flow of water as measured in a horizontal plane.

EASEMENT

A grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

HYDROLOGY MODEL

Methodology used to determine quantity and circulation of surface and subsurface water at and near a particular site and determined by the Southwick Conservation Commission to be the best available current technology.

IMPERVIOUS SURFACES

Any areas, such as pavement or rooftops, which prevent the infiltration of water into the soil.

INFILTRATION

The downward movement of water from the surface to the subsoil.

INFILTRATION TRENCH

A stormwater management excavation filled with stone rip rap which removes both soluble and particulate pollutants. Infiltration Trenches are not intended to trap coarse sediments.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

As authorized by the Clean Water Act, is a permit program that controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

NEW DEVELOPMENT

Any construction activities or land alteration resulting in total earth disturbances equal to or greater than one acre (or activities that are part of a larger common plan of development disturbing greater than one acre) on an area that has not previously been developed to include impervious cover.

NRCS

The United States Department of Agriculture Natural Resources Conservation Service (formerly the Soil Conservation Service).

OUTFALL

The terminus of a storm drain or other stormwater structure where the contents are released.

PEAK DISCHARGE

The maximum instantaneous rate of flow during a storm, usually in reference to a specific design storm event.

PERMEABLE SOILS

Soil materials with a sufficiently rapid infiltration rate so as to greatly reduce or eliminate surface and stormwater runoff. These soils are generally classified as NRCS hydrologic soil types A and B.

PERSON

Any individual, group of individuals, association, partnership, corporation, company, business, organization, trust, estate, administrative agency, public or quasi-public corporation or body, the Commonwealth or political subdivision thereof.

POST CONSTRUCTION IMPERVIOUS SURFACE AREA

The final impervious cover on the portion of the property where construction activities have occurred.

REDEVELOPMENT

Any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances equal to or greater than one acre (or activities that are part of a larger common plan of development disturbing greater than one acre) that does not meet the definition of new development (see above).

RETENTION

The holding of runoff in a basin without release except by means of evaporation, infiltration, or emergency bypass.

SITE

The area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover (excluding redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways as described under the "Redevelopment" definition above).

START OF CONSTRUCTION

The first land-disturbing activity associated with a new development or redevelopment, including land preparation such as: clearing, grading and filling; installation of streets and walkways; excavation for basements, footings, piers or foundations; erection of temporary forms; and installation of accessory buildings such as garages.

SWALE

A depression or wide shallow ditch used to temporarily store, route, or filter runoff.

§ 183-4. Applicability.

- A. Prior to the issuance of any Special Permit or site plan approval or development permit for any proposed new development or redevelopment listed below, a Southwick Stormwater Management Permit or a waiver of the requirement for a stormwater management permit from the Town of Southwick must be approved by the Planning Board. Any waiver approval shall be with the concurrence of the Enforcement Agent which will be deemed approved if the enforcement agent fails to respond in writing after receipt of written notice of waiver from the Planning Board within 20 days. No person shall, on or after the effective date of the bylaw, initiate any land clearing, land grading, earth moving or development activities without first complying with this bylaw. The following uses and activities shall be required to submit drainage reports, plans, construction drawings, specifications and as-constructed information in conformance with the requirements of this bylaw:
 - (1) Multifamily or single family residential new development or redevelopment that will disturb greater than or equal to one acre;
 - (2) Any new commercial, industrial, and institutional structures under the same ownership, which disturb greater than or equal to one acre.
 - (3) Redevelopment or additions to existing commercial, industrial, and institutional uses which disturb greater than or equal to one acre.
 - (4) Subdivisions or construction activities of any kind disturbing greater than or equal to one acre; and
 - (5) Development or redevelopment involving multiple separate activities in discontinuous locations or on different schedules if the activities are part of a larger common plan of development that all together disturbs one or more acres.
 - (6) Widening or other improvements to an existing roadway that increase the amount of impervious area on the redevelopment site by greater than or equal to a single lane width.
- B. The Planning Board, with the prior concurrence of the DPW Director and Conservation Commission, which concurrence will be deemed given if such agencies fail to respond in writing after receipt of written notice of waiver from the Planning Board within 20 days, may issue a waiver of any or all of the requirements of this bylaw for a project that will, in its judgement, generate minimal stormwater, erosion or sedimentation, and will have minimal impact on the municipal stormwater system. The waiver may be rescinded by the Planning Board or its designates upon the recommendation of the DPW Director or Conservation Commission if during construction it is found that construction activities create adverse impacts from stormwater runoff. Except for agricultural uses, the issuance of any waiver may only be granted for sites disturbing less than one acre and do not affect the municipal stormwater system or flow into territorial waters of the United States.

§ 183-5. Exemptions.

- A. To prevent the adverse impacts of stormwater runoff, the Southwick Planning Board has developed a set of performance standards (described in a separate document titled Southwick Stormwater Regulation Handbook) that must be met at new development and redevelopment sites. These standards apply to construction activities as described under Subsection D(1).^[1] The following activities shall be exempt from these stormwater performance standards and need not file an application for Stormwater Management Permit:
 - (1) Any agricultural activity which is consistent with an approved soil conservation plan prepared or approved by the Natural Resources Conservation Service (NRCS);
 - (2) Any logging which is consistent with a timber management plan approved under the Forest Cutting Practices Act by Massachusetts Department of Conservation and Recreation;
 - (3) Minor additions or modifications to existing structures, which disturb less than one acre of land;
 - (4) New developments and redevelopments that do not disturb more than one acre of land, provided that they are not part of a larger common development plan;
 - (5) Repairs to any stormwater treatment system deemed necessary by the Southwick Conservation Commission and/or the Department of Public Works.
 - (6) Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing drainage systems, and repaving projects; and
 - (7) Any emergency activity that is immediately necessary for the protection of life, property or the environment, as determined by the Southwick Health Director, Department of Public Works, Conservation Commission, or Building Department.
 - [1] Editor's Note: See § **183-4A**.
- B. The language herein is exclusive of what the Federal government will require. The Planning Board or its designee may review the exempt status under this bylaw and require a Southwick Stormwater Management Permit if any of the exempt activities are not in compliance with applicable exemption requirements (i.e. agriculture BMP's, Forest Management Plan) or are found to have a significant impact on the municipal stormwater system, a neighboring property or a receiving water.

§ 183-6. Southwick Stormwater Regulation.

- A. The Southwick Stormwater Regulation is hereby incorporated by reference as part of this bylaw, and shall furnish additional policy, criteria and information including specifications and standards, for the proper implementation of the requirements of this bylaw.
- B. This manual includes a list of acceptable stormwater treatment practices, including the specific design criteria for each stormwater practice. The manual may be updated and expanded from time to time, based on improvements in engineering, science, monitoring and local maintenance experience. Stormwater treatment practices that are designed and constructed in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards. The Planning Board has the sole authority to amend the Southwick Stormwater Regulation under their responsibilities established in Chapter 40A and Chapter 41 of the General Laws of the Commonwealth.
- C. The latest issue of the Southwick Stormwater Management Regulation as published on the date of the application for a permit under this bylaw shall be applied.
- § 183-7. Permit procedures and requirements.

- A. Approval of stormwater management permit required.
 - (1) No landowner or land operator shall receive any of the building, grading, or other land development permits required, or commence land disturbance activities as defined in Subsection **D** and **E**,^[1] without approval of a Stormwater Management Permit and meeting the requirements of this bylaw, and evidence of an approved stormwater permit from the U.S. EPA.
 - [1] Editor's Note: See §§ **183-4** and **183-5**.
- B. Application requirements.
 - (1) Application for approval of a Stormwater Management Permit shall include the following:
 - (a) A stormwater management plan shall be submitted to the Southwick Planning Board for review and approval for any proposed new development or redevelopment specified in Subsection D(1).^[2] Three paper copies and one electronic copy of the application and stormwater management plan shall be submitted, and clearly labeled. The plan shall contain supporting computations, drawings, and sufficient information describing the manner, location, and type of measures in which stormwater runoff will be managed during the entire development process. The plan shall serve as the basis for all subsequent construction.
 - [2] Editor's Note: See § 183-4A.
 - (b) An erosion and sediment control plan as defined in Subsection G of this bylaw,^[3] which shall contain sufficient information to describe the nature and purpose of the proposed new development or redevelopment.
 - [3] Editor's Note: See § **183-8**.
 - (c) An Operation and Maintenance Plan for post-construction management of stormwater control facilities that meets Standard 9 of DEP's Stormwater Policy.
 - (d) A non-refundable permit review fee of \$250.
 - (e) An additional fee of \$100 per construction site shall be paid upon application for a building permit for on-site stormwater management inspections during and after construction.
 - (2) Any waiver request from the requirements contained herein shall be submitted to, and may be granted, by the Southwick Planning Board with the prior written notice and concurrence of the DPW Director and Conservation Commission. Such concurrence will be deemed given if such agencies fail to respond in writing after 20 days after receiving notice of waiver request from the Planning Board.
- C. Procedures for review and approval of stormwater permits.
 - (1) The procedures for review and approval of stormwater management plans shall be consistent with the Special Permit approval process, as appropriate to the use as further described herein, except that approval shall be by vote of a majority of the Planning Board members present at a meeting at which a quorum is present.
 - (2) The plan shall be circulated to the Conservation Commission and Department of Public Works to determine compliance with the requirements of this bylaw prior to approval. Said bodies shall submit written comments and recommendations to the Planning Board.
 - (3) The Planning Board will attempt to make the Stormwater Permit approval process concurrent with any other public hearing or process. The Stormwater Permit approval process shall be concurrent with the Planning Board public hearing process. The Planning Board shall hold a public hearing within 65 days of the filing of a complete application and take final action within 90 days from the close of the hearing unless such time is extended by agreement between the applicant and the Planning Board. Notice of the public hearing shall be given by

publication in a local paper of general circulation, by posting and by first-class mailings to abutters at least 14 days prior to the hearing.

- D. Criteria for review of stormwater permits.
 - (1) In addition to other criteria used by the Southwick Planning Board in making permit decisions, for the uses specified in this bylaw, the Department of Public Works must provide a written report that the Stormwater Management Plan submitted with the permit application meets the following criteria:
 - (a) The Stormwater Management Plan and the Erosion and Sediment Control Plan are consistent with the Purposes and Objectives of this Bylaw in Subsection A.^[4]
 [4] Editor's Note: See § 183-1.
 - (b) The Stormwater Management Plan meets the Performance Standards described the Southwick Stormwater Regulation Handbook.
 - (c) The Erosion and Sediment Control plan must meet the Design Requirements in the Southwick Stormwater Regulation Handbook.
 - (d) All necessary State and Federal permits, including an EPA Stormwater Permit, have been obtained.
- E. Planning Board Action.
 - (1) The Planning Board shall render a written decision consisting of either:
 - (a) Approval of the Stormwater Management Permit Application based upon a determination that the proposed plan meets the purposes in Subsection A^[5] and the standards in the Southwick Stormwater Regulation Handbook will adequately protect the water resources of the community and is in compliance with the requirements set forth in this bylaw;
 [5] Editor's Note: See § 183-1.
 - (b) Approval of the Stormwater Management Permit Application subject to any conditions, modifications or restrictions required by the Planning Board which will ensure that the project meets the purposes in Subsection A^[6] and the standards in the Southwick Stormwater Regulation Handbook and adequately protects water resources, set forth in this bylaw; or
 - [6] Editor's Note: See § 183-1.
 - (c) Disapproval of the Stormwater Management Permit Application based upon a determination that the proposed plan, as submitted, does not meet the purposes in Subsection A^[7] and the standards in the Southwick Stormwater Regulation Handbook or adequately protect water resources, as set forth in this bylaw.
 [7] Editor's Note: See § 183-1.
 - (2) Failure of the Planning Board to take final action upon an Application within the time specified above shall not relieve the applicant's responsibility to meet NPDES reporting requirements.
- F. Inspections.
 - (1) No plan will be approved without adequate provision for inspection of the property before development activity commences. The applicant shall arrange with the Director of the Department of Public Works or other agents designated by the Planning Board through its permitted land use decision on the specific site for scheduling the following inspections:
 - (a) Initial Inspection: prior to the commencement of work,
 - (b) Erosion Control Inspections: after site clearing, rough grading and final grading to ensure erosion control practices are in accord with the plan,

- (c) Bury Inspection: prior to backfilling of any underground drainage or stormwater conveyance structures, and
- (d) Final Inspection: when all work, including construction of stormwater management facilities and landscaping, have been completed.
- (2) The Southwick Planning Board or its agents shall inspect the work and either approve it explicitly in writing or notify the applicant in writing in what respects there has been a failure to comply with the requirements of the approved plan within 14 days of the inspection date. The applicant shall promptly correct any portion of the work which does not comply or the applicant will be subject to the bonding provisions of Subsection K^[8] or the penalty provisions of Subsection L.^[9] The Town may conduct random inspections to ensure effective control of erosion and sedimentation during all phases of construction.
 - [8] Editor's Note: See § 183-11.
 - [9] *Editor's Note:* See § **183-12**.
- (3) The project applicant or designated representative is required to perform self-inspection of the construction site every two weeks and after a rain event of 1/2 inch or more to ensure that construction phase erosion control procedures are effective and in accordance the Southwick Stormwater Permit issued in accordance with this bylaw. Inspection reports must be kept on-site with a copy of the Stormwater Permit for review by Town enforcement authorities at any time.
- G. Right-of-entry for inspection.
 - (1) When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public drainage control system or sanitary sewer, the filing of an application shall be deemed as the property owner's permission to the Southwick Planning Board, Department of Public Works, Building Department, Conservation Commission or their agents for the right to enter the property at reasonable times and in a reasonable manner for the purpose of the inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this bylaw is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this bylaw.
- H. Permit review fees.
 - (1) The fee for review of any Stormwater Permit application shall be \$250 and submitted to the Town Clerk. All of the monetary contributions shall be credited to an appropriate stormwater revolving account and shall be made prior to scheduling the public hearing. An additional fee of \$100 per construction site shall be paid upon application for a building permit to be used for on-site stormwater management, inspections during and after construction. The revolving account funds will be used to offset direct labor costs associated with permit review and site inspections. Any residual funds may be used for stormwater management infrastructure engineering or improvements.
 - (2) Engineering and consultant review fees.
 - (a) When reviewing an application for, or when conducting inspections in relation to, subdivision approval, the Board may determine that the assistance of outside consultants is warranted due to the size, scale or complexity of a proposed project, because of a project's potential impacts, or because the Town lacks the necessary expertise or staff hours to perform the work related to the approval. The Board may require that applicants pay a project review fee consisting of the reasonable costs incurred by the Board for the employment of outside consultants engaged by the Board to assist in the review of a proposed project.
 - (b) In hiring outside consultants, the Board may engage engineers, planners, lawyers, urban designers or other appropriate professionals who can assist the Board in analyzing a project to ensure compliance with all relevant laws, ordinances/bylaws and regulations.

Such assistance may include, but not be limited to, analyzing an application, monitoring or inspecting a project or site for compliance with the Board's decision or regulations or inspecting a project during construction or implementation.

