

Town of Orange, Connecticut



STORMWATER
MANAGEMENT PLAN

July 1, 2017

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INTRODUCTION / OVERVIEW

INTRODUCTION

This Stormwater Management Plan (SWMP) was developed by The Town of Orange to protect water quality and reduce the discharge of pollutants from the Town's storm sewer system to the maximum extent practicable (MEP). This SWMP addresses the requirements established by the CT Department of Energy and Environmental Protection's (DEEP) General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 General Permit). This permit is the local enforcement mechanism of the U.S. Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Phase II Rule.

This SWMP outlines a program of Best Management Practices (BMPs), measurable goals, responsible individuals or departments, and implementation schedules for the following six Minimum Control Measures (MCMs).

The six minimum control measures are:

- 1) Public Education and Outreach
- 2) Public Participation and Involvement
- 3) Illicit Discharge Detection and Elimination (IDDE)
- 4) Construction Site Runoff Control
- 5) Post Construction Runoff Control
- 6) Pollution Prevention and Good Housekeeping

TOWN RESPONSIBILITIES AND LIMITATIONS

The Town of Orange currently has many Best Management Practices (BMPs) in place relating to stormwater management and pollution prevention. This SWMP will outline these BMPs and goals. The primary conditions of the permit coverage are:

- DEEP Permit Registration
- Develop a SWMP
- Implement SWMP
- Monitoring Requirements
- Employee Training
- Annual Reporting

The measures identified in this SWMP will be applied throughout the boundaries of The Town of Orange except as otherwise noted and be consistent with the MS4 General Permit requirements. Stormwater discharge from municipally-owned maintenance garages, salt sheds and other facilities subject to the DEEP Industrial Stormwater General Permit will continue to be regulated under conditions of that permit.

Stormwater information will be implemented and led by the Director of Public Works with input from Public Works, The Inlands Wetlands Officer, and Zoning Officer. The annual report will be submitted to DEEP no later than April 1st each year.

The Town of Orange is very proactive in protecting and preserving the natural resources and open space. Preserving the environment enhances the community character and overall quality of life for its residents.

TOWN INFORMATION

The Town of Orange is the operator of the MS4. The Town of Orange is located in New Haven County, State of Connecticut. The Town of Orange is approximately 17.6 square miles, located just west of New Haven. We share our borders with the Town of Woodbridge and Cities of Derby, Milford, and West Haven. The town has approximately 108 miles of town maintained roads. CT DOT's MS4 Permit includes the following 18 miles of highways-I-95, RT 15 Wilbur Cross Parkway, RT1 Boston Post Road, RT34 Derby Turnpike, RT 121 Grassy Hill Road, RT 152 Orange Center Road, and RT 114 Race Brook Road.

WATERSHEDS AND WATERSHED QUALITY CLASSIFICATIONS

Orange waterways are in the South –Central Coastal Basin and include the Indian River, Silver Brook, Race Brook, Wepawaug River, Housatonic River and Two Mile Brook.

In preparing the SWMP, the CT DEEP's Water Quality Standards were reviewed in order to determine the Surface Water Quality Classifications for each watercourse in town. Certain BMPs address the watersheds containing watercourses designated as "impaired" by the CT DEEP. Table 1 shows the water quality classifications for each watershed. Table 2 summarizes the water bodies within or that run through the Town that are listed on the 2014 List of Connecticut Water Bodies not meeting water quality standards and are designated as "impaired".

TABLE 1
Water Quality Surface
Classifications Orange, CT

Drainage Basin Number	Name	Surface Water Quality Classification	Impaired per Water Quality Standards
5306	Indian River	A	YES
5306	Silver Brook	A	YES
5307	Race Brook	A	YES
5307	Wepawaug	AA	YES
6000	Housatonic	B	YES
6000	Two Mile Brook	A	YES

TABLE 2
Impaired Waterbody
Orange, CT

Quinnipiac Watershed-Inland Surface Waters- Class A

Waterbody ID	Water Segment Description	Water Segment Length (miles)	Impaired use	Pollutant	Cause/Potential Source
CT5306-00_02 Indian River (Orange)-02	Route 1 crossing, US to HW, just US of Route 34 crossing, Orange.	3.27	Recreation	E.Coli	Potential sources include industrial point source discharge, landfills, illicit discharge, combined sewer overflow
CT5306-01_01 Silver Brook (Orange)-01	From mouth at confluence with Indian River (just US of Indian Lake, parallel to Indian River Road), US to confluence with Trout Brook (just US of Smith Farm Road crossing), Orange.	1.6	Habitat for Fish, Other Aquatic Life and Wildlife		Potential sources include industrial point source discharge, landfills, illicit discharge
CT5306-01_02 Silverbrook	From confluence with Trout Brook (just US of Smith Farm Road crossing), US to HW (west side of Dogburn Road, near Woodbridge town line), Orange.	3.1	Recreation	E.Coli	Potential sources include industrial point source discharge, landfills, illicit discharge
CT5307-00_02 Wepawaug River-02	From Route 1 crossing, Milford, US to Lake Wepawaug inlet, Orange. Segment includes Lake Wepawaug portion on river.	4.20	Unknown	E.Coli	Unknown
CT5307-00_03 Wepawaug River-03	From inlet to Lake Wepawaug, US to inlet to Wepawaug Reservoir (US of Route 34 crossing), Orange. Segment includes Wepawaug Reservoir portion of river.	2.33	Unknown	E.Coli	Unknown

