VILLAGE OF GREENPORT

STORMWATER MANAGEMENT PROGRAM

Municipal Separate Storm Sewer Systems (MS4s)
Permit No. GP-0-24-001
March 2025

Village of Greenport
Department of Utilities and Infrastructure

VILLAGE OF GREENPORT
PHASE II STORMWATER MANAGEMENT PROGRAM
NEW YORK STATE'S SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES
PERMIT NO. GP-0-24-001

FOR

MUNICIPAL SEPARATE STORMWATER SEWER SYSTEMS (MS4s)

MARCH 2025

Prepared for

VILLAGE OF GREENPORT

OWNED AND OPERATED SEPARATE STORMWATER SEWER SYSTEM

Prepared by
VILLAGE OF GREENPORT

DEPARTMENT OF UTILITIES AND INFRASTRUCTURE

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1.0 INTRODUCTION

The Village of Greenport has developed a Stormwater management program (VOGSWMP) as required for coverage under the New York State Pollution Discharge Elimination System (SPDES) General Permit No. GP-0-24-001, specific permit NYR-20A528.

The aim of this program is to control Stormwater runoff discharges from Village facilities, and developed land within the Village to the waters of the United States in accordance with the requirements of Federal Phase II Stormwater regulations under the Clean Water Act. The aim of the Clean Water Act, the Federal Phase II Stormwater regulations and the program proposed in this document is to reduce, to the "maximum extent practicable", pollutants in Stormwater discharges.

The concern for controlling Stormwater 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 non-point 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, floatable, oil, grease, heavy metals, synthetic organics, petroleum hydrocarbons and oxygen demanding substances. The adverse impact of these pollutants in Stormwater discharges include closed beaches, closed shellfish areas and toxic contamination causing fish consumption bans, beach and shoreline litter, and floatable, siltation of marina and shipping channels, habitat/wetland degradation, and stream bank erosion.

The VOGSMWP includes a listing of Best Management Practices (BMP's) that will be implemented by the Village in order to achieve the regulatory standard of reducing pollutants in the Village 's Stormwater to maximum extent practicable. Existing Village Stormwater programs and activities designed to protect the Village's water quality will be supplemented with new BMP activities. Initial measurable goals and an implementation schedule were developed for each of the BMPs in the VOGSWMP. The BMP's, measurable goals, implementation schedule and initial VOGSWMP were developed in house utilizing efforts undertaken by neighboring municipalities as a template.

1.1 PROGRAM DEVELOPMENT

The Village of Greenport has developed a Stormwater management program (VOGSWMP) in accordance with the New York State Discharge Elimination System (SPDES) requirements for obtaining authorization for Stormwater discharges and certain non-Stormwater discharges. This VOGSWMP 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-0-24-001. The VOGSWMP is being developed to facilitate the Village's efforts in reducing Stormwater pollutants from the Village 's municipal separate storm sewer system (MS4) to the maximum extent practicable as required by the SPDES General Permit.
The VOGSWMP describes specific actions that will be taken over a five-year period to reduce

pollutants and protect the Village '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 "Minimum Control Measures" (MCM's) required by the General Permit. The VOGSWMP 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 Village 's streams, ponds, tidal estuaries, embayment's and Greenport Harbor.

1.2 BEST MANAGEMENT PRACTICE SELECTION

The Village of Greenport has historically implemented various Stormwater related BMP's intended to specifically protect the Village 's Stormwater 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 Village 's Stormwater related programs have been collected, summarized and categorized into each of the 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 VOGSWMP is reviewed and modified.

MINIMUM CONTROL MEASURES

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

1. Public Education and Outreach Program
2. Public Involvement / Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post Construction Stormwater Management
6. Pollution Prevention and Good Housekeeping

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

1.3 VILLAGE OF GREENPORT MUNICIPALITY BACKGROUND

The Village of Greenport, located in the on Long Island's north fork in Suffolk County, encompasses an area 1.2 miles wide and extends approximately 1.9 miles from west to east, and covers approximately 1.2 square miles (768 acres). Located 70 miles from NYC, Greenport lies wholly within Southold Town, bordered on the north by County Road 48 and by Greenport Harbor on the south. The eastern and western borders are Stirling Creek on the east and

Moore's Woods to the west.

According to the 2020 U.S. Census Bureau, the population of the Village is 2,583.

The Village of Greenport is governed by the Mayor and four Village Trustees as listed below:

Mayor Kevin Stuessi
Trustee Mary Bess Phillips
Trustee Julia Robins
Trustee Lily-Dougherty-Johnson
Trustee Patrick Brennan

There are several different departments tasked with running the different public service offices of the Village included but not limited to:

Building Department
Electric Department
Housing Office
Sewer Department
Recreation Department
Water Department
Highway Department
Village Clerk's Office

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 Stormwater management plan.

1.3.1.1 PARKS

Parks and recreation resources in the Village include the following:

Location	Features
Mitchell Park	
Front Street, Greenport	Carousel, Marina, The Camera Obscura, Picnic Areas, and a Band Stage/Amphitheatre. Situated on 2.5 acres
3rd Street Park	
3rd Street, Greenport	Swings and Playground Equipment. Situated on 0.6 acres
5th Street Park	
5th Street, Greenport	Bathing Beach, Fishing Pier, Basketball Court, Volleyball Court, and Picnic Areas.
Moore's Woods	
Moore's Lane	Pine Barrens, Walking trails, Jogging trail, and Boy Scout Camping Areas
Pologrounds	
Moore's Lane	Baseball fields, Skate Park, and a large open field for hosting outdoor events

1.3.1.2 LIBRARIES

Floyd Memorial Library

1.3.1.3 SCHOOLS

Greenport Union Free School District

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 Village is essentially flat. Elevations range from sea level along the shores of Greenport Harbor and Stirling Creek, to over 15 feet AMSL in the higher areas.

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 Village are as follows:

Carver-Plymouth: 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: 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 Village between the Long Island Sound and the Peconic River.

Clay: 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 Village include Greenport Harbor, Stirling Creek and Stirling Basin. Other important water bodies include named and unnamed streams, creeks and small ponds. Surface water bodies in the Village are listed below and shown below:

Greenport Harbor

Stirling Creek

Stirling Basin

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 hydro geologic 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.

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 village is well outside any of these areas.

1.4.3 LAND USE

The Village of Greenport has been developed with just two main roadways, Main Street and NYS 25. There is a distinct urbanized downtown area along Front Street (NYS 25). The Village was originally developed on the basis of a working waterfront industry with a surrounding residential neighborhood which the workers in said industries lived. The working waterfront has since shifted to support a tourist industry.

2.0 EXISTING MUNICIPAL STORM SEWERS

During the developing years of Greenport 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 untreated sewage outfalls remaining, there are still many Stormwater outfalls that discharge to water bodies, such as streams, ponds, rivers, Stirling Creek, Stirling Basin, and Greenport Harbor.

The Village 's highway infrastructure currently contains isolated drainage systems that discharge Stormwater to 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 Stormwater resulting from extreme rainfall events to natural and manmade drainage facilities that ultimately discharged to the surface waters of the United States.

The current inventory of Stormwater facilities within the Village include:

6 Stormwater outfalls along the Stirling Creek/Basin

8 Stormwater outfalls along the Greenport Harbor

2.1 HIGHWAY DEPARTMENT

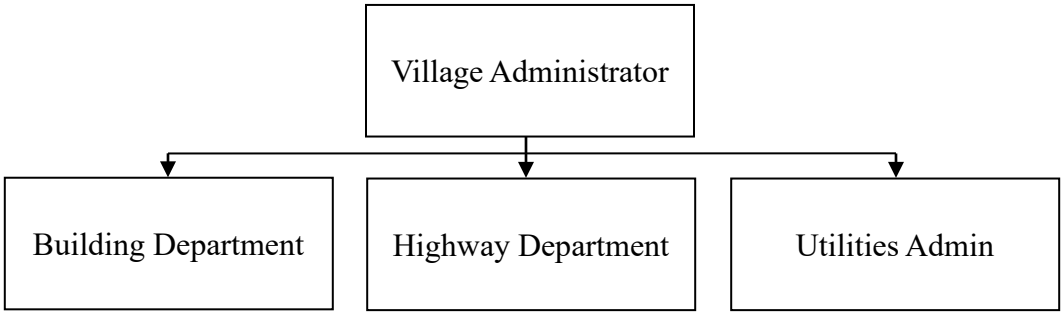
The Greenport Highway Department is charged with maintaining municipal roads which include the un-improved Right-of Ways, the paved way, pedestrian amenities, and Stormwater systems which include the MS4 system of catch basins, leaching pools, and all interconnecting pipes.

2.2 BEST MANAGEMENT PLAN COMMITTEE

The Village has established the Stormwater Management Office (SMO) which is incorporated into the Office of Utilities and Infrastructure. The SMO works directly with the Highway Department Supervisor, Building Department and the Village 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 Illicit Discharge Detection and Elimination (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 Village of Greenport specific to Stormwater is handled by a BMP Committee. A BMP committee is comprised of interested staff within the Village 's organization. The committee represents the Village '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 Village 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 Village 's BMP Committee's organization chart is as follows:



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 Village 's Highway Department. Works to implement Village 's Good Housekeeping Training, Public Awareness Programs.
- Highway Department - develops drainage installations, cleans and rehabilitates Village 's MS4 system. First line of detection of Illicit Discharges.
- Building Department – receives applications for building permits, demolition and excavation permits – land disturbing activities.
- Village Attorney's Office - Drafts code amendments to enhance the Village 's enforcement of the Federal Clean Water Act and the SPDES General Permit for Stormwater Discharges. Interprets legal issues with the SMO.
- Village Board Representative - Provides constituent concerns to the committee members, acts as a liaison to the remaining board members 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 Village 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 Village of Greenport.

2.3.1 BACTERIA IN STORMWATER

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.

Stormwater 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 Stormwater 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 Greenport's waterbodies. High concentrations of pathogens can cause bathing beach closures, and shellfish closures.

The Village of Greenport has one point source discharge that potentially convey concentrations of pathogens to the Long Island Sound and that is the Greenport Sewer District outfall.

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 Village of Greenport has a wastewater collection system which collects wastewater from most area residents and businesses, conveys this wastewater through pumping stations to a central wastewater treatment facility (WWTF) which has recently completed a major upgrade.

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 water bodies 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.

2.3.3 SEDIMENTS AND OTHER DEBRIS

Sediments and other debris such as litter and floatable 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. Stormwater 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 Stormwater 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. The Village of Greenport, being a small community at a low elevation, and in close proximately to a water body 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
Atomospheric 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/NO3
Non-Stormwater 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 Kills fish
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, and the Magothy Aquifer underlies the Glacial Aquifer, followed by the Lloyd 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, and 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 (WQv), a measure of the volume of most polluted Stormwater, the first flush, that washes the road of all pollutants, is based on an equation (WQv= (P*Rv*A)/12). It is designed to improve the water quality sizing to capture and treat 90% of the average annual Stormwater runoff volume. The WQv 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 Village of Greenport it is 1.5.

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.

3.0 MINIMUM CONTROL MEASURE 1 – PUBLIC EDUCATION AND OUTREACH

The Village of Greenport has impaired water bodies that are within the Peconic Estuary System. These surface waters are impaired by Nitrogen, and Pathogens. Generally, land uses within a watershed can be prescriptive in determining pollutant loading.

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. Please see **Appendix A** for the Villages educational outreach materials.

3.1 DISTRIBUTED INFORMATION

The Village has been actively keeping informational Stormwater brochures, septic system brochures and informational posters at all Village Facilities. The Village 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 Village 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 the Building Department. The Village '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. The Village hopes to work with the local Peconic Estuary Program to participate in a training program for the east end townships.

The Village municipal operations, abide by the new legislation regarding the application of fertilizers to reduce potential overloading of nitrogen. The Highway Department 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 Village offers boater pump out services to recreational boaters in Greenport Harbor and Stirling Creek/Basin. In addition, there is a pump out boat that will travel to locations within the Peconic Estuary to pump out boats. Informational brochures for these services are provided at both the Village Hall and the Recreation Department, the brochures include the radio frequency the boaters must utilize to contact the pump out boat.