- (c) Funds received by the Board pursuant to this section shall be deposited with the municipal treasurer who shall establish a special account for this purpose. Expenditures from this special account may be made at the direction of the Board without further appropriation. Expenditures from this special account shall be made only for services rendered in connection with a specific project or projects for which a project review fee has been or will be collected from the applicant. Accrued interest may also be spent for this purpose. Failure of an applicant to pay a review fee shall be grounds for denial of the application.
- (d) At the completion of the Board's review of a project, any excess amount in the account, including interest, attributable to a specific project shall be repaid to the applicant or the applicant's successor in interest. A final report of said account shall be made available to the applicant or applicant's successor in interest. For the purpose of this regulation, any person or entity claiming to be an applicant's successor in interest shall provide the Board with documentation establishing such succession in interest.
- (e) Any applicant may take an administrative appeal from the selection of the outside consultant to the Select Board. Such appeal must be made in writing and may be taken only within 20 days after the Planning Board has mailed or hand-delivered notice to the applicant of the selection. The grounds for such an appeal shall be limited to claims that the consultant selected has a conflict of interest or does not possess the minimum, required qualifications. The minimum qualifications shall consist either of an educational degree in, or related to, the field at issue or three or more years of practice in the field at issue or a related field. The required time limit for action upon an application by the Board shall be extended by the duration of the administrative appeal. In the event that no decision is made by the Select Board within one month following the filing of the appeal, the selection made by the Board shall stand.

§ 183-8. Stormwater management and erosion control plan.

- A. The application for a Stormwater Management Permit shall consist of submittal of a stormwater management and erosion control plan, prepared by a professional engineer licensed by the Commonwealth of Massachusetts, which meets the design requirements provided by this bylaw.
- B. The plan shall include sufficient information to evaluate the environmental characteristics of the affected areas, the potential impacts of the proposed new development or redevelopment on water resources, and the effectiveness and acceptability of measures proposed for managing stormwater runoff.
- C. The plan must be designed to meet the Massachusetts Stormwater Management Standards as set forth in the Southwick Stormwater Regulation Handbook and the Massachusetts Stormwater Management Handbook as amended from time to time. The applicant shall certify on the drawings that all clearing, grading, drainage, construction, and development shall be conducted in strict accordance with the plan.
- D. The minimum information submitted for support of a stormwater management plan shall be as follows:
 - (1) A locus map;
 - (2) The existing zoning and land use at the site;
 - (3) The proposed land use;
 - (4) The location(s) of existing and proposed easements;

- (5) The location of existing and proposed utilities;
- (6) The site's existing & proposed topography with contours at minimum two-foot intervals (must be sufficient to delineate watershed areas);
- (7) The existing and proposed site hydrology and watershed areas;
- (8) A description and delineation of existing stormwater conveyances, impoundments, and wetlands on or adjacent to the site or into which stormwater flows;
- (9) Delineation of 100-year floodplains, if applicable;
- (10) Estimated seasonal high groundwater elevation (November to April) in areas to be used for stormwater retention, detention, or infiltration;
- (11) The existing and proposed vegetation and ground surfaces with runoff coefficient for each;
- (12) A drainage area map showing pre and post construction watershed boundaries, drainage area and stormwater flow paths;
- (13) Locations of stockpiled construction materials including stockpiled soils and any proposed incremental movement of these stockpiles;
- (14) Locations of construction trailers;
- (15) Construction road details and locations;
- (16) Location of other wastes such as discarded building materials, concrete wash out, chemicals, fuel, porta potties, and litter that will be generated and how will they be protected from stormwater; and
- (17) A description and drawings of all components of the proposed drainage system including:
 - (a) Pre-construction phase:
 - [1] Locations, cross sections, and profiles of all brooks, streams, drainage swales and their method of stabilization; and
 - [2] Timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization.
 - (b) Construction phase:
 - [1] All measures for the detention, retention or infiltration of water;
 - [2] All measures for the protection of water quality, including proposed locations of silt fencing and hay bales;
 - [3] Notes on drawings specifying materials to be used, construction specifications, and typicals;
 - [4] A description of construction activities and waste materials expected to be stored onsite, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response consistent with those allowed in zoning district; and
 - [5] A maintenance schedule for the period of construction.
 - (c) Post-construction phase:
 - [1] The structural details for all components of the proposed drainage systems and stormwater management facilities;

- [2] Notes on drawings specifying materials to be used, construction specifications, and typicals;
- [3] Expected hydrology with supporting calculations; and
- [4] Proposed improvements including location of buildings or other structures, impervious surfaces, and drainage facilities, if applicable.
- (18) Summary of soil conditions, including soil hydrologic group rating. Soil tests shall be conducted by a Registered Professional Engineer or Massachusetts Soil Evaluator, performed at the location of all proposed LID techniques and BMPs, to identify soil descriptions, depth to estimated seasonal high groundwater, depth to bedrock, and soil texture.
- (19) Flow path for time of concentration (Tc) calculation.
- (20) Calculations:
 - (a) Hydrologic calculation to determine pre and post peak rates and volumes of stormwater runoff for two-, ten-, and 100-year twenty-four-hour storm events;
 - (b) Groundwater recharge calculations and BMP drawdown (time to empty);
 - (c) Water quality calculations including (if applicable):
 - [1] TSS, phosphorus, and nitrogen removal calculations for each watershed;
 - [2] Specific BMPs utilized in critical areas;
 - [3] Specific BMPs utilized for land uses of higher potential pollutant loads (LUHPPL); and
 - [4] Specific treatment for pollutant causing impairment of down-gradient waterbody identified by U.S. Environmental Protection Agency and Massachusetts Department of Environmental Protection.
 - (d) Hydraulic calculations to size drainage pipes, swales and culverts; and
 - (e) Supplemental calculations for sizing LID and BMPs and addressing impairments to water bodies.
- (21) MassDEP Checklist for Stormwater Report completed, stamped and signed by a registered Professional Engineer (PE) licensed in the Commonwealth of Massachusetts to certify that the Stormwater Management Plan is in accordance with the criteria established in the Massachusetts Stormwater Management Standards, Southwick Stormwater Management bylaw, and other applicable rules and regulations.

§ 183-9. Design requirements for erosion and sediment control plan.

- A. The design requirements of the Erosion and Sediment Control Plan are:
 - (1) Minimize total area of disturbance;
 - (2) Sequence activities to minimize simultaneous areas of disturbance;
 - (3) Minimize peak rate of runoff in accordance with the Southwick Stormwater Regulation Handbook;
 - (4) Minimize soil erosion and control sedimentation during construction. Prevention of erosion is preferred over sedimentation control;

- (5) Divert uncontaminated water around disturbed areas;
- (6) Maximize groundwater recharge;
- (7) Install, and maintain all Erosion and Sediment Control measures in accordance with the manufacturer's specifications and good engineering practices;
- (8) Prevent off-site transport of sediment;
- (9) Protect and manage on and off-site material and equipment storage areas (overburden and stockpiles of dirt, borrow areas, or other areas used solely by the permitted project are considered a part of the project);
- (10) Comply with all applicable Federal, State and local laws and regulations, including but not limited to, waste disposal, sanitary sewer or septic system regulations, and air quality requirements, including dust control;
- (11) Prevent adverse impact from the proposed activities to habitats mapped by the Massachusetts Natural Heritage & Endangered Species Program as Endangered, Threatened or of Special Concern, Estimated Habitats of Rare Wildlife and Certified Vernal Pools, and Priority Habitats of Rare Species;
- (12) Institute interim and permanent stabilization measures. The measures shall be instituted on a disturbed area as soon as practicable but no more than seven days after construction activity has temporarily or permanently ceased on that portion of the site;
- (13) Properly manage on-site construction and waste materials; and
- (14) Prevent off-site vehicle tracking of sediments.

§ 183-10. Post construction requirements.

- A. As-built plans.
 - (1) Final As-built plans shall be submitted to the Planning Board no later than two years after completion of construction. Three paper copies and one electronic copy shall be submitted and clearly labeled.
 - (2) The As-built plans shall depict all site controls, both structural and non-structural, designed and constructed to manage the stormwater associated with the completed site (post construction stormwater management).
- B. Operation, maintenance and inspection agreement.
 - (1) Prior to issuance of any building permit for which stormwater management is required, the Planning Board shall require the applicant or owner to execute an operation, maintenance and inspection agreement binding on all subsequent owners of land served by the private stormwater management facility. The agreement shall be designed to ensure that water quality standards are met in all seasons and throughout the life of the system. Such agreement shall provide for access to the facility at reasonable times for regular inspections by the Planning Board, Public Works Department, Conservation Commission, Building Department, the Health Agent, or their designated representative and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any provision established. The agreement shall include:
 - (a) The name(s) of the owner(s) for all components of the system.
 - (b) Maintenance agreements that specify:

- [1] The names and addresses of the person(s) responsible for operation and maintenance;
- [2] The person(s) responsible for financing maintenance and emergency repairs;
- [3] A maintenance and inspection schedule for all drainage structures, including swales and ponds;
- [4] Agreement that the person(s) responsible for operation and maintenance will follow this schedule and maintain an operation and maintenance log to include inspections, repairs, replacement and disposal (type of material and disposal location), and that they will submit this log to the Town annually in perpetuity;
- [5] Information on how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operation and maintenance;
- [6] A plan and list of easements with the purpose and location of each;
- [7] The signature(s) of the owner(s); and
- [8] Title reference for the land or lands in question and reference to recorded plans or plans to be recorded in the Hampden County Registry of Deeds.
- (c) Stormwater management easements as necessary for:
 - [1] Access for facility inspections and maintenance;
 - [2] Preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event; and
 - [3] Direct maintenance access by heavy equipment to structures requiring regular cleanout.
- (d) Stormwater management easement requirements.
 - [1] The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
 - [2] Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Town.
 - [3] Easements shall be recorded with the Registry of Deeds prior to issuance of a Certificate of Completion.
- (e) Changes to operation and maintenance plans.
 - [1] The owner(s) of the stormwater management system must notify the Planning Board of changes in ownership or assignment of financial responsibility.
 - [2] The maintenance schedule in the Maintenance Agreement may be amended to achieve the purposes of this bylaw by mutual agreement of the Planning Board and the Responsible Parties. Amendments must be in writing and signed by all Responsible Parties. Responsible Parties must include owner(s), persons with financial responsibility, and persons with operational responsibility.
- (2) Prior to the release of the security and/or granting a certificate of occupancy, this agreement shall be recorded by the applicant and/or owner in the land records of the Registry of Deeds and the Planning Board is provided with evidence of the recording in the Registry of Deeds.
- (3) The agreement shall also provide that, if after written notice to owner by the Director of the Department of Public Works or designated representative to correct a violation requiring maintenance work, satisfactory corrections are not made by the owner(s) within 30 days, the

Town may perform or contract all necessary work to place the facility in proper working condition. The owner(s) of the facility shall be assessed the cost of the work and any penalties and such costs and penalties shall constitute a municipal lien on the property.

- C. Maintenance responsibility.
 - (1) The owner of the property on which work has been done pursuant to this bylaw for private stormwater management facilities, or any other person or agent in control of such property, shall maintain in good condition and promptly repair and restore all grade surfaces, walls, drains, dams and structures, vegetation, erosion and sediment control measures and other protective devices. Such repairs or restoration and maintenance shall be in accordance with approved plans.
 - (2) A maintenance schedule shall be developed for any stormwater management facility and shall state the maintenance to be completed, the time period for completion, and who shall be legally responsible to perform the maintenance. This maintenance schedule shall be printed on the stormwater management plan.
 - (3) Records of installation and maintenance shall be maintained by the property owner. Maintenance logs shall be submitted to the Director of the Public Works Department on an annual basis. This annual submission shall include a written statement whether the work completed over the prior 12 months was in accordance with the Operation and Maintenance Plan. These records shall be stored by the property owner for a minimum of five years.
 - (4) Failure to maintain any stormwater management facility shall be subject to the enforcement and penalties identified in Subsection K^[1] herein.
 - [1] Editor's Note: See § 183-12.

§ 183-11. Security for performance.

- A. The Town or its agents shall require from the developer a Security for Performance, or other means of security acceptable to the Town prior to the issuance of any building permit for the construction of all subject uses listed in Subsection D^[1] requiring a stormwater management facility. The amount of the security shall not be less than the total estimated construction cost of the stormwater management facility computed by the developer and reviewed by the Department of Public Works. The security so required in this section shall include provisions relative to forfeiture for failure to complete work specified in the approved stormwater management plan, compliance with all of the provisions of this bylaw and other applicable laws and regulations, and any time limitations.
 - [1] Editor's Note: See § **183-4**.
- B. The Security shall not be fully released without:
 - (1) Final inspection and approval of the completed work by the Director of the Department of Public Works and the Conservation Commission;
 - (2) Submission of "As-built" plans;
 - (3) Certification of completion by the Planning Board of the stormwater management facilities being in compliance with the approved plan and the provisions of this bylaw; and
 - (4) Proof that the operations and maintenance inspection agreement has been recorded in land records at the Registry of Deeds.

§ 183-12. Enforcement and penalties.

A. Violations.

- (1) Any new development or redevelopment activity that has commenced or is conducted contrary to this bylaw may be restrained by injunction or otherwise abated in a manner provided by law.
- B. Notice of violation.
 - (1) When the Authorized Enforcement Authority determines that an activity is not being carried out in accordance with the requirements of this bylaw, it shall issue a written notice of violation to the owner of the property. Failure to maintain proper maintenance and installation records, as detailed in Subsection J,^[1] shall constitute a violation of this bylaw.
 - [1] Editor's Note: See § **183-10**.
 - (2) The notice of violation shall contain:
 - (a) The name and address of the owner applicant;
 - (b) The address when available or the description of the building, structure, or land upon which the violation is occurring;
 - (c) A statement specifying the nature of the violation;
 - (d) A description of the remedial measures necessary to bring the new development or redevelopment activity into compliance with this bylaw and a time schedule for the completion of such remedial action;
 - (e) A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed; and
 - (f) A statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within 15 days of service of notice of violation.
- C. Stop work orders.
 - (1) Persons receiving a notice of violations may be required to halt all construction activities or correct under the supervision of a designated representative of the Authorized Enforcement Authority. This "stop work order" will be in effect until the Planning Board or agents designated by the Planning Board confirms that the new development or redevelopment activity is in compliance and the violation has been satisfactorily addressed. Failure to address a notice of violation in a timely manner can result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this bylaw.
- D. Non-criminal disposition.
 - (1) As an alternative to criminal prosecution, the Select Board may elect to utilize the noncriminal disposition procedure set forth in Southwick's Town Bylaws § 1-6 or Massachusetts General Laws Ch. 40 Sec. 21D. The Planning Board shall be the enforcing entity. The Planning Board will give the owner or violator written notice of a violation of this Bylaw and a time frame for bringing a project or property into compliance with this Bylaw. However, if such owner or operator fails to bring the project or property into compliance by the date specified with the written notice, then the penalty for the 1st violation shall be \$100 per day; the penalty for the 2nd violation shall be \$200 per day; and the penalty for the 3rd and subsequent violations shall be \$300 per day. Each day or part thereof that such violation occurs or continues shall constitute a separate offense. If action is not taken by the property owner within 30 days, this shall become a civil or criminal penalty.
- E. Criminal and civil penalties.
 - (1) Any person who violates any provision of this bylaw, valid regulation, or the terms or conditions in any permit or order prescribed or issued thereunder, shall be subject to a fine not to exceed \$300 for each day such violation occurs or continues or subject to a civil

penalty which may be assessed in an action brought on behalf of the Town in any court of competent jurisdiction.

- F. Restoration of lands.
 - (1) Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the Authorized Enforcement Authority may take necessary corrective action, the cost of which shall become a lien upon the property until paid.
- G. Holds on occupancy permits, licenses or other municipal permits.
 - (1) Occupancy Permits, Licenses or other Municipal Permits will not be granted until corrections to all stormwater practices have been made and accepted by the Planning Board and the maintenance and inspection agreement has been recorded at the Registry of Deeds.
- § 183-13. Severability.
- A. The invalidity of any section or provision of this Bylaw shall not invalidate any other section or provision thereof.

