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STORMWATER MANAGEMENT PLAN

MS4 GENERAL PERMIT COMPLIANCE

JUNE 2019

TOWN OF
Winchester
MASSACHUSETTS

swmp

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CERTIFICATION

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

Printed Name Lisa A. Wong

Signature _____ Date 6/27/19

1.0 INTRODUCTION / OVERVIEW

1.1 Regulatory Summary and Purpose

The Federal Water Pollution Control Act (WPCA), initially enacted in 1948, established ambient water quality standards to specify acceptable levels of pollution in lieu of preventing the causes of water pollution. The 1972 amendments to the WPCA, referred to as the Clean Water Act (CWA), implemented measures which were focused on establishing effluent limitations on point sources, or 'any discernable, confined, and discrete conveyance… from which pollutants are or may be discharged."

The 1972 CWA introduced the National Pollutant Discharge Elimination System (NPDES). The NPDES program was established as the fundamental regulatory mechanism of the CWA, requiring direct dischargers of pollutants into waters of the United States to obtain a NPDES permit. Between 1972 and 1987, the NPDES permit program focused on improving surface water quality by reducing pollutants of industrial process wastewater and municipal sewage. During this period, several nationwide studies on water quality, most notably the United States Environmental Protection Agency (EPA) National Urban Runoff Plan (NURP), identified stormwater discharges as a significant source of water pollution.

The results of the NURP and similar studies, resulted in the reauthorization of the CWA in 1987 with the passage of the Water Quality Act (WQA). The WQA established a legal framework and required EPA to develop a comprehensive phased program for regulating municipal and industrial stormwater discharges under the NPDES permit program.

The NPDES Phase I Rule, which was issued in November 1990, addressed stormwater dischargers from medium to large municipal separate storm sewer systems (MS4s), which were communities serving a population of at least 100,000 people, as well as stormwater discharges from 11 categories of industrial activity. The NPDES Phase II Rule, which was promulgated in December 1999, addressed small MS4s serving a population of less than 100,000 people in urbanized areas. The Phase II Rule required nationwide coverage of all operators of small MS4s that are located within the boundaries of the Bureau of the Census-defined "urbanized area" (UA) based on the latest decennial census. Appendix B of this Plan provides a map of the Phase II stormwater "permit compliance area" for the Town of Winchester as determined by the USEPA using decennial census data from 2000 and 2010.

The 2003 NPDES Phase II MS4 General Permit (2003 MS4 Permit) required the Town of Winchester to develop, implement, and enforce a Stormwater Management Program (SWMP) to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. The Town submitted a Notice of Intent for inclusion under this General Permit in July 2003.

The 2003 MS4 Permit expired on May 1, 2008, but was administratively continued for covered permittees until a new (current) MS4 Permit was issued on April 4th, 2016, and became effective on July 1, 2018. On September 28, 2018, the Town submitted a Notice of Intent (NOI) to EPA to obtain coverage under the 2016 MS4 Permit. EPA posted the Town's NOI for public comment on February 1, 2019 for a 30-day period. The Town received authorization from EPA to discharge under the 2016 MS4 Permit on March 5, 2019; a copy of the authorization is included as Appendix C.

The objectives of the 2016 MS4 Permit are accomplished through the implementation of Best Management Practices (BMPs) for each of the following six minimum control measures.

- Public education and outreach
- Public involvement and participation
- Illicit Discharge Detection and Elimination (IDDE) Program
- Construction site stormwater runoff control
- Post-construction stormwater management in new development or redevelopment
- Good housekeeping and pollution prevention for permittee owned operations.

The Town's efforts to comply with these control measures, as outlined in our Notice of Intent, are included in Section 2.0.

1.2 Responsible Parties

The Select Board, which is comprised of five (5) elected members, is the governing body for the Town of Winchester. The Town Manager reports to the Select Board and is tasked with the day-to-day operation of the Town, including proper administration of all Town affairs. The Department of Public Works (DPW), through its Director, is responsible for maintaining town roads and facilities. The following Town departments are involved in stormwater management from the implementation of controls during development to general maintenance of drainage infrastructure:

- Engineering Department
- Department of Public Works
- Planning Department
- Conservation Commission
- Building Department

The following table provides a summary of the municipal entities responsible for implementation of this SWMP:

Table 1.1
PARTIES RESPONSIBLE FOR SWMP IMPLEMENTATION

Name	Title	Affiliation
Lisa Wong	Town Manager	Town Government
Beth Rudolph, PE	Town Engineer	Engineering Department
James Gill	Director	Department of Public Works
Brian Szekely	Town Planner	Planning Department
Elaine Vreeland	Conservation Agent	Conservation Commission

John Wile	Building Commissioner/Zoning Enforcement Officer	Building Department
Jennifer Murphy	Director	Health Department
Dr. Judith Evans	Superintendent	School Department
MaryEllen Lannon	Town Clerk	Office of the Town Clerk
Shelia Tracy	Treasurer	Treasurer/Collector

1.3 Town Demographics

Winchester is located in Middlesex County and has a total area of approximately 6.3 square miles (16.3 square kilometers), which includes approximately 0.3 square miles of open water (or 4.76%). As of the 2010 census, the population was 21,382. The Town is bounded by Woburn to the north, Stoneham to the east, Medford to the southeast, Arlington to the south and Lexington to the west. The major water bodies in town include the Upper Mystic Lake (MA71043); Wedge Pond (MA71045); the Aberjona River (MA71-01), including Judkins Pond and Mill Pond; Winter Pond (MA71047); and the North Reservoir.

Under the MS4 permit, territory comprised of densely settled tracts and adjacent urban developed areas that meet the minimum population requirements set forth by the EPA, according to the 2000 and 2010 census data, shall be referred to as urbanized area. Rural land uses and sparsely populated tracts shall be categorized as non-regulated for the purposes of the MS4 permit. Winchester is entirely comprised of urbanized area (UA) as shown in the regulated area map in Appendix B.

Principal highways located within the boundaries of Winchester include Route 3, known locally as Cambridge Street which runs north to south; Route 38, known locally as Main Street which is located in the southeast corner of town; and the Mystic Valley Parkway which encircles the southeast corner of town. There are approximately 4.8 miles of MassDOT and DCR-maintained roadways within town.

Climate within the Town of Winchester ranges from January average temperature of 27 degrees Fahrenheit (°F) to July average temperature of 71°F. The approximate average annual precipitation is 43 inches, distributed throughout the year. The rainiest month is November, with approximately 4.45 inches of rain.

1.4 Impaired Waters

Winchester is located entirely within the Mystic River Watershed. According to the Final *2014 303(d) List of Impaired Waters*, impaired waterbodies within the Town include the Upper Mystic Lake (MA71043), the Aberjona River (MA71-01), Winter Pond (MA71047), and Wedge Pond (MA71045). All impairments and outfalls discharging to these water bodies are summarized in Table 1.2. Outfalls discharging to waters of the United States are considered regulated under the MS4 Permit. When dry weather outfall screening is conducted, field verification will be used to confirm the regulated status of each outfall, and this table will be updated accordingly, as needed. Outfalls included in the table below are believed to be under the Town's jurisdiction. However, if any of these outfalls are determined to be private or under the jurisdiction of another state entity in the future, they will be removed.

Table 1.2 RECEIVING WATERS AND IMPAIRMENTS		
Waterbody	Impairment	Number of Outfalls Discharging to Receiving Water
Aberjona River (Segment MA71-01) (includes Judkins Pond (former MA71021) and Mill Pond (former MA71031)) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater	76
Upper Mystic Lake (MA71043) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*	15
Wedge Pond (MA71045)	Dissolved Oxygen, Phosphorous	8
Winter Pond (MA71047)	Non-Native Aquatic Plants*, Nutrient/Eutrophication Biological Indicators	11
Horn Pond Brook	-	21
Unnamed Stream off Eugene Drive Tributary to Wetlands in Stoneham	-	1
Sucker Brook	-	1
Wetland behind Forest Street	-	4
Wetland between Glen Road and Gardener Place	-	4
Smith Pond	-	10
Unnamed Stream along Squire Road	-	9
Sachem Swamp	-	3
Wetland behind Aristotle Drive	-	4
Wetlands Near Winchester Country Club off Lockeland Road	-	3
Unnamed Stream at Winchester Country Club off Lockeland Road	-	3
Small Wetland at the corner of Ridge St. and Johnson Rd.	-	2

Unnamed Stream off Socrates Way near West Side Field	-	1
Wetland near The Gables Retirement Community	-	4

*TMDL not required, non-pollutant.

1.5 Interconnections

The Town of Winchester has identified 26 locations where its MS4 discharges to or receives flow from an MS4 under another municipality's jurisdiction or the jurisdiction of a state entity (i.e. MassDOT or DCR). The catchments associated with these interconnections have been delineated and labeled. They are summarized in Table 1.3 below:

Table 1.3 INTERCONNECTIONS AND IMPAIRMENTS				
Interconnection ID	Connecting Municipality or State Entity	Discharges To/Receives Flow from Winchester MS4	Receiving Water	Impairment
DOT-DMH-201	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Wetlands Off Cambridge Street (via Outfall OF-50)	-
DOT-DMH-208	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Wetlands Off Cambridge Street (via Outfall OF-50)	-
DOT-DMH-669	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-672	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-680	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-694	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*

DOT-DMH-714	MassDOT	MassDOT's MS4 Discharges to Winchester's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-157) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-719	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-742	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-746	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
DOT-DMH-765	MassDOT	Winchester's MS4 Discharges to MassDOT's MS4	Upper Mystic Lake (MA71043) (via Outfall OF-175) *(Class B Water)*	Dissolved Oxygen, Dissolved Oxygen Saturation, Non-Native Aquatic Plants*
ARLDMH-759	Arlington	Winchester's MS4 Discharges to Arlington's MS4	Upper Mystic Stream (via Outfall OF-51)	-
ARLOF-45	Arlington	Winchester's MS4 Discharges to Arlington's MS4	Unnamed Stream in Arlington (via Outfall OF-45)	-
WOBCB-706	Woburn	Woburn's MS4 Discharges into Winchester's MS4	Horn Pond Brook (via Outfall OF-151)	-
WOBDMH-2684	Woburn	Woburn's MS4 Discharges into Winchester's MS4	Horn Pond Brook (via Outfall OF-151)	-

WOBDMH-569	Woburn	Woburn's MS4 Discharges into Winchester's MS4	Horn Pond Brook (via Outfall OF-151)	-
WOBCB-752	Woburn	Woburn's MS4 Discharges into Winchester's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-91) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater
MEDOF-53	Medford	Winchester's MS4 Discharges into Medford's MS4	Wetlands Area in Medford (via Outfall OF-53)	-
MEDOF-73	Medford	Winchester's MS4 Discharges to Medford's MS4	Wetlands Area in Medford (via Outfall OF-73)	-
DCRDMH-1484	DCR	DCR's MS4 Discharges to Winchester's MS4	Aberjona River (via Outfall OF-219) (Segment MA71-01) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater

DCRDMH-1785	DCR	Winchester's MS4 Discharges to DCR's MS4	Aberjona River (Segment MA71-01) (via 10" unnamed outfall) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater
DCRDMH-1795	DCR	Winchester's MS4 Discharges to DCR's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-24) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater

DCRDMH-1797	DCR	DCR's MS4 Discharges to Winchester's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-219) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater
DCRDMH-1810	DCR	Winchester's MS4 Discharges to DCR's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-219) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater

DCRDMH-1814	DCR	Winchester's MS4 Discharges to DCR's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-219) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater
DCRDMH-2802	DCR	Winchester's MS4 Discharges to DCR's MS4	Aberjona River (Segment MA71-01) (via Outfall OF-9) *(Class B Water)*	Phosphorous, Escherichia coli, Dissolved Oxygen, Turbidity, Physical Substrate Habitat Alterations*, Ammonia (Un-ionized), Aquatic Macroinvertebrate Bioassessments, Arsenic, Sediment Bioassays - Chronic Toxicity Freshwater

*TMDL not required, non-pollutant.

1.6 Endangered Species and Historic Properties Determination

The 2016 MS4 Permit requires Winchester to demonstrate that activities regulated under the Permit will not adversely affect endangered and threatened species or critical habitat, or impact federal historic properties on the National Register of Historic Places (NRHP). The Town must demonstrate that there are either no critical habitat or any endangered species within its boundaries, or that if such a habitat does exist, that outfall discharges and any associated best management practices shall not interfere with that habitat. Winchester must also certify that no discharge will affect a property that is listed or eligible for listing on the NRHP, that any such effects have written acknowledgements from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or other representative that such effects shall be mitigated, and written proof that any best management practices constructed under this permit will include measures to minimize harmful effects on these properties.

1.6.1 Endangered Species

Through consultation with the US Fish & Wildlife Service (USFWS), it was determined that the only threatened species within Winchester is the northern long-eared bat. Correspondence with USFWS is included in Appendix E. Actions currently included in this SWMP will not affect this species. Therefore, the Town was able to certify eligibility under USFWS Criterion C for coverage under the permit. Prior to construction of any structural BMPs, the Town will consult with USFWS to confirm that the proposed project will not impact the northern long-eared bat or any other endangered or threatened species that may be identified in the future.

1.6.2 Historic Properties

Winchester was able to certify eligibility under Criterion A in their Notice of Intent filing as it relates to the Historic Properties Preservation Act. The Town has a number of federal historic properties, including: The Dike-One House (89000621), The Zachariah Richardson House (8900618), The Charles Russell House (89000617), The Edward Braddock House (89000651), The James H. Mann House (89000624), The George Brine House (89000638), The Carr-Jeeves House (89000639), The Edmund Parker Jr. House (89000610), The Henry Grover House (89000641), The George Wyman House (89000609), The Capt. Josaih Locke House (79000356), The Philemon/Asa Locke Wright Farm (8300838), The Johnson-Thompson House (89000604), The Asa Locke House (89000631), The Sanborn House (81000286), The Edmund Dwight House (89000633), The Samuel W. McCall House (8900657), The Joseph Remick House (89000656), The Edward Gardener House (89000605), The Patience and Sarah Gardener House (89000608), The Everett Avenue-Sheffield Road Historic District (89000661), The Wedgemere Historic District (89000659), The Wildwood Cemetery (89000658), The Fifth-Glengarry Historic District (89000662), The Kenelum Baker House (89000632), The Arthur H. Russell House (89000652), The Skillings Estate House (89000645), The Ginn Carriage House (89000655), The Ginn Garder's House (89000654), The Webster Childs House (89000644), The Robert Bacon House (89000611), The Abijah Thompson House (89000619), The Winchester Center Historic District (86002943), The Horace Hatch House (89000612), The Oak Knoll (8900068), The Albert Ayer House (89000635), The Thomas Ayer House (89000630), The Deacon John Symmes House (89000606), The Marshall Symmes House (89000607), The Marshall Symmes Tenant House (89000637), The Harrison Parker Sr. House (89000627), The Hovey-Winn House (89000616), The Louis N. Maxwell House (89000650), The Trowbridge-Badger House (89000647), The Sharon House (89000613), The Alfred Vinton House (89000629), The Hutchinson-Blood House (89000615), The William Simonds House (89000640), The Jacob Stanton House (89000614), The Parker House (89000628), The John Mason House (89000634), The Marshall W. Jones House (89000649), The Cole House (89000646), The Edward A, Brackett House

(89000626), The Moore House (89000620), The O. W. Gardner House (89000791), The Edward Sullivan House (89000636), The Pressey-Eustis House (89000623), The S. B. White House (89000622), The Amy B. Mitchell House (89000653), and St. Mary's Catholic Church (89000625).

The Town was previously covered under the 2003 Small MS4 Permit, and it has been determined to be very unlikely that any existing outfall discharges would impact any of these historic properties and conditions have not changed since that determination. Prior to construction of any structural BMPs, the Town will consult with the Massachusetts Historic Commission to confirm that the proposed project will not impact any historic properties.

1.7 Increased Discharges

Section 2.1.2 of the 2016 MS4 Permit requires the Town of Winchester to comply with the provisions of 314 CMR 4.04, including information submittal requirements and obtaining authorization for increased discharges where appropriate. Any authorization by MassDEP for an increased discharge is required to be incorporated into this SWMP.

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

- Documenting that the pollutant(s) for which the waterbody is impaired is not present in the MS4's discharge and retaining documentation of this finding with the SWMP; or
- Documenting that the total load of the pollutant(s) of concern from the MS4 to any impaired portion of the receiving water will not increase as a result of the activity and retaining documentation of this finding in the SWMP. Unless otherwise determined by USEPA or MassDEP that additional demonstration is necessary, compliance with the requirements of part 2.2.2 and 2.3.6 of the Permit, including all reporting and documentation requirements, shall be considered as demonstrating no net increase as required by this part.

1.8 Surface Public Drinking Water Supplies

Section 3.0 of the Permit requires permittees to prioritize discharges to public drinking water supply sources. According to data available from MassGIS, there are Class A and B surface water protection zones associated with the Town-owned Middle and North Reservoirs, which supply public drinking water to a portion of the Town. The Town's drainage system map shows that there are no known direct stormwater discharges to these surface water protection zones. The Town will update this section of the SWMP if outfalls are found as part of the additional mapping and investigation efforts.

2.0 CONTROL MEASURES

2.1 Introduction

This section of the Plan provides a summary of the regulatory requirements and proposed Best Management Practices (BMPs) associated with each of the six minimum control measures defined in the 2016 MS4 General Permit by the EPA, as well as the compliance requirements for the Town related to the water quality limited waters. Specific details for each BMP including measurable goals, implementation timeframes, and individuals responsible for their implementation are stated in the subsequent sections. This Plan builds upon the list of BMPs established by the Town as part of the NOI submitted to EPA on September 28, 2018.

The majority of the BMPs will be implemented over the next five years (i.e. the permit term). However, the Town will have up to 10 years to implement some of the permit requirements as indicated. The Town's progress with respect to implementation of these BMPs, and other stormwater related activities, will be summarized in annual reports submitted to EPA in accordance with the MS4 Permit.

Checklists outlining the Town's requirements for Permit Years 1 through 5 are included in Appendix F.

2.2 Best Management Practices, Measurable Goals, and Implementation Timeframes

2.2.1 MCM #1 - Public Education and Outreach

The public education and outreach minimum control measure requires the Town to make educational material available to the public and other target audiences specified by the Permit. Winchester has been participating in public education and outreach activities since the 2003 MS4 Permit was enacted, and will continue and expand upon those activities under 2016 MS4 Permit, as detailed below.

<u>Regulatory Requirement:</u>

Section 2.3.2 of the 2016 MS4 General Permit requires permittees to "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 pollutants in stormwater are reduced." Additionally, since the Town's MS4 discharges to waterbodies impaired for phosphorus and bacteria, the Town is required to meet the public education requirements in Appendix H of the 2016 MS4 Permit.

<u>Proposed BMPs:</u>

Since the 2003 MS4 Permit became effective, the Town of Winchester has implemented several public education initiatives, which will be continued and expanded to meet the requirements of the 2016 MS4 Permit. These measures include the inclusion of stormwater and flood-related materials on our website, and the distribution of public education materials through mailings, public service announcements, and email list-serves. A summary of the proposed BMPs, responsible parties, measurable goals, and implementation timeframe for Minimum Control Measure #1 is provided below:

BMP 1-1: Brochures/Pamphlets – Residents

- Permit Section: 2.3.2.d.i
- Description: Distribute stormwater information to residents through the annual MWRA Consumer Confidence Report mailing and make a stormwater brochure available at the Building and Engineering Departments.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department, Building Department
- Measurable Goals: The Engineering Department will keep track of the various types of materials and quantities of materials distributed to residents.
- Implementation Timeframe: To be completed during Permit Year 1 (FY2019).

BMP 1-2: Local Public Service Announcements – Residents

- Permit Section: 2.3.2.d.i
- Description: Release a stormwater PSA via WinCAM. The Engineering Department will work in conjunction with MyRWA to develop a stormwater PSA specific to Winchester.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Engineering Department will track the number of times that the PSA is aired.
- Implementation Timeframe: To be completed during Permit Year 1 (FY2019).

BMP 1-3: Website/E-mail List Service/Press Release – Residents

- Permit Section: 2.3.2.d.i
- Description: The Town will distribute educational messages to encourage the proper use and disposal of grass clippings, and use of slow-release and phosphorus-free fertilizers; the proper management of pet waste; and the proper disposal of leaf litter.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Engineering Department will track the number and type of messages sent annually, as well as the number of residents reached via e-mail.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 1-4: Displays/Posters/Kiosks – Residents

- Permit Section: 2.3.2.d.i
- Description: The Town will display the pre-made MyRWA poster in Town Hall.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The poster shall be maintained for the duration of the permit term.
- Implementation Timeframe: To be completed during Permit Year 1 (FY2019).

BMP 1-5: Brochures/Pamphlets – Residents

- Permit Section: 2.3.2.d.i
- Description: The Town will distribute flyers during dog license issuance and renewal that contain information about proper pet waste disposal.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department, Town Clerk
- Measurable Goals: The Town will keep track of the number and types of materials distributed annually.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 1-6: Website/Press Release – Businesses, Institutions, and Commercial Facilities

- Permit Section: 2.3.2.d.ii
- Description: The Town will distribute messages to encourage the proper use and disposal of grass clippings and use of slow-release and phosphorus-free fertilizer, the proper management of pet waste, and the proper disposal of leaf litter.
- Targeted Audiences: Businesses, Institutions, and Commercial Facilities
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town shall keep track of the number of emails distributed annually.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit. (FY2019).

BMP 1-7: Brochures/Pamphlets – Residents

- Permit Section: 2.3.2.d.i
- Description: The Town will mail information to all owners of septic systems about proper maintenance procedures.
- Targeted Audiences: Residents

- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Engineering Department will keep track of the number of mailings sent annually.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit. (FY2019).

BMP 1-8: Web Page – Residents

- Permit Section: 2.3.2.d.ii
- Description: The Town will create a website providing information about stormwater to residents.
- Targeted Audiences: Residents
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town will track interaction with the site recording the number of visits to the site.
- Implementation Timeframe: To be completed during Permit Year 1 and maintained for the duration of the permit. (FY2019).

BMP 1-9: Brochures/Pamphlets – Businesses, Institutions, and Commercial Facilities

- Permit Section: 2.3.2.d.ii
- Description: The Town will distribute stormwater tips in the annual MWRA Consumer Confidence Report mailing and send a mailing to all auto-related businesses about proper storage and disposal of hazardous waste material.
- Targeted Audiences: Businesses, Institutions and Commercial Facilities
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Engineering Department will keep track of the types and quantities of materials being mailed.
- Implementation Timeframe: To be completed during Permit Year 2 (FY2020).

BMP 1-10: Web Page – Businesses, Institutions, and Commercial Facilities

- Permit Section: 2.3.2.d.ii
- Description: The Town will create a website for stormwater related material specifically targeted at businesses.
- Targeted Audiences: Businesses, Institutions and Commercial Facilities
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town shall monitor interaction with the website, and keep track of the number of visits to the web site.
- Implementation Timeframe: To be completed during Permit Year 2 and maintained for the duration of the permit (FY2020).

BMP 1-11: Newspaper Articles/Press Releases – Businesses, Institutions, and Commercial Facilities

- Permit Section: 2.3.2.d.ii
- Description: The Town will distribute a press release about proper care of private parking lots.
- Targeted Audiences: Businesses, Institutions and Commercial Facilities
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Engineering Department will track distribution of the press release.
- Implementation Timeframe: To be completed during Permit Year 2 (FY2020).

BMP 1-12: Brochures/Pamphlets – Industrial Facilities

- Permit Section: 2.3.2.d.iii
- Description: Winchester will include stormwater tips in the annual MWRA Consumer Confidence Report mailing directed at the Town's industrial facilities, and the Town will also develop and distribute a separate direct mailing to industrial facilities in town on stormwater tips.
- Targeted Audiences: Industrial Facilities
- Responsible Department/Parties: Engineering Department, DPW
- Measurable Goals: The Town will keep track of the types and quantities of materials being mailed, and to whom those materials are being distributed.
- Implementation Timeframe: To be completed during Permit Year 2 (FY2020).

BMP 1-13: Web Page – Industrial Facilities

- Permit Section: 2.3.2.d.iii
- Description: The Town will create a website containing stormwater information targeting the Town's industrial facilities.
- Targeted Audiences: Industrial Facilities
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town will track interaction with the site, and record the number of visits to the site annually.
- Implementation Timeframe: To be completed during Permit Year 2 and continued for the duration of the permit (FY2020).

BMP 1-14: Brochures/Pamphlets – Residents

- Permit Section: 2.3.2.d.i
- Description: Winchester shall include stormwater information in annual property tax bills.
- Targeted Audiences: Residents

- Responsible Department/Parties: Engineering Department, Treasurer/Collector
- Measurable Goals: The Town will keep track of the types and quantities of materials that are distributed, and maintain a distribution list.
- Implementation Timeframe: To be completed during Permit Year 3 (FY2021).

BMP 1-15: Brochures/Pamphlets – Developers

- Permit Section: 2.3.2.d.iv
- Description: The Town will include a section about stormwater tips in the annual MWRA Consumer Confidence Report mailing, and make a stormwater brochure available at the Building Department, Engineering Department and Conservation Commission.
- Targeted Audiences: Developers (construction)
- Responsible Department/Parties: Engineering Department, Building Department, Conservation Commission
- Measurable Goals: The Town will keep track of the various types of materials and quantities distributed.
- Implementation Timeframe: To be completed during Permit Year 3 (FY2021).

BMP 1-16: Web Page – Developers

- Permit Section: 2.3.2.d.iv
- Description: The Town will create a web page with stormwater information geared towards developers.
- Targeted Audiences: Developers (construction)
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town will track interaction with the site, and record the number of visits to the site annually.
- Implementation Timeframe: To be completed during Permit Year 3 and continued for the duration of the permit (FY2021).

BMP 1-17: Newspaper Articles/Press Releases – Developers

- Permit Section: 2.3.2.d.iv
- Description: The Town will distribute a press release developed by MyWRA with information about Best Management Practices that could be employed by developers.
- Targeted Audiences: Developers (construction)
- Responsible Department/Parties: Engineering Department, Town Manager
- Measurable Goals: The Town will track press release distribution.
- Implementation Timeframe: To be completed during Permit Year 3 (FY2021).

BMP 1-18: Brochures/Pamphlets – Businesses, Institutions, and Commercial Facilities

- Permit Section: 2.3.2.d.ii
- Description: The Town will direct mail to all local lawn care professionals information about proper yard waste disposal.
- Targeted Audiences: Businesses, Institutions and Commercial Facilities
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The town will keep track of the types and quantities of materials distributed and maintain a list of all recipients.
- Implementation Timeframe: To be completed during Permit Year 4 (FY2022).

BMP 1-19: Brochures/Pamphlets – Industrial Facilities

- Permit Section: 2.3.2.d.iii
- Description: The Town will include a section about stormwater tips in the annual MWRA Consumer Confidence Report mailing and also provide a direct mailing to all industrial facilities detailing stormwater management tips.
- Targeted Audiences: Industrial Facilities
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Town will keep track of the types and quantities of materials distributed and maintain a list of all recipients.
- Implementation Timeframe: To be completed during Permit Year 4 (FY2022).

BMP 1-20: Brochures/Pamphlets – Developers

- Permit Section: 2.3.2.d.iv
- Description: Winchester shall make materials available in the Conservation Commission and the Building Department offices about LID practices.
- Targeted Audiences: Developers (construction)
- Responsible Department/Parties: Engineering Department, Building Department, Conservation Commission.
- Measurable Goals: The town will keep track of the number of brochures distributed.
- Implementation Timeframe: To be completed during Permit Year 5 (FY2023).

2.2.2 MCM #2 – Public Involvement and Participation

Regulatory Requirement:

Section 2.3.3 of the 2016 MS4 Permit requires the Town to "provide opportunities to engage the public to participate in the review and implementation of the permittee's SWMP." Public participation benefits the program by increasing public support, including additional expertise and involving community groups/organizations to strengthen the overall program.

Proposed BMPs:

The Town of Winchester has been proactive in providing opportunities for public participation and involvement in stormwater management practices. The Town works collaboratively with the Mystic River Watershed Association (MyRWA) and is a member of the Mystic River Steering Committee created by EPA in 2010. The Winchester DPW also supports volunteers in holding community clean up events, including assisting the Friends of Winter Pond with a storm drain stenciling program at Winter Pond, and local Boy Scout troops with clean-ups along the Aberjona River. A summary of the proposed BMPs, responsible parties, measurable goals, and implementation timeframes for Minimum Control Measure #2 is provided below:

BMP 2-1: Public Review of SWMP and Annual Reports

- Permit Section: 2.3.3.a
- Description: Provide for public review of the SWMP and Annual Reports.
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Town will make this SWMP and annual MS4 stormwater reports available to the public at Town Hall and on the Town's website.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 2-2: River and Pond Clean-up Assistance

- Permit Section: 2.3.3.b
- Description: Provide in-kind assistance to river and pond clean-ups. Information will be posted on the DPW's website regarding how to request this assistance.
- Responsible Department/Parties: DPW
- Measurable Goals: The Town will assist local community groups with river and pond clean-up events annually.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 2-3: Household Hazardous Waste Collection (Permit Section 2.3.3.b)

- Permit Section: 2.3.3.b
- Description: Participate in Household Hazardous Waste Collection Days.
- Responsible Department/Parties: DPW, Board of Health
- Measurable Goals: Hold Hazardous Waste Collection Days annually and track the amount and types of materials collected.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 2-4: Mystic River Steering Committee Participation

- Permit Section: 2.3.3.b
- Description: Participate in the Mystic River Steering Committee.
- Responsible Department/Parties: Engineering Department
- Measurable Goals: The Town will send at least one representative to at least one Mystic River Steering Committee meeting annually.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

BMP 2-5: MWRA Poster Contest

- Permit Section: 2.3.3.b
- Description: Participate in MWRA's Water Conservation Poster Contest.
- Responsible Department/Parties: Winchester School Department
- Measurable Goals: The Town will work with Winchester students annually to participate in the poster contest as long as the contest continues to be offered.
- Implementation Timeframe: To be completed during Permit Year 1 and continued for the duration of the permit (FY2019).

2.2.3 MCM #3 – Illicit Discharge Detection and Elimination (IDDE) Program

Regulatory Requirement:

Section 2.3.4 of the 2016 MS4 General Permit requires the Town to develop a written Illicit Discharge Detection and Elimination (IDDE) program. The IDDE program is designed to "systematically find and eliminate sources of non-stormwater discharges to the municipal separate storm sewer system and implement procedures to prevent such discharges."

Proposed BMPs:

Under the 2003 MS4 Permit, the Town established the legal authority to prohibit illicit discharges, investigate suspected illicit discharges, eliminate illicit discharges, and implement enforcement procedures through the adoption of the *Rules and Regulations Regarding the Use of Public Sewers and Storm Drains* in April 2007. The Town also began development of a comprehensive map of their drainage system that exceeded the requirements of the 2003 MS4 Permit, and screened approximately 50% of our outfalls during dry weather. A summary of the proposed BMPs, responsible parties, measurable goals, and implementation timeframe for Minimum Control Measure #3 is provided below:

BMP 3-1: SSO Inventory

- Permit Section: 2.3.4.4.b
- SWMP Section: 3.1
- Description: Develop an inventory of where Sanitary Sewer Overflows (SSOs) have discharged to the Town's MS4 within the 5 years prior to the permit effective date, and update

this inventory annually going forward. The inventory must include the following: SSO location, whether the discharge entered the MS4 or a surface water directly, date and time that the SSO occurred, estimated discharge volume, known or suspected cause of the discharge, and mitigation or corrective measures completed or planned with implementation timeframes.

- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Develop and maintain a list of SSOs, including corrective measures taken.
- Implementation Timeframe: To be completed during Permit Year 1 and updated annually (FY2019).

BMP 3-2: IDDE Ordinance/Bylaw

- Permit Section: 2.3.4.a
- SWMP Section: 3.2
- Description: Continue to prohibit illicit discharges as outlined in the Town's *Rules and Regulations Regarding the Use of Public Sewers and Storm Drains*, and take enforcement actions as needed.
- Responsible Department/Parties: Engineering Department
- Measurable Goals: Report the number of enforcement actions taken annually.
- Implementation Timeframe: To be completed during Permit Year 1 (FY2019) and annually thereafter.

BMP 3-3: Written IDDE Program

- Permit Section: 2.3.4.6
- SWMP Section: 3.3
- Description: Create a written IDDE plan that documents all elements of the Town's IDDE Program, including program responsibilities and procedures, and meets the conditions of the permit.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Develop a written IDDE plan and continue to follow and implement the guidelines and practices in the program.
- Implementation Timeframe: To be completed during Permit Year 1 and updated annually as needed (FY2019).

BMP 3-4: Catchment Prioritization and Ranking

- Permit Section: 2.3.4.7
- SWMP Section: 3.4

- Description: Assess and rank the potential for all catchments to have illicit discharges. Identify catchments with System Vulnerability Factors (SVFs) that will necessitate wet weather sampling. This information will be included in the written IDDE plan (BMP 3-3).
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Assess the potential for delineated catchments to have illicit discharges by obtaining and evaluating data regarding the following:
    - Past discharge complaints
    - Receiving water quality
    - Density of generating sites
    - Age of development and infrastructure
    - Culverted streams
    - Water quality limited waters and water bodies with approved TMDLs

  Rank catchments as problem, high, low or excluded based on applicability of those factors evaluated. Then, identify catchments with the following System Vulnerability Factors (SVFs) that will necessitate wet weather sampling:
    - History of SSOs
    - Common trench construction
    - Crossing of storm and sanitary sewer alignments
    - Presence if sewers with underdrains
    - Areas of sewer surcharging or back-ups
    - Presence of sanitary sewer defects
- Implementation Timeframe: To be completed within one year of the permit effective date (FY2019) as part of the written IDDE Plan.

BMP 3-5: Employee Training

- Permit Section: 2.3.4.11
- SWMP Section: 3.5
- Description: Train DPW employees on IDDE implementation.
- Responsible Department/Parties: DPW
- Measurable Goals: Conduct annual training on the Town's IDDE Program. Track the number of employees that receive training annually and the dates on which training is held.
- Implementation Timeframe: Begin after IDDE plan is written in Year 1 and continue annually for duration of permit (FY2019).

BMP 3-6: Storm Sewer System Map

- Permit Section: 2.3.4.5
- SWMP Section: 3.6
- Description: Update drainage map in accordance with permit conditions and update annually during IDDE program implementation.
- Responsible Department/Parties: DPW, Engineering Department

- Measurable Goals: Update the Town's existing drainage map to include a full inventory of the Town's storm drain system including the following within 2 years of the permit effective date:
    - all outfalls and receiving waters *(already mapped),*
    - open channel conveyances,
    - interconnections with other MS4s *(already mapped)*,
    - municipally-owned stormwater treatment structures *(already mapped)*,
    - impaired waterbodies (already mapped),
    - and initial catchment delineations *(already mapped)*.

  Within 10 years of the permit effective date, this map shall also include:
    - location of outfalls with an accuracy of +/- 30 feet *(already mapped)*,
    - all pipes *(already mapped)*,
    - manholes *(already mapped)*,
    - catch basins *(already mapped)*,
    - refined catchment delineations, and
    - municipal sanitary sewer system *(already mapped)*.

  In addition, EPA suggests adding any information regarding:
    - storm and sanitary sewer material, size and age *(some data already mapped)*,
    - privately-owned stormwater treatment structures *(some already mapped)*,
    - septic systems and areas likely to be affected by septic leaching (where applicable),
    - seasonal high-water table elevations,
    - topography,
    - orthography,
    - alignments, dates and representation of illicit discharge remediation and locations of suspected, confirmed and corrected illicit discharges
- Implementation Timeframe: Begin to update the map during Permit Year 1 and complete full system map within 10 years of the permit effective date (FY2019) (FY2029).

BMP 3-7: Catchment Investigation Procedures

- Permit Section: 2.3.4.8.b
- SWMP Section: 3.3
- Description: Develop written catchment investigation procedures and incorporate into the IDDE Plan.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Amend written IDDE Plan with catchment investigation procedures.
- Implementation Timeframe: To be completed within 18 months of the permit effective date (FY2019-FY2020).

BMP 3-8: Implement IDDE Program

- Permit Section: 2.3.4.8.c.ii
- Description: Implement catchment investigations according to program and permit conditions, including TV inspection, smoke testing and dye testing as needed to isolate and identify illicit connections.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Implement and enforce practices set forth in written IDDE plan and IDDE bylaw. Track the number of illicit connections that are identified and removed annually.
- Implementation Timeframe: Begin after IDDE plan is written, starting investigations in problem catchments and then moving to high and low priority areas in that order. All problem, high and low priority catchments must be investigated within 10 years of the permit effective date (FY2028).