The Village of Greenport offers yard waste pick up in the fall of each year to the residents of the Village. In addition, the Village will draft modifications to the Village Code pertaining to feeding wild waterfowl. This will serve to attempt to reduce the toxic effects of wild waterfowl sanitary wastes.

3.2 VILLAGE FACILITY INFORMATION

The goal of public education is to prevent or reduce nonpoint source pollutant loadings generated from a variety of activities within the Village with special emphasis given to the activities which contribute to Nitrogen and Pathogen loadings. The Village will maintain 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 Village residents, in the next 3 years, the Village will begin implementing a pro-active education within the school district.

3.3 VILLAGE OF GREENPORT WEBSITE

The Village of Greenport maintains a website (www.villageofgreenport.com), and will develop 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 EVALUATING AND MEASURING PROGRESS

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

3.5 ANNUAL REPORTING

The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 1, the Village will supply the DEC with the following information:

- Who the targeted audiences were and what topics were included
- What strategies the Village used to achieve the education and outreach goals
- Web Pages that the information is posted on
- How the Village evaluates and measures the progress

4.0 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 Village will have a website page devoted to informing the public on initiatives the Village is taking to improve water quality of the Peconic Estuary system, and other water bodies in the Village. 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 BIO RETENTION BASINS

The Village installed two Bio Retention Basins to minimize the number of pollutants entering Greenport Harbor and Stirling Creek/Basin. A swale was installed at the 4th Street Park which also included repaving part of the end of 4th Street with porous paving material to allow water to infiltrate the soil instead of Greenport Harbor. The Village completed this project in October of 2020.

The second basin is a smaller swale which was installed at the end of Manor Place and prevents stormwater run-off from entering Stirling Creek.

4.3 GREENPORT SCHOOL DISTRICT

The Village 's Stormwater Management Office will be working integrally with the Greenport School District in the next 3 years to provide education regarding Stormwater Runoff and Illicit Discharges.

4.4 CONSERVATION AND RECYCLING

The Village realizes that part of the Stormwater management program deals with good housekeeping, conservation, recycling, and efficiency. The Village has re-vamped 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. In addition, the Village pays for the electric usage of all street lights on Village properties, we will determine if there has been a savings in electricity, and if there has been a savings in replacement parts for street lighting. 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.

4.5 EVALUATING AND MEASURING PROGRESS

The Village will keep an inventory of all public involvement programs, attendance will be taken. The Village 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.

4.6 ANNUAL REPORTING

The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 2, the Village 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

5.0 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 VI 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 Village has determined to be a substantial contributor of pollutants to the small MS4.

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 Village departments and Emergency responders who may witness potential illicit discharges. The Village 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 Village has successfully mapped the outfalls to Stirling Creek/Basin and Greenport Harbor. We will continue to work with the SMO on mapping the MS4 within the priority watershed. As the program develops; more information on the construction of the isolated drainage structures and the pipes that enter / exit the structure will be made available. Pipe inverts and sizes will be noted as distances from the top of casting. Please see **Appendix B** for the Villages outfall location map.

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 Village 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.

5.5 VILLAGE CODE AMENDMENTS

On October 27, 2014, the Village of Greenport adopted local law for the addition "Chapter 114A – Stormwater Management; Prohibition of Illicit Discharges, Activities and Connections to the Village of Greenport Municipal Separate Storm Sewer System (MS4)" of the Greenport Village Code. Chapter 114A 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 Village will pursue to eliminate any illegal connections. Please see **Appendix F** for Village local codes.

5.6 ILLICIT DISCHARGE EDUCATION

The BMP committee is currently developing a program to educate the public on the dangers of Illicit Discharges.

Greenport School District – 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 Village 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 Village Highway Department maintains the Village 's MS4 system. Typical maintenance operations that the Highway Department performs include but are 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 Highway Department 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 Highway Department contacts the SMO, if it is an immediate

potential hazard; the Southold Town Police Department is contacted.

5.7.1.2 DRAINAGE STRUCTURE CLEANING

Highway Department actively cleans out drainage infrastructure. The Highway Department currently has access to a vacuum truck that is utilized for removing debris that has accumulated in drainage catch basins, leaching pools, and manholes. The Highway Department has been provided with overviews and ongoing 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 Highway Department 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 Highway Department contacts the SMO, if it is an immediate potential hazard; the Southold Police Department is contacted.

5.7.2 BUILDINGS AND GROUNDS DIVISION

Individual departments are charged with maintaining the Village 's buildings and grounds, including all parks. Maintenance of the parks includes the drainage infrastructure. When drainage structures require cleaning, Engineering Aide assesses the conditions, then contacts the Highway Department. 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 Highway Department 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 Highway Department contacts the SMO, if it is an immediate potential hazard; the Southold Police Department is contacted.

5.7.3 EMERGENCY SERVICES

The Village 's Emergency Services include the Southold Police Department and Greenport Fire Department. During motor vehicle accidents, they are the first responders, and are able to assess the immediate effects of the accident. If there are any penetrations to holding tanks of the vehicles, they alert appropriate departments such as the NYSDEC or Highway Department to protect the Village 's MS4 system and the environment. If during the assessment, they observe dry weather flow; they will contact the Southold Police Department or the SMO depending on the severity of the issue.

5.8 EVALUATING AND MEASURING PROGRESS

The Village 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 an illicit discharge will be reduced.

5.9 ANNUAL REPORTING

The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 3, the Village will supply the NYSDEC 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/ sewer sheds 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 sewer shed mapping has been completed
- If the information is available on GIS
- What percent of staff in relevant positions and departments have received IDDE training.

6.0 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 VILLAGE CODE AMENDMENTS

On October 27, 2014, the Village of Greenport adopted local law for the addition "Chapter 114 – Stormwater Management and Erosion and Sediment Control Regulations" of the Greenport Village Code. Chapter 114 was modeled after the State policies and procedures for Site Developers to prepare a Stormwater Pollution Prevention Plan (SWPPP) for review by the Village of Greenport.

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.

6.4 PROGRAM

The Village will prepare informational pamphlets for developers entering 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. Please see **Appendix C & D** for NYSDEC SWPPP Checklists, Inspection Forms and EPA Guide for SWPPP.

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 Stormwater

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 Village of Greenport 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.

6.4.3 BEST MANAGEMENT PRACTICES – THIRD PARTY CERTIFICATION

The Village of Greenport requires all contractors to sign a Third-Party Certification Acceptance Form. A copy of this form is provided during the permit process.

6.5 EVALUATING AND MEASURING PROGRESS

The Village 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.

6.6 ANNUAL REPORTING

The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 4, the Village will supply the NYSDEC with the following information:

- If the Village has adopted a law that provides equal protection to the NYS SPDES General Permit
- Does that Village have a SWPPP review procedure in place
- How many SWPPPS have been reviewed in the reporting period
- Does the Village have a mechanism for receipt and consideration of public comments related to construction SWPPPs

- Does the Village 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.
- o all inspectors working for the Village use the NYS Construction Stormwater Inspection Manual

7.0 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 Village of Greenport 's Stormwater is infiltrated by way of recharge basins with no pre-treatment.

7.2 NON-STRUCTURAL BEST MANAGEMENT PRACTICES

Nonstructural 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 Village Government, the enactment of Village Code amendments, zoning restrictions, and education.

7.2.1 VILLAGE CODE AMENDMENTS

On October 27, 2014, the Village of Greenport adopted local law for the addition "Chapter 114 – Stormwater Management and Erosion and Sediment Control Regulations" of the Greenport Village Code. Chapter 114 was modeled after the State policies and procedures for Site Developers to prepare a Stormwater Pollution Prevention Plan (SWPPP) for review by the Village of Greenport.

As part of this code amendment, the Village requires the owner/operator of the permanent Stormwater management practices installed in accordance with Village 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.

7.2.2 PUBLIC EDUCATION

The Village 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 Stormwater 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 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, an 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 Village shall establish retrofitting protocols for redevelopment sites. The Village 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 Village shall implement a program to build retrofitting into the Village facilities, capital improvements and facilities maintenance program. The Village will continue to retrofit Stormwater facilities as it is economically feasible. Public education and involvement are most probable in low impact areas such as roof runoff.

7.5 EVAULATING AND MEASURING PROGRESS

To evaluate and measure the progress of MCM 5 the Village 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 Village is installing as well as recommending these for use in private developments.

7.6 ANNUAL REPORTING

The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 5, the Village will supply the NYSDEC with the following information:

- How many and what type of post-construction Stormwater management practices has the

Village inventoried, inspected, implemented in the period

- Does the Village 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?

8.0 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 water quality. Please see **Appendix E** for the Stormwater Management Plan for Employees.

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 VILLAGE FACILITIES AND OPERATIONS

The Village has many facilities which it operates for public interaction:

Mary H. Smith Recreation Center
Mitchell Park Complex
Greenport Water Department
Greenport Sewer Department
Greenport Highway Department
Greenport Municipal Electric Department
Village Hall

8.4 BUILDING MAINTENANCE

Each individual department maintains its own department specific buildings in terms of maintenance and repairs. As buildings require renovations, the Village attempts (to the maximum extent practicable) to comply with LEED requirements. The interior lighting has been converted to high efficiency bulbs in Village Hall, Village owned Power Plant, Village Road Barn, and

Wastewater Treatment Facility.

When existing mercury containing lighting is at the end of its useful life such as fluorescent interior lighting or exterior street lights, the Village stores these materials for proper disposal in accordance with the Federal legislation.

8.5 VILLAGE PARKS

Highway Department also maintains all of the Village Parks.

8.5.1 GRASS MOWING

Highway Department uses mulching lawn mowers to cut grass in the Village Parks. The clippings are returned to the soil for fertilizer.

The Highway Department maintains approximately 8 mowers. These mowers are inspected for leaks and any other fluid leaks, and efficient operation.

8.6 ROADWAY MAINTENANCE

8.6.1 GRASS MOWING

The Highway Department also owns and maintains mowers which are utilized to mow the Right of Ways (ROWs) of the Village's roadway system.

8.6.2 TREE TRIMMING

The Highway Department 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.

8.6.3 ROAD KILL REMOVAL

The Highway Department 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 the Town of Southold's Landfill for proper disposal.

8.6.4 STREET SWEEPING

The Highway Department performs the street sweeping operations. There is currently only one Highway Department Street sweeper for the Village; it is regularly maintained by the department. There are three staff members that run this sweeper, they have both 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 Village has completed a rehabilitation of the Village 's Road Barn Highway facility on Sixth Street. The rehabilitation included new salt storage bins. The bins are located under a roofed structure. The rehabilitation helps 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 Village 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 Village 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 Village would not utilize this in and around wetlands, as the Village has TMDL's for pathogens in Stirling 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 our street sweepers and vacuum trucks [when available.] 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. Cleaners inspect for construction types, potential illicit connections, and structural integrity. In the next two years, the Village will incorporate its cleaning, inventory progress in the GIS System.