TABLE 2 Continued
Impaired Waterbody
Orange, CT

CT5307-00_04 Wepawaug River-04	From inlet to Wepawaug Reservoir, Orange, US to area east of Racebrook Road (Route 114), perpendicular to Milan Road, Woodbridge.	3.05	Unknown	E.Coli	Unknown
CT5307-04_01 Race Brook-01	From mouth at confluence with Wepawaug River near Mulberry Lane (about .5 miles DS of Route 152 crossing) Orange, US to headwaters, just US of Route 114 crossing, Woodbridge.	5.81	Unknown	Flow Regime Alterations	Unknown
CT6000-00_01 Housatonic River (Orange/Shelton/Derby)-01	From end of saltwater influence, at southern most portion of Wooster Island, Orange, US to confluence with Naugatuck River, Shelton/Derby town border.	3.17	Recreation	E.Coli	Potential Sources include Industrial point source discharge, landfills, illicit discharge
CT6000-77_01 Twomile Brook (Derby/Orange)-01	Mouth on Housatonic River, DS of Derby Milford Road crossing, Derby/Orange town line, US to HW near Osborne Lane, Ansonia.	5.67	Habitat for Fish, Other Aquatic Life and Wildlife	Cause Unknown	Potential Sources include Industrial point source discharge, landfills, illicit discharge

The surface water classifications currently assigned to the Town of Orange watercourses are defined below.

Class AA

Designated uses: existing or proposed drinking water supply, fish and wildlife habitat, recreational use (may be restricted), agricultural and industrial supply.

Discharge restricted to: discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges.

Class A

Designated uses: potential drinking water supply; fish and wildlife habitat; recreational use; agricultural and industrial supply and other legitimate uses, including navigation.

Class B

Designated uses: recreational use; fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation.

Discharges restricted to: same as allowed in A and cooling waters, discharges from industrial and municipal wastewater treatment facilities (providing Best Available Treatment and Best Management Practices are applied), and other discharges subject to the provisions of section 22a-430 CGS.

SECTION 1 MCM #1

PUBLIC EDUCATION AND OUTREACH

This minimum control measure outlines a program to communicate common sources of stormwater pollution and the impacts of polluted stormwater to the public. This will be done through distributing educational materials to the community and conducting outreach activities. The following BMPs and implementation schedule serve as the Town of Orange's MS4 Public Education Program.

Goals:

- Raise Public awareness that polluted stormwater runoff is the most significant source of water quality problems
- Motivate residents to use Best Management Practices (BMPs) that reduce polluted stormwater runoff and
- Reduce polluted stormwater runoff in town as a result of increased awareness and utilization of BMPs

1.1 Implement public education program

The Town will collect and distribute stormwater educational materials that, at a minimum address the impacts of the following on water quality: pet waste, impervious cover, application of fertilizers, pesticides, and herbicides, and illicit discharges and improper disposal of wastes into the MS4.

The following BMPs will be implemented by the Town of Orange to educate the public and town staff regarding water quality issues:

- Brochures
- Information posted on The Town of Orange Website
- Public service announcements on Orange Government Access Television (OGAT)
- Useful links to DEEP and EPA websites
- Information posted in Town Buildings
- Information distributed to school children
- Use the local news media to publicize stormwater pollution, control measures and prevention techniques
- Continue to support the current program of hazardous waste removal and disposal and inform the public of all options available to them

1.2 Address education and outreach for pollutants of concern

The Town of Orange will distribute information on common sources of phosphorus, nitrogen, bacteria, and mercury pollution and how to prevent or reduce the amount reaching the MS4 and discharging into waterways.

The table below shows additional topics to be covered to address phosphorus, nitrogen, bacteria, and mercury if the impairments should exist in Town.

Phosphorus	Nitrogen	Bacteria	Mercury
Septic systems	Septic systems	Septic systems	Thermometers
Fertilizer use	Fertilizer use	Sanitary cross connections	Thermostats
Grass clippings and leaves management	Grass clippings and leaves management	Waterfowl	Fluorescent lights
Detergent use	Discharge of sediment (to which Nitrogen binds) from Construction sites	Pet waste	Button cell batteries
Discharge of sediment (to which Phosphorus binds) from Construction sites	Other erosive surfaces	Manure piles associated with livestock and horses	Thermometers
Other erosive surfaces			

Public Education and Outreach Schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2018 and continue until permit expires	Implement public education program BMPs listed above and include these BMPs in the annual report.	Town Engineer/ Director of Public Works
July 1, 2018 and continue until permit expires	Address education and outreach for pollutants of concern	Town Engineer/ Director of Public Works

SECTION 2 MCM #2

PUBLIC INVOLVEMENT / PARTICIPATION

This minimum control measure identifies the process for public involvement and participation in the Town's stormwater management efforts.

Goals:

- Involve the community in planning and implementing the Town's stormwater management activities
- Provide a minimum 30 day notice to the public for this plan and annual reports

2.1 Comply with public notice requirements for the Stormwater Management Plan and Annual Reports

The following BMPs will be implemented by the Town of Orange to develop a public participation/involvement program, in order for residents to have an active role in the stormwater program:

- The Town of Orange will publish a notice on its website and in local papers that will include a contact name, phone number, address, and email to whom the public can send comments to. Additionally this plan and the Annual Reports will be publicly accessible on the Town of Orange Website and in the Town Clerks office. The public notice will allow for a 30 day comment period.

Public Involvement and Participation Schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2017 and continue until permit expires	Comply with public notice requirements for the SWMP and Annual reports	Town Engineer/ Director of Public Works

SECTION 3 MCM #3

ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

This minimum control measure outlines a program to detect and eliminate current illicit discharges to the MS4 and prevent further illicit discharges in the future. All activities for this measure will be completed in The Town of Orange's priority areas (urbanized area, catchment areas with directly connected imperious area (DCIA) > 11%, and outfalls that discharge to impaired waters).