BMP 3-9: Follow-up Catchment Prioritization and Ranking

- Permit Section: 2.3.4.7.c
- Description: Update catchment prioritization and ranking as additional dry weather screening information becomes available.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: The outfall ranking described above shall be amended by the Town as new sampling results become available after dry-weather screening and sampling is completed.
- Implementation Timeframe: To be completed during Permit Year 3 (FY2020).

BMP 3-10: Conduct Dry Weather Screening

- Permit Section: 2.3.4.7.b
- Description: Conduct Dry Weather Screening of all regulated outfalls in accordance with outfall screening procedures and permit conditions.
- Responsible Department/Parties: DPW, Engineering
- Measurable Goals: Complete all dry weather screening and sampling within 3 years of the permit effective date. Track number of outfalls that are screened and sampled annually.
- Implementation Timeframe: To be completed within three years of the permit effective date (FY2020).

BMP 3-11: Conduct Wet Weather Screening

- Permit Section: 2.3.4.8.c.ii.2
- Description: Conduct wet weather screening and sampling at outfalls/interconnections in catchments where System Vulnerability Factors are present in accordance with permit conditions.
- Responsible Department/Parties: DPW, Engineering Department

- Measurable Goals: Complete all wet weather screening and sampling within 10 years of permit effective date. Track number of outfalls that are screened and sampled annually.
- Implementation Timeframe: Begin wet weather screening and sampling after dry weather screening is complete, and complete sampling no later than 10 years from permit effective date (FY2028).

BMP 3-12: On-going Screening

- Permit Section: 2.3.4.10
- Description: Conduct Dry and Wet weather screening (as necessary).
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Complete ongoing outfall screening upon completion of IDDE program
- Implementation Timeframe: To be performed as needed for the duration of the permit (FY2029).

2.2.4 MCM #4 – Construction Site Stormwater Runoff Control

Regulatory Requirement:

Section 2.3.5 of the 2016 MS4 Permit requires the Town to create a program 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 US through the permittee's MS4."

Proposed BMPs:

The 2003 MS4 Permit required the Town to develop, implement and enforce a program to address stormwater runoff from construction activities. Winchester's regulations on erosion and sediment control can be found in the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts* and the Winchester Zoning Bylaw, which outlines site plan review requirements.

To attain compliance with Minimum Control Measure #4 in the 2016 MS4 Permit, the Town will implement the BMPs identified below. These measures include supplementing existing regulations, and/or developing separate Standard Operating Procedures (SOPs).

BMP 4-1: Site Inspection and Enforcement of Erosion and Sediment Control (ESC) Measures

- Permit Section: 2.3.5.c.ii
- SWMP Section: 4.1
- Description: Develop written site inspection and enforcement procedures identifying who is responsible for site inspections as well as who has authority to implement enforcement procedures, including sanctions to ensure compliance.
- Responsible Department/Parties: Planning Board, Conservation Commission, Engineering Department
- Measurable Goals: Develop written procedures and continue to enforce erosion and sediment control measures and report on the number of site plan reviews, inspections and enforcements that occur annually.

- Implementation Timeframe: Complete within one year of the permit effective date (FY2019).

BMP 4-2: Site Plan Review Procedures

- Permit Section: 2.3.5.c.v
- SWMP Section: 4.2
- Description: Develop written procedures for conducting site plan reviews, inspection and enforcement.
- Responsible Department/Parties: Engineering Department, Planning Board
- Measurable Goals: Create and implement site plan review procedures and report on the number of site plan reviews conducted, inspections conducted, and enforcement actions taken annually.
- Implementation Timeframe: Complete within one year of the effective date of the permit (FY2019).

BMP 4-3: Erosion and Sediment Control BMPs for Construction Site Operators

- Permit Section: 2.3.5.c.iii
- SWMP Section: 4.3
- Description: Review and update existing stormwater regulations as needed to include language that requires construction operators to implement a sediment and erosion control program that includes BMPs that are appropriate for conditions at the construction site.
- Responsible Department/Parties: Planning Board, Engineering Department, Town Attorney
- Measurable Goals: Continue to enforce existing sediment and erosion control requirements, and update regulations as needed within one year of the permit effective date.
- Implementation Timeframe: Complete within one year of the effective date of the permit (FY2019).

BMP 4-4: Construction Site Waste Control

- Permit Section: 2.3.5.c.iv
- SWMP Section: 4.4
- Description: Review and update, as needed, the Town's existing stormwater regulations to ensure the control of wastes at construction sites, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes.
- Responsible Department/Parties: Planning Board, Engineering Department, Town Attorney, Board of Health

- Measurable Goals: Review and update the Town's existing regulations as needed, and implement.
- Implementation Timeframe: Complete within one year of the effective date of the permit (FY2019).

2.2.5 MCM #5 – Post-Construction Stormwater Management

Regulatory Requirement:

Section 2.3.6 of the 2016 MS4 Permit requires the permittee to require developers to "reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites."

In this case, a site is defined as the "area extent of construction activities which includes but is not limited to the creation of new impervious cover and improvement of existing impervious cover." New development is defined as construction activity that results in a total earth disturbance area equal to or greater than one acre on land that did not have any impervious area before work began. Redevelopment is defined as any construction activity that disturbs greater than or equal to one acre and does not meet the requirements to be designated as new development.

Proposed BMPs:

The Town of Winchester has incorporated post-construction stormwater management control measures into the Town's *Rules and Regulations Regarding the Use of Public Sewers and Storm Drains*, which was adopted in April 2007. These regulations currently require compliance with selected Stormwater Management Standards within the Massachusetts Stormwater Handbook, utilize the Massachusetts Stormwater Handbook as a reference BMP Manual for design and performance standards, require long-term operation & maintenance of structural BMPs, and incorporate a runoff volume control standard.

A summary of the proposed BMPs, responsible parties, measurable goals, and implementation timeframe for Minimum Control Measure #5 in the 2016 MS4 Permit is provided below:

BMP 5-1: As-Built Plan Requirement

- Permit Section: 2.3.6.a.iii
- Description: Review and update, as needed, existing procedures that require submission of as-built drawings and long-term operation and maintenance to meet permit requirements.
- Responsible Department/Parties: Planning Board, ZBA, Engineering Department, Building Department
- Measurable Goals: Require submission of as-built plans and long-term O&M for completed projects and update as need to meet permit requirements within 2 years of permit effective date.
- Implementation Timeframe: Complete within 2 years of the permit effective date (FY2020).

BMP 5-2: Target Properties to Reduce Impervious Areas

- Permit Section: 2.3.6.b

- Description: Identify at least 5 permittee-owned properties that could be modified or retrofitted with BMPs to reduce frequency, volume, and pollutant loads associated with stormwater discharges, and update annually.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: This goal can be achieved through disconnecting impervious surfaces, introducing low impact development and green infrastructure practices, or re-defining zoning regulations to change maximum sizes of parking lots and lane widths. Report annually on progress and retrofitted properties targeted by this effort.
- Implementation Timeframe: Complete within 4 years of the permit effective date, and report annually regarding the number of retrofits identified thereafter, to maintain at least 5 retrofits for the duration of the permit (FY2022).

BMP 5-3: Allow for Green Infrastructure

- Permit Section: 2.3.6.c
- Description: Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist.
- Responsible Department/Parties: Planning Board, ZBA, Engineering Department
- Measurable Goals: Complete assessment and implement recommendations of the report.
- Implementation Timeframe: Complete within 4 years of the permit effective date (FY2022).

BMP 5-4: Street Design and Parking Lot Guidelines

- Permit Section: 2.3.6.b
- Description: 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.
- Responsible Department/Parties: Planning Board, ZBA, Engineering Department, Building Department
- Measurable Goals: Complete assessment and implement recommendations of the report.
- Implementation Timeframe: Complete within 4 years of the permit effective date (FY2022).

BMP 5-5: Ensure that Requirements of the MA Stormwater Handbook are met

- Permit Section: 2.3.6.a.ii
- Description: Ensure any stormwater controls or management practices for new development and redevelopment meet the retention or treatment requirements of the permit and all applicable requirements of the Massachusetts Stormwater Handbook.
- Responsible Department/Parties: Planning Board, Engineering Department, Town Attorney, ZBA
- Measurable Goals: Review, and update as needed, existing regulatory mechanism that governs post-construction stormwater management to meet the retention and treatment requirements of the permit.

- Implementation Timeframe: Complete within 2 years of the permit effective date (FY2020).

2.2.6 MCM #6 – Good Housekeeping and Pollution Prevention

Regulatory Requirement:

Section 2.3.7 of the 2016 MS4 Permit requires the permittee to "implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality form all permittee-owned operations."

This minimum control measure includes a training component and has the goal of preventing or reducing stormwater pollution from municipal activities and facilities such as parks and open spaces, buildings and facilities, vehicles and equipment, and providing for the long-term operation and maintenance of MS4 infrastructure.

Proposed BMPs:

Winchester continues to employ several good housekeeping measures that were adopted during the 2003 MS4 Permit. These measures will be expanded to meet the requirements of the 2016 MS4 Permit. A summary of the proposed BMPs, responsible parties, measurable goals, and implementation timeframe for Minimum Control Measure #6 is provided below:

BMP 6-1: Develop and Implement Street Sweeping Program

- Permit Section: 2.3.7.a.iii.3
- Description: Sweep all streets and Town-owned parking lots in accordance with permit conditions.
- Responsible Department/Parties: DPW
- Measurable Goals: Sweep all streets and Town-owned parking lots once in the spring and once in the fall to meet permit requirements including requirements specific to impaired waters. Track number of miles swept, or mass or volume of debris removed.
- Implementation Timeframe: Begin street sweeping program within one year of the permit effective date (FY2019); develop Standard Operating Procedure (SOP) in Permit Year 2.

BMP 6-2: Road Salt Use Optimization Program

- Permit Section: 2.3.7.a.iii.5
- SWMP Section: 5.1
- Description: Develop and implement procedures for winter road maintenance including the use and storage of salt and sand; to minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in discharge of snow into waters of the U.S.
- Responsible Department/Parties: DPW
- Measurable Goals: Document existing procedures, identify opportunities for enhancement, and implement modifications to existing procedures as needed.
- Implementation Timeframe: Complete and implement within one year of the permit effective date (FY2019).

BMP 6-3: Inspection and Maintenance of Stormwater Treatment Structures

- Permit Section: 2.3.7.a.iii.6
- Description: Create and inventory of all municipally-owned BMPs and establish and implement inspection and maintenance procedures and frequencies.
- Responsible Department/Parties: DPW
- Measurable Goals: Inspect and maintain treatment structures at lease annually beginning in Permit Year 1. Track number of structures maintained and inspected annually. Develop maintenance procedures in Year 2 as part of BMP 6-6.
- Implementation Timeframe: Inspect all stormwater treatment structures within one year of the permit effective date (FY2019); develop inventory and SOP, including inspection forms, in Permit Year 2.

BMP 6-4: O&M Practices for Municipal Activities

- Permit Section: 2.3.7.a.i
- Description: Create written operation and maintenance (O&M) procedures addressing proper storage of materials, lawn maintenance and landscaping activities, protective practices, use and storage of petroleum products, employee training, waste management procedures for buildings and facilities, location of fueling areas, evaluation of possible leaks, and storage locations of Town-owned vehicles and equipment.
- Responsible Department/Parties: DPW
- Measurable Goals: Create and implement standard operation and maintenance procedures for all municipal activities and facilities. The Town will be as specific with standard operating procedures as possible and ensure the continued implementation of all maintenance activities.
- Implementation Timeframe: Complete within two years of the permit effective date (FY2020).

BMP 6-5: Inventory all Town-Owned Property

- Permit Section: 2.3.7.a.ii
- Description: Inventory all Town-owned parks and open spaces, buildings and facilities, and vehicles and equipment and update annually.
- Responsible Department/Parties: DPW
- Measurable Goals: Create Inventory and update annually.
- Implementation Timeframe: Complete within two years of the permit effective date (FY2020).

BMP 6-6: MS4 Infrastructure O&M

- Permit Section: 2.3.7.a.iii
- Description: Establish and implement a program for repair and rehabilitation of MS4 infrastructure.
- Responsible Department/Parties: DPW

- Measurable Goals: Create and implement an operation and maintenance plan for stormwater infrastructure.
- Implementation Timeframe: Complete within two years of the permit effective date (FY2020).

BMP 6-7: Stormwater Pollution Prevention Plan (SWPPP)

- Permit Section: 2.3.7.b
- Description: Create SWPPPs for the DPW Facility on Lake Street and the Transfer Station/Recycling Center on McKay Avenue and perform required training and inspection.
- Responsible Department/Parties: DPW
- Measurable Goals: Contract an external firm to develop comprehensive SWPPP for the town's facilities. The SWPPP shall include practices to address minimizing or preventing exposure, good housekeeping, preventative maintenance, spill prevention responses, erosion and sediment control, runoff management, salt pile storage, employee training, and other control measures specific to the town.
- Implementation Timeframe: To be completed during Permit Year 2 (FY2020).

BMP 6-8: Catch Basin Cleaning Optimization

- Permit Section: 2.3.7.a.iii.2
- SWMP Section: 5.2
- Description: Develop and implement a plan to optimize inspection, cleaning and maintenance of catch basins to ensure that permit conditions are met.
- Responsible Department/Parties: DPW, Engineering Department
- Measurable Goals: Collect date to develop optimization plan, including depth from bottom of sump to invert of outlet pipe, depth from bottom of sump to catch basin rim, and depth from top of sediment to catch basin rim and implement.
- Implementation Timeframe: Complete and implement catch basin optimization plan within two years of permit effective date (FY2020).

BMP 6-9: Catch Basin Cleaning

- Permit Section: 2.3.7.a.iii.2
- SWMP Section: 5.2
- Description: Establish schedule for catch basin cleaning such that each catch basin is no more than 50% full and clean catch basins on that schedule.
- Responsible Department/Parties: DPW
- Measurable Goals: Clean catch basins on established schedule and report number of catch basins cleaned and volume of material moved annually during both cleanings in the fall and in the spring. The Town shall optimize the cleaning effort such that all catch basins have been located, measured, cleaned and monitored to ensure that each basin does not become more than 50% full of debris and refuse.

- Implementation Timeframe: Complete and implement catch basin optimization plan within two years of permit effective date (FY2020) and clean catch basins annually to ensure that each catch basin is no more than 50% full.

2.2.7 Discharges to Water Quality Limited Waters – Phosphorus Impairments

Regulatory Requirement:

The Aberjona River and Wedge Pond are both impaired for phosphorous and require the development of a TMDL. All of Winchester is tributary to the Mystic River, which is also impaired for phosphorus and requires the development of a TMDL. The Town has a number of outfalls, which discharge directly or indirectly, to each of these receiving waters and therefore, the Town is subject to the requirements of Appendix H of the MS4 Permit, which outlines requirements related to discharges to water quality limited water bodies and their tributaries where phosphorus is the cause of the impairment. Requirements include additional public education and outreach regarding phosphorus controls, regulatory updates, targeted good housekeeping and pollution prevention activities, and development of a Comprehensive Phosphorus Source Identification Report.

Proposed BMPs:

Regulatory Updates

As part of BMP 5-5, Ensure that Requirements of the MA Stormwater Handbook are met (Permit Section 2.3.6.a.ii), the Town of Winchester must update their Rules and Regulations Regarding the Use of Public Sewers and Storm Drains to require that all new development and redevelopment stormwater management BMPs constructed within town be optimized for phosphorous removal. A comprehensive review of all existing rules and regulations must be performed within two years of the permit effective date to determine any updates that must be made to comply with this statute and any progress shall be reported here and in the Town's Annual Report.

Under BMP 5-2, Target Properties to Reduce Impervious Areas, as part of the assessment to identify permittee-owned property that can be retrofitted with BMPs, the incorporation of BMPs that infiltrate stormwater shall be prioritized where feasible to aid in phosphorus removal.

Good Housekeeping and Pollution Prevention

As part of BMP 6-1,Develop and Implement Street Sweeping Program, the Town shall develop and implement a program to manage grass clippings and leaf litter on all permittee-owned property, including prohibiting blowing organic waste materials onto adjacent impervious surfaces, within 2 years of the permit effective date. That plan shall be appended here.

As part of BMP 6-4, O&M Practices for Municipal Activities, the Town shall increase street and municipal parking lot sweeping frequencies to a minimum of two times per year, in the spring after snowmelt and sanding practices have subsided, and in the fall after leaf fall events (September 1st to December 1st). A street sweeping schedule shall be included in this plan and in the Town's Annual Reports.

Phosphorus Source Identification

The Town must develop a comprehensive Phosphorous Source Identification Report. This report must include the following elements:

- Calculation of the total MS4 regulated area draining to those receiving waters tributary to the Mystic River. This would include Wedge Pond and the Aberjona River, which also have phosphorus impairments of their own. The analysis will reflect any updated MS4 mapping and catchment delineations.
- All screening and monitoring results for outfalls tributary to the Mystic River. Outfalls discharging directly to Wedge Pond and the Aberjona River will be tested for phosphorus during dry and wet weather sampling events, where flowing.
- Calculation of Impervious Area and Directly Connected Impervious Area for each catchment.
- Identification, delineation and prioritization of potential catchments with high phosphorous loading.
- Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area to reduce phosphorous loadings.

This report must be appended to the Town's Year 4 Annual Report and to this SWMP upon completion.

After the submission of the report, the Town must evaluate all permittee-owned properties within the drainage area that could be candidates for a BMP retrofit. This evaluation must include:

- The next planned infrastructure, resurfacing or redevelopment activity planned for the property or planned retrofit date;
- The estimated cost of redevelopment or retrofit BMPs; and
- The engineering and regulatory feasibility of redevelopment of retrofit BMPs.

This analysis must be complete within 5 years of the permit effective date, and a plan and schedule for implementation must be included in the Year 5 Annual Report. The Town must plan and install at least one structural BMP as a demonstration project within the drainage area of the Mystic River within 6 years of the permit effective date. This BMP must target a catchment with high phosphorus load potential. Any other identified BMP retrofit project must be installed according to the schedule outlined in the Year 5 Annual Report. For those structural BMPs installed, the Town must document the following in each MS4 Annual Report:

- BMP type
- Total area treated by the BMP
- Design storage volume of the BMP
- Estimated phosphorus removed in mass per year by the BMP

2.2.8 Discharges to Water Quality Limited Waters – Bacteria Impairments

<u>Regulatory Requirement:</u>

The Aberjona River is impaired for E.coli and requires the development of a TMDL; therefore, the Town is subject to the requirements of Appendix H of the MS4 Permit, which outlines requirements related to discharges to water quality limited water bodies where bacteria or pathogens is the cause of the impairment. The requirements include additional public education and outreach regarding bacteria controls, and specific requirements for the implementation of our IDDE program.

Proposed BMPs:

In implementing their Illicit Discharge Detection and Elimination Program under BMP 3-4: Catchment Prioritization and Ranking (Permit Section 2.3.4.7), the Town will designate all catchments that are tributary to the Aberjona River as problem or high priority under the catchment prioritization and ranking.

2.2.9 Discharges to Water Quality Limited Waters – Turbidity Impairments

Regulatory Requirement:

Since the Aberjona River is impaired for Turbidity and requires the development of a TMDL, the Town is subject to the requirements of Appendix H of the MS4 Permit, which outlines requirements related to discharges to water quality limited water bodies where solids, metals, or oil and grease is the cause of the impairment. The requirements include specific regulatory updates, and additional good housekeeping and pollution prevention activities.

Proposed BMPs:

Regulatory Updates

As part of BMP 5-5, Ensure that Requirements of the MA Stormwater Handbook are met, the Town must update their existing Rules and Regulations Regarding the Use of Public Sewers and Storm Drains, to require that all new development and redevelopment stormwater management BMPs located on commercial or industrial land incorporate designs that allow for shutdown and containment to isolate the drainage system in the event of an emergency spill or other unexpected event. EPA also encourages the Town to require that any BMPs designed to infiltrate stormwater on commercial and industrial sites be designed to obtain a level of pollutant removal that is equal to or greater than the level of pollutant removal provided by a comparable biofiltration system treating the same volume of runoff. This review and any necessary changes must be completed within the second year of the permit.

Good Housekeeping and Pollution Prevention

As part of BMP 6-1, Develop and Implement Street Sweeping Program, the Town must increase the frequency of street sweeping of all municipally owned streets and parking lots in catchment areas tributary to the Aberjona River with the potential for high pollutant loads. Commercial areas, high-density residential areas, and drainage areas with a large amount of impervious area must be considered priorities. The Town must include the street sweeping schedule developed to target these areas with higher pollutant loads in their annual reports to EPA each year.

In conjunction with BMP 6-9, Catch Basin Cleaning, catch basins that drain to those outfalls tributary to the Aberjona River must be inspected more frequently to ensure that the sump for each basin is no more than 50% full at any given time. For those catch basins where excessive sediment or debris is located, catch basins must be cleaned more often.

3.0 IDDE PROGRAM DOCUMENTS

3.1 BMP 3-1: SSO Inventory

Sanitary Sewer Overflows (SSOs) are included in the MS4 Permit's definition of illicit discharges and can be defined as 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, power failures, vandalism, and sewer defects. This includes SSOs resulting during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for communication of flow between the systems.

3.1.1 SSO Inventory Procedure

In accordance with Section 2.3.4.4.b of the Permit, Winchester will maintain and update annually an inventory, that identifies all known locations where SSOs have discharged to the MS4 within the five (5) years prior to the effective date of the MS4 Permit (July 1, 2018), and any SSOs that have occurred thereafter. This includes SSOs resulting, during dry or wet weather, from inadequate conveyance capacities, or where interconnectivity of the storm and sanitary sewer infrastructure allows for transmission of flow between the systems. The inventory will include the following information, when available:

- Location (approximate street crossing/address and receiving water, if any);
- 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 (i.e., beginning and end of any known discharge);
- Estimated volume 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.

3.1.2 SSO Notification to EPA and MassDEP

In accordance with Section 2.3.4.4.c of the Permit, upon detection of an SSO, Winchester will provide oral notice to EPA within 24 hours, a written notice to EPA within five (5) days and shall include the information in the updated inventory as identified above, and mitigate it as expeditiously as possible taking interim measures to minimize the discharge of pollutants to and from its MS4 until elimination is completed.

3.1.3 Annual SSO Inventory – Permit Year 1 Update

The Town of Winchester has had six SSO occurrences between July 1, 2013 and June 30, 2019. However, it is important to note that two of these occurrences were associated with overflows in MWRA's sewer interceptor, which created the overflow upstream in Winchester's sewer system. These include the following:

- An SSO occurred on December 9, 2014 on Section 69 of the 36-inch MWRA sewer interceptor on Swanton Street. Flow discharged overland from a sewer manhole and then entered the Aberjona River via surface runoff. This occurrence coincided with 4.21 inches of rain that fell on December 9th and 10th, and is equivalent to a 5-year, 24-hour storm event. The volume of the sanitary sewer overflow is unknown as the overflow was identified after the event had already occurred, and no field observations or measurements were taken. Material was raked, swept and removed.

- An SSO occurred on December 9, 2014 at Section 113 of the 69" x 66" MWRA sewer interceptor on Bacon Street. Flow discharged overland from a sewer manhole and then entered the Mystic River via surface runoff. This occurrence coincided with 4.21 inches of rain that fell on December 9th and 10th, and is equivalent to a 5-year, 24-hour storm event. The volume of the sanitary sewer overflow was estimated to be 24.6 MG based upon field observations and measurements taken and calculated using the weir equation. Material was raked and cleaned up.

- An SSO occurred on December 10, 2014 at Edgewater Place. Flow discharged overland from a sewer manhole and then entered the Mystic Lakes via surface runoff. This occurrence coincided with 4.21 inches of rain that fell on December 9th and 10th, and is equivalent to a 5-year, 24-hour storm event. The volume of the sanitary sewer overflow was estimated to be less than 1 MG, based on past history.

- An SSO occurred on September 20, 2016 at Edgewater Place. Flow discharged overland from a sewer manhole and then entered the Mystic Lakes via surface runoff. This occurrence was the result of a sewer system blockage. The volume of the sanitary sewer overflow was estimated to be less than 1 MG, based on past history. Mitigation planned includes ongoing infiltration and inflow projects.

- An SSO occurred from April 6 to April 7, 2017 at Edgewater Place. Flow discharged overland from a sewer manhole and then entered the Mystic Lakes via surface runoff. This occurrence was related to a rain event and insufficient capacity of the system. Mitigation completed consisted of cleaning the immediate area The MWRA sewer interceptor was surcharged at the time. The volume of the sanitary sewer overflow was estimated to be 0.1 MG. Mitigation planned includes ongoing infiltration and inflow projects.

- An SSO occurred from November 27 to November 30, 2018 at Edgewater Place. Flow discharged overland from a sewer manhole and then entered the Mystic Lakes via surface runoff. There was also a sewer back-up into the property at 3 Edgewater Place. Although discharges occurred over a 4-day period, they were not continuous. This occurrence was related to a rain event and insufficient capacity of the system. The MWRA sewer interceptor was discharging at the time. The volume of the sanitary sewer overflow was estimated to be 0.5 MG based on past history. Mitigation completed consisted of cleaning the area around the sewer manhole and inside the property at 3 Edgewater Place. Mitigation planned includes ongoing infiltration and inflow projects.

The Town will update this SSO inventory annually as part of the SWMP and the Town's IDDE Plan. Information will also be included in the Town's MS4 Annual Reports, including the status of mitigation and corrective measures to address each identified SSO.

3.2 BMP 3-2: IDDE Ordinance/Bylaw

On April 9, 2007, the Winchester Select Board adopted *Rules and Regulations Regarding the Use of Public Sewers and Storm Drains in the Town of Winchester, Massachusetts*, which became effective on June 8, 2007. These regulations were adopted in part to fulfill the Town's obligation to comply with the 2003 MS4 Permit. A copy of these regulations is included in Appendix G.

With respect to illicit discharge detection and elimination, the intent of the regulations, is to prevent the introduction of pollutants to Winchester's MS4 from stormwater discharges by any user, prohibit illicit connections to the MS4, and to allow the Town to monitor the system and remove any found illicit connections.

These Rules and Regulations are granted authority through Chapter 7, Section 1 of the Town's "Code of Bylaws" and in accordance with the regulations of the Clean Water Act and the Phase II ruling from the USEPA as published in the Federal Register. This ordinance prohibits non-stormwater discharges to the drainage system. The DPW Director is responsible for enforcement, and has the authority to investigate suspected illicit discharges.

3.3 BMP 3-3: Written IDDE Program

Section 2.3.4.6 of the 2016 MS4 Permit requires the Town to develop a written IDDE Program document that includes an assessment priority ranking of outfalls and interconnections (Section 2.3.4.7); the development of a systematic procedure to investigate each catchment associated with an outfall our interconnection in our MS4 system (Section 2.3.4.8); a statement of IDDE program responsibilities; and written procedures for dry weather outfall screening and sampling, and sampling for catchment investigations.

Winchester has developed this written IDDE Program document under separate cover and a copy is available on the Town of Winchester's website under "Engineering Department".

3.4 BMP 3-4: Catchment Prioritization and Ranking

The Town completed an initial inventory and priority ranking in Permit Year 1 to assess the illicit discharge and SSO potential of each regulated catchment and the related public health significance. The ranking will determine the priority order for screening of outfalls and interconnections, catchment investigations for evidence of illicit discharges, and provide the basis for determining permit milestones. Major factors considered in the prioritization and ranking of catchments include:

- Past discharge complaints and reports;
- Receiving water quality, including any dry weather sampling conducted under the 2003 MS4 Permit;
- Density of generating sites;
- Age of development and infrastructure;
- Culverted streams; and
- Water body impairments.

This inventory and ranking has been documented in the Town's IDDE Plan, and will be updated annually throughout the permit term to reflect new findings from dry and wet-weather sampling and other IDDE program activities, and will be documented in the Town's MS4 Annual Reports.

3.5 BMP 3-5: Employee Training

Section 2.3.4.11 of the 2016 MS4 Permit requires the Town to provide training to employees involved in the IDDE program about the program, including how to recognize discharges and SSOs. The Town of Winchester has worked with the engineering consulting firm Weston & Sampson to develop and implement this training program with our DPW staff in Year 1; a copy of the training materials is included as an appendix to the written IDDE plan. The training will be repeated in subsequent permit years.

3.6 BMP 3-6: Storm Sewer System Mapping

The Town of Winchester has already developed a comprehensive map of our drainage system, which includes outfalls, pipes, manholes, catch basins, interconnections with other MS4s, municipally owned stormwater treatment structures and impaired water bodies. Outfalls and interconnection have been analyzed to create a defined catchment area that includes surface runoff to catch basins tributary to the identified outfall or interconnection. The catchment delineation process considered each catch basin upstream from the outfall or interconnection and the area that would conceivably drain to that catch basin based on topography and impervious cover. As drainage infrastructure mapping becomes more complete over the course of the investigations performed throughout the permit term, this exercise will be refined and updated.

The Town has approximately:

- 83.6 miles of gravity pipe/pressurized main/culverts ranging from 4-inches in diameter to 48”x54” in size constructed of asbestos cement, brick, cast iron, vitrified clay, reinforced concrete, corrugated metal, ductile iron, HDPE, PVC, steel and stone;
- 7 drainage pump stations;
- 3,120 catch basins;
- 2,050 storm drain manholes;
- 163 municipal outfalls;
- 65 non-municipal outfalls; and
- 26 interconnections with other MS4s.

The mapping has been completed in accordance with the 2016 MS4 Permit’s accuracy guidelines, the most recent version of which can be found in Appendix D of this report.

The Town is also in the process of mapping privately-owned stormwater treatment structures. The Town already has in place a comprehensive map of their municipal sanitary sewer system.

Winchester has reviewed drainage infrastructure within town boundaries to determine ownership. Private infrastructure or infrastructure owned and operated by another municipality or a state entity has been determined and designated in the Town’s drainage GIS.

The mapping will serve as a planning tool for the implementation and phasing of the Town’s IDDE Program and demonstration of the extent of complete and planned investigations and corrections. The Town will update their mapping as needed to reflect newly discovered information and required

corrections or modifications. The Town will report annually on progress toward completion of the system map in their MS4 Annual Report.

4.0 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL DOCUMENTS

Section 2.3.5 of the 2016 MS4 Permit requires the Town to develop an effective construction stormwater runoff control program to minimize or eliminate erosion and maintain sediment on-site so that it is not transported via stormwater runoff and allowed to discharge through the Town's MS4 system. The program required by the Permit is separate and distinct from EPA's stormwater construction permit program.

The Town is required to implement and enforce a construction site runoff control program for all construction activities that result in land disturbance of greater than or equal to one acre. The program shall also include disturbances less than one acre if that disturbance is part of a larger common plan of development or sale that would disturb one or more acres.

Winchester's existing regulations on erosion and sediment control, adopted under the 2003 permit requirements, can be found in the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts*, and the Winchester Zoning Bylaw, which outlines site plan review requirements. Copies of these regulations are included as Appendix G.

4.1 BMP 4-1: Site Inspection and Enforcement of Erosion and Sediment Control Measures

In accordance with MS4 Permit Section 2.3.5.c.ii, under BMP 4-1, the Town of Winchester reviewed our existing regulations related to site inspections procedures and the enforcement of sediment and erosion control measures. The permit requires that the Town provide a clear definition of who is responsible for site inspections and who has the authority to implement enforcement procedures.

Section 7.19 of the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts* outlines the required Sedimentation and Erosion Control Measures, including the submission of an Erosion and Sedimentation Control (ESC) Plan as part of the definitive subdivision submittal. Section 7.19.1(h) requires that the applicant submit an Erosion and Sedimentation Control Operation and Maintenance (ESC O&M) Plan to the Planning Board as part of the definitive subdivision process. This Plan must specify the party responsible for maintenance of the ESC measures and outline the inspection schedules. Section 7.19.1(p) requires that a written report be prepared after each inspection by the applicant or their engineer documenting compliance with the ESC O&M Plan. Inspection reports must be maintained by the permittee and made available to the Town for review upon request.

Additionally, Section 9.5 of the Town's Zoning Bylaw outlines the Town's Site Plan Review requirements and requires that any new construction "provide adequate stormwater management and other utilities consistent with the functional requirements of the Planning Board Subdivision Rules and Regulations".

Enforcement mechanisms for subdivision approvals, and ESC measures therein, falls under the jurisdiction of the Winchester Planning Board, who work in concert with the Town Planner and Engineering Department to monitor the progress of subdivision construction projects. Site Plan approvals and Special Permits are approved by the Zoning Board of Appeals, and these approvals are enforced by the Building Department. Additionally, for projects falling under the jurisdiction of the Wetlands Protection Act or Winchester's local wetlands bylaw, the Conservation Commission performs an inspection prior to the start of construction, and periodically throughout construction, to ensure that erosion control measures are adequately installed and maintained.

4.2 BMP 4-2: Site Plan Review Procedures

Section 2.3.5.c.v of the MS4 permit requires the Town to develop written procedures for site plan review, inspection and enforcement.

The Town has developed a written SOP that outlines site plan review procedures to comply with this permit requirement. It identifies the types of projects to which the SOP applies as well as those departments responsible for implementation. It identifies those items that are to be reviewed as part of the site plan review process, including water quality impacts. Public hearings are held as part of the site plan review process, which provide the opportunity for the public to comment on the proposed project. The SOP includes evaluation of opportunities for use of low impact design and green infrastructure. The Town's Subdivision Rules & Regulations include a LID Site Planning and Design Checklist in Appendix I. This checklist is required to be submitted along with the Stormwater Management Report and must include a description of proposed water quality controls and low impact development techniques used in the subdivision design. Construction site inspection procedures are also documented in the SOP, and identify the parties responsible for permit compliance, the inspection protocols and procedures, and the system for tracking the number of site reviews, inspections, and enforcement actions. A copy of these procedures is included in Appendix I.

4.3 BMP 4-3: Erosion and Sediment Control BMPs for Construction Site Operators

Section 2.3.5.c.iii of the MS4 permit requires construction site operators performing land disturbance activities within the Town that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site.

Section 7.19.1 of the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts* requires the development of an Erosion and Sediment Control (ESC) Plan. The regulations require the installation of protective measures, including "silt fencing and straw bales; catch basin inlet protection; erosion control matting, mulches, and/or temporary cover vegetation; and temporary sedimentation basins, diversions, berms, vegetated swales, culverts, or other devices as are necessary to intercept and safely divert surface water runoff during construction." The ESC Plan is required, at a minimum, to comply with the performance standards of the most recent version of the *Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials*, in addition to the requirements of Section 7.19.1(a) through (p).

Additionally, Section 9.5 of the Town's Zoning Bylaw outlines the Town's Site Plan Review requirements and requires that any new construction "provide adequate stormwater management and other utilities consistent with the functional requirements of the Planning Board Subdivision Rules and Regulations".

4.4 BMP 4-4: Construction Site Waste Control

Section 2.3.5.c.iv of the MS4 Permit requires the development of regulations for construction site operators to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes. These wastes cannot be discharged to the MS4.

Section 5.0, Use of the Public Sewers and Storm Drains, as included in the *Town's Rules and Regulations Regarding the Use of Public Sewers and Storm Drains in the Town of Winchester,*

Massachusetts does prohibit the discharge of any pollutant or non-stormwater discharge into the storm drain system. Sections 5.7 and 5.8 lists a number of prohibited wastes, including various chemicals. The Town plans to amend these regulations to be more specific as it relates to construction-related debris.

The Town has included in their Standard Operating Procedures for Site Plan Review that the review of water quality impacts include application and implementation of the following guidelines during the design and review phases - the location and description of construction and waste materials to be stored on-site, including discarded building material, concrete truck washout, chemicals, litter, and sanitary waste as well as a description of practices to control these wastes to avoid adverse impacts to water quality. The description of controls to reduce pollutants from these materials shall include storage practices to minimize exposure of the materials, and spill prevention and response.

5.0 GOOD HOUSEKEEPING AND POLLUTION PREVENTION PROGRAM DOCUMENTS

As part of the minimum control measure for Pollution Prevention/Good Housekeeping for Municipal Operations, Section 2.3.7 of the MS4 Permit requires permittees to develop and implement an Operations and Maintenance (O&M) program for permittee-owned facilities, and to activities to prevent or reduce pollutant runoff and protect water quality. The O&M Program is required to include the following elements:

- An inventory of all permittee-owned facilities.
- Written O&M procedures for the following activities:
    - Parks and open space
    - Buildings and facilities where pollutants are exposed to runoff
    - Vehicles and equipment
- A written program detailing the activities and procedures the permittee will implement so that MS4 infrastructure is maintained in a timely manner to reduce the discharge of pollutants from the MS4, to include:
    - Optimization of routine inspections, cleaning and maintenance of catch basins.
    - Implementation of procedures for sweeping and/or cleaning streets, and permittee-owned parking lots.
    - Proper storage and disposal of catch basin cleanings and street sweepings.
    - Implementation of procedures for winter road maintenance.
    - Implementation of inspection and maintenance frequencies and procedures for storm drain systems and stormwater treatment structures.
- Written records for all maintenance activities, inspections and training.