8.7 EVAULATING AND MEASURING PROGRESS

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

8.8 ANNUAL REPORT

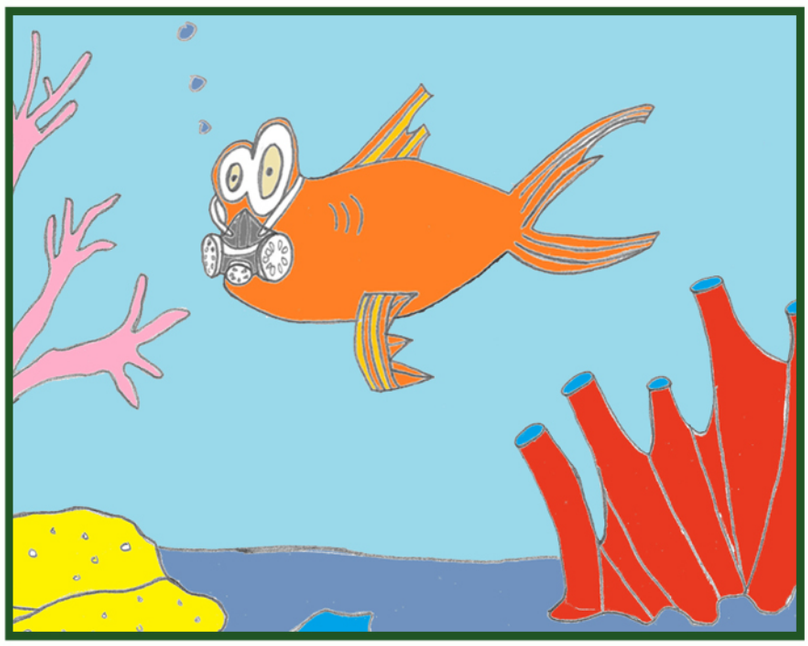
The annual report must be sent to the NYSDEC by April 1st of each reporting year. For MCM 6, the Village will supply the DEC with the following information:

- 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 applies 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.

APPENDIX A

EDUCATIONAL OUTREACH MATERIALS

Would you leave your pet's waste inside your home?



No???
Then don't leave it in ours!

Pet waste is the leading source of harmful bacteria that makes our waterways unsafe for swimming and other recreational activities. Leaving pet waste on lawns or sidewalks means that harmful bacteria can get washed into our waterways.

Waste left by a dog on any property other than the owner's must be promptly cleaned up by the pet owner and properly disposed of in the trash. It's the Law.

Whether you are walking the neighborhood or strolling along the bulkhead, collect your pet's waste in a plastic bag and dispose of it.

Never bury pet waste because that does not kill the harmful bacteria.

For your convenience, pet waste bag stations are located around the Village, but it is always a good idea to carry your own clean-up bags.

Local Pump-Out Facilities

Location	Contact Information	Facility Type
Village of Greenport - Greenport Harbor Greenport, NY	Ch. VHF 73 631.477.2200	Pump-out Vessel ($5 fee)
Village of Greenport - Stirling Creek Greenport, NY	Ch. VHF 73 631.477.2200	Pump-out Vessel ($5 fee)
Village of Greenport - Mitchell Park Marina Greenport, NY	Ch. VHF 73 631.477.2200	Pump-out Station (Free)

For More Information about NDZs

For more information about the No Discharge Zone designation for Greenport Harbor, Stirling Creek and the Peconic River Estuary, contact:

- NYSDEC Division of Water at: 518.402.8179;
- Your local marina or yacht club;
- Or on the web: http://www.dec.ny.gov/chemical/73875.html

The symbol below is used to designate a Clean Vessel Act Pump-Out Station:

This pamphlet and others describe how to prevent storm water pollution and improve water quality.

For more information about ways to prevent stormwater pollution and improve water quality, please visit our website:

www.villageofgreenport.org

This pamphlet was developed as part of the Village of Greenport's Stormwater Management and Watershed Management Programs.

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Boater's Guide

No Discharge Zones and Pump-Out Facilities

Discharge Control for:

Greenport Harbor
Stirling Creek
Peconic River Estuary

What is a No Discharge Zone (NDZ)?

A No Discharge Zone (NDZ) is a designated area where the overboard discharge of all treated and untreated boat sewage is prohibited. This means that vessels with either through-hull waste disposal systems (Types I and II Marine Sanitation Devices or MSDs) or holding tanks (Type III MSDs) must use approved pump-out facilities within the No Discharge Zone.

Why are No Discharge Zones created?

Sewage wastes may degrade water quality by introducing contaminants into a marine environment. Pathogens and bacteria introduce diseases like hepatitis, typhoid fever and gastroenteritis to people in the water. They can also contaminate shellfish beds.

The waters of Greenport Harbor and Stirling Creek are designated as No Discharge Zones.

Pumping wastes into designated pump-out facilities helps keep the environment clean. This is healthier for all bays, estuaries, and ocean waters.

What must I do to comply?

When boating in a No Discharge Zone; sewage from Type I, II, and III MSDs cannot be discharged from your vessel. Type I and II MSDs must be secured to prevent discharge. Closing the seacock and padlocking it, using a non-releasable wire tie, or removing the seacock handle (with it closed) would suffice. Locking the door of the head with a padlock or other suitable method is another acceptable method of preventing discharge while in a NDZ.

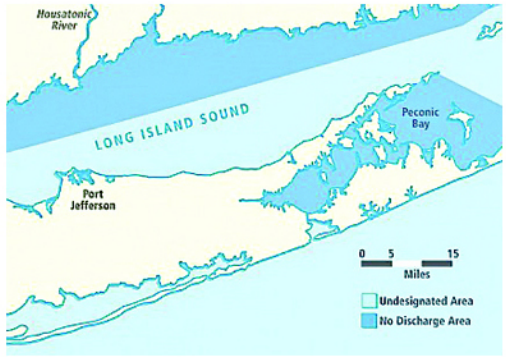
Holding tanks (Type III MSDs) and portable toilets are the only sanitary equipment that can be used in a NDZ. Portable toilets are not subject to MSD regulations, but are subject to disposal regulations which prohibit the disposal of raw sewage within the 3-mile limit or territorial waters of the United States, the Great Lakes, or navigable rivers.

Enforcement

These regulations are enforceable by any agent with authority over marine resources, including, but not limited to, NYSDEC law enforcement, harbormasters, and police officers assigned to patrol the waters of New York State.

No Discharge Zones Map

Peconic River Estuary Map



The Peconic River Estuary is a habitat to many species of aquatic life. The brackish waters have made it an ideal place for clams, oysters and bay scallops.

How do I pump-out?

The Village of Greenport offers pump-out services both at the pier and on the water. Contact information is provided on the back of this pamphlet.

It is Illegal to Dump any Waste from a Vessel in the Waters of Greenport Harbor, Stirling Creek, or any other part of the Peconic River Estuary.

How can you make a difference?

It only takes one person to make a change. Each person that takes time to understand how feeding Waterfowl can have adverse effects can make a difference.

It is hard to believe that one littered bag of potato chips or a handful of bread could amount to such a big problem.

Habitual feeders think that they are helping the animals but in actuality are hurting them.

- Do Not Feed Waterfowl! Wild animals can locate food sources on their own. It is best to let them be wild and find their own natural sources.

- Instead use your free time to educate others on the adverse affects of feeding Waterfowl.

For More Information About Waterfowl

Contact:

NYS Dept. of Environmental Conservation
Bureau of Wildlife
Albany, NY 12233
518.402.8883
fwwildlf@gw.dec.state.ny.us
http://www.dec.ny.gov/animals/7001.html

For Water Quality Information

This pamphlet and others describe how to prevent storm water pollution and improve water quality.

For more information about ways to prevent stormwater pollution and improve water quality, please visit our website:

www.villageofgreenport.org

This pamphlet was developed as part of the Village of Greenport's Stormwater Management and Watershed Management Programs.

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Waterfowl Guide

Don't foul it up!

Stop feeding the waterfowl.

Keep them wild!

Check it out!

Long Island is an important breeding and wintering habitat to waterfowl. Waterfowl can find all the proper nutrients they need throughout the year on Long Island. Waterfowl have adapted to migrate distances without the assistance of humans. This natural occurence can be adversely affected when birds overstay their seasonal welcome.

Feeding is bad for all!

Often, people who feed waterfowl think they are being helpful. Unfortunately this is a terrible misconception. Feeding waterfowl most certainly has adverse effects on ecology, the environment, and social order.

"People food" is not a balanced diet for waterfowl. The low quality foods - bread, chips, popcorn and other "people foods" lack the proper nutrition for the birds. This can lead to birth defects and other ailments which can decrease the life expectancy of the waterfowl.

In general, people should never feed waterfowl or wild animals.

Diseases and Water Pollution

Areas where public feedings occur are havens for large groups of birds. This can lead to the overgrazing of plants, soil erosion and generally unsanitary conditions. Accumulations of droppings from birds in confined spaces such as harbors and creekscan cause algal blooms and elevated fecal coliform levels in the water. This can ultimately lead to beach and shellfish area closures.

Feeding can also result in malnourished waterfowl that are competing for food in crowded, dirty conditions. Diseases, such as avian flu, botulism, and avian cholera thrive well under those conditions. Another concern for waterfowl is aspergillosis, which is fatal to birds and is contracted by eating moldy, rotten grain products.

Fifth Street Park Greenport, NY

The South never seemed so far away!

Waterfowl, as do all animals, can become conditioned to being fed by humans. This can present a problem for birds that must fly South to survive the harsh Winters. Birds can be reluctant to leave if they are receiving everything they need. If the feeding is stopped in time, the birds can stand a chance.

"Mommy, that bird is acting weird"

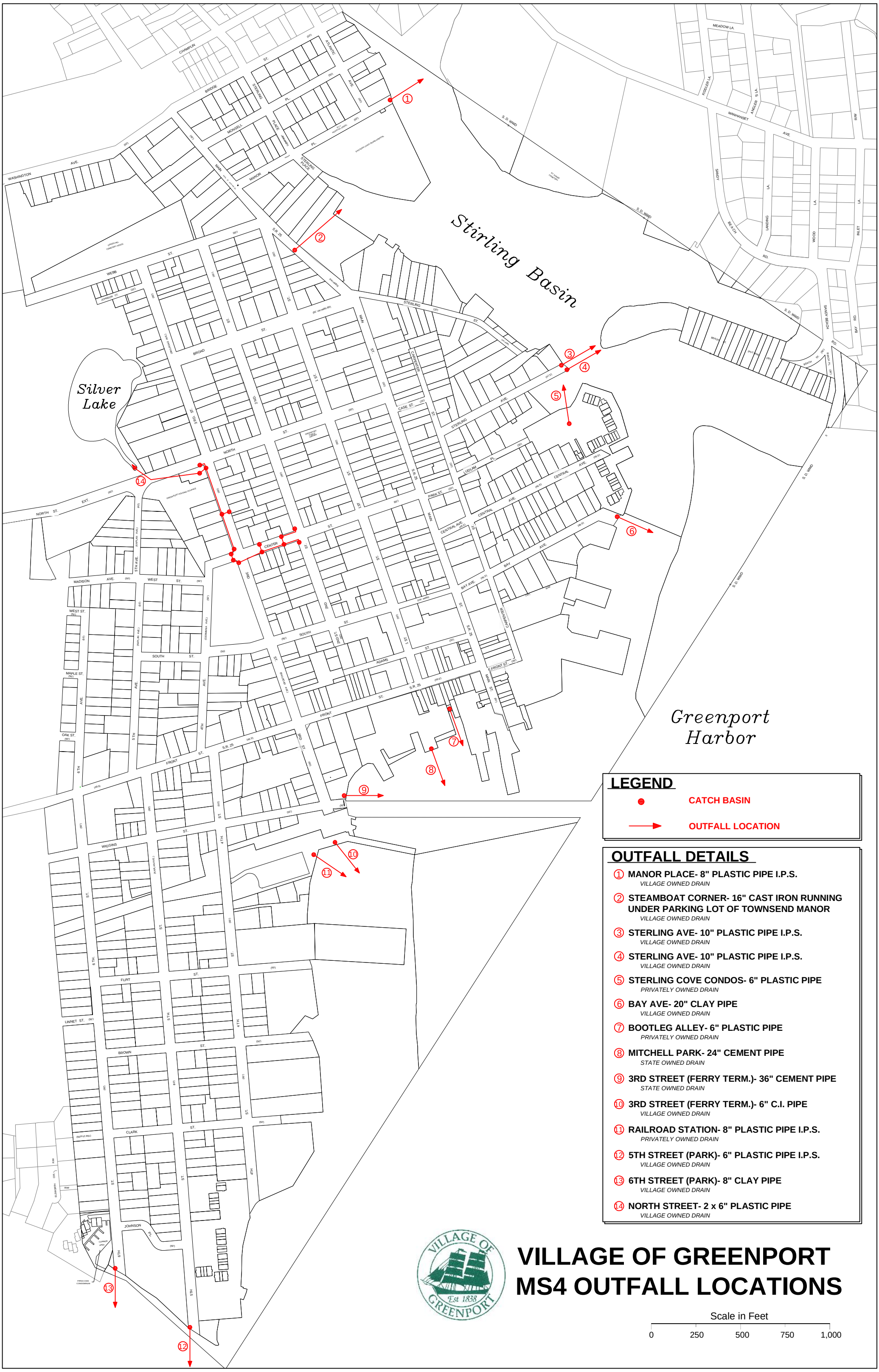
Waterfowl can become quite comfortable with being fed regularly by humans. Beware the negative effects: loss of competitiveness, increased aggression, and behavior less wary of humans. In certain situations, the birds can seem vicious. Any time wildlife attack, people can be hurt, especially young children.