Town of Southwick, MA Tuesday, September 8, 2020

Chapter 315. Subdivision of Land

Article III. Submission and Action

§ 315-12. Definitive plan.

- A. Submission. Any person who submits a definitive plan of a subdivision to the Board for approval shall file with the Board the following:
 - (1) An original drawing of the definitive plan in black ink on Mylar and eight contact prints and eight half-scale reductions thereof, dark line on white background. Prints will be referred by the Board to the Board of Health, DPW Director and other Town officials for their review. The original drawing after approval will be returned to the applicant for recording in the Hampden County Registry of Deeds and if disapproved will be returned to the applicant. [Amended 5-2-2000; 4-26-2016]
 - (2) Accompanying statements on zoning, easements, etc., data on percolation tests and plans, specifications and profiles, etc., for water supply, sewerage and drainage as required in Subsection C below.
 - (3) A properly executed application form and designer's certificate in accordance with forms on file with the Board.
 - (a) Fees. A properly executed Definitive Subdivision Application shall be accompanied by the appropriate fee for each lot or portion thereof of the land to be subdivided. [Amended 5-2-2000]
 - (b) Notice. The applicant shall file by delivery or registered mail a notice with the Town Clerk stating the date of submission for such approval.
- B. Contents. The definitive plan shall be prepared by a registered professional engineer and/or land surveyor and shall be clearly and legibly drawn in black ink upon Mylar and shall be twenty-four by thirty-six (24 x 36) inches in overall dimensions. There shall be a one-inch margin for filing purposes left on one twenty-four-inch edge of each sheet. The plan shall be at a scale of one inch equals 40 feet or such other scale as the Board may prescribe to show details clearly and adequately. Profiles of proposed streets shall be drawn to the same horizontal scale as the plan proposed and with vertical scale 10 times larger unless otherwise authorized, and either on the same sheet as the plan or on separate coated Mylar of the same dimensions as the plan sheets. If multiple sheets are used, they shall be accompanied by an index sheet showing the entire subdivision. The definitive plan shall contain the following information: [Amended 5-5-2000; 4-30-2002; 6-23-2009; 4-26-2016]
 - (1) The subdivision name, boundaries, North point, date and scale.
 - (2) The name and address of record owner, applicant and engineer or surveyor.
 - (3) The boundary lines of continuous and adjacent land and names of owners thereof as determined from the most recent local tax list.

- (4) Existing and proposed lines of streets, ways, easements and any public or common areas within the subdivision. (The proposed names of proposed streets will be preliminary until they have been approved by the Select Board.)^[1]
 - [1] Editor's Note: Article 11 of the 5-17-2016 ATM changed the name of the Board of Selectmen to the Select Board.
- (5) The location, direction, name and present width and grade of each street and public or private way bounding, approaching or within reasonable proximity of the subdivision.
- (6) Sufficient data to determine readily the location, direction and length of every street and way line, lot line and boundary line, and to establish these lines on the ground.
- (7) The locations and outlines of all existing buildings and site features, such as stone walls, fences, large trees and wooded areas, rock ridges and outcroppings, swamps and water bodies, within or adjacent to the proposed subdivision.
- (8) Existing topography at a contour interval of two feet on a plan whose scale is one inch equals 100 feet. This may be included on one-hundred-scale sheets (24 by 36 inches) on which the road layout, watershed areas and drainage are shown. Either way must show the entire subdivision site and all surrounding areas that might contribute to the watersheds. (The Board may allow surrounding areas to be shown on U.S.C.G.S. contour maps when such areas are too large to incorporate into the normal survey area.) Also to be shown on the topography maps is the datum base NAVD88 and a minimum of one bench mark per five acres.
- (9) The area of each lot in square feet, lot lines with bearings, and lengths thereof, zoning classification of each lot and identifying number, along with a tabular summary which indicates the required and proposed area, front, side and rear yard depths for each lot required by the Zoning (Chapter 185), and percentage and area of proposed open space to be included in the subdivision.
- (10) The locations of existing and proposed monuments, hydrants, sewage pipes, public utility facilities, water pipes and wells within the subdivision.
- (11) Park suitably located for recreation purposes and open areas to be left in their natural state. (See § **315-18**, Open space.)
- (12) Proposed storm drainage of land, including existing natural waterways and the proposed disposition of water from the proposed subdivisions to adequate natural drainage channels.
- (13) Easements shall be in accordance with § 315-17.
- (14) A tree plan shall be prepared which shows the location and species of proposed street shade trees and the location of trees to be retained with trunks over six inches in diameter measured four and one half feet above the ground, located outside of the street right-of-way line of existing or proposed streets, not closer than five feet or more than 10 feet from said right-ofway.
- (15) Street plans and profiles must show the percent slope of each grade, and the radius length point of curvature and point of tangency of each curve; existing center-line profiles, grades, present elevations of the center line and both street-line profiles; proposed center-line grade and elevation at fifty-foot stations; all vertical curve data including length, P.V.I. low point and high point and elevation; storm and sanitary sewer data, such as type and size of pipes, flow line (invert) elevation at structures, top of frame (rim) elevation and location by stationing; and, the grades and profiles of all sidewalks when different than the roadway. Grades shall be in conformance with § 315-16.
- (16) The location(s) of streetlights where deemed necessary for public safety. All capital costs of streetlights and poles acceptable to the DPW are to be paid for by the developer. Cost of

electricity is to be paid for by the developer or homeowners' association until street acceptance.

(17) A form in the lower left-hand corner shall be prepared as follows:

APPROVED BY THE PLANNING BOARD OF THE TOWN OF SOUTHWICK, MASS., LOT NUMBERS THIS DAY OF

- (18) The general location of proposed buildings and driveways for each lot.
- (19) The zoning classification of land shown on the plan, together with any zoning boundary lines within or near the subdivision, including delineated Zone II.
- (20) A written, signed and dated document indicating waivers to these Subdivision Regulations that may be requested, including the purpose or reason for each waiver request.
- (21) Water table data sufficient to provide an accurate determination of the seasonal high ground water to include a minimum of three monitoring wells on the site and their location shown on the plans.
- C. Accompanying statements and data. The applicant shall submit with the definitive plan four copies each of the following statements:
 - (1) Any easements, covenants and restrictions applying to the area proposed to be subdivided.
 - (2) Proposed arrangements for sanitary sewer collection and disposal with supporting data as required by the applicable rules and regulations of the Board of Sewer Commissioners and DPW Director. Water supply with supporting data, as required by the applicable rules and regulations of the Board of Water Commissioners, Board of Sewer Commissioners and DPW Director.

[Amended 4-26-2016]

- (3) Proposed arrangements for storm and surface drainage, with supporting data and design analysis, including plans and profiles showing location and size of drain lines and culverts, design of catch basins and manholes and such other information as may be required by the DPW Director to define the drainage provisions including drainage calculations. [Amended 4-26-2016]
 - (a) Soil surveys. The Board shall require soil surveys to establish the suitability of the land for the proposed storm and sanitary drainage installations.
 - (b) Additional professional services. The Board may require the applicant to obtain at his expense such additional professional engineering advice as it seems necessary or desirable in order for it to determine to approve, to modify and approve or to disapprove the definitive plan.
- (4) Permits when necessary by the Conservation Commission.

[Amended 5-2-2000^[2]]

- [2] Editor's Note: This amendment also repealed former Subsection C(3), which required submission of sewage disposal data and former Subsection C(6), which required submission of results of percolation and water table tests. In addition, this amendment redesignated former Subsection C(4) and (5) as Subsection C(3) and (4), respectively.
- D. Review.

- (1) Board of Health. At the time the definitive plan is submitted, the Board shall file a contact print thereof with the Board of Health. Within 45 days of the filing of the plan, the Board of Health shall report approval or disapproval of the plan to the Board in writing. If the Board of Health disapproves the plan, it shall specify which of the areas shown cannot be used for building sites without injury to the public health and include the reasons therefor in its report, and shall conform to Title V of the State Sanitary Code and any local applicable Board of Health septic regulations. Any lot so located that it cannot be served by a connection to a sewer system shall be provided with a septic tank and leaching field, trench or pit with sufficient area providing for a secondary system, satisfactory to the Board of Health. [Amended 5-2-2000; 4-26-2016]
- (2) Other Town boards and departments. Before approving the definitive plan, the Board will refer it to the following Boards for their review, and shall obtain written statements from each as to the adequacy of the proposed improvements: [Amended 5-2-2000]
 - (a) The Select Board,^[3] by and through the Director of the Department of Public Works as to the design of the street system, the drainage system and the sewer system, if any, the location of easements and the provisions for the safety of the future inhabitants and the public.
 - [3] Editor's Note: Article 11 of the 5-17-2016 ATM changed the name of the Board of Selectmen to the Select Board.
 - (b) The Director of the Department of Public Works and the Board of Water Commissioners, as to the design of the water distribution system.
 - (c) Public safety officials, as to the design of the streets and intersections, including grading, lighting and ability of public safety equipment to satisfactorily access the development.
- (3) Engineering review. The Board may at the expense of the applicant obtain a reasonable review of the engineering and survey information shown on the plan. [Amended 4-26-2016]
- (4) Staking. To facilitate the review of the definitive plan, at the time of filing, the applicant shall stake the center line of all proposed streets at a minimum of every 100 feet with the center line stations and the cut or fill dimensions to finish grade shown on the plans and marked on the stakes. An application shall be considered incomplete without staking. [Added 5-2-2000]
- E. Public hearing. Before approval, modification and approval or disapproval of the definitive plan is given; a public hearing shall be given by the Planning Board. Notice of such hearing shall be given by the Board at least 14 days prior thereto by advertisement in an official publication of the Town, or publication once in each of two successive weeks in a newspaper of general circulation in the Town. The first such advertisement shall be at least 14 days before the hearing. Such notice shall describe the subject matter sufficiently for identification. A copy of said notice shall be mailed to the applicant and to all owners of land abutting the subdivision as they appear in the most recent tax list.
- F. Performance guaranty. Before approval or conditional approval of a definitive plan of a subdivision, the subdivider shall agree to meet the conditions and to complete the required improvements specified in Article V for all lots in the subdivision. Such construction and installation shall be secured by one, or partly by one and partly by the other, of the following methods, which may from time to time be varied at the option of the subdivider:
 - (1) Final approval with bonds or security. The subdivider shall file either a performance bond or a deposit of money or negotiable securities in an amount determined by the Director of Public Works and Planning Board to be sufficient to cover the cost of all or any part of the improvements specified in Article V not covered by a covenant under Subsection F(2) hereof.

Such bond or security shall be approved as to form and manner of execution by the Town Counsel and as to sureties by the Town Treasurer. Release of the bond or deposit shall be contingent on the completion of such improvements within two years of the date of the bond or a revised extension to completion. The Planning Board may extend the completion date for public improvements for an additional period. As a condition for such extension, the Planning Board may require an increase in the amount of the bond. [Amended 4-26-2016]

- (2) Final approval with covenant.
 - (a) By a covenant, executed and duly recorded by the owner of record, running with the land, whereby such ways and services shall be provided to serve any lot as specified in Article V, before such lot may be built upon or conveyed other than by mortgage deed, provided that a mortgagee who acquired title to the mortgaged premises by foreclosure or otherwise and any succeeding owner of such premises or part thereof may sell any such lot, subject to that portion of the covenant which provides that no lot shall be built upon until such ways and services as specified in Article V have been provided to serve such lot; and provided further that nothing herein shall be deemed to prohibit a conveyance by a single deed, subject to such covenant, of either the entire parcel of land shown on the subdivision plan or of all lots not previously released by the Planning Board. A deed of any part of the subdivision in violation hereof shall be voidable by the grantee prior to the release of the covenant but not later than three years from the date of such deed.
 - (b) Any covenant given under the preceding subsection and condition required by the Board of Health and the DPW Director shall be either inscribed on the plan or contained in a separate document, referred to on the plan.
- G. Certificate of approval.
 - (1) The action of the Board in respect to any definitive plan shall be by vote, copies of which shall be certified and filed with the Town Clerk and sent by registered mail to the applicant. If the Board modifies and approves or disapproves such plan, it shall state in its vote the reasons for its action. Final approval, if granted, shall be endorsed on the original drawing of the definitive plan by the signatures of a majority of the Board but not until the statutory twentyday appeal period following the filing of the certificate of the action of the Board with the Town Clerk has elapsed and the Clerk has notified the Board that no appeal has been filed.
 - (2) Final approval of the definitive plan does not constitute the laying out or acceptance by the Town of streets within a subdivision.
- H. Evidence of satisfactory performance. Before the Board will release the interest of the Town in a performance bond or deposit (or in the case of approval with covenant, issue a release of covenant), the applicant shall:
 - (1) File with the Planning Board a certified as-built plan of each street in the subdivision (or in the case of approval with covenant, of the street or streets serving the lots for which a release is desired). Certification shall be by a registered land surveyor. Said plan shall show the as-built elevation and location of streets, storm and sanitary sewer, water mains and their appurtenances, and that the monuments and iron pins have been set in accordance with said plan and are accurately located as shown thereon.
 - (2) The applicant shall also provide the Planning Board with a photographically reduced copy of the signed definitive plan. Said reduction shall be at a scale of one inch equals 1,000.
 - (3) Obtain and submit to the Board written evidence that the required improvements have been completed to the satisfaction of the Boards listed below for their respective facilities.
 - (a) The Select Board^[4] by and through the DPW Director.

- [4] Editor's Note: Article 11 of the 5-17-2016 ATM changed the name of the Board of Selectmen to the Select Board.
- (b) The Board of Water Commissioners.
- (c) The Conservation Commission.
- (d) The Board of Health. [Added 5-2-2000]
- (4) Before the Board releases the interest of the Town in any performance bond or deposit or covenant, it may require additional professional engineering advice as to the satisfactory completion of roads and their appurtenances. Such advice shall be at the applicant's expense, unless the applicant is found to be correct.
- I. Release of performance guaranty.
 - (1) Upon completion of the improvements, the applicant shall send to the Town Clerk by registered mail a written statement in duplicate that the construction or installation in connection with which a bond, deposit or covenant has been given meets the requirements of Article V; this statement should contain the address of the applicant. The Clerk shall furnish a copy of the statement to the Board forthwith. If the Board determines that the construction or installation has been completed, it shall release the interest of the Town in the bond, deposit or covenant, and return the bond or the deposit to the person who furnished it, or issue a release of covenant in a form for recording. If the Board determines that the construction or installation has not been completed, it shall, within 45 days, specify to the applicant in writing wherein the construction and installation fails to comply with the requirements of Article V. In the event that said forty-five-day period expires without such specification, or without the release and return of the bond or return of the deposit or release of the deposit or release of the covenant as aforesaid, said Clerk shall issue a certificate to such effect, duly acknowledged, which may be recorded.
 - (2) Any such bond may be enforced and any such deposit may be applied by the Board for the benefit of such city or town, as provided in MGL c. 41, § 81Y, upon failure of the performance for which any such bond or deposit was given to the extent of the reasonable cost to such city or town of completing such construction and installation.
 - (3) Coverage of performance guaranty. The performance guaranty shall cover the following: [Amended 4-26-2016]
 - (a) Street grading, road base and binder coat of pavement (satisfactory after surviving one calendar year); final pavement, curbs and gutters.
 - (b) Sidewalks, street signs, shade trees, monuments and property markers.
 - (c) Sanitary sewers.
 - (d) Storm sewers, culverts and other drainage controls or facilities.
 - (e) Water systems, fire hydrants and fire alarm system.
 - (f) Gas, electric, telephone, other utilities as shown on the plan.
 - (g) Planted trees, vegetation, loom and seed.
 - (h) As built drawings.
 - (i) Any and all requirements as specified in Article V.