The following sections of this SWMP provide documentation of the three BMPs related to Minimum Control Measure #6 that have been completed during Permit Year 1. As required in 2.3.7.a.iii.2, bullet 5, it also provides an update on our plan for optimizing catch basin cleaning and inspections plans. The final catch basin cleaning optimization plan will be prepared in Permit Year 2.

5.1 BMP 6-2 Road Salt Use Optimization Program

Section 2.3.7.a.iii.5 of the Permit requires the establishment and implementation of procedures for winter road maintenance, including the use and storage of salt and sand; minimizing the use of sodium chloride and other salts, and evaluation of opportunities for the use of alternative materials; and ensuring that snow disposal activities do not result in disposal of snow into waters of the US.

The Standard Operating Procedure (SOP) for winter road maintenance, which includes snow removal and deicing, is included in Appendix H.

5.2 BMP 6-8: Catch Basin Cleaning and Optimization (Permit Year 1 Update Only)

Section 2.3.7.a.iii.2 of the Permit requires the Town to optimize routine inspections, cleaning and maintenance of catch basins. The Town will develop an optimization plan in Permit Year 2, however, an update is provided below in accordance with 2.3.7.a.iii.2, bullet 5.

The Town currently has approximately 3,120 catch basins, and the frequency of catch basin cleaning is approximately 20% per of all basins per year. To meet the anticipated requirements of the 2016 MS4 Permit, the Town will optimize catch basin inspection, cleaning and maintenance such that the following conditions are met:

- Prioritization of the inspection and maintenance of catch basins located near construction activities (roadway construction, residential, commercial, or industrial development or redevelopment). Catch basins in such areas must be cleaned more frequently if inspection and maintenance activities indicate excessive sediment or debris loading.
- Establishment of a schedule such that the frequency of routine cleaning ensures that no catch basin at any time will be more than 50-percent full. A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.
- If a catch basin sump is more than 50 percent full during two consecutive routine inspections/cleaning events, the Town will document the finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the extent practicable, abate contributing sources.
- The Town will maintain documentation, including metrics and other information, used to reach the determination that the established plan for cleaning and maintenance is optimal and meets the requirements of the MS4 Permit, including a log of catch basins cleaned and inspected.
- The Town will track and report the following information to EPA annually:
    - Total number of catch basins town-wide
    - Number of catch basins inspected
    - Number of catch basins cleaned
    - Total volume or mass of material removed from all catch basins

The Town has collected additional data during Permit Year 1 as part of their optimization plan to ensure that no catch basin is more than 50% full. Data collected included the depth from the catch basin rim to the top of sediment, to the bottom of the basin, and to the invert of the outlet pipe. Data will again be collected during the Permit Year 2 catch basin cleaning season.

This data will be integrated into the Town's GIS and utilized to identify those catch basins that are filling up more frequently, and will therefore need to be cleaned more than once annually to ensure that the catch basin sump is never more than 50% full. A final optimization plan will be included in the SWMP in Permit Year 2.

6.0 PROGRAM EVALUATION, RECORD KEEPING, AND REPORTING

Section 4.0 of the MS4 Permit layouts out the requirements for the evaluation, reporting, and record keeping associated with the development and implementation of the Town's SWMP. The Town of Winchester will conduct an annual evaluation of its program compliance and the appropriateness of its identified BMPs.

6.1 Program Evaluation

In accordance with Section 4.1 of the MS4 Permit, the Town of Winchester will annually self-evaluate its compliance with the terms and conditions of the Permit, and submit each self-evaluation in the Annual Report. Section 4.4 of the Permit details the requirements for the content of the Annual Report, as outlined below:

- Self-assessment review of compliance with the permit terms and conditions.
- An assessment of the appropriateness of the selected BMPs.
- The status of Winchester's plans or activities to reduce discharge pollutants to the MS4 to eliminate an exceedance of water quality standards; and discharges to impaired waters.
- An assessment of Winchester's progress towards achieving the measurable goals and objectives of our BMPs outlined in Section 2.0.
- All outfall screening and monitoring data collected during the reporting period.
- A description of activities for the next reporting cycle.
- A description of any changes in the identified BMPs or measurable goals.
- A description of the activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.

Annual Reports are due 90 days from the close of the reporting period, with submittals to EPA and MassDEP. Copies of the Annual Reports for the respective permit years will be added to Appendix I of this SWMP after their completion.

6.2 Evaluation of SWMP Success

This SWMP is considered a dynamic document that will be modified as necessary to account for changes in MS4 infrastructure, laws and regulations, and Town leadership and policy. The success of the BMPs implemented by the SWMP will also be evaluated to ensure that they are accomplishing the goals for which they were intended, and in a method and timetable that continues to be appropriate. In addition, the SWMP will be reviewed and revised as necessary to keep text and appendices current, such as:

- Updating stormwater monitoring findings and priorities.
- Updating the IDDE investigation, identification and removal documentation.
- Adoption of any new or revised ordinances or other regulatory mechanisms related to stormwater or drainage infrastructure.

6.3 Modifications to the SWMP or NOI

As discussed above, minor modifications to this SWMP may be made on a regular and frequent basis to keep it current. However, major changes to the SWMP or needed modifications to the NOI for inclusion under the NPDES Permit require an official process, as outlined in Section 4.1 of the MS4 Permit, and summarized below:

- At any time, the Town may add (but not subtract or replace) components, controls or requirements to the SWMP.
- The Town may request to replace an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP at any time as long as the basis for the change is documented in the SWMP by, at a minimum:
    - An analysis of why the BMP is ineffective or infeasible (or cost prohibitive).
    - Expectations on the effectiveness of the replacement BMP.
    - An analysis of why the replacement BMP is expected to achieve the goals of the BMP to be replaced.
- The Town shall indicate BMP modifications along with a brief explanation of the modification in each Annual Report.

Weston & Sampson

westonandsampson.com

55 Walkers Brook Drive
Reading, MA 01867
tel: 978.532.1900

STORMWATER MANAGEMENT PLAN APPENDICES

MS4 GENERAL PERMIT COMPLIANCE

JUNE 2019

TOWN OF
Winchester
MASSACHUSETTS

swmp

APPENDICES

APPENDIX A

Abbreviations and Definition

ABBREVIATIONS AND DEFINITIONS

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

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

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

Director - a Regional Administrator of the Environmental Protection Agency or an authorized representative.

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

Discharge of a pollutant - any addition of any “pollutant” or combination of pollutants to “waters of the United States” from any “point source,” or any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This includes additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man; or discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

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

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

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

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

Federal Facility – Any buildings, installations, structures, land, public works, equipment, aircraft, vessels, and other vehicles and property, owned by, or constructed or manufactured for the purpose of leasing to, the federal government.

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

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

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

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

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

Interconnection – the point (excluding sheet flow over impervious surfaces) where the permittee's MS4 discharges to another MS4 or other storm sewer system, through which the discharge is eventually conveyed to a water of the United States. Interconnections shall be treated similarly to outfalls throughout the permit.

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

Key Junction Manhole - For the purposes of this permit, key junction manholes are those junction manholes that can represent one or more junction manholes without compromising adequate

implementation of the illicit discharge program. Adequate implementation of the illicit discharge program would not be compromised if the exclusion of a particular junction manhole as a key junction manhole would not affect the permittee's ability to determine the possible presence of an upstream illicit discharge. A permittee may exclude a junction manhole located upstream from another located in the immediate vicinity or that is serving a drainage alignment with no potential for illicit connections.

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

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

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

New Discharger – For the purposes of this permit, a new discharger is an entity that discharges stormwater from a new facility with an entirely new separate storm sewer system that is not physically located on the same or adjacent land as an existing facility and associated system operated by the same MS4.

New Source - any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced:

- after promulgation of standards of performance under section 306 of the CWA which are applicable to such source, or
- after proposal of standards of performance in accordance with section 306 of the CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

No exposure - all industrial materials or activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.

One Lane Width – The width of the travel lane for a roadway. Lane width does not include shoulders, curbs, and on-street parking areas.

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

Owner or operator - the owner or operator of any "facility or activity" subject to regulation under the NPDES program.

Person - an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

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

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

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

Redevelopment – for the purposes of part 2.3.6., any construction, land alteration, or improvement of impervious surfaces resulting in total earth disturbances greater than 1 acre (or activities that are part of a larger common plan of development disturbing greater than 1 acre) that does not meet the definition of new development (see above).

Runoff coefficient - the fraction of total rainfall that will appear at the conveyance as runoff.

Site – for the purposes of part 2.3.6., the area extent of construction activities, including but not limited to the creation of new impervious cover and improvement of existing impervious cover (e.g. repaving not covered by 2.3.6.a.ii.4.d.)

Small Municipal Separate Storm Sewer System – all separate storm sewer systems that are (i) owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district, or drainage district, or similar entity or an Indian tribe or an authorized Indian tribal organization or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, and (ii) not defined as "large" or "medium" municipal separate storm sewer system pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7), or designated under paragraph 40 126.26(a) (1)(v). This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. This term does not include separate storm sewers in very discrete areas, such as individual buildings.

Small MS4 – means a small municipal separate storm sewer system.

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

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

Stormwater Discharges Associated with Industrial Activity - the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under Part 122. For the categories of industries identified in this section, the term includes, but is not limited to, stormwater discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste water (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas. Industrial facilities include those that are federally, State, or municipally owned or operated that meet the description of the facilities listed in Appendix D of this permit. The term also includes those facilities designated under the provisions of 40 CFR 122.26(a)(1)(v).

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

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

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

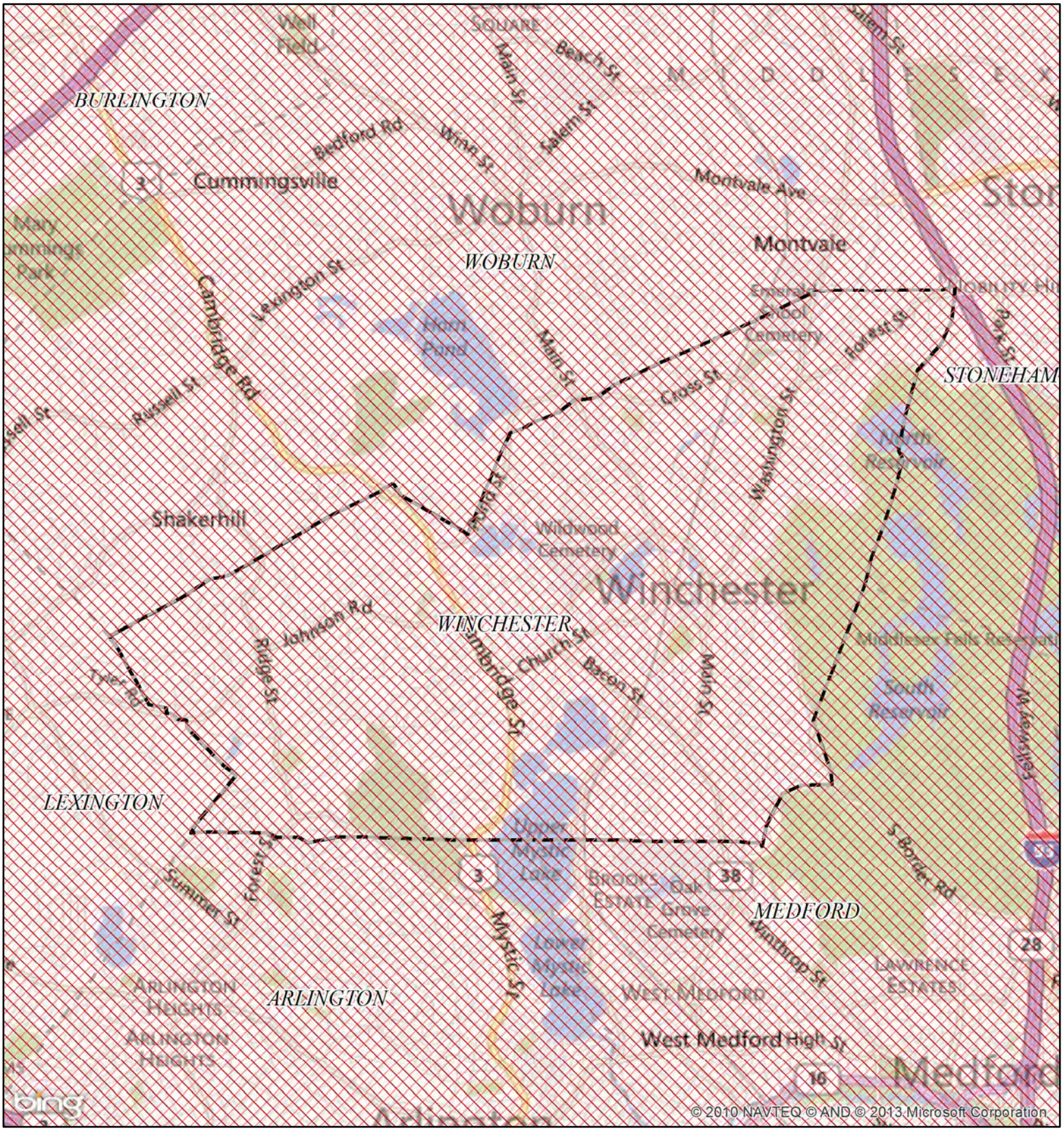
Water Quality Standards - A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and EPA adopt WQS to protect public health or welfare, enhance the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

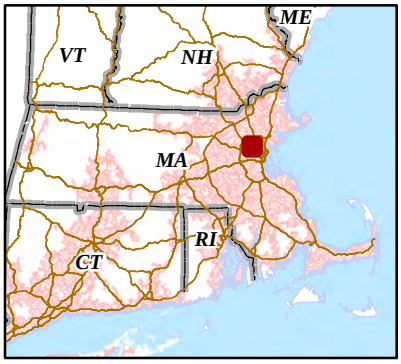
ABBREVIATIONS AND ACRONYMS

BMP – Best Management Practice
BPJ – Best Professional Judgment
CGP – Construction General Permit
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DCIA – Directly Connected Impervious Area
EPA – U. S. Environmental Protection Agency
ESA – Endangered Species Act
USFWS – U. S. Fish and Wildlife Service
IA – Impervious Area
IDDE – Illicit Discharge Detection and Elimination
LA – Load Allocations
MS4 – Municipal Separate Storm Sewer System
MSGP – Multi-Sector General Permit
NHPA – National Historic Preservation Act
NMFS – U. S. National Marine Fisheries Service
NOI – Notice of Intent
NPDES – National Pollutant Discharge Elimination System
NRHP – National Register of Historic Places
NSPS – New Source Performance Standard
PCP – Phosphorus Control Plan
SHPO – State Historic Preservation Officer
SPCC – Spill Prevention, Control, and Countermeasure
SWMP – Stormwater Management Program
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
TSS – Total Suspended Solids
WLA – Wasteload Allocation
WQS – Water Quality Standard

APPENDIX B

Regulated Area Map





NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

Winchester MA

Regulated Area:

UA Based on 2000 Census	UA Based on 2010 Census

0 1 2 Kilometers

0 1 2 Miles

Town Population: 21410

Regulated Population: 21410

(Populations estimated from 2010 Census)

Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2013 Microsoft Corporation
and its data suppliers

US EPA Region 1 GIS Center Map #8824, 8/9/2013

APPENDIX C

Authorization to Discharge under the 2016 MS4 Permit

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

VIA EMAIL

March 5, 2019

Richard C. Howard
Town Manager

And;

Beth Rudolph, P.E.
Town Engineer
71 Mount Vernon Street
Winchester, MA. 01890
brudolph@winchester.us

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041072, Town of Winchester

Dear Beth Rudolph, P.E.:

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: https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit. Should you have any questions regarding this permit please contact Newton Tedder at tedder.newton@epa.gov or (617) 918-1038.

Sincerely,

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection
United States Environmental Protection Agency, Region 1

and;

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

APPENDIX D

Drainage System and Receiving Waters Map

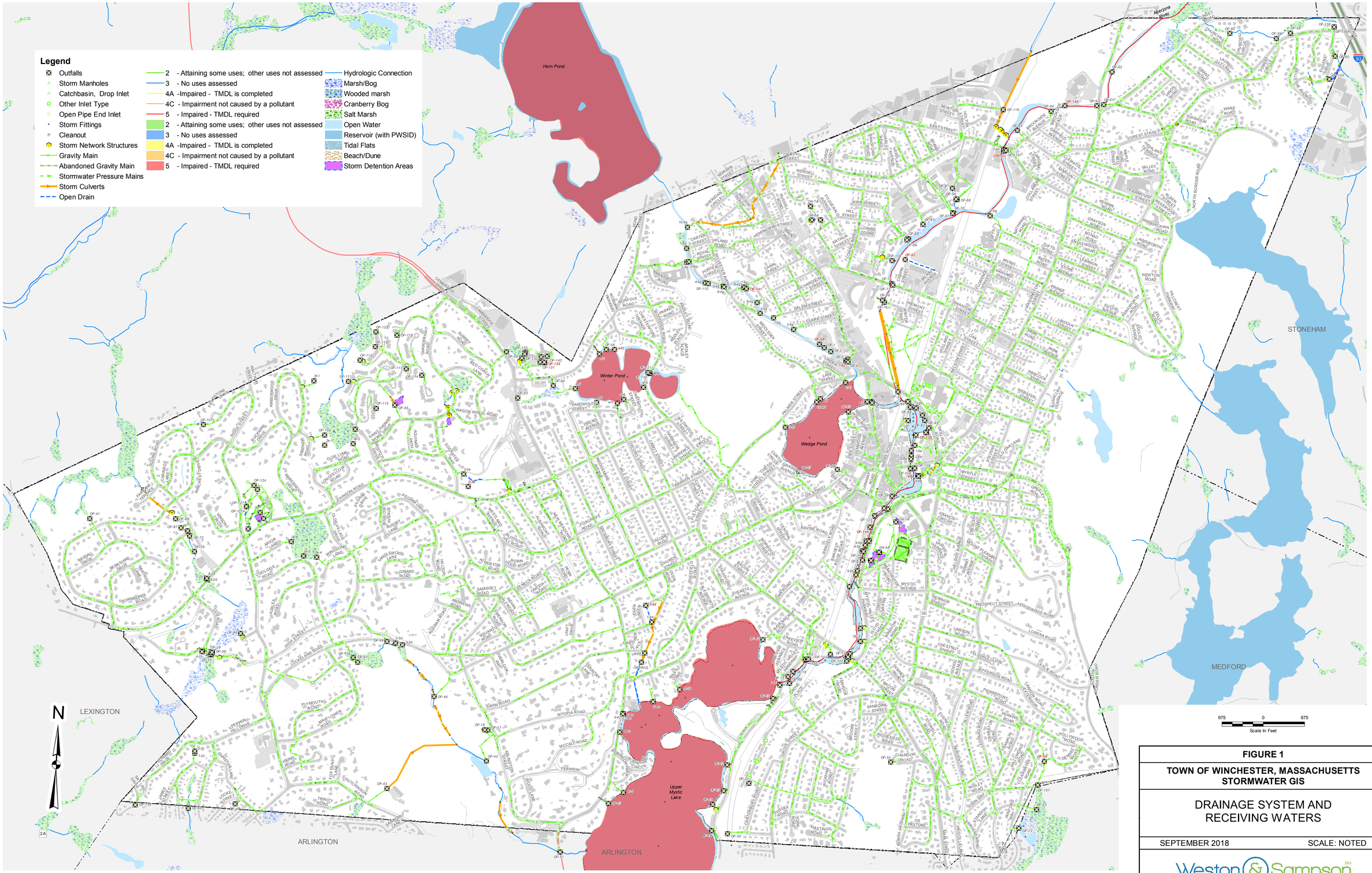


FIGURE 1

TOWN OF WINCHESTER, MASSACHUSETTS STORMWATER GIS

DRAINAGE SYSTEM AND RECEIVING WATERS

SEPTEMBER 2018 SCALE: NOTED

Weston & Sampson

APPENDIX E

USFWS Correspondence

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
http://www.fws.gov/newengland

In Reply Refer To: September 11, 2018
Consultation Code: 05E1NE00-2018-SLI-3038
Event Code: 05E1NE00-2018-E-07165
Project Name: Winchester MS4 Notice of Intent

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-3038

Event Code: 05E1NE00-2018-E-07165

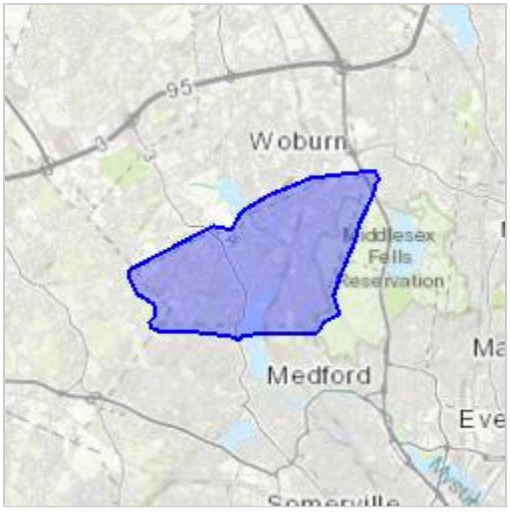
Project Name: Winchester MS4 Notice of Intent

Project Type: ** OTHER **

Project Description: Project covers stormwater discharges from the municipal separate storm sewer system. The Town is seeking coverage under the Final 2016 Massachusetts MS4 Permit.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.45392079314796N71.14972047556753W



Counties: Middlesex, MA

Endangered Species Act Species

There is a total of 1 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 Fisheries[1], 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.

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

Mammals

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

Critical habitats

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

APPENDIX F

MS4 Checklists by Permit Year

Checklist for Year 1 MS4 Permit Requirements – Winchester, MA

Completion Due Date	Requirement	Task	Permit Section for Reference	Completed?
10/1/2018	Notice of Intent (NOI)	Prepare and Submit NOI for Permit Coverage 90 days from the permit effective date	1.7.2 & Appendix E	Yes
6/30/2019	Stormwater Management Plan (SWMP)	Develop written SWMP	1.10	Yes
6/30/2019	Phosphorus Impaired Water Bodies	Implement public education initiatives; Sweep streets and municipal parking lots a minimum of two times per year in catchments tributary to phosphorus impaired water bodies	H.II.1.a.i.1; H.II.1.a.i.3	Yes
6/30/2019	Bacteria Impaired Water Bodies	Implement public education initiatives; Rank catchments tributary to bacteria/pathogen impaired waters as Problem or High in catchment ranking	H.III.2.a.i; H.III.2.a.ii	Yes
6/30/2019	Turbidity Impaired Water Bodies	Increase frequency of sweeping of public streets and municipal parking lots to a schedule determined by the Town to target areas with potential for high pollutant loads and large amounts of impervious area; Prioritize inspection and maintenance of catch basins to ensure that no sump is more than 50% full, and cleaning of catch basins more frequently if inspection and maintenance activities indicate excessive sediment and debris loadings.	H.V.2.a.ii	Ongoing
6/30/2019	Public Education	Fulfill public education initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.2	Yes
6/30/2019	Public Participation	Fulfill public participation initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.3	Yes
6/30/2019	Sanitary Sewer Overflow (SSO) Inventory	Document all SSOs that have occurred in the last 5 years	2.3.4.4.b	Yes

6/30/2019	Illicit Discharge Detection and Elimination (IDDE) Plan	Develop written IDDE plan to satisfy permit requirements.	2.3.4.6	Yes
6/30/2019	Catchment Delineation	Delineate outfall & interconnection catchment areas.	2.3.4.5	Yes
6/30/2019	Catchment Prioritization & Ranking	Assess and rank the potential for all catchments to have illicit discharges.	2.3.4.7	Yes
6/30/2019	IDDE Employee Training	Continue to train municipal employees on illicit discharge detection and monitoring.	2.3.4.11	Yes
6/30/2019	Construction Site Runoff Control Regulatory Updates/SOPs	Create written procedures for inspection of construction sites for proper sediment & erosion controls, and conducting site plan reviews. Incorporate requirements for waste control. Reference Stormwater Manual for Sediment & Erosion Control BMPs.	2.3.5.c	Yes
6/30/2019	Street Sweeping	Sweep streets a minimum of once a year in the spring. Include miles cleaned or volume or mass of material removed in the annual report.	2.3.7.a.iii.3	Yes
6/30/2019	Catch Basin Cleaning	Clean catch basins annually to ensure the no catch basin is more than 50% full. Report catch basins cleaned and volume of material removed annually.	2.3.7.a.iii.3	Ongoing
6/30/2019	Winter Road Maintenance SOP	Develop and implement winter road maintenance procedures including use and storage of sand/salt, and snow storage practices.	2.3.7.a.iii.5	Yes
6/30/2019	Stormwater BMP Inspection & Maintenance	Inspect all stormwater treatment structures (BMPs) at least annually and conduct maintenance as necessary. Track number of structures maintained and inspected annually.	2.3.7.a.iii.6	Ongoing

Checklist for Year 2 MS4 Permit Requirements – Winchester, MA

Completion Due Date	Requirement	Task	Permit Section for Reference	Completed?
6/30/2020	Stormwater Management Plan (SWMP)	Update written SWMP	1.10	
6/30/2020	Phosphorus Impaired Water Bodies	Implement public education initiatives; Modify stormwater regulations to require that new development and redevelopment BMPs are optimized for phosphorus removal; Development of a program to manage grass clippings and leaf litter on permittee-owned property; Sweep streets and municipal parking lots a minimum of two times per year in catchments tributary to phosphorus impaired water bodies	H.II.1.a.i.1; H.II.1.a.i.2; H.II.1.a.i.3	
6/30/2020	Bacteria Impaired Water Bodies	Implement public education initiatives	H.III.2.a.i	
6/30/2020	Turbidity Impaired Water Bodies	Modify stormwater regulations to require that stormwater management systems designed on commercial and industrial land use area draining to the impaired water body incorporate designs that allow for shutdown and containment; Increase frequency of sweeping of public streets and municipal parking lots to target areas with potential for high pollutant loads and large amounts of impervious area; Prioritize inspection and maintenance of catch basins to ensure that no sump is more than 50% full, and clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment and debris loadings.	H.V.2.a.i; H.V.2.a.ii	
6/30/2020	Public Education	Fulfill public education initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.2	

6/30/2020	Public Participation	Fulfill public participation initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.3	
6/30/2020	Update Drainage Map	Update town-wide MS4 mapping to include impaired waters, BMPs, interconnections, and open channel conveyances.	2.3.4.5	
6/30/2020	IDDE Employee Training	Continue to train municipal employees on illicit discharge detection and monitoring.	2.3.4.11	
6/30/2025	IDDE Investigation of Problem Catchments	Begin investigation of problem catchments	2.3.4.8.a	
6/30/2020	Post-Construction Stormwater Runoff Control Regulatory Updates	Update existing stormwater regulations as needed to include compliance with the Stormwater Management Standards, to meet retention and treatment requirements, to meet as-built requirements and provide for long term operation & maintenance of BMPs.	2.3.6.a.ii	
6/30/2020	Inventory of Municipal Facilities	Develop an inventory of all permittee-owned facilities.	2.3.7.a.ii	
6/30/2020	Operation and Maintenance Procedures	Develop a written set of O&M procedures for municipal facilities, activities and MS4 infrastructure	2.3.7.a.i & 2.3.7.a.iii	
6/30/2020	Stormwater Pollution Prevention Plans (SWPPP)	Develop written SWPPPs for municipal waste handling facilities.	2.3.7.b	
6/30/2020	Street Sweeping	Sweep streets a minimum of once a year in the spring. Include miles cleaned or volume or mass of material removed in the annual report.	2.3.7.a.iii.3	
6/30/2020	Catch Basin Cleaning Optimization	Develop and implement a catch basin cleaning schedule with a goal of ensuring no catch basin is more than 50 % full. Document catch basins inspected and cleaned, including total mass removed and proper disposal.	2.3.7.a.iii.2	
6/30/2020	Stormwater BMP Inspection & Maintenance	Inspect all stormwater treatment structures (BMPs) at least annually and conduct maintenance as necessary. Track number of structures maintained and inspected annually.	2.3.7.a.iii.6	

Checklist for Year 3 MS4 Permit Requirements – Winchester, MA

Completion Due Date	Requirement	Task	Permit Section for Reference	Completed?
6/30/2021	Stormwater Management Plan (SWMP)	Update written SWMP	1.10	
6/30/2021	Phosphorus Impaired Water Bodies	Implement public education initiatives; Sweep streets and municipal parking lots a minimum of two times per year in catchments tributary to phosphorus impaired water bodies	H.II.1.a.i.1; H.II.1.a.i.3	
6/30/2021	Bacteria Impaired Water Bodies	Implement public education initiatives	H.III.2.a.i	
6/30/2021	Turbidity Impaired Water Bodies	Increase frequency of sweeping of public streets and municipal parking lots to a schedule determined by the Town to target areas with potential for high pollutant loads and large amounts of impervious area; Prioritize inspection and maintenance of catch basins to ensure that no sump is more than 50% full, and cleaning of catch basins more frequently if inspection and maintenance activities indicate excessive sediment and debris loadings.	H.V.2.a.ii	
6/30/2021	Public Education	Fulfill public education initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.2	
6/30/2021	Public Participation	Fulfill public participation initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.3	
6/30/2021	Update Drainage Map	Update town-wide drainage mapping as needed to include MS4 infrastructure.	2.3.4.5	
6/30/2021	IDDE Employee Training	Continue to train municipal employees on illicit discharge detection and monitoring.	2.3.4.11	

6/30/2021	Dry Weather Outfall Screening and Sampling	Sample all outfalls and interconnections (excluding problem outfalls and excluded outfalls) for dry weather flow and sample flow if present.	2.3.4.7.b	
6/30/2021	Update Catchment Ranking	Update catchment ranking and prioritization based on dry weather outfall sampling data.	2.3.4.7.b.iii.c.iii	
6/30/2025	Continue IDDE Investigation of Problem Catchments	Continue investigation of problem catchments	2.3.4.8.a	
6/30/2028	Begin IDDE Investigation of High and Low Priority Catchments	Begin investigation of high and low priority catchments	2.3.4.8.a	
6/30/2021	Street Sweeping	Sweep streets a minimum of once a year in the spring. Include miles cleaned or volume or mass of material removed in the annual report.	2.3.7.a.iii.3	
6/30/2021	Catch Basin Cleaning	Clean catch basins annually to ensure the no catch basin is more than 50% full. Report catch basins cleaned and volume of material removed annually.	2.3.7.a.iii.3	
6/30/2021	Stormwater BMP Inspection & Maintenance	Inspect all stormwater treatment structures (BMPs) at least annually and conduct maintenance as necessary. Track number of structures maintained and inspected annually.	2.3.7.a.iii.6	

Checklist for Year 4 MS4 Permit Requirements – Winchester, MA

Completion Due Date	Requirement	Task	Permit Section for Reference	Completed?
6/30/2022	Stormwater Management Plan (SWMP)	Update written SWMP	1.10	
6/30/2022	Phosphorus Impaired Water Bodies	Implement public education initiatives; Inventory and priority ranking of permittee-owned property and infrastructure that can be retrofitted with BMPs to include consideration of BMPs that infiltrate stormwater Sweep streets and municipal parking lots a minimum of two times per year in catchments tributary to phosphorus impaired water bodies; Develop Phosphorus Source Identification Report;	H.II.1.a.i.1; H.II.1.a.i.2; H.II.1.a.i.3; H.II.1.b	
6/30/2022	Bacteria Impaired Water Bodies	Implement public education initiatives	H.III.2.a.i	
6/30/2022	Turbidity Impaired Water Bodies	Increase frequency of sweeping of public streets and municipal parking lots to a schedule determined by the Town to target areas with potential for high pollutant loads and large amounts of impervious area; Prioritize inspection and maintenance of catch basins to ensure that no sump is more than 50% full, and cleaning of catch basins more frequently if inspection and maintenance activities indicate excessive sediment and debris loadings.	H.V.2.a.ii	
6/30/2022	Public Education	Fulfill public education initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.2	
6/30/2022	Public Participation	Fulfill public participation initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.3	
6/30/2022	Update Drainage Map	Update town-wide drainage mapping as needed to include MS4 infrastructure.	2.3.4.5	

6/30/2022	IDDE Employee Training	Continue to train municipal employees on illicit discharge detection and monitoring.	2.3.4.11	
6/30/2025	Continue IDDE Investigation of Problem Catchments	Continue investigation of problem catchments	2.3.4.8.a	
6/30/2028	Continue IDDE Investigation of High and Low Priority Catchments	Continue investigation of high and low priority catchments	2.3.4.8.a	
6/30/2028	Begin Wet Weather Outfall Screening and Sampling	Begin sampling outfalls and interconnections with System Vulnerability Factors during wet weather	2.3.4.8.c	
6/30/2022	Street Design and Parking Lot Guidelines	Develop a report assessing requirements that affect the creation of impervious cover to determine if design standards for streets and parking lots can be modified to support low impact design options.	2.3.6.b	
6/30/2022	Green Infrastructure Practices	Develop a report assessing the barriers and incentives for Green Infrastructure/LID techniques.	2.3.6.c	
6/30/2022	BMP Retrofit Identification	Identify 5 permittee-owned properties that could be retrofitted with stormwater BMPs.	2.3.6.d	
6/30/2022	Street Sweeping	Sweep streets a minimum of once a year in the spring. Include miles cleaned or volume or mass of material removed in the annual report.	2.3.7.a.iii.3	
6/30/2022	Catch Basin Cleaning	Clean catch basins annually to ensure the no catch basin is more than 50% full. Report catch basins cleaned and volume of material removed annually.	2.3.7.a.iii.3	
6/30/2022	Stormwater BMP Inspection & Maintenance	Inspect all stormwater treatment structures (BMPs) at least annually and conduct maintenance as necessary. Track number of structures maintained and inspected annually.	2.3.7.a.iii.6	

Checklist for Year 5 MS4 Permit Requirements – Winchester, MA

Completion Due Date	Requirement	Task	Permit Section for Reference	Completed?
6/30/2023	Stormwater Management Plan (SWMP)	Update written SWMP	1.10	
6/30/2023	Phosphorus Impaired Water Bodies	Implement public education initiatives; Sweep streets and municipal parking lots a minimum of two times per year in catchments tributary to phosphorus impaired water bodies; Evaluate all permittee-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation or identified in the Phosphorus Source Identification Report & Develop implementation plan and schedule	H.II.1.a.i.1; H.II.1.a.i.3; H.II.1.c	
6/30/2023	Bacteria Impaired Water Bodies	Implement public education initiatives	H.III.2.a.i	
6/30/2023	Turbidity Impaired Water Bodies	Increase frequency of sweeping of public streets and municipal parking lots to a schedule determined by the Town to target areas with potential for high pollutant loads and large amounts of impervious area; Prioritize inspection and maintenance of catch basins to ensure that no sump is more than 50% full, and cleaning of catch basins more frequently if inspection and maintenance activities indicate excessive sediment and debris loadings.	H.V.2.a.ii	
6/30/2023	Public Education	Fulfill public education initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.2	
6/30/2023	Public Participation	Fulfill public participation initiatives aimed at target audiences as outlined in the Town's NOI and this SWMP	2.3.3	

6/30/2023	Update Drainage Map	Update town-wide drainage mapping as needed to include MS4 infrastructure.	2.3.4.5	
6/30/2023	IDDE Employee Training	Continue to train municipal employees on illicit discharge detection and monitoring.	2.3.4.11	
6/30/2025	Continue IDDE Investigation of Problem Catchments	Continue investigation of problem catchments	2.3.4.8.a	
6/30/2028	Continue IDDE Investigation of High and Low Priority Catchments	Continue investigation of high and low priority catchments	2.3.4.8.a	
6/30/2028	Continue Wet Weather Outfall Screening and Sampling	Begin sampling outfalls and interconnections with System Vulnerability Factors during wet weather	2.3.4.8.c	
6/30/2023	Street Sweeping	Sweep streets a minimum of once a year in the spring. Include miles cleaned or volume or mass of material removed in the annual report.	2.3.7.a.iii.3	
6/30/2023	Catch Basin Cleaning	Clean catch basins annually to ensure the no catch basin is more than 50% full. Report catch basins cleaned and volume of material removed annually.	2.3.7.a.iii.3	
6/30/2023	Stormwater BMP Inspection & Maintenance	Inspect all stormwater treatment structures (BMPs) at least annually and conduct maintenance as necessary. Track number of structures maintained and inspected annually.	2.3.7.a.iii.6	

APPENDIX G

Regulatory Mechanisms

RULES AND REGULATIONS REGARDING THE USE OF PUBLIC SEWERS AND STORM DRAINS IN THE TOWN OF WINCHESTER, MASSACHUSETTS

Adopted by the Winchester Board of Selectmen
April 9, 2007

Effective Date: June 8, 2007

1.0 Purpose

This publication sets forth the Rules and Regulations for the use of public storm drains and sanitary sewers in the Town of Winchester, Massachusetts, hereafter referred to as the "Town".