Hybrids? Good? Maybe in cars!

Feedings by humans often attract wild and domestic waterfowl to the same location. This increases the chances that hybridization can occur among species. This can actually weaken a gene pool and damage the integrity of wild waterfowl populations.

APPENDIX B

VILLAGE OF GREENPORT OUTFALL LOCATION MAP



LEGEND

- CATCH BASIN
- OUTFALL LOCATION

OUTFALL DETAILS

① **MANOR PLACE- 8" PLASTIC PIPE I.P.S.**
VILLAGE OWNED DRAIN

② **STEAMBOAT CORNER- 16" CAST IRON RUNNING UNDER PARKING LOT OF TOWNSEND MANOR**
VILLAGE OWNED DRAIN

③ **STERLING AVE- 10" PLASTIC PIPE I.P.S.**
VILLAGE OWNED DRAIN

④ **STERLING AVE- 10" PLASTIC PIPE I.P.S.**
VILLAGE OWNED DRAIN

⑤ **STERLING COVE CONDOS- 6" PLASTIC PIPE**
PRIVATELY OWNED DRAIN

⑥ **BAY AVE- 20" CLAY PIPE**
VILLAGE OWNED DRAIN

⑦ **BOOTLEG ALLEY- 6" PLASTIC PIPE**
PRIVATELY OWNED DRAIN

⑧ **MITCHELL PARK- 24" CEMENT PIPE**
STATE OWNED DRAIN

⑨ **3RD STREET (FERRY TERM.)- 36" CEMENT PIPE**
STATE OWNED DRAIN

⑩ **3RD STREET (FERRY TERM.)- 6" C.I. PIPE**
VILLAGE OWNED DRAIN

⑪ **RAILROAD STATION- 8" PLASTIC PIPE I.P.S.**
PRIVATELY OWNED DRAIN

⑫ **5TH STREET (PARK)- 6" PLASTIC PIPE I.P.S.**
VILLAGE OWNED DRAIN

⑬ **6TH STREET (PARK)- 8" CLAY PIPE**
VILLAGE OWNED DRAIN

⑭ **NORTH STREET- 2 x 6" PLASTIC PIPE**
VILLAGE OWNED DRAIN

VILLAGE OF GREENPORT
MS4 OUTFALL LOCATIONS

Scale in Feet

0 250 500 750 1,000

APPENDIX C

NYSDEC SWPPP CHECKLISTS

CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

APPENDIX E
EROSION AND SEDIMENT CONTROL
PLAN REVIEW CHECKLIST

Project Name _____ Site Location _____

Applicant's Name & Address _____
_____

General

A narrative statement shall be provided that describes the proposed project nature and purpose; the existing site conditions including topography, vegetation and drainage; adjacent and off-site areas affected by the project; description of the soils on the site and key properties; notations of critical areas such as steep slopes, channels or wetlands; the overall phasing, sequencing and stabilization plan; total disturbed area and, areas not to be disturbed, and soil restoration plan.

I. Construction Drawings

Are the following items shown on the construction drawings:	Yes	No
1. Vicinity Map with scale and north arrow	____	____
2. Legend, scales, N arrow on plan view	____	____
3. Existing and proposed topography shown with contours labeled with spots elevations in critical areas	____	____
4. Scope of the plan noted in the Title Block	____	____
5. Limits of clearing and grading shown , and methods of spoil disposal	____	____
6. Existing vegetation delineated	____	____
7. Soil boundaries shown on the existing and proposed plan views	____	____
8. Existing drainage patterns, 100 year floodplain and sub-areas shown, runoff outfall locations identified	____	____
9. Existing and proposed development facilities/ improvements shown	____	____
10. Location of Erosion and Sediment control practices as phased with construction, with dimensions and material specifications	____	____
11. Phasing plan with 5 acre threshold limits shown	____	____
12. Stockpile locations, staging areas, access points, and concrete trunk washout locations clearly defined	____	____
13. Street profiles, utility locations, property boundaries and, easement delineations shown	____	____
14. Soil Restoration Plan detailed on the site plan	____	____

II. Construction Notes & Details	Yes	No
1. Specific sequence of operation given for each phase	____	____
2. Inspection and maintenance schedule shown for the specific practices	____	____
3. Design details show all dimensions and installation details necessary for construction	____	____
4. Implementation schedule for E&S practices is provided with removal criteria stated	____	____
5. Site pollution and construction waste management plan incorporated in the notes	____	____
6. Site Inspections during construction are noted on the drawings and are in accordance with the General Permit for Stormwater Discharges from Construction Activities	____	____

III. Erosion & Sediment Control Practices

A. General	Yes	No
1. Practice meets purpose and design criteria	____	____
2. Standard details and construction notes are provided	____	____
3. Special timing of practice noted if applicable	____	____
4. Provisions for traffic crossings shown on the drawings where necessary	____	____

B. Practices Controlling Runoff	Yes	No
1. Positive drainage is maintained with contributing drainage area shown	____	____
2. Flow grades properly stabilized	____	____
3. Adequate outlet or discharge condition stabilized	____	____
4. Necessary dimensions, gradations, calculations, and materials shown	____	____

C. Practices Stabilizing Soil	Yes	No
1. Seeding rates and areas properly shown on the drawings	____	____
2. Mulch materials and rates specified on the drawings	____	____
3. Sequencing and timing provisions limit soil exposure to 7 to14 days as appropriate	____	____

C. Practices Stabilizing Soil (cont'd)	Yes	No
4. Rolled Erosion Control Products (RECP's) used are specified to location and appropriate weight/tie down	____	____
5. All soil seed bed preparation and amendments are specified on the drawings or in the specifications	____	____
6. The seeding dates are specified to cover the entire year for both temporary and permanent seedings	____	____
7. Maximum created slopes are no steeper than 2 foot horizontal to 1 foot vertical with Cut and Fill slopes shown	____	____

D. Practices Controlling Sediment	Yes	No
1. Sediment traps/basins are sized in accordance with criteria	____	____
2. The contributing drainage area is shown on the grading plan	____	____
3. All scaled dimensions and volumes are shown on the plan	____	____
4. Maintenance requirements and clean out elevations established for all sediment control practices (50% capacity)	____	____
5. All access points of the project are shown to be stabilized	____	____
6. Storm drain inlets adequately protected	____	____
7. Buffer filter strips are appropriately sited and installed	____	____
7. Silt fences are shown on the contour lines with no more than one quarter acre per 100 foot drainage to it	____	____
8. Temporary sediment traps are not being used at locations of future stormwater infiltration facilities	____	____
9. Dewatering devices for traps and basins are adequately designed with details shown on the plans	____	____
10. Geotextile filter bags are properly sited, sized, and have their maintenance requirements detailed on the drawings	____	____
11. Turbidity curtains are properly located with installation, anchoring, and maintenance details shown on the plans	____	____

Additional Comments and Notes

Plan Reviewed By: _____ Date: _____

APPENDIX D

EPA GUIDE FOR SWPPP

Developing Your Stormwater Pollution Prevention Plan

A Guide for Construction Sites

EPA-833-R-06-004
May 2007

Developing Your Stormwater Pollution Prevention Plan

A Guide for Construction Sites

Who?

Construction site operators (generally, the person who has operational control over construction plans and/or the person who has day-to-day supervision and control of activities occurring at the construction site)

Where?

Construction sites required to comply with stormwater discharge requirements

What?

A guide to help you develop a good Stormwater Pollution Prevention Plan (SWPPP)

Why?

Stormwater runoff from construction sites can cause significant harm to our rivers, lakes, and coastal waters

A SWPPP is required (by your construction general permit) and will help you prevent stormwater pollution

A SWPPP is more than just a sediment and erosion control plan.
It describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act

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Purpose of this Guidance Document

This document provides guidance to construction site operators that need to prepare a SWPPP in order to receive NPDES permit coverage for their stormwater discharges. The Clean Water Act provisions, EPA regulations and EPA's Construction General Permit described in this document contain legally binding requirements. This document does not substitute for those provisions, regulations or permit, nor is it a regulation or permit itself. It also does not substitute for requirements under State law or construction general permits issued by States. It does not impose legally-binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the circumstances. EPA and State decisionmakers retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance where appropriate. Any decisions regarding a particular construction site will be made based on the applicable statutes, regulations and/or permit terms. Therefore, interested parties are free to raise questions and objections about the appropriateness of the application of this guidance to a particular situation, and EPA—or the applicable NPDES permitting authority—will consider whether or not the recommendations or interpretations in the guidance are appropriate in that situation based on the law and regulations.

This guidance document occasionally uses language describing mandatory requirements for construction site operators and those covered by a general permit for stormwater discharges from such sites. This language is generally intended to reflect requirements applicable where EPA is the NPDES permitting authority. Although requirements in jurisdictions where EPA is not the permitting authority may resemble these requirements, the reader should not assume that this guidance accurately describes those requirements. Rather, the reader should consult the applicable regulations and any applicable NPDES permit.

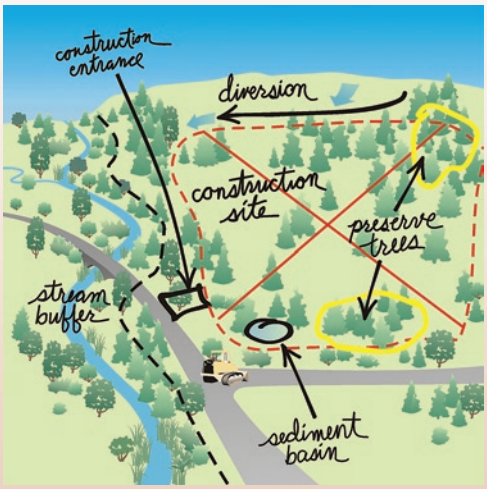
Contents

What is a Stormwater Pollution Prevention Plan (SWPPP)?

A SWPPP may be called many things. Your state may use terms like:

- **Construction Best Practices Plan**
- **Sediment and Stormwater Plan**
- **Erosion, Sediment, and Pollution Prevention Plan**
- **Construction Site Best Management Practices Plan**
- **Erosion Control Plan and Best Management Practices**
- **Best Management Practices Plan**
- **Erosion and Sediment Control Plan**

Regardless of the title used in your state, these documents—and the stormwater permits that require them—tend to have many common elements. This guide is intended to help you develop a better SWPPP for your construction site.



Example sketch identifying various points to address in the SWPPP.

How to Use This Guide

- This guide was developed as a helpful reference guide for construction site operators across the country. We have tried to accommodate the wide range of knowledge and experience about stormwater pollution prevention that currently exists among operators—from novice to expert.
  - If you are relatively new to managing stormwater at a construction site, you will probably want to read this entire guide.
  - If you are very experienced and familiar with the requirements in your state, this guide may help you brush up on certain requirements or provide you with ideas to improve your SWPPP. You might want to review the table of contents and skip around. Be sure to take a look at the SWPPP template (Appendix A) to see if you can make improvements in the way you develop and maintain your SWPPP.