- (4) Upon written request, a partial release of securities, bond, cash, letter of credit or covenant, as the case shall be made upon acceptance by the DPW Director and the Board of the work completed. [Added 4-26-2016]
- (5) Maintenance of improvements. The applicant shall be required to maintain all improvements and provide for snow removal on streets and sidewalks, if required, until acceptance of said improvements at a Town Meeting and by the Select Board.^[5] [Added 4-26-2016]
 - [5] Editor's Note: Article 11 of the 5-17-2016 ATM changed the name of the Board of Selectmen to the Select Board.
- (6) Maintenance bond. [Added 4-26-2016]
 - (a) The applicant shall be required to file a maintenance bond with the Town prior to dedication in an amount determined by the DPW Director in order to assure the satisfactory condition of the required improvements, for a period of one year after the date of their acceptance at a Town Meeting and by the Select Board.^[6] In no case shall the maintenance bond be less than 10% of the cost of improvements.
 - [6] Editor's Note: Article 11 of the 5-17-2016 ATM changed the name of the Board of Selectmen to the Select Board.

Town of Southwick, MA Tuesday, September 8, 2020

Chapter 315. Subdivision of Land

Article V. Required Improvements

- § 315-30. Inspection.
- A. Inspection by Board or its representative. No water main, drainage, catch basins, sewer, manhole, road subgrade or foundation or other utilities or any other item of work designated for inspection shall be backfilled or paved over until inspected by the Board or its representative. [Amended 4-26-2016]
- B. The subdivider shall notify the designated Town representative upon completion of each item as listed in Subsection A.
 [Amended 4-26-2016]
- C. Final release. The Board may withhold final release of the subdivider's bond or delivery of a certificate of performance on the subdivider's covenant until satisfied as to:
 - (1) Pavement integrity intact after one full calendar year. [Amended 4-26-2016]
 - (2) Permanent type of grass on all seeded areas.
 - (3) Shoulders and embankments intact.
 - (4) Functional integrity of all parts of the drainage system.
 - (5) Satisfactory installation of utilities as required by the Board.
 - (6) Sidewalks in place.
 - (7) As-built plans shall be submitted to the DPW Director in a suitable electronic format and hard copy form with three Massachusetts NAD83 reference points to be used to match points in Southwick G.I.S. drawings. [Amended 5-2-2000; 4-30-2002; 4-26-2016]
 - (8) All lot boundaries surveyed and pinned.
 - (9) Road surface swept.
 - (10) Catch basins vacuumed.
 - (11) Street signs in place and paid for by the developer.
 - (12) Highway bounds installed in place.
Town of Southwick, MA

Southwick Stormwater Regulations Adopted September 7, 2021

Section 1. Purpose

The purpose of the Southwick Stormwater Regulations (Regulations) is to protect, maintain and enhance public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased runoff, decreased ground water recharge, erosion and sedimentation, and nonpoint source pollution associated with new development and redevelopment of land, pursuant to the **Town of Southwick Bylaw Chapter 183 (Stormwater Management and Erosion and Sediment Control).**

These Regulations have been developed to provide reasonable guidance for the design, permitting, construction, and operation of stormwater systems for the purpose of protecting local water resources from degradation. It is in the public interest to regulate construction and post-development stormwater runoff discharges in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion and sedimentation, stream channel erosion, and nonpoint source pollution associated with construction site and post-development stormwater runoff.

Section 2. Definitions

BEST MANAGEMENT PRACTICE (BMP): 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.

BIORETENTION: A Low Impact Development (LID) best management practice (BMP) that reduces stormwater runoff by intercepting rainfall on vegetative canopy and through evapotranspiration and infiltration.

DRYWELL: An in-ground device designed to capture and leach stormwater from an inflow pipe and used for drainage areas. Drywells do not redirect flow to other structures other than through a designed overflow device properly directed to other on-site structures.

GREEN ROOF: A Low Impact Development (LID) best management practice (BMP) that infiltrates and/or filters stormwater. A green roof is a roof of a building that is partially or completely covered with vegetation and growing medium, planted over a waterproofing membrane.

FILTRATION: The downward movement of water from the surface to the soil.

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 nonporous material; buildings, rooftops, structures, artificial turf and compacted gravel or soil.

IMPOUNDMENT: A stormwater pond created by either constructing an embankment or excavating a pit which retains a permanent pool of water.

INFILTRATION: The act of conveying surface water into the ground to permit groundwater recharge and the reduction of stormwater runoff from a project site.

LOW IMPACT DEVELOPMENT (LID): site planning and design strategies that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater in order to protect water quality and associated aquatic habitat. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. LID practices include but are not limited to bioretention facilities, grassed swales, rain gardens, vegetated rooftops, rain barrels and permeable pavements.

MASSACHUSETTS STORMWATER MANAGEMENT STANDARDS: The performance standards as further defined by the Massachusetts Stormwater Handbook, issued by the Department of Environmental Protection, and as amended, that coordinate the requirements prescribed by state regulations promulgated under the authority of the Massachusetts Wetlands Protection Act G.L. c. 131 §. 40 and Massachusetts Clean Waters Act G.L. c. 21, §. 23-56 to prevent or reduce pollutants from reaching water bodies and control the quantity of runoff from a site.

NEW DEVELOPMENT: Any construction activities or land alteration resulting in total earth disturbances equal to or 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.

NONPOINT SOURCE POLLUTION: Pollution from many diffuse sources caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and man-made pollutants finally depositing them into a water resource area.

OPERATION AND MAINTENANCE PLAN: A plan setting up the functional, financial and organizational mechanisms for the ongoing operation and maintenance of a stormwater management system to insure that it continues to function as designed.

OUTFALL: The point at which stormwater flows out from a point source discernible, confined and discrete conveyance into Waters of the Commonwealth.

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.

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, construction wastes and residues including discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes and industrial, municipal and agricultural waste discharged into water.

RAIN GARDEN: A planted depression or a hold that infiltrates stormwater runoff.

RECHARGE: The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

REDEVELOPMENT: Any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances equal to or 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.

RUNOFF: Rainfall, snowmelt, or irrigation water flowing over the ground surface.

SITE: 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.

TOTAL SUSPENDED SOLIDS or TSS: Undissolved organic or inorganic particles in water.

Section 3. Authority and Administration

- (1) The Southwick Planning Board administers and implements these Regulations under the Town of Southwick Bylaw Chapter 183 (Stormwater Management and Erosion and Sediment Control). The Director of the Public Works Department shall provide enforcement. Any powers granted to or duties imposed upon the Planning Board may be delegated in writing by the Planning Board to its employees or agents, or to the Director of the Department of Public Works or the Conservation Commission after review by the Select Board.
- (2) The Southwick Planning Board may periodically amend these regulations pursuant to Chapter 183, Section F.2 of the Stormwater Bylaw.
- (3) Nothing in these Regulations is intended to replace or be in derogation of the requirements of any other Southwick bylaw.

Section 4. Stormwater Performance Standards

(1) Minimum Control Requirements -- Projects must meet the Massachusetts Stormwater Management Standards and Town of Southwick Stormwater Regulations, as updated or amended. These Standards are:

(a) Stormwater management systems design shall be consistent with, or more stringent than, the requirements of the 2008 Massachusetts Stormwater Handbook, or latest revision.

(b) Rainfall Data

[1] In preparing calculations for peak stormwater runoff rates, applicants shall utilize either the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 PLUS *Precipitation-Frequency Atlas of the United States* (latest edition) or the *Massachusetts Stormwater Handbook and Stormwater Standards* (latest edition), whichever indicates a higher precipitation value for the selected storm event for the subject property at the time submitting for a Stormwater Management Permit.

[2] NOAA Atlas 14 PLUS precipitation data can be obtained via the NOAA14 website (<u>https://www.weather.gov/owp/hdsc</u>). Navigate to the property of interest to view the tabular results for various storm events. Multiply 0.9 by the NOAA Upper Confidence to determine the NOAA14 PLUS value.

[3] The selected design storm events include the 2 year-24 hour rain event; 10 year-24 hour rain event; and 100 year-24 hour rain event.

(c) Low impact development (LID) site planning and design strategies must be implemented to the maximum extent practicable in order to reduce discharge of stormwater from development and redevelopment sites. These strategies may include but not be limited to reduction in impervious surfaces, disconnection of impervious surfaces, bioretention system, and infiltration systems.

(d) No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.

(e) Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

(f) Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post-development site should approximate the annual recharge rate from the pre-development or existing site conditions, based on soil types.

(g) For new development, stormwater management systems must be designed to remove 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site. Systems shall also be optimized for nitrogen removal (Nitrogen removal guidance is provided in Attachment 1 to Appendix H of the 2018 General Permits for Stormwater

Discharges from Small Municipal Separate Stormwater Systems in Massachusetts, as modified) or as otherwise updated by EPA Region 1). Average annual pollutant removal requirements are achieved through one of the following methods:

[1] installing BMPs that meet the pollutant removal percentages based on calculations developed consistent with EPA Region 1'sBMP Accounting and Tracking Tool (2016) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or State-approved BMP design guidance or performance standards (e.g., Massachusetts Stormwater Handbook and design guidance manuals) may be used to calculate BMP performance; or

[2] retaining the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the new development site; or

[3] meeting a combination of retention and treatment that achieves the above standards.

(h) For redevelopment projects, stormwater management systems must be designed to remove 80% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site. Systems shall also be optimized for nitrogen removal (Nitrogen removal guidance is provided in Attachment 1 to Appendix H of the 2018 General Permits for Stormwater Discharges from Small Municipal Separate Stormwater Systems in Massachusetts, as modified) or as otherwise updated by EPA Region 1). Average annual pollutant removal requirements are achieved through one of the following methods:

[1] installing BMPs that meet the pollutant removal percentages based on calculations developed consistent with EPA Region 1'sBMP Accounting and Tracking Tool (2016) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or State-approved BMP design guidance or performance standards (e.g., Massachusetts Stormwater Handbook and design guidance manuals) may be used to calculate BMP performance; or

[2] retaining the volume of runoff equivalent to, or greater than, 0.8 inches multiplied by the total post-construction impervious surface area on the redevelopment site; or

[3] meeting a combination of retention and treatment that achieves the above standards.

(i) Stormwater discharges from areas with higher potential pollutant loads require the use of specific stormwater management BMPs. The use of infiltration practices without pretreatment is prohibited.

(j) Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters (ORWs), shellfish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies.

(k) Erosion and sediment controls must be implemented to prevent impacts during disturbance and construction activities. Erosion and sediment controls shall follow applicable guidelines in the 2008 Massachusetts Stormwater Handbook and/or 2003 Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, or latest revisions.

(I) All stormwater management systems must have an operation and maintenance plan to ensure that systems function as designed.

- (2) When the proposed discharge may have an impact upon a sensitive receptor, including streams, storm sewers, and/or combined sewers, the DPW may require an increase in these minimum requirements, based on existing stormwater system capacity.
- (3) Stormwater Management Measures.

(a) Infiltration practices shall be utilized to reduce runoff volume increases. A combination of successive practices may be used to achieve the applicable minimum control requirements. Justification shall be provided by the applicant for rejecting each practice based on site conditions.

(b) Best Management Practices shall be employed to minimize pollutants in stormwater runoff prior to discharge into a separate storm drainage system or water body.

(c) All stormwater management facilities shall be designed to provide an emergency overflow system, and incorporate measures to provide a non-erosive velocity of flow along its length and at any outfall.

(d) The designed release rate of any stormwater structure shall be modified if any increase in flooding or stream channel erosion would result at a downstream dam, highway, structure, or normal point of restricted stream flow.

(4) Additional Design Criteria. Additional policy, criteria, and information including specifications and design standards may be found in the Massachusetts Stormwater Handbook.

(a) The applicant shall give consideration in any plan to incorporating the use of natural topography and land cover such as natural swales, and depressions as they exist prior to development to the degree that they can accommodate the additional flow of water.

(b) The Planning Board shall give preference to the use of swales in place of the

traditional use of curbs and gutters based on a case by case review of stormwater management plans by the an agent of the Planning Board.

(c) The applicant shall consider public safety in the design of any stormwater facilities. The banks of detention, retention, and infiltration basins shall be sloped at a gentle grade into the water as a safeguard against personal injury, to encourage the growth of vegetation and to allow the alternate flooding and exposure of areas along the shore. Basins shall have a 4:1 slope to a depth two feet below the control elevation. Side slopes must be stabilized and planted with vegetation to prevent erosion and provide pollutant removal. The banks of detention and retention areas shall be designed with sinuous rather than straight shorelines so that the length of the shoreline is maximized, thus offering more space for the growth of vegetation.

(d) Where a stormwater management plan involves direction of some or all runoff off of the site, it shall be the responsibility of the applicant to obtain from adjacent property owners any easements or other necessary property interests concerning flowage of water. Approval of a stormwater management plan does not create or affect any such rights.

(e) All applicants for projects which involve the storage or use of hazardous chemicals shall incorporate handling and storage Best Management Practices that prevent such chemicals from contaminating runoff discharged from a site into infiltration systems, receiving water bodies or storm drains, and shall include a list and quantity of such chemicals in the application.

(f) Runoff from parking lots shall be treated by oil and water separators or other Townapproved controls to remove oil and sediment.

(g) The basic design criteria methodologies, and construction specifications, subject to the approval of the Planning Board and Director of the Department of Public Works, shall be those generally found in the most current edition of the Massachusetts Stormwater Handbook.

Appendix M

Nitrogen Source Identification Report

Nitrogen Source Identification Report

Town of Southwick



Prepared by: Pioneer Valley Planning Commission

June 2021

FINAL DRAFT

This document is a grant deliverable and is not submitted as a regulatory compliance document.

Acknowledgements

This document is one among 20 Nutrient Source Identification Reports prepared by the Neponset River Watershed Association (NepRWA) and the Pioneer Valley Planning Commission (PVPC). These reports are meant to provide MS4 permitted municipalities with documents they can finalize and submit to U.S. EPA as part of their Year 4 reporting requirements.

This work is made possible through a grant from the MassDEP Municipal Assistance Program. Project staff from NepRWA and PVPC appreciate the conversation and feedback provided by MassDEP and U.S. EPA staff in working through methodology to prepare these reports. Aside from producing nutrient source identification reports for 20 communities, this project also resulted in the following: lake-pond phosphorous control plan Year 4 submission requirements for two communities; documentation of approach and methods for use by other MS4 permittees across MA in meeting these Year 4 requirements; and setting of the stage for upgrading existing stormwater infrastructure in key high pollutant loading catchments.

NepRWA and PVPC staff are grateful also to the partner communities who joined them in this pilot project. Following is a list of cities and towns that participated:

| Agawam | Randolph |
|-------------|--------------|
| Canton | Sharon |
| Dedham | South Hadley |
| Foxborough | Southampton |
| Granby | Southwick |
| Longmeadow | Stoughton |
| Ludlow | Westfield |
| Medfield | Westwood |
| Milton | Wilbraham |
| Northampton | |
| Quincy | |

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I. Introduction

Nutrients and Water Pollution

The amount of nutrients (phosphorus and nitrogen) delivered to rivers and streams increases greatly with land development and direct discharge of storm flows from certain land uses to receiving waters. In the urban environment, nitrogen and phosphorous come from a variety of sources including organic debris such as fallen leaves, animal and pet waste, lawn and agricultural fertilizers, malfunctioning sewers and septic systems, and atmospheric deposition from car exhaust, among other sources.