These regulations partially fulfill the obligations of the Town under the Clean Water Act (33 U.S.C. 1251 *et seq.*) and under the Town's National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Permit to establish a comprehensive and fair system of regulation of discharges to the Town's Municipal Separate Storm Sewer System (sometime referred to herein as "MS4").

2.0 Authority

These Rules and Regulations are adopted by the Winchester Board of Selectmen under the authority granted in Chapter 7, Section 1 of the Town's "Code of Bylaws" and in accordance with the regulations of the Clean Water Act and the Phase II ruling from the United States Environmental Protection Agency (USEPA) as published in the Federal Register (December 8, 1999).

3.0 Definitions

Unless the context specifically indicates otherwise, the meaning of terms used in these Rules and Regulations shall be as follows:

APPLICANT refers to an owner, user, or a duly authorized agent of an owner or user. The term is generally used in the context of a party who seeks permission from the Town to change an existing use or add a new connection to the public sewer or storm drain.

BEST MANAGEMENT PRACTICE (BMP) means an activity, procedure, restraint, or structural improvement that helps reduce the quantity or improve the quality of stormwater runoff.

BIOCHEMICAL OXYGEN DEMAND (BOD) means the quantity of oxygen utilized in five days at 20 degrees Celsius (C), expressed in milligrams per liter (mg/l), in the biochemical oxidation of wastewater as determined by a procedure described in the latest edition of "Standard Methods for the Examination of Water and Wastewater", hereafter referred to as "*Standard Methods*".

BUILDING DRAIN means the lowest horizontal piping of a plumbing or drainage system which receives the discharge from soil, waste and/or other drainage pipes within a building and that extends five (5) feet outside the inner face of the building's exterior wall. The Building Drain conveying wastewater from plumbing fixtures within

the building shall discharge to a building sewer. The Building Drain conveying stormwater and other drainage shall discharge to a Building Storm Drain.

BUILDING SEWER, also referred to as **house connection**, **service**, or **lateral**, shall mean the pipe that connects to a Building Drain conveying wastewater from plumbing fixtures within a building to a public sewer or other approved place of disposal. The property owner is responsible for all upkeep, maintenance, and repair of said Building Sewer from its origin in the building to its connection to the public sewer.

BUILDING STORM DRAIN refers to the pipe that connects a Building Drain conveying stormwater to a storm drain or other approved place of disposal.

CLEAN WATER ACT refers to the Federal Water Pollution Control Act (33 U.S.C. § 1251 *et seq.*) as hereafter amended.

CLEANOUT refers to a device or structure designed to provide access to a Building Drain, Building Sewer, or Building Storm Drain for the purpose of eliminating blockages and/or removing accumulated materials.

DIRECTOR refers to the Director of the Department of Public Works (DPW) of the Town of Winchester, or his/her authorized deputy, agent, or representative.

DOWNSPOUT is a pipe that conveys water from the roof of a building into a storm drain or into the ground. Downspouts are also known as roof drains or roof leaders.

DRY WELL refers to a pit or underground cavity with porous walls installed to allow surface water and stormwater to drain into underground strata.

GARBAGE refers to solid wastes from the domestic and commercial preparation, cooking, and dispensing of food and/or from the handling, storage, and sale of produce and food stuffs.

ILLICIT CONNECTION shall mean any surface or subsurface drain or conveyance that allows an illicit discharge into the storm drain, including, without limitation, sewage, process wastewater, or wash water and any connections from indoor drains, sinks, or toilets regardless of whether said connection was previously approved, allowed or permitted prior to the effective date of these regulations.

ILLICIT DISCHARGE shall mean direct or indirect discharge to the storm drain that is not composed entirely of stormwater, except as may be exempted in these regulations. This term does not include a discharge in compliance with a NPDES Stormwater Discharge Permit or discharges resulting from fire fighting activities, which are exempt.

INDUSTRIAL WASTE refers to any liquid wastes that result from any industrial manufacturing or cleaning processes, trade, or business.

MASSACHUSETTS WATER RESOURCES AGENCY is also referred to as the MWRA.

MUNICIPAL STORMDRAIN SYSTEM or **MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)** refers to 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, or other drainage structure that together comprise the storm drainage system owned or operated by the Town.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER DISCHARGE PERMIT refers to a permit issued jointly by the USEPA and the Commonwealth of Massachusetts, pursuant to Section 402 of the Clean Water Act (33 U.S.C. 1342), authorizing the discharge of pollutants to waters of the United States or the Commonwealth.

NATURAL OUTLET refers to any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.

NEW DEVELOPMENT refers to any disturbance of land that is currently in a natural vegetated state and does not contain prior alternations by manmade activities.

OWNER shall refer to any person, or entity, who individually, or jointly or severally with others holds legal title to any land or premises, or has been legally assigned the care, charge, or control of any premises as agent, manager, executor, administrator, trustee, lessee, or guardian of the estate of, or by, the holder of legal title.

pH refers to the logarithm of the reciprocal of the weight of hydrogen ions concentration expressed in moles per liter.

PROPERLY SHREDDED GARBAGE refers to wastes created by the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles may be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch in any dimension.

PUBLIC SEWER refers to a sanitary sewer in which all owners of abutting properties shall have equal rights to connect to and is controlled by a public authority. The Building Sewer is considered to originate at the building and terminate at the point of connection to the Public Sewer.

RECEIVING WATERS refers to any watercourse, river, pond, wetland, ditch, lake, aquifer, ocean, or other body of surface water or groundwater that receives a discharge of wastewater, stormwater, or effluent.

REDEVELOPMENT means (1) Maintenance and improvement of existing roadways, including widening less than a single lane, adding shoulders, and correcting substandard intersections and drainage, and repaving; and (2) Development rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no net increase in impervious area. This definition applies to redevelopment on one or more lots.

SANITARY SEWER shall mean a pipe or conduit that carries sewage and to which storm, surface, and groundwaters are not intentionally admitted.

SEPTAGE shall mean the liquid and solid wastes of sanitary sewage origin that are removed from a cesspool, septic tank, or similar receptacle.

SEWAGE shall mean a combination of water-carried wastes from residences, businesses, institutions, and industrial establishments, together with such ground, surface, and stormwaters as may be present.

SEWAGE TREATMENT PLANT shall mean any arrangement of devices and structures used for treating sewage.

SEWAGE WORKS shall mean all facilities for collecting, pumping, treating, and disposing of sewage.

SHALL is mandatory; **MAY** is permissive.

SLUG refers to any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds more than five (5) times the average 24-hour concentration or flows during normal operation, for any period of time in excess of 15 minutes.

STORM DRAIN or **STORM SEWER** shall mean a pipe or conduit, which carries stormwater runoff, but excludes sewage and industrial wastes other than unpolluted cooling or condensate water.

STORMWATER shall mean any water resulting from rainfall or other precipitation that runs off surfaces during or after such a meteorological event.

SUSPENDED SOLIDS refers to solids that either float on the surface or are in suspension in water, wastewater or other liquids, and are removable by filtering procedures as described in Standard Methods.

TOWN OF WINCHESTER is also referred to herein as the "Town".

USER shall refer to any individual person or legal entity that discharges wastewater or stormwater directly, or indirectly, into the sanitary sewers or storm drains owned by the Town.

WASTEWATER refers tothe spent water of a community, which may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial facilities, and institutions, together with any groundwater and stormwater that may be present. Also referred to as "sewage".

WATERCOURSE shall mean a channel in which a flow of water occurs, either continuously or intermittently.

4.0 Building Drains, Building Sewers, Building Storm Drains, Connections, and Appurtenances

4.1 No user, owner, or applicant shall construct, uncover, make connection with or opening into, use, alter, or disturb any Public Sewer, Storm Drain, or appurtenance thereof, without first obtaining a written permit from the Director. Any user, owner, or applicant proposing a new discharge into the system, or a substantial change in the volume or character of pollutants that are being discharged into the system, shall notify the Director no less than 30-days prior to the proposed change or connection, and shall obtain a written permit, as required.

4.2 The Director will not issue a permit for any discharge which the Director, or his agents believe can reasonably be expected to result in significant harm to any individual's personal health or safety, to the environment, to the public sewers or storm drains, or to any watercourse or receiving waters.

4.3 Where an Applicant seeks to make a direct connection to a sewer owned and operated by the MWRA, the Town shall require the Applicant to supply such information as would enable the Town to determine whether to approve the desired connection. If the Town approves the proposed connection, the Town shall then apply, on the Applicant's behalf, to the MWRA for its approval of such a connection. No direct connections shall be made to an MWRA sewer without written proof of a prior vote of approval by the MWRA. All fees relating to obtaining a permit from the MWRA shall be paid, in full, in advance, by the Applicant and not by the Town.

4.4 All costs and expenses incident to the installation and connection of all Building Drains, Building Sewers, or Building Storm Drains shall be the sole responsibility of the owner or User. The owner or User shall indemnify the Town from any loss or damage that may directly, or indirectly, be determined to have been occasioned by the repair or installation of Building Drains, Building Sewers, or Building Storm Drains.

4.5 Separate and independent Building Sewers and Building Storm Drains shall be provided for all new or substantially rehabilitated buildings. Where one building stands to the rear of another on an interior lot, and no private sewer is presently available or can be constructed to the rearmost building through an adjoining alley, court, yard, easement or driveway, the Building Sewer from the front most building may be extended to the rear building and the whole considered to be one Building Sewer.

4.6 Pre-existing Building Sewers may be used in connection with new or substantially rehabilitated buildings only when they are found, on examination and test by the Director, to meet all requirements of these regulations. The cost of any examination and testing required by the Director as a precondition to such approval shall be performed at the Applicant's sole expense.

4.7 The size, slope, alignment, materials of construction of a Building Drain, Building Sewer, and Building Storm Drain, and the methods to be used in excavating, placing of the pipes, jointing, testing, and backfilling shall all conform to the requirements of the building and plumbing code(s), or other applicable rules and regulations of the Town, including the Winchester Engineering Department's "Special Provisions for the Construction of Roadways including the Installation of Water, Sewer and Drains in the Town of Winchester", as such may exist at the time of the issuance of a permit. In the absence of code provisions, or in amplification thereof, the materials and procedures set forth in appropriate specifications of the American Society for Testing and Materials (ASTM) shall apply.

4.8 All Building Drains, Building Sewers, and Building Storm Drains shall discharge by gravity to the public sewer or storm drain. Whenever possible, the Building Drain, Building Sewer, and Building Storm Drain shall be brought to the building at an elevation below the basement floor. In all new or substantially rehabilitated buildings in which any Building Drain, Building Sewer, or Building Storm Drain is too low to permit gravity discharge, wastewater or stormwater shall be lifted by an approved means and allowed to discharge by gravity (*i.e.* not under pressure) to the public sewer or stormdrain.

4.9 No user, owner, or applicant shall make, or allow to have made, any connection of roof downspouts, exterior foundation drains, or other sources of surface runoff or

groundwater to a Building Drain or Building Sewer, which is in turn connected directly or indirectly to a Public Sewer.

4.10 No user, owner, or applicant shall make, or allow to have made, any connection of a Building Drain conveying wastewater from plumbing fixtures within the building to a Building Drain, Building Storm Drain, or other means of conveyance which is in turn directly or indirectly connected to a Public Storm Drain.

The Building Drain conveying wastewater shall, in all cases, discharge to a Building Sewer.

The Building Drain conveying stormwater and other drainage shall, in all cases, discharge only to a Building Storm Drain.

4.11 The connection of the Building Sewer to the Public Sewer shall conform to all requirements of the building and plumbing code or other applicable rules and regulations of the Town and the Commonwealth, or in their absence, the procedures set forth in appropriate specifications of the ASTM. All such connections shall be made gastight and watertight. Any deviation from the prescribed procedures and materials must be approved, in writing, in advance of any installation work being initiated, by the Director.

Non-approved materials and excavations may, at the Director's sole discretion, be required to be removed at the sole expense of the Applicant..

4.12 The Applicant shall notify the Director when the Building Drain, Building Sewer, and/or Building Storm Drain are ready for inspection and connection to the Public Sewer or Public Storm Drain, as appropriate. The connection shall be made under the supervision of the Director, or his designated representative(s), and no backfilling shall occur until all appropriate inspections are made.

4.13 All excavations for Building Drain, Building Sewer and Building Storm Drain installations shall, at all times, be equipped with appropriate lighting and adequately isolated with barricades, fencing, or other suitable means so as to protect the public from access and hazard. Streets, sidewalks, parkways, and other public property and/or private property disturbed in the course of the work shall be restored to their prior condition, or better, in a manner satisfactory to the Director. All work shall be performed in accordance with the "Rules and Regulations Governing Utility Petitions and Street Opening Permits in the Town of Winchester, Massachusetts".

4.14 All plans showing proposed Public Sewer and Storm Drain connections shall be prepared and stamped by a registered professional engineer and/or registered land surveyor licensed in the Commonwealth of Massachusetts. Licensing, bond, and

insurance requirements for all contractors performing work in public or private ways shall be in accordance with the requirements laid out in the "Rules and Regulations Governing Utility Petitions and Street Opening Permits in the Town of Winchester, Massachusetts".

4.15 These Rules and Regulation do not preclude the use of infiltration structure or systems for stormwater management.

5.0 Use of the Public Sewers and Storm Drains

5.1 All applicable state and federal laws required by the Clean Water Act and the General Pretreatment Regulations (40 Code of Federal Regulations (CFR), Part 403) shall be fully incorporated and made enforceable by reference in these regulations.

5.2 Use of the Public Sewer or Storm Drain will be prohibited if, in the sole opinion of the Director, such use may result in physical damage to structures or equipment, interference with operation or processing, or unreasonable maintenance and expense either near-term or long-term.

5.3 No User, owner, or Applicant shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted process waters to any sanitary sewer.

5.4 Stormwater and all other unpolluted drainage shall be discharged to Storm Drains, or to a natural outlet approved by the Director, and, when required by law, the Town of Winchester Conservation Commission, the Commonwealth of Massachusetts Department of Environmental Protection (DEP), and/or USEPA. A NPDES permit may be required for certain discharges that are not allowed in the sanitary sewer. It shall be the sole responsibility of the originator of the discharge, or the owner of the property from which it emanates, to obtain all required permits in advance for such discharge(s).

No User, owner, or Applicant shall dump, discharge, or allow to be discharged any pollutant or non-stormwater discharge into the storm drain system, into a watercourse, or into waters of the United States and/or Commonwealth.

5.5 No User, owner, or Applicant shall construct, use, allow, maintain or continue any illicit connection to the Public Storm Drain system, regardless of whether the connection was permissible under applicable law, regulation or custom at the time of connection.

5.6 No User, owner, or Applicant shall obstruct or interfere with the normal flow of stormwater into or out of the municipal storm drain system or sewage into or out of the

Public Sewer without prior, written approval of the Director and/or the MWRA, as appropriate.

5.7 No User, owner, or Applicant shall discharge, or cause to be discharged, any of the following described waters or wastes to any Public Sewers or Storm Drains:

(a) Gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas.

(b) Waters or wastes containing toxic or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of the MWRA's sewage treatment plant.

(c) Waters or wastes having a pH lower than 5.5 or higher than 9.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the sewage works.

(d) Solid or viscous substances in quantities or of such size as to be capable of causing obstruction to the flow in sewers; or other interference with the proper operation of the sewage systems, such as, but not limited to ash, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, underground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, etc. either whole or ground by garbage grinders.

(e) Any septage.

(f) Sludges or deposited solids resulting from an industrial or pretreatment process.

(g) Waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions, whether neutralized or not.

(h) Waters or wastes designated as prohibited discharges in the General Pretreatment Regulations (40 CFR, Section 403.5).

5.8 No User, owner, or Applicant shall discharge or cause to be discharged the following described substances, materials, waters, or wastes if it appears likely in the sole opinion of the Director that such wastes could harm either the sewers, sewage treatment process, or equipment, have an adverse effect on the receiving stream, or otherwise endanger life, safety, public property, or constitute a nuisance. In forming an opinion as to the acceptability of such wastes, the Director shall give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, materials or construction of the sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant, and other pertinent factors. The substances prohibited are:

(a) Any liquid or vapor having a temperature higher than 150°F (65°C).

(b) Any water or waste containing fats, wax, grease, or oils, whether emulsified or not, in excess of 100 mg/l or containing substances which may solidify or become viscous at temperatures between 32 and 150°F (0 and 65°C).

(c) Any garbage that has not been properly shredded. The installation and operation of any garbage disposal or grinder equipped with a motor of three-fourths (3/4) horsepower or greater shall be subject to the review and approval of the Director.

(d) Any waters or wastes containing Iron, Chromium, Copper, Antimony, Arsenic, Barium Beryllium, Boron, Cadmium, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Tin, Zinc, and similar objectionable or toxic metal substances; or wastes exerting an excessive chlorine requirement unless treated to reduce their concentrations to the minimum levels attainable by chemical precipitation processes, or other equally effective methods. In no case, however, shall the Director allow metal concentrations be higher than those concentrations allowed by applicable Federal and State law and MWRA regulations.

(e) Waters or wastes containing amounts of toxic or objectionable nonmetals in excess of concentrations attainable by acceptable control technology, including, but not limited to: Ammonia, Cyanides, Herbicides, Pesticides, Phenols, Sulfates, Chlorides, Polychlorinated Biphenyls (PCBs), Sulfides. In no case, however shall allowable nonmetal concentrations be higher than those concentrations allowed by applicable Federal and State law and MWRA regulations.

(f) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Director, at his or her sole discretion, in compliance with applicable State, Federal or MWRA regulations.

(g) Materials which exert or cause:

(1) Unusual concentrations of inert suspended solids (such as, but not limited to, Fullers earth, lime slurries, and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).

(2) Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).

(3) Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works of the MWRA.

(4) Unusual volume of flow of concentrations of wastes constituting "Slugs" as defined herein.

(h) Waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment process employed or are amenable to treatment only to such degree that the MWRA's sewage treatment plant effluent cannot meet the discharge requirements of other agencies having jurisdiction over discharges to the receiving waters.

5.9 The attainment of specific levels of pollutant concentrations in the effluent discharged to Public Sewers or Storm Drains by dilution in the absence of treatment shall be prohibited.

5.10 If any waters or wastes are discharged, or are proposed to be discharged, to the Public Sewers or Storm Drains, and such waters contain the substances or possess the characteristics enumerated in this policy, and if, in the sole judgment of the Director, such waters or wastes are discharged they may have a deleterious effect upon the sewerage system process, equipment, or receiving water, or may otherwise create a hazard to life, safety or constitute a public nuisance, the Director may:

(a) Reject the wastes;

(b) Require pretreatment to an acceptable condition for discharge to the public sewer;

(c) Require control over the quantities and rates of discharge when such controls shall bring the discharge into compliance with applicable standards.

If the Director permits the pretreatment of equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the Director, and shall also be subject to the requirements of all applicable codes, ordinances, and laws.

5.11 Grease, oil, and sand interceptors shall be provided when, in the sole opinion of the Director, they are necessary for the proper handling of liquid wastes containing grease, oil, any flammable wastes, sand, or other harmful ingredients. Such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of the type and capacity approved by the Director, and shall be located as to be readily and easily accessible for cleaning and inspection. Grease interceptors approved by the MWRA shall be installed in the Building Sewer serving restaurants, hotels, boarding houses that prepare and serve food, or businesses of a similar nature. Maintenance, operation, and repair of all installed interceptors shall be at the sole responsibility and expense of the owner or User and shall be subject to inspection by the Director, or an authorized representative, upon a schedule to be determined, in advance, by the Director.

5.12 Garages and other establishments where gasoline is used or wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients, can be discharged and which are connected with Public Sewers or Storm Drains, shall be provided with a suitable trap or separator. All traps or separators shall be of a type and capacity approved by the MWRA and the Director, and shall be located so as to be readily and easily accessible for cleaning and inspection. If appropriate, inspection of such traps and separators shall be conducted upon a schedule to be determined by the Director, in advance.

5.13 Where preliminary treatment or flow-equalizing facilities are provided for any waters or wastes they shall be maintained continuously in satisfactory and effective operation by the owner or User's sole expense and to the satisfaction of the Director.

5.14 The Town may suspend the wastewater treatment service, a wastewater discharge permit, and/or Storm Drain connection when such suspension is necessary, in the opinion of the Town, in order to stop an actual or threatened discharge that, in the opinion of the Director, presents, or may present, an imminent or substantial endangerment to the health, safety or welfare of persons or the environment, or may cause the Town to violate any condition of its NPDES permit.

5.15 Any User, owner, or Applicant notified of a suspension of a wastewater treatment service a wastewater discharge permit, and/or a Storm Drain connection shall immediately stop or eliminate any flows, of any kind or amount, to the system. In the event of a failure of the User, owner, or Applicant to comply voluntarily with the suspension order, the Town shall take such steps as deemed necessary, including, but not limited to, the immediate severance of the sewer or storm drain connection. The Town shall reinstate the wastewater discharge permit, the wastewater treatment service, and/or the storm drain connection upon proof of the elimination of the non-complying discharge.

All Town expenses, including reasonable attorney's fees, to accomplish the suspension and restoration of such services shall be the complete, sole expense of the User, owner, or Applicant.

A detailed written statement submitted by the User to the Director fully describing the circumstances and causes of the harmful contribution and the measure(s) the User has taken to prevent any future occurrence shall be submitted to the Director within 10 business days of the date of the occurrence.

5.16 When required by the Director, the owner of any property serviced by a Building Sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the Building Sewer to facilitate observation sampling and measurement of the wastes. Such manhole, when required,

shall be accessibly at all hours and on all days, shall be safely located, and shall be constructed in accordance with plans approved by the Director. The manhole shall be installed and maintained at the owner's sole expense, so as to be safe and accessible at all times.

5.17 All measurements, tests and analyses of the characteristics of waters and wastes to which reference is made in this document shall be conducted in accordance with procedures established by the USEPA pursuant to Section 304(g) of the Clean Water Act as contained in 40 CFR Part 136, and amendments thereto, in accordance with the latest edition of the "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, or with any other test procedures approved by the Director, and shall be determined at the control manhole provided, or upon suitable samples taken at said control manhole.

In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the Public Sewer to the point at which the building sewer is connected. Sampling shall be carried out in accordance with techniques approved by the Director, and other appropriate agencies, to reflect the effect of constituents upon the Public Sewer, to determine the existence of hazards to life, safety and property and to determine compliance with applicable local, state, and federal pretreatment standards.

5.18 Any User, owner, or Applicant connected to the Public Sewer shall comply with the Hazardous Waste Regulations as referenced in 40 CFR 403.12 (p) and amendments thereto.

6.0 Stormwater Management for New and Redevelopment Projects

6.1 The "Stormwater Management, Volume Two: Stormwater Technical Handbook", prepared by the Massachusetts DEP and the Massachusetts Office of Coastal Zone Management (CZM), dated March 1997 as hereafter may be amended, shall be used as the technical reference guide for the design and performance standards for all stormwater Best Management Practices (BMPs) proposed or constructed in the Town.

6.2 Standards 2, 3, 4, and 7 of the Massachusetts Stormwater Management Policy prepared by DEP and CZM, dated March 1997 as hereafter amended, shall be applied as provided in this paragraph 6.2. Under the current policy, these standards are:

(a) Standard 2: Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

(b) Standard 3: 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 from the pre-development or existing site conditions, based on the soil types. (Note: "To the extent practicable" means the applicant has made all reasonable efforts to meet the standards, including evaluation of alternative BMP designs and their locations.)

(c) Standard 4: For new development, stormwater management systems must be designed to remove 80% of the average annual load (post-development conditions) of the Total Suspended Solids (TSS). It is presumed that this standard is met when:

(1) Suitable nonstructural practices for source control and pollution prevention are implemented;

(2) Stormwater management best management practices (BMPs) are sized to capture the prescribed runoff volume; and

(3) Stormwater management BMPs are maintained as designed.

(d) Standard 7: Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practical to meet all the Standards, new (retrofitted or expended) stormwater management systems must be designed to improve existing conditions.

These four standards shall apply to all new and redevelopment projects involving new subdivisions or site plan reviews. The Town of Winchester Engineering Department shall be responsible for enforcing this regulation. This Section 6.2 shall not preclude additional standards to the extent that such projects fall within the jurisdiction of the Winchester Conservation Commission.

For subdivision applications and site plan reviews, plans showing proposed grading and drainage and drainage calculations shall be provided in accordance with the "Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts" and the "Site Plan Review Manual", respectively, and any additional requirements of the Town Engineer. All plans and associated drainage calculations shall be prepared and stamped by a registered professional engineer licensed in the state of Massachusetts.

6.3 For all new and redevelopment projects involving new subdivisions or site plans, stormwater management systems must, at a minimum, be designed such that post-development discharge volumes do not exceed pre-development volumes. The use of infiltration for such purposes is preferred. This Section 6.3 shall not preclude additional standards to the extent that such projects fall within the jurisdiction of the Winchester Conservation Commission.

6.4 The owners of private storm drains, stormwater management systems, and BMPs shall be responsible for the long-term maintenance of all such systems. Long-term maintenance requirements shall be in accordance with the standards outlined in the Massachusetts "Stormwater Management, Volume Two: Stormwater Technical Handbook", as amended, and other requirements specified by the Director and/or the Town Engineer. All long-term maintenance requirements shall be detailed in a protective covenant approved by the Town Engineer to run with the land; the protective covenant shall be recorded by the Applicant, at Applicant's sole expense, at the Registry of Deeds. If the owner(s) fail to comply with the required maintenance practices, the Town of Winchester may perform the maintenance and back-charge the owners for all such work, including reasonable attorney's fees.

7.0 Protection from Damage

7.1 No User, owner, or Applicant shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment which is a part of the sewage works or storm drain network. Any user, owner, or applicant violating this provision shall be subject to the appropriate civil or criminal penalties as provided by law.

7.2 Each User, owner, or Applicant shall provide protection from any discharges, including accidental discharges, in violation of these regulations. Users, owners, or Applicants shall notify the Town and/or the MWRA, as applicable, immediately upon the discharge of any wastes in violation of these regulations so as to facilitate the timely application of suitable countermeasures to be taken by the Town, and the MWRA to minimize damage to the Public Sewers, Public Storm Drains, and receiving waters. This immediate notification shall be followed, within 10 business days of the date of the initial occurrence, by a written statement from the User, owner or Applicant detailing to the Town, and the MWRA, if applicable, the circumstances and causes for the discharge and the measures being taken by the User, owner or Applicant to prevent any future occurrence(s). Such notification will not relieve Users of liability for any expense related to the loss or damage caused to Public Sewers, Public Storm Drains, or receiving waters, or for any fines that may be imposed by the Town, MWRA, or other permitting agencies, or for any Town costs for which the User, owner or Applicant may be liable, including, but not limited to, reasonable attorney's fees.

8.0 Powers and Authority

8.1 The Director and other duly authorized employees or agents of the Town bearing proper credentials and identification shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing in accordance with the provisions of these regulations. The Director or his/her representative shall

have no authority to inquire into any processes including metallurgical, chemical, oil, refining, ceramic, paper, or other industries beyond that point having a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for wastes treatment.

8.2 While performing the necessary work referred to above, the Director or duly authorized employees or agents of the Town shall observe all safety rules, applicable to the premises established by the User or owner. The User or owner shall be held harmless for injury or death to the Town employees and the Town shall indemnify the User or owner against loss or damage to its property by Town employees and against liability claims and demands for personal injury or property damage asserted against the User or owner and growing out of the gauging and sampling operation, except as such may be caused by the negligence or failure of the user or owner to maintain safe conditions, as required herein, and by other state and federal regulations.

8.3 The Director and other duly authorized employees or agents of the Town bearing proper credentials and identification shall be permitted to make tests of the sewer and storm drain system, including smoke and dye tests, and shall be permitted to perform reasonable visual inspections inside buildings in order to test for illicit connections to the municipal storm drain system and/or unauthorized or excessive discharges to the Public Sewer.

8.4 The Director and other duly authorized employees or agents of the Town, bearing proper credentials and identification, shall be permitted to enter all private properties through which the Town holds a duly negotiated easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair, and maintenance of any portion of any portion of the Public Sewer or Storm Drain lying within said easement. All entry and subsequent work (if any) on said easement shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

9.0 Penalties

9.1 Any User, owner, or Applicant found violating any provisions of these regulations shall be served by the Town with written notice stating the nature of the violation and providing reasonable time limits for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all described violations.

9.2 Any User who shall continue a violation beyond the time limit stated in writing, as provided herein, shall be guilty of a violation of these Rules and Regulations. The Town shall file appropriate charges in the appropriate court of competent jurisdiction, as provided in Section 13 of Chapter 83 of the Massachusetts General Laws (MGL), for

violations hereunder, and there shall be a fine in an amount not to exceed such limits prescribed by the MGL, including Chapter 83, Section 10, for each day or part thereof during which such violation shall continue beyond the time limit specified herein. Each day in which any such violation shall continue shall be deemed a separate offense.

In addition to the sums authorized, by statute, to be collected in fines in the event of any such violation(s), the Town shall also be entitled to recovery of all reasonable attorney's fees related to the determination, filing and resolution of these violation charges.

9.3 Any User, owner, or Applicant violating any of the provisions of these Rules and Regulations shall be liable to the Town for any expense, loss, or damage occasioned the Town by reason of such violation. Included are any fines, charges, as assessments made or imposed on the Town by any federal or state agencies, including the MWRA, as well as reasonable attorney's fees incurred in the prosecution of these enforcement actions, as further described in Section 9.2.

10.0 Right of Waiver

10.1 The Town reserves the right to waive any portion(s) of these Rules and Regulations that may (a) cause undue hardship, (b) occur during emergency conditions, (c) be deemed to be in the best interest of the Town.

10.2 Each request for a waiver shall be made in writing to the Director.

10.3 Nothing stated in this Section 10.0 shall be interpreted to mean that the Town has the right to waive any Massachusetts General Laws, State or Federal regulations, or MWRA requirements as referenced herein or otherwise applicable.

11.0 Severability/Validity

11.1 All ordinances or parts of ordinances in conflict with these Rules and Regulations are hereby repealed.

11.2 If any term of these Rules and Regulations, or the application thereof to any person or circumstance shall, to the extent, be determined to be invalid or unenforceable, the remainder of these Rules and Regulations, or the application of such term to persons or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby, and each term or provision of these Rules and Regulations shall be valid and be enforced to the fullest extent permitted by law.

11.3 These regulations shall not contravene nor render ineffective any of the lawfully established rules and regulations of the MWRA.

12.0 Ordinance in Force

12.1 These Rules and Regulations shall be in full force and effect from and after its passage, approval, recording, and publication as provided by law.

Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts

Winchester Planning Board

Adopted by the Winchester Planning Board on October 20, 2011 and November 3, 2011
Certified by the Town Clerk on November 17, 2011

Revisions adopted by the Winchester Planning Board on October 18, 2012

Certified by the Town Clerk on November 29, 2012

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RULES AND REGULATIONS GOVERNING THE SUBDIVISION OF LAND IN WINCHESTER, MASSACHUSETTS

This document is adopted under the Subdivision Control Law: Chapter 41 of the Massachusetts General Laws (M.G.L.) Sections 81-K to 81-GG inclusive, and all amendments thereto.

SECTION 1. TITLE, AUTHORITY, AND PURPOSE

1.1 TITLE

These Rules and Regulations of the Winchester Planning Board Governing the Subdivision of Land in the Town of Winchester, Massachusetts, may be cited as the *Rules and Regulations.*

1.2 AUTHORITY

The Rules and Regulations of the Winchester Planning Board Governing the Subdivision of Land in the Town of Winchester, Massachusetts, are hereby adopted pursuant to the authority granted by M.G.L. Chapter 41 §81K to 81GG, the "Subdivision Control Law."

1.3 EFFECTIVE DATE

The *Rules and Regulations* were adopted following a duly constituted public hearing by majority vote of the Board on and are fully effective as of November 17, 2011. Copies of the *Rules and Regulations* certified by the Town Clerk and copies of the Board's vote to adopt the rules and regulations are on file with the Register of Deeds and with the Recorder of Land Court. The current *Rules and Regulations*, in their entirety, replace the prior version that was adopted on June 27, 1988 and last amended on May 25, 2006.

1.4 PURPOSE

The Winchester Planning Board is authorized under the General Laws of Massachusetts to regulate the laying out and construction of ways in subdivisions to insure the safety, convenience, and welfare of the present and future inhabitants of Winchester. The Board shall exercise its authority with due regard for provision of adequate access to all of the lots in the subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways; for reducing danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic emergencies; for securing adequate provisions for water, sewerage, drainage, underground utility service, police and fire protection, and other requirements where necessary in a subdivision. Additionally, the Board will be responsible for coordinating the ways in a subdivision with each other and with the public ways in neighboring subdivisions; for insuring compliance with applicable provisions of the Town of Winchester Zoning Bylaw and the Wetlands Protection Act and for preserving the special natural and historical features of Winchester. With recent efforts by the government to encourage sustainable "green communities," the Board also will work, as applicable; to follow the policies of the

Commonwealth with respect to the encouragement of Winchester residents use alternative energy systems.

In considering a proposed subdivision, the Board shall solicit the opinions of other Town Boards, Committees, Commissions, and Officials (specifically, the Board of Health, Historical Commission and the Conservation Commission) as the application pertains to their respective authorities. The Board also may solicit the opinion of technical experts employed by the Board for the purposes of providing specialized technical review to the Board, as provided for under M.G.L. Chapter 44, Section 53G.

1.5 REGULATION OF NEW SUBDIVISIONS

No person shall make a subdivision of any land in the Town of Winchester unless said person has first submitted to the Board for its approval a plan of such proposed subdivision showing the lots into which such land is to be divided and the ways already existing or which are to be provided for furnishing access to such lots, and the Board has approved such plan in the manner herein provided.

SECTION 2. DEFINITIONS

In constructing these Regulations, the definitions set forth in M.G.L. Chapter. 41 Section 81L shall apply. In addition, the following terms and words are defined:

2.1 **AASHTO:** The American Association of State Highway and Transportation Officials.

2.2 **Agent:** An engineer or other person appointed by the Board and acting as the agent for it.

2.3 **Applicant:** Either the owner of the land stated in the application for subdivision or ANR approval, the owner in equity or all the owners where title is held jointly, in common, or in tenancy by the entirety, including corporations. The owner in equity, an agent, representative, or his assigns may act for an owner, provided written evidence of such fact is submitted using the form provided. In the instance of a corporate owner, agent, representative or assigns, a corporate resolution granting signature authority is required.

2.4 **Architectural Access Board:** The Massachusetts Architectural Access Board (AAB).

2.5 **Board's Professional Engineer:** A Massachusetts Civil Professional Engineer engaged by the Winchester Board to provide professional services during review of subdivision plans and construction of subdivision improvements.

2.6 **Base Flood:** Flood having a one percent chance of being equaled or exceeded in a given year.

2.7 **Base Flood Elevation:** The computed elevation to which flood water is anticipated to rise during the base flood.

2.8 **Bench Mark:** A permanent physical mark of known elevation. All elevations shall be referenced to the North American Vertical Datum (NAVD) 1988.

2.9 **Best Management Practices (BMP):** Structural, nonstructural, and managerial techniques that are recognized to be the most effective and practical means to prevent and/or reduce nonpoint source pollution. Best Management Practices are activities or equipment whose purpose is the management and maintenance of storm water quantity, storm water quality, and the protection of the environment.

2.10 **Board:** The Winchester Planning Board.

2.11 **Cornell Precipitation Data: All drainage analyses shall use the following 24-hour rainfall data, adopted from the web tool "Extreme Precipitation in New York and New England" developed jointly by the Northeast Regional Climate Center (NRCC) at Cornell University and the Natural Resources Conservation Services (NRCS), as available at http://precip.eas.cornell.edu/ for the Town of Winchester centered at Town Hall, 71 Mount Vernon Street, as accessed on September 26, 2011 and summarized in the table below:"**

Storm Event	24-Hour Precipitation (Inches)
2-year	3.2
10-year	4.9
25-year	6.2
100-year	8.9

2.12 **Designer:** A (Civil) Professional Engineer, Landscape Architect, or Professional Land Surveyor maintaining a current registration to practice in Massachusetts. All work defined as professional engineering shall be completed by or under the supervision of a registered professional engineer (PE), all work defined as landscape architecture shall be completed by or under the direct supervision of a registered Landscape Architect (LA) and all work defined as professional land surveying shall be completed by or under the direct supervision of a Professional Land Surveyor (PLS).