- This guide is written in a general format and can be used at most construction sites in any state, territory, or in Indian country. The document assumes that you will obtain discharge authorization under an appropriate National Pollutant Discharge Elimination System (NPDES) construction general permit and use both the permit and this guidance to assist in developing your SWPPP. In this guide, we make some references to the U.S. Environmental Protection Agency's Construction General Permit for illustrative purposes. **You should always consult your applicable NPDES permit for the exact requirements that apply to you**.

- Remember that you are developing your SWPPP for both your use and for review by the regulatory agencies responsible for overseeing your stormwater controls. As such, one of your goals in developing your SWPPP should be to present the information in a way that clearly demonstrates that it meets all the requirements of your NPDES permit.

- You can obtain an electronic copy of this guide (PDF format), the SWPPP template, and inspection form (in Microsoft Word) at **www.epa.gov/npdes/swpppguide**

Chapter 1: **Introduction**

▶ This chapter provides an orientation to this guide and its contents and describes why stormwater controls at construction sites are necessary.

A. Why Should You Use this Guide?

If you are responsible for erosion and sediment control and stormwater management at a permitted construction site, then this guide may be useful to you. This guide is designed to walk you through the steps for developing and implementing an effective stormwater pollution prevention plan (SWPPP). The basic outline of the guide is presented below:

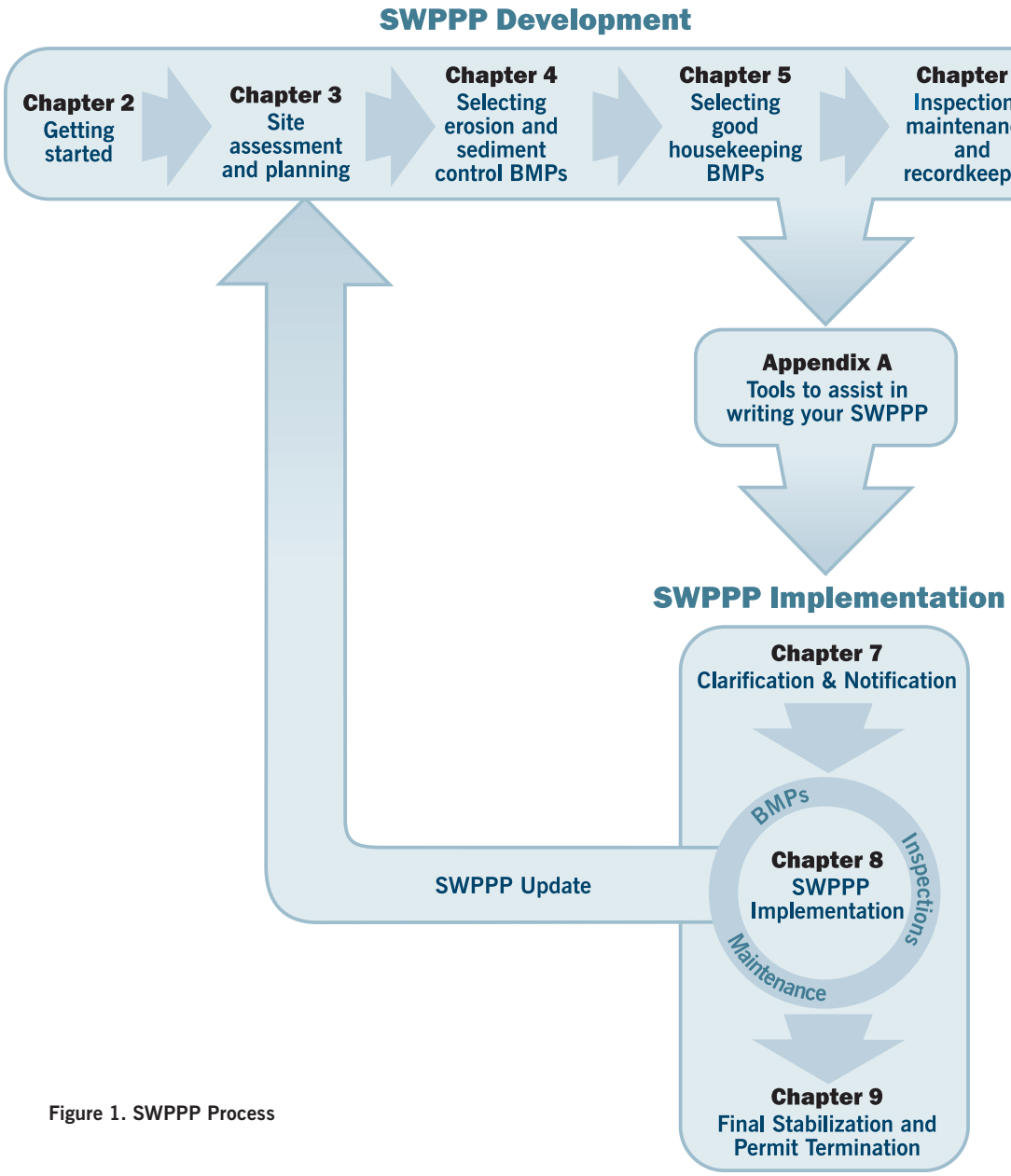


Figure 1. SWPPP Process

Take a Closer Look…

What is a SWPPP?

A SWPPP is a site-specific, written document that:

- Identifies potential sources of stormwater pollution at the construction site
- Describes practices to reduce pollutants in stormwater discharges from the construction site. Reduction of pollutants is often achieved by controlling the volume of stormwater runoff (e.g., taking steps to allow stormwater to infiltrate into the soil).
- Identifies procedures the operator will implement to comply with the terms and conditions of a construction general permit

What does this mean to me?

Failure to implement your SWPPP could result in significant fines from EPA or a state environmental agency. Therefore, it is important that you develop your SWPPP to address the specific conditions at your site, fully implement it, and keep it up-to-date to reflect changes at your site.

B. What Is Stormwater Runoff and What Are Its Impacts?

Stormwater runoff is rain or snowmelt that flows over land and does not percolate into the soil. Stormwater runoff occurs naturally, in small amounts, from almost any type of land surface, especially during larger storm events. Impervious surfaces, such as buildings, homes, roads, sidewalks, and parking lots, can significantly alter the natural hydrology of the land by increasing the volume, velocity, and temperature of runoff and by decreasing its infiltration capacity. Increasing the volume and velocity of stormwater runoff can cause severe stream bank erosion, flooding, and degrade the biological habitat of these streams. Reducing infiltration can lower ground water levels and affect drinking water supplies.

SWPPP Tip!

A SWPPP can have different names

A SWPPP may also be called a *"construction best practices plan," "sediment and stormwater plan," "erosion, sedimentation, and pollution prevention plan,"* or similar term. The SWPPP (or similarly named plan) is generally required to comply with EPA's or the state's stormwater construction general permit.

In addition, as stormwater runoff moves across surfaces, it picks up trash, debris, and pollutants such as sediment, oil and grease, pesticides and other toxics. Changes in ambient water temperature, sediment, and pollutants from stormwater runoff can be detrimental to aquatic life, wildlife, habitat, and human health. Soil exposed by construction activities is especially vulnerable to erosion. Runoff from an unstabilized construction site can result in the loss of approximately 35–45 tons of sediment per acre each year (ASCE and WFF, 1992). Even during a short period of time, construction sites can contribute more sediment to streams than would be deposited naturally over several decades. Excess sediment can cloud the water reducing the amount of sunlight reaching aquatic plants, clog fish gills, smother aquatic habitat and spawning areas, and impede navigation in our waterways.

The primary stormwater pollutant at a construction site is sediment. To control erosion at a construction site, it is important to understand the different types of erosion that can occur. Erosion begins when raindrops break down the soil structure and dislodge soil particles. Runoff carrying the soil particles becomes sheet erosion which eventually forms smaller rills and larger gullies. The best way to stop erosion is to keep the soil in place through vegetation, erosion control blankets, or other methods that prevent the soil from becoming dislodged during rain events.

The erosion process is typically influenced by climate, topography, soils, and vegetative cover. Understanding how these factors influence erosion will help you select and design appropriate controls to minimize erosion from your construction site.

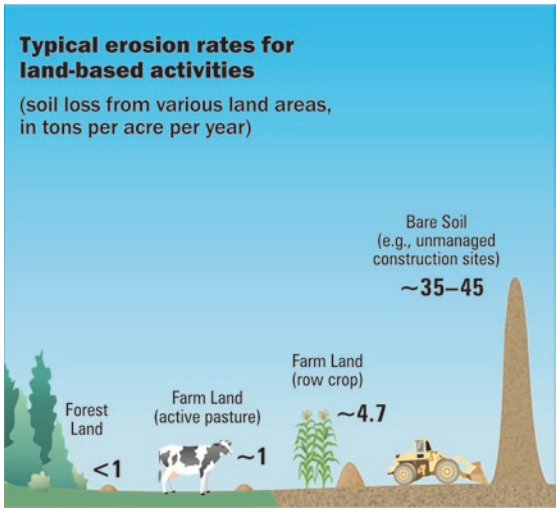


Figure 2. Typical erosion rates from land-based activities. (Dunne, T. and L. Leopold, 1978; NRCS, 2000; NRCS, 2006; ASCE and WEF, 1992)

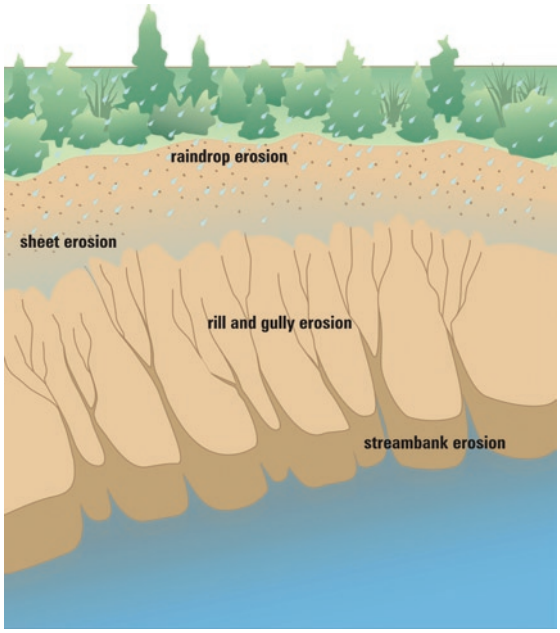


Figure 3. Types of erosion.

Raindrop erosion
Dislodging of soil particles by raindrops

Sheet erosion
The uniform removal of soil without the development of visible water channels

Rill erosion
Soil removal through the formation of concentrated runoff that creates many small channels

Gully erosion
The result of highly concentrated runoff that cuts down into the soil along the line of flow

Streambank erosion
Flowing water that erodes unstable streambanks

Climate. The frequency, intensity, and duration of rainfall are the principal factors influencing erosion from a construction site. Know the weather patterns in your area and, if possible, plan your soil disturbance activities for periods of historically lower rainfall.

Topography. The longer and steeper a slope, the greater the potential there is for erosion from that slope. Use practices such as diversions or fiber rolls to break up long slopes. Consider minimizing soil disturbance activities on steeper slopes.

Soils. Soil type can also impact erosion. Soil texture, structure, organic matter content, compaction, and permeability can all influence erosion rates.

Vegetative cover. Vegetative cover provides a number of critical benefits in preventing erosion—it absorbs the energy of raindrops, slows velocity of runoff, increases infiltration, and helps bind the soil. Soil erosion can be greatly reduced by maximizing vegetative cover at a construction site.

C. How Can Construction Site Operators Prevent Stormwater Pollution?

An effective SWPPP is the key! If sediment and erosion controls and good housekeeping practices are not followed, construction activity can result in the discharge of significant amounts of sediment and other pollutants. The term *Best Management Practices* or BMPs is often used to describe the controls and activities used to prevent stormwater pollution.

SWPPP Tip!

Erosion versus Sedimentation

Erosion is the process by which the land surface is worn away by the action of water or wind. Sedimentation is the movement and settling out of suspension of soil particles. It is usually easier and less expensive to prevent erosion than it is to control sediment from leaving a construction site.