Some of these sources also occur in the natural environment. However, the prevalence of paved and impervious areas in the urban and suburban environment, coupled with the availability of storm drain collection systems, allows street runoff containing excess nutrient pollution to quickly move to the nearest waterbody with little or no treatment. Such flows bypass natural processes such as soil filtration and infiltration that would capture and recycle nutrients before they reach waterways in an undeveloped landscape.

As a result, nutrient enriched stormwater runoff has become a major source of water pollution. Nutrient pollution increases undesirable plant and algae growth in waterways, which can be highly toxic to humans and wildlife and reduce oxygen levels in the water. This, in turn, impedes recreation and creates chronic challenges for aquatic life, sometimes leading to fish kills. In freshwater waterways, phosphorous is generally the primary pollutant of concern, while nitrogen becomes the primary concern once freshwater rivers flow into saltwater estuaries and bays.

Regulatory Context

Under the federal and state clean water acts, the Massachusetts Department of Environmental Protection (MassDEP) is charged with establishing water quality standards and determining whether waterways meet these designated standards. MassDEP publishes its *Massachusetts Year 2016 Integrated List of Waters*, also referred to at the 303d Impaired Waters List, identifying waters that do not meet standards. These waterways are referred to as being "impaired" or "water quality limited" based on one or more causes which may include nitrogen, phosphorous, "nutrient/eutrophication biological indicators" or in some cases turbidity or transparency. MassDEP is also charged with preparing waterbody-specific cleanup plans for nutrient pollution known as Total Maximum Daily Loads or TMDLs, though these are yet to be prepared for many impaired waterways.

The Town of Southwick ("the Town") is subject to the requirements of the US Environmental Protection Agency's (EPA's) 2016 Massachusetts Small MS4 General Permit. One of the

requirements of this permit is that Massachusetts communities located in the watershed of Long Island Sound -- which has an approved TMDL for nitrogen (Total Nitrogen) -- shall prepare a Nitrogen Source Identification Report as detailed in Appendix F of the permit. The Town drains to several tributaries and the Connecticut River, all waters of which flow to Long Island Sound. There are three waters in Town listed as impaired in Category 5 of MassDEPs 2016 303d list. Table 1 shows the listing of these waters.

The Nitrogen Source Identification Report must be submitted with the permit year 4 annual report (year ending June 30, 2022 and report due late September 2022). Appendix F of the EPA 2016 MS4 Permit describes the following requirements for the Nitrogen Source Identification Report:

- 1. Calculation of total urbanized area within the permittee's jurisdiction that is within the Connecticut River Watershed, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6;
- 2. All screening and monitoring results pursuant to part 2.3.4.7.b., targeting the receiving water segment(s);
- 3. Impervious area and DCIA for the target catchment;

- 4. Identification, delineation and prioritization of potential catchments with high nitrogen loading;
- 5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment.

| Category 5 - Requiring a TMDL | | | | | |
|-------------------------------|---------------|---------------------------|------|-------|---|
| Water Body | Segment ID | Description | Size | Units | Impairment |
| Congamond Lakes | MA32021 | [Middle Basin] Southwick. | 279 | Acres | (Eurasian Water Milfoil, Myriophyllum spicatum*) |
| | | | | | (Non-Native Fish/Shellfish/Zooplankton*) |
| | | | | | Dissolved Oxygen |
| | | | | | Harmful Algal Blooms |
| Congamond Lakes | MA32022 | [North Basin] Southwick. | 46 | Acres | (Eurasian Water Milfoil, Myriophyllum spicatum*) |
| | | | | | Dissolved Oxygen |
| Congamond Lakes | MA32023 | [South Basin] Southwick. | 144 | Acres | (Eurasian Water Milfoil, Myriophyllum spicatum*) |
| | | | | | Dissolved Oxygen |
| | | | | | Nutrient/Eutrophication Biological Indicators |

Table 1. Impaired Receiving Waters

II. Data Sources and Analytical Methods for Identifying Nitrogen Loading

Several existing datasets were used to complete this work. Table 2 below lists the utilized data sets and their origin.

| Existing Data Set | Origin | Date Published/Upda ted | Link |
|---|---|-------------------------------|---|
| 2016 Land Cover/Land Use | MassGIS | May 2019 | https://docs.digital.mass.gov/da taset/massgis-data-2016-land- coverland-use |
| Soil Survey Geographic (SSURGO) Database for Hampden and Hampshire Counties, Massachusetts | USDA | June 2020 | Downloaded through Web Soil Survey (https://websoilsurvey.sc.egov.u sda.gov/App/HomePage.htm). Hydrologic soil groups extracted using Soil Data Viewer Version 6.1 (https://www.nrcs.usda.gov/wp s/portal/nrcs/detail/soils/survey /geo/?cid=nrcs142p2_053619) |
| Southwick Town Catchments | Town of Southwick GIS Files With Assistance from PVPC | Current as of 3/18/21 | N/A |

Table 2. Data Sources

Impervious area is the portion of the Town that is paved, covered by buildings, or otherwise rendered unable to absorb water naturally due to development. Impervious area for the town was calculated using the MassGIS 2016 Land Cover/Land Use data layer which was published in 2019. This data layer maps impervious and pervious land cover by land use type based on aerial photography and other data sources. This was overlaid with the Town's data layer for outfall catchment areas (the area draining to each town-owned stormwater discharge point) to estimate total areas and total impervious area discharging to or upstream of nutrient-impaired waterways, as well as to estimate impervious area for each stormwater outfall catchment.

Directly connected impervious area (DCIA), also referred to as "effective impervious cover," is the amount of impervious area that is directly connected to the storm drain system. Most land in the Town was developed before the creation of modern requirements to capture, clean, slow, and recharge stormwater runoff using Stormwater Control Measures (SCMs). However, many new development and redevelopment projects constructed in recent years have required the installation or upgrade of SCMs, such that today some properties have no SCMs, some have SCMs that meet some modern standards, and some have SCMs that are fully compliant with modern standards.

Because site-specific information about the existence of specific SCMs is not available at the parcel level, an estimate of DCIA or effective impervious cover is used to approximate the average level of SCMs installed across the watershed. Estimating DCIA can yield a more specific pollutant loading estimate for a given area. DCIA was estimated based on land use categories following EPA guidance.

To estimate the pollutant loads for nitrogen and/or phosphorous in each catchment, estimated pollutant loading rates for different combinations of land use type, land cover type, and soil type were applied in accordance with guidance in the EPA 2016 MS4 Permit. The individual loading rates for these unique subsections were summed based on catchment, which produced an overall estimated catchment pollutant loading rate.

For a more detailed description of the analytical methods used for this project, please refer to the Methods document in the Appendix.

III. Total Urbanized/MS4 Regulated Area

The total area of the Town is approximately 20,255 acres, with a total of 3,019 acres located in the urbanized /MS4 regulated area. All of this MS4 regulated acreage is within the Connecticut River Watershed. The urbanized /MS4 regulated area involves 242 outfall catchment areas.

IV. Impervious Area and Directly Connected Impervious Area

Within MS4 Regulated Area

Table 3 below summarizes the total impervious area (IA) and estimated Directly Connected Impervious Area (DCIA) within the Town's MS4 regulated area.

Table 3. Summary of Impervious Area and DCIA within MS4 Regulated Area Catchments

| | Acres |
|---------------------------------------|-------|
| Total Impervious Area within MS4 Area | 284 |
| Total Estimated DCIA within MS4 Area | 94 |

Table 4 below shows information for the 10 catchments within the MS4 regulated area with the most impervious area. The catchments are labeled using the Town's identifier for the outfall to which they drain. The table is sorted in descending order of total impervious area. A full report on impervious area and estimates of DCIA for all storm drain outfall catchments in the Town can be seen in the on-line ArcGIS data viewer at: https://tinyurl.com/MS4-NSI-PVPC

| Catchment Identifier | Impervious | Percent | DCIA (Acres) | Percent DCIA |
|---------------------------------|------------|------------|--------------|--------------|
| | Area | Impervious | | |
| | (Acres) | | | |
| SOUTHWICK - UK - 121 | 17.15 | 22.23 | 4.11 | 5.33 |
| SOUTHWICK-2036 | 8.39 | 27.54 | 1.77 | 5.80 |
| SOUTHWICK-1939 | 7.50 | 27.84 | 2.09 | 7.75 |
| SOUTHWICK-2307 | 7.37 | 31.34 | 2.35 | 10.01 |
| SOUTHWICK-1916 | 6.43 | 22.54 | 1.74 | 6.09 |
| SOUTHWICK-2385 | 5.82 | 19.95 | 1.25 | 4.28 |
| SOUTHWICK-1920 | 5.78 | 21.61 | 1.48 | 5.54 |
| SOUTHWICK-1914 | 5.28 | 22.31 | 1.41 | 5.96 |
| SOUTHWICK - UK - 399 | 5.23 | 49.46 | 1.49 | 14.11 |
| SOUTHWICK-1866 | 5.12 | 22.47 | 1.15 | 5.05 |
| Top 10 Catchments as % of Total | 26.08% | | 20.04% | |

Table 4. Total Impervious Area and DCIA for the Ten Most Impervious Catchments

V. Identification, Delineations, and Prioritization of Potential Catchments with High Nitrogen Loading

Estimated Nitrogen Loading

Using the methods described in the Appendix to this report, estimates of nitrogen loading potential were created for each of the Town's storm drain outfall catchments.

Table 5 shows the five catchments with the highest estimated nitrogen loading in the entire MS4 area. To access full reporting, showing calculated nitrogen loading estimates for all catchments in Town, see the on-line ArcGIS data viewer at: <u>https://tinyurl.com/MS4-NSI-PVPC</u>

| Catchment Identifier | Estimated N Load (Lbs/Yr) |
|-----------------------|------------------------------|
| SOUTHWICK - UK - 121 | 344.96 |
| SOUTHWICK-2036 | 157.16 |
| SOUTHWICK-4600 | 115.47 |
| SOUTHWICK-1939 | 111.57 |
| SOUTHWICK-2307 | 108.73 |
| Top 5 as a % of Total | 16.59% |
| Town Load | |

Table 5. Estimated Nitrogen Loading for Five Highest-Load Catchments in MS4 Area

Note these are estimated loadings based on soil type, land use and estimated DCIA (e.g. typical level of SCMs in town). Actual loading may vary considerably from site to site depending on what SCMs are actually present, and regional studies such as the Charles River Phosphorous TMDL have indicated that the default DCIA assumptions used by EPA are somewhat optimistic, such that actual loading rates may be higher. However, these estimates provide a valuable guide to help identify those areas of the Town that should be the highest priorities for interventions to begin reducing pollutant loading.

Outfall Screening Monitoring Results

As of the writing of this report, outfall screening results are not available. Once they become available, they will be included in this section and the findings shall be incorporated into the determination of the highest priority catchments with respect to nitrogen loading.

Catchment Prioritization

Since no outfall screening data are currently available to improve projections, this report is prioritizing the catchments based solely on the nitrogen loading estimates, in the order shown in Table 6 below. When outfall screening data become available, the list of catchments should be re-examined and the "Top 5" list should be updated based on these real-world data.

VI. Potential Retrofit Opportunities

Method

Building on method described within the *Pioneer Valley 2014 Regional Green Infrastructure Plan* and through subsequent pilot projects in Springfield and Agawam, PVPC has developed a screening process approach to identify public properties that might be most appropriate for green infrastructure stormwater retrofit locations.

As part of this work, PVPC developed an on-line map/data screening tool to identify potential retrofit opportunities using ESRI's application builder (referred to as *on-line ArcGIS data viewer*). The use of this interface with these layers can help immensely in facilitating decision making. The on-line ArcGIS data viewer displays municipal, state, federal, and private properties by total score of suitability for green infrastructure retrofitting and allows the end user to further explore the values associated with the suitability score for each parcel. Input values can be viewed by either clicking on a parcel to display a "pop-up box" or by viewing the master data table at the bottom of the screen.

Screening considerations, with each their own associated score, include:

- hydrologic soil group
- surface waters listed in Category 4a (TMDL completed) or 5 (Impaired/Requiring a TMDL) on the 2016 Massachusetts List of Integrated Waters, Environmental Justice Areas, size of impervious areas,
- location within the MS4 regulated area
- outfall catchment area phosphorus or nitrogen loading rate below mean value
- outfall catchment area phosphorus or nitrogen loading rate above mean value

The outfall catchment area bullet points above are the latest updates to the screening tool based on the work of this project on nutrient source identification reports. These shape files were developed in ArcMap for Destktop and displayed in the on-line viewer.

For local decision making, considerations in this screening process can be further supplemented and fine-tuned based on local priorities. For some communities, localized flooding has been an important additional consideration. PVPC has also been recommending that where possible communities add tree canopy analysis in the ranking so that investments for improved stormwater pollution control through vegetated systems might also possibly serve to cool summer temperatures in neighborhoods where there are few trees.

More information on the retrofit opportunity screening tool is provided in the Appendix on Methodology to this report.

High Priority Parcels Based on Nitrogen Loading

PVPC mapped, evaluated, and prioritized all parcels within the MS4 regulated area for Nitrogen loading. Shape files were developed in ArcMap for Destktop and displayed in the on-line viewer. While Table 6 below shows highest-priority parcels owned by the municipality, prioritization of state, federal and private parcels is available in the on-line viewer.

| Address | Parloc_ID | Nitrogen BMP Score |
|--|----------------|--------------------|
| DEPOT ST | M_95091_867954 | 90/95 |
| 454 COLLEGE HIGHWAY | M_94914_867725 | 88.75/95 |
| VARIOUS | M_95086_865048 | 88.75/95 |
| 159 R FEEDING HILLS RD | M_97709_868715 | 86.25/95 |
| 42 POWDER MILL RD | M_96417_867714 | 86.25/95 |
| All Rights-Of-Way in Priority Catchments | N/A | All |

 Table 6. High-Priority Parcels to be Considered for SCM Development for Nitrogen Loading

ArcGIS On-line Data Viewer

The on-line ArcGIS data viewer provides far greater capability in reviewing individual catchments and associated nitrogen loading data to facilitate analysis. From this tool, it is possible to generate analysis that includes the following:

- Impervious and DCIA Amounts for all Catchments, Sorted by Impervious Area
- Estimated Nitrogen Loading for All Catchments
- Ranking of Municipal-Owned Parcels for Nitrogen Removal

The results of this report provide a valuable starting point for the next phase of requirements in Appendix F of the 2016 MS4 Permit which are due by the end of permit year 5 (6/30/2023), which include:

- 1. Evaluate all properties identified as presenting retrofit opportunities or areas for structural BMP installation under permit part 2.3.6.d.ii. or identified in the Nitrogen Source Identification Report. The evaluation shall include:
 - a. The next planned infrastructure, resurfacing or redevelopment activity planned for the property (if applicable) OR planned retrofit date;
 - b. The estimated cost of redevelopment or retrofit BMPs; and
 - c. The engineering and regulatory feasibility of redevelopment or retrofit BMPs.
- 2. Provide a listing of planned structural BMPs and a plan and schedule for implementation in the year 5 annual report.