2.13 **Developer:** The Applicant as defined herein.

2.14 **Director of Public Works:** The Director of the Winchester Department of Public Works.

2.15 **Drainage:** The control of surface or subsurface water within the tract of land to be subdivided; surface water or stormwater runoff; or the removal of surface water or groundwater from a site by artificial or natural means.

2.16 **Easement:** A right in land acquired by the Town, other public authority or other party to use or control property for access, drainage, utilities, or other purpose.

2.17 **Engineer:** A registered Professional Engineer (PE) licensed to practice professional engineering in the Commonwealth of Massachusetts.

2.18 **M.G.L.:** The General Laws of the Commonwealth of Massachusetts, as amended.

2.19 **Property Owners' Association:** An association or organization which operates under or pursuant to recorded covenants or deed restrictions, through which each owner of a portion of a subdivision is automatically a member as a condition of ownership and each such member is subject to an assessment for a prorated share of expense of the association, which may become a lien against the lot, condominium, or other interest of the member. The Property Owners' Association is responsible for maintenance of common land and shared facilities, as set forth in the covenants, and may not be dissolved.

2.20 **Landscape Architect:** A registered Landscape Architect (LA) licensed to practice landscape architecture in the Commonwealth of Massachusetts.

2.21 **Lot:** An area of land in single ownership with definite boundaries used or available for use, as the site of one or more buildings. The term "single ownership" means an undivided ownership by one person or by several persons whether the tenure is joint, in common or by the entirety.

2.22 **Low Impact Development:** A systematic application of site design and use of small-scale, distributed stormwater management practices designed to replicate pre-development hydrologic function and to help offset the impacts of new impervious cover.

2.23 **Massachusetts Water Resources Authority (MWRA):** A public entity that provides wholesale drinking water and sewerage disposal services to the Town of Winchester The Town is responsible for maintaining all municipal water and sewer infrastructure. Varying portions of the Town are also supplied by drinking water from the Town's reservoir system depending on the time of year.

2.24 **Municipal Services:** Public utilities furnished by the Town in which a subdivision is located, such as water and sewerage.

2.25 **National Pollutant Discharge Elimination System:** The National Pollutant Discharge Elimination System (NPDES) administered by the United States Environmental Protection Agency.

2.26 **Owner:** As applied to real estate, the owner of record as shown by the records in the Middlesex South District Registry of Deeds or the Middlesex South Land Registry District.

2.27 **Operation and Maintenance Plan:** An operation and maintenance plan (O&M plan) for a subdivision that runs with the land and conforms to MADEP and EPA requirements, the Winchester Subdivision Rules and Regulations and any other pertinent or applicable requirements adopted by the Town of Winchester that employs Best Management Practices to ensure that the subdivision's stormwater management system functions properly during construction and in the longer term by providing scheduled maintenance and inspection.

2.28 **Private Drive:** A privately owned facility that provides motor vehicle access to one or more lots but does not provide frontage to abutting properties.

2.29 **Private Way:** A way which is owned and maintained by the property owners who abut and reside on the way and which is not maintained by the Town of Winchester.

2.30 **Public Way:** A street which has been accepted as a public way in accordance with the provisions of M.G.L. Chapter 82, or any way established by court decree to be a public way by dedication, prescription, or other legal means.

2.31 **Recorded:** Recorded in the Middlesex South District Registry of Deeds; if registered land is affected, filed with the recorder of the Land Court of Massachusetts.

2.32 **Register of Deeds:** The register of deeds of the county or district in which the land in question, or the Town or town in question, is situated, and, when appropriate, shall include the recorder of the Land Court.

2.33 **Right-of-Way:** The entire parcel of land intended or designed to provide access and rights of passage extending from the boundary of one parcel to the boundary of another parcel.

2.34 **Roadway:** That portion of a street intended for vehicular use.

2.35 **Rules and Regulations:** The Rules and Regulations of the Winchester Planning Board Governing the Subdivision of Land in the Town of Winchester, Massachusetts.

2.36 **Stormwater Management Standards:** The most recent edition promulgated by the Massachusetts Department of Environmental Protection, or its successor, of the Stormwater Management Standards. An overview of the Standards may be found in Chapter 1 of the Massachusetts Stormwater Management Handbook, available on-line at www.mass.gov/dep/water/laws/policies.htm#storm.

2.37 **Stormwater Management System:** All structures, pipes, swales, culverts, and surfaces that collect and convey stormwater runoff, all structures and practices that improve the quality of runoff, all structures that store or recharge runoff and all practices set forth in an Operations and Maintenance Plan.

2.38 **Street or Way:** A public way or a way having, in the opinion of the Board, sufficient width, suitable grades and adequate construction to provide for the proposed use of the land abutting thereon or served thereby.

2.39 **Street or Way: Dead End:** A minor street intersecting another street at one end and terminating at the other by either no turnaround or a permanent vehicular turnaround.

2.40 **Structure:** A combination of materials requiring a permit to erect, place, or construct to form a configuration and includes, but is not limited to, walls, platforms, radio towers, sheds, storage bins, signs, swimming pools, and fences.

2.41 **Subdivision:** The division of a tract of land into two (2) or more lots, including re-subdivision, and as further defined in M.G.L. Chapter 41, Section 81L.

2.42 **Subdivision Control Law:** The power of regulating the subdivision of land granted by the M.G.L. c. 41, §§81K to 81GG, inclusive, as amended.

2.43 **Surveyor:** A Professional Land Surveyor (PLS) licensed to practice land surveying in the Commonwealth of Massachusetts.

2.44 **Town Planner:** The Town Planner of Winchester, Massachusetts.

2.45 **Utilities:** Private or municipal services to be furnished within the subdivision, including, without limitation, telecommunications, community access television, electric

light and power, gas lines, sanitary sewers, storm drains, water mains, and appurtenances.

2.46 **Zoning By-law:** The Zoning By-law of the Town of Winchester adopted by the Town Meeting on November 4, 2010, and approved by the Attorney General on January 7, 2011, and any and all duly adopted and approved amendments thereto.

(b) Bearings, distances, and curve data to readily determine the location, direction, and length of every existing and proposed lot line, street line, way, easement, and boundary line in and abutting the subdivision, whether straight or curved, sufficient to reproduce the same on the ground.

(c) Location of all permanent monuments, identified as to whether existing or proposed. Monuments shall be provided at all changes in direction of the proposed street right-of-way, including points of curvature.

(d) The area of each proposed lot and any proposed easements, in square feet and in acres. The units of acres shall be rounded to a minimum of three (3) decimal places.

(e) The total frontage of each proposed lot and the total lot width, measured in accordance with the definition in the Zoning Bylaw.

(f) Identification of any lot(s) not meeting the minimum frontage, lot width, or lot area in accordance with the requirements for the zoning district in which it is situated. Such lots shall be designated as "Not a buildable lot."

(g) Identification of lots or parcels designated numerically or alphabetically in sequence. The Town Engineer and Assessor shall assign house numbers and map and block numbers after a building permit has been issued.

(h) Identification of the zoning district(s) classification(s) of the land (including overlay districts) in the subdivision and the precise location of the boundaries of these district(s) if the site is located in more than one district.

(i) Table comparing the zoning requirements for each lot in the subdivision (i.e., lot size, frontage, lot width, etc.) versus the proposed information.

(j) Reference(s) to any existing or proposed covenants and/or restrictions, including any variances, and/or special permits, either granted or required by the Board, or the Zoning Board of Appeals, and/or any decisions by the Winchester Conservation Commission. Recorded copies of said covenants, restrictions, orders of conditions, and/or zoning relief shall be provided to the Board.

(k) A clearly marked north arrow, which shall be identified as to whether it is magnetic or true north or shall be referenced to a record plan and so stated.

(l) A calculations package prepared by the professional land surveyor, which indicates the perimeter, lot, and right-of-way closure. Calculations shall be provided separate from the definitive subdivision plan set.

6.4.4 Grading, Drainage, and Utility Plan:

(a) All applicable information from the Existing Conditions Plan and Lot Layout Plan. The proposed subdivision information shall be overlaid on the existing conditions and shown in a darker line weight.

(b) Proposed boundaries of all lots, streets, ways, and easements within and adjacent to the subdivision, showing both roadway and right-of-way widths.

(c) Proposed contours indicating the finished grades of all proposed construction in the subdivision. The plan shall show how the proposed grades will tie in to the existing grades within and outside of the subdivision. The grades should be provided at a minimum two-foot contour interval; one-foot contours and/or spot elevations shall be shown in areas where the finished grades are one percent or less and in proposed detention/retention basins and drainage swales.

(d) All proposed site improvements, including but not limited to structures, buildings, sidewalks, handicap ramps, parking areas, curb type and limits, signs, pavement markings, street lights, walls, fences, and landscape areas. Critical dimensions shall be provided, including sidewalk, roadway, and driveway widths; parking stall dimensions; curb radius; and the like.

(e) Proposed alterations to resource areas and associated buffer zones governed under the Massachusetts Wetlands Protection Act and Winchester Wetlands Bylaw, including but not limited to, Bordering Land Subject to Flooding (BLSF), Isolated Land Subject to Flooding (ILSF), and wetlands boundaries.

(f) Roadway centerline of all proposed streets with stationing labeled at 50-foot intervals.

(g) Location of all proposed structures, wells, and septic systems in the subdivision, including all required setback dimensions to lot lines, buildings, wells, septic systems, and wetlands boundaries.

(h) Location and type of all existing and proposed above- and belowground utilities and appurtenances, including but not limited to:

    (i) Existing and proposed drainage facilities with pipe sizes, lengths, slopes, and materials including catch basins, manholes, culverts, headwalls, detention and/or retention basins, infiltration systems, and outlet pipes/structures. Rim and invert elevations shall be provided for all structures.

    (ii) Existing and proposed water mains with sizes, length, and materials, including hydrants, water services, gates, shutoffs, tees, etc.

    (iii) Existing and proposed sewer mains and sizes, lengths, slopes, and materials, including manholes with rim and invert elevations.

    (iv) Existing and proposed gas mains.

    (v) All other existing and proposed above-and below-ground utilities, including electric, telecommunications, cable TV, poles, conduits, transformers, and appurtenances.

(i) Location of proposed area(s) for disposal of surplus "earth" materials. The finished grades of these areas shall be indicated by contours and/or spot elevations with the volume of "fill" indicated.

(j) Location of area(s) to be utilized for backfill materials. The finished grades of these areas shall be indicated by contours and/or spot elevations with the volume of materials indicated.

(k) If excess "earth" materials are proposed to be disposed of off-site, then a notation shall state the volume of "earth" to be removed, as defined in the Winchester Board of Health regulations on earth removal. This volume shall include all amounts of "earth" as proposed to be removed for the construction of streets, sidewalks, driveways, structures, and all other improvements related to the subdivision. If no "earth" is to be removed, a statement to such effect shall be included on the plan(s).

(l) A notation stating the volume of "fill" material proposed to be obtained off-site, including backfill, gravel, and other materials necessary for the construction of the streets, sidewalks, driveways, structures, and all other improvements related to the subdivision.

(m) A note stating that "No building or structure shall be built or placed on any lot without a permit from the Health Department, if such a permit is required."

6.4.5 Street Plan and Profile:

(a) This sheet shall show the plan of the proposed street drawn to a scale of 1" = 40" with the existing and proposed profiles, drawn directly below the plan at a horizontal scale of 1" = 40" and a vertical scale of 1" = 4", unless otherwise required by the Board;

(b) The street plan shall show the following information:

(i) All applicable information from the Existing Conditions Plan, Lot Layout Plan, and Grading, Drainage and Utility Plan. The proposed subdivision information shall be shown in a darker line weight.

(ii) Bearings and distances of all tangents along the proposed roadway centerline and the right-of-way.

(iii) Radii, length and central angle of all curves along the proposed roadway centerline and right-of-way.

(iv) Points of intersection of all tangents, with tangent lengths, of all centerline curves.

(v) Stations shall be clearly marked at 50-foot intervals along the street centerline and at points of curvature and tangency of all curves. Stations shall be provided at 25-foot intervals in vertical curves. Where the centerline intersects itself or other proposed streets, the point of intersection shall be clearly marked with a station equation.

(vi) Existing and proposed lot lines intersecting the right-of-way with the frontage and lot numbers shown.

(vii) Location of all existing and proposed easements.

(viii) Limit of existing and proposed pavements, including dimensions of all streets, sidewalks, handicapped ramps, driveways, and parking areas.

(ix) Location of all existing and proposed curbs and berms and identification of the materials; location of all existing and proposed above- and below-ground utilities, including but not limited to water, sewer, drainage, electric, gas, and telecommunication. All utility pipe type, sizes, lengths, and slopes shall be provided, as well as all utility structure information, including rim and invert elevations.

(x) Existing and proposed street trees.

(c) The street profile shall show the following information:

(i) Profile of existing grades along the proposed subdivision roadway centerline; elevations shall be labeled at 50-foot intervals.

(ii) Profile of existing and proposed grades along the left and right right-of-way lines for the proposed subdivision roadway.

(iii) Profile of the proposed grades along the roadway centerline, with stations and elevations labeled at 50-foot intervals and at points of vertical curvature, gradient intersection, and tangency. Stations shall be provided at 25-foot intervals in vertical curves. Where the centerline intersects itself or other proposed streets, the point of intersection shall be clearly marked with the existing and proposed elevation and station equation.

(iv) Roadway gradient lines shall be labeled with the rate of grade expressed as a percent.

(v) Lengths of all vertical curves shall be labeled, including applicable sight distances.

(vi) Profile of all existing and proposed drainage facilities, including drainage lines, catch basins, manholes, culverts, headwalls, outlet pipes/structures shall be drawn in solid lines showing pipe sizes, lengths, slopes, and rim and invert elevations at all structures. Infiltration or detention/retention systems located partially or fully within the right-of-way shall be shown. Stations and offsets shall be indicated for all catch basins, manholes and culverts, headwalls and outlet pipes/structures.

(vii) Profile of all existing and proposed water mains and appurtenances, including pipe sizes, depths of cover, laterals to hydrants and station and offset(s) to hydrants.

(viii) Profile of all existing and proposed sewer mains and manholes showing pipe sizes, pipe slopes, rim and invert elevations, and station and offsets to manholes.

(ix) Profile of all other existing and proposed below ground utilities, including gas, electric, telecommunications, cable TV, poles, conduits, transformers and appurtenances.

(x) Profiles of all utilities shall be provided in the proposed subdivision roadway and any easements. The profiles for all proposed utilities shall extend to the point where the proposed system ties into the existing utility or otherwise terminates.

(xi) Vertical clearances shall be labeled between all crossing utilities.

6.4.6 Sedimentation and Erosion Control Plan

(a) All applicable information from the Existing Conditions Plan, Lot Layout Plan, and Grading, Drainage, and Utility Plan. The proposed subdivision information shall be shown in a darker line weight.

(b) Location of the proposed limit of work, lined by a row of hay bales and silt fencing in down gradient areas and along all resource areas.

(c) Location of anti-tracking area at all construction entrances.

(d) Hay bale and silt fence protection and/or silt sacks at all existing and proposed drainage structures.

(e) Seeding, sodding, or revegetation plans and specifications for all unprotected or unvegetated areas.

(f) Location and design of all structural sediment and erosion control measures, such as grade stabilization structures, temporary drainage swales, and temporary sedimentation basins.

(g) Location of all proposed stockpiling areas with appropriate erosion control measures.

(h) Notes detailing the proposed operation, maintenance, and inspection schedule for all erosion and sedimentation control measures, including proposed schedule for street sweeping of adjacent roadways and paved areas.

6.4.7 Landscaping Plan

(a) All applicable information from the Existing Conditions Plan, Lot Layout Plan, and Grading, Drainage, and Utility Plan. The proposed subdivision information shall be shown in a darker line weight.

(b) Limits of existing vegetation to remain, including existing single trees greater than six (6) inches caliper. Trees shall be staked out to the drip line with snow fencing to prevent damage to the root system.

(c) Proposed street trees and other proposed landscaping within the right-of-way.

(d) Plant and tree legend; the plant types shall be reviewed by the Winchester Street Tree Committee and the Winchester Conservation Commission where subject to their review. A recommendation shall be made to the Planning Board from the Street Tree Committee regarding the tree type and size.

6.4.8 Typical Sections, Details, and Notes

(a) Typical cross-section of each street (if more than one type) showing width of the right-of-way, width of pavement, curbs, cross slope, sidewalk(s), grass strips, utility locations and depths of cover, thicknesses and types of pavement for the street and sidewalk, thicknesses of street and sidewalk base courses, thicknesses of loam, location of guardrail, existing and proposed grades, and the maximum grade of return to existing grade. One side of the section shall indicate a typical "fill" and the other a typical "cut."

(b) Typical cross-section(s) and details of all proposed retention and/or detention basins showing existing and proposed grades, details of inlet pipes with inverts and full flow capacity, outlet control structures and pipes with inverts and full flow capacity, estimated high groundwater elevations, two (2), ten (10), twenty-five (25) and one hundred (100)-year storm water elevations, details and elevations of emergency spillway structure(s), embankment construction and slope treatment, top of dam elevation, and volume of storage capacity.

(c) Typical cross-section(s) and detail of all proposed infiltration systems showing existing and proposed grades, details of inlet and outlet pipes/structures with invert elevations, details of all proposed clean-out structures, estimated high groundwater elevations, and extent of all surrounding crushed stone and filter fabric. Separate cross-sections should be provided for systems located under paved and unpaved surfaces, as appropriate.

(d) Profiles of all cross-country utilities, drainage swales, or ditches with typical cross sections of each.

(e) Detail for all retaining walls, fences, or similar.

(f) Details of drainage structures, including catch basins, manholes, headwalls, flared-end sections, outlet and velocity control structures, rip-rap slopes and channels.

(g) Details of sewer manholes and drop inlet structures.

(h) Details of hydrants, blow-off valves, and thrust blocks.

(i) Utility trench details.

(j) Details of curb installation(s).

(k) Details of handicap ramp(s).

(l) Detail of guardrail(s).

(m) Details of all erosion/sedimentation control devices.

(n) Typical street sign detail.

(o) Typical street light detail.

(p) Tree/shrub planting detail.

(q) Plans, details, sections, and profiles of any other utility, structure of facility proposed in the subdivision.

(r) All plans and profiles shall be drawn at horizontal scale of not less than 1” = 40’ and a vertical exaggeration not greater than 1” = 4”; details and sections shall be drawn at a scale of not less than 1” = 4” or approximately one-quarter (¼) scale if drawn “not to scale,” unless otherwise approved by the Board.

(s) Specific and general notes identifying the standards for materials and construction methods of all the elements in the subdivision. Accepted standards and specifications include the following:

(i) American Society for Testing and Materials (ASTM);

(ii) American Water Works Association (AWWA);

(iii) State Environmental Code – Title V; and

(iv) Massachusetts Stormwater Handbook, dated February 2008, as amended.

6.5 ADDITIONAL DOCUMENTS, REPORTS, AND STUDIES REQUIRED

6.5.1 Stormwater Management Report

Three (3) copies of a separate stormwater management report shall be submitted together with the definitive subdivision plans. It shall be prepared and stamped by a Massachusetts licensed professional engineer and shall contain the following information:

- Narrative describing existing and proposed soil conditions (including Hydrologic Soils Group [HSG] classification published by the National Resources Conservation Service [NRCS]), land use, surface cover, estimated high groundwater elevations, drainage patterns, and proposed stormwater management practices.

- Description of any soil testing conducted in the study area, including percolation tests, tests for saturated hydraulic conductivity, test pits or soil borings. Soils information shall be based on field investigations by a Massachusetts certified Soil Evaluator, or a Massachusetts Licensed Professional Engineer. Testing shall be performed in accordance with Volume 3 of the Massachusetts Stormwater

Handbook (dated February 2008, as amended) and Section 7.15.10 of these Regulations. Raw test data shall be provided in an appendix to the report.

- Narrative describing the methodology used to conduct the hydrologic and hydraulic analyses of the site, estimate the existing and proposed stormwater runoff rates and volumes, and design the proposed stormwater management system(s).

- Table comparing existing and proposed impervious area peak runoff rates and runoff volumes. Common design point(s) shall be used for comparison between existing and proposed conditions. If the analysis shows increases in the off-site peak rate or volume of runoff, additional analysis of downstream drainage systems and/or water bodies may be required. The Board may require off-site improvements to mitigate for the project's impact.

- Long-term operations and maintenance plan for the drainage system, including any drainage structures, such as dry wells, servicing buildings within the subdivision. The plan shall contain easy to use inspection forms to be submitted to the Planning Board on an annual basis after completion of the work. The plan shall identify who is responsible for maintaining the system and provide a mechanism for funding the program.

- A completed copy of the LID Site Planning and Design Checklist (see Appendix I) Description of proposed water quality controls and low impact development techniques used in the subdivision, including an estimate of Total Suspended Soils (TSS) Removal in accordance with the Massachusetts Stormwater Handbook, dated February 2008, as amended.

- Description of any impacts to the 100-year floodplain and regulatory floodway and a summary of compensatory flood storage calculations, if appropriate.

- Description of existing and proposed groundwater recharge on the site, including quantitative summary of existing and proposed recharge volumes, and summary of groundwater mounding analysis, if applicable. At a minimum, Existing Estimated Seasonal High Groundwater (ESHGW) elevation shall be documented at each location where an infiltration-type stormwater management practice is proposed.

- Map(s) showing pre- and post-development watershed areas, including any off-site contributions, and time of concentration travel flow-paths. Study design points should be indicated on the plan.

- Map showing the location of site on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) for the Town of Winchester, or other appropriate information pertaining to location of the 100-year floodplain boundary in relation to the site.

- Map showing any wetland resource areas within 200 feet of the proposed limit of work, and the associated buffer zones;

- Appendix containing all drainage calculations for existing and proposed conditions, including hydrologic analysis of the site, hydraulic analysis of the proposed drainage system, and calculations supporting the design of all structures that will control peak discharge rates and volumes. Drainage calculations shall be provided for the 2-, 10-, 25-, and 100-year storm event using the 24-hour precipitation estimates published by the Northeast Regional Climate Center at Cornell University (http://precip.eas.cornell.edu), see Section 2.11 of these Regulations. Proposed condition calculations must be based on the full build-out conditions for the subdivision.

- Groundwater recharge calculations comparing pre- and post-development conditions and groundwater mounding study, if appropriate.

- Proposed schedule of construction operations and phasing plans, including land clearing and grading, installation of sediment and erosion control measures, utility installation, sidewalk and roadway installation and paving, and building plans.

6.5.2 Environmental and Community Impact Analysis

6.5.2.1 **Applicability:** All subdivision applications that create frontage for three (3) or more lots and all nonresidential subdivisions shall include fifteen (15) copies of an Environmental and Community Impact Analysis. The Board may require portions of this Analysis be carried out for smaller residential subdivisions if, in their opinion, the sensitivity of the land, neighborhood, or infrastructure warrants the investigation.

The Environmental and Community Impact Analysis shall clearly and methodically assess the relationship of the proposed development to the natural and man-made environment of Winchester. This report shall be prepared by professionals qualified, experienced, and, as applicable, licensed, in their fields. Such professionals may include registered professional (civil) engineers, traffic engineers, architects, landscape architects, economists, land-use planners, preservation planners, hydrogeologists, hydrologists, biologists, public safety officials and other environmental professionals. The Applicant shall bear the cost of this analysis.

6.5.2.2 **Purpose:** This analysis shall be used to inform the Board in its deliberations and will build into the Board's decision-making process consideration of the environmental and community impacts of the proposed development.

6.5.2.3 For each of the components of the Environmental and Community Impact Analysis listed under Section 6.5.2.3 below, each of the following concerns must be separately addressed:

(a) *The Environmental and Community Impacts of the Proposed Development*. The report shall describe the primary and secondary environmental and community impacts, both beneficial and adverse, anticipated as a result of the proposed development; this section shall include all impacts resulting from the construction phase as well as those resulting from the project's completion.

(b) *Alternatives to the proposed development.* The report shall develop, describe, and objectively weigh alternatives to the proposed development that are allowed under the Zoning Bylaw either by right or by special permit.

(c) *Adverse impacts that cannot be avoided should the proposed development be implemented.* The report shall describe the kinds and magnitudes of the adverse impacts which cannot be reduced in severity or which can be reduced in severity but not eliminated.

(d) *Measures to be used to minimize adverse environmental and community impacts.* Corrective and protective measures that will be taken as part of the project to minimize adverse impacts shall be described in detail.

6.5.2.4 Topics to be Evaluated and Level of Detail Required: The report shall address all pertinent aspects of Section 6.5.2.3 as specified in the Board's review of the draft Environmental and Community Impact Analysis included in the Preliminary Subdivision Submission. If no preliminary subdivision plan is submitted, the Environmental and Community Impact Analysis shall evaluate all of the following topics.

6.5.2.5 Natural Environment:

(a) **Air and Noise Pollution:** The impact of local air quality and noise from the proposed development (including traffic generated from the development), both during and after construction, shall be evaluated; for larger developments (over 10 dwelling units) the Board may require detailed technical reports for such impacts.

(b) **Stormwater Runoff Quantity and Quality:** The impact of stormwater runoff on adjacent and downstream surface water bodies and subsurface groundwater shall be evaluated in terms of both runoff quantity and quality. Dangers of flooding as a result of increased runoff, especially peak runoff; dangers of increasing icy street conditions in winter; and the impact of the proposed project on water table levels also shall be evaluated.

(c) **Land:** Compatibility of the proposed development with existing soils; the impact of any soils or other such materials to be removed from or added to the site; and the potential dangers and impacts of erosion and sedimentation caused by the proposed development.

The Town of Winchester has two zoning provisions within the Winchester Zoning Bylaw that allow for the preservation and conservation of open space. Prior to generating definitive subdivision plans, the Winchester Planning Board encourages Applicants to review these bylaws and determine if these zoning bylaws can meet the needs of the Applicant while retaining the ability of the Applicant to develop the land for housing, commercial or industrial purposes. The Winchester Planning Board encourages the Applicant to take measures to conserve land and place a conservation restriction on the land to allow for responsible development, particularly in light of the fact that most remaining parcels available for development

have challenges in the form of steep slopes, poor soils, inadequate drainage or other limitations.

(d) **Plants and Wildlife:** The impact that the proposed project may have on wildlife habitat and on any rare or endangered plant or animal species known to exist in the area.

(e) **Water Supply and Fire Protection:** The average and peak daily demand and the impact of such demands on the existing water supply and fire protection systems. Flow tests or other testing of the existing system may be required to evaluate the existing capacity and project impacts.

(f) **Sewage Disposal:** The average and peak daily disposal and the impact of each disposal on the existing system. Flow monitoring of the impacted sewer system or other field tests may be required to evaluate the existing capacity and impact of the proposed project.

(g) **Subdivision in a Floodplain Overlay District:** All subdivision proposals shall be reviewed to determine whether such proposals will be reasonably safe from flooding. If any part of a subdivision proposal is located within the Floodplain Overlay District, established under the Winchester Zoning Bylaw, it shall be reviewed to assure compliance with the following:

(i) The proposal is designed consistent with the need to minimize flood damage;

(ii) All public utilities and facilities, such as sewer and water systems, are located and constructed to minimize or eliminate flood damage; and

(iii) Adequate drainage systems are provided to reduce exposure to flood hazards.

6.5.2.6 Man-Made Environment:

(a) **Existing Neighborhood Land Use:** Compatibility with adjacent or nearby existing land uses, or approved private development plans, if known, for adjacent or nearby land use changes to occur during the life of the proposed development; if not compatible, reasons therefore shall be detailed;

(b) **Existing Design Context:** Compatibility with nearby buildings that have distinctive siting, massing, materials, or other features reflecting a certain historic period or periods; and

(c) **Zoning:** Compatibility of the proposed development with the purposes of the Zoning Bylaw and the zoning district(s) in which the site is located.

6.5.2.7 Public Services:

SECTION 7. DESIGN STANDARDS, REQUIRED IMPROVEMENTS, AND CONSTRUCTION SPECIFICATIONS

7.1 GENERAL

Design of the development shall be based upon a site analysis of the existing conditions and major site features, as shown on the plans, to ensure that the development will not create a nuisance or be dangerous or harmful to the general health, welfare, and safety of the public. To the maximum extent practicable and feasible, consistent with the reasonable utilization of land, and in accordance with applicable federal, state or local regulations, development shall be located to preserve the natural features and environmental resources of the site, to avoid areas of environmental sensitivity, and to minimize negative impacts that alter or degrade natural features. Features to be preserved and which add attractiveness and value to the property and the Town include watercourses and waterbodies, unique and/or fragile areas, including wetlands and endangered wildlife habitat areas, significant trees or stands of trees, as well as species of trees that are rare to the area or of particular horticultural or landscape value, historic structures and landmarks, scenic views, vistas and viewsheds, and similar community assets.

It is not intended that these design standards will be applicable to all possible situations which may arise in the design of a particular subdivision. In situations not covered herein, and particularly in the case of subdivisions for business or industrial purposes, planned unit development, multifamily development, and similar large-scale developments, the subdivision shall be designed to the satisfaction of the Board in accordance with such design standards as will satisfy the purpose of the Subdivision Control Law. In such cases, due consideration will be given to the prospective character of the subdivision, the anticipated amount of travel upon the ways and the relevant factors of the particular situation.

7.1.1 The design and construction of the subdivision shall minimize, to the extent reasonably practicable, the following:

- Volume of cut and fill, including blasting;
- Area over which existing vegetation will be disturbed, especially on land within 200 feet of a water body or wetland, on land having a slope greater than 15 percent, or overlying easily eroded soils;
- Number of mature trees removed;
- Visual prominence of man-made elements that are not necessary for safety or orientation;
- Loss of historic resources, including historic buildings and landscape features;
- Blockage of vistas through new developments;
- Removal of existing stone walls;

- Traffic congestion during and after construction, particularly on residential streets;
- Soil instability or erosion during and after construction;
- Directly connected impervious surfaces;
- Alteration of drainage patterns, surface water elevations, or groundwater elevations; and
- Disturbance of wildlife habitats, botanical features, and scenic or historic qualities or features.

The subdivision design and construction shall increase, to the extent reasonably practicable, the following:

- Visual prominence of natural and historic features;
- Use of low impact development techniques;
- Public open space;
- Pedestrian, bicycle, and public transportation amenities and linkages;
- Preservation of mature trees, natural vegetative cover, and existing topography; and
- Preservation and enhancement of neighborhood character that fosters a sense of place.

7.1.2 **Consistency with Town Plans:** The design and layout of a proposed subdivision shall be guided by the goals and objectives of any existing Master Plan, Strategic Plan, or other statement of goals and objectives set forth for the Town of Winchester.

7.2 CHARACTER OF THE LAND

7.2.1 **Protection of Natural Features:** In laying out of a subdivision, the Applicant shall comply with these rules and regulations with due regard to all natural features such as trees greater than six inches in diameter, watercourses, wetlands, scenic or historic elements, aquifers, floodplains, and habitats of rare or endangered species. These features shall be left undisturbed wherever practical and the Board may waive design requirements in order to protect important natural features.

7.2.2 **Unsuitable Land:** Land which the Board finds to be unsuitable for development due to flooding, improper drainage or adverse drainage, adverse topography, poor soils, bedrock, location of utility easements, or other features which the Board has reason to believe would be detrimental to the health, safety, and general welfare of the present or future inhabitants of the subdivision and/or its surrounding area, shall not be subdivided or developed unless adequate measures are formulated by the Applicant and are

approved by the Board to eliminate or minimize any short- or long-term impacts created by development of the unsuitable land.

7.2.3 **Self-Imposed Restrictions:** If, as part of a subdivision application, the Applicant or Owner places voluntary restrictions on any of the land contained in the subdivision which are greater than the requirements of these Regulations or of the Town of Winchester Zoning Bylaw, such restrictions or references thereto shall be indicated and located on the Definitive Plan and shall be recorded in the Middlesex County Registry of Deeds or the Land Court.

7.3 LOTS

7.3.1 **Lot Arrangement:** Lots shall be arranged so there will be no foreseeable difficulties due to topography, soils, wetlands, bedrock, improper drainage, or other conditions in securing permits to build upon all lots in compliance with the Zoning Bylaw, nor in providing practical, feasible driveway access to a building on each such lot. The land subdivided into lots shall be of such general character that it can be used for building purposes without danger to public health.

7.3.2 **Lot Dimensions, Width, Area, and Frontage:** The lot dimensions, width, area, and frontage shall comply with the minimum standards of the Winchester Zoning Bylaw.

7.3.3 **Lot Drainage:** Lots shall be laid out so as to provide positive drainage away from all proposed buildings. Runoff from all rooftop areas shall be infiltrated on each lot for up to and including the 100-year storm event (based on the Cornell precipitation data), where soil conditions and subsurface geology allows. Priority should be given to the use of low impact development techniques on each lot, such as rain gardens, to reduce the amount of stormwater leaving the site. The lot should be designed and graded to prevent stormwater runoff from adversely impacting adjacent properties or structures, either existing or proposed.

7.4 STREETS – BASIC REQUIREMENTS

7.4.1 **Street Classifications:** Residential streets or ways are categorized by characteristic.

Residential	Neighborhood	Town*	Industrial
Low traffic volumes.	Low traffic volumes.	Higher traffic volumes than Neighborhood streets. Town streets connect one part of town to another.	Low traffic volumes, with potentially large vehicle traffic accessing business and industrial lots.
Undesignated space for bicyclists, pedestrians and vehicles. Pedestrians often walk in the street and children play there.	Vehicles have higher priority than on Residential streets. Undesignated space for bicyclists and vehicles, with some sharrows for separation of bicycles and vehicles.	Vehicles have high priority on street. Designated parking lanes and bicycle lanes or sharrows for separation of bicycles and vehicles. Speeds limited to promote and protect public safety.	Vehicles have high priority on street.

* Town Street designation does not imply town compliance or acceptance of the street.

7.4.8 **Street Names:** Proposed street names shall be included on the plans and shall be sufficiently different in sound and in spelling from other street names in the Town so as not to cause confusion. A street which is planned as a continuation of an existing street shall bear the same name. The proposed street name shall be included in the application submitted to the Board. The Town Engineer, the Fire Chief, and the Police Chief shall review the proposed street name for conflicts with existing street names and may recommend changes as appropriate.

7.4.9 **Street Numbers:** Street numbers shall be assigned by the Town Engineer, in consultant with the Town Assessor, Fire Chief, and Police Chief upon application for a building permit.

7.5 REQUIRED IMPROVEMENTS AND CONSTRUCTION STANDARDS

7.5.1 Unless otherwise specified herein, all subdivision improvements shall be constructed in accordance with the standards and specifications set forth in the current *"Special Provisions for the Construction of Roadways, Including the Installation of Water, Sewer, and Drains in the Town of Winchester."* The Planning Board may grant exceptions on a case by case basis. In case of any conflict or inconsistency between a provision or requirement of these Subdivision Regulations and the Roadways Provisions, the provision or requirement of these Subdivision Regulations shall supersede, control, and govern over the conflicting or inconsistent provision or requirement of the Roadways Provisions.

7.5.2 **Pre-Construction Meeting:** Following approval of the definitive subdivision plan and before actual construction begins, the Applicant is required to schedule a meeting with the Town Engineer or the Board's Consulting Engineer, the Town Planner, the Department of Public Works Director, and the Conservation Agent (as appropriate). The Applicant is strongly encouraged to bring an engineer and roadway/utility contractor to this meeting. The Applicant or a representative shall provide at least 72-hour written notice to the Town Engineer or the Board's consultant prior to the start of any construction-related activities. The Applicant shall supply contact information for all parties associated with the construction and shall supply at least one emergency contact that is available 24 hours a day, seven days a week.

7.5.3 **Notification:** Once construction has been initiated, the Applicant shall notify the Town Engineer or the Board's Consulting Engineer at least 48 hours in advance of the start of the respective construction phases.

The Town's Engineering Department shall act on the Board's behalf to ensure that the construction of roadways and all utilities depicted on the Definitive Subdivision Plans are carried out in accordance with these Rules and Regulations and Town standards. All elements of work are to be at all times subject to inspection. The Engineering Department and the Board may order tests and interim as-built plans to be prepared by the developer, at the developer's expense, as may be needed to demonstrate that these Rules and Regulations and the construction standards contained herein have been met. Field reports shall be provided to the Planning Board on a regular basis, and as

requested by the Board, shall update the Board on the status of the physical construction of the project.