BMPs can be divided into two categories—structural and non-structural BMPs. Structural BMPs include silt fences, sedimentation ponds, erosion control blankets, and temporary or permanent seeding, while non-structural BMPs include picking up trash and debris, sweeping up nearby sidewalks and streets, maintaining equipment, and training site staff on erosion and sediment control practices. In this document, the term "BMPs" is used broadly and includes both structural and non-structural controls and practices.

A SWPPP is more than just a sediment and erosion control plan. Most SWPPPs are written documents that describe the pollution prevention practices and activities that will be implemented on the site. It includes descriptions of the site and of each major phase of the planned activity, the roles and responsibilities of contractors and subcontractors, and the inspection schedules and logs. It is also a place to document changes and modifications to the construction plans and associated stormwater pollution prevention activities.

Chapter 2: **Getting Started**

> This chapter describes some of the basic things you'll want to determine (Do you need permit coverage? What permit applies to you?), as well as some of the materials and information you may need to develop your SWPPP. Collecting this information before you start will help you develop your SWPPP more efficiently. Keep in mind that you may also need to gather this information and develop your SWPPP before you complete your Notice of Intent (NOI) and file for permit coverage (note that filing an NOI is not discussed until Chapter 7).

A. What Are the Federal Requirements for Stormwater Runoff from Construction Sites?

The Clean Water Act and associated federal regulations (Title 40 of the *Code of Federal Regulations* [CFR] 123.25(a)(9), 122.26(a), 122.26(b)(14)(x) and 122.26(b)(15)) require nearly all construction site operators engaged in clearing, grading, and excavating activities that **disturb one acre or more, including smaller sites in a larger common plan of development or sale**, to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) permit for their stormwater discharges. Under the NPDES program, the U.S. Environmental Protection Agency (EPA) can authorize states to implement the federal requirements and issue stormwater permits. Today, most states are authorized to implement the NPDES program and issue their own permits for stormwater discharges associated with construction activities.

SWPPP Tip!

Don't forget about "common plans of development or sale"

A *common plan of development or sale* includes larger-scale plans for land development to be carried out by one or more entities. Examples include housing developments and subdivisions, industrial parks, and commercial developments.

EPA has described this term in the fact sheet accompanying its Construction General Permit as including: any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.), or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot. Each permitting authority may review documentation to determine if common plan requirements apply.

Each state (or EPA, in the case of states that are not authorized) issues one or more NPDES construction general permits. These permits, generally, can be thought of as umbrella permits that cover all stormwater discharges associated with construction activity in a given state for a designated time period, usually 5 years. Operators of individual constructions sites then apply for coverage under this permit. *Before applying for permit coverage, you should read and understand all the provisions of the appropriate construction general permit and develop a SWPPP.* **Because authorized states develop their own NPDES requirements, you should carefully read your state's construction general permit and follow the specific instructions it contains.**

Take a Closer Look…

EPA Permits vs. State-Issued Permits

At the time of publication, EPA was the NPDES permitting authority in Massachusetts, New Hampshire, New Mexico, Idaho, Alaska, the District of Columbia, Puerto Rico, the U.S. territories (except the Virgin Islands), most Indian country lands, and for federal facilities in four states. For an up-to-date list of NPDES permitting authorities, visit **www.epa.gov/npdes/stormwater/construction** or **www.cicacenter.org/swrl.html**

What does this mean to me?

Because EPA and state-issued permits can be different, you should make sure you read and apply for the correct permit. Use the links on either of the web sites listed to the left to determine which agency issues NPDES permits where your construction activity will occur.

Most construction general permits contain similar elements:

- Applicability—describes the geographic area covered and who is eligible to apply
- Authorization—describes the types of stormwater (and non-stormwater) discharges that are covered
- SWPPP requirements—outlines the elements that should to be addressed to prevent the contamination of stormwater runoff leaving the construction site
- Application—includes instructions for obtaining permit coverage, usually by filing an application or Notice of Intent (NOI) form
- Implementation—BMP installation, inspection, and maintenance requirements
- Other requirements—may include additional requirements such as spill prevention
- Standard conditions—list of conditions that are applicable to most NPDES permits
- Termination—lists conditions for terminating permit coverage after construction is complete

What Construction Activities Require NPDES Permit Coverage?

In this document, "*construction*" refers to actions that result in a disturbance of the land, including clearing, grading, excavating, and other similar activities. It also includes "*construction-related activities,*" areas that support the construction project such as stockpiles, borrow areas, concrete truck washouts, fueling areas, material storage areas and equipment storage areas.

Construction activities that do not disturb land, such as interior remodeling, generally do not require NPDES permit coverage.

Are There Situations Where a Permit Is Not Needed?

Generally, permit coverage is not required for activities that are considered routine maintenance, such as landscaping, road maintenance, and maintaining stormwater BMPs. Some states and EPA offer the option of a waiver for small sites (disturbing less than 5 acres) in areas and times of the year with low predicted rainfall. To be eligible for the waiver, you would have to meet the requirements specified in the regulations.

Local Requirements

Operators of construction sites should keep in mind that local governments (cities, towns, counties) often have their own requirements for construction sites (e.g., local permits for grading, sediment and erosion, utilities). **Compliance with local requirements does not mean compliance with federal NPDES requirements or vice versa, unless the authorized state agency or EPA has specifically designated the local program a *qualifying local program*.**

Qualifying Local Programs

In some states, the NPDES permitting agency has identified certain local construction stormwater control programs that have requirements that are equivalent or more protective than the state's requirements. If one of these local stormwater programs has been designated by the permitting agency as a *qualifying local program*, the construction site operator may simply read and follow the local requirements. The permitting agency (state or EPA) might choose to waive the requirement to file a Notice of Intent (NOI) or similar application form for small construction sites operating within the jurisdiction of a qualifying local program. If waived, these sites would be covered under the appropriate construction general permit automatically. Check your construction general permit carefully.

The NPDES permitting authority must identify any qualifying local programs in the construction general permit. Violations of the local requirements are also considered violations of the NPDES requirements and may be enforced accordingly.

SWPPP Tip!

Read Your General Permit!

You should thoroughly read and understand the requirements in your general permit. This includes requirements on eligibility (whether your site qualifies for the general permit), application (how to notify EPA or the state that you'd like to be covered by the general permit), SWPPPs, and termination (stabilizing your site and notifying EPA or the state that your project is complete). By applying for coverage under the general permit, you are telling EPA or your state that you will comply with the permit's requirements, so read your permit carefully!

B. Who Is Required to Get NPDES Permit Coverage?

Construction site *operators* are responsible for obtaining NPDES permit coverage for their stormwater discharges. Each state has its own definition of the term *operator*. Operators may include owners (e.g., developers), general contractors, independent subcontractors, government officials, companies, or corporations. This section reflects EPA's understanding of most NPDES permit requirements for stormwater discharges throughout the country. You should, of course, consult your construction general permit for the requirements that apply to you. In some cases, states have defined the operator as a single entity, usually the land owner or easement holder. In other states, several entities may meet the definition of operator. For instance, the owner may control the project's plans and specifications, and the general contractor may control the site's day-to-day operations. In such cases, both may be defined as operators. If a site has multiple operators, they may cooperate on the development and implementation of a single SWPPP. Operators generally obtain coverage under an NPDES permit, often by filing a form called a Notice of Intent (NOI).

Figure 4. Use signage to help educate construction staff.

EPA's Construction General Permit (which applies only where EPA is the permitting authority—see Chapter 2 Section A) defines operator as any party that:

- Has control over the construction plans and specifications

  and/or

- Has day-to-day operational control of the site, including activities necessary to implement the SWPPP

Regardless of whether or not the operator is a corporation or governmental entity, someone must direct the SWPPP's preparation and implementation and apply for NPDES permit coverage for the stormwater discharges. In most cases, this will be a high-level official, such as a corporate officer, manager or elected official, or a principal executive officer. For specific instructions, refer to the appropriate NPDES stormwater permit.

Multiple Operators

In many instances, there may be more than one party at a site performing tasks related to *operational control* and more than one operator may need to submit an NOI. Depending on the site and the relationship between the parties (e.g., owner, developer, general contractor), there can either be a single party acting as site operator and consequently responsible for obtaining permit coverage, or there can be two or more operators all needing permit coverage. Exactly who is considered an operator is largely controlled by how the *owner* of the project chooses to structure the contracts with the *contractors* hired to design and/or build the project. The following are three general operator scenarios (variations on any of these three are possible, especially as the number of owners and contractors increases):

- *Owner as sole permittee*. The property owner designs the structures for the site, develops and implements the SWPPP, and serves as general contractor (or has an on-site representative with full authority to direct day-to-day operations). The owner may be the only party that needs permit coverage under these circumstances. Everyone else on the site may be considered subcontractors and might not need permit coverage.

- *Contractor as sole permittee*. The property owner hires one company (i.e., a contractor) to design the project and oversee all aspects of the construction project, including preparation and implementation of the SWPPP and compliance with the permit (e.g., a *turnkey* project). Here, the contractor would likely be the only party needing a permit. It is under this scenario that an individual having a personal residence built for his own use (e.g., not those to be sold for profit or used as rental property) would not be considered an operator. However, individual property owners would meet the definition of *operator* and may require permit coverage if they perform general contracting duties for construction of their personal residences.
- *Owner and contractor as co-permittees*. The owner retains control over any changes to site plans, SWPPPs, or stormwater conveyance or control designs; but the contractor is responsible for overseeing actual earth disturbing activities and daily implementation of SWPPP and other permit conditions. In this case, which is the most common scenario, both parties may need to apply for permit coverage.

However, you are probably not an operator and subsequently would not need permit coverage if one of the following is true:

- You are a subcontractor hired by, and under the supervision of, the owner or a general contractor (i.e., if the contractor directs your activities on-site, you probably are not an operator)
- The operator of the site has indicated in the SWPPP that someone other than you (or your subcontractor) is reponsible for your activities as they relate to stormwater quality (i.e., another operator has assumed responsibility for the impacts of your construction activities). This is typically the case for many, if not most, utility service line installations.

In addition, *owner* typically refers to the party that owns the structure being built. Ownership of the land where construction is occurring does not necessarily imply the property owner is an operator (e.g., a landowner whose property is being disturbed by construction of a gas pipeline). Likewise, if the erection of a structure has been contracted for, but possession of the title or lease to the land or structure does not to occur until after construction, the would-be owner may not be considered an operator (e.g., having a house built by a residential homebuilder).

Transferring Ownership

In many residential developments, an overall developer applies for the stormwater permit coverage, conducts grading activities, and installs the basic infrastructure (e.g., utilities, roads). Individual lots are then sold to builders who then construct the houses. Unless the developer is still responsible for stormwater on these individual lots (which is typically not the case), it is likely that the builder will need to apply for NPDES permit coverage for stormwater discharges during home construction.

Subcontractors

It is typically a good idea to include specific contract language requiring subcontractors to implement appropriate stormwater controls. Subcontractors should be trained on appropriate BMPs and requirements in the SWPPP and should not disturb or remove BMPs. Some contractors will include specific penalties in subcontractor agreements to ensure subcontractors do not damage or remove BMPs.

Take a Closer Look…

Erosion Control vs. Sediment Control

When developing a SWPPP, it is important to understand the difference between erosion control and sediment control. Erosion control measures (e.g., mulch, blankets, mats, vegetative cover) protect the soil surface and prevent soil particles from being dislodged and carried away by wind or water. Sediment control measures remove soil particles after they have been dislodged (typically through settling or filtration). It is usually easier and less expensive to prevent erosion than it is to control sedimentation.

What does this mean to me?

You should try to use erosion control BMPs as the primary means of preventing stormwater contamination, and sediment control techniques to capture any soil that does get eroded. Because no one technique is 100 percent effective, a good SWPPP will use both kinds of BMPs in combination for the best results.