To access the screening tool, see: https://tinyurl.com/MS4-NSI-PVPC

Appendix N

Street Design & Parking Lot Guidelines and LID Barriers Report



MEMORANDUM

| TO: | Mr. Jon Goddard, Stormwater Coordinator, Town of Southwick |
|-------|---|
| FROM: | Julianne Busa, PhD, Senior Resilience Scientist, Fuss & O'Neill Sarah Hayden, MSc, Environmental Scientist, Fuss & O'Neill Chelsea Zakas, AICP Candidate, Environmental Planner, Fuss & O'Neill |
| DATE: | August 31, 2022 |
| RE: | Street Design and Parking Lot Guidelines and LID Barriers Report Town of Southwick |

1.0 INTRODUCTION

This memorandum summarizes an evaluation of the existing regulations of the Town of Southwick relative to the United States Environmental Protection Agency (EPA) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (2016 MS4 Permit) requirements and the development of local regulatory mechanisms.

Within four (4) years of the effective date of the permit, the permittee shall develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. This assessment shall be used to provide information to allow the permittee to determine if changes to design standards for streets and parking lots can be made to support low impact design options. If the assessment indicates that changes can be made, the assessment shall 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. The permittee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The local planning board and local transportation board should be involved in this assessment. This assessment shall be part of the SWMP. The permittee shall report in each annual report on the status of this assessment including any planned or completed changes to local regulations and guidelines.

Within four (4) years of the effective date of the Permit, permittees must develop a report assessing the existing local regulations to determine the feasibility of making, at maximum, the following practices allowable when appropriate site conditions exist:

- 1. Green roofs;
- 2. Infiltration practices such as rain gardens, curb extensions, planter gardens, porous and pervious pavements, and other designs to manage stormwater using landscaping and structured or augmented soils; and



3. Water harvesting devices such as rain barrels and cisterns, and the use of stormwater for non-potable uses.

This report must indicate if the practices are allowed in the MS4 jurisdiction and under what circumstances they are allowed. If the practices are not allowed, the permitee shall determine what hinders the use of these practices, what changes to local regulations may be made to make them allowable, and provide a schedule for implementation of recommendations. The permitee shall implement all recommendations, in accordance with the schedules, contained in the assessment. The permitee shall report in each annual report on its findings and progress towards making the practices allowable.

Fuss & O'Neill reviewed the following relevant Town bylaws and regulations:

- Southwick Stormwater Regulations (Adopted 9/7/2021)
- Stormwater Bylaw (Adopted 5/18/2021)
- Chapter 145: Sewers (Adopted 6/7/1994)
- Chapter 157: Streets and Sidewalks (Adopted 9/30/1974)
- Chapter 185: Zoning (Adopted 12/20/1950; Amended 5/15/2018)
- Chapter 315: Subdivision of Land (Adopted 3/26/1962; Amended 4/16/2016)
- Chapter 415: Sewers (Adopted 5/12/2003; Amended 3/15/2008)
- Chapter 450: Wetland Regulations (Adopted 7/1/2002; Amended 1/1/2004)

This memorandum describes aspects of the Town's existing bylaws and regulations that address the 2016 MS4 Permit requirements and recommended changes to the Town's existing bylaws, regulations, and procedures to fully meet the 2016 MS4 Permit requirements.

The following tables are color-coded and include recommended standards and typical active barriers in a number of categories related to roadway design, parking standards, driveways, sidewalks, zoning and development, and LID best management practices. A summary of the Town's current standard relative to each topic is included in the right hand column and color-coded as appropriate to indicate whether it matches the optimal, good, or active barrier category. Boxes with no color indicate that the Town's current standard does not clearly match with either a barrier or a best practice.

| Table Key | | | |
|----------------|---|--|--|
| Optimal | This is the preferred bylaw, regulation, or | | |
| | standard to reduce impervious cover and/or | | |
| | implement low impact development (LID). | | |
| Good | This bylaw, regulation, or standard is a mid- | | |
| | range target for reducing impervious cover | | |
| | and/or implementing LID. | | |
| Active Barrier | This bylaw, regulation, or standard acts as a | | |
| | barrier to reducing impervious cover and/or | | |
| | implementing LID. | | |



Table 1. Roadway standards and regulations ranked, and where the Town of Southwick's regulations currently stand

Roadways

Reducing roadway and right-of-way dimensions and using permeable material, reduces the amount of impervious area and also provides opportunities for incorporating green infrastructure practices within the right of way to help capture and treat roadway runoff

| Optimal | Good | Active Barrier | Southwick's Current Standard | |
|--|--|--|---|--|
| | Road Width and Rig | ht-of-Ways (ROW) | | |
| Implement maximum pavement width for private streets between 18-20 ft | Implement maximum pavement width for private streets between 20-22 ft | Implement minimum pavement width for private streets of 20 ft or greater | Subdivision Regulations §315-22 Section C.1: Street and Roadwa Subgrade Preparation established a minimum payed width of 30 ft | |
| Implement maximum pavement width for minor streets between 18- 20 ft | Implement maximum pavement width for minor streets between 20- 22 ft | Implement minimum pavement width for private streets of 20 ft or greater | for collector streets and 26 ft for local streets. | |
| Implement maximum pavement width for secondary streets (residential) between 18-22 ft | Implement maximum pavement width for secondary streets (residential) between 24-26 ft | Implement minimum pavement width for secondary streets (residential) of 24 ft or greater | | |
| Implement maximum pavement width for secondary streets (nonresidential) between 24-26 ft | Implement maximum pavement width for secondary streets (nonresidential) between 26-28 ft | Implement minimum pavement width for secondary streets (nonresidential) of 26 ft or greater | Subdivision Regulations §315-23: Flexible Residential Development grants flexibility in road design for ERDs, allowing for narrower street | |
| Implement maximum pavement width for major streets between 28- 30 ft | Implement maximum pavement width for major streets between 32- 34 ft | Implement minimum pavement width for major streets of 32 ft or greater | design compared to conventional subdivisions. | |
| Maximum pavement width of 24 ft on road sections where there are no houses, buildings, intersections, or on-street parking spaces | Maximum pavement width of 26 ft on road sections where there are no houses, buildings, intersections, or on-street parking spaces | Minimum pavement width of 24 ft on road sections where there are no houses, buildings, intersections, or on-street parking spaces | | |
| Require ROWs to be laid out to incorporate sufficient space for green infrastructure and multi- modal infrastructure, either to be built at time of road construction or | Encourage minimizing width of impervious and cleared and graded areas within ROW, with maximum allowable fully cleared and graded ROW between 40-50 ft | Requirement for minimum ROW that must be fully cleared and graded | Subdivision Regulations §315-15 Section A: Design Standards, Width establishes minimum ROWs of 60 ft for collector streets and 50 ft for local streets. Greater | |



| in the future. Set maximum width for impervious and cleared and graded areas within ROW between 24-40 ft on residential streets with automatic exceptions for wider ROWs designed and built to | | | widths can be required at the discretion of the Planning Board when deemed necessary for present and future vehicular travel. |
|--|--|--|---|
| incorporate green infrastructure and multi-modal paths. | | | Subalvision Regulations §315-26: Shade Trees requires, when existing trees are deemed inadequate by the Planning Board, shade trees to be planted every ≤40 ft on both sides of the street (at least five ft apart). |
| Require the use of green infrastructure/best management practices (BMPs), such as vegetated swales and native tree or shrub plantings, in ROWs, when feasible | Encourage the use of green infrastructure/best management practices (BMPs), such as vegetated swales and native tree or shrub plantings, in ROWs, when feasible | Require turfgrass or height restricted vegetation | Subdivision Regulations §315-22 Section J: Street and Roadway, Loam and Seed requires loam to be placed on all shoulders, embankments, and other areas disturbed by construction. Grass seed mixture of at least 75% permanent types must be used. Other types of ground cover may be used at the discretion of the Planning Board. |
| | Roadway | Length | |
| Set standards for specific types of roadway layouts for residential neighborhoods, such as grid and curvilinear systems, or minimum curve radius and lengths that can help minimize street length | Encourage specific types of roadway layouts for residential neighborhoods, such as grid and curvilinear systems, that can help minimize street length | No regulations regarding residential roadway layout | There are no existing regulations regarding roadway length or standards for roadway layouts. |
| | Utility Pla | cement | |
| Require utilities to be placed below the paved section of a road's ROW | Encourage utilities to be placed under the paved section of a road's ROW or immediately | Require offsets for utility placement | Subdivision Regulations §315-28: Utilities requires utilities in new subdivisions to be buried |

adjacent to the paved section



| Cul-de-Sacs and Dead-End Streets | | | | | |
|--|--|--|--|--|--|
| Require landscape/bioretention islands in the center of cul-de-sacs, graded so it can be used for stormwater treatment | Encourage landscape/bioretention islands in the center of cul-de-sacs, with curbing or the island must be raised | Only allow conventional fully paved cul-de-sac, or provide no language regarding landscape/bioretention islands | There are no existing regulations regarding landscaping/bioretention in cul- de-sacs. | | |
| Minimum required radius for cul- de-sac – less than 35 ft | Minimum required radius for cul- de-sac – less than 48 ft | Minimum required radius for cul- de-sac – 60 ft or more | Subdivision Regulations §315-14 Section 8.a: Street Design , No Exist Streets requires no-exit streets to have a turn-around with an outside roadway diameter of at least 100 ft. | | |
| | | | Subdivision Regulations §315-15 Section B.1: Width, No Exit Streets requires no-exit streets to terminate in circles that have a right-of-way diameter of at least 100 ft. | | |
| Allow alternatives to cul-de-sacs, such as hammerheads, and specifically mention them in the ordinance with specific design guidance | Allow alternatives to cul-de-sacs, such as hammerheads | Standard cul-de-sac is only permissible turnaround option; no language regarding alternatives to cul-de-sacs | There are no existing regulations regarding allowable cul-de-sac alternatives; however, DPW and Fire are not in favor of alternative configurations. | | |
| | Curb | ing | | | |
| Require curb extensions that narrow the roadway to create space for LID or reduce impervious areas (pinch points, gateways, pedestrian bump-outs and chicanes) intermittently, where appropriate | Allow for curb extensions that narrow the roadway (pinch points, gateways, pedestrian bump-outs and chicanes) | Prohibit the use of curb extensions | There are no existing regulations regarding curb extensions. | | |



| No requirement for curbing, open drainage and roadside swales preferred | Allow for "invisible curbs" and "perforated curbs" | Require full length curbing on both sides of the road | Subdivision Regulations §315-22 Section I: Street and Roadway, Curbing requires Cape-Cod style bituminous concrete curbs. No curb cuts are permitted until a driveway permit is issued for each lot. Stormwater Regulations Section 4.4.b: Additional Design Criteria states the Planning Board will give preference to the use of swales over the traditional use of curbs and gutters based on a case-by-case review of stormwater management plans. |
|---|---|--|--|
| | Roadway | Material | |
| Require the use of permeable pavement in low-traffic areas, such as low-volume streets, shoulders, and parking lanes | Allow for the use of permeable pavement in low-traffic areas, such as low-volume streets, shoulders, and parking lanes | Prohibit the use of permeable pavement; only allow for the use of concrete, asphalt, bituminous material | Subdivision Regulations §315-22 Section H: Street and Roadway, Surface Treatment of Roads states that road surface must consist of bituminous concrete and compacted hot asphalt concrete. Material and standards must meet MassDOT standards. |
| Road Alignment | | | |
| Require horizontal roadway alignment that minimizes the disturbance of a site's natural features and preserves natural topography | Encourage horizontal roadway alignment that minimizes the disturbance of a site's natural features and preserves natural topography | Provide no guidance regarding horizontal roadway alignment that considers a site's natural features or topography | There are no existing regulations regarding road alignment. |



Table 2. Parking standards and regulations ranked, and where the Town of Southwick's regulations currently stand Description

| | Pa | rking | | | |
|---|--|---|---|--|--|
| Flexibility in parking minimums, accurate estimations of parking needs, and the use of permeable materials can help to reduce overall impervious area and allow for opportunities to incorporate green infrastructure to facilitate in treating and capturing stormwater runoff | | | | | |
| Optimal | Good | Active Barrier | Southwick's Current Standard | | |
| | Minimum/Maximum Parking Rati | os and Provisions for Shared Parki | ing | | |
| Set parking ratios to both minimums and maximums | Provide parking maximums | Only provide parking minimums | Zoning Regulations §185-30 Section B.5: Off-street Parking and Loading, Parking Requirements allows for variation in minimum parking requirements (between 80-125% of the required minimum parking) when applicants provide "compelling and acceptable" reasons for the variation. | | |
| | | | Table 5 of Zoning Regulations §185establishes parking minimums for avariety of establishments. | | |
| | | | Zoning Regulations §185-9 Section B.1: Special Permits grants the Planning Board authority to impose greater parking minimums than those outlined in the regulations, in accordance with MA Chapter 40A. | | |
| Allow shared parking by-right | Allow shared parking by special permit | Do not allow shared parking arrangements | Zoning Regulations §185-30 Section C.1.a: Off-street Parking and Loading, Shared Parking allows for up to 50% of parking spaces in a private lot serving a building to be used jointly for other uses not normally open, used, or operated during similar hours. The applicant must demonstrate that the peak | | |



| | | | parking demand and principal operating hours for each use are suitable for shared parking. |
|--|--|---|--|
| Reduce parking ratios by 10% if shared parking arrangements are in place | Combine parking ratios if shared parking arrangements are in place | Do not allow shared parking arrangements | Table 5 of Zoning Regulations §185establishes parking minimums for avariety of establishments with lowerminimums for shared parkingscenarios. |
| Where multi-modal transit is available, development within ¼ mile may reduce parking requirements by 25% | Where multi-modal transit is provided, development within ¼ mile may reduce parking requirements by 15% | Provide no specific parking standards for development within ¼ mile of multi-modal transit | There are no existing regulations regarding the allowance of parking requirement reductions in relation to multi-modal transit availability. |
| Maximum required number of parking spaces – 4 spaces per 1000 sq ft for professional office building | Minimum required number of parking spaces – 2 spaces per 1000 sq ft for professional office building | Specific minimums set based on projected maximum use times | Table 5 of Zoning Regulations §185establishes a minimum of onespace per 250 sq ft of office floorspace. This minimum is raised toone space per 300 sq ft for sharedlots. |
| Maximum required number of parking spaces – 4 spaces per 1000 sq ft for shopping centers | Minimum required number of parking spaces – 3 spaces per 1000 sq ft for shopping centers | Specific minimums set based on projected maximum use times | Table 5 of Zoning Regulations §185establishes a minimum of oneparking space per 200 sq ft ofcustomer service area for retailestablishments. This minimum israised to one space per 300 sq ftfor shared lots. |
| Maximum required number of parking spaces – 2 spaces per single family home | Minimum required number of parking spaces – 1 space per single family home | Specific minimums set based on projected maximum use times | Table 5 of Zoning Regulations §185establishes a minimum of twoparking spaces per residentialdwelling unit. |
| Allow for additional parking to be set aside as green space until needed for redevelopment project (land banking) | Allow for additional parking to be pervious cover (such as gravel) until needed for redevelopment project | Require full development of parking area based on projected maximum use upon receipt of the Certificate of Occupancy | There are no existing regulations regarding land banking for parking areas. |