Goal:

- Find the source or any illicit discharges; eliminate those illicit discharges; and ensure ongoing screening and tracking to prevent and eliminate future illicit discharges

3.1 Develop written IDDE plan

The Town of Orange will develop a written IDDE plan to detect, locate and eliminate illicit discharges (to the maximum extent practicable) from the MS4 within Orange's priority areas. The IDDE plan will provide enforceable legal authority to eliminate illicit discharges, assign responsibilities, and develop a citizen reporting program. The plan will also outline the outfall screening and IDDE protocols consistent with Appendix B of the MS4 General Permit to identify, prioritize, and investigate MS4 catchments for suspected illicit discharge of pollutants. Also, the IDDE plan will outline follow-up screening and illicit discharge prevention procedures.

3.2 Develop list and map of all MS4 outfalls and interconnections in priority areas

The Town of Orange is developing a database of all stormwater discharges from a pipe or conduit located within and owned or operated by the municipality and all interconnections with other MS4s. Each entry will include:

- a. Type, material, size, shape and location (identified with a latitude and longitude) of conveyance, outfall or channelized flow (e.g. 24" concrete pipe);
- b. the name, water body ID and Surface Water Quality Classification of the immediate surface waterbody or wetland to which the stormwater runoff discharges;
- c. if the outfall does not discharge directly to a named waterbody, the name and water body ID of the nearest named waterbody to which the outfall eventually discharges;
- d. the name of the watershed, including the subregional drainage basin number (available from CT ECO at www.cteco.uconn.edu) in which the discharge is located;
- e. date of most recent inspection of the outfall, the condition, and any indicators of potential non-stormwater discharges as of most recent inspection;

The database will be exported into excel format for annual reports. The inventory shall be updated annually to include data collected in connection with the dry weather screening and other relevant inspections conducted.

3.3 Develop citizen reporting program

The Town of Orange will establish a system to allow for citizen reporting of suspected illicit discharges into the stormwater system. The system will include an email address, phone number and written address for submitting a report. The Town will affirmatively investigate and eliminate any illicit discharges for which a time and location of discharge are provided. The Town will promptly inspect the reported outfall or manhole and proceed according to the requirements of the written IDDE program. All citizen reports and responses will be included in the Town of Orange's annual report.

3.4 Establish legal authority to prohibit illicit discharges

The Town of Orange will establish the necessary and enforceable legal authority by statute, ordinance, rules and regulations, permit, easement, contract, order or any other means, to eliminate illicit discharges. The authority will:

- a. *prohibit illicit discharges to its storm sewer system and require removal of such discharges consistent with the deadlines outlined in the MS4 general; and*
- b. *authorize the investigation of suspected illicit discharges and elimination of illicit discharge, including from properties not owned or controlled by the MS4 that discharge to the MS4*
- c. *control the discharge of spills and prohibit the dumping or disposal of materials including, but not limited to, residential, industrial and commercial wastes, trash, used motor vehicle fluids, pesticides, fertilizers, food preparation waste, leaf litter, grass clippings, and animal wastes into its MS4; and*
- d. *authorize appropriate enforcement procedures and actions;*
- e. *authorize fines or penalties and/or recoup costs incurred by the permittee from anyone creating an illicit discharge or spilling or dumping.*

3.5 Develop record keeping system for IDDE tracking

The Town of Orange will keep a record of illicit discharge abatement activities including location (including latitude and longitude or address), description, date(s) of inspection, sampling data (if applicable), action(s) taken, date of removal or repair and responsible party.

In addition, the Town will develop and maintain an SSO inventory that records the location, date and time of occurrence, estimated volume of discharge, a description of known or suspected cause, and details about mitigating measures including dates of implementation.

This inventory will also:

- include all known SSOs to their MS4 in the past 5 years (July 1, 2012 – June 30, 2017);
- continue to be updated to track future SSOs; and
- be included in Annual Reports.

3.6 Address IDDE in areas with pollutants of concern

The Town of Orange will identify which areas in town are most likely to contribute nitrogen, phosphorus, and bacteria to the MS4. This assessment will consider: historic on-site sanitary system failures, proximity to bacterial impaired waters, low infiltrative soils, and shallow groundwater. Any areas determined to have a high potential for septic system failure will be reported to the Health Department for corrective action.

3.7 Detailed MS4 infrastructure mapping

The Town of Orange will revise a detailed map of the MS4 to include:

- Components of the MS4 within priority areas:
 - Outfalls & receiving waters;
 - Pipes; open channel conveyances; catch basins; manholes;
 - Interconnections with other MS4s and other storm sewer systems;
 - Municipally-owned stormwater treatment structures (e.g. detention & retention ponds, infiltration systems, bioretention areas, water quality swales, gross particle separators, oil/water separators, or other systems);
 - Catchment delineations for each outfall;
 - Impaired water bodies identified by name and use impairment as defined by the most recent integrated water quality report;
 - Municipal sanitary sewer system (if available);
 - Municipal combined sewer system (if applicable).

The Town of Orange will update the map as new information becomes available and will report on the progress of the development of this map in the annual report.

Illicit discharge detection and elimination schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2018	Develop written IDDE program	Town Engineer/ Director of Public Works Inlands Wetland's Officer Sewer Superintendent
July 1, 2019	Develop list and maps of all MS4 stormwater outfalls in priority areas	Town Engineer/ Director of Public Works
July 1, 2018	Develop citizen reporting program	Town Engineer/ Director of Public Works
July 1, 2018	Establish legal authority to prohibit illicit discharges	Town Engineer/ Director of Public Works Town Attorney
July 1, 2017	Develop record keeping system for IDDE tracking	Town Engineer/ Director of Public Works
July 1, 2017	Address IDDE in areas with pollutants of concern	Town Engineer/ Director of Public Works
July 1, 2020	Detailed MS4 infrastructure mapping	Town Engineer/ Director of Public Works
July 1, 2022	Complete list and maps of all MS4 stormwater outfalls throughout the municipality	Town Engineer/ Director of Public Works

SECTION 4 MCM #4

CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

This minimum control measure outlines procedures for minimizing polluted stormwater runoff from activities that disturb one or more acres of land. In Orange, this is determined on a site by site basis OR collectively as part of a larger plan.

Goal:

- Minimize polluted stormwater runoff from construction sites and prevent it from carrying sediment into waterways via MS4 infrastructure.

4.1 Implement, upgrade and enforce land use regulations to meet requirements of MS4 general permit

The Town of Orange will revise its land use regulations to establish the legal authority to control stormwater runoff from construction sites by requiring:

- a. *developers, construction site operators, or contractors maintain consistency with the 2002 Guidelines for Soil Erosion and Sedimentation Control, as amended, the Connecticut Stormwater Quality Manual, and all stormwater discharge permits issued by the DEEP within the municipal or institutional boundary pursuant to CGS 22a-430 and 22a-430b;*
- b. *the implementation of additional measures to protect/improve water quality (in addition to the above requirements) as deemed necessary by The Town of Orange;*
- c. *The Town of Orange is authorized to carry out all inspection, surveillance and monitoring procedures necessary to determine compliance with municipal regulations, ordinances or programs or institutional requirements related to the management of The Town of Orange's MS4. Inspections shall be conducted, where allowed, to inventory the number of privately-owned retention ponds, detention ponds and other stormwater basins that discharge to or receive drainage from the permittee's MS4;*
- d. *the owner of a site seeking development approval from The Town of Orange shall provide and comply with a long term maintenance plan and schedule to ensure the performance and pollutant removal efficiency of privately-owned retention ponds, detention ponds and other stormwater basins that discharge to or receive discharge from The Town of Orange's MS4 including short-term and long-term inspection and maintenance measures to be implemented by the private owner; and*
- e. *The Town of Orange will control, through interagency or inter-jurisdictional agreements, the contribution of pollutants between the permittee's MS4 and MS4s owned or operated by others.*

4.2 Develop and implement plan for interdepartmental coordination of site plan review and approval

The Town of Orange's plan to coordinate the functions of all the departments and boards involved in the review, permitting, or approval of land disturbance projects is as follows:

Procedures for site plan review that incorporate consideration of potential water quality impacts are utilized by the Town. Construction plans and specifications are reviewed by the Town departments for conformance to the Town's requirements relating to construction site runoff control. The following Town Boards and Commissions and staff may each issue separate and distinct requirements and mandated controls to be implemented and also provide inspections to sites with active construction. These are Planning & Zoning Department, Inland Wetlands and Watercourses Commission, Building Department, Water Pollution Control Authority, Department of Public Works and the Office of the Town Engineer. On a site specific basis each of the above listed local agencies requires a Soil Erosion and Sedimentation Control Plan, a Stormwater Management Plan, listed inventory of Environmental considerations and bond requirements.

4.3 Review site plans for stormwater quality concerns

The Town of Orange will conduct site plan reviews that incorporate consideration of stormwater controls or management practices to prevent or minimize impacts to water quality on sites with soil disturbance of one acre or more. The Town of Orange will also conduct site inspections to assess the adequacy of the installation, maintenance, operation, and repair of construction and post construction control measures and take enforcement action when necessary.

4.4 Conduct site inspections

The Town of Orange will perform construction site inspections and take enforcement actions if necessary to ensure the adequacy of the installation, maintenance, operation, and repair of all construction and post-construction runoff control measures.

4.5 Implement procedure to allow public comment on site development

The Town of Orange's procedure for public involvement in proposed and ongoing development and land disturbance activities is as follows:

Any information submitted by the public is forwarded to the Public Works Department for consideration. Information related to construction site runoff is forwarded to the Zoning Enforcement Officer and Inland's Wetland's Officer.

4.6 Implement procedure to notify developers about DEEP construction stormwater permit

The Town of Orange will notify developers and contractors of their potential obligation to obtain authorization under DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (construction general permit) if their project disturbs more than 1 acre of land and results in a point source discharge to Connecticut surface waters directly or through the Town of Orange's MS4. The Town of Orange will also require a copy of the Storm Water Pollution Control Plan be made available to the town on request.

Construction site stormwater management schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2019	Implement, upgrade and enforce land use regulations to meeting MS4 permit requirements	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer Town Attorney
July 1, 2017	Develop/implement plan for interdepartmental coordination in site plan review approval	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer
July 1, 2017	Review site plans for stormwater quality concerns	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer
July 1, 2017	Conduct site inspections	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer
July 1, 2017	Implement procedures to allow public comment on site development	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer
July 1, 2017	Implement procedure to notify developers about DEEP construction stormwater permit	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer

SECTION 5 MCM #5

POST CONSTRUCTION SITE RUNOFF CONTROL

This minimum control measure outlines The Town of Orange's program to address stormwater runoff from new or re-development projects that disturb one or more acres of land.

Goal:

- Mitigate the long-term impacts of new and re-development projects on water quality through proper use of low impact development and runoff reduction practices

5.1 Update legal authority and guidelines regarding LID and runoff reduction in site development planning

The Town of Orange will update the existing legal authority by ordinance, bylaw, regulation, standard condition of approval, or other means to require, to the MEP, *developers and contractors seeking the town's approval to consider the use of low impact development (LID) and runoff reduction site planning and development practices that meet or exceed those LID and runoff reduction practices in the CT Stormwater Quality Manual prior to other stormwater management practices allowed in the Town of Orange's land use regulations, guidance or construction project requirements.*

This legal authority will include the following standards:

- 1) for redevelopment of sites that are currently developed with Directly Connected Impervious Area (DCIA) of forty percent or more, the project must retain on-site half the water quality volume for the site, or
- 2) for new development and redevelopment of sites with less than forty percent DCIA, retain the water quality volume for the site, or
- 3) if those retention standards cannot be met, the developer will be required to provide a report indicating why the standard could not be met and a mitigation project on another property or pay a fee to fund a DCIA retrofit.