C. What Elements Are Required in a SWPPP?

The SWPPP lays out the steps and techniques you will use to reduce pollutants in stormwater runoff leaving your construction site. Therefore, proper development and implementation of your SWPPP is crucial. First and foremost, your SWPPP must be developed and implemented consistent with the requirements of the applicable NPDES stormwater construction permit. The following discussion describes requirements that are contained in most of these permits.

Your SWPPP is used to identify all potential pollution sources that could come into contact with stormwater leaving your site. It describes the BMPs you will use to reduce pollutants in your construction site's stormwater discharges, and it includes written records of your site inspections and the follow-up maintenance that is performed.

Your SWPPP should contain the following elements:

- Cover/title page
- Project and SWPPP contact information
- Site and activity description, including a site map
- Identification of potential pollutant sources
- Description of controls to reduce pollutants
- Maintenance/inspection procedures
- Records of inspections and follow-up maintenance of BMPs
- SWPPP amendments
- SWPPP certification

Chapters 3–6 of this guide describe how to develop a SWPPP—from site evaluation and data collection to selecting appropriate BMPs and assigning maintenance and inspection responsibilities.

D. SWPPP Roles and Responsibilities

The operator has the lead for developing and implementing the SWPPP and commiting resources to implement the BMPs. Stormwater pollution control is typically the job of more than a single person; the SWPPP development process provides a good opportunity to define roles and responsibilities of everyone involved. Roles and responsibilities are to be documented clearly in the SWPPP and subcontractor agreements as necessary. Your SWPPP should describe:

- Who is on the stormwater pollution prevention team?
- Who will install structural stormwater controls?
- Who will supervise and implement good housekeeping programs, such as site cleanup and disposal of trash and debris, hazardous material management and disposal, vehicle and equipment maintenance, and so on?
- Who will conduct routine inspections of the site to ensure all BMPs are being implemented and maintained?
- Who will maintain the BMPs?
- Who is responsible for documenting changes to the SWPPP?
- Who is responsible for communicating changes in the SWPPP to people working on the site?

When you apply for your stormwater permit, the application may ask for a SWPPP contact. This could be the construction site operator, but in many cases it's a staff person (e.g., project superintendent, field manager, construction manager, stormwater compliance officer) at the construction site who is responsible for conducting inspections, ensuring BMPs are installed and maintained, and updating the SWPPP when necessary.

SWPPP Tip!

Erosion Control Certification

Several programs promote the training and certification of individuals in erosion and sediment control. Some states have developed certification programs and require construction sites to have a certified individual on-site at all times. The Soil and Water Conservation Society and the International Erosion Control Association sponsor a national certification program, the Certified Professional in Erosion and Sediment Control (**www.cpesc.org**)

E. Common SWPPP Objectives

The SWPPP outlines the steps you will take to comply with the terms and conditions of your construction general permit. Keeping the following objectives in mind as you develop your SWPPP will help guide you in addressing your permit requirements and in protecting water quality.

- *Stabilize the site as soon as possible.* Get your site to final grade and either permanently or temporarily stabilize all bare soil areas as soon as possible. Take into consideration germination times for the grasses or other vegetation selected, and provide additional stabilization (mulches, matrices, blankets, soil binders) on erosion-prone areas such as slopes and drainage ways. Also consider seasonal limitations to plant establishment and growth, such as drought or cold temperatures, and make an effort to ensure that areas that are not showing adequate vegetation establishment are reseeded or mulched immediately. Areas needed for future roads, construction, or other purposes should be temporarily stabilized (see your permit for requirements related to areas of the site not currently under active construction). Establishing a vegetated cover on as much of the site as possible will help to minimize erosion and sediment problems. Perimeter controls should remain in place until final stabilization has been achieved.
- *Protect slopes and channels.* Convey concentrated stormwater runoff around the top of slopes and stabilize slopes as soon as possible. This can be accomplished using pipe slope drains or earthen berms that will convey runoff around the exposed slope. Avoid disturbing natural channels and the vegetation along natural channels, if possible.
- *Reduce impervious surfaces and promote infiltration.* Reducing impervious surfaces will ultimately reduce the amount of runoff leaving your site. Also, divert runoff from rooftops and other impervious surfaces to vegetated areas when possible to promote infiltration.
- *Control the perimeter of your site.* Divert stormwater coming on to your site by conveying it safely around, through, or under your site. Avoid allowing run-on to contact disturbed areas of the construction site. For the runoff from the disturbed areas of the site, install BMPs such as silt fences to capture sediment before it leaves your site. Remember—"Divert the clean water, trap the dirty water."
- *Protect receiving waters adjacent to your site.* Erosion and sediment controls are used around the entire site, but operators should consider additional controls on areas that are adjacent to receiving waters or other environmentally sensitive areas. **Remember, the primary purpose of erosion and sediment controls is to protect surface waters.**
- *Follow pollution prevention measures.* Provide proper containers for waste and garbage at your site. Store hazardous materials and chemicals so that they are not exposed to stormwater.
- *Minimize the area and duration of exposed soils.* Clearing only land that will be under construction in the near future, a practice known as construction phasing, can reduce off-site sediment loads by 36 percent for a typical subdivision (Claytor 2000). Additionally, minimizing the duration of soil exposure by stabilizing soils quickly can reduce erosion dramatically.

Take a Closer Look...

Incentives to preserve open space

It should be the goal of every construction project to, where possible, preserve open space and minimize impervious surfaces through practices such as clustering houses. Open space preservation can provide significant water quality and economic benefits to property owners.

What does this mean to me?

From a marketing perspective, studies have shown that lots abutting forested or other open space are initially valued higher than lots with no adjacent open space, and over time their value appreciates more than lots in conventional subdivisions (Arendt 1996). For example, lots in an open space subdivision in Amherst, Massachusetts, experienced a 13 percent greater appreciation in value over a comparable conventional development after 20 years even though the lots in the conventional development were twice as large (Arendt 1996).

Chapter 3: **SWPPP Development—Site Assessment and Planning**

▶ **The first step in developing a SWPPP is assessing the site and identifying measures to protect natural features.**

This chapter describes a number of steps that will help provide a good foundation for your SWPPP, including:

- Assessing current conditions at the site
- Establishing pollution prevention and water quality protection goals for your project
- Developing a framework to help you meet those goals

A. Assess Your Site and Proposed Project

The first step in developing your SWPPP is to evaluate your proposed construction site. Your SWPPP should describe the undeveloped site and identify features of the land that can be incorporated into the final plan and natural resources that should be protected. Understanding the hydrologic and other natural features of your site will help you develop a better SWPPP and, ultimately, to more effectively prevent stormwater pollution.

SWPPP Tip!

A SWPPP is a detailed plan that:

- Identifies potential sources of stormwater pollution
- Describes the practices that will be used to prevent stormwater pollution. These should include: erosion and sediment control practices, good housekeeping practices, conservation techniques, and infiltration practices (where appropriate), and
- Identifies procedures the operator will implement to comply with all requirements in the construction general permit

Visit the Site

The people responsible for site design and drafting the SWPPP should conduct a thorough walk-through of the entire construction site to assess site-specific conditions such as soil types, drainage patterns, existing vegetation, and topography. Avoid copying SWPPPs from other projects to save time or money. Each construction project and SWPPP is unique, and visiting the site is the only way to create a SWPPP that addresses the unique conditions at that site.

Assess Existing Construction Site Conditions

Assess the existing conditions at the construction site, including topography, drainage, and soil type. This assessment, sometimes called *fingerprinting* (see text box on page 11) is the foundation for building your SWPPP and for developing your final site plan. In this assessment, use or create a topographic drawing that:

- Indicates how stormwater currently drains from the site, and identify the location of discharge points or areas
- Identifies slopes and slope lengths. The topographic features of the site are a major factor affecting erosion from the site
- Identifies soil type(s) and any highly erodible soils and the soil's infiltration capacity
- Identifies any past soil contamination at the site
- Identifies natural features, including trees, streams, wetlands, slopes and other features to be protected

Take a Closer Look…

Fingerprinting Your Site

When you evaluate your construction site, you should clearly identify vegetation, trees, and sensitive areas, such as stream buffers, wetlands, highly erodible soils, and steep slopes at your site. You should protect these areas from disturbance. Inventorying a site's natural features is a technique called fingerprinting. Fingerprinting identifies natural features that you can protect from clearing and heavy equipment by signage or physical barriers.

What does this mean to me?

Fingerprinting your site will help ensure that you don't damage natural features such as waterways or wetlands. Conducting construction activity in a waterway or wetland without the proper permits can result in significant penalties.

In most cases, the site designer can compile all this information on a digitized drawing that can then be adapted to show the planned construction activity, the phases of construction, and the final site plan.

Topographic maps are readily available on the Internet (e.g., **www.terraserver.com** or **www.mapquest.com**) or by contacting the U.S. Geological Survey store (**http://store.usgs.gov**). If you need help determining your soil type, contact your local Natural Resource Conservation Service (NRCS) office or extension service office. To find the NRCS office nearest to your site, visit the U.S. Department of Agriculture's Service Center Locator website (**http://offices.sc.egov.usda.gov/locator/app**). Soil information is also available online from NRCS (**http://soils.usda.gov**).

Identify Receiving Waters, Storm Drains, and Other Stormwater Conveyance Systems

Your SWPPP should clearly identify the receiving waters and stormwater systems through which stormwater from your site could flow. Many states require planning for a specific storm event or storm events. These storm events are referred to by their recurrence interval and duration such as 1-year, 6-hour storm or a 100-year, 24-hour storm. These events then translate into a specific rainfall amount depending on average conditions in your area.

If your site's stormwater flows into a municipal storm drain system, you should determine the ultimate destination of that system's discharge. This may be obvious and easy to document. However, in some systems, you may have to consult with the local agency responsible for the storm drain system to determine the waterbody to which you are discharging.

If your site's stormwater runs off to areas not connected to the storm drain system, you should consider your land's topography and then identify the waterbodies that it could reach. Many sites will discharge some stormwater to a storm drain system and some to other areas not connected to the system. If your site's stormwater could potentially reach two or more waterbodies, note that in your SWPPP. Remember, stormwater can travel long distances over roads, parking lots, down slopes, across fields, and through storm sewers and drainage ditches.

Describe Your Construction Project

Your SWPPP should contain a brief description of the construction activity, including:

- Project type or function (for example, low-density residential, shopping mall, highway)
- Project location, including latitude and longitude
- Estimated project start and end dates
- Sequence and timing of activities that will disturb soils at the site
- Size of the project
- Estimated total area expected to be disturbed by excavation, grading, or other construction activities, including dedicated off-site borrow and fill areas
- Percentage of impervious area before and after construction

Construction Site Pollutants										
		Other Pollutants								
Areas of Consideration	Primary Pollutant: Sediment	Nutrients	Heavy metals	pH (acids & bases)	Pesticides & herbicides	Oil & grease	Bacteria & viruses	Trash, debris, solids	Other toxic chemicals
Clearing, grading, excavating, and unstabilized areas	✓							✓	
Paving operations	✓							✓	
Concrete washout and waste			✓	✓				✓	
Structure construction/ painting/cleaning		✓		✓				✓	✓
Demolition and debris disposal	✓							✓	
Dewatering operations	✓	✓							
Drilling and blasting operations	✓			✓				✓	
Material delivery and storage	✓	✓	✓	✓	✓	✓		✓	✓
Material use during building process		✓	✓	✓	✓	✓		✓	✓
Solid waste (trash and debris)								✓	✓
Hazardous waste			✓	✓	✓	✓			✓
Contaminated spills		✓	✓	✓	✓	✓			✓
Sanitary/septic waste		✓		✓			✓		✓
Vehicle/equipment fueling and maintenance						✓			✓
Vehicle/equipment use and storage						✓			✓
Landscaping operations	✓	✓						✓	

- Runoff coefficient[1] before and after construction
- Soil types
- Construction site location and any nearby waters or wetlands
- Describe and identify the location of other potential sources of stormwater contamination, such as asphalt and concrete plants, stucco operations, paint and concrete washout, and such

Identify Pollutants and Pollution Sources

Identify the pollutants and sources that are likely to be found on the site. The principle pollutant of concern, of course, is sediment. There are, however, other pollutants that may be found, usually in substantially smaller amounts, in stormwater runoff from construction sites. These can include nutrients, heavy metals, organic compounds, pesticides, oil and grease, bacteria and viruses, trash and debris, and other chemicals. After identifying the pollutants and sources, be as specific as possible in your SWPPP about the BMPs you will use to address them. The table at the left lists the sources of pollutants at construction sites, including sediment, the primary pollutant and other pollutants that may be present at construction sites.

Figure 5. Make sure storm drain inlets are protected.

[1] The runoff coefficient is the partial amount of the total rainfall which will become runoff. Runoff coefficients generally range from 0.95 (highly impervious) to 0.05 (vegetated surface that generates little runoff). For more information on calculating the runoff coefficient for your site, see Appendix C.

Non-Stormwater Discharges

Most permits will require you to identify any non-stormwater discharges in your SWPPP. Certain non-stormwater discharges may be allowed under the terms and conditions of your permit, however, you should make every effort to eliminate these discharges where possible. You should identify these sources in your SWPPP and identify pollution prevention measures to ensure that pollutants are not introduced to these discharges and carried to nearby waterbodies.

EPA's CGP identifies these allowable non-stormwater discharges: discharges from fire-fighting activities, fire hydrant flushings, waters used to wash vehicles, buildings, and pavements where detergents are not used, water used to control dust, potable water (including uncontaminated water line flushings), uncontaminated air conditioning condensate, uncontaminated ground water or spring water, among others. The permit goes on to say that non-stormwater discharges should be eliminated or reduced to the extent feasible and that the SWPPP should identify and ensure the implementation of appropriate pollution prevention measures for these discharges. More discussion of pollution prevention measures for some of these non-stormwater sources can be found in Chapter 5.

Permanent Stormwater Controls (Post-Construction)

The topic of designing, installing, and maintaining permanent or post-construction stormwater controls, although a requirement, is beyond the scope of this SWPPP guide. A SWPPP compiled in support of coverage under EPA's Construction General Permit, however, needs to include a description of all permanent stormwater controls that will be constructed along with the buildings, roads, parking lots, and other structures. You should incorporate sediment and erosion controls into your SWPPP for areas where permanent stormwater controls, such as wet ponds, swales, and bioretention cells are to be constructed.

Effectively managing stormwater over the long-term—long after the actual construction process is over—is a significant challenge. Many communities (and a few states) have or are developing comprehensive requirements to better manage permanent (or post-construction) stormwater runoff. To be most effective, you should consider integrating your design process for your permanent stormwater controls into your overall design for your site. Planning for your permanent stormwater controls could affect your decisions about site design, location of buildings and other structures, grading, and preserving natural features. By preserving natural drainage patterns, trees, native vegetation, riparian buffers, and wetlands, you might need to construct fewer or smaller structural storm-water controls to cope with runoff from your site. Permanent stormwater controls should be designed with two important goals in mind: (1) reduction of the volume and velocity of runoff, and (2) reduction of the pollutants in the stormwater that does leave your site.

Techniques, such as *Low Impact Development*, Better Site Design, or *Conservation Development*, which emphasize addressing stormwater where it falls, infiltrating it, preserving natural drainage patterns, and

Take a Closer Look…

Specimen Trees and Natural Vegetation

Before a site plan is prepared, identify and clearly mark existing trees and vegetation you want to preserve. Some communities have tree preservation ordinances, and local extension service offices and foresters will often provide free advice on tree and plant preservation. Remember to notify all employees and subcontractors about trees and areas you intend to preserve and mark them clearly.

What does this mean to me?

Large trees and other native vegetation can represent significant value in the long term to property owners and the community at large. Many studies document that the presence of trees on residential and commercial sites provide many benefits including improved aesthetics, habitat for birds and other wildlife, and energy savings (shade) that ultimately enhance the economic value of the site. Trees also provide shade and act as windbreaks, which can reduce energy costs over the long term. By protecting existing trees, you can reduce landscaping costs and improve the appearance of a newly developed property. According to the National Arbor Day Foundation, trees around a home can increase its value by 15 percent or more.

preserving natural vegetation offer the best opportunity to protect nearby rivers, lakes, wetlands, and coastal waters. **Incorporating these ideas and concepts into the design for your project before it is built also offers the opportunity to reduce capital infrastructure and long-term maintenance costs**.

At the neighborhood or even at the watershed scale, *Smart Growth* techniques can help us design neighborhoods that minimize impacts on water quality, reduce air pollution, and improve the general quality of life for residents. **In the *Resources* list in Appendix D, you will find a list of suggestions on this topic, including how to incorporate Smart Growth and Low Impact Development techniques into the design of your site.**

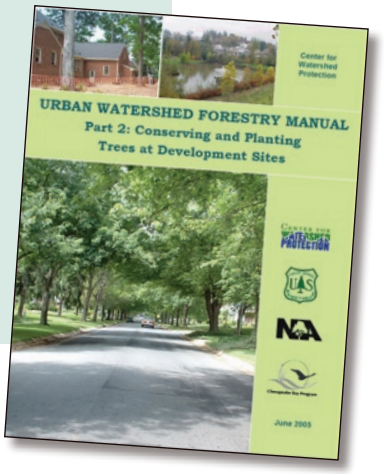
B. Identify Approaches to Protect Natural Resources

Preservation of natural areas, waterbodies, and open space has numerous economic, aesthetic, community, and environmental benefits. Preservation efforts also often increase the value of lots and homes and help to reduce overall expenditures on infrastructure. Specifically, these kinds of conservation efforts can help to significantly reduce the volume and velocity of stormwater runoff and the pollutants that may be carried with it.

SWPPP Tip!

Tree Preservation Resources

For more on tree preservation, contact your local extension service office or forester. Also, American Forests has useful information and tools at their website, **www.americanforests.org/resources/urbanforests**. The Center for Watershed Protection in cooperation with the U.S. Forest Service has developed a series of manuals on urban forestry. Part two, titled Conserving and Planting Trees at Development Sites will be of particular interest. You can find these manuals at **www.cwp.org**



Protect Nearby Waters

Your SWPPP should describe how you will protect and preserve any streams, wetlands, ponds or other waterbodies that are on your property or immediately adjoining it. Riparian areas around headwater streams are especially important to the overall health of the entire river system. Many states and communities have buffer or shoreline protection requirements to preserve sensitive areas around waterbodies.

Many states apply special designations to high-value or high-quality waters. Check with your state water pollution control agency to determine if your project could discharge to *outstanding* or special protection waters (such as wetlands, or salmon and trout streams). You might be subject to additional requirements to protect these waterbodies.

Wetland areas, including bogs, marshes, swamps, and prairie potholes may be found in areas adjacent to rivers, lakes, and coastal waters but may also be found in isolated places far from other surface waters. Many types of wetlands are protected under the Clean Water Act and construction activities in and around these areas may require an additional permit from the Army Corps of Engineers. Construction site operators should make every effort to preserve wetlands and must follow applicable local, state, and federal requirements before disturbing them or the areas around them.

To ensure the protection of natural areas during the construction period, you should use a combination of techniques, including temporary fencing, signage, and educating staff and subcontractors.

Assess Whether Your Project Impacts an Impaired Waterbody

Under the Clean Water Act, states are required to determine if rivers, lakes, and other waters are meeting water quality standards. When a waterbody does not meet water quality standards because of one or more sources of pollution, the state lists the water as impaired. When a water is determined to be impaired, the state or EPA develops a plan for correcting the situation. This plan is called a Total Maximum Daily Load (TMDL). If stormwater from your project could reach an impaired water with or without an approved TMDL (either directly or indirectly through a municipal storm drain system), your permit

may include additional requirements to ensure that your stormwater discharges do not contribute to that impairment and your stormwater controls are consistent with plans to restore that waterbody. Your SWPPP should describe the specific actions you will take to comply with these permit requirements for impaired waters.

You should determine, before you file for permit coverage, if the receiving waters for your project are impaired and if so, whether a TMDL has been developed for this waterbody. Visit EPA's Enviromapper website (**www.epa.gov/waters/enviromapper**) or contact your state environmental agency for more information.

Assess Whether You Have Endangered Plant or Animal Species in Your Area

The federal Endangered Species Act protects endangered and threatened species and their critical habitat areas. (States and tribes may have their own endangered species laws.) In developing the assessment of your site, you should determine whether listed endangered species are on or near your property. Critical habitat areas are often designated to support the continued existence of listed species. You should also determine whether critical habitat areas have been designated in the vicinity of your project. Contact your local offices of the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), or your state or tribal heritage centers. These organizations often maintain lists of federal and state listed endangered and threatened species on their Internet sites. For more information and to locate lists for your state, visit **www.epa.gov/npdes/endangeredspecies**

Additionally, your state's NPDES stormwater permit may specifically require that you address whether the activities and the stormwater discharged by your construction site have the potential to adversely affect threatened or endangered species or the critical habitat areas. You might need to conduct a biological investigation or assessment and document the results of the assessment in your SWPPP. The state may reference federal, state, or tribal endangered species protection laws or regulations.

EPA's Construction General Permit contains detailed procedures to assist construction site operators in determining the likely impact of their projects on any endangered species or critical habitat. Construction site operators in areas covered by EPA's Construction General Permit are required to assess the impact of their activities and associated stormwater discharges on species and habitat in the "project area" which may extend beyond the site's immediate footprint.

Assess Whether You Have Historic Sites that Require Protection

The National Historic Preservation Act, and any state, local and tribal historic preservation laws, apply to construction activities. As with endangered species, some permits may specifically require you to assess the potential impact of your stormwater discharges on historic properties. However, whether or not this is stated as a condition for permit coverage, the National Historic Preservation Act and any applicable state or tribal laws apply to you. Contact your State Historic Preservation Officer (**www.ncshpo.org/stateinfolist/fulllist.htm**) or your Tribal Historic Preservation Officer (**grants.cr.nps.gov/thpo/tribaloffices.cfm**).

C. Develop Site Maps

The final step in the site evaluation process is to document the results of your site assessment and your planned phases of construction activity on a detailed site map or maps. This includes developing site maps showing planned construction activities and stormwater practices for the various major stages of construction, protected areas, natural features, slopes, erodible soils, nearby waterbodies, permanent stormwater controls, and so on. You must keep your SWPPP and your site maps up-to-date to reflect changes at your site during the construction process.

Location Maps

A general location map is helpful to identify nearby, but not adjacent, waterbodies in proximity to other properties. You can use any easily available maps or mapping software to create a location map.

Site Maps

The detailed construction site maps should show the entire site and identify a number of features at the site related to construction activities and stormwater management practices.

Figure 6. Example site map.

Map of undeveloped or existing site. For many sites, a map of the undeveloped or existing site, noting the features that you identified in Section A of this Chapter, will help you develop your SWPPP and identify current site features that you want to preserve. On this map note current drainage patterns, storm drains, slopes, soil types, waters and other natural features. Also note any existing structures, roads, utilities, and other features.

Map or series of maps for construction plans. Site maps should show the construction activities and stormwater management practices for each major phase of construction (e.g., initial grading, infrastructure, construction, and stabilization). The site maps should legibly identify the following features:

- Stormwater flow and discharges. Indicate flow direction(s) and approximate slopes after grading activities, as well as locations of discharges to surface waters or municipal storm drain systems.
- Areas and features to be protected. Include wetlands, nearby streams, rivers, lakes, and coastal waters, mature trees and natural vegetation, steep slopes, highly erodible soils, etc.
- Disturbed areas. Indicate locations and timing of soil disturbing activities (e.g. grading). Mark clearing limits.
- BMPs. Identify locations of structural and non-structural BMPs identified in the SWPPP, as well as post-construction stormwater BMPs.
- Areas of stabilization. Identify locations where stabilization practices are expected to occur. Mark areas where final stabilization has been accomplished.
- Other areas and roads. Indicate locations of material, waste, borrow, or equipment storage.

You should complete your site maