



TOWN OF RIVERHEAD
STORM WATER MANAGEMENT PROGRAM
Municipal Separate Storm Sewer Systems (MS4s)
Permit No. GP-0-08-002

March 2009
Town of Riverhead
Engineering Department
Storm Water Management Office

TOWN OF RIVERHEAD
PHASE II STORM WATER MANAGEMENT PROGRAM
NEW YORK STATE'S SPDES GENERAL PERMIT
FOR STORM WATER DISCHARGES
PERMIT NO. GP-0-08-002
FOR
MUNICIPAL SEPARATE STORM WATER SEWER SYSTEMS (MS4s)

MARCH 2009
Updated 2010

Prepared for

TOWN OF RIVERHEAD
OWNED AND OPERATED SEPARATE STORM WATER SEWER SYSTEM

Prepared by

TOWN OF RIVERHEAD
ENGINEERING DEPARTMENT AND STORM WATER MANAGEMENT OFFICE

TOWN OF RIVERHEAD STORM WATER MANAGEMENT PROGRAM

1. INTRODUCTION
 - 1.1. PROGRAM DEVELOPMENT
 - 1.2. BEST MANAGEMENT PRACTICE SELECTION
 - 1.3. TOWN OF RIVERHEAD MUNICIPALITY BACKGROUND
 - 1.3.1. COMMUNITY RESOURCES
 - 1.3.1.1.PARKS
 - 1.3.1.2.LIBRARIES
 - 1.3.1.3.SCHOOLS
 - 1.4. NATURAL RESOURCES
 - 1.4.1. TOPOGRAPHY AND SOILS
 - 1.4.2. WATER BODIES
 - 1.4.3. LAND USE

2. EXISTING MUNICIPAL STORM SEWER
 - 2.1. HIGHWAY DEPARTMENT
 - 2.2. BEST MANAGEMENT PLAN COMMITTEE
 - 2.3. POLLUTANTS OF CONCERN
 - 2.3.1. BACTERIA IN STORM WATER
 - 2.3.2. NUTRIENTS (NITROGEN)
 - 2.3.3. SEDIMENTS AND OTHER DEBRIS
 - 2.4. TYPICAL FLOWS TO STORM SEWERS
 - 2.4.1. WET WEATHER SOURCES
 - 2.4.2. DRY WEATHER SOURCES
 - 2.5. CHARACTERISTICS OF STORM SEWER DISCHARGES
 - 2.6. DIMINISHING GROUNDWATER RECHARGE AND QUALITY
 - 2.7. REDUCING IMPACTS OF STORMWATER

3. MINIMUM CONTROL MEASURE 1 – PUBLIC EDUCATION AND OUTREACH
 - 3.1. DISTRIBUTED INFORMATION
 - 3.2. TOWN FACILITY INFORMATION
 - 3.3. TOWN OF RIVERHEAD WEBSITE
 - 3.4. RAIN GARDEN PLANTING
 - 3.5. ATLANTIS AQUARIUM
 - 3.6. ANNUAL REPORTING

4. MINIMUM CONTROL MEASURE 2 – PUBLIC INVOLVEMENT/PARTICIPATION
 - 4.1. LOCAL STORMWATER PUBLIC CONTACT
 - 4.2. COMMUNITY PRESERVATION
 - 4.3. LITTER PICK UP EVENTS
 - 4.4. STOP DAY
 - 4.5. RAIN GARDENS
 - 4.6. RIVERHEAD SCHOOL DISTRICT
 - 4.7. WATER CONSERVATION
 - 4.8. MEASURABLE GOALS
 - 4.9. ANNUAL REPORTING
 - 4.9.1. COMMENTS

4.9.2. EFFECTIVENESS

5. MINIMUM CONTROL MEASURE 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)
 - 5.1. INTRODUCTION
 - 5.2. PROGRAM
 - 5.3. OUTFALL MAPPING
 - 5.4. WATERSHED MAPPING
 - 5.5. TOWN CODE AMENDMENTS
 - 5.6. ILLICIT DISCHARGE EDUCATION
 - 5.7. POTENTIAL DETECTORS OF ILLICIT DISCHARGE
 - 5.7.1. HIGHWAY DEPARTMENT
 - 5.7.1.1. STREET SWEEPING
 - 5.7.1.2. DRAINAGE STRUCTURE CLEANING
 - 5.7.2. BUILDINGS AND GROUNDS DIVISION
 - 5.7.3. EMERGENCY SERVICES
 - 5.8. ANNUAL REPORTING

6. MINIMUM CONTROL MEASURE 4 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL
 - 6.1. INTRODUCTION
 - 6.2. TOWN CODE AMENDMENTS
 - 6.3. EDUCATION
 - 6.4. PROGRAM
 - 6.4.1. BEST MANAGEMENT PRACTICES – DURING SITE DESIGN
 - 6.4.2. BEST MANAGEMENT PRACTICES – DURING CONSTRUCTION
 - 6.4.3. BEST MANAGEMENT PRACTICES – POST CONSTRUCTION
 - 6.5. ANNUAL REPORTING

7. MINIMUM CONTROL MEASURE 5 – POST-CONSTRUCTION STORMWATER MANAGEMENT
 - 7.1. INTRODUCTION
 - 7.2. NON STRUCTURAL BEST MANAGEMENT PRACTICES
 - 7.2.1. LAND PRESERVATION IN IMPAIRED WATERSHEDS
 - 7.2.2. TOWN CODE AMENDMENTS
 - 7.2.3. ZONING
 - 7.2.4. PUBLIC EDUCATION
 - 7.3. STRUCTURAL BEST MANAGEMENT PRACTICES
 - 7.3.1. WET PONDS AND EXTENDED WET DETENTION PONDS
 - 7.3.1.1. OPERATION AND MAINTENANCE
 - 7.3.2. FILTRATION PRACTICES
 - 7.3.2.1. GRASSED SWALES
 - 7.3.2.2. SAND FILTERS
 - 7.3.2.3. INFILTRATION PLANTER
 - 7.3.3. DRY DETENTION POND DESCRIPTION
 - 7.3.3.1. OPERATION AND MAINTENANCE
 - 7.4. STORMWATER RETROFITTING
 - 7.4.1. RETROFITTING PROTOCOLS
 - 7.4.2. MUNICIPAL RETROFIT PROGRAM

- 7.5. ANNUAL REPORTING
- 8. MINIMUM CONTROL MEASURE 6 – POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS
 - 8.1. INTRODUCTION
 - 8.2. OBJECTIVES
 - 8.3. TOWN FACILITIES AND OPERATIONS
 - 8.4. BUILDING MAINTENANCE
 - 8.5. TOWN PARKS
 - 8.5.1. GRASS MOWING
 - 8.5.2. TURF MANAGEMENT
 - 8.5.3. OPEN SPACE OPERATIONS
 - 8.6. ROADWAY MAINTENANCE
 - 8.6.1. GRASS MOWING
 - 8.6.2. WINTER ROAD MAINTENANCE
 - 8.6.2.1. DE-ICING ACTIVITIES
 - 8.6.3. STREET SWEEPING
 - 8.6.4. STORMWATER SYSTEM MAINTENANCE

1. INTRODUCTION

The Town of Riverhead has developed a storm water management program (TORSWMP) as required for coverage under the New York State Pollution Discharge Elimination System (SPDES) general permit No. GP-0-08-002, specific permit NYR-20A020.

The aim of this program is to control storm water runoff discharges from the Town facilities, and developed land within the Town to the waters of the United States in accordance with the requirements of federal Phase II storm water regulations under the Clean Water Act. The aim of the Clean Water Act, the federal Phase II storm water regulations and the program proposed in this document is to reduce to the “maximum extent practicable” pollutants in storm water discharges. The concern for controlling storm water discharges can be traced to the 1972 Clean Water Act’s Section 208 provisions for evaluating the impacts of and recommending controls for point and nonpoint source discharges in conjunction with the development of hundreds of area-wide water quality management plans known as “208 plans”. Some of the stormwater pollutants identified in these studies include suspended solids, sediments, bacteria, nutrients, pesticides, herbicides, toxics, floatables, oil, grease, heavy metals, synthetic organics, petroleum hydrocarbons and oxygen demanding substances. The adverse impact of these pollutants in storm water discharges include closed beaches, closed shellfish areas and toxic contamination causing fish consumption bans, beach and shoreline litter, and floatables, siltation of marina and shipping channels, habitat/wetland degradation, and stream bank erosion.

The TORSWMP includes a listing of Best Management Practices (BMP’s) that will be implemented by the Town in order to achieve the regulatory standard of reducing pollutants in the Town’s storm water to maximum extent practicable. Existing Town storm water programs and activities designed to protect the Town’s water quality will be supplemented with new BMP activities. Initial measurable goals and an implementation schedule were developed for each of the BMP’s in the TOR SWMP. The BMP’s, measurable goals, implementation schedule and initial TORSWMP were developed by Dvirka and Bartilucci Consulting Engineers in March 2003, and recently updated to comply with the GP—0-08-002 by the Town’s Engineering and Storm Water Management Office. The revisions were documented with input from Department Heads, and Town Council, during a series of meetings held in Months of 2008. The Task Groups consisted of a combination of municipal officials, watershed protection committee members, Peconic Estuary Program members, and **consulting engineers**. The BMP’s, measurable goals and implementation schedule were selected based on their ability to meet specific permit requirements and to reduce pollutants in the County’s storm water runoff to the maximum extent practicable. They were also selected based upon a general assessment of BMP effectiveness; applicability to Town of Riverhead, and cost associated with the implementation of the BMP’s. Effectiveness of the selected BMP’s, and success in achieving the selected measurable goals will be reviewed annually and modified, if necessary.

1.1. PROGRAM DEVELOPMENT

The Town of Riverhead has developed a storm water management program (TORSWMP) in accordance with the New York State Discharge Elimination System (SPDES) requirements for obtaining authorization for storm water discharges and certain non-storm water discharges. This TORSWMP has been developed in accordance with guidelines published by the New York State Department of Environmental Conservation (NYSDEC) for coverage under SPDES General Permit No. GP-0-08-002. The TORSWMP has been developed to facilitate the Town's efforts in reducing storm water pollutants from the Town's municipal separate storm sewer system (MS4) to the maximum extent practicable as required by the SPDES General Permit.

The TORSWMP describes specific actions that will be taken over a five-year period to reduce pollutants and protect the Town's surface waters. The specific activities to be implemented are referred to as "Best Management Practices" (BMP's). Various BMP's have been developed for each of the six "Minimum Control Measures" (MCM's) required by the General Permit. The TORSWMP also sets measurable goals and provides a schedule for the implementation of the BMP's. Implementation of the selected BMP's is expected to result in reductions of pollutants discharged into the Town's streams, ponds, tidal estuaries, embayments and the Long Island Sound.

1.2. BEST MANAGEMENT PRACTICE SELECTION

The Town of Riverhead has historically implemented various storm water related BMP's intended to specifically protect the Town's storm water quality. An important aspect of developing an effective, compliant and cost effective SPDES Phase II SWMP is to take credit for these on-going programs. Details of the Town's storm water related programs have been collected, summarized and categorized into each of the six MCM's required by the General Permit. Some of these existing programs meet specific General Permit requirements, while others contribute toward fulfilling the General Permit mandate of reducing pollution to the Maximum Extent Practicable (MEP). Alternative BMP's will be evaluated on a yearly basis as the TORSWMP is reviewed and modified.

MINIMUM CONTROL MEASURES

In accordance with SPDES General Permit requirements, the TORSWMP includes an implementation plan for BMP's in each of six Minimum Control Measures. The six minimum control measures are:

1. Public Participation and Outreach on Stormwater Impacts
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post Construction Runoff Control and,
6. Pollution Prevention and Good Housekeeping.

Specific requirements of each MCM are provided in the following sections.

1.3. TOWN OF RIVERHEAD MUNICIPALITY BACKGROUND

The Town of Riverhead, located in the eastern end of Long Island in Suffolk County, encompasses an area 4.75 miles wide and extends approximately 15

miles from west to east, and covers approximately 78 square miles (49,920 acres). Located 70 miles from NYC, Riverhead lies between the Peconic River and the Great Peconic Bay on the south, and the Long Island Sound on the north **(Figures 1-1 and 1-2).**

According to the 2000 U.S. Census Bureau, the population of the Town is 39,183. A breakdown of the area (square Miles) and population of the communities in the Town is provided in Table 1-1

**Table 1-1
Town of Riverhead Area and Population**

Designated Places (Hamlets)	Area (sq.mi.)	Population	% of Total Pop.
Aquebogue	3.8	2,254	5.7
Baiting Hollow	3.2	1,493	3.8
Calverton, part	23.6	4,364	11.1
Jamesport	218	218	0.6
Riverhead	15.1	22,897	58.4
Wading River	9.8	7,156	18.3
Northville	7.4	801	2.0
	67.4	39,183	100.0%

The Town of Riverhead is governed by the Town Supervisor and four Town Council People. There are several different departments tasked with running the different public service offices of the Town included but not limited to:

- | | |
|-----------------------|----------------------------|
| Accounting Department | Recreation Department |
| Assessor’s Office | Senior Services Department |
| Building Department | Fire Marshal |
| Sanitation Department | Community Development |
| Sewer District | Tax Receiver’s Office |
| Highway Department | Town Attorney’s Office |
| Justice Court | Town Clerk’s Office |
| Municipal Garage | Town Engineering (SMO) |
| Planning Department | Water District |
| Police Department | |

1.3.1. COMMUNITY RESOURCES

For purpose of stormwater management and planning, key community resources within the planning area are schools and libraries. These facilities are important elements in the public education, outreach and participation aspects of the storm water management plan.

1.3.1.1.PARKS

Parks and recreation resources in the Town include State, County and Town parks; State conservation areas; private camps and clubs; public golf courses; public school sites; and the Pine Barrens Core Preservation Area (see Fig. XX). The major Town parks include the following

NAME	LOCATION	FEATURES
Stotzky Memorial Park	Pulaski St., Riverhead	12 acres, softball field, little league fields, tennis courts, playgrounds, fencing, bleachers, picnic areas and day care center
Grangebel Park	Peconic Ave., Riverhead	3 acres, picnic area- situated on the

		Peconic Riverfront
Nadel Park	Nadel Drive, Riverhead	Neighborhood park with swings, backstop, to be revitalized with new play equipment
John Lombardi Memorial Park	Roanoke Ave., Riverhead	Gazebo and garden area –adjacent to the Suffolk County Community College Culinary Arts
South Jamesport Park	Town Beach Rd. & Peconic Bay Blvd., Jamesport	Two tennis courts, basketball court, picnic area, public beach with restrooms
Bayberry Park	Bayberry Rd., Wading River	7 acres, softball field, tennis and handball courts, basket ball court, bocci and shuffleboard courts, nature trails
EPCAL Park	Rt. 25, Calverton	67 acres in development with three softball fields, one baseball fields, 4 multipurpose fields, tennis courts, handball courts, picnic areas.
Jamesport Community Center and Park	S. Jamesport Ave., Jamesport	Play equipment, baseball field, picnic area
Henry PfeifferCommunity Center and Park	River Road, Calverton	Play equipment, community center, picnic area
Meeting House Pocket Park	Meeting House Creek Rd., Aquebogue	Picnic area, garden
George Schmelzer Pocket Park	Rt. 25., Riverhead	Picnic area, garden
Grumman Airplane Memorial	Rt. 25, Calverton	Memorial park with two retired planes, a F-14A and a A-6E
Iron Pier Beach	Pier Ave., Jamesport	Play equipment, picnic area, public beach with restrooms
Miamogue Point Park	South Jamesport Av. And Front St., Jamesport	Park in progress to include boardwalk, picnic area, and future play area
Wading River Beach	Creek Road, Wading River	Play equipment, gazebo, picnic area, public beach and restrooms
Reeve’s Beach	South end of Park Ave., Riverhead	Gazebo, timber boardwalks, beach access, public beach and restrooms
Horton Avenue Park	Horton Ave. & Middle Road., Riverhead	Play equipment, basket ball court, picnic area
Two Bears Park	Old Farm Road, Riverhead	Play equipment, tennis courts
Indian Island – Suffolk County Park	Rt. 105 between Rt. 24 & Rt. 25	Camp grounds and recreation area and nearby 18 hole golf course
Wildwood State Park	Wading River	2 miles of beach, camping, trailer hookups and 2 miles of biking trails.
Jamesport State Park	Sound Avenue, Jamesport	Park in progress
Carter Parcel	Sound Avenue	To be renovated as a bird watching center and a bicycle stop area

1.3.1.2.LIBRARIES

- Riverhead Free Library
- Suffolk County Law Library

1.3.1.3.SCHOOLS

- Riverhead Central School District
- Riverhead Charter School
- Dowling College-Riverhead Center
- Suffolk County Community College Culinary Arts
- Living Waters
- Mercy High School
- St. David's School
- St. Isidores School
- B.O.C.E.S.

1.4. NATURAL RESOURCES

The east end of Long Island has many natural resources which make it optimum for farming, living, and recreating. These natural resources are a precious commodity and must be protected through preservation, conservation and smart land development planning.

1.4.1. TOPOGRAPHY AND SOILS

The topography of the Town ranges from flat along the coasts to rolling hills in the interior portions. Elevations range from sea level along the shores of the Long Island Sound, Peconic Bay and Flanders Bay, to over 200 feet on the hills near Roanoke Point off the north central coast of Town.

Based on the General Soils Map in the U.S. Department of Agriculture Soil Conservation Service Soil Survey of Suffolk County, NY, the predominant soil associations in the Town are as follows:

- Carver-Plymouth-Riverhead: Deep, rolling, excessively drained and well drained, coarse textured and moderately coarse textured soils on moraines. This association exists mostly along the shore of the Long Island Sound
- Haven-Riverhead: Deep, nearly level to gently sloping, well drained, medium textured and moderately coarse textured soils on outwash plains. This association exists mostly in the interior areas of the Town between the Long Island Sound and the Peconic River.
- Plymouth-Carver, rolling and hilly: Deep, excessively drained, coarse-textured soils on moraines. This association exists mostly along the Peconic River corridor.

1.4.2. WATER BODIES

Key surface water resources in the Town include the Long Island Sound and the Peconic Estuary. Other important water bodies include named and unnamed streams, creeks and small lakes/ponds. Surface water bodies in the Town are listed below and shown on Figure 1-2.

- | | |
|-----------------------------|--------------------|
| • Deep Pond | Meetinghouse Creek |
| • Duck Pond | Merritts Pond |
| • Eastern Long Island Sound | Peconic Bay |
| • Flanders Bay | Peconic Lake |
| • Grassy Pond | Peconic River |
| • Hallocks Pond | Terry's Creek |

In 1978, the Long Island Regional Planning Board (LIRPB) published the Long Island Comprehensive Waste Treatment Management Plan (commonly known as the 208 Plan). The plan introduced the concept of hydrogeologic zones based on differences in underlying groundwater flow patterns and water quality. There are two types of zones. The first are land areas that contribute recharge to the deep aquifers; the second are land areas that contribute recharge to the shallow aquifers and are considered discharge zones. The plan identified eight hydrogeologic zones. Zones I, II and III are the major deep recharge zones. Zones IV through VIII are the shallow discharge zones.

Most of the area in the Town is in Zone III or IV. Some of the coastal area in the northwestern part of the Town (Wading River) is in Zone VIII. Zone III contains groundwater of excellent quality in the upper glacial, Magothy and Lloyd aquifers. Zone IV is characterized by shallow flow systems that discharge to streams and marine waters. There has been some contamination from agricultural activities in parts of Zone IV.

Special Groundwater Protection Areas (SGPAs) were identified in the Groundwater Management Program for Long Island, NYSDEC, 1983, and in the 208 Nonpoint Source Management Handbook, LIRPB, 1984. These areas are defined as significant, largely undeveloped or sparsely developed geographic areas of Long Island that provide recharge to portions of the deep flow aquifer system. The southwestern portion of the Town is partially within the Central Suffolk Pine Barrens SGPA. This area, like all other SGPAs, requires sound management in order to be maintained as a source of good quality recharge to the aquifer system. Figure 1-3 shows the hydrogeologic zones and the SGPA in the Town.

1.4.3. LAND USE

The Town of Riverhead has been developed with three main roadways, NYS 25, CR 58, and Sound Avenue. There is a distinguished urbanized downtown area along NYS 25. Between Sound Avenue and NYS 25 and CR 58, there are many rural areas developed with agricultural lands. There is a large quantity of residential subdivisions north of Sound Avenue, south of NYS 25 and CR 58.

2. EXISTING MUNICIPAL STORM SEWER

During the developing years of Riverhead in the late 1800s through to the 1970s, Engineers believed one of the best resources that we had were water bodies to discharge stormwater, sanitary wastes, and other pollutants into. “The solution to pollution is dilution”. Although there are no known sewage outfalls remaining, there are still many storm water outfalls that discharge to water bodies, such as streams, ponds, rivers and the Long Island Sound. The Town’s highway infrastructure currently contains isolated drainage systems that discharge stormwater to recharge basins or infiltration basins (leaching pools), direct discharges to surface water bodies, and infiltration into adjacent areas. The onsite storage of stormwater was typically achieved by the installation of drywells, recharge basins, or drainage reserve areas. In many cases, these facilities also included overflow structures that directed storm water resulting from extreme rainfall events to either other recharge

basins or to drainage facilities that ultimately discharged to the surface waters of the United States.

The current inventory of storm water facilities within the Town include:

- 9 stormwater outfalls along the North Shore
- 13 stormwater outfalls along the Peconic River
- 11 Suffolk County Recharge Basins
- 5 New York State Recharge Basins
- 91 Town Recharge Basins
- 11 Recharge – Ownership not yet determined
- 8 Recharge Basins in residential subdivisions that have not yet been transferred to the Town.

2.1. HIGHWAY DEPARTMENT

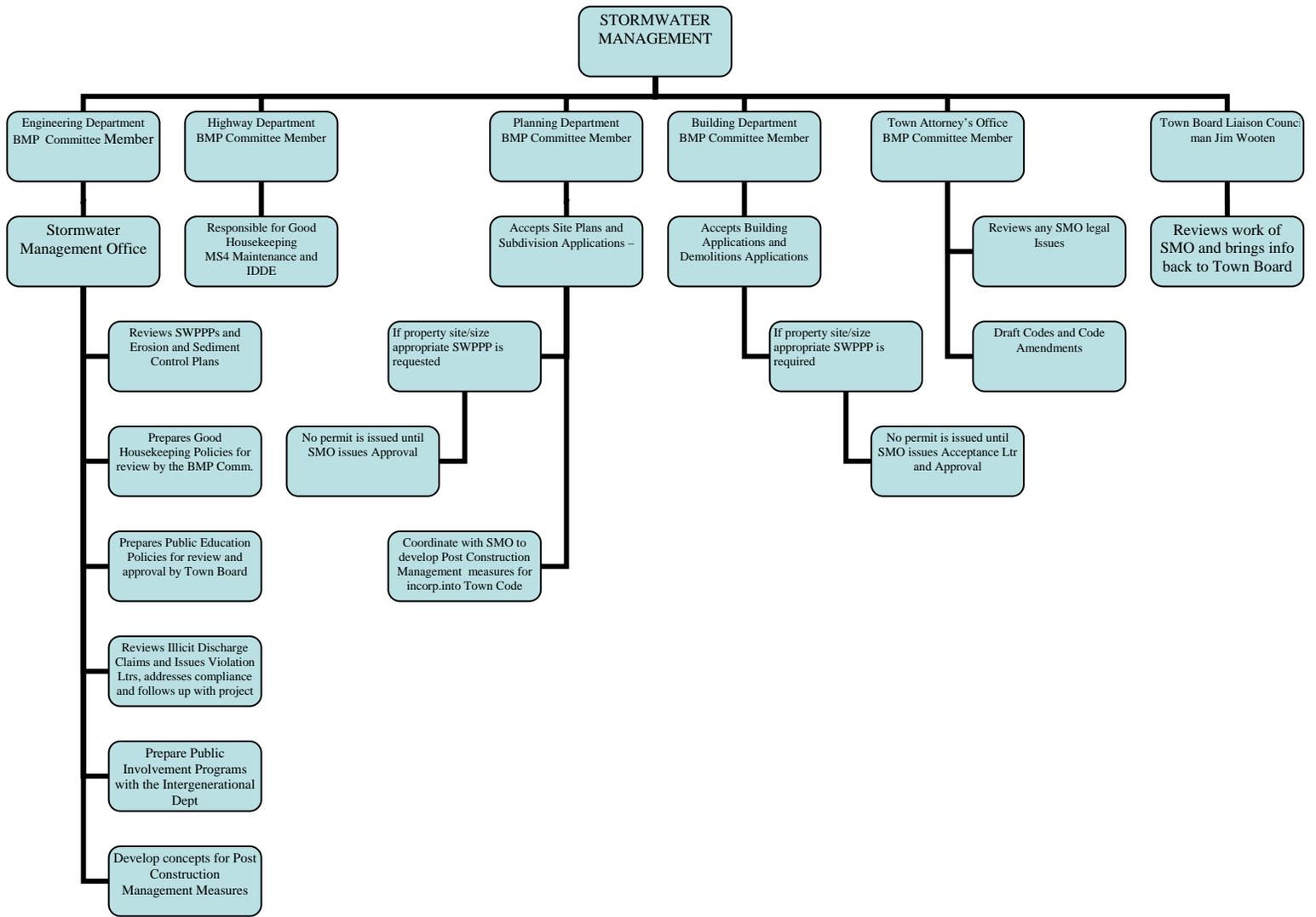
The Riverhead Highway Department is charged with maintaining municipal roads which include the un-improved Right-of Ways, the paved way, pedestrian amenities, and stormwater systems which include the MS4 system of swales, catch basins, leaching pools, recharge basins, and all interconnecting pipes.

2.2. BEST MANAGEMENT PLAN COMMITTEE

The Town has established the Stormwater Management Office (SMO) which is incorporated into the Engineering Department. The SMO works directly with the Highway Superintendent, Planning Department, Building Department and the Town Attorney's Office. The purpose of the SMO is to oversee the implementation of the Stormwater Management Program in reviewing SWPPP's for new developments, developing programs and policies regarding IDDE, Good Housekeeping, Public Education and Participation and Capital Improvement Projects to improve stormwater quality discharging to impaired water bodies, and all other surface water bodies.

The Best Management Practices (BMP) Plan Development for the Town of Riverhead specific to Stormwater is handled by a BMP Committee. A BMP committee is comprised of interested staff within the Town's organization. The committee represents the Town's interests in all phases of the Stormwater BMP plan development, implementation, oversight, and plan evaluation.

The BMP Committee has been developed to assist the Town in managing all aspects of the SWMP plan. The committee functions to conduct activities and shoulder the responsibilities of all elements discussed in the SWMP. The Town's BMP Committee's organization chart is shown in Exhibit 3.1-1



To be most effective, the committee must perform tasks efficiently and smoothly. In large part, the personnel selected to act as committee members will determine the committee's success. Some of the considerations for personnel selection include the following:

- A lead committee member must be determined –
 - SMO charged with drafting policies based on documented BMPs for review by the BMP committee.
- Committee members must include persons knowledgeable of the areas involved with the Stormwater Processes.
 - Engineering Department / SMO office – Receives and reviews new SWPPP applications. Works with Capital Improvement Projects, oversees the Town's Buildings and Ground's Division. Works to implement Town's Good Housekeeping Training, Public Awareness Programs.
 - Hwy Dept.- develops new recharge basins, drainage installations, cleans and rehabilitates Town's MS4 system. First line of detection of Illicit Discharges.
 - Planning Dept.- receives new Site Plan applications for commercial developments, and subdivision applications.- Land disturbing activities.
 - Building Dept. – receives applications for building permits, demolition and excavation permits – land disturbing activities.
 - Town Attorney's Office-Drafts code amendments to enhance the Town's enforcement of the Federal Clean Water Act and the SPDES General Permit for Stormwater Discharges. Interprets legal issues with the SMO.
 - Town Board Representative- Provides constituent concerns to the committee members, acts as a liaison to the remaining board members and the Town Supervisor on Stormwater Issues.
- Committee members should have the authority to make decisions effecting BMP plan development and implementation
- The size of the committee must be appropriate to the function
- The committee must represent affected areas Town infrastructure.

2.3. POLLUTANTS OF CONCERN

In stormwater management, it is important to identify any waters in the planning area that are on the New York State Section 303(d) list of impaired waters. The Federal Clean Water Act requires states to periodically assess and report on the quality of water in their state. Section 303(d) of the Act also requires states to identify Impaired Waters, where specific designated uses are not fully supported. For these Impaired Waters, states must consider the development of a Total Maximum Daily Load (TMDL) or other strategies to reduce the input of the specific pollutant(s) that restrict the water body, in order restore and protect such uses. Additionally, states are required to provide an assessment and listing methodology that explains their approach to water quality monitoring, data evaluation and listing. Impaired stream segments and primary pollutants of concern listed in Appendix 2 of the Permit within the Town of Riverhead include the following:

- | | |
|--|-----------|
| 1. Flanders Bay, East/Center , and tribs | pathogens |
| 2. Flanders Bay, West/Lower Sawmill Crk | nitrogen |
| 3. Flanders Bay, West/Lower Sawmill Crk | pathogens |
| 4. Meethinghouse/Terry's Crks and tribs | nitrogen |
| 5. Meethinghouse/Terry's Crks and tribs | pathogens |
| 6. Peconic River, Lower, and tidal tribs | nitrogens |
| 7. Peconic River, Lower, and tidal tribs | pathogens |
| 8. Reeves Bay and tidal tribs | pathogens |

2.3.1. BACTERIA IN STORM WATER

Pathogens – Pathogens are viruses, bacteria, algae and protozoans that cause diseases in humans, animals and/or plants. Pathogenic or disease-causing bacteria are ubiquitous in nature and are normally associated with human and animal wastes. In many cases where human pollution is suspected on the basis of coliform test results, the actual pollution source may, in fact, be caused by animal wastes generated in the watershed's ponds, streams, streets, and yards. Storm water discharges throughout the watershed typically contain these bacteria. Based on numerous studies throughout the country over the last 15 to 20 years, it is not uncommon to find total coliform, fecal coliform and fecal streptococci in storm water runoff at very high concentrations, from hundreds of thousands to over a 100 million colonies per 100 ml (USEPA, 1992).

Bacteria levels in stormwater runoff routinely exceed public health standards for water contact recreation. Bacteria is a leading contaminant in many of New York's waters, and has led to shellfish bed closures in many areas of Long Island.

Pathogens may cause gastroenteritis, salmonellosis, and hepatitis A. Pathogens can enter the waterways through untreated or partially treated human sewage and wild/domestic animal waste. Two protozoa of major concern as waterborne pathogens are *Giardia lamblia* and *Cryptosporidium parvum*. Sources of pathogens in surface waters can be attributed to failing Sanitary Septic Systems, animal waste that is conveyed through the stormwater sewer systems. Livestock wastes, recreational boaters that dump untreated sewage is also a likely contributor of pathogens to Riverhead's waterbodies. High concentrations of pathogens can cause bathing beach closures, and shellfish closures.

The Town of Riverhead has two point source discharges that potentially convey concentrations of pathogens to the Peconic Estuary: Riverhead Sewer District outfall, and the Corwin Duck Farm on Meetinghouse Creek.

2.3.2. NUTRIENTS (NITROGEN)

Nitrogen (Nutrients) – Although essential for sustaining marine ecosystems, excessive nutrient levels will result in eutrophication, an increase in plant growth and decay, that can be harmful to an estuary. Nitrogen, is considered a nutrient, and when the balance concentration is exceeded, it stimulates aquatic plant growth including algae and "seaweed". Under certain conditions, these algal blooms are damaging to fish and other aquatic animals by consuming the dissolved oxygen (DO) in the water they need to breath. This condition, referred to as hypoxia can cause fish death. Excessive algae growth can cloud water, blocking sunlight from eelgrass which provides a nursery and spawning habitat for juvenile finfish and shellfish.

Nitrogen sources include agricultural and residential fertilizers, on-site disposal systems (sanitary systems). The Town of Riverhead has a large quantity of farm land, it also has a sewage treatment outfall, as well as an active duck farm. In October 2007, New York State Department of Environmental Conservation implemented a Total Maximum Daily Load restriction for Nitrogen in the impaired waterbodies of the Peconic Estuary that include for the Town of Riverhead: Terry's Creek, Meetinghouse Creek, Sawmill Creek and Peconic River.

Runoff from both developed land, and farmed land has elevated concentrations of both phosphorus and nitrogen, which can enrich streams, lakes, reservoirs and estuaries. Enrichment of waterbodies by nitrogen and phosphorus is known as eutrophication. Sources of these pollutants include fertilizer, atmospheric deposition, animal waste, organic matter, and stream bank erosion. Another source of nitrogen is fossil fuel combustion from automobiles, power plants and industry.

Nutrients are particular concern in estuaries and are a source of degradation in many of New York's Water. Nitrogen has contributed to hypoxia in the Long Island Sound, and is a key pollutant of concern in the Peconic Estuary.

2.3.3. SEDIMENTS AND OTHER DEBRIS

Sediments and other debris such as litter and floatables carried by stormwater typically originate from construction sites, eroding road banks where there are no curbs, farm fields, lawns and yards that are sloped, eroded stream banks, damaged or eroded driveways, parking lots, walks and sidewalks, and roadway sanding for ice and snow.

Because urban/rural runoff is really rainfall washing an urban/rural area, whatever materials or substances are on the impervious and pervious land, roof or parking surfaces, or which have been deposited into a street gutter or directly into a catch basin or drop inlet, will be carried to the storm sewer discharge. Examples of these items could include organic materials such as discarded food; crop cuttings, animal droppings; garbage from overfilled or toppled trash cans; the contents from discarded containers, bottles and cans; flyers and garage sale posters placed on utility poles; and eroded soils, leaves, branches and twigs.

Organic materials are trapped or retained in the catch basin sump, frequently causing standing water to develop in the bottom of the catch basin. These materials tend to discolor the standing water and decompose and, at times, produce odors. This is particularly noticeable when catch basin contents are disturbed or washed out during a storm, by dry-weather flows, or when the system is being cleaned. In some cases, the odors could be similar to sanitary waste odors, since the nature of the materials is similar.

Both suspended and deposited sediments can have adverse effects on aquatic life in streams, lakes and estuaries. Turbidity resulting from sediment can reduce light penetration for submerged aquatic vegetation

critical to estuary health. Reflected energy from light reflecting off the suspended sediment can increase water temperatures (Kundell and Rasmussen, 1995). Sediment transports many other pollutants to the water resources be it surface waters and /or groundwater.

2.4. TYPICAL FLOWS TO STORM SEWERS

The majority of flow to storm sewers is stormwater runoff. Storm water runoff is surface flow water from precipitation that accumulates in and flows through natural and/or manmade storage and conveyance systems during and immediately following a storm event. As storm water travels through a conveyance system, it carries pollutants to rivers, wetlands, coastal waters and groundwater, impairing water quality. The quality of runoff is affected by a variety of factors and depends on the season, local meteorology, geography and upon activities which lie in the path of runoff.

As development occurs, impervious surfaces, such as streets, parking lots and buildings, replace natural ground cover, preventing infiltration of rainfall. This results in an increase in surface runoff. The runoff carries whatever pollutants are in its path to our water bodies.

The quality of stormwater is important because stormwater conveys to rivers, creeks, streams, estuaries, and bays. Stormwater can also seep into the aquifers which are utilized as sole source for the potable water supply for Long Island. These resources are inherently valuable, but they also provide many communities with sources of economic viability.

2.4.1. WET WEATHER SOURCES

The most common, and often the largest, source of wet-weather flow is runoff generated by rainfall and snowfall. The majority of this runoff is from impervious surfaces and is directed to catch basins by drains or laterals that receive runoff from roofs, parking lots, basements, exterior stairways, roadside channels and ditches, retaining walls, parks lawns, patios, shopping and pedestrian plazas and sidewalks. The catch basins are connected to the storm sewer system for subsequent discharge to a retention or detention structure, or directly to a receiving water body, such as a stream, a pond or large receiving waters like the Long Island Sound, Peconic Bay, or the Peconic River.

2.4.2. DRY WEATHER SOURCES

Dry-weather flow occurs during dry weather in the form of delayed drainage that was started by the storm event. One common example of a dry-weather flow is basement drainage. This drainage occurs when sump pumps remove groundwater around building foundations. Frequently, the pumping of drainage of groundwater around a building or other structure may need to continue for a number of days or weeks after a rain event has stopped. Sometimes it is seasonal or continuous. In the Town of Riverhead, there are many small communities that are at a low elevation, and in close proximity to a water body that requires the use of sump pumps to avoid basement flooding.

A second common example of dry-weather flow is from drains in or below retaining walls, or bulkheads. These drains release water in saturated soils behind the wall in order to remove the pressure on the wall so that it does not topple. A third example of dry weather flow is groundwater seepage into structures below the groundwater level which are not perfectly tight. This could include storm sewers and manholes that are below the level of groundwater in the surrounding area.

Besides dry weather flow induced by previous precipitation, storm sewers receive a fourth type of dry weather flow. This includes non-stormwater discharges from:

- Water line flushing
- Diverted stream flows
- Rising groundwaters
- Groundwater infiltration
- Discharges from potable water sources
- Foundation drains
- Water from crawl space pumps
- Footing drains
- Lawn Watering
- Flows from riparian habitats and wetlands
- De-chlorinated swimming pool water discharges
- Street wash waters related to cleaning and maintenance.

Storm sewers could also receive dry-weather flow and other materials from illicit discharges. Some examples of illicit discharges to storm sewers are: radiator flushing on sidewalks, driveways or streets; improper motor oil disposal in street gutters or directly into catch basins; throwing litter and garbage in the gutter or a catch basin; roadway accidents that result in fuel spills or spills of truck contents; washing of ready-mix concrete trucks; overturned trash cans that spill their contents, including various household liquids, into the street; and disposal of household hazardous substances such as solvents, cleaning fluids, paints, empty or partially empty containers that still contain dangerous chemicals or liquids; and illicit connections to storm sewers from sanitary or industrial discharges.

2.5. CHARACTERISTICS OF STORM SEWER DISCHARGES

Storm sewer discharges in most urban areas have been found to contain a host of pollutants that are part of the precipitation itself (acid rain or snow), atmospheric deposition, or result from the rain or snow coming into contact with roofs, sidewalks, streets, parking lots and other areas. These pollutants and parameters can be part of runoff during wet-weather periods or dry –weather discharges after the precipitation event. In addition, some pollutants and parameters can also be found in the other dry-weather discharges described earlier and which are not related to precipitation.

Typical pollutants found in runoff in rural and urban areas originate on lawns, farm lands, golf courses, sidewalks, streets, parking lots, and park spaces and can include suspended solids, bacteria, nitrogen, pathogens, phosphorus, heavy metals, and a variety of organic compounds such as polychlorinated biphenyls, petroleum hydrocarbons and polyaromatic hydrocarbons. Based on historical

and recent water quality assessment reports, NYSDEC has concluded that storm sewers cause impairments to many of the State's rivers, lakes, bays, and estuaries. Table 3.3.1-1 presents a list of pollutants of concern from various sources in urban areas. Table 3.3.1-2 presents a summary of possible sources and potential effects of runoff.

**TABLE 3.3.1-1
SOURCES OF RURAL /URBAN RUNOFF POLLUTANTS**

Source	Pollutant of Concern
Erosion	Sediment and attached soil nutrients, organic matter and other adsorbed pollutants
Atmospheric Deposition	Hydrocarbons emitted from automobiles, dust, aromatic hydrocarbons, metals and other chemicals released from industrial and commercial activities
Construction Materials	Metals from flashing and shingles, gutters and downspouts galvanized pipes and metal plating, paint and wood preservatives.
Manufactured Products	Heavy metals, halogenated aliphatics, phthalate esters, PAHs, other volatiles, phenols and oil from automobile use, zinc and cadmium from tire wear, and pesticides and phenols from other uses including industrial.
Landscape Maintenance	Fertilizer and pesticides. Generally as impervious area increases, nutrients build up on surfaces and runoff transport capacities also rise resulting in high loads. Exceptions include intensively landscaped areas (e.g., golf courses, cemeteries).
Plants and Animals	Plant debris, animal excrement
Farmland	Fertilizer and pesticides
Septic Tanks	Coliform bacteria, nitrogen/NO ₃
Non-Storm Water Connections	Inadvertent or deliberate discharges of sanitary sewage and industrial wastewater to storm drainage systems, including illicit connections, leaking sanitary collection systems, spills, industrial and commercial activities, construction activities, infiltration or contaminated groundwater and improper disposal
Accidental Spills	Pollutants of concern depend on the nature of the spill.

**TABLE 3.3.1-2
SUMMARY OF POSSIBLE SOURCES AND
POTENTIAL EFFECTS OF RUNOFF POLLUTANTS**

Category	Parameters	Possible Sources	Effects
Sediments	Organic and Inorganic Total Suspended Solids (TSS) Turbidity Dissolved Solids	Construction sites Urban/agricultural runoff CSOs Landfills, septic fields	Turbidity Habitat alteration Recreational and aesthetic loss Contaminant transport Navigation/hydrology Bank erosion
Nutrients	Nitrate Nitrite Ammonia Organic Nitrogen Phosphate Total Phosphorus	Urban/agricultural runoff Landfill, septic fields Atmospheric deposition Erosion	Surface waters Algal blooms Ammonia toxicity Groundwater Nitrate toxicity
Pathogens	Total Coliforms	Urban/agricultural runoff	Ear/intestinal infections

	Fecal Coliforms Fecal Streptococci Viruses E. Coli Enterococcus	Septic systems Illicit sanitary connections CSOs Boat discharges Domestic/wild animals	Shellfish bed closure Recreational / aesthetic loss
Organic Enrichment	Biochemical Oxygen Demand (BOD) Chemical Oxygen Demand (COD) Total Organic Carbon (TOC) Dissolved Oxygen	Urban/agricultural runoff CSO's Landfills, septic systems	Dissolved oxygen depletion Odors Fish Kills
Toxic Pollutants	Toxic Trace Metals Toxic Organics	Urban/agricultural runoff Pesticides/herbicides Underground storage tanks Hazardous waste sites Landfills Illegal oil disposal Industrial discharges	Bioaccumulation in food chain organisms and potential toxicity to humans and other organisms
Salts	Sodium Chloride	Urban runoff Snowmelt	Vehicular corrosion Contamination of drinking water Harmful to salt-intolerant plants

2.6. DIMINISHING GROUNDWATER RECHARGE AND QUALITY

Suffolk County lies over a sole source aquifer system that provides potable water to the residents and businesses located within the County. The aquifer system is comprised of three separate aquifers, the Glacial is the shallowest aquifer, the Magothy Aquifer underlies the Glacial Aquifer, followed by the Lloyd Aquifer. The Town of Riverhead has five functioning municipal wells within the Glacial aquifer, with relatively good water quality. The Town also has 8 municipal water wells within the Magothy Aquifer. In the more urbanized areas of Long Island, many of the municipal wells in western Suffolk and Nassau Counties that are within the Glacial Aquifer are no longer utilized due to high concentrations of pollutants.

The slow infiltration of rainfall throughout the soil is essential for replenishing groundwater. Both human health and aquatic systems are dependent on its steady discharge. Urbanization of an area results in the net decrease of pervious land, this coupled with the fact that increased population density increases potable well drawdown, natural recharge of stormwater is decreased or concentrated in certain areas. During prolonged periods of dry weather, stream flow sharply diminishes.

2.7. REDUCING IMPACTS OF STORMWATER

The Water Quality Volume (WQ_v), a measure of the volume of most polluted storm water, the first flush, that washes the road of all pollutants, is based on an equation ($WQ_v = (P \cdot R_v \cdot A) / 12$). It is designed to improve the water quality sizing to capture and treat 90% of the average annual stormwater runoff volume. The WQ_v is directly related to the amount of impervious cover created at a site. The 90% rainfall event number is supplied in Fig. 4.1 of the New York State Stormwater Management Design Manual (NYSSMDM) (August 2003), for the Town of Riverhead it is 1.2.

In accordance with the NYSSMDM, practices that are acceptable for water quality treatment are listed below

1. Stormwater Ponds – Practices that have either a permanent pool of water or a combination of permanent pool and extended detention capable of treating the Water Quality Volume (WQv).
 2. Stormwater Wetlands – Practices that include significant shallow marsh areas, and may also incorporate small permanent pools and extended detention storage to achieve the full WQv.
 3. Infiltration Practices – Practices that capture and temporarily store the WQv before allowing it to infiltrate into the soil.
 4. Filtering Practices – Practices that capture and temporarily store the WQv and pass it through a filter bed of sand, organic matter, soil, or other acceptable treatment media.
 5. Open Channel Practices – Practices explicitly designed to capture and treat the full WQv within dry or wet cells formed by check dams or other means.
3. MINIMUM CONTROL MEASURE 1 – PUBLIC EDUCATION AND OUTREACH
- The Town of Riverhead has impaired water bodies that are within the Peconic Estuary System. These water bodies include: Meetinghouse Creek, Sawmill Creek, Terry’s Creek, and Peconic River. These surface waters are impaired by Nitrogen, and Pathogens. Generally land uses within a watershed can be prescriptive in determining pollutant loading. One BMP that the Town utilizes to improve water quality is to purchase land within impaired watersheds for preservation or passive recreation.

The Public Education and Outreach control measure is directed at educating the public, specific groups, i.e., construction trades, municipal officials, and homeowners to the impact stormwater runoff has on the environment. In addition, this education would involve teaching targeted groups steps that can be taken to reduce certain pollutants associated with runoff.

Important components of this plan include the continuation of forming partnerships with other government entities primarily through existing programs and resources; the utilization of educational materials to promote the program; and reaching diverse audiences such as target communities and children. Target communities include local academic/college groups, youth organizations, yacht clubs and marinas, conservation/environmental groups, and sportsman/fishing clubs.

3.1. DISTRIBUTED INFORMATION

The Town has been actively keeping informational stormwater brochures, septic system brochures and informational posters at all Town Facilities, and Atlantis Aquarium. The Town will continue this process in the next five years with modifications as the deadlines for various permit components arise. These pamphlets include the impaired water bodies, the pollutants of concern (POCs), sources of the POC’s, and alternative methods of operations to reduce concentrations of POCs.

The Town SMO is working to further Minimum Control Measure 1 (MCM 1) by implementing pollution prevention and education programs to reduce nonpoint source pollutants generated from the following activities:

- Lawn and garden activities, including the improper application and disposal of lawn and garden care products, and the disposal of leaves and yard trimmings;
- Turf management on golf courses, parks, and recreational areas;
- Improper disposal of pet wastes;
- Boater sanitary disposal activities;
- Monitoring individual septic systems for integrity;
- The improper storage, use, and disposal of household chemicals, including automobile fluids, pesticides, paints, solvents, etc.;
- Commercial activities, including parking lots and gas stations;
- Activities that generate trash;
- Feeding of waterfowl;

Sediment and Erosion Control is a large component in reducing the pollutant loading to impaired water bodies. In this matter, the BMP Committee has been developing both code amendments, educational pamphlets geared to construction companies. There are pamphlets located at both the Building Department and the Planning Department. The Town's hope is to have influence on the conceptual design of sites, to encourage the implementation of stormwater BMPs including but not limited to the siting of specific uses on the site. In addition, in the next two years under the current SPDES General Permit, construction site operators must ensure they have received erosion and sediment control training before working in the Town of Riverhead. The SMO's office has been proactively faxing notices of classes for this education to contractors who work within the Town. The Town hopes to work with the local Peconic Estuary Program to participate in a training program for the east end townships.

The Town municipal operations, abide by the new legislation regarding the application of fertilizers to reduce potential overloading of nitrogen. The Buildings and Grounds Division is in the process of developing a turf grass management plan for all of the playing fields within the recreational parks. The management plan will be geared towards pest management, and the use of organic materials for the enhancement of turf.

The Town offers free boater pump out services to recreational boaters in the Peconic Estuary. New boater pumpouts were recently upgraded at both the Peconic Riverfront and a 2009 upgrade to the East Creek Marina. In addition, there is a pumpout boat that will travel to locations within the Peconic Estuary to pumpout boats. Informational brochures for these services are provided at both the Town Hall and Recreation Department, the brochures include the radio frequency the boaters must utilize to contact the pumpout boat.

The Town of Riverhead offers yard waste pick up in the fall of each year to the residents of the Town. A Stop Throwing Out Pollutants Day (STOP Day) is offered to the residents twice a year. During this event, residents may bring household hazardous waste to the site. In addition, the Town will draft modifications to the Town Code pertaining to feeding wild waterfowl. This will serve to attempt to reduce the toxic affects of wild waterfowl sanitary wastes.

The Community Preservation Fund has been established within the Town to set aside monies to preserve properties as they become available. The Town has purchased many waterfront properties within the impaired waterbodies watershed boundaries. This program is ongoing, the priorities of this property is to purchase lands as they come available within impaired waterbody watersheds. In 2009, the Town acquired approximately **xxx acres of land** for approximately **\$xxxx,xxxxx**.

3.2. TOWN FACILITY INFORMATION

The goal of public education is to prevent or reduce nonpoint source pollutant loadings generated from a variety of activities within the Town with special emphasis given to the activities which contribute to Nitrogen and Pathogen loadings. The Town maintains educational pamphlets, and posters at each one of its facilities that residents visit. In addition to the pamphlets, posters, and other information currently available to Town residents, in the next 3 years, the Town will begin implementing a pro-active education within the school district and Atlantis Marine Aquarium.

3.3. TOWN OF RIVERHEAD WEBSITE

The Town of Riverhead maintains a website (www.riverheadli.com), with a link to Stormwater Management. The link brings residents to the educational pamphlets, posters, and links to the local and national program for non-point source pollution issues.

3.4. RAIN GARDEN PLANTING

Through the Town Recreational, Intergenerational and Buildings and Grounds divisions a rain garden will be constructed at the Town's Stotzky Park Facility. The Buildings and Grounds Division will excavate the rain garden and install the gravel subbase and the soil layer, while the Intergenerational volunteers (seniors and youths) will plant the rain garden and learn from the experience.

3.5. ATLANTIS AQUARIUM

The Town of Riverhead has informational pamphlets at the Atlantis Aquarium. The Aquarium is located in Downtown Riverhead, on the Peconic River and performs educational seminars. They are also involved with marine life rescue efforts. Beginning in 2009, the Stormwater Management Office will work with the Aquarium, to ascertain what pollutants cause physical damage to the aquatic habitats, and work to incorporate education on pathogens, nutrients and the effect of stormwater quality on the ecosystem.

3.6. EVALUATING AND MEASURING PROGRESS

The Town will utilize counts of pamphlets distributed and counters on the websites to ascertain the number of visitors and patrons interested in stormwater management.

3.7. ANNUAL REPORTING

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 1, the Town will supply the DEC with the following information:

- Who the targeted audiences where and what topics were included

- What strategies the Town used to achieve the education and outreach goals
- Web Pages that the information is posted on
- How the Town evaluates and measures the progress

4. MINIMUM CONTROL MEASURE 2 – PUBLIC INVOLVEMENT/PARTICIPATION

4.1. LOCAL STORMWATER PUBLIC CONTACT

The public are encouraged to contact the SMO to report illicit discharges, with questions, etc. The Town has an active website page devoted to informing the public on initiatives the Town is taking to improve water quality of the Peconic Estuary system, and other water bodies in the Town. This website provides all contact information necessary to contact the SMO. In addition, the SMO contact information is shown on all informational brochures and posters.

4.2. COMMUNITY PRESERVATION

The Town has two efforts to preserve property, through the purchase of open space (fee title) and the development rights on agricultural lands (only right to development is purchased and the owner/farmer retains title to the property with the condition (restrictions or conservation easement) that the property remains in agricultural production). The residents' participation in the Town's efforts to preserve property with community preservation funds is voluntary. The Town created two committees, the Open Space Committee (Chapter 14) and Farmland Preservation Committee (Chapter 44), which meets once a month to review applications to preserve open space and farmland. For several years, the Town utilized the services of Peconic Land Trust to promote and educate land owners and farmers of the opportunity to participate in the program. Over the years, members of the community/owners of lands located within the Town have learned about the opportunity to participate in the program through the open space and farmland committee members, word of mouth from individuals that participated in the programs, referendums, resolutions and public hearings such that individuals appear at open space and farmland meetings requesting that their property be considered for preservation or send letters, e-mails and inquire via telephone. The Open Space and Farmland Committees review the parcels, conduct site visits, rank or rate the parcels and vote to recommend to the Town Board. Thereafter, the Town via resolution votes to hold a public hearing so the public may participate or express opinion regarding the preservation of a particular parcel. If approved, the Town Board will adopt a resolution approving the purchase and authorize the Supervisor to execute a contract to purchase said parcel. The Open Space Committee ranks parcels based upon natural features and significant environmental concerns, including but not limited to parcels to aid in stormwater treatment and surface water quality issues.

4.3. LITTER PICK UP EVENTS

The Litter Committee sponsors an annual event which organizes a litter clean up day. The Litter Clean up day is a two to three hour event in which participants come to the Town Hall to pick up bags, gloves, and vests, and are directed to a location or have chosen a location which can be improved by litter removal. The event is advertised through local papers, radio stations and on Channel 22 local television.

4.4. STOP DAY

The Town has a household hazardous waste drop-off program that involves a number of collections each year. There are also remote battery drops. Although household chemicals make up only a small percentage of the residential waste stream, in order to protect the environment, it is important that they be disposed of properly. The Town's program accepts chemicals that include, but are not limited to, pesticides, aerosol cans, household cleaners, waste motor oil, batteries, electronics and fluorescent bulbs. With respect to used motor oil, New York State law requires every gasoline station that sells more than 500 gallons of motor oil to accept used motor oil at no charge.

4.5. RAIN GARDENS

Through the Town Recreational, Intergenerational and Buildings and Grounds divisions a rain garden will be constructed at the Town's Stotzky Park Facility. The Buildings and Grounds Division will excavate the rain garden and install the gravel subbase and the soil layer, while the Intergenerational volunteers (seniors and youths) will plant the rain garden and learn from the experience. The Town will continue to recommend and direct residents on what a rain garden is and how to construct them.

4.6. RIVERHEAD SCHOOL DISTRICT AND ATLANTIS AQUARIUM

The Town's Stormwater Management Office will be working integrally with the Riverhead School District and the Atlantis Marine Aquarium in the next 3 years to provide education regarding Stormwater Runoff and Illicit Discharges to both the Earth Science Classes and the Marine Rehabilitation classes. The Town will work with Atlantis to determine what stormwater pollutants that are causing the greatest impacts to both water quality and marine habitat degradation, and working towards the goal of education and removing these pollutants from our waterways. A measurable goal on the effectiveness of the education program would be a small quiz provided to both Earth Science Students, and a questionnaire for the aquarium visitors.

4.7. CONSERVATION AND RECYCLING

The Town realizes that part of the stormwater management program deals with good housekeeping, conservation, recycling, and efficiency. The Town has revamped its purchasing policies to reduce paper quantities within the process. In addition, we are utilizing more efficient indoor and outdoor lighting products, that utilize less energy and have a longer estimated life span. The Town will be participating in an outdoor lighting work shop in March 2009, to help educate local residents on the recent outdoor lighting codes that have been enacted. In addition, in 2009, the Town will develop a stronger water conservation goals, with encouragement to reduce land clearing, encourage use of native drought tolerant plant species, and in-house water conservation initiatives such as night time laundry and irrigation. Residents are encouraged to implement their own water conservation measures such as retrofitting plumbing fixtures with flow restrictors, modifying automatic lawn sprinklers to include rain sensors, repairing leaks in the home, installing water conservation fixtures/appliances and maintaining a daily awareness of water conservation in their personal habits.

In the summer of 2008, during a mid summer heat wave, the Riverhead Water District declared a voluntary water conservation initiative to reduce irrigation and non-necessary water usage. A measurable goal for this plan would be to determine if water usage has decreased in 2009, after the public has been provided with the information on water conservation. In addition, the Town pays for the electric usage of all street lights on Town properties, at the end of 2009, we will determine if there has been a savings in electricity, and if there has been a savings in replacement parts for street lighting.

4.8. EVALUATING AND MEASURING PROGRESS

The Town will keep an inventory of all public involvement programs, attendance will be taken. The Town hopes that as the information gets out there, more residents will participate in the hosted programs. In addition, we will maintain counts on all public meetings that distribute information regarding Stormwater Awareness.

4.9. ANNUAL REPORTING

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 1, the Town will supply the DEC with the following information:

- What opportunities were provided for public participation in implementation, development, evaluation and improvement of the Stormwater Management Program Plan
- What the public notice of availability of annual report and Stormwater Management Program Plan consisted of.
- Where are public access copies of the annual report, Stormwater Management Program Plan, and comments are kept
- What comments were received during the reporting period
- Was the annual report described at a Public meeting

5. MINIMUM CONTROL MEASURE 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

5.1. INTRODUCTION

Storm sewer systems are designed to convey stormwater and exclude water from non-stormwater sources with some exceptions. Illicit Discharges are defined as discharges not entirely composed of stormwater into the small MS4, except those identified in Part I.A.2 of the SPDES General Permit. Examples of illicit discharges are non-permitted sanitary sewage, garage drain effluent, and waste motor oil. However, an illicit discharge could be any other non-permitted discharge which the permittee or the Town has determined to be a substantial contributor of pollutants to the small MS4.

By May 2011, the Town shall develop, implement and enforce a program to ensure that onsite wastewater treatment (septic systems) within pathogen impaired watersheds are inspected and where necessary maintained, or rehabilitated at a minimum frequency of once every three years. This will affect all property owners with private sanitary systems within the Meetinghouse, Peconic Estuary and Terry's Creek Watersheds.

5.2. PROGRAM

The BMP Committee and the SMO has been working continuously with GIS to perform the mapping of the different components to enhance the Illicit Discharge Detection and Elimination (IDDE) program. The BMP Committee has developed code amendments to prohibit illicit detections and enact fines to violators of such. The SMO has been working with several Town departments and Emergency responders who may witness potential illicit discharges. The Town has provided public education in regards to IDDE practices, and reporting.

5.3. OUTFALL MAPPING

A beneficial tool to aid in the elimination of illicit discharges is a fully developed outfall map. The Town has successfully mapped the outfalls to the Long Island Sound, the Peconic River, and to all of the recharge basins. GIS will continue to work with the SMO on mapping the MS4 within the priority watersheds first, and then to watersheds draining to the Long Island Sound. As the program develops, more information on the construction of the isolated drainage structures, identifying the structures in an overall system, and the pipes that enter / exit the structure. Pipe inverts and sizes will be noted as distances from the top of casting. At this time, GIS is not precise enough to provide accurate grade elevations. However, if during inventory of these structures all of the information regarding distances from grade to inverts are documented, then when GIS is developed with enough precision for reliable grade elevations, the distances to inverts will be subtracted from the grade elevation for true inverts. This will greatly aid in tracing illicit discharges to the source of the polluter.

5.4. WATERSHED MAPPING

The size of a watershed is closely related to the network of streams contained within its borders. Streams with no upstream tributaries are designated as first-order streams down to their first confluence. A second-order stream is formed when two first-order streams meet.

Watershed – Generally, this is the largest management unit that falls within the local land use planning authority. A community might have one or more watersheds within its borders, depending on its size.

Sub-watershed – The scale encompassed by the watershed. Its boundaries include all land area draining to the point where two second-order streams come together to form a third-order stream. In most regions, sub watersheds are a few square miles in area and are drained by a stream several feet in width.

The Town will work on mapping out the watersheds that discharge to the impaired waterbodies as a first priority. This will aid in determining where illicit discharges originate from in the infrastructure system has been mapped out.

The Peconic Estuary Program sponsored the Meetinghouse Creek Watershed Management Plan, prepared by Horsley Witten Group in July 2006. This watershed delineation has been incorporated into the Town's GIS system. The Town is currently pursuing grant monies to fund Watershed Management Plans for both Terry's Creek and Sawmill Creek.

5.5. TOWN CODE AMENDMENTS

On December 18, 2007, the Town of Riverhead adopted local law for the addition of “Chapter 109 – Prohibition of Illicit Discharges and Connections to the Town of Riverhead Municipal Separate Storm Sewer System (MS4)” of the Riverhead Town Code. Chapter 109 establishes a legal framework to define the MS4 system, illicit discharges with examples, and consequences for discharging to the MS4, and remediation acts that the Town will pursue to eliminate any illegal connections. On December 16, 2008, the Town of Riverhead adopted modifications to local law 109-16 to enable the Town to fine and prosecute violators of the local law.

5.6. ILLICIT DISCHARGE EDUCATION

The BMP committee is currently developing a program to educate the public on the dangers of Illicit Discharges. In 2009, the Town would like to form a partnership with Atlantis Aquarium in Riverhead. This would provide a partnership which would enhance their wildlife education program. The Town would incorporate information received on non point source pollution in the Peconic Estuary and what elements which should be emphasized the most.

Riverhead School District – In 2009, the BMP Committee will pursue a partnership with the school district. This would allow the SMO to interact with teachers of Elementary Science, and Earth Science to inform children the measures that the Government is taking and how they can help the process by not littering, maintaining good housekeeping at home, becoming alert on what illicit discharges are and saying something if they see something, as well as spreading the information on to their relatives.

5.7. POTENTIAL DETECTORS OF ILLICIT DISCHARGE

The BMP committee has recognized that certain Town functions can be utilized to detect forms of illicit discharge such as the Highway Department, Buildings and Grounds Division, and the Emergency Services (Police, Ambulance, Fire Depts.). The areas which would be most likely to be illicit discharges would be older industrial areas and older residential communities.

5.7.1. HIGHWAY DEPARTMENT

The Town Highway Department maintains the Town’s MS4 system. Typical maintenance operations that the Hwy Dept. performs includes but is not limited to:

5.7.1.1. STREET SWEEPING – During street sweeping operations, the operator is traveling at a slow rate of speed. The operator actively looks for non-MS4 pipes draining to the MS4, overland discharges draining to the MS4, etc. There is a running list maintained at the Hwy Dept. that describes any activities, items that are potential illicit discharges. If there are items of major concern that are discharges of strong odor, or color, the Hwy Dept. contacts the SMO, if it is an immediate potential hazard, the Fire Marshal’s office is contacted.

5.7.1.2. DRAINAGE STRUCTURE CLEANING - Hwy Dept. actively cleans out drainage infrastructure. The Hwy Dept. currently maintains three vacuum trucks that are utilized for removing debris that has

accumulated in drainage catch basins, leaching pools, and manholes. The Hwy Dept, has been provided with overviews and on going training on how to detect a potential illicit discharge. During cleaning operations, if they observe dry weather flow, additional pipes in the structures, or foul odors, they maintain a list of the structure number, and location. There is a running list maintained at the Hwy Dept. that describes any activities, items that are potential illicit discharges. If there are items of major concern that are discharges of strong odor, or color, the Hwy Dept. contacts the SMO, if it is an immediate potential hazard; the Fire Marshal's office is contacted.

5.7.2. BUILDINGS AND GROUNDS DIVISION

B&G maintains the Town's buildings and grounds, including all parks. Maintenance of the parks includes the drainage infrastructure. When drainage structures require cleaning, B&G assesses the conditions, then contacts the HWY dept. During cleaning operations, if they observe dry weather flow, additional pipes in the structures, or foul odors, they maintain a list of the structure number, and location. There is a running list maintained at the Hwy Dept. that describes any activities, items that are potential illicit discharges. If there are items of major concern that are discharges of strong odor, or color, the Hwy Dept. contacts the SMO, if it is an immediate potential hazard; the Fire Marshal's office is contacted.

5.7.3. EMERGENCY SERVICES

The Town's Emergency Services include the Police Department, Fire Marshal's Office, Fire Department and Ambulance Department. During motor vehicle accidents, they are the first responders, and are able to assess the immediate affects of the accident. If there are any penetrations to holding tanks of the vehicles they alert appropriate departments albeit the NYSDEC, Highway Department, B&G to protect the Town's MS4 system and the environment. If during the assessment, they observe dry weather flow, they will contact the Fire Marshal's Office or the SMO depending on the severity of the issue.

5.8. EVALUATING AND MEASURING PROGRESS

The Town will keep an inventory of all illicit discharge complaints and responses. They will be broken down into the quantity of illicit discharges identified and the number eliminated. The quantity of inspections will be utilized as a measuring progress tool. Currently there is limited funds to perform inspection, however, as funding becomes more available the frequency will increase and the time line to eliminate a illicit discharge will be reduced.

5.9 ANNUAL REPORTING

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 1, the Town will supply the DEC with the following information:

- Approximate percentage and numbers of outfalls mapped
- Number of outfalls screened for dry weather discharges during reporting period
- Types of generating sites/ sewersheds targeted for inspection during this reporting period;

- Types of illicit discharges found during the reporting period
- Quantity of illicit discharges/potential illegal connections that have been detected during this reporting period
- Quantity of illicit discharges/illegal connection have been eliminated during this reporting period
- If the storm sewershed mapping has been completed
- If the information is available on GIS
- What percent of staff in relevant positions and departments have received IDDE training.

6. MINIMUM CONTROL MEASURE 4 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

6.1. INTRODUCTION

This minimum control measure is intended to reduce the amount of sediment generated from construction sites (erosion control) and reduce the off-site transport of sediment and construction – related chemicals (sediment and chemical control). This measure should be utilized to influence conceptual design drawings to develop a sustainable site, and protect the watershed.

Several pollutants of concern are associated with construction activities, including the following: sediment; pesticides; fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper; wood; garbage; and sanitary waste (Washington State Department of Ecology, 1991). “Erosion rates from natural areas such as undisturbed forested lands are typically less than 1 ton/acre/year, whereas erosion from construction sites ranges from 7.2 to 500 tons/acre/year” (USEPA, 2005).

6.2. TOWN CODE AMENDMENTS

On December 18, 2007, the Town of Riverhead adopted local law for the addition of “Chapter 110 – Stormwater Management and Erosion and Sediment Control Regulations” of the Riverhead Town Code. Chapter 110 was modeled after the State policies and procedures for Site Developers to prepare a Storm Water Pollution Prevention Plan (SWPPP) for review by the Town of Riverhead. The local law was then modified in December 2008, to outline fees, and escrow accounts to be set up for the review and inspection of these sites as they become developed. There are several districts in which the Town code encourages pervious parking areas and/or landscaped areas for drainage where sanding and salting are not used in the winter.

6.3. EDUCATION

Construction site operators, design engineers, municipal staff and other individuals will be trained in sediment and erosion control practices either through the NYSDEC, USEPA, or Geological Group. In May 2010, the Town will require certification of training prior to ground disturbance.

6.4. PROGRAM

The Town has prepared informational pamphlets for developers entering either the Planning Department and /or the Building Department for permits. The goal of the pamphlets is to inform the developers of the procedural requirements of

SWPPP reporting, inspection, best management practices in the layout of site plan features, construction activities, and post-construction considerations.

6.4.1. BEST MANAGEMENT PRACTICES – DURING SITE DESIGN

Best Management Practices – During Site Design / SWPPP Review

- Site layout – The site should be laid out holistically so that the drainage is in the naturally low lying portion of the property and receives pre-treatment of storm water prior to infiltration.
- Minimize clearing and grading – This will minimize disruption of the natural features to remain.
- Encourage green measures to reduce runoff quantity such as planted roofs, rain gardens, swales, etc.
- Protect waterways and stabilize drainage ways
- Establish Plan review and modification procedures
- Design drainage system in accordance with stormwater runoff treatment of water quality volume (WQv) requirements not necessarily straight infiltration.
- Ensure proper clearing limits in accordance with local zoning requirements.
- On long or steep, disturbed, or man-made slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff.
- Use retaining walls
- Provide linings (grass/sod/rip-rap) for urban runoff conveyance channels.
- Use check dams
- Use mulches
- Use sodding for permanent stabilization.
- Use wildflower cover to reduce the need for irrigation
- Develop and implement a spill control plan
- Develop and implement a waste disposal control plan
- Develop procedures for disposal of concrete truck waste

6.4.2. BEST MANAGEMENT PRACTICES – DURING CONSTRUCTION

Best Management Practices – During Construction

- Phase construction to limit soil exposure
- Stabilize exposed soils immediately
- Protect steep slopes and cuts
- Install perimeter controls to filter sediments
- Employ advanced sediment – settling controls.
- Assess erosion and sediment control practices after storm events
- Ensure SWPPP implementation bi- weekly inspections
- Adequate construction entrance stabilization.
- Locate potential pollution sources away from steep slopes, water bodies, and critical areas;
- Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells.
- Stockpile topsoil and reapply as a soil amendment to reestablish vegetation.

- Use wind erosion controls
- Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain.
- Seed disturbed areas
- Install erosion control blankets
- Provide education and training opportunities for construction personnel – by May 2010 any construction site operator will have to provide certification to the Town of Riverhead that they have received sediment and erosion control training by either a New York State agency, or Soil Conservation Agency prior to commencing site work.

6.5. EVALUATING AND MEASURING PROGRESS

The Town will keep an inventory of all reviewed SWPPPS, how many requested revisions each one had and when it was approved. The amount of contractor training seminars will be quantified. In 2008, the Town passed legislation that allowed for the collection of fees to pay both Town staff as well as outside consultants to review SWPPPS and conduct site inspections.

6.6 ANNUAL REPORTING

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 4, the Town will supply the DEC with the following information:

- If the Town has adopted a law that provides equal protection to the NYS SPDES General Permit
- Does that Town have a SWPPP review procedure in place
- How many SWPPPS have been reviewed in the reporting period
- Does the Town have a mechanism for receipt and consideration of public comments related to construction SWPPPS
- Does the Town provide education and training for contractors about the local SWPPP process
- Identify the types of enforcement actions used during the reporting period for construction activities.
- How many projects have been authorized for disturbances of one acre or more.
- How many construction projects disturbing at least one acre were active in your jurisdiction during this reporting period
- What percent of active construction sites were inspected during this reporting period
- What percent of active construction sites were inspected more than once.
- Do all inspectors working for the Town use the NYS Construction Stormwater Inspection Manual

7. MINIMUM CONTROL MEASURE 5 – POST-CONSTRUCTION STORMWATER MANAGEMENT

7.1. INTRODUCTION

This minimum control measure addresses runoff from projects after the construction phase is complete. In some cases, construction and post-construction BMPs can be located in the same area, however it is being found

that construction and post construction BMPs should be located on different parts of the site and have different sizing and design criteria. In the past, more emphasis has been made on stormwater volume instead of water quality issues. The majority of the Town of Riverhead's stormwater is infiltrated by way of recharge basins with no pre-treatment.

7.2. NON STRUCTURAL BEST MANAGEMENT PRACTICES

Non structural BMPs are measures that communities may take to protect water quality. These often include land preservation, conservation, recycling activities. These can be implemented with volunteer groups working with Town Government, the enactment of Town Code amendments, zoning restrictions, and education.

7.2.1. LAND PRESERVATION IN IMPAIRED WATERSHEDS

The Town has created two committees in its efforts to preserve property through the purchase of open space and development rights on agricultural lands. The Open Space Committee (Chapter 14) and Farmland Preservation Committee (Chapter 44), meet once a month to review applications to preserve open space and farmland. The Town had previously utilized Peconic Land Trust to promote and educate land owners and farmers of the opportunity to participate in the program, now local volunteers participate in the program as being open space and farmland committee members. The open space and farmland committees review the parcels, conduct site visits, rank or rate the parcels and vote to recommend to the Town Board the most viable options. Thereafter, the Town via resolution votes to hold a public hearing so the public may participate or express opinion regarding the preservation of a particular parcel. If approved, the Town Board will adopt a resolution approving the purchase and authorize the Supervisor to execute a contract to purchase the parcel.

7.2.2. TOWN CODE AMENDMENTS

On December 18, 2007, the Town adopted a local law for the addition of Chapter 110 entitled Stormwater Management and Erosion and Sediment Control. As part of this code amendment, the Town requires the owner/operator of the permanent stormwater management practices installed in accordance with Town Code to ensure they are operated and maintained to achieve the goals of the chapter and require the owner / operator to prepare and maintain on site a preventative/corrective maintenance program for all critical facilities and systems of treatment and control which are installed or used by the owner/operator to achieve the goals. In addition, the owner/operator shall enter into a formal maintenance agreement for stormwater management facilities binding on all subsequent landowners and recorded in the office of the Suffolk County Clerk as a deed restriction on the property prior to the final plan approval.

7.2.3. ZONING

There are certain districts within the Town where owner operators are encouraged to utilize permeable pavers, porous concrete, and gravel for parking areas. In addition, site developers are often encouraged to utilize depressed areas within the landscaped areas as stormwater retention areas.

7.2.4. PUBLIC EDUCATION

The Town will continue to utilize public education by way of pamphlets, posters, and seminars to inform people that everyone can make a difference. Simple ways to manage stormwater in both residential and commercial sites is to utilize practices to minimize impervious areas, clearing practices and to utilize practices to enhance the site landscaping such as rain gardens, wet ponds which can be incorporated into the landscaping scheme.

7.3. STRUCTURAL BEST MANAGEMENT PRACTICES

Structural BMPs are actions that can be implemented during design/construction and are structural in nature to treat both storm water quantity and quality. They are sized based upon the volume of water that they can accommodate.

7.3.1. DRY DETENTION POND

Dry detention ponds are vegetated basins designed to fill during storm events and slowly release the water over a number of hours.

7.3.1.1. OPERATION AND MAINTENANCE

All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, and two times per year thereafter, within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. Components to be inspected include but are not limited to: pond inlet, forebay, embankment, dikes, berms, side slopes, control devices, overflow structure, sediment and debris management.

7.3.2. WET PONDS AND EXTENDED WET DETENTION PONDS

Wet ponds are constructed with a permanent pool of water (called pool storage or dead storage). Stormwater runoff enters the pond at one end and displaces water from the permanent pool. Pollutants are removed from stormwater through gravitational settling and biologic processes.

7.3.2.1. OPERATION AND MAINTENANCE

All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, and two times per year thereafter, within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. Components to be inspected include but are not limited to: pond inlet, forebay, embankment, dikes, berms, side slopes, control devices, overflow structure, sediment and debris management.

7.3.3. FILTRATION PRACTICES

Filtration practices are a low impact way of filtering stormwater into the groundwater. The concept is to slow the water velocity through use of a parallel conveyance of the stormwater, as the water flows across, it also infiltrates down, the slow release is helps contaminants cling to soil particles, or become ingested by plants.

7.3.3.1.GRASSED SWALES

Grassy swales are long narrow grassy depressions used to collect and convey stormwater runoff, allowing pollutants to settle and filter out as the water infiltrates into the ground or flows through the facility. In addition to providing pollution reduction, flow rates and volumes can also be managed for small process (<15,000 square feet of impervious surface) with grassy swales. Swales can be used to fulfill a site's required landscaping area requirement.

Operation and Maintenance – The swale should drain within 48 hours of a storm event. All facility components, including but not limited to vegetation, source controls, swale inlet, side slopes, swale media, and swale outlet shall be inspected for proper operations and structural stability, at a minimum, quarterly for the first 2 years from the date of installation, 2 times per year thereafter, and within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities.

7.3.3.2.SAND FILTERS

There are two sand filter options. One is designed with an impervious bottom or is placed on an impervious surface. It can be used for all soil types. The other option, for native soils with a minimum infiltration rate of 2 inches per hour (NRCS soil types A and B), allows filtered water to infiltrate into the ground. For both options, pollutant reduction is achieved as the water filters through the sand; flow control is obtained by slowing the discharge rate as the water filters through the sand. Filters may be constructed in-ground or above grade. Because they include a waterproof lining, sand filters are extremely versatile and can be used next to foundation walls, adjacent to property lines or on slopes. An overflow to an approved conveyance and disposal method is required.

Operation and Maintenance – All facility components including but not limited to vegetation, filter inlet, reservoir, filter media, under-drain piping, and overflow or emergency spillway shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, and 2 times per year thereafter, and within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities.

7.3.3.3.INFILTRATION PLANTER

Infiltration planters are structural landscaped reservoirs used to collect, filter, and infiltrate stormwater runoff, allowing pollutants to settle and filter out as the water percolates through the planter soil and infiltrates into the ground. In addition to providing pollution reduction, flow rates and volumes can also be managed with infiltration planters. Planters can be used to help fulfill a site's required landscaping area requirement and should be integrated into the overall site design.

Operation and Maintenance – Water should drain through the planter within 3 - 4 hours after a storm event. All facility components including but not limited to downspout, splash blocks, planter reservoir, filter media, planter, overflow pipe, and vegetation shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first 2 years from the date of installation, 2 times per year thereafter, and within 48 hours after each major storm event. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities.

7.4. STORMWATER RETROFITTING

The MS4 requirements pertain to new development and redevelopment projects. Redevelopment cases, in particular are places where retrofitting can play a major role. For instance, existing stormwater facilities and/or conveyance systems can be retrofitted to provide better water quality treatment.

7.4.1. RETROFITTING PROTOCOLS

The Town shall establish retrofitting protocols for redevelopment sites beginning in 2009. The Town will establish construction measures that developers can utilize in redevelopment projects on how to deal with roof runoff, parking lot runoff etc.

7.4.2. MUNICIPAL RETROFIT

The Town shall implement a program to build retrofitting into the Town facilities, capital improvements and facilities maintenance program. In 2009, the Town will begin by constructing a rain garden to accommodate the stormwater runoff from the Stotzky Recreational Park Tennis Courts. The Town will continue to retrofit stormwater facilities as it is economically feasible. Public education and involvement is most probable in low impact areas such as roof runoff.

7.5. EVALUATING AND MEASURING PROGRESS

To evaluate and measure the progress of MCM 5 the Town will begin to track the number of reports of flooding during storm events from the business district and the residential subdivisions. We will also track the progress of new installations of Green technologies such as Rain Gardens, and Swales that the Town is installing as well as recommending these for use in private developments.

7.6. ANNUAL REPORTING

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 5, the Town will supply the DEC with the following information:

- How many and what type of post-construction stormwater management practices has the Town inventoried, inspected, implemented in the period
- Does the Town use GIS or spreadsheets to track post-construction BMPs, inspections and maintenance.
- What types of non-structural practices have been used to implement the Low Impact Development/Better Site Design/Green Infrastructure principles.

8. MINIMUM CONTROL MEASURE 6 – POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

8.1. INTRODUCTION

This minimum control measure is intended to prevent or reduce nonpoint source pollutant loadings generated from a variety of activities within urban areas. Everyday activities of municipal employees and businesses have the potential to contribute to nonpoint source pollutant loadings. These activities include improper use and disposal of household chemicals, lawn and garden maintenance, turf grass management, operation and maintenance of diesel, and gasoline vehicles, illicit discharges to the MS4, commercial activities and improper pet waste disposal. Performing these activities in an environmentally responsible manner potentially will improve

8.2. OBJECTIVES

- To design and implement an operation and maintenance program to reduce and prevent discharge of pollutants to the maximum extent practicable from municipal operations and facilities.
- Include training in the program on pollution prevention and good housekeeping techniques in municipal operations;
- Select and implement management practices for pollution prevention and good housekeeping in municipal operations; and
- Develop measurable goals to ensure the reduction of all pollutants of concern in stormwater discharges to the maximum extent practicable.

8.3. TOWN FACILITIES AND OPERATIONS

The Town has many facilities which it operates for public interaction;

Town Hall	Senior Center	Recreation Centers
Town Hall West		George Young Community Ctr
Recreation Department		Henry Phieffer Community Ctr
Riverhead Water District		
Riverhead Sewer District		
Riverhead Highway Dept.		
Riverhead Municipal Garage		
Buildings and Grounds Division		
Electrical Service Division		

8.4. BUILDING MAINTENANCE

The Town Buildings and Grounds Division (B&G) maintains all Town buildings in terms of maintenance and repairs. In 2008, we began pursuing LEED for Building Maintenance activities. As buildings require renovations, the Town attempts (to the maximum extent practicable) to comply with LEED requirements. We are employing LEED maintenance procedures with GS-37 labeled cleaning solvents, and only ordering enough to maintain buildings for a 6 month time frame. LIPA has conducted energy audits for all facilities, the Engineering Department has been incorporating their recommendations as buildings go through renovations and/or repairs. The Recreation Department which was replaced in 2007, converted to a gas HVAC system. The interior lighting has been converted to high efficiency bulbs in Town Hall, Town Hall West, Senior Center, Highway Department and the Recreation Department.

When existing mercury containing lighting is at the end of its useful life albeit fluorescent interior lighting or exterior street lights, the Town stores these materials for pick up by a registered / licensed recycling facility in accordance with the Federal legislation. The Town utilizes the Suffolk County Requirements Contract for these services.

8.5. TOWN PARKS

B&G also maintains all of the Town Parks. The maintenance crew supervisors are licensed to place fertilizers and herbicides through the NYSDEC. In the past two years, these supervisors have attended organic turf management seminars, and are beginning to utilize organics at one location in Stozky Park. Since organics need to be established over a three year period in order to bring the quality of turf to current standards, we are phasing it in. The B&G division under the direction of the Engineering/SMO office is working to alter certain riverfront parks to deter geese populations from staying on the riverfront and defecating.

8.5.1. GRASS MOWING

B&G bags grass clipping after mowing Town Parks. They maintain stockpiles within Stozky Park where they combine with mulch and make their own blend of a compost/ mulch which they install on the planting beds along Main Street, Polish Town and other areas where the Town maintains annual plants. They maintain approximately 10 mowers. These mowers are maintained by the B&G, with regular inspections for leaks, and efficient operation.

8.6. ROADWAY MAINTENANCE

8.6.1. GRASS MOWING

The Highway Dept also owns and maintains approximately 5 mowers which are utilized to mow the Right of Ways (ROWs) of the Towns roadway system.

8.6.2. TREE TRIMMING

The HWY Dept. maintains the trees within the ROWs. Maintenance of the trees includes removing dead trees and removing damaged or deteriorated tree limbs which potentially could fall in the roadway causing damage and possible injury. Organic waste is brought to the Yard Waste area of the Landfill.

8.6.3. ROAD KILL REMOVAL

The HWY Dept. removes all dead animals that have been struck and killed by motor vehicles within the roadway. This operation is generally performed by 2 staff members they have all attended and received training in pollution prevention, good housekeeping and stormwater management. The carcasses are brought to an animal cemetery that has been established near the Town's Landfill, and approved by the New York State Department of Environmental Conservation.

8.6.4. STREET SWEEPING

The Highway Department performs the street sweeping operations. There are currently three Hwy Dept. street sweepers in the Town, they are regularly maintained by the Municipal Garage. There are

four staff members that run these sweepers, they have all attended and received training in pollution prevention, good housekeeping and stormwater management. This staff actively maintains records on when and where they have swept and how much debris they have swept off the roadway.

8.6.5. WINTER ROAD MAINTENANCE

The Town is in the planning phase for rehabilitation of the Town's main Highway facility on Osborne Avenue. The rehabilitation would include new salt/storage barns, which would include storage of calcium chloride. This would be stored in a double walled container under a roofed structure. Additional improvements to the facility would include additional vehicle bays for washing and storage. The rehabilitation would reduce the potential for any adverse impacts to human health and environment for the storage of sodium chloride and calcium chloride.

Alternatives: Alternatives to the use of sodium chloride and calcium chloride include magnesium chloride which is essentially equivalent to the two compounds the Town uses in terms of costs and corrosion, as well as calcium magnesium acetate (CMA) and urea. CMA is a biodegradable material made from limestone and acetic acid, and is considered a viable alternative to solid and liquid de-icers due to its low environmental impact. However, this compound melts at a slower rate than conventional salts and is on average 15 to 30 times the cost of conventional salts. Therefore, the Town does not use this material due to fiscal constraints, and vehicular safety concerns. Urea is utilized by airports for de-icing of planes and runways. Due to the high nutrient concentrations, the Town would not utilize this in and around wetlands, as the Town has TMDL's for pathogens on Peconic River, Terry's Creek, and Sawmill Creek.

8.6.6. STORMWATER SYSTEM MAINTENANCE

In the past, cleaning of the stormwater system was sporadic and on an "as needed basis". In the past two years, the Highway Department has developed a policy in which it deploys both the street sweepers and vacuum trucks that it has in inventory. The streets are regularly swept and a log is kept on the roadways, and the residential subdivisions swept. Streets are typically swept after winter maintenance to remove the sand and salt debris, and a few times throughout the year.

Drainage basin cleanings are scheduled during non-freezing temperatures and are logged as to the dates, in coming pipes information. Cleaners inspect for construction types, potential illicit connections, and structural integrity. In the next two years, the Town will incorporate its cleaning, inventory progress in the GIS System.

8.7 EVALUATING AND MEASURING PROGRESS

The Town will evaluate and measure the progress of MCM 6 by maintaining an inventory of all structural drainage components. They will be tracked by the dates of inspections and the cleaning dates. As the frequency of the inspections

increase, the Town is hopeful that there will be a decrease in the deployment of personnel during storm events to perform emergency maintenance.

8.8 ANNUAL REPORT

The annual reporting period ends March 9 of each year. The annual report must be sent to the DEC by June 1 of each reporting year. For MCM 6, the Town will supply the DEC with the following information:

- List each municipal operation/facility that contributes or may potentially contribute POCs to the MS4 system.
- List of Municipal Operations good housekeeping programs
 - Acres of parking lots swept
 - Miles of street swept
 - Inspections of Post Construction Control Practices
 - Lbs of Phosphorus applied in chemical fertilizer
 - Lbs of nitrogen applied in chemical fertilizer
 - Lbs of pesticide/herbicide applied as pure product
- Quantity of stormwater management trainings have been provided to municipal employees.
- Date of last training
- Quantity of municipal employees have been trained in this reporting period
- Percentage of municipal employees in relevant positions and departments receiving stormwater management training.