7.5.4 Inspections:

(a) The Board may retain independent consultants, at the applicant's expense, to perform inspections or to ascertain whether these regulations and construction specifications have been met.

(b) Each phase of the subdivision construction shall be inspected to ensure compliance with the Subdivision Rules and Regulations and the approved definitive subdivision plan. The Applicant or a designee shall be responsible for notifying the Town Engineer or the Board's consultant when the respective work items are started and when they are ready for inspection.

(c) The developer shall provide safe and convenient access to all parts of work for observation by the Town Engineer or the Board's Consulting Engineer, Department of Public Works, Water and Sewer Department, and by the Board's members or agents. No work shall be approved that has been undertaken and covered before the required inspection/observation.

(d) When underground infrastructure is installed, such as but not limited to, sewer, drainage, and water, the improvements shall be inspected by the Town Engineer or Board's Consulting Engineer or the respective Town department before the excavation is backfilled.

(e) The subgrade must be approved by the Town Engineer or the Board's Consulting Engineer before the application of the gravel base course.

(f) The gravel base course must be approved by the Town Engineer or the Board's Consulting Engineer before the application of hot mix asphalt (street or sidewalk) pavement.

(g) Each application of hot mix asphalt on the street and sidewalk and placement of curbing must be approved by the Town Engineer or the Board's Consulting Engineer.

(h) The Town Engineer or the Board's Consulting Engineer may require independent tests and interim as-built plans to be completed at the Applicant's expense to demonstrate that the regulations and construction specifications have been met.

(i) Failure to comply with the inspection procedure may result in the Board requiring any work not inspected to be exposed or removed, at the Applicant's expense, to ensure that the proper inspection may be made. In all such cases, it will be the Applicant's responsibility to prove the quality of work through testing and/or certification.

7.15 DRAINAGE

7.15.1 General Requirements: The drainage system within the subdivision shall be laid out to the satisfaction of the Board, acting on the recommendation of the Town Engineer and, as required, consulting engineers, and shall require provision of such facilities and arrangement thereof as, in its opinion, are necessary to:

- Permit unimpeded flow of all natural water courses;
- Insure adequate drainage of all low points along the roadways;
- Intercept groundwater in the subsoil along the roadway where within three feet of the proposed roadway surface;
- Intercept stormwater runoff along all roadways at intervals reasonably related to the extent and grade of the area drained;
- Create no adverse downstream impacts or impacts to abutting properties;
- Preserve the existing hydrologic regime and drainage patterns to the maximum extent possible through the use of Low Impact Development (LID) techniques and environmentally sensitive site design (See LID Site Planning and Design Checklist in Appendix I); and
- Comply with the Town's Stormwater Management Plan and insure compliance with the National Pollutant Discharge Elimination System (NPDES) municipal permit, issued by the Environmental Protection Agency (EPA) to the Town of Winchester. NPDES permits are authorized by EPA under the Clean Water Act to regulate point sources that discharge into the waters of the United States.

7.15.2 Low Impact Development (LID): The applicant shall employ the use of Low Impact Development (LID) techniques and environmentally sensitive site design in the overall design of the subdivision and the stormwater management system. LID refers to the systematic application of site design and use of small-scale, distributed stormwater management practices designed to replicate pre-development hydrologic function and to help off-set the impacts of the creation of new impervious cover. The applicant shall complete and submit with the Definitive Subdivision filing the LID Site Planning and Design Checklist (see Appendix I).

The primary goal of LID methods is to mimic the pre-development site hydrology by using dispersed stormwater Best Management Practices (BMP) and site design strategies that store, infiltrate, evaporate, and detain stormwater runoff. The use of these techniques helps to reduce off-site runoff and ensure adequate groundwater recharge. Primary objectives include:

- Development of a site design that maintains pre-development hydrologic patterns;

- Minimizing the size of impervious surfaces;
- Localized treatment/storage/infiltration of stormwater runoff in small, decentralized areas;
- Use of natural topography for drainage swales and storage areas;
- Preservation of portions of the site in undisturbed, natural (or existing) conditions; and
- Lengthening of runoff flow paths to increase times of concentration and reduce peak rates.
- Where appropriate, the Planning Board, upon advice of the Town Engineer, may allow the Applicant to install pervious pavement and other environmentally sensitive paving and drainage systems within the subdivision.

The use of LID techniques requires a multistep process that begins with site planning and layout. An initial assessment of the site constraints and hydrologic conditions on the site and downstream areas is critical to the success of the LID methods and the development as a whole. The Board strongly recommends that the applicant consult with the Town Engineer and Town Planner early in the process to discuss the proposed site design before a subdivision plan is filed. Comments and information provided by the Town with respect to the site and stormwater design are advisory in nature. The applicant is solely responsible for the successful design of the site and stormwater management system.

7.15.3 Compliance with Massachusetts Stormwater Management Handbook: Stormwater management systems shall be designed in accordance with the MADEP's "Massachusetts Stormwater Handbook," dated February 2008 and as amended, (except as stricter regulations outlined herein apply) regardless of the size of the subdivision and whether or not the subdivision falls within the jurisdiction of the Wetlands Protection Act. The applicant shall provide a section in the Drainage Report to address the project in relation to the Stormwater Management Standards (including associated calculations, as appropriate).

7.15.4 Stormwater Runoff Peak Rate and Volume Control: The site shall be designed to ensure that post-development peak discharge <u>rates</u> do not exceed pre-development rates for the 2-, 10-, 25-, and 100-year, 24-hour Type III storm events. Additionally, the site shall be designed to ensure that post-development discharge <u>volumes</u> do not exceed pre-development volumes. The use of infiltration and LID techniques for such purposes is preferred.

7.15.5 Design Points: Off-site areas contributing to the overall site hydrology shall be accounted for in both pre- and post-development analyses. Discrete analysis points (or "design points") shall be selected to determine the off-site impacts. Several different design points may be required depending on the existing and proposed topographic

features of the site. The same analysis points shall be used for both existing and proposed conditions to ensure consistency in the comparison of peak rates and volumes. The overall size of all study areas analyzed shall be identical in the pre- and post-development analysis. A plan indicating the watershed areas, Time of Concentration (TC) flow paths and associated design points for the pre- and post-development conditions shall be submitted with the Drainage Report.

7.15.6 Precipitation Data: All drainage analyses shall use the following 24-hour rainfall data, adopted from the web tool "Extreme Precipitation in New York and New England" developed jointly by the Northeast Regional Climate Center (NRCC) at Cornell University and the Natural Resources Conservation Service (NRCS), as available at http://precip.eas.cornell.edu/ for the Town of Winchester centered at Town Hall, 71 Mount Vernon Street, as accessed on September 26, 2011 and summarized in the table below:"

Storm Event	24-Hour Precipitation (Inches)
2-year	3.2
10-year	4.9
25-year	6.2
100-year	8.9

7.15.7 Design Methodology: Existing and proposed runoff rates and volumes shall be estimated using the methods described in Technical Release No. 20 (TR-20) and Technical Release No. 55 (TR-55), where applicable, published by the National Resources Conservation Service (NRCS), United States Department of Agriculture (USDA). The total length of "sheet flow" in the calculation of Time of Concentration for a subcatchment shall be limited to 100 feet or less for pre-developed conditions, and 50 feet or less for post-developed conditions. The surface of all ponds, rivers, detention/retention ponds, and other waterbodies shall be assumed to be impervious for the purpose of calculating ground cover. For purposes of computing runoff, all pervious lands in the site prior to the development shall be assumed to be in good condition regardless of conditions existing at the time of computation. Stormwater analyses shall be performed using an NRCS (formerly Soil Conservation Service – SCS) Type III 24-hour rainfall distribution. The use of computer modeling techniques, such as HydroCAD, is strongly preferred.

7.15.8 Design Storms: The proposed drainage system shall be designed to accommodate a 25-year storm event. Bridges and culverts shall be designed for a 50-year storm event, with consideration being given to avoid damage during a 100-year storm event.

Stormwater BMPs for peak rate and volume control shall be designed for 2-, 10-, 25-, and 100-year storm events, as outlined above. The effects of bypass (i.e., stormwater flow which bypasses a catch basin when the inflow capacity of the catch basin is exceeded) and tail water shall be evaluated in the design of these BMPs.

7.15.9 Closed Drainage System:
Low impact practices such as open channel systems are encouraged when feasible. Where closed drainage networks are proposed, calculations shall be provided in accordance with the following requirements:

(a) *Design Methodology:* The Rational Method shall be used to determine peak flows of runoff for the design of the closed drainage system. The Rational Method cannot be used to determine runoff volumes.

The Manning Formula shall be used for the sizing of drain pipe and other drainage conveyance swales. A worksheet similar to that provided in Exhibit 8-49 of the Massachusetts Highway Department (MHD) Project Development and Design Guide (2006 edition) shall be provided for the design of each closed drainage network. The effect of tail water conditions at the end of the drainage system shall be taken into account. Documentation shall be required to show how tail water elevations were obtained for the respective design storms.

(b) *Catch Basins:* In general, catch basins shall be required on both sides of the roadway at intervals of not more than 300 feet, at all low-points in the roadway grade, near the corners of the roadway at intersecting streets, within each turnaround, and at all other locations as required by the Board. Catch basins are not allowed in driveway openings. Catch basin to catch basin connections are not allowed (including landscape area drain to catch basin connections). Each catch basin shall be connected to a manhole. All catch basins shall have a minimum four-foot sump and a hood on the outlet pipe. All grate openings shall be of a design and placement that will not trap or divert bicycle wheels. Catch basins shall be designed such that the grate capacity of each is not exceeded; double catch basin grates and curb inlets may be used as needed No catch basin which collects runoff from roadways shall be designed to exfiltrate runoff.

(c) *Drain Pipe:* All drain pipes shall be laid in a straight line and grade. A manhole shall be provided at every change in pipe size, material, direction, and/or grade. In no case shall drain manholes be spaced at a distance greater than 300 feet. Pipes shall be designed to operate without building up hydraulic pressure head under design flow conditions. The minimum allowable full flow pipe velocity shall be three (3) feet per second (fps) when flowing at a depth of approximately one-third of the pipe diameter. The maximum allowable full flow pipe velocity shall be 10 fps. Drain pipes shall be either reinforced concrete pipe (RCP) or high-density polyethylene pipe (HDPE). Ductile iron pipe shall be used in areas with less than two feet of cover.

(d) *Outfall Protection:* Pipe inlets or outfalls with a diameter of 15 inches or greater shall be fitted with a protective barrier, suitable in the opinion of the Town Engineer, to prevent access by children. Said barrier shall be removable for maintenance purposes. Masonry headwalls and flared end-sections shall be installed, as approved by the Town Engineer, to prevent erosion. Ground surfaces at all drainage outfalls shall be stabilized with rip-rap or other means to prevent erosion from storm water flows up to the design capacity of the discharging conveyance. Design calculations for rip-rap splash pads or other proposed outfall protection may be required at the discretion of the Board.

(e) *Cleaning and Television Inspection:* Upon completion of the work, the Applicant shall clean each drain pipe, catch basin, drain manhole and appurtenant structure using either a high velocity jet or mechanically powered equipment. All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be disposed of in accordance with all applicable regulations.

Acceptance by the Board, through the Town Engineer or its designee, shall not take place until the systems are cleaned to the satisfaction of the Board, upon the recommendation of the Town Engineer or the Board's designee.

In the event that the installation of the drainage system has not been overseen and approved by the design engineer, the Town has not been called to the subdivision to review the drainage system installation during its construction or similar instances that have resulted in the Board and its staff questioning the installation, integrity, or other facets of the drainage system, the Planning Board reserves the right to conduct a television inspection of the drainage system at the developer's expense.

In the event that the Board determines that a television camera inspection is required, a portion or all of the drainage system will be visually inspected by means of closed-circuit television. The television camera used for the inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture, with minimal reflective glare, for the entire periphery of the pipe. The camera shall be operative in 100 percent humidity conditions. The camera, television monitor, and other components of the video system shall be capable of producing a picture quality and definition that will allow the Town Engineer or the Board's designee to easily determine the condition of all pipes, connections, and related information relative to the installation of the lines.

The developer is responsible for the scheduling of the inspection, notification to the Board, the Town Engineer and any other applicable staff of the television camera inspection and other actions in relation to this procedure. A video of the inspection shall be provided to the Board upon completion of the television camera inspection. Based on this inspection, the Board may require additional remediation work of the developer in order for the subdivision to comply with the standards as written or referenced herein.

7.15.10 Documentation of Soil Conditions and Seasonal High Groundwater: For all projects considering the use of groundwater recharge, the Applicant shall provide documentation of the soil conditions and seasonal high groundwater conditions at the proposed site of the recharge facility or facilities. At a minimum, the soils on site shall be classified according to the NRCS Hydrologic Soil Groups (HSG). A soil textural analysis consistent with USDA methodologies shall be conducted where the HSG classification is inconclusive. Systems shall be designed using the "static," "simple dynamic," or "dynamic field" methods described in the Massachusetts Stormwater Handbook, as amended. When the "static" or "simple dynamic" methods are used, the infiltration rate for each system shall be estimated based on the rates specified by Rawls,

1982 (see Table 2.3.3 of the Handbook). For the "dynamic field" method, saturated hydraulic conductivity rates shall be determined at the actual location and soil layer (i.e., elevation) where recharge is proposed. A Title 5 percolation test does not provide an acceptable estimate of the infiltration rate on the site using any of the three design methods. The Applicant also shall identify the depth to bedrock or other restrictive layer in the vicinity of proposed infiltration systems. Compaction of soils in designated recharge areas shall be minimized during and after construction.

Seasonal high groundwater shall be estimated based on redoximorphic features in the soil, or ideally, based on monitoring well observations taken in April or May when groundwater is typically at its highest levels. A groundwater mounding analysis may be required, at the discretion of the Board, to ensure that the recharge system will not cause groundwater to break out above land surface, seep into basements of nearby buildings or cause other problems. All infiltration systems shall be designed to drain within 72 hours. Documentation of seasonal high groundwater elevations also shall be provided for detention/retention systems where infiltration is not allowed, to ensure that adequate separation has been provided between the bottom of the basin and the seasonal high groundwater.

7.15.11 Infiltration of Rooftop Runoff: "Clean" runoff from all rooftop areas within the subdivision shall be infiltrated for up to and including the 100-year storm event. This requirement shall be met to the maximum extent practicable for lots with poor soil conditions (i.e., Type C or D soils), shallow depth to groundwater and/or areas of exposed bedrock. Hydrologic calculations shall be provided to support the proposed design. The calculations shall conservatively account for any design components, such as building footprint size, which may be altered by subsequent refinements to the design. All points where pipes merge, such as a perimeter drain connected to a roof downspout, shall be equipped with inspection ports/clean-out structures.

7.15.12 Detention/Retention Basin: Detention/retention basins shall be designed to have a minimum of one foot of freeboard during the 100-year storm event. The volume of sediment fore bays (if applicable) shall not be counted towards the storage volume of the detention/retention basin. For design purposes, it shall be assumed that there will be no infiltration of stormwater within the drainage basin unless the basin is designed as an infiltration basin in accordance with the Massachusetts Stormwater Handbook. Detention/retention basins and associated fore bays shall be required to drain with 72 hours. Basins shall be designed with an emergency overflow device, such as a weir, to safely pass the 100-year storm event to prevent overtopping and potential erosion of the berm, assuming the primary outlet is not functioning. The bottom of any sediment forebay shall be constructed of concrete or grass, which may be mowed, for ease of maintenance; a rip-rap base shall not be allowed. Depending on the depth and size of the basin, the Board may require fencing or other effective measures to be installed to prevent unauthorized persons and vehicles from entering the basin. The Board also may require landscaping, consisting of evergreen trees and native shrubs, in the area surrounding the basin as a method of screening. A landscaping plan should be provided with the definitive subdivision plans.

7.15.13 Maintenance Access: Adequate access shall be provided to all stormwater storage and infiltration Best Management Practices (BMP). Where such facilities are located on private lands, an access and maintenance easement shall be provided extending from the edge of the right-of-way and encompassing the entire facility. A maintenance access driveway of 10 feet minimum width and 12 percent maximum slope shall be provided from the right-of-way to any outflow control structure. Subsurface detention/retention/infiltration BMPs must be provided with easily accessible clean-outs and inspection ports.

7.15.14 Routing of Overflows: The site shall be designed to ensure that all runoff from the site up to the maximum design storm for the particular structure or BMP will actually enter the control structure. For example, the control structure may be designed for the 100-year storm event, while the closed drainage system connecting to that structure may be designed to convey only the 25-year storm event, with larger events flooding the system and traveling overland. This overland flow, or overflow, must be directed into the peak control structure, or this bypass flow accounted for in the hydrology calculations for the subdivision.

7.15.15 Connection to Offsite, Town-Owned Drainage System: Direct connections to the town-owned drainage system downstream of the subdivision shall be avoided to the maximum extent possible. If such a connection is proposed, the Applicant must provide an analysis to demonstrate that the closed drainage system can accept the proposed runoff (both peak rate and volume). If the capacity of the downstream system is not adequate to accommodate the entire proposed amount, then only that portion thereof which can be adequately accommodated shall be connected and/or the Applicant shall be required to improve the downstream system to provide adequate capacity. Connections to the municipal drainage system shall occur at a manhole. If no manhole exists at the point of connection, one shall be installed.

7.15.16 Drainage Easements: It shall be the responsibility of the developer to make any necessary agreements/easements with any abutter(s) where any aspect of the proposed stormwater management system is to be carried to the boundaries of the subdivision. Such agreements/easements shall be presented to the Board, in recordable form, prior to the approval of the definitive subdivision plan.

The recipient of the subdivision approval, and any successor-in-title, shall provide and furnish the Town of Winchester the perpetual right, privilege, and authority, entirely at the option of the Town of Winchester, to enter upon any rights-of-way within the subdivision and upon any lot, or easements pertinent to said stormwater management system, within which said system is located, for repair and maintenance purposes of said system.

(a) Drainage easements shall be provided by the property owner(s) as necessary for:

(i) Access for facility inspection and maintenance;

(ii) Preservation of stormwater run-off conveyance, infiltration, and treatment areas and facilities, including flood routes for the 100-year storm event; and

(iii) Direct maintenance access by heavy equipment to structures requiring regular maintenance.

(b) Drainage easements shall be a minimum of twenty (20) feet in width and may be larger, as necessary, at the discretion of the Planning Board.

(c) Drainage easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Board.

(d) Drainage easements shall be recorded with the Middlesex County Registry of Deeds.

7.15.17 Stormwater Management System Operation and Maintenance Plan.
An Operation and Maintenance (O&M) Plan, in accordance with MADEP's "Massachusetts Stormwater Handbook," dated February 2008 and as amended, shall be provided. Said O&M Plan shall outline the location and type of all approved BMPs and provide maintenance procedures and schedules to ensure that the stormwater management systems function as designed. The O&M Plan must include an estimate of annual maintenance cost for the stormwater BMPs and identify the party responsible for maintenance. All stormwater storage and infiltration BMPs shall be the responsibility of the developer, and subsequently, the individual property owner or Property Owners' Association, once established, as to its long-term maintenance, and maintenance of the landscaping in perpetuity unless the Town formally accepts maintenance responsibilities for said BMPs. Said BMPs and appurtenances shall be guaranteed from defect in construction and operation by the posting of a performance or defect guarantee for a minimum period of three years in an amount not to exceed twenty (20) percent of the value of said improvements.

The maintenance agreement shall be legally enforceable by the Town of Winchester, and shall be so noted in all of the Property Owners' Association documents and recorded at the Middlesex Registry of Deeds. The Town reserves the right to request written records, including receipts of inspection or cleaning, documenting the maintenance of the system and/or to physically inspect the systems to ensure that the proper maintenance has been carried out. In the event that the responsible party fails to maintain the system in reasonable order and condition, the Town reserves the right to perform the required maintenance and back-charge the association for fees incurred.

7.16 WATER SUPPLY SYSTEM

7.16.1 Installation: The subdivider shall be responsible, at his sole expense, for installing water facilities, including, but not limited to water supply pipes, hydrants, hydrant markers, gates, valves, and all other related appurtenances, in accordance with the state and local standards. Any extension of an existing line and/or creation of a new line shall require approval from the Town Engineer and DPW Director. Connections from the main to the exterior line of the street right-of-way shall be constructed for each lot. Said water facilities shall be shown on the definitive plan.

7.16.2 Fire Hydrants: Fire hydrants with hydrant markers shall be required for all subdivisions. The distances between hydrants may vary between 500 feet maximum

and 300 feet minimum. Locations will be based on roadway layouts, and available water supply. Specific distances and locations shall be subject to approval by the Fire Chief and Town Engineer. Approval of locations shall be submitted in writing by both departments and shall be shown on the definitive plan. A hydrant within 500 feet of a lot shall be in working condition satisfactory to the Fire Chief before a building permit is issued for a structure.

7.16.3 **House Service Connections:** Individual house service connections from the main shall be provided to each unit in a multiple-family home or in a townhouse development.

7.16.4 **Hydrant Flow Testing:** The Applicant shall confirm the adequacy of water pressure and quantity of water at the existing municipal water system to accommodate the increase in demand from the proposed development. The Board may require the Applicant to conduct a hydrant flow test, at his sole expense, to assist in the design of the water supply and fire protection system.

7.16.5 **Water Loop:** All water mains shall be looped between existing municipal water mains, provided that connections to the same water main shall be spaced a minimum of 500 feet apart or as otherwise required by the Town Engineer. There shall be no dead-end water mains in any subdivision, regardless of size, and no water main shall double back on the same street.

7.16.6 **Extensions:** Reasonable provisions shall be made for extension of the water main to adjoining property, including installation of water gates. Appropriate easements may be required.

7.16.7 **Additional Alternative System of Water Supply/Fire Protection:** If the municipal water supply is available but the minimum required flow is not available, in addition to extending the municipal water system, the Applicant may propose an alternative system for providing water supply for fire protection.

7.16.8 **Testing:** At the Applicant's sole expense, the water mains shall be pressure and chemically tested, certified by a qualified consultant, and approved by the Planning Board, upon recommendation of the Town Engineer or the Board's Consulting Engineer, before the roadway base course is installed.

7.17 SEWER

7.17.1 **Installation:** The Applicant shall be responsible, at his sole expense, for installing all sewer facilities, including, but not limited to sewer pipe, manholes, and other related appurtenances. All sewer lines shall be installed true to line and grade, with no horizontal or vertical curvature allowed.

7.17.2 **Flow Metering:** The Applicant shall be required to confirm the adequacy of the existing municipal sanitary sewer system to accommodate the proposed development. Where necessary, the Town Engineer may require the Applicant to conduct flow metering, at their sole expense, downstream of the proposed development.

7.17.3 **Gravity Flow:** All sewer systems shall be designed on a gravity system. However, when not practical, the Board may require the Applicant to install a sewer pumping station (including a standby generator or other appurtenances, as necessary) in accordance with requirements of the Town Engineer and DPW.

7.17.4 **Connection to MWRA Sewer:** If connection to the Town of Winchester's sewer system is not feasible, the Board may consider a proposal from the Applicant to tie into the MWRA-owned sewer system. All such proposals must be reviewed and approved by the Town Engineer and DPW Director. Once approved, the Town will act as the agent for the developer in applying to the MWRA for such connection. The Board shall not close the definitive subdivision hearing until such time as MWRA has rendered a decision on the sewer connection application. The Applicant shall bear the cost of any engineering studies, application fees, or mitigation requirements necessary to obtain the permit. The Board shall not close the definitive subdivision hearing until such time as the MWRA has rendered a decision on the sewer connection application.

7.17.5 **Design Velocity:** All sewer systems shall be designed with a minimum flow velocity of two feet per second.

7.17.6 **Sewer Manholes:** Sewer manholes shall be located at every change in grade, change of horizontal alignment, change in pipe size, and where two or more sewer pipes intersect. In no case shall sewer drain manholes be spaced at a distance greater than 300 feet.

7.17.7 **Testing:** Low-pressure air tests of the installed sewer system shall be conducted by a certified testing company, at the Applicant's sole expense, to test the system for leaks, unless otherwise approved by the Town Engineer.

7.18 OTHER UTILITIES

All electrical, communication, and gas lines shall be installed underground and in accordance with the requirements of the respective utility provider. Communications lines shall include, but not be limited to, telephone and community antenna television cable. The Applicant shall coordinate with the local utility provider prior to the submission of the definitive subdivision plan and shall meet all of the requirements of the local utility providers.

Fire alarm boxes, as well as the required connecting lines, shall be installed in conformance with the specifications of the Winchester Fire Department. All box locations shall be shown on the definitive plan and shall be approved by the Fire Chief.

7.19 SEDIMENTATION AND EROSION CONTROL

7.19.1 **Protective Measures:** Erosion and sedimentation controls shall be required as part of any proposed construction or earthwork activities. An Erosion and Sedimentation Control (ESC) Plan shall be included as part of the definitive subdivision submittal. If the project is to be constructed in phases, then a phased ESC Plan shall be provided. Protective measures may include silt fencing and straw bales; catch basin inlet protection; erosion control matting, mulches, and/or temporary cover vegetation; and

temporary sedimentation basins, diversions, berms, vegetated swales, culverts, or other devices as are necessary to intercept and safely divert surface water runoff during construction. At a minimum, the ESC Plan shall comply with the performance standards of the most recent version of the *Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers and Municipal Officials* published by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), as well as the following:

(a) Locations of the proposed limits of land disturbance on the site. The ESC Plan shall stipulate that prior to commencing any land disturbance activities, the limits of disturbance must be delineated at the site with erosion control measures, flagging, signs, or orange construction fencing and said delineation must be inspected and approved by the Town Engineer, Conservation Agent or their Construction Inspection Designee.

(b) Location and technical description of appropriate erosion and sediment control measures proposed. Prior to the commencement of any site work, the Applicant or a representative will meet with the Town Engineer or the Board's designee and Conservation Agent, if applicable, to review erosion control barrier installation(s). Said measures shall be installed by the developer and inspected by the Town or its designee prior to soil disturbance. Once installed, erosion control barriers shall be inspected weekly by the Applicant or a representative and immediately after every storm event. An adequate supply of erosion control barriers shall be kept on site at all times to replace failing sections. The Applicant or a representative shall be available 24 hours a day, seven days a week to make repairs as needed. Weekly erosion and sedimentation control inspection logs shall be kept on site at all times and shall be made available to the Town Engineer or the Board's designee upon request.

(c) Location and means of diversion of off-site runoff from highly erodible soils and steep slopes to more stable areas.

(d) A Sequence of Construction for all land disturbance activities. Mass clearing and grading for sites greater than one (1) acre in size shall not be permitted without prior written approval from the Planning Board or its Agent.

(e) Location of soil stockpiles and provision to stabilize exposed soils within five (5) business days of completion of construction of a given area.

(f) Location and description of vehicle tracking pad(s) to be constructed at all entrance/exit points of the site to reduce the amount of soil carried onto roadways and off the site.

(g) Location and description of proposed dust controls to be employed on the site, minimizing soil disturbance through applying mulch and establishing vegetation, water spraying, and/or applying polymers, spray on tackifiers, chlorides, and barriers.

(h) An Erosion and Sedimentation Control Operation and Maintenance (ESC O&M) Plan shall be submitted. The ESC O&M Plan shall: identify the party responsible for maintenance of ESC measures; specify inspection schedules; specify routine and nonroutine maintenance tasks to be performed.

(i) Provisions to ensure that temporary sediment trapping devices are not removed until permanent stabilization is established in all contributory drainage areas, as well as provisions to ensure that stabilization is established prior to converting sediment traps/basins into permanent (post-construction) stormwater management facilities.

(j) Provisions to ensure that all facilities used as temporary measures shall be cleaned prior to being put into final operation and are inspected by the Town or its designee, and indicating that areas to be used as post-construction infiltration practices should be protected during construction to prevent compaction.

(k) A program for vegetative stabilization of exposed soil through the establishment of permanently growing vegetation.

(l) The Plan must demonstrate that the area of disturbance shall be kept to a minimum and specify that disturbed areas remaining idle for more than 14 days shall be stabilized with hydro seeding or other appropriate stabilization measure(s).

(m) The Plan must specify that permanent seeding be undertaken in spring (from March through June) or in the late summer and early fall (from August 1 to October 15). During the peak summer months and in the fall after October 15, when seeding is found to be impractical, an appropriate temporary mulch or sod shall be applied. Permanent seeding may be undertaken during the summer if plans provide for adequate mulching and irrigation.

(n) The Plan must specify that all slopes steeper than 3:1, as well as perimeter dykes, sediment basins or traps, and embankments must, upon completion, be immediately stabilized with sod, seed, anchored straw mulch, or other approved stabilization measure(s); areas outside of the perimeter sediment control system must not be disturbed.

(o) The Plan must specify that the cut side of roads and ditches shall be stabilized immediately with rock rip-rap or other non-erodible erosion control liners, or where appropriate, vegetative measures such as sod.

(p) Inspections shall be performed per the ESC O&M Plan. After each inspection, a written report shall be prepared documenting compliance with the ESC O&M Plan and recommending any repairs or maintenance required. Inspection reports must be retained by the permittee and be made available to the Town for review upon request.

7.19.3 **NPDES Permit:** Projects disturbing greater than one acre of land may be required to obtain permit coverage under the USEPA's National Pollutant Discharge Elimination System (NPDES) program. The Applicant shall provide documentation to the Town

Engineer or the Board's consultant once this permit has been obtained. Construction shall not begin until should documentation has been obtained.

7.19.4 **Site Clean-Up:** The Applicant shall be required to clean-up any sediment or other debris that may erode off-site onto surrounding public or private streets or private property. Frequent sweeping of abutting streets may be required at the discretion of the Town Engineer. The Applicant also shall be required to remove sediments or other debris that enters any off-site drainage system. The entire drainage network and stormwater BMPs within the subdivision shall be cleaned, at the Applicant's expense, once the site has been fully stabilized.

7.20 RESERVATION OF LAND FOR PUBLIC PURPOSE

No rule or regulation shall require, and no Board shall impose, as a condition for the approval of a plan of a subdivision that any of the land within said subdivision be dedicated to the public use, or conveyed or released to the Commonwealth or to the county or town in which the subdivision is located, for use as a public way, public park or playground, or for any other public purpose, without just compensation to the owner thereof.

Before approval of a plan by the Board, said board also shall in proper cases require the plan to show a park or parks suitably located for playground or recreation purposes or for providing light and air, and in relation to the area of the land being subdivided and the prospective uses of such land. If the Board so determines, the Board shall by appropriate endorsement on the plan require that no building may be erected on such park or parks for a period of not more than three years without its approval.

7.21 AS-BUILT PLANS

7.21.1 **As-Built Plan Requirements:** A final as-built plan showing the actual as-built location and profile of all streets, ways, and utilities, including those installed by others, such as the gas, electric, telephone, and cable companies. The final plan must, at a minimum, contain the following information. The Board and/or Town Engineer or the Board's consultant may require the inclusion of additional information not set forth herein when deemed reasonably necessary:

(a) Reference to the approved subdivision plan, including information regarding where the plan is on record at the Middlesex South County Registry of Deeds or Land Court.

(b) Roadway centerline profile, with elevations at every 50-foot station (25-foot sections in vertical curves) and at high and low points, and profile of the water, sewer and drainage utilities, including the location and change in depth for any vertical bends in the water main and the sump depths or sump elevations for all drainage and sewer structures, as appropriate.

(c) Profile of water, sewer, or drainage utilities within any easements.

(d) Rim elevation, location, size, length, slope type, and inverts for all drainage and sewer structures and pipes, including roof drains.

(e) Location, size, and type of all underground stormwater retention/detention facilities and infiltration systems, including, where applicable, the number and bottom elevation of infiltration units or stormwater storage chambers; the bottom elevation, depth, length, and width of crushed stone surrounding underground infiltration systems; location of all clean-outs; the actual dimensions of any inlet/outlet control structures, and the invert elevation, size, slope, and type of all orifices, weirs, inlet and outlet pipes, structures, and headwalls.

(f) Location and topography at one-foot contour intervals for all surface retention/detention basins, drainage swales, or other stormwater management facilities. Additional spot grades should be provided as appropriate to confirm that the systems are constructed as designed. The invert elevation, size, and type of all orifices, weirs, inlet and outlet pipes, headwall structures, and emergency spillways also shall be provided, as well as the actual dimensions for any inlet/outlet control structures.

(g) Location of all building foundations and lot boundaries for lots fronting on the street(s) created by the subdivision, with the lot number as assigned by the definitive subdivision plan and the building numbers assigned to each lot by the Town Engineer.

(h) Location, size, type, and elevation of all water mains, including gate valves, tees, lot services, and hydrants.

(i) Ties to all water gate valves to a minimum of two permanent structures or monuments, preferably at building corners.

(j) Location and type of all underground electrical, telephone, fire alarm and cable lines, including transformers, utilities, and junction boxes, and services to individual lots.

(k) Location of all gas lines, including services to individual lots.

(l) Boundaries of the road layout and all easements, as well as the location of permanent monuments (road bounds) with the traverse and fixed points on the subdivision perimeter used to establish the bound locations, all with bearings, distances, and complete curve data for all street sidelines and/or coordinate values sufficient to reestablish these points.

(m) Plan view of any utilities, landscaping, subdivision and/or development entry sign or other features installed within an easement.

(n) A complete description and location of two permanent benchmarks within or adjacent to the subdivision.

(o) Width and location of all roadways, green strips, sidewalks, handicapped ramps, and driveway curb cuts.

(p) Curbing type.

(q) Location of street lights and utility poles.

(r) Type and location of street and traffic signs.

(s) Location and type of landscaping within the right-of-way, including street trees and landscaped islands, as appropriate.

(t) Topography with contour intervals not greater than two feet, except as required above for surface stormwater management facilities.

A draft "as-built" plan shall be provided to the Board for its review and approval. The Board shall forward the draft "as-built" plan to the Town Engineer, Town Planner and other Town departments, as appropriate, for review. The Applicant shall produce the final as-built plan, as requested by the Board and based on comments received from Town staff, as noted above. At a minimum, the Applicant shall provide two, 24" by 36" paper copies of the draft as-built plan, one set of final/revised as-built plans printed on 24" by 36" mylar, and one CD containing the final/revised as-builts survey drawing and all external reference files in AutoCAD (.dwg) format in a form compatible with the most recent version available in the Engineering Department. Plans shall be at a scale of 1" = 40' and profiles shall be at a vertical scale of 1" = 4' and horizontal scale of 1" = 40'.

7.21.2 Professional Certifications: The draft and final as-built plans shall be prepared and stamped by a Professional Land Survey and Professional Engineer, both registered in the Commonwealth of Massachusetts and employed by the Applicant at their own expense. The Professional Land Surveyor shall certify that:

> *"I hereby certify that this plan shows the actual as-built locations, profiles, and elevations of the roadways, stormwater management system, water, sewer, and other utilities and appurtenances based upon a field survey conducted (date(s)). I further certify that all permanent monuments are in place according to the approved subdivision plan and are accurately located."*

The Professional Engineer shall certify that:

> *"Based on-site observations by myself or an employee under my direct supervisions and/or based on information provided by a registered land surveyor, I hereby certify that all roadways, grading, stormwater management systems, water, sewer, and other utilities and appurtenances have been constructed in substantial conformance with the approved definitive subdivision plans and the standards of the Town of Winchester. I further certify that the drainage and*

stormwater management system, as constructed, will operate as designed and approved by the Board in the definitive subdivision."

7.21.3 Revised Drainage Calculations: If substantial modifications have been made to the stormwater management systems during construction such that the drainage calculations approved during the definitive subdivision process are no longer valid, then, upon recommendation to the Board by the Town Engineer or the Board's consultant, the Board shall request that the Applicant submit a revised set of calculations based on the as-built conditions demonstrating that the constructed facilities will meet or better the post-development conditions approved by the Board.

LID Site Planning and Design Checklist

The applicant must document specific LID site planning and design strategies applied for the project. If a particular strategy was not used, a justification and description of proposed alternatives must be provided. If a strategy is not applicable (N/A), applicants must describe why a certain method is not applicable at their site. For example, preserving wetland buffers may be not applicable for sites located outside any jurisdictional wetland buffers.

1. Strategies to Avoid the Impacts

A. Preservation of Undisturbed Areas

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

- ☐ Limits of disturbance clearly marked on all construction plans.
- ☐ Mapped soils by Hydrologic Soil Group (HSG).
- ☐ Building envelopes avoid steep slopes, forest stands, riparian corridors, and floodplains.
- ☐ New lots, to the extent practicable, have been kept out of jurisdictional wetland areas.
- ☐ Important natural areas (i.e., undisturbed forest, riparian corridors, and wetlands) identified and protected with permanent conservation easement.
- ☐ Percent of natural open space calculation is provided.
- ☐ Other (describe):

Explain constraints when a strategy is applied and/or proposed alternatives in space below:

B. Preservation of Buffers and Floodplains

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following:

- ☐ Applicable vegetated buffers of wetlands and perennial and intermittent streams have been preserved, where possible.
- ☐ Limits of disturbance included on all construction plans that protect applicable buffers
- ☐ Other (describe):

Explain constraints and/or proposed alternatives in space below:

LID Site Planning and Design Checklist

C. Minimized Clearing and Grading

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Site fingerprinting to extent needed for building footprints, construction access and safety (i.e., clearing and grading limited to 15 feet beyond building pad or 5 feet beyond road bed/shoulder).

☐ Other (describe):

Explain constraints and/or proposed alternatives in space below:

D. Locating Sites in Less Sensitive Areas

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ A site design process, such as conservation development, used to avoid or minimize impacts to sensitive resources such as floodplains, steep slopes, erodible soils, wetlands, hydric soils, surface waters, and their riparian buffers.

☐ Development located in areas with most appropriate soils.

☐ Development on steep slopes, grading and flattening of ridges has been avoided to the maximum extent practicable.

☐ Other (describe):

Explain constraints and/or proposed alternatives in space below:

LID Site Planning and Design Checklist

E. Compact Development

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ A site design technique (e.g., conservation development) used to concentrate development to preserve as much undisturbed open space as practicable and reduce impervious cover.

☐ Other (describe):

Explain constraints and/or proposed alternatives in space below:

F. Work with the Natural Landscape Conditions, Hydrology, and Soils

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Stormwater management system mimics pre-development hydrology to retain and attenuate runoff in upland areas (e.g., cuts and fills limited and BMPs distributed throughout site; trees used for interception and uptake).

☐ The post-development time of concentration (t_c) should approximate pre-development t_c.

☐ Flow velocity in graded areas as low as practicable to avoid soil erosion (i.e., slope grade minimized).

☐ Site designed to locate buildings, roadways and parking to minimize grading (cut and fill quantities)

☐ Other (describe):

Explain constraints and/or proposed alternatives in space below:

LID Site Planning and Design Checklist

2. Strategies to Reduce the Impacts

Reduce Impervious Cover

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Reduced roadway widths
☐ Reduced building footprint
☐ Reduced dead-ends
☐ Reduce driveway areas
☐ Reduced sidewalk area
☐ Reduced parking lot area
☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____
_____
_____
_____

3. Strategies to Manage the Impacts

A. Disconnecting Impervious Area

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Impervious surfaces have been disconnected to the extent possible.
☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____
_____
_____
_____

LID Site Planning and Design Checklist

B. Mitigation of Runoff at the point of generation

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ A green roof has been designed to reduce runoff.

☐ Small-scale BMPs applied at source.

☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____

_____

_____

_____

C. Stream/Wetland Restoration

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Historic drainage patterns have been restored by removing closed drainage systems and/or restoring degraded stream channels and/or wetlands.

☐ Removal of invasive species.

☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____

_____

_____

_____

LID Site Planning and Design Checklist

D. Reforestation

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Low maintenance, native vegetation has been proposed.

☐ Trees are proposed to be planted or conserved to reduce runoff volume, increase nutrient uptake, and provide shading and habitat.

☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____

_____

_____

_____

E. Source Control

☐ Not Applied or N/A. *Use space below to explain why:*

Select from the following list:

☐ Source control techniques such as street sweeping or pet waste management have been proposed.

☐ Other (describe): _____

Explain constraints and/or proposed alternatives in space below:

_____

_____

_____

_____

ZONING BYLAW

of the

TOWN of WINCHESTER

MASSACHUSETTS

A Zoning Bylaw
adopted by the Town on April 25, 2016
effective as of July 26, 2016

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SECTION 1.0 PURPOSE AND AUTHORITY

1.1 PURPOSE. The Winchester Zoning Bylaw ("this Bylaw") is enacted to promote the general welfare of the Town of Winchester, to protect the health and safety of its inhabitants, to encourage the most appropriate use of land throughout the Town, and to increase the amenities of the Town, all as authorized by, but not limited to, the provisions of the Zoning Act, G.L. c. 40A, as amended, and Section 2A of 1975 Mass. Acts 808.

1.2 AUTHORITY. This Bylaw is enacted in accordance with the provisions of the General Laws, Chapter 40A, any and all amendments thereto, and by Article 89 of the Amendments to the Constitution of the Commonwealth of Massachusetts.

1.3 SCOPE. The construction, repair, alteration, reconstruction, height, number of stories, and size of buildings and structures, the size and width of lots, the percentage of lot area that may be occupied, the size of yards and other open spaces, the density of population, and the location and use of buildings, structures, and land in the Town are regulated as hereinafter provided.

1.4 APPLICABILITY. All buildings or structures hereinafter erected, reconstructed, altered, enlarged, or moved, and the use of all premises in the Town, shall be in conformity with the provisions of this Bylaw. No building, structure or land shall be used for any purpose or in any manner other than is expressly permitted within the district in which such building, structure or land is located. When the application of this Bylaw imposes greater restrictions than those imposed by any other regulations, permits, restrictions, easements, covenants, or agreements, the provisions of this Bylaw shall control. Nothing herein shall be construed to supersede the provisions of the State Building Code, 780 CMR 1.00, et seq, or other local regulations such as, but not limited to, the Winchester Wetlands Bylaw, Sign Bylaw, Demolition Delay Bylaw, and other General Bylaws containing additional requirements.

1.5 AMENDMENTS. This Bylaw may from time to time be changed by amendment, addition, or repeal by the Town Meeting in the manner provided in G.L. c. 40A, s.5, and any amendments thereto.

1.6 SEPARABILITY. The invalidity of any section or provision of this Bylaw shall not invalidate any other section or provision herein.

SECTION 9.0 ADMINISTRATION AND ENFORCEMENT

9.1 ENFORCEMENT

9.1.1 Zoning Enforcement Officer. The Town Manager shall appoint an administrative official, hereinafter referred to as the "Zoning Enforcement Officer", who shall be responsible for the administration and enforcement of this Bylaw. The Zoning Enforcement Officer may be provided with the assistance of such other persons as the Town Manager determines to be required.

1. All questions of interpretation and enforcement shall be first presented to the Zoning Enforcement Officer. Such questions shall be presented to the Board of Appeals only on appeal from the decisions of the Zoning Enforcement Officer.

9.1.2 Powers. If the Zoning Enforcement Officer shall find that any of the provisions of this ordinance are being violated, he or she shall notify in writing the person responsible for such violations, indicating the nature of the violation and ordering the action necessary to correct it. He or she shall order discontinuance of illegal use of land, buildings or structures; removal of illegal buildings or structures or of illegal additions, alterations or structural changes; discontinuance of any illegal work being done; or shall take any other action authorized by this ordinance to ensure compliance with or to prevent violation of its provisions.

9.1.3 Complaints. Whenever a violation of this Bylaw occurs or is alleged to have occurred, any person may file a signed written complaint with the Zoning Enforcement Officer who shall record properly such complaint, immediately investigate, and take appropriate action thereon.

1. If the Zoning Enforcement Officer shall determine that no enforcement action is required, he or she shall notify, in writing, the person who has filed such complaint of his determination not to take any action, and of the reasons therefore, within 14 days of receipt of such complaint.

2. If the Zoning Enforcement Officer shall find that any of the provisions of this Bylaw are being violated, he or she shall notify in writing the person responsible for such violations, indicating the nature of the violation and ordering the action necessary to correct it. He or she shall order discontinuance of illegal use of land, buildings, or structures: removal of illegal buildings or structures or of illegal additions, alterations, or structural changes, discontinuance of any illegal work being done: he or she shall also cause to be instituted civil or criminal actions to secure enforcement of the provisions of the zoning bylaws or shall take any other action authorized by this Bylaw to ensure, compliance with or to prevent violation of its provisions.

9.1.4 Penalties for Violation. Any person who violates this Bylaw or fails to comply with any of its requirements shall be subject to a fine of not more than $300.00 for each offense. Each day such violation continues shall be considered a separate

offense. The owner, tenant, occupant or person or persons in possession of any building, structure, premises, or part thereof, and any architect, builder, contractor, agent, or other person who commits, participates in, assists in, or maintains such violation may each be found guilty of a separate offense and suffer the penalties herein provided.

9.1.5 Noncriminal Disposition. In addition to other remedies available under this section, any person violating any provision of this chapter, any of the conditions under which a permit is issued in accordance with this chapter, any rule or regulation of any permit granting authority subject to this chapter, or any decision rendered by the permit granting authority in accordance with this chapter may be fined by the Zoning Enforcement Officer, in accordance with this Bylaw and G.L. c. 40 § 21D, Noncriminal Disposition. The penalty for zoning violations, as set forth above shall be: $100.00. Each day that such violation continues after notification by the Zoning Enforcement Officer shall constitute a separate offense. The owner, tenant, occupant, or person or persons in possession of any building, structure, premises, or part thereof, and any architect, builder, contractor, engineer, agent, or other person who commits, participates in, assists in, or maintains such violation may each be fined in accordance with this section.

9.2 PERMITS

9.2.1 Building Permit. No building permit for erection, alteration, moving or repair of any structure shall be issued until an application has been made pursuant to the State Building Code. No building permit shall be issued for a lot in a subdivision, whether subdivision control is required or not, until a plan showing said subdivision has been recorded in the Registry of Deeds.

9.2.2 Certificate of Use and Occupancy. No building or land shall be used for any purpose until an application has been made for a certificate or use or occupancy pursuant to the State Building Code.

9.3 BOARD OF APPEALS

9.3.1 Appointment. The Board of Appeals, which shall be the Zoning Board of Appeals and which shall also be the Board of Appeal under the Building Laws shall have all the powers of a board of appeals under Chapter 40A of the General Laws and as authorized under this Bylaw. The Board of Appeals shall consist of three members, who shall be appointed by the Board of Selectmen, for terms of such length and so arranged that the term of one member shall expire each year. The Board of Selectmen shall appoint at least two, but no more than three, associate members for terms of such length and so arranged that the term of one associate member shall expire each year. Any vacancy shall be filled for the unexpired term as in the case of original appointments.

9.3.2 Organization. The Board of Appeals shall elect annually a chairman from its own number and a clerk. The chairman in addition to the powers granted to the chairman under the rules adopted by the Board of Appeals, shall have the power to designate one or more associate members to sit on the Board of Appeals in case of the

absence, inability to act or conflict of interest on the part of any member or members thereof, or in the event of a vacancy, until said vacancy is filled in the manner provided in this section.

9.3.3 Powers. The Board of Appeals shall have and exercise all the powers granted to it by Chapters 40A, 40B, and 41 of the General Laws and by this Bylaw. The Board's powers are as follows:

1. To hear and decide applications for special permits. Unless otherwise specified herein, the Board of Appeals shall serve as the special permit granting authority, to act in all matters in accordance with the provisions of Section 9.4 or as otherwise specified.

2. To hear and decide appeals or petitions for variances from the terms of this Bylaw, with respect to particular land or structures, as set forth in G.L. c. 40A, s. 10. The Board of Appeals shall not grant use variances.

3. To hear and decide appeals taken by any person aggrieved by reason of his inability to obtain a permit or enforcement action from any administrative officer under the provisions of G.L. c. 40A, ss. 8 and 15.

4. To hear and decide comprehensive permits for construction of low or moderate income housing by a public agency or limited dividend or nonprofit corporation, as set forth in G.L. c. 40B, ss. 20-23.

9.3.4 Regulations. The Board of Appeals may adopt rules and regulations for the administration of its powers.

9.3.5 Fees. The Board of Appeals may adopt reasonable administrative fees and technical review fees pursuant to G.L. c. 44, s. 53G for petitions for variances, administrative appeals, and applications for comprehensive permits.

9.4 SPECIAL PERMITS

9.4.1 Special Permit Granting Authority. The Zoning Board of Appeals shall serve as Special Permit Granting Authority as may be designated for particular matters in this Bylaw.

9.4.2 Criteria. Special permits shall be granted by the Special Permit Granting Authority, unless otherwise specified herein, only upon its written determination that the adverse effects of the proposed use will not outweigh its beneficial impacts to the town or the neighborhood, in view of the particular characteristics of the site, and of the proposal in relation to that site. In addition to any specific factors that may be set forth in this Bylaw, the determination shall include consideration of each of the following:

1. Community needs which are served by the proposal;

2. Traffic flow and safety, including parking and loading;

3. Adequacy of utilities and other public services;

4. Neighborhood character, including historic resources and social structures;

5. Adequacy of proposed screening and buffering;

6. Impacts on the natural environment; and

7. Potential fiscal impact, including impact on town services, tax base, and employment.

9.4.3 Procedures. Special permit applications shall be governed by the rules and regulations of the special permit granting authority. Whenever an application for a special permit is filed with a special permit granting authority, the applicant shall file eighteen (18) paper copies (and an electronic copy) of the submission at the Building Department. Within five (5) working days of the filing of the completed application with said authority, copies of the application, accompanying site plan, and other documentation shall be forwarded by the Board of Appeals clerk to the Planning Board, Board of Health, Town Engineer, Conservation Commission, Building Commissioner, Director of Public Works, Police Chief, Fire Chief, The Design Review Committee and Historical Commission for their consideration, review, and report.

9.4.4 Conditions. Special permits may be granted with such reasonable conditions, safeguards, or limitations on time or use, including performance guarantees, as the Special Permit Granting Authority may deem necessary to serve the purposes of this Bylaw.

9.4.5 Plans. Unless otherwise specified herein, an applicant for a special permit shall submit a plan in substantial conformance with the requirements for a site plan as set forth in the rules and regulations of the Zoning Board of Appeals.

9.4.6 Regulations. The Special Permit Granting Authority may adopt rules and regulations for the administration of this section.

9.4.7 Fees. The Special Permit Granting Authority may adopt reasonable administrative fees and technical review fees pursuant to G.L. c. 44, s. 53G for applications for special permits.

9.4.8 Lapse. Special permits shall lapse if a substantial use thereof or construction thereunder has not begun, except for good cause, within 24 months following the filing of the special permit approval (plus such time required to pursue or await the determination of an appeal referred to in G.L. c. 40A, s. 17, from the grant thereof) with the Town Clerk.

9.5 SITE PLAN REVIEW

9.5.1 Applicability. The following uses indicated in the Table of Use Regulations as permitted ("Y") shall require Site Plan Approval from the Board of Appeals under any one of the following conditions:

1. New construction, changes of uses in existing buildings, new uses on vacant land, or expansion of floor space of existing buildings of 25 percent or more in a Limited Light Industrial (IL) District where the lot abuts a Residential District or a Conservancy Institutional District (SCI).

2. Any parcel within the General Business Districts GBD-1, GBD-2 and GBD-3 with a lot area equal to, or greater than, 15,000 square feet.

3. New construction, changes of uses in existing buildings, new uses on vacant land, or expansion of floor space of existing buildings of 25 percent or more in any district where the total number of parking spaces required will be 20 or more.

4. All buildings via new construction or by expansion in which the floor area is equal to or greater than 6,000 square feet (including garage, excluding basement) in the RDA-20 zoning district

5. All buildings via new construction or by expansion in which the floor area is equal to or greater than 5,000 square feet (including garage, excluding basement) in the RDB-10 zoning district

6. All buildings via new construction or by expansion in which the floor area is equal to or greater than 3,600 square feet (including garage, excluding basement) in the RG-6.5 zoning district

    1. If an expansion is 500 square feet or less, but still reaches one the triggers above in 4-6, the Zoning Board of Appeals may waive the site plan review at a public meeting.

7. Change in slope over 6% of existing grade of an area more than 500 square feet

9.5.2 Procedures; Use is Permitted. When site plan approval is required, no building permit shall be issued and no area for roadways, parking, loading or open space shall be established or changed on land developed except in conformity with a site plan bearing the endorsement of approval of the Board of Appeals. No certificate of zoning compliance shall be issued for any such building or buildings, unless the same conforms in all respects to such site plan and unless all facilities included in the site plan have been installed in accordance therein.

9.5.3 Procedures; Use Requires Special Permit. The Board of Appeals shall review site plans prior to approval of applications for special permits as specified in the Table of Use Regulations. In such cases, the site plan shall serve as the plan of record for the proposed special permit; no separate site plan approval shall be required.

9.5.4 Application. A person applying for Site Plan Approval hereunder shall file with the Board of Appeals ten copies each of an application and a site plan and a filing fee. Such application and site plan shall include the information the Board of Appeals shall reasonably requires by rule or regulation. In subsequent applications concerning the same subject matter, the Board may waive the filing of plans and documents to the extent they duplicate those previously filed.

9.5.5 Review by Other Boards. The Board of Appeals shall within three days (Saturdays, Sundays and holidays excluded) of receipt of them transmit to the Conservation Commission and Planning Board two copies of the above application and site plan. The Planning Board and Conservation Commission shall consider the same and submit a final report thereon with recommendations to the Board of Appeals with a copy to the applicant. The Conservation Commission shall review the application with particular reference to the provisions of the Wetlands Protection Act - Chapter 131 - Section 40 and shall recommend as to the advisability of granting the special permit and as to any restrictions which should be imposed upon the development as a condition of such permit. The Board of Appeals shall not make a finding and determination upon an application until it has received the final report of the Planning Board and/or Conservation Commission thereon or until 35 days shall have elapsed since the transmittal of said copies of the application and site plan to the Planning Board and Conservation Commission without such report being submitted. The failure to submit such a report with recommendations within such 35 day period shall be deemed a lack of opposition to the application by whichever of the Planning Board or the Conservation Commission fails to submit such report.

9.5.6 Public Hearing. The Board of Appeals shall hold a public hearing within 65 days of receiving the application and shall take final action within 90 days of such public hearing, it nonetheless being the intention of this Bylaw that the Board of Appeals shall act as expeditiously as is practical on such application.

9.5.7 Decision. Site Plan Approval shall be granted only upon determination by the Board that the plan meets the following standards. The Board may impose reasonable conditions at the expense of the applicant to implement these standards.

New building construction and other site alterations shall be designed, after considering the qualities of the specific location, the proposed land use, the design of the buildings, grading, egress points, and other aspects of the development, so as to:

1. Minimize the volume of cut and fill, the number of removed trees six inches in caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, soil erosion, and threat of air and water pollution;

2. Provide adequate stormwater management and other utilities consistent with the functional requirements of the Planning Board Subdivision Rules and Regulations;

3. Maximize pedestrian and vehicular safety both on the site and egressing from it;

4. Provide adequate access to each structure for fire and emergency service equipment;

5. Minimize obstruction of scenic views from publicly accessible locations;

6. Minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways or premises residentially used or zoned;

7. Minimize glare from headlights and lighting intrusion;

8. Minimize unreasonable departure from the character, materials, and scale of buildings in the vicinity, as viewed from public ways and places;

9. Minimize contamination of groundwater from on-site waste-water disposal systems or operations on the premises involving the use, storage, handling, or containment of hazardous substances; and

10. Ensure compliance with the provisions of this Zoning Bylaw, including parking, signs, landscaping, and environmental standards.

9.5.8 Effect. In the event that the Board of Appeals approves a special permit under these provisions, any construction, reconstruction, substantial exterior alteration or addition shall be carried on only in conformity with any conditions, modifications and restrictions subject to which the Board shall have made its findings and determination, and only in conformity with the application and site plan on the basis of which the finding and determination are made.

9.5.9 Lapse. Site plan approval shall lapse after two years from the grant thereof if a substantial use thereof has not sooner commenced except for good cause. Such approval may, for good cause, be extended in writing by the Board upon the written request of the applicant.

9.5.10 Regulations; Fees. The Board may adopt and, from time to time, amend reasonable regulations for the administration of these Site Plan guidelines. The Board may adopt reasonable administrative fees and technical review fees for site plan review.

9.5.11 Appeal. Any decision of the Board pursuant to this Section shall be appealed in accordance with the provisions of G.L. c. 40A, s. 17 to a court of competent jurisdiction.

SECTION 10.0 DEFINITIONS

In this Bylaw, the following terms and constructions shall apply unless a contrary meaning is required by the context or is specifically prescribed in the text of the Bylaw. Words used in the present tense include the future. The singular includes the plural and the plural includes the singular. The word "shall" is mandatory and "may" is permissive or discretionary. The word "and" includes "or" unless the contrary is evident from the text. The word "includes" or "including" shall not limit a term to specified examples, but is intended to extend its meaning to all other instances, circumstances, or items of like character or kind. The word "used" or "occupied" shall be considered as though followed by the words "or intended, arranged, or designed to be used or occupied". The words "building," "structure," "lot," or "parcel," shall be construed as being followed by the words "or any portion thereof." Terms and words not defined herein but defined in the Commonwealth of Massachusetts State Building Code shall have the meaning given therein unless a contrary intention is clearly evident in this Bylaw.

ACCESSORY USE OR STRUCTURE. A use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.

ADULT USES. Any Adult Bookstore, Adult Motion Picture Theatre, Adult Paraphernalia Store, Adult Video store, or Establishment which displays live nudity for its patrons, or Body Art Establishment. The following definitions pertain to Adult Uses as set forth in Section 8.3:

Adult Bookstore. An establishment having, as a substantial or significant part of its stock in trade, books, magazines, and other matter which are distinguished or characterized by their emphasis depicting, describing, or relating to sexual conduct or sexual excitement as defined in General Laws, Chapter 272, Section 31.

Adult Motion Picture Theatre. An enclosed building used for presenting material distinguished by an emphasis on matter depicting, describing, or relating to sexual conduct or sexual excitement as defined in General Laws, Chapter 272, Section 31.

Adult Paraphernalia Store. An establishment having as a substantial or significant part of its stock devices, objects, tools, or toys which are distinguished or characterized by their association with sexual activity, including sexual conduct or sexual excitement as defined in General Laws, Chapter 272, Section 31.

Adult Video Store. An establishment having, as a substantial or significant part of its stock in trade, videos, movies, or other film material which are distinguished or characterized by their emphasis depicting, describing, or relating to sexual conduct or sexual excitement as defined in General Laws, Chapter 272, Section 31.

Body Art Establishment. Any location, place, or business that has been granted a permit by the Board of Health whether public or private where the practices of physical body adornment by permitted establishments and practitioners using, but not limited to, the following techniques: body piercing, tattooing, cosmetic tattooing, branding, and

scarification, but not including practices that are considered medical procedures by the Board of Registration in Medicine.

Establishment Which Displays Live Nudity for Its Patrons. Any establishment which provides live entertainment for its patrons, which includes the display of nudity, as that term is defined in General Laws, Chapter 272, Section 31.

AFFORDABLE HOUSING. Rental or ownership residences which are affordable to low, moderate and/or middle-income individuals and families as defined by state and federal statute or regulation.

AGRICULTURAL USE. An exempt use governed by the provisions of G.L. c. 40A, s. 3, paragraph 1.

APARTMENT. See "Dwelling Unit."

APARTMENT HOUSE. A multiple-family dwelling over three stories in height.

AREA OF SPECIAL FLOOD HAZARD. That land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A, AO, AH, A1-30, AE, and/or A99.

AS-OF-RIGHT SITING. As-of-right siting shall mean that development may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. As-of-right development may be subject to site plan review to determine conformance with local zoning ordinances or bylaws. Projects cannot be prohibited, but can be reasonably regulated by the inspector of buildings, building commissioner or local inspector, or if there is none in a town, the board of selectmen, or person or board designated by local ordinance or bylaw

ASSISTED LIVING AND ELDERLY HOUSING. A multi-family residential development intended for individuals at least 62 years of age, regardless of physical or mental condition, which characteristically includes service, recreational, common and function areas intended for use by the residents and their visitors, as well as on-site medical services for residents only. Further, for purposes of this Bylaw, assisted living and elderly housing developments within the IEH Overlay Zoning District shall be for rental purposes only.

ATTACHED RESIDENTIAL CLUSTER DEVELOPMENT OVERLAY DISTRICT. Within this Section, the following terms shall have the following meanings:

Applicant. The person or persons, including a corporation or other legal entity, who applies for issuance of a special permit hereunder. The Applicant must own, or be the beneficial owner of, all the land included in the proposed site, or have authority from the owner(s) to act for him/her/it/them or hold an option or contract duly executed by the owner(s) and the Applicant giving the latter the right to acquire the land to be included in the site.

Attached Residential Cluster Development (ARCD). A development designed and

permitted in accordance with Section 8.7.3.

Attached Residential Cluster Development Overlay District (ARCDOD). See Zoning Bylaw Section 8.7.3.

Dwelling Unit. A residence, including studio units. Each residence shall contain a living area, bathroom and, except in studio units, one or more bedrooms, and shall contain a kitchen area or combination kitchen/living area.

Regulations. The rules and regulations of the Planning Board governing the subdivision of land.

BASEMENT. That part of a building partly underground but having more than one-half of its entire wall area above the level of the adjoining ground. A basement shall be counted as a floor or story if used for business or dwelling purposes.

BUILD FACTOR. A ratio of lot perimeter to lot area which limits the degree to which a lot may have an irregular shape according to the following formula:

$$\frac{\text{LOT PERIMETER SQUARED}}{\text{ACTUAL LOT AREA}} \div \frac{\text{ACTUAL LOT AREA}}{\text{REQUIRED LOT AREA}}$$

BUILDING. A combination of any materials, whether portable or fixed, having a roof, to form a structure for the shelter of persons, animals or property. For the purpose of this definition "roof" shall include an awning or any similar covering, whether or not permanent in nature.

BUILDING AREA. The portion of a lot remaining after required yards have been provided.

BUILDING INSPECTOR. The inspector of buildings, building commissioner, or local inspector, or person or board designated by local ordinance or bylaw charged with the enforcement of the zoning ordinance.

BUILDING LENGTH. The length of the longest horizontal dimension through a building, or group of attached buildings, measured parallel to building walls and including all overhanging or projecting structures.

BUILDING PERMIT. A construction permit issued by an authorized building inspector; the building permit evidences that the project is consistent with the state and federal building codes as well as local zoning bylaws, including those governing ground-mounted large-scale solar photovoltaic installations.

BUSINESS OR PROFESSIONAL OFFICE. A building or part thereof, for the transaction of business or the provision of services exclusive of the receipt, sale, storage, or processing of merchandise.

CELLAR. That part of a building having less than one-half of its entire wall area above the level of the adjoining ground. No cellar or portion thereof shall be used as a

dwelling unit. A cellar shall not be counted as a floor or story.

CHILD CARE CENTER. A day care center or school age child care program, as defined in G.L. c. 15D, s. 1A.

CLUB OR LODGE, PRIVATE. Facility operated for members or employees only, where the chief activity is not one customarily conducted for profit.

CONTRACTOR'S YARD. Premises used by a building contractor or subcontractor for storage of equipment and supplies, fabrication of subassemblies, and parking of wheeled equipment.

DWELLING, ATTACHED. A building designed or occupied as a residence and separated from another attached dwelling on one or more sides either by a shared common vertical firewall or firewalls or by a shared common contiguous wall or walls without side yards. In the case of side-by-side dwellings, the length of the shared common walls shall not be less that one-eighth of the building perimeter at grade of the smaller of the two attached dwellings.

DWELLING, DETACHED. A building designed or occupied as a residence and separated from another attached dwelling on one or both sides either by a shared common vertical party wall or walls or by a contiguous wall or walls without side yards.

DWELLING, MULTIPLE-FAMILY. A residential building designed for or occupied by three or more families, with the number of families in residence not exceeding the number of dwelling units provided.

DWELLING, SINGLE-FAMILY. A detached residential dwelling unit other than a mobile home, designed for and occupied by one family only.

DWELLING, TWO-FAMILY. A detached residential building containing either (i) two dwelling units, attached to each other or (ii) two dwelling units within a single structure, in either such case designed for occupancy by not more than two families.

DWELLING UNIT. One room, or rooms connected together, constituting a separate, independent housekeeping establishment for owner occupancy, or rental or lease on a weekly, monthly, or longer basis, and physically separated from any other rooms or dwelling units which may be in the same structure, and containing independent cooking, bathroom and sleeping facilities. A dwelling unit shall have more than one-half of its floor-to-ceiling height above the average level of the adjoining ground. Each dwelling unit shall be occupied by not more than one family.

ERECTED. The word "erected" shall include the words "attached," "built," "constructed," "reconstructed," "altered," "enlarged" and "moved."

ESSENTIAL SERVICES. Public service corporations protected by G.L. c. 40A, s. 3, including, telephone exchange, transformer station, railroad or bus depot, or other public utility or communications use, but excluding any office storage or repair use unless otherwise allowed by the regulations of the district.

FAMILY. Any number of persons related to one another by blood, adoption, foster home placement, or marriage plus not more than two additional persons, all residing together as a single, integral housekeeping unit or where such persons are not related to one another by blood, adoption, foster home placement, or marriage, not more than three persons residing together as a single, integral housekeeping unit.

FAMILY DAY CARE HOME, LARGE. Any private residence operating a facility as defined in G.L. c. 15D, s. 1A.

FAMILY DAY CARE HOME, SMALL. Any private residence operating a facility as defined in G.L. c. 15D, s. 1A.

FIRE LANE. An open space in which no building or structure may be erected and in which no automotive vehicles may be parked, except that buildings may be interconnected by corridors or walkways if provision is made for access by fire apparatus to all outside walls. The open space shall be between a building and a line parallel to and fifteen feet equidistant from a building.

FLOODPLAIN OVERLAY DISTRICT. Area established as an overlay district as indicated on the Town of Winchester's Flood Insurance Rate Maps (FIRM) and the flood boundary and flood insurance maps developed by the Federal Emergency Management Agency (FEMA) and Federal Insurance Administration. The following definitions pertain to the Floodplain District:

Base Flood means the flood having a one percent chance of being equaled or exceeded in any given year.

Development means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, dredging, filling, grading, paving, excavation or drilling operations. The term "development" does not include the resurfacing of existing pavements by the Town of Winchester Public Works Department for maintenance and safety of roadways.

District means Floodplain Overlay District.

Flood Boundary and Floodway Map means an official map of a community issued by FEMA that depicts, based on detailed analyses, the boundaries of the 100-year and 500-year floods and the 100-year floodway. (For maps done in 1987 and later, the floodway designation is including on the FIRM.)

Flood Hazard Boundary Map (FHBM) means an official map of a community issued by FEMA where the boundaries of the flood and related erosion areas having special hazards have been designated as Zone A or E.

Flood Insurance Rate Map means an official map of a community on which FEMA has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

Flood Insurance Study means an examination, evaluation, and determination of flood

hazards, and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of flood-related erosion hazards.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation.

Lowest Floor means the lower floor of the lowest enclosed area (including basement or cellar). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, PROVIDED that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of NFIP Regulations 60.3.

Manufactured Home means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with a permanent foundation when connected to the required utilities. For floodplain management purposes, the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes, the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

Manufactured Home Park or Subdivision means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

New Construction means, for floodplain management purposes, structures for which the "start of construction" commenced on or after the effective date of floodplain management regulation adopted by a community. For the purpose of determining insurance rates, NEW CONSTRUCTION means structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later.

One Hundred Year Flood. See Base Flood.

Regulatory Floodway. See Floodway.

Special Flood Hazard Area means an area having special flood and/or flood-related erosion hazards, and shown on an FHBM or FIRM as Zone A, AO, AE, A99, and AH.

Start of Construction includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The actual start means the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the state of excavation, or the placement of a manufactured home on a foundation. For substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, or floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

Structure means, for floodplain management purposes, a walled and roofed building that is principally above ground, as well as a manufactured home. Structure, for insurance purposes, means a walled and roofed building, including a gas or liquid storage tank that is principally above ground and affixed to a permanent site, as well as a manufactured home on foundation. For the latter purpose, the term includes a building while in the course of construction, alteration, or repair, but does not include building materials or supplies intended for use in such construction, alteration, or repair, unless such materials or supplies are within an enclosed building on the premises.

Substantial Damage means any damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Substantial Improvement means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage" regardless of the actual repair work performed.

Zone A means the 100-year floodplain area where the base flood elevation (BFE) has not been determined. To determine the BFE, use the best available federal, state, local or other data.

Zone AE (for new and revised maps) means the 100-year floodplain where the base flood elevation has been determined."

Zone AH and AO means the 100-year floodplain with flood depths of one to three feet.

Zone A99 means areas to be protected from the 100-year flood by federal flood protection system under construction. Base flood elevations have not been determined.

Zones B, C, and X areas identified in the community Flood Insurance Study as areas of moderate or minimal flood hazard. Zone X replaces Zones B and C on new and revised maps.

FLOOR AREA. The aggregate horizontal area in square feet of all floors of a building or several buildings on the same lot measured from the exterior faces of walls enclosing each building, exclusive of garages, cellar and attic areas used only for storage or for service incidental to the operation or maintenance of such building or buildings.

FRONTAGE, LOT. The boundary between a lot and an abutting street between lot lines or, in the case of a corner lot, between a lot line and the intersection of street lines or of street lines extended.

FRONTAGE, STREET. A street which provides the required lot frontage for a building. When a lot is bounded by more than one street any one of them, but only one, may be designated as the frontage street by the owner, provided that the street meets the frontage requirement and that the principal permitted building on the lot is numbered on such frontage street. However, in the case of a lot bounded by two streets forming an

interior angle of more than 135 degrees, their combined frontage between lot lines may be used to satisfy the lot frontage requirement.

FUNERAL ESTABLISHMENT, UNDERTAKING. Facility for the conducting of funerals and related activities such as embalming.

GARDEN APARTMENT HOUSE. A multiple-family dwelling, not over three stories in height, and containing not less than 4 dwelling units.

GENERAL SERVICE ESTABLISHMENT. Repair shop for household appliances, radio and television sets, or office equipment; retail laundry or dry cleaning establishment; printer.

GREEN SPACE. Includes include grass, trees, shrubs, vegetated or other softscape areas, pools, fish ponds, or other water features including but not limited to fountains, and specifically does not include areas for parking.

HALF STORY. See "Story, Half."

HARDSCAPE. Includes patios, driveways, parking areas or other types of man-made structures or materials such as but not limited to pavers, retaining walls, asphalt, stonework, concrete, and brick.

HEALTH SERVICES OVERLAY DISTRICT (HSOD). Within this Section, the following terms shall have the following meanings:

Ancillary Medical Center Uses. One or more of the following components of a Health Services Facility: Administrative Office; Bank (including ATM); Bicycle Shop; Gift Shop; Coffee Shop; Daycare Center; Lunchroom; Restaurant; Cafeteria (including takeout facilities); Parking Garage; Retail Pharmacy; and Satellite Dishes and/or other telecommunications facilities for the exclusive use of the Health Services Facility; provided, however, that the Zoning Board of Appeals may consider other uses not mentioned herein to be Ancillary Medical Center Uses where the Applicant demonstrates that such uses are incidental to, consistent with and complimentary to the operation of the proposed Medical Center.

Applicant. The person or persons, including a corporation or other legal entity, who applies for issuance of a special permit hereunder. The Applicant must own, or be the beneficial owner of, all the land included in the proposed site, or have authority from the owner(s) to act, or hold an option or contract duly executed by the owner(s) and the Applicant giving the latter the right to acquire the land to be included in the site.

Health Services Facility. Shall consist of a Medical Center and may also include one or more Ancillary Medical Center Uses as authorized by special permit.

Medical Center. One or more facilities providing services such as health maintenance, the diagnosis or treatment of human disease, pain, injury, deformity or physical condition, public health center, diagnostic center, treatment center, physical therapy, out-patient clinic, pharmacy, home health-care agency, professional offices (medical

and dental), and administrative offices associated with any such services and parking garage, provided, however, that the Zoning Board of Appeals may consider other services not mentioned herein to be Medical Center services where the Applicant demonstrates that such are consistent with and complimentary to the operation of a Medical Center. Such facilities shall not include in-patient facilities where patients are in residence for one or more nights nor facilities which accept patients transported by ambulance (other than on an extraordinary basis or incident to a scheduled treatment program).

Open Space. Open space appropriate for conservation or passive or active recreational purposes in the opinion of the Zoning Board of Appeals. Open Space may include unpaved walkways, landscaped areas, woodlands, wetlands, and buffer zones as defined under the Wetlands Protection Act. Impervious surfaces, parking areas and impervious vehicular access facilities shall not be considered in calculating open space. As a component of the Open Space, the Applicant may designate a Preservation Area, which may consist of forestry land, wildlife habitat, other natural resources including aquifers, water bodies and wetlands which are worthy of preservation.

Regulations. The rules and regulations of the Planning Board governing the subdivision of land.

HEIGHT OF A BUILDING. The height of a building is the vertical distance measured from the mean grade of the existing ground level adjoining the building at each exterior wall to the highest point of the roof. Mean grade is to be determined by measuring the elevation at the major exterior corners of a structure and then dividing the total elevation by the number of points of measurement. The maximum height of a building shall not exceed the distance in feet or the number of stories, whichever is less, as set forth in the Table of Dimensional Requirements for the district in which the building is located.

HOME OCCUPATION. An occupation conducted in a dwelling unit, as set forth in Section 3.2.1.

IMPERVIOUS SURFACE. Any surface which sheds water rather than absorbing it, such as paved surfaces or rooftops.

KENNEL, COMMERCIAL. A commercial establishment in which more than three (3) dogs or domesticated animals are housed, groomed, bred, boarded, trained or sold.

LARGE-SCALE GROUND-MOUNTED SOLAR PHOTOVOLTAIC INSTALLATION OVERLAY DISTRICT. Within this Section, the following terms shall have the following meanings:

Designated Location. The locations designated by Winchester Town Meeting, in accordance with Massachusetts General Laws Chapter 40A, Section 5, where ground-mounted large-scale solar photovoltaic installations may be sited as-of right. Said locations are shown on the Winchester Zoning Map, as created and amended pursuant to Massachusetts General Laws Chapter 40A Section 4. This map is hereby made a part of this Zoning Bylaw and is on file in the Office of the Town Clerk.

Large-Scale ground-Mounted Solar Photovoltaic Installation. A solar photovoltaic system that is structurally mounted on the ground and is not roof-mounted, and has a minimum nameplate capacity of 250 kW DC. Said installation may be owned and operated by the property owner or by a lessee of the property owner .

On-Site Solar Photovoltaic Installation. A solar photovoltaic installation that is constructed at a location where other uses of the underlying property occur.

Rated Nameplate Capacity. The maximum rated output of electric power production of the photovoltaic system in direct current (DC).

Solar Photovoltaic Array. An arrangement of solar photovoltaic panels.

LIGHTING. The following definitions pertain to Section 5.4, Lighting:

Color Rendering Index (CRI). A measurement of the amount of color shift that objects undergo when lighted by a light source as compared with the color of those same objects when seen under a reference light source of comparable color temperature. CRI values generally range from 0 to 100, where 100 represents incandescent light.

Color Temperature. Color Temperature or Chromaticity refers to the color appearance of the light that comes from a light source, also referred to as Correlated Color Temperature (CCT). The apparent color of a light source is measured in degrees Kelvin or "K". A low color temperature corresponds to 'Warm.' Incandescent lamps are in the range of 2700 degrees K. 'Cool' light comes from sources such as cool white fluorescent lamps operating at 4100 degrees K. Lights appear bluer above 4100 degrees K.

Cutoff Angle. The angle formed by a line drawn from the direction of the direct light rays at the light source with respect to the vertical, beyond which no direct light is emitted.

Direct Light. Light emitted from the lamp, off the reflector or reflector diffuser, or through the refractor or diffuser lens, of a luminaire.

Efficacy. Efficacy is the rate at which a lamp is able to convert electrical power (watts) into light (lumens), expressed in terms of lumens per watt.

Filtered. When referring to an outdoor light fixture means that the fixture is to be fitted with a glass, acrylic, or other translucent enclosure of the light source.

Fixture. The assembly that houses a lamp or lamps, and which may include a housing, a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and/or a refractor, lens, or diffuser lens.

Fully-Shielded Luminaire. A lamp and fixture assembly designed with a cutoff angle of 90°, so that no direct light is emitted above a horizontal plane.

Glare. Light emitted from a luminaire with an intensity great enough to produce annoyance, discomfort, or a reduction in a viewer's ability to see.

Height of Luminaire. The vertical distance from the finished grade of the ground directly below to the lowest direct light emitting part of the luminaire.

Indirect Light. Direct light that has been reflected off other surfaces.

Lamp. The component of a luminaire that produces the actual light.

Light Trespass. The shining of direct light produced by a luminaire beyond the boundaries of the lot or parcel on which it is located.

Lumen. A measure of light energy generated by a light source. One-foot candle is one lumen per square foot. For purposes of this Bylaw, the lumen output shall be the initial lumen output of a lamp, as rated by the manufacturer.

Luminaire. A complete lighting system, including a lamp or lamps and a fixture.

Shielded. When referring to an outdoor light fixture means that the fixture allows no up-light.

Up-Light. Means direct light emitted by an outdoor light fixture above a horizontal plane through the fixture's lowest light emitting part.

LOADING SPACE, OFF-STREET. Space logically and conveniently located for bulk pickups and deliveries, scaled to delivery vehicles expected to be used, and accessible to such vehicles when required off-street parking spaces are filled. Required off-street loading space is not to be included as off-street parking space in computation of required off-street parking space.

LOT. An area of land in one ownership with definite boundaries ascertainable by recorded deed or plan.

LOT AREA. Area within a lot, including land over which easements have been granted, but not including any land within the limits of a street upon which such lot abuts, even if fee to such street is in the owner of the lot, except that if a corner lot has its corner bounded by a curved line connecting other street lines which, if extended, would intersect the area may be computed as if such boundary lines were so extended.

All lots created or shown on a plan presented to the Planning Board must have at least 80 percent of the lot area required for zoning compliance consisting of land other than areas under any body of water including water courses, or land consisting of a bog, swamp, wet meadow, fresh water wetland, or marsh as defined in M.G.L. c. 131, Section 40. All plans submitted to the Planning Board or Building Inspector shall identify those areas defined as a body of water, water course, bog, swamp, wet meadow, or marsh, or if not applicable, contain a statement that "No land lies within a wetland area as defined in M.G.L. c. 131, Section 40."

LOT, CORNER. A lot bounded by more than one street which has an interior angle of 135 degrees or less formed by the tangents or straight segments of street lines between the side or rear lines of such lot or by an extension of such street lines. A lot bounded by one street shall be considered a corner lot when the tangents or straight segments of the street line between the side lines of the lot form or would form if extended, an interior angle of 105 degrees or less.

LOT DEPTH. The distance between the midpoints of straight lines connecting the foremost points of the side lot lines in front and the rear most points of the side lot lines in the rear.

LOT FRONTAGE. See "Frontage, Lot."

LOT, INTERIOR. A lot other than a corner lot with only one frontage on a street.

LOT, THROUGH. A lot other than a corner lot with frontage on more than one street. Through lots abutting two streets may be referred to as double frontage lots.

LOT, REVERSED FRONTAGE. A lot on which the frontage is at right angles or approximately right angles (interior angle less than 135 degrees) to the general pattern in the area. A reversed frontage lot may also be a corner lot, an interior lot or a through lot.

LOT WIDTH. The distance between opposite side lines through that part of the dwelling where the lot is narrowest. At no point between said dwelling and the street frontage shall the lot be narrower than the minimum lot frontage as specified in Section 4.0. In the case of a corner lot, the shorter street frontage may be considered the side line except that in this case the minimum rear yard requirement shall be no less than the side yard requirement.

MANUFACTURING. A use engaged in the basic processing and manufacturing of materials, or the manufacture from previously prepared materials, of finished products or parts, including processing, fabrication, assembly, treatment, packaging, incidental storage, sales, and distribution of such products.

MEDICAL OR DENTAL CENTER. A building designed and used as a clinic for the diagnosis and treatment of human patients that does not include overnight care facilities.

MOTOR VEHICLE FUELING FACILITY. Buildings and premises where gasoline, oil, grease, batteries, tires, and other accessories may be supplied and dispensed at retail, and where the services set forth in Section 6.1.5 may be rendered.

MUNICIPAL. The word "municipal" means the Town of Winchester.

NONCONFORMING USE or STRUCTURE. A lawfully existing use or structure which does not conform to the regulations for the district in which such use or structure exists.

NURSING OR CONVALESCENT HOME. Any building with sleeping rooms where persons are housed or lodged and furnished with meals and nursing care for hire.

OPEN AREA, PERCENTAGE. That percentage of the lot area which is not occupied by any structure.

PARKING SPACE. An area in a building or on a lot available for parking one motor vehicle, having a width of not less than nine feet and an area of not less than 200 square feet, exclusive of passageways and driveways appurtenant thereto and with free and unimpeded access to a street over unobstructed passageways or driveways.

PERSON. The word "person" includes a firm, association, organization, partnership, trust, company or corporation as well as an individual.

PERSONAL SERVICE ESTABLISHMENT. Barber or beauty shop; shoe repair shop; self-service dry cleaning or laundry; Photographer's studio and the like.

PUBLIC. The word "public" means the Town of Winchester, Commonwealth of Massachusetts, United States Government or an agency thereof.

REAR LINE OF A LOT. A line separating a lot from other lots or from land in a different ownership, being the boundary of a lot which is opposite or approximately opposite the street frontage.

RECORDED. The due recording in the Middlesex County South District Registry of Deeds, or, as to registered land, the due filing in the Middlesex County South District Land Registration Office.

REPAIR GARAGE. An establishment, garage or work area enclosed within a building where repairs are made or caused to be made to boats or motor vehicle bodies, including fenders, bumpers and similar components of motor vehicle bodies, but does not include the storage vehicles for the cannibalization of parts.

RESTAURANT. A building, or portion thereof, containing tables and/or booths for at least two-thirds (2/3) of its legal capacity, which is designed, intended and used for the indoor sales and consumption of food prepared on the premises, except that food may be consumed outdoors in landscaped terraces, designed for dining purposes, which are adjuncts to the main indoor restaurant facility. The term "restaurant" shall not include "fast food restaurants."

RESTAURANT, DRIVE-IN/DRIVE-UP/DRIVE-THRU. Any establishment offering prepared food and/or beverages in a ready-to-consume state, at a drive-in/drive-thru or drive-up window facility, ordering or payment station, or otherwise, to persons in motor vehicles.

RESTAURANT, FAST FOOD. Any establishment offering prepared food and/or beverages in a ready-to-consume state, for consumption within or off-premises, which has a customer seating capacity in excess of 30 seats, and whose principal method of operation is the sale of foods and/or beverages in paper, plastic or other disposable containers.

RESTAURANT PLAY AREA. Any portion of a restaurant or its lot which is used as a recreation or play area.

RETAIL. A facility selling goods but not specifically listed in the Table of Use Regulations.

ROADSIDE STAND. Premises for sale of edible farm products, flowers, fireplace wood, preserves and similar products, all of which have been produced or grown within Winchester on land owned by the owner of the stand; no goods except plants, flowers and fireplace wood shall be stored or offered for sale outdoors.

SANITARY SEWER. A public sanitary sewer of the Town of Winchester.

SATELLITE RECEIVING ANTENNAS. An antenna whose principal feature is for receiving signals from an earth orbiting satellite.

SIDE LINE OF A LOT. A line separating a lot from other lots or from land in different ownership, other than a street line or a rear lot line.

SIGN. The word "sign" shall include any letter, word, symbol, drawing, picture, design, device, article and object that advertises, calls attention to or indicates any premises, person or activity, whatever the nature of the material and manner of composition or construction, provided however that the following shall not be included in the application of the regulations of the Sign Bylaw.

a. Flags and insignia of any government, except when displayed in connection with commercial promotion;

b. Legal notices, identification, informational or directional signs erected or required by governmental bodies;

c. Integral decorative or architectural features of buildings, except letters, trademarks, moving parts or moving lights; and

d. Signs directing and guiding traffic and parking on private property, but bearing no advertising matter.

SITE PLAN REVIEW. Review by the Site Plan Review Authority to determine conformance with local site plan regulations, as outlined in specific provisions of the Zoning Bylaw of the Town of Winchester, Massachusetts.

SPECIAL PERMIT. A use authorized by special permit is a use that would not be appropriate generally or without restriction throughout the zoning district but which, if controlled as to number, area, location or relation to the neighborhood would promote the public health, safety, welfare, order, comfort, convenience, appearance, prosperity, or general welfare. Such uses may be permitted in such zoning district as special permits, if specific provision for such special permits is made in this Zoning Bylaw.

STORY. That portion of a building contained between any floor and the floor or roof next above it; it does not include either the lowest portion so contained if more than one-half of such portion vertically is below the mean finished grade of the ground adjoining such building, or the uppermost portion so contained if under a sloping roof and not designed or intended to be used for human occupancy.

STORY, HALF. A story directly under a sloping roof in which the points of intersection of the bottom of the rafters and the interior faces of the walls are less than three feet above the floor level on at least two exterior walls.

STREET, ROAD, OR WAY. An area of land dedicated, approved by the Planning Board, or legally open for public travel under at least one of the following classifications:

a. A public way duly laid out by the Town of Winchester, the Middlesex County Commissioners, the Metropolitan District Commission or the Commonwealth of Massachusetts, or a way which the Winchester Town Clerk certifies is maintained by public authority and used as a public way excluding, however, limited access highway; or

b. A way shown on a definitive plan approved and endorsed in accordance with the subdivision Control Law; or

c. A way in existence prior to said Subdivision Control Law having become effective in the Town of Winchester (August 31, 1953), having, in the opinion of the Planning Board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed use of the land abutting thereon or served thereby, and for the installation of municipal services to serve such land and the buildings erected to be erected thereon.

A public or private way as stated above shall not be deemed to be a "street" as to any lot of land that does not have right of access to or passage over said way.

STREET LINE. The right-of-way line of a street.

STRUCTURE. Anything constructed or erected with a fixed location on the ground, or attached to something having a fixed location on the ground. Among other things, structures include buildings, mobile homes, walls, fences, billboards and poster panels.

STRUCTURE, TEMPORARY. Tent, construction shanty, or similarly portable or demountable structure intended for continuous use for not longer than one year.

SWIMMING POOL. Any pool having a depth of at least 24 inches or a water surface area of at least 250 square feet.

TOWN HOUSE. A row of not less than three (3) nor more than ten (10) attached dwelling units contained in one (1) building and separated by common or party walls

TRADE SHOP. Shop of a bicycle repairman, builder, carpenter, caterer, electrician, lawnmower serviceman, mason, painter, plumber, or roofer, provided that all work and storage (including the regular parking of commercial vehicles) shall be conducted within a building.

USE, TEMPORARY. Use, operation or occupancy of a parcel of land, building or structure for a period not to exceed one calendar year.

WAREHOUSE. A building used primarily for the storage of goods and materials, for distribution, but not for sale on the premises.

WAY. See "Street, Road or Way."

WIRELESS COMMUNICATIONS FACILITY OVERLAY DISTRICT. See Section 8.4. The following definitions shall apply:

Antenna. The surface from which wireless radio signals are sent and received by a Wireless Communications Facility, including, but not limited to, cross-polarized (or dual polarized) antenna, omnidirectional (whip) antenna and panel antenna.

Camouflaged. A Wireless Communications Facility that is disguised, hidden, or is part of an existing or proposed structure in a visually unobtrusive manner is considered "camouflaged".

Carrier. A company that provides Wireless Communications.

Co-Location. The use of a single mount on the ground by more than one Carrier (vertical Co-location) and/or several mounts on a building by more than one Carrier.

Cross-Polarized (or Dual-Polarized) Antenna. A low mount that has three panels flush mounted or attached very close to the shaft.

Elevation. The measurement of height above mean sea level, based upon North American Vertical Datum of 1988 (NAVD 88).

Environmental Assessment (EA). An EA is the document required by the Federal Communications Commission (FCC) and the National Environmental Policy Act (NEPA) when a Wireless Communications Facility is placed in certain designated areas.

Equipment Shelter. An enclosed structure, cabinet, shed or box at the base of the mount within which are housed batteries and electrical equipment.

Functionally Equivalent Services. Cellular, Personal Communication Services (PCS), Enhanced Specialized Mobile Radio, Specialized Mobile Radio and Paging.

Guyed Tower. A lattice tower that is tied to the ground or other surface by diagonal cables.

Height. The height of a Facility is the vertical distance measured from the highest point of the Facility to the base of the Facility; as to a ground mounted Facility, the "base of the Facility" shall be at the point of its intersection with the ground; as to a roof mounted Facility, the "base of the Facility" shall be at the point of its installation to the roof.

Lattice Tower. A type of mount that is self-supporting with multiple legs and cross bracing of structural steel.

Licensed Carrier. A company authorized by the FCC or other agency of lawful and

competent jurisdiction to construct and operate a commercial mobile radio service system.

Monopole. The type of mount that is self-supporting with a single shaft of wood, steel or concrete and a platform (or racks) for antennas.

Mount. The structure or surface upon which antennas are mounted, including the following four types of mounts: (1) roof mounted: mounted on the roof of a building; (2) side-mounted: mounted on the side of a building; (3) ground-mounted: mounted on the ground; (4) structure-mounted: mounted on a structure other than a building.

Omnidirectional (Whip) Antenna. A thin rod that beams and receives a signal in all directions.

Panel Antenna. A flat surface antenna, usually developed in multiples.

Personal Communications Services (PCS). These are broadband radio wave systems that operate at radio frequencies authorized by the Federal Communications Act of 1996, as amended (the "Telecommunications Act").

Radiofrequency (RF) Engineer. An engineer specializing in electric or microwave engineering, especially the study of radio frequencies.

Radiofrequency Radiation (RFR). The emissions from Wireless Communications Facilities.

Scenic View Points. Site lines of scenic, historic, environmental and natural or man-made resources as designated from time to time filed by the Board of Appeals as being of particular importance to the preservation of the character and appearance of the Town; from time to time, the Board of Appeals shall file a then current list of the Scenic View Points with the Zoning Enforcement Officer.

Security Barrier. A locked, impenetrable wall, fence, or berm that completely seals an area from unauthorized entry or trespass.

Utility. A system of wires or conductors and supporting structures that functions in the transmission of electrical energy or communication services (both audio and video) between generating stations, sub-stations, and transmission lines or other utility services.

Wireless Communications. Wireless telecommunications services regulated by the Federal Communications Commission ("FCC") and defined as "Personal Wireless Services" in Section 704 or other sections of the Telecommunications Act: by way of example, but not limitation, commercial mobile radio services, unlicensed wireless services, and common Carrier wireless exchange access services.

WIRELESS COMMUNICATIONS FACILITY (FACILITIES). Any structure, antenna, tower, or other device used for commercial and noncommercial purposes and which is used to provide wireless communications services including, but not limited to: Personal Wireless Services, mobile wireless services, unlicensed wireless services, cellular phone services, specialized mobile radio communications (EMSR), personal communications services (PCS), common carrier wireless exchange access services,

and any other wireless communications service that may not be specifically named herein but which utilizes wireless facilities, structures, and devices that are functionally similar to those used in services named herein and which may be lawfully subject to local regulation in accordance with this Bylaw and other applicable laws.

WIRELESS COMMUNICATIONS SERVICE (SERVICES). The provision of any of the following services: Personal Wireless Services, mobile wireless services, unlicensed wireless services, cellular phone services, specialized mobile radio communications (EMSR), personal communications services (PCS), common carrier wireless exchange access services, and any other wireless communications service that may not be specifically named herein but which utilizes Wireless Communications Facilities, structures and devices that are functionally similar to those used in the services named herein and which may be lawfully subject to local regulation in accordance with this Bylaw and other applicable laws.

YARD. An open space unoccupied and unobstructed by any structure or portion of a structure, provided however that fences, freestanding walls, poles, posts and other customary yard accessories, ornaments and furniture, and customary summer awnings are permitted in any yard, subject to height limitations and requirements limiting obstruction of visibility. Yard depth shall be measured from the street or lot line to the nearest point on a building in a line perpendicular or normal to such lot or street line. Eaves, gutters, chimneys, cornices, platforms, and other similar small appendages to permitted structures shall not be regarded in computation to the extent that they do not intrude into the setback area by more than 20 percent.

YARD, FRONT. A yard extending between lot side lines across the lot adjacent to each street it abuts.

YARD, REAR. A yard extending between the side lines of a lot adjacent to the rear line of the lot.

YARD, SIDE. A yard extending along each side line of a lot between front and rear yards.

ZONING ENFORCEMENT AUTHORITY. The person or board charged with enforcing the Zoning Bylaw of the Town of Winchester, Massachusetts.

APPENDIX H

Standard Operating Procedures (SOPs)

Standard Operating Procedure

BMP 4-2: Site Plan Review Procedures

1.0 2016 MS4 Permit Compliance

The goal of Minimum Control Measure #4 is to create an effective construction stormwater runoff control program to minimize or eliminate erosion, and maintain sediment on site so that it is not transported via stormwater runoff and allowed to discharge to a water of the US through the Town's MS4. This Standard Operating Procedure (SOP) is provided to comply with Section 2.3.5.c.v of the 2016 MS4 permit, which requires the Town to develop written procedures for site plan review, inspection, and enforcement.

2.0 Applicability and Responsibility

This SOP shall apply to the following:

- Definitive subdivision submittals to the Winchester Planning Board;
- Site Plan Review and Special Permit applications to the Zoning Board of Appeals (ZBA) or Planning Board; and
- Notice of Intents (NOIs) submitted to the Winchester Conservation Commission.

The Winchester Engineering Department shall be responsible for implementation of this SOP in conjunction with the Town Planner, Conservation Agent, and Building Department. We will document our comments in writing to the applicable permit granting authority. The Engineering Department has no authority to approve or deny projects that are reviewed under this SOP.

3.0 Site Plan Review Procedure

The Winchester Engineering Department shall review submittals to the Planning Board, ZBA, and Conservation Commission for the following:

- Proposed site design, including the provision of an Erosion and Sedimentation Control Plan;
- Planned construction site operations;
- Proposed Best Management Practices (BMPs) to be implemented during the construction phase;
- Proposed BMPs to be used to manage runoff created after development; and
- Compliance with applicable municipal rules and regulations, including, but not limited to the following:
    - Winchester Zoning Bylaw, Section 9.5 – Site Plan Review;

- Rules and Regulations Regarding the Use of Public Sewers and Storm Drains in the Town of Winchester, Massachusetts
- Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts

3.1 Review of Water Quality Impacts

Erosion and sedimentation from construction activities can be a significant source of stormwater pollution, and adversely impact the water quality in our receiving waterbodies. Consistent application and implementation of the following guidelines during the design and review phases can help prevent erosion and sedimentation, and therefore improve water quality:

(1) Provision of protective measures during construction, including but not limited to:

a. Silt fencing and straw bales;

b. Catch basin inlet protection within the site and on the adjacent municipal roadways;

c. Erosion control matting, mulches, and/or temporary cover vegetation; and

d. Temporary sedimentation basins, diversions, berms, vegetated swales, culverts or other devices as are necessary to intercept and safely divert surface water runoff during construction.

(2) Compliance with the most recent version of the *Massachusetts Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas* available at https://www.mass.gov/files/documents/2016/08/qz/esfull.pdf

(3) Plan showing the proposed limit of land disturbance on the site, including vegetation clearing and regrading. Areas to be used for post-construction infiltration practices shall be protected during construction to prevent compaction.

(4) Location and means of diversion of off-site runoff from highly erodible soils and steep slopes to more stable areas.

(5) Provision of a written sequence of construction for all proposed land disturbance activities, including provisions to ensure that temporary sediment trapping devices are not removed until permanent stabilization is established in all contributing drainage areas.

(6) Location of proposed soil stockpiles and provision of stabilized exposed soils within five (5) business days of completion of a given area.

(7) Location and description of vehicle tracking pad(s) to be constructed at all site entrance/exit points of the site to reduce the amount of soil carried off the site; and proposed vehicle wash stations, if applicable.

(8) Location and description of proposed dust control to be employed at the site, minimizing soil disturbance through applying mulch and established vegetation, water spraying, and/or other applied products, as approved by the Town.

(9) Location and description of construction and waste materials to be stored on-site, including discarded building material, concrete truck wash out, chemicals, litter, and sanitary waste as well as a description of practices to control these wastes to avoid adverse impacts to water quality. The description of controls to reduce pollutants from these materials shall include storage practices to minimize exposure of the materials, and spill prevention and response.

(10) All slopes steeper than 3:1 shall be, upon completion, immediately stabilized with sod, seed, anchored with straw mulch, or other approved stabilization measure.

(11) A program for vegetative stabilization of exposed soil through the establishment of permanent vegetation at the completion of construction activities. Permanent seeding shall be undertaken in the spring (March through June) or late summer/early fall (September and October).

3.2 Public Hearings

Public hearings for projects submitted to the ZBA, Planning Board, and Conservation Commission shall be held in accordance with the specified local or state regulations. The public shall be given time at the public hearing to comment on the overall project design, including any concerns related to stormwater runoff, water quality, and/or sedimentation and erosion. These comments shall be considered by the Engineering Department and the respective permit granting authorities in the course of the project review.

3.3 Low Impact Design and Green Infrastructure

The Engineering Department shall encourage applicants to employ the use of Low Impact Development (LID) techniques, environmentally sensitive site design, and green infrastructure in the proposed development. The primary goal of LID and green infrastructure techniques is to mimic the pre-development site hydrology by using dispersed BMPs and site design strategies that detain and infiltrate stormwater runoff. The use of these techniques helps to reduce off-site runoff and ensure adequate groundwater recharge. Primary objectives include:

- Maintaining pre-development hydrologic patterns;
- Minimizing the amount of impervious surfaces, and therefore opportunity for stormwater runoff;
- Localized water quality treatment, storage, and infiltration of stormwater runoff in small, decentralized areas;
- Use of natural topography for drainage swales and storage areas;
- Preservation of portions of the site in undisturbed, natural (or existing) conditions; and
- Lengthening of runoff flow paths to increase times of concentration and reduce peak rates.

Applicants applying for definitive subdivision approval are required to complete the LID Site Planning and Design Checklist provided in Appendix I of the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts*.

4.0 Construction Site Inspection Procedure

The following section outlines the parties responsible for permit compliance, the inspection protocols and procedures, and the system for tracking the number of site reviews, inspections, and enforcement actions.

4.1 Permit Compliance

Following the approval of a proposed project, the following entities are responsible for ensuring compliance with the terms of the respective decisions; some project may require oversight by multiple parties:

- Subdivision Approval:
    - Planning Board for site work and roadway construction; and
    - Building Department for construction of structures.
- Site Plan Review and Special Permit Approvals:
    - Building Department or Planning Board, depending on permit granting authority
- Order of Conditions:
    - Conservation Commission

In addition, the Engineering Department and other Town staff, including the Town Planner, Building Commissioner, and Conservation Agent assist with the day-to-day oversight and inspection of construction projects to ensure that they are in compliance with the terms of the approvals.

4.2 Inspection Procedures

Section 7.19 of the *Rules and Regulations Governing the Subdivision of Land in the Town of Winchester, Massachusetts* outlines the required inspection process related to erosion and control measures, including the following:

- Section 7.19.1(a) requires the limits of disturbance to be delineated at the site with erosion control measures, flagging, signs, or orange construction fencing. Said delineation is to be inspected and approved by the Town Engineer, Conservation Agent (if applicable), or the applicants Construction Inspection designee.
- Section 7.19.1(b) requires the applicant to review the installation of any erosion control barriers with the Town Engineer or the Planning Board's designee and the Conservation Agent (if applicable) prior to the commencement of any site work.
- Section 7.19.1(h) requires the applicant to submit an Erosion and Sedimentation Control Operation and Maintenance Plan identifying the party responsible for maintenance of the ESC measure; the specified inspection schedules; and required maintenance tasks.
- Section 7.19.1(p) requires that a written report be prepared after each inspection by the applicant or their engineer documenting compliance with the ESC O&M Plan. Inspection reports must be maintained by the permittee and made available to the Town for review upon request.

Section 9.5 of the Town's Zoning Bylaw outlines the Town's Site Plan Review requirements and requires that any new construction "provide adequate stormwater management and other utilities consistent with the functional requirements of the Planning Board Subdivision Rules and Regulations".

Additionally, the Engineering Department, Building Commissioner, and the Conservation Agent or assigned Conservation Commission (if applicable) shall make regular visits to the site to observe construction activities, and inspect the installed erosion and sediment control measures to ensure that they are operating as intended. The inspection shall include the following:

- Review of the approved plan prior to visiting the site.
- Inspection of perimeter controls.
- Inspection of slopes and temporary stockpiles.
- Comparison of BMP and stockpile placement versus approved plan.
- Inspection of construction site entrances and exits.
- Inspection of temporary sedimentation basins, or other construction BMPs.
- Inspection of discharge points and downstream, off-site areas.

4.3 Procedure for Tracking Site Reviews, Inspections, and Enforcement Actions

Below is the Town's procedure for tracking the number of site reviews completed by the Engineering Department, inspections completed by Town staff, and enforcement actions:

- Site Review Tracking – The Engineering Department will provide written comments to the Planning Board, ZBA and/or Conservation Commission documenting our comments on the site plans, subdivision applications, and NOIs. We will track these comments by date and submit that information in our Annual Report.
- Tracking of Site Inspections – The Engineering, Building, and Planning Departments, as well as the Conservation Agent will work together to document our site inspections for on-going construction projects, and document that information in our Annual Report.
- Tracking of Enforcement Actions – The Conservation Commission, ZBA, Planning Board, and Building Department will annual track any enforcement actions against on-going construction project and submit that information in the Town's Annual Report.

STANDARD OPERATING PROCEDURE DEPARTMENT OF PUBLIC WORKS WINCHESTER, MASSACHUSETTS **PROGRAM:** BMP 6-2 Salt Use Optimization / Winter Road Maintenance	SOP NUMBER: 1	ISSUE DATE: June 2019

APPROVED BY:

Michael Wise, Operation Manager
Winchester Department of Public Works

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MA SMALL MS4 PERMIT REQUIREMENT SUMMARY:

Part 2.3.7.a.iii.5.
The permittee shall establish and implement procedures for winter road maintenance including the use and storage of salt and sand; minimize the use of sodium chloride and other salts, and evaluate opportunities for use of alternative materials; and ensure that snow disposal activities do not result in disposal of snow into waters of the United States. For purposes of this MS4 Permit, salt shall mean any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.

Personnel

The following personnel are responsible for snow and ice removal. Employees performing the procedures in this SOP shall attend yearly storm water pollution prevention training.

TABLE 1

Name	Responsibility
James Gill	Total Operation
Michael Wise	Operation
Steven Barron	Fleet
Jimmy Gibbons	Operation
Jimmy Ditullio	Supervisor
Jimmy Shattuck	Supervisor

Equipment

The Town owns and maintains ice control and snow removal equipment listed in Table 2. Equipment maintenance shall be conducted consistent with the Vehicles and Equipment Maintenance SOP to be developed and located at the DPW Garage at 15 Lake Street. The wash bay/ area is located at the DPW at 15 Lake Street.

Plowing
When conditions warrant, plows are installed on the 19 larger trucks to move snow from the Traveled roadway. Average time to install a plow is approximately 15 minutes. There are 17 smaller trucks available for plowing of residential streets and clearing public lots.

Salt Spreaders

When conditions warrant, salt spreaders are installed on the 9 larger trucks to spread salt on the traveled roadway. Each salt spreader is calibrated prior to the deicing season and mid-season if needed. Salt spreaders are calibrated to dispense 200 cubic yards of salt per lane mile.

Pre-Wetting Devices
Pre-wetting application shall be calibrated to dispense rates of 5+ gallons of pre-wet liquid to 1 ton of salt.

Anti-Icing Dispensers
The Town has one (1) piece of equipment for this task. It is a 550-gallon truck-mounted dispenser for anti-icing chemical application. The tanks are mounted on Equipment Number G-3 and it distributes anti-icing product onto town streets and bridges utilizing spray nozzles in accordance with this SOP. Anti-icing dispensers are calibrated prior to the deicing season and when needed thereafter. Anti-icing dispensers shall be calibrated to apply 25 gallons per lane mile. Pre-wetting application shall be calibrated to dispense rates of 5 gallons of pre-wet liquid to 1 ton of salt.

TABLE 2

Equipment Number	Make	Description	Additional Equipment	Primary Use
T-1	2018- International	6-WH / Salter/Dump	11’ plow 6-yd. salt	Plow / salt
T-2	1994- International	6-WH / Salter/Dump	10’ plow 6-yd. salt	Plow / salt
T-4	1994- International	6-WH / Salter/Dump	10’ plow 6-yd. salt	Plow / salt
T-5	1997- International	6-WH / Salter/Dump	10’ plow 6-yd. salt	Plow / salt
T-7	2011- International	6-WH / Salter/Dump	10’ plow 6-yd. salt	Plow / salt
T-10	1996-International	6-WH / Salter/Dump	10’ plow 6-yd. salt	Plow / salt
T-11	1995-International	6-WH / Salter/Dump	10’plow 6-yd. salt	Plow / salt
T-19	1999-International	6-WH / Salter/Dump	10’plow 6-yd. salt	Plow / salt
T-22	2015-International	2-TON HOOK LIFT	9’plow 3-yd salter	Plow / salt
G-9	2001-FORD 450	1-TON Salter/dump	8’ plow 2-yd. salter	Plow / salt
H-18	2014 FORD 550	1-TON Salter/dump	8’ plow 2-yd. salter	Plow / salt
G-3	1998-International	6-WH 550 gal tank salt brine	8’ plow /dump	Plow/ spray

Materials

The major materials used in snow and ice control are coarse sand, coarse salt, anti-icing agent, magic – zero molasses. These materials are stockpiled in advance of an event and are immediately available when needed and stocks are replenished between events.

Salt
Salt is used to expedite the melting of snow and ice from the street surface and also to keep the ice from forming a bond to the street surface. Approximately 3,200 tons of road salt are anticipated to be used per year and are

ordered from Eastern Minerals on bid contract prior to each deicing season. Salt is stored in the covered facility located at the DPW located at 15 Lake Street. Loading areas and yards are swept routinely to prevent salt build-up and run-off.

Anti-icing and Pre-Wetting Chemical

Approximately 5,500 gallons of salt brine is estimated to be needed for anti-icing application and 100 gallons of magic - zero molasses is estimated to be needed for pre-wetting. These chemicals are stored at the DPW at 15 Lake Street in 2/ 3,000-gallon storage tanks equipped with appropriate spill control.

Procedures

Anti-Icing

1. Whenever possible, the anti-icing product is applied to the roadway prior to the beginning of a storm to prevent snow from bonding to the roadway surface, and also used when heavy frost or black ice is expected to be an issue for commuters. One of the foremen will instruct staff when anti-icing is appropriate. Anti-icing will not be done prior to freezing rain or when pavement temperatures are below 10 degrees F.
2. Prior to anti-icing application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Anti-icing chemical will only be applied to priority routes. The priority routes list includes main roadways and hills.
4. Anti-Icing vehicle optimal speed is 25 MPH.
5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the fleet coordinator, who will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.

Salt Application

1. Whenever conditions warrant, salt is applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. The Operation Manager will instruct staff when salt application is appropriate. Salting will not be done when pavement temperatures are above 32 degrees F or below 15 degrees F.
2. Prior to salt application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. The standard salt application speed is: 25 mph.
4. Follow the prioritized route or schedule. This schedule is located at the DPW located at 15 Lake Street.

5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to Fleet Coordinator who will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.

Snow Plowing

1. As the storm develops and 2 to 3 inches of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.
2. Prior to plowing operations, equipment will be checked to ensure proper working order. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Avoid plowing, pushing, blowing or storing excess snow, deicer, or other debris in or near creeks, watercourses or storm drainage systems.
4. Reduce plowing speed in sensitive areas (near creeks, wetlands or other water courses) to prevent snow and deicing materials from entering waterways.
5. The standard plowing speed is 20 mph.
6. Follow the prioritized route or schedule. This schedule is located at the DPW located at 15 Lake Street.
7. Before parking any truck or equipment after use, all fluid levels will be checked and filled. Blades or bolts, which need replacing, will be taken care of unless told to do otherwise. Chains that need repairs will be repaired. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the Fleet Coordinator who will determine importance and will assign the repairs according to schedule.

Salt Alternative Application

1. Salt alternatives are used in environmentally sensitive areas and applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. The Operation Managers will instruct staff when salt alternative application is appropriate.
2. Prior to salt alternative application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Salt alternatives will only be applied to priority routes.
4. Salt alternative delivery optimal speed is 25 MPH.
5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Repairs the operator cannot perform will be written up on the proper forms and turned in to the Fleet Coordinator, who will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.

Record Keeping and Documentation

1. Maintain a master schedule of prioritized snow and sanding routes and the miles or roads plowed or sanded at the DPW located at 15 Lake Street.
2. Keep copies of manufacturer's recommendations for equipment calibration, plowing speed and salt/sand application rates at the DPW located at 15 Lake Street.
3. Keep records of the amounts of salt, sand, liquid deicer, and salt alternatives applied per season at the DPW located at 15 Lake Street.
4. Keep a list of all employees trained in the facility's Storm water Pollution Prevention binder or computer file.

APPENDIX I

2016 MS4 Permit Annual Report