In developing this legal authority, The Town of Orange will consider the following watershed protection elements to manage the impacts of stormwater on receiving waters:

- a. Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each municipality by minimizing the creation, extension, and widening of parking lots, roads, and associated development and encourage the use of Low Impact Development or green infrastructure practices.
- b. Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.
- c. Implement stormwater management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.
- d. Seek to avoid or prevent hydromodification of streams and other water bodies caused by development, including roads, highways, and bridges.
- e. Implement standards to protect trees, and other vegetation with important evapotranspirative qualities.
- f. Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.
- g. Coordinate with state or local health officials to ensure no interference with performance of on-site septic systems.
- h. Limit turf areas.

In addition, The Town of Orange will review its current regulations - site planning requirements, zoning regulations, street design regulations, and infrastructure specifications with minimum size criteria for impervious cover (roads, parking lots, etc.) to identify and, where appropriate, reduce or eliminate existing regulatory barriers to implementation of LID and runoff reduction practices to the MEP.

5.2 Implement long-term maintenance plan for stormwater basins and treatment structures

The Town of Orange will develop a maintenance plan for retention / detention ponds and stormwater treatment structures that it owns or over which it holds an easement or other authority and that are located in the town's priority areas to ensure their long-term effectiveness. This plan will require an annual inspection of those retention / detention ponds and stormwater treatment structures and removal of accumulated sediment and pollutants in excess of 50% design capacity.

5.3 Directly Connected Impervious Area (DCIA) mapping

The Town of Orange will follow guidance provided by DEEP and UConn CLEAR to calculate the Directly Connected Impervious Area (DCIA) that contributes stormwater runoff to each of its MS4 outfalls. Progress on this task will be documented in each Annual Report until completion.

5.4 Address post-construction issues in areas with pollutants of concern

For areas contributing to waters where **Nitrogen, Phosphorus or Bacteria** is a Stormwater Pollutant of Concern and erosion or sedimentation problems are found during the annual inspections conducted under the long-term maintenance plan described in BMP 5.2, The Town of Orange will prioritize those areas for the DCIA retrofit program under minimum control measure 6 – Pollution Prevention/Good Housekeeping.

Post-construction stormwater management schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2021	Update legal authority guidelines regarding LID and runoff reduction in site development planning	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer Town Attorney
July 1, 2021	Enforce LID/runoff reduction requirements for development and redevelopment projects	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer
July 1, 2019	Implement long-term maintenance plan for stormwater basins and treatment structures	Town Engineer/ Director of Public Works
July 1, 2020	Complete DCIA Mapping	Town Engineer/ Director of Public Works Inlands Wetland's Officer
July 1, 2019	Address post-construction issues in areas with pollutants of concern	Town Engineer/ Director of Public Works Planning & Zoning Inlands Wetland's Officer

SECTION 6 MCM #6 **POLLUTION PREVENTION / GOOD HOUSEKEEPING**

This minimum control measure outlines a program to mitigate the impact of town operations and maintenance on town owned and/or operated properties and the MS4 itself to water quality.

Goal:

- Prevent or reduce pollutant runoff as a result of municipal operations

The Town of Orange will implement an operations and maintenance program to prevent or reduce pollutant runoff from town facilities and protect water quality.

6.1 Develop and implement formal employee training program

The Town of Orange will continue its MS4 training program for town employees to increase awareness of water quality issues. Training will include:

- Standard operating procedures consistent with the MS4 general permit;
- General goals and objectives of this Stormwater Management Plan;
- Identification and reporting of illicit discharges and improper disposal; and
- Spill response protocols and responsibilities.

These trainings may also include regional or statewide trainings coordinated by UConn CLEAR or others. Any employee training performed will be listed in the annual report.

6.2 Implement MS4 property and operations maintenance

Town of Orange owned or -operated properties, parks, and other facilities that are owned, operated, or otherwise the legal responsibility of the Town of Orange will be maintained so as to minimize the discharge of pollutants to its MS4. Such maintenance will include, but not be limited to:

(i) Parks and open space

The Town of Orange will optimize the application of fertilizers by municipal employees, institutional staff, or private contractors on lands and easements for which it is responsible for maintenance. Optimization practices considered may include:

- conducting soil testing and analysis to determine soil phosphorus levels,
- the reduction or elimination of fertilizers,
- reduction of fertilizer usage by adhering to the manufacturers' instructions,
- use of alternative fertilizers forms (i.e. products with reduced, slow-releasing, or insoluble phosphorus compositions),
- proper storage and application practices (i.e. avoid impervious surfaces),
- application schedule (i.e. appropriate season or month) and timing (i.e. coordinated with climatic conditions to minimize runoff potential);
- standard operating practices for the handling, storage, application, and disposal of pesticides and herbicides in compliance with applicable state and federal laws;
- evaluating reduced mowing frequencies and use of alternative landscaping materials like drought resistant and native plantings;
- establish procedures for management of trash containers at parks (scheduled cleanings; sufficient number).

The Town of Orange will establish practices for the proper disposal of grass clippings and leaves at Town-owned lands. Clippings shall be composted or otherwise appropriately disposed. Clippings will not enter the MS4 system or waters of the state.

(ii) Pet waste management

The Town of Orange will identify locations where inappropriate pet waste management practices are immediately apparent and pose a threat to receiving water quality due to proximity and potential for direct conveyance of waste to its storm system and waters. In such areas, the Town of Orange will, implement targeted management efforts such as public education and enforcement (e.g. increased patrol for violators).

In Town owned recreational areas where dog walking is allowed, the Town will install educational signage, pet waste baggies, and disposal receptacles (or require carry-out).