| Offer incentives for developers to provide structured parking rather than surface parking lots (e.g., density or height bonus, tax credit; permits fee(s) waived) | Encourage developers to provide structured parking rather than surface parking lots | Prohibit structured parking | There are no existing regulations regarding incentives for structured parking. |
|---|---|--|---|
| Require transportation demand management plans (TDM) that reduce vehicle trips by encouraging employees and residents to use transit, walk or bike | Encourage transportation demand management plans (TDM) that reduce vehicle trips by encouraging employees and residents to use transit, walk or bike | No language regarding transportation demand management plans (TDM) that reduce vehicle trips by encouraging employees and residents to use transit, walk or bike | There are no existing regulations regarding transportation demand management plans. |
| | Parking Lot Stall ar | d Aisle Dimensions | |
| Maximum stall width for a standard parking space – 9 ft or less | Minimum stall width for a standard parking space – 9 ft or less | Minimum stall width for a standard parking space – 10 ft or greater | Zoning Regulations §185-14 Section A.2.c.5: Resident Zone R-20-A, Parking and Access establishes |
| Maximum stall length for a standard parking space – 18 ft or less | Minimum stall length for a standard parking space – 18 ft or less | Minimum stall length for a standard parking space – 19 ft or greater | minimum dimensions of 10x20 ft for parking spaces in areas zoned R- 20-A. |
| | | | Zoning Regulations §185-30 Section A.2.a: Off-street Parking and Loading, Parking Spaces requires that at least 70% of parking spaces have a minimum width of 10x20 ft. The remaining 30% may have a reduced minimum of 9x16 ft to accommodate smaller vehicles. This does not include requirements for accessible parking spaces. |
| Maximum driving aisle width for standard two-way traffic – 22 ft or less | Maximum driving aisle width for standard two-way traffic – 24 ft or less | Minimum driving aisle width for standard two-way traffic – 24 ft or more | Zoning Regulations §185-30 Section A.2.a: Off-street Parking and Loading, Parking Spaces establishes a minimum aisle width of 24 ft. |



| Dedicate a minimum of 15% of the spaces at larger commercial parking lots to have smaller dimensions for compact cars | Dedicate a minimum of 10% of the spaces at larger commercial parking lots to have smaller dimensions for compact cars | Dedicate a maximum of 10% of the spaces at larger commercial parking lots to have smaller dimensions for compact cars | Zoning Regulations §185-30 Section A.2.a: Off-street Parking and Loading, Parking Spaces requires that at least 70% of parking spaces have a minimum width of 10x20 ft. The remaining 30% may have a minimum 9x16 ft to accommodate smaller vehicles. |
|--|--|--|---|
| | Parking Lot Landsc | aping Requirements | |
| Require a minimum of 20% of the interior parking lot area to be landscaped | Require a minimum of 10% of the interior parking lot area to be landscaped | Allow planting islands through waiver or special permit process; or prohibit interior landscaping | Zoning Regulations §185-30 Section A.1.f.4: Off-street Parking and Loading, Parking Lot Design requires that parking lots with at least 60 spaces in industrial and business zones interrupt pavement expanses by providing planting strips of at least six ft in width. Provisions for planting strips should consider snow storage, light poles, and the need for safe pedestrian movement. Zoning Regulations §185-30 Section B.5: Off-street Parking and Loading, Parking Requirements gives the Planning Board discretion to increase the landscaping requirement to mitigate the impacts of any increased parking |
| | | | area when a variation of 80-125% of the required parking minimum is allowed. |
| Require a minimum of 40% of impervious parking area to have shading with mature tree canopy cover | Require a minimum of 30% of impervious parking area to have shading with mature tree canopy cover | Require a maximum of 30% of impervious parking area to have shading with mature tree canopy cover | There are no existing regulations regarding minimum shading requirements in parking lots. |



| | Parking Lot Pavement Material | | | | |
|---|--|--|--|--|--|
| Require the use of permeable pavement, gravel, or pavers in parking stalls and spillover parking areas | Allow for the use of permeable pavement in all parking areas | Require use of concrete, bituminous, or asphalt throughout parking area | Zoning Regulations §185-30 Section A.2.a: Off-street Parking and Loading, Parking Spaces requires that spaces for all non-residential uses must be hard surfaced (defined as processed gravel base under bituminous concrete or stone/asphalt). | | |
| | | | Zoning Regulations §185-14 Section A.2.c.5: Resident Zone R-20-A, Parking and Access requires all parking areas in Zone R-20-A to be hard surfaced (defined as processed gravel base under bituminous concrete or stone/asphalt). | | |
| | | | Zoning Regulations §185-30 Section A.1.f.2: Off-street Parking and Loading, Parking Lot Design requires that parking areas and access driveways be hard surfaced (defined as processed gravel base under bituminous concrete or stone/asphalt). | | |
| | Parking Lo | t Drainage | | | |
| Require the use of runoff reduction practices/LID within landscaped areas, setbacks, or parking areas (e.g., islands) for all parking lots, Require flush curbs or curb cuts to | Encourage the use of runoff reduction practices/LID within landscaped areas, setbacks, or parking areas (e.g., islands) Encourage flush curbs or curb cuts | Require turfgrass or vegetation height standards within landscaped areas, setbacks, or parking areas (e.g., islands) Require full length curbing | There are no existing regulations regarding runoff reduction practices or turfgrass/vegetation height standards for parking lots. There are no existing regulations | | |
| allow runoff to be directed into vegetated areas | to allow runoff to be directed into vegetated areas | throughout the parking area | regarding curbing in parking areas. | | |



| Implement specific requirements | Extend stormwater management | Require stormwater management | |
|---------------------------------------|-------------------------------------|-------------------------------|--|
| infiltration practices (rain gardens, | area drainage for sites less than 1 | acre, as required by NPDES | |
| swales, etc.) for parking lots of any | acre. | permitting. | |
| size. | | | |



Table 3. Driveway standards and regulations ranked, and where the Town of Southwick's regulations currently stand

| Driveways Allowing the use of shared driveways, encouraging creative design elements, and regulating the dimensions of driveways can help | | | | |
|---|---|--|--|--|
| to reduce im | pervious surface area and provide | e opportunity to implement green | Intrastructure. | |
| | Common | Driveways | Soonwick's conem signation | |
| Permit the use of common driveways in residential developments by-right | Permit the use of common driveways in residential developments by special permit | Do not allow the use of common driveways in residential developments | Zoning Regulations §185-30.1 Section E.1: Residential Common Driveways, General Requirements establishes that common driveways are allowed only by special permits issued by the Planning Board. | |
| | | | Zoning Regulations §185-30.1 Section C: Residential Common Driveways establishes that common driveways are prohibited if they serve two estate lots. | |
| Permit the use of common driveways to accommodate up to 4 (single family) residential units | Permit the use of shared driveways for 2 to 3 (single family) residential units | Prohibit the use of shared driveways in residential developments | Zoning Regulations §185-30.1 Section E.1: Residential Common Driveways, General Requirements establishes that common driveways can serve no more than two single-family dwellings. | |
| Driveway Width | | | | |
| Maximum residential driveway width of 9 ft or less (single lane) or 18 ft or less (two lane) | Maximum residential driveway width of 10 ft or less (single lane) or 20 ft or less (two lane) | Minimum residential driveway width of 9 ft or less (single lane) or 18 ft or less (two lane) | Zoning Regulations §185-21 Section B.12.a: Estate Lots, Permitted Use requires that driveways for estate lots must be at least 15 ft wide. | |
| | | | Streets and Sidewalks §157-2 Section C: Permit Required for Driveway Construction, Driveway | |



| | | | Design and Construction Elements establishes a maximum curb cut at a driveway entrance of 24 ft. The width of a driveway must be at least 10 ft, with Town discretion to increase this minimum if warranted for safety reasons and protection of the Town's drainage and roadway infrastructure. |
|---|---|---|--|
| | Drive | way Length | |
| Maximum residential driveway length of 30 ft | Maximum residential driveway length of 40 ft | Minimum residential driveway length of 40 ft | Streets and Sidewalks §157-2 Section C.3: Permit Required for Driveway Construction, Driveway Design and Construction Elements requires that driveways must be a minimum of 25 ft from the edge of the road, with Town discretion to increase this minimum if warranted for safety reasons and protection of the Town's drainage and roadway infrastructure. |
| | | | Zoning Regulations §185-21 Section B.12.a: Estate Lots, Permitted Use requires that the length of driveways for estate lots be constructed and maintained to provide adequate access and turnaround for police, fire and emergency vehicles, year-round. |
| | | | Zoning Regulations §185-30.1 Section F.1.b: Residential Common Driveways, Dimensional and Construction Standards establishes a maximum length of 800 ft from the entrance from the public way |



| | | | to the point where common driveways serve individual lots. |
|--|--|--|---|
| | Driveway | Materials | |
| Allow pervious materials to be used for residential driveways by right | Allow pervious materials to be used for residential driveways through special permit | Prohibit pervious materials to be used for residential driveways | Zoning Regulations §185-30.1 Section B: Residential Common Driveways, Permitted Use requires common driveways to have a compacted surface (defined as base gravel with processed stone aggregate or asphalt on top). Streets and Sidewalks §157-2 Section C.3: Permit Required for Driveway Construction, Driveway Design and Construction Elements requires that driveways be constructed of a compacted surface (defined as base gravel with processed stone aggregate or asphalt on top). |
| Allow "two track" or porous pavers to be used for residential driveways by right | Allow "two track" or porous pavers to be used for residential driveways by right through special permit | Prohibit "two track" or porous pavers to be used for residential driveways | There are no existing regulations regarding two track driveways. |


| Driveway Drainage | | | |
|---|---|---|--|
| Provide incentive to use LID methods for driveway drainage, such as relaxed setbacks requirements or a density bonus | Encourage the use of LID methods for driveway drainage, such as relaxed setbacks requirements or a density bonus | Require full length curbing on both sides of driveways | Streets and Sidewalks §157-2 Section C: Permit Required for Driveway Construction, Driveway Design and Construction Elements requires that storm drainage generated by driveways not flow onto any adjacent property and should be recharged on-site to the extent possible. Driveways must be designed and maintained so that stormwater does not drain onto the public way. |



Table 4. Sidewalk standards and regulations ranked, and where the Town of Southwick's regulations currently stand

| Sidewalks Providing flexibility in sidewalk location, design, and construction can help reduce impervious surface, and maintain existing | | | | |
|--|--|--|---|--|
| Optimal | Good | Active Barrier | Southwick's Current Standard | |
| | Sidewall | < Location | | |
| Allow alternative sidewalk designs to accommodate street trees and land contours (e.g., pop-outs, curving sidewalks, tree islands) | Allow sidewalks on one side of the road, specifically in low density neighborhoods | Require concrete or bituminous sidewalks on both sides of a road, immediately parallel to the road | Subdivision Regulations §315-22 Section G.1: Street and Roadway, Sidewalks requires sidewalks on both sides of the street. Subdivision Regulations §315-4: Waiver allows subdivision applicants to request waivers for constructing sidewalks on both sides of the road. It is common practice for the Town to accommodate this request and allow for sidewalks on only one side of the road. Funds that would be used to install the sidewalk on the other side of the road are put into the Sidewalk Revolving Fund. This fund is used by the Town for sidewalk repairs/installations. | |
| | Sidewalk | x Materials | • | |
| Specifically allow the use of permeable paving, or permeable pavers | Allow flexibility in materials used | Require concrete or bituminous material | Subdivision Regulations §315-22 Section G.1: Street and Roadway, Sidewalks requires sidewalks to have a processed gravel base with a poured concrete surface. | |



| Sidewalk Width | | | | |
|--|---|---|--|--|
| Set maximum sidewalk width for residential neighborhoods to 4 ft where safe and appropriate, with passing spaces every 200 ft as required by the ADA for sidewalks less than 5 ft in width; passing spaces must adhere to ADA standards (at least 60 in x 60 in or, at an intersection of two walking surfaces, must provide a T-shaped space with the arms extending at least 48 in) | Set maximum sidewalk width for residential neighborhoods to 5 ft where safe and appropriate | Set minimum sidewalk width for residential neighborhoods to 5 ft | Subdivision Regulations §315-22 Section G.1: Street and Roadway, Sidewalks establishes a minimum sidewalk width of five ft. | |
| Sidewalk Drainage | | | | |
| Require disconnection of drainage from the road system and adjacent vegetated strips for drainage to flow into | Encourage disconnection of drainage from the road system and adjacent vegetated strips for drainage to flow into | Require drainage to the road; a closed drainage system | There are no existing regulations regarding sidewalk drainage. | |



Table 5. Zoning and development standards and regulations ranked, and where the Town of Southwick's regulations currently stand

| Zoning and Development | | | |
|--|--|---|--|
| Reducing restrictive building lot s | tandards can provide additional to reduce impervious cover ar | buildable land, allowing for dens Id maintain existing vegetation. | er development and the potential |
| Optimal | Good | Active Barrier | Southwick's Current Standard |
| | Setbacks ar | nd Frontages | |
| Clear standards that minimize and in some instances eliminate setbacks | Minimize setbacks, allow flexibility | Conventional standards for required minimum setbacks | Table 3 of Zoning Regulations §185specifies minimum side setbacks of10 ft for R-20 properties and 20 ftfor R-40 properties and frontsetbacks of 75 ft. |
| | | | Zoning Regulations §185-9 Section B.1: Special Permits grants the Planning Board authority to impose greater setback and side/rear yard minimums than those outlined in the regulations, in accordance with MA Chapter 40A. |
| | | | Zoning Regulations §185-21: Estate Lots allows for single-family dwelling units with less than the required frontage for the purpose of preserving open space and decreasing developmental density (estate lots). Estate lots are allowed only by special permit from the Planning Board. All building front/back/side setbacks must be at least 75 ft from lot lines. |
| | | | B.1: Special Permits grants the Planning Board authority to impose greater setback and |



| | | | side/rear yard minimums than those outlined in the regulations. |
|--|--|---|---|
| | | | .Zoning Regulations §185-23 : Flexible Residential Development District FRD, Dimensional and Density Requirements requires side yards of 10 ft for R-20 properties and 20 ft for R-40 properties. |
| | | | Zoning Regulations §185-23 : Flexible Residential Development District FRD, Dimensional and Density Requirements requires 40 ft front yards for R-20 and R-40 zoned properties. Minimum frontages are 75 ft for R-20 properties and 100 ft for R-40 properties. |
| Provide incentive to developers to conserve land above and beyond what is already required | Encourage developers to conserve land above and beyond what is already required | No language regarding the conservation of land above and beyond what is already required | There are no existing regulations regarding land conservation incentives. |
| | Clearing a | nd Grading | |
| Require the preservation of native soils, hydric soils, natural vegetation, and steep slopes at development sites | Encourage the preservation of native soils, hydric soils, natural vegetation, and steep slopes at development sites | No requirements on preservation of native soils, hydric soils, natural vegetation, and steep slopes at development sites | Stormwater Management and Erosion and Sediment Control Bylaw (Draft) §183 Section I: Stormwater Management Performance Standards requires all projects subject to the bylaw to use environmentally sensitive design and LID site planning. This includes identifying, mapping, and preserving the site's natural features and environmentally sensitive areas, including wetlands, native vegetation, mature trees, slopes, drainage ways, permeable |



| | | | soils, floodplains, woodlands, and soils, to the maximum extent feasible. |
|---|---|---|---|
| Require development of residential sites to preserve a minimum of 15% of tree canopy, which cannot be cleared or graded | Require development of residential sites to preserve a minimum of 10% of tree canopy, which cannot be cleared or graded | Offer an off-site tree planting option in-lieu of on-site tree planting | Stormwater Management and Erosion and Sediment Control Bylaw (Draft) §183 Section I: Stormwater Management Performance Standards requires all |
| Require development of commercial sites to preserve a minimum of 15% of tree canopy, which cannot be cleared or graded | Require development of commercial sites to preserve a minimum of 10% of tree canopy, which cannot be cleared or graded | Offer an off-site tree planting option in-lieu of on-site tree planting | projects subject to the bylaw to use environmentally sensitive design and LID site planning. This includes identifying, mapping, and preserving the site's natural features and environmentally sensitive areas, including mature trees and woodlands. |
| | | | Subdivision Regulations §315-22: Shade Trees requires that in wooded areas, existing specimen shade trees must be left in place where practicable. Lots in these areas should not be cleared unless approved by the Planning Board. |
| Require physically marking on-site, and show in construction plans, the limits of disturbance | Require construction plans to show the limits of disturbance | No requirement for construction plans to show the limits of disturbance | Stormwater Management and Erosion and Sediment Control Bylaw (Draft) §183 Section H.4: Stormwater Management and Erosion Control Plan Contents requires Stormwater Management Plans to include proposed limits of disturbance. |
| · · · · · · · · · · | Tree Con | servation | |
| Implement and maintain a Town- | Kegulate tree removal and | No regulation regarding tree | Subdivision Regulations §315-22: |

15-22: In wide tree ordinance replacement on a case-by-case Shade Trees requires that in removal wooded areas, existing specimen basis shade trees must be left in place

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| | | | where practicable. Lots in these areas should not be cleared unless approved by the Planning Board. Zoning Regulations §185-10 Section C.2: Site Plan Approval establishes site plan review criteria that include minimizing tree removal to the extent feasible |
|--|--|---|---|
| Require developers to provide a natural resources inventory mapping natural areas and identifying high quality forest stands, wildlife habitat and travel corridors, productive cropland, and specimen trees | Require developers to provide a natural resources inventory mapping natural area | Do not require developers to provide a natural resources inventory mapping natural area | Stormwater Management and Erosion and Sediment Control Bylaw (Draft) §183 Section I: Stormwater Management Performance Standards requires all projects subject to the bylaw to use environmentally sensitive design and LID site planning. This includes identifying, mapping, and preserving the site's natural features and environmentally sensitive areas. |
| On sites where trees did not exist before development, require a minimum of 15% of the area to be planted with native trees, providing a list of native species | On sites where trees did not exist before development, require a minimum of 15% of the area to be planted with a mix of native and non-native trees, providing a list of native species | If trees did not exist on site before development, no requirement to plant trees | There are no existing regulations regarding tree planting requirements for new developments. |
| | Irregular Lot | rs (Flag Lots) | |
| Allow development of irregular lot shapes by right | Allow development of irregular lot shapes by special permit | Prohibit the development of irregular lot shapes | Zoning Regulations §185-23 Section L.2.b: Flexible Residential Development District, Special Permit Review Decision allows for the inclusion of flag lots (up to 10% of all lots) in Flexible Residential Developments (FRDs) at the discretion of the Planning Board. |



| Open Space Residential Development Requirements | | | |
|--|---|---|---|
| Require open space development plans to be submitted with all conventional subdivision plans | Allow for open space subdivisions by right anywhere that subdivisions are permissible | Allow development of open space subdivisions only in a designated zoning district, or through an overlay zone, or by special permit | Subdivision Regulations §315-18: Open Spaces requires subdivision plans to show park or parks that are not "unreasonable" in area in relation to the land being subdivided (suggested formula of 10% of total land area). |
| | | | Zoning Regulations §185-23: Flexible Residential Development District establishes that FRD shall be permitted in Zones R-40-A, R-20, R-20-A, and R-20-B only upon the issuance of a special permit from the Planning Board (only applicable to "major residential developments" of at least five dwelling units and at least five acres in size). FRDs are similar to Open Space Developments (OSDs) in that they encourage the permanent preservation of open space, agricultural lands, and other natural resources; encourage a less sprawling form of development that consumes less open space; and ensure that residential developments respect natural features of the land to the maximum extent possible. |
| | | | Zoning Regulations §185-14 Section A.2.c.7: Resident Zone R- 20-A, Recreation requires at least 1,000 sq ft of undeveloped natural area for each dwelling unit in residential apartment houses. |



| | | | Zoning Regulations §185-10 Section C.2: Site Plan Approval establishes site plan review criteria that include open space retention, to the extent feasible. |
|---|--|--|---|
| Specify land conservation or impervious cover reduction as a major objective of the open space design ordinance | Vague language implying land conservation or impervious cover reduction as a major objective of the open space design ordinance | No indication of land conservation or impervious cover reduction as a major objective of the open space design ordinance | Zoning Regulations §185-23: Flexible Residential Development District states that one objective of FRD is to encourage the permanent preservation of open space, agricultural land, and other natural resources. |
| Allowable and unallowable uses for open space clearly stated and consistent with existing Town plans and goals | Vague language regarding allowable and unallowable uses for open space | No language indicating allowable and unallowable uses for open space | Zoning Regulations §185-23: Flexible Residential Development District defines open space as an area not covered by impervious surface, and that does not include ROWs, lots, easements, and land which is not buildable land. The further subdivision of common open land is forbidden (other than recreation, conservation, or agricultural uses) unless it is for easements for underground utilities and septic systems. Structures or accessory buildings for the open space can be constructed but cannot cover more than 5% of its land area. |
| Set specific standards for access to open space, interconnections of open space, and a prioritized list of resources to be conserved | Lack of specific standards for access to open space, interconnections of open space, and a prioritized list of resources to be conserved | No indication of standards for access to open space, interconnections of open space, and a prioritized list of resources to be conserved | Zoning Regulations §185-23: Flexible Residential Development District establishes that, to the maximum extent feasible, FRD site design must protect prime farmland, historic sites, forests and trees, and views/road frontage. |



| Require contiguity of open space; connectivity to adjacent open space land outside the development must be considered | Require contiguity of open space within the development | No contiguity requirement | Zoning Regulations §185-23: Flexible Residential Development District states that contiguous open space must be preserved to the maximum extent feasible. |
|--|--|--|--|
| Require a minimum of 50% of the buildable portion of the site to be set aside as open space | Require a minimum of 40% of the buildable portion of the site to be set aside as open space | Require a minimum of 30% of the buildable portion of the site to be set aside as open space | Zoning Regulations §185-23: Flexible Residential Development District requires that at least 40% of an FRD must be protected open space. |
| Require a minimum of 25% of the allotted open space to be protected by a conservation easement or similar legal instrument | Require a minimum of 15% of the allotted open space to be protected by a conservation easement or similar legal instrument | Require a minimum of 10% of the allotted open space to be protected by a conservation easement or similar legal instrument | Zoning Regulations §185-23: Flexible Residential Development District defines common open space as being conveyed to a community association, to a farmer, or to the Town. At least 40% of an FRD must be protected open space. |
| Site dimensional standards (e.g., setbacks, frontage) are flexible/not required | Site dimensional standards are formulaic, with specified minimums that are less than conventional development | N/A | Zoning Regulations §185-23: Flexible Residential Development District, Dimensional and Density Requirements requires 40 ft front yards for R-20 and R-40 zoned properties. Minimum frontages are 75 ft for R-20 properties and 100 ft for R-40 properties. Zoning Regulations §185-23 : Flexible Residential Development District FRD, Dimensional and Density Requirements requires side yards of 10 ft for R-20 properties and 20 ft for R-40 properties. |
| Issue density penalties for conventional development | Require a special permit for conventional development | Allow conventional development by right | Table 2 of Zoning Regulations §185establishes that the PlanningBoard may include a provision in aspecial permit that takes into |



| | | | consideration a point system, where preservation of open space, more compact design, narrower roads, the allowance of flag lots, reduced front setbacks, and reduce lot size earn points on behalf of the developer. |
|--------------------------------|------------------------------|----------------------------------|--|
| Allow LID (e.g. rain garden, | Allow LID (e.g. rain garden, | Require turfgrass or vegetation | There are no existing regulations |
| vegetated swale) to count | vegetated swale) to count | type and height standards within | regarding LID meeting open |
| towards 50% of open space area | towards 25% open space area | the open space area | space requirements. |
| requirement | requirement | | |

Table 6. Best Management Practices (BMPs) standards and regulations ranked, and where the Town of Southwick's regulations currently stand

Best Management Practices (BMPs)

Requiring the use of BMPs ensures careful consideration will be given to the environmental impact of a development, and providing flexibility and guidance on the use of BMPs will increase the implementation of stormwater runoff practices, thus improving the quality of water entering the stormwater collection system.

| Optimal | Good | Active Barrier | Southwick's Current Standard |
|---|---|--|--|
| | Riparia | n Buffers | |
| Require a minimum 100' vegetated buffer along all waterways | Require a minimum 75' vegetated buffer along all waterways | Allow development within the vegetated buffer zone with a variance request | Wetlands Regulations §450-4 allows for development within the vegetated buffer zone in accordance with the WPA and the following: less than 1,000 square ft of alteration in the buffer zone, a 50 ft buffer strip is left between the work and a defined resource area, leach fields are at least 50 ft from any wetland resource area, there is a plan for permanent stabilization, erosion control measures are maintained until permanent vegetation is established, there is no point source stormwater discharge, and it is not located in a flood zone. |
| For sensitive resources or within certain zones (e.g., designated high quality streams or aquifer protection area), apply a greater vegetated buffer width of 300 ft minimum | For sensitive resources or within certain zones (e.g., designated high quality streams or aquifer protection area), apply a greater vegetated buffer width of 100 ft minimum | Allow development within the vegetated buffer zone of a sensitive resource area with a variance request | Same as above. |
| Expand the buffer to include adjacent wetlands, steep slopes, and the 100-year floodplain | Expand the buffer to include adjacent wetlands | No requirement on expanding the buffer | Same as above. |



| Require a minimum of 75% of the buffer to be maintained with native vegetation | Encourage a minimum of 75% of the buffer to be maintained with native vegetation | Classify native species as a public nuisance | Same as above. | | |
|---|---|--|---|--|--|
| Specify permitted and prohibited uses within and adjacent to the buffer | Manage permitted and prohibited uses within and adjacent to the buffer on a case-by-case basis | Leave the permitted and prohibited uses open to interpretation | Same as above. | | |
| Specify enforcement mechanisms in the ordinance (e.g., for encroachment) | Manage enforcement mechanisms on a case-by-case basis | Do not enforce riparian buffer regulations | Wetlands Regulations §450-4 enforcement is dependent on the voluntary action of the Conservation Commission through an enforcement order process under the WPA or local wetlands bylaw. | | |
| Street Trees/Shade Trees | | | | | |
| Require the use of native species | Require a mixture of native and nonnative species | Classify certain native species as a public nuisance; require or recommend species listed as invasive | Subdivision Regulations §315-22: Shade Trees requires shade trees to be a species approved by the Planning Board. | | |
| Require the planting area to be at least 6 ft to provide sufficient rooting space for large trees | Encourage the planting area to be at least 6 ft to provide sufficient rooting space for large trees | No requirement for street tree rooting space | Subdivision Regulations §315-22: Shade Trees establishes requirements for shade trees (where existing trees are inadequate), such that they are usually to be spaced not more than 40 ft apart, on both sides of the street, no closer than 5 ft or more than 10 ft of the front lot line or as otherwise approved by the Planning Board. Tree removal along ROWs on roads designated as "scenic roads" is prohibited unless a special permit is granted by the Planning Board. | | |



| | | | There are approximately half a dozen scenic roads in Town. | | | |
|---|--|--|---|--|--|--|
| Infiltration Practices (Rain Gardens, Curb Extensions, Planter Gardens, porous and Pervious Pavements, and Other Designs to Manage Stormwater Using Landscaping and Structured or Augmented Soils) | | | | | | |
| Require downspouts to be disconnected and diverted to a storage tank, or vegetated/pervious area capable of infiltration | Encourage downspouts to be disconnected and diverted to a storage tank, or vegetated/pervious area capable of infiltration | Prohibit downspouts from being disconnected and diverted to a storage tank, or vegetated/pervious area capable of infiltration | There are no existing regulations regarding downspout disconnection. | | | |
| stormwater of up to 48 hours on front yards or rooftops | stormwater system design standards | stormwater | specifically allowing for the temporary ponding of water on front yards or roof tops. | | | |
| Allow green roofs by right | Allow green roofs by special permit | Prohibit the implementation of green roofs | Southwick Stormwater Regulations Section 2 defines "a Low Impact Development (LID) best management practice (BMP) as something that infiltrates and/or filters stormwater. A green roof is a roof of a building that is partially or completely covered with vegetation and growing medium over waterproofing membrane." Green roofs are not mentioned again in the Stormwater Regulations or other Town regulations and bylaws. | | | |
| Provide design specifications for green roofs to address structural concerns | Provide resources for green roof designs and standards | No information regarding green roof design specifications provided | There are no existing regulations regarding design specifications for green roofs. | | | |
| Require a minimum of 75% native vegetation for landscaping in residential yards and common areas, provided in recommended species list | Encourage landscaping in residential yards and common areas to be to native trees and vegetation | Require turfgrass or vegetation height standards | There are no existing regulations regarding landscaping for residential yards and common areas. | | | |



| Water Harvesting Devices (Rain Barrels, Cisterns, etc.) and the Use of Stormwater for Non-Potable Uses | | | | | |
|--|---------------------------------------|---------------------------------------|-----------------------------------|--|--|
| Permit the use of water harvesting | Permit the use of water harvesting | Prohibit the use of water | There are no existing regulations | | |
| devices by right | devices by special permit | harvesting devices | regarding the use of water | | |
| | | | harvesting devices. | | |
| Permit the use of harvested | Permit the use of harvested | Prohibit the use of harvested | There are no existing regulations | | |
| rainwater for non-potable uses | rainwater for non-potable uses | rainwater for non-potable uses | regarding the permitted uses of | | |
| such as irrigation or toilet flushing | such as irrigation or toilet flushing | such as irrigation or toilet flushing | harvested rainwater for non- | | |
| by right | through special permit | | potable uses. | | |



RECOMMENDATIONS

Based on the above review, the Town has established the following recommendations to be pursued through coordination with Town Boards:

- Establish maximum paved roadway widths for private, minor, secondary (residential and non-residential), and major roadways, particularly relative to conventional subdivisions.
- Establish a maximum diameter/reduce the existing 100 minimum diameter for cul-de-sacs to 90 feet.
- Eliminate the five-foot minimum for sidewalks/requirement for sidewalks on both sides of the road while ensuring they still meet ADA standards.
- Allow for FRD by-right (no issuance of special permit from the Planning Board required, similar to current process for conventional subdivision submissions). Require FRD plan submissions along with conventional plans. Consider elaborating on the point system developed in Table 2 of the Zoning Regulations, or requiring a point scoring system for all developments, not just those authorized under special permit. Revisit the scoring system to ensure that all elements incentivize LID, such as narrower street design, preservation of open space, and reduced setbacks.
- Loosen requirements for compact/hard surfaces for privately-owned driveways, including provisions to permit permeable paving materials.
- Consider reducing front and side setback requirements for conventional development to provide additional mechanisms for flexibility in design particularly for existing neighborhoods. allowing for variation not just in Estate Lots and FRDs.
- Implement a Town-wide tree ordinance to regulate the removal of trees during private development. Consider amending regulations to require minimum native tree coverage on sites that previously did not previously have tree cover.
- Consider providing specific allowances for green roofs and water harvesting devices to promote the use of such practices.



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