The Town will document its efforts in its annual reports, including information regarding the scope and extent of its education, compliance, and enforcement efforts (including the number of violations pursued and fines levied or other enforcement taken).

(iii) Waterfowl management

The Town will identify lands where waterfowl congregate and feeding by the public occurs. To raise awareness regarding the water quality impacts, The Town will install signage or use other targeted techniques to educate the public about the detrimental impacts of feeding waterfowl (including the resulting feces deposition) and discourage such feeding practices. The Town will also implement practices that discourage the undesirable congregation of waterfowl in these areas, or otherwise isolate the direct drainage from these areas away from its storm system and waters.

(iv) Town of Orange Buildings and facilities (schools under the jurisdiction of the Town, Town offices, police and fire stations, pools, parking garages and other Town owned or operated buildings or utilities)

The Town of Orange will:

- evaluate the use, storage, and disposal of both petroleum and non-petroleum products and ensure, through employee training, that those responsible for handling these products know proper procedures;
- ensure that Spill Prevention Plans are in place, if applicable, and coordinate with the fire department as necessary;
- develop management procedures for dumpsters and other waste management equipment;
- sweep parking lots and keep areas surrounding the facilities clean to minimize runoff of pollutants;
- ensure that all interior building floor drains are not connected to the MS4 and are appropriately permitted.

(v) Vehicles and Equipment

The Town of Orange will:

- establish procedures for the storage of Town of Orange owned or -operated vehicles;
- require vehicles with fluid leaks to be stored indoors or in contained areas until repaired;
- evaluate fueling areas owned by the Town of Orange and used by Town owned or -operated vehicles and if possible, place fueling areas under cover in order to minimize exposure;
- establish procedures to ensure that vehicle wash waters are not discharged to the municipal storm sewer system or to surface waters;
- ensure any interior floor drains are appropriately permitted.

(vi) Leaf Management

The Town of Orange will establish and implement procedures to minimize or prevent the deposition of leaves in catch basins, streets, parking lots, driveways, sidewalks or other paved surfaces that discharge to the MS4. Such procedures shall also apply to leaves collected by the Town.

6.3 Implement coordination with interconnected MS4s

The Town of Orange will coordinate with operators of interconnected MS4s (such as neighboring municipalities, institutions and DOT) regarding the contribution of potential pollutants from the storm sewer systems, contributing land use areas and stormwater control measures in the respective MS4s. This same coordination shall be conducted regarding operation and maintenance procedures utilized in the respective systems.

6.4 Develop and implement a program to control other sources of pollutants to the MS4

The Town of Orange will develop and implement a program to control the contribution of pollutants to its MS4 from commercial, industrial, municipal, institutional or other facilities, not otherwise authorized by a CT DEEP stormwater permit.

6.5 Evaluate additional measures for discharges to impaired waters

(i) For waters for which Nitrogen or Phosphorus is a Stormwater Pollutant of Concern:

On Town of Orange owned or -operated lands, The Town will implement a turf management practices and procedures policy which will include, but is not limited to, procedures for proper fertilizer application and the planting of native plant materials to lessen the amount of turf area requiring mowing and the application of chemicals. Each Annual Report will discuss the actions taken to implement this policy with an estimate of fertilizer and turf reduction.

(ii) For waters for which Bacteria is a Stormwater Pollutant of Concern:

On Town of Orange owned or -operated lands with a high potential to contribute bacteria (such as dog parks, parks with open water, sites with failing septic systems), The Town of Orange will develop, fund, implement, and prioritize a retrofit or source management program to correct the problem(s) within a specific timeframe. Each Annual Report will identify problem areas for which a retrofit or source management program were developed, the location of the closest outfall monitored in accordance with Section 6(i), the cost of such retrofit or program, and the anticipated pollutant reduction. On Town of Orange owned or -operated lands, prohibit the feeding of geese or waterfowl and implement a program to manage geese and waterfowl populations. Each Annual Report will discuss the actions taken to implement this program.

6.6 Track progress of the disconnect of DCIA

The Town of Orange will annually track the total acreage of Directly Connected Impervious Area (DCIA) that is disconnected from the MS4 as a result of redevelopment or retrofit projects within the town. For each retrofit/redevelopment project, the Town will document the amount of existing DCIA that is disconnected. The total amount of disconnected DCIA will be reported each year in the Annual Report. Starting on July 1, 2021, The Town of Orange's goal will be to reduce 1% of its total DCIA acreage per year to the maximum extent possible. The Town will provide updates on this goal in its annual report. The Town will also incorporate all DCIA disconnections which occurred in the town since July 1, 2012 towards meeting this goal.

6.7 Develop and implement an infrastructure repair, rehabilitation and retrofit program

The Town of Orange will begin a program to identify MS4 structures to repair, rehabilitate, or upgrade to reduce or eliminate the discharge of pollutants into water bodies. This program will be responsive to new information on outfalls discharging pollutants, impaired waters, inspections, or observations made during outfall mapping under the IDDE section of this plan.

6.8 Develop and implement plan to identify and prioritize retrofit projects

The Town of Orange will develop a Retrofit Project Plan to identify and prioritize potential DCIA disconnection projects. Prioritization will be based on several factors, including whether the project lies within one of the MS4 priority areas (urbanized area, DCIA > 11%, discharge to impaired waters). The Town will include in its annual report for the third year of the permit (2020-2021) its identification and prioritization process, a rationale for the selection of projects to be implemented, and the total acres of DCIA to be disconnected upon implementation. The implementation of projects in this plan will begin by June 30, 2022.

6.9 Develop and implement street sweeping program

The Town will continue its program to provide for regular inspection and maintenance of Town of Orange-owned or -operated streets, parking areas and other MS4 infrastructure.

The Town will establish and implement procedures for sweeping town-owned or operated streets and parking lots. All streets and parking lots within the MS4 Priority Areas will be inspected, swept and/or cleaned (as necessary) at least once per year in the spring following the cessation of winter maintenance activities (i.e. sanding, deicing, etc.). The procedures shall also include more frequent inspections, cleaning and/or sweeping of targeted areas determined by the Town of Orange to have increased pollutant potential based on the presence of active construction activity or other potential pollutant sources. The Town will identify such potential pollutant sources based upon surface inspections, catch basin cleaning or inspection results, land use, winter road deicing and/or sand application, impaired or TMDL waters or other relevant factors as determined by the Town. If wet dust suppression is conducted, the use of water will be minimized such that a discharge of excess water to surface waters and/or the storm sewer system does not occur.

For streets and parking lots outside the MS4 Priority Areas, including any rural uncurbed streets and parking lots with no catch basins, The Town will either meet the minimum frequencies above, or develop and implement an inspection, documentation and targeted sweeping and/or cleaning plan for those areas by June 30, 2018 and submit such plan with its year one Annual Report. For new and redeveloped municipal parking lots, The Town will evaluate options for reducing stormwater runoff to surface waters and/or the storm sewer system by the installing pervious pavements and/or other measures to promote sheet flow of stormwater.

- a. The Town will ensure the proper disposal of street sweepings in accordance with DEEP policies, guidance and regulations. Sweepings shall not be discharged back into the storm drain system and/or surface waters.
- b. The Town will document results of its sweeping program in its annual reports including: a summary of inspection results, curb miles swept, dates of cleaning, volume or mass of material collected, and method(s) of reuse or disposal. The Town will also include documentation of any alternate sweeping plan for rural uncurbed streets and any runoff reduction measures implemented.

6.10 Develop and implement catch basin cleaning program

The Town of Orange will conduct routine cleaning of all catch basins and track catch basin inspection observations. Utilizing information compiled through its inventory of catch basins, operational staff and public complaints, the Town will optimize routine cleaning frequencies for particular structures or catchment areas as follows to maintain acceptable sediment removal efficiencies:

- a. Inspect all Town of Orange-owned catch basins within MS4 Priority Areas at least once by June 30, 2020. Catch basins outside the MS4 Priority Areas shall be inspected by June 30, 2022.
- b. Prioritize inspection and maintenance for Town of Orange-owned catch basins located near impaired waters and construction activities (roadway construction, residential, commercial, or industrial development or redevelopment). The Town will clean catch basins in such areas more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
- c. Establish a schedule such that the frequency of routine cleaning will ensure that no catch basin at any time will be more than fifty (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.
- d. If a catch basin sump is more than fifty (50) percent full during two consecutive routine inspections/cleaning events, The Town will document that finding, investigate the contributing drainage area for sources of excessive sediment loading, and to the maximum extent practicable, abate contributing sources. The Town will describe any actions taken in its Annual Report.
- e. The Town will detail its plan for optimizing catch basin cleaning, inspection plans, and its schedule for gathering information to develop the optimization plan in its first annual report. Documentation shall include metrics and other information used to reach the determination that the established plan for cleaning and maintenance is optimal for the MS4. The Town will keep a log of catch basins cleaned or inspected.
- f. The Town will report in each Annual Report the total number of catch basins, number inspected, number cleaned, the total volume or mass of material removed from all catch basins and, if practicable, the volume or mass of material removed from each catch basin draining to water quality limited waters.

6.11 Develop and implement snow management practices

(i) Deicing Material Management

The Town of Orange will develop and implement standard operating practices for the use, handling, storage, application, and disposal of deicing products such as salt and sand to minimize exposure to stormwater; consider means to minimize the use and optimize the application of chloride-based or other salts or deicing product (while maintaining public safety) and consider opportunities for use of alternative materials; for any exterior containers of liquid deicing materials installed after July 1, 2017, The Town will provide secondary containment of at least 110% of the largest container or 10% of the total volume of all containers, whichever is larger, without overflow from the containment area.

(ii) Snow and Ice Control Practices

The Town of Orange will implement and refine its standard operating practices regarding its snow and ice control to minimize the discharge of sand, anti-icing or de-icing chemicals and other pollutants (while maintaining public safety).

The Town will establish goals for the optimization of sand and/or chemical application rates through the use, where practicable, of automated application equipment (e.g. zero-velocity spreaders), anti-icing and pre-wetting techniques, implementation of pavement management systems, and alternate chemicals.

The Town will maintain records of the application of sand, anti-icing and/or de-icing chemicals to document the reduction of chemicals to meet established goals.

The Town will ensure the proper training for deicing applications for municipal employees, institutional staff, or private contractors on lands and easements for which it is responsible for maintenance.

The Town will manage and dispose of snow accumulations in accordance with DEEP's Best Management Practices for Disposal of Snow Accumulations from Roadways and Parking Lots, revised 2/4/11 and as amended (see link at: www.ct.gov/deep/stormwater).

In its Annual Report, The Town will document results of its snow removal program including, at a minimum: the type of staff training conducted on application methods and equipment, type(s) of deicing materials used; lane-miles treated; total amount of each deicing material used; type(s) of deicing equipment used; any changes in deicing practices (and the reasons for the change); and snow disposal methods.

Pollution prevention/ good housekeeping schedule

Month/Year of Implementation	BMP	Lead Department/Individual
July 1, 2017	Develop/implement formal employee training program	Town Engineer/ Director of Public Works
July 1, 2017	Implement MS4 property and operations maintenance	Town Engineer/ Director of Public Works
July 1, 2017	Implement coordination with interconnected MS4s	Town Engineer/ Director of Public Works
July 1, 2017	Develop/Implement program to control other sources of pollutants to MS4	Town Engineer/ Director of Public Works
July 1, 2017	Evaluate additional measures for discharges to impaired waters	Town Engineer/ Director of Public Works
July 1, 2017	Track projects the disconnect DCIA	Town Engineer/ Director of Public Works
July 1, 2017	Develop/Implement infrastructure repair/rehab program	Town Engineer/ Director of Public Works
July 1, 2020	Develop/Implement plan to identify/prioritize retrofit projects	Town Engineer/ Director of Public Works
July 1, 2017	Continue street sweeping program	Town Engineer/ Director of Public Works
July 1, 2017	Develop/implement catch basin cleaning program	Town Engineer/ Director of Public Works
July 1, 2017	Develop/implement snow management practices	Town Engineer/ Director of Public Works

SECTION 7 ADDITIONAL REQUIREMENTS

7.1 Monitoring Requirements

The Town of Orange will monitor and investigate all MS4 outfalls that discharge to impaired waterbodies by the end of the permit term. Using the outfall inventory developed under the IDDE minimum control measure, the Town will identify which outfalls discharge to impaired waters and screen them for the specified impairments.

Once half of all outfalls discharging to impaired waterbodies have been screened, the 6 outfalls contributing the highest level of pollutants will be identified and screened on an annual basis.

Based on the screening results, The Town will investigate the drainage areas of outfalls that are contributing to the impairment. The investigations may consider land use or development patterns, business or commercial activities, industrial activities, DCIA, natural contributors, MS4 maintenance issues, residential activities, or anything else potentially contributing to the source of the impairment.

Based on results of the drainage area investigations, the Town will implement measures to address sources of the impairments including the specific impaired waters provisions described within the permit control measures.

7.2 Additional Information

Amendments to Plan

The Stormwater Management Plan will be amended whenever:

- There is a change which has the potential to cause pollution of the waters of the State; or
- The actions required by this SWMP fail to ensure or adequately protect against pollution of waters of the State or fail to otherwise comply with any other provision of this general permit; or
- The Commissioner requests modification of the plan

Retention of Records

All records and information required by this permit must be retained on-site for a minimum of five years following the expiration of the Permit, or longer if required by the DEEP. The Stormwater Management Plan and associated records must be available to the public at reasonable times during regular business hours.

Reporting Requirements

By April 1st of the second year of the effective date of the *General Permit*, and annually thereafter by April 1st the Town of Orange will submit an Annual Report electronically to the DEEP.

The Annual Report must include the following:

- 1) A plan review fee of \$187.50
- 2) The status of compliance with this general permit, an assessment of the appropriateness of the identified best management practices and progress towards achieving the implementation dates and measurable goals for each of the Minimum Control Measures, including any portion of the BMP implementation scheduled for the year that was not completed as scheduled
- 3) All stormwater monitoring data
- 4) An illicit discharge detection information obtained in the previous year
- 5) A summary of the activities the Town of Orange plans to undertake during the next year, and
- 6) A change in any identified BMPs, measurable goals or implementation dates that apply to the program elements



SECTION 8 CERTIFICATION AND SIGNATURE

8.1 Certification Requirements

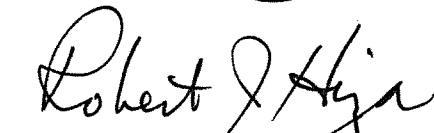
This plan and any document, including but not limited to any notice, information or report, which is submitted to the commissioner of the CTDEP under the general permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems shall be signed by the chief elected official or principal executive officer, and by the individual or individuals responsible for preparing such document as defined in Section 22a-430-3(b) (2) of the Regulations of Connecticut State Agencies.

Stormwater Management Plan Signature



James M. Zeoli
First Selectman

3-10-2017
Date



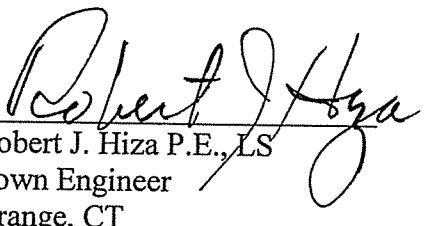
Robert J. Hiza
P.E., L.S.
Principal Plan Preparer

3-9-17
Date

8.2 Plan Certification and Signature

Stormwater Management Plan Engineering Certification

I hereby certify that I am making this certification in connection with a registration under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems, submitted to the Commissioner by The Town of Orange for an activity located at or within The Town of Orange and that all terms and conditions of the general permit are being met for all discharges which have been created, initiated or maintained and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(b)(8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 3(b)(8)(B) of this general permit. I understand that the registration filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Connecticut General Statutes, as amended by Public Act 12-172. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law.



Robert J. Hiza P.E., LS
Town Engineer
Orange, CT

3-9-17

Date

APPENDIX A

Acronyms and Definitions

BMB "Best Management Practices" means those practices which reduce pollution and which have been determined by the Commissioner to be acceptable based on, but not limited to, technical, economic, and institutional feasibility.

DCIA Directly Connected Impervious Area

DEEP Department of Energy and Environmental Protection

EPA Environmental Protection Agency

IDDE Illicit Discharge Detection and Elimination

MCM Minimum Control Measure

LID Low Impact Development

MEP Maximum Extent Practicable

MS4 "Small Municipal Separate Storm Sewer Systems" means conveyances for stormwater, including but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains owned or operated by any municipality, State Agency or Federal Agency and discharging directly to surface waters of the state.

NPDES National Pollutant Discharge Elimination System

SSO Sanitary Sewer Overflow

SW "Stormwater" means waters consisting of precipitation runoff

SWMP Stormwater Management Plan

TMDL "Total Maximum Daily Load" means the maximum capacity of a surface water to assimilate a pollutant as established by the Commissioner including pollutants contributed by point and non-point sources and a margin of safety.

TOWN Shall mean The Town of Orange

UA "Urbanized area" means the areas of the State of Connecticut so defined by the U.S. Census Bureau for the 2000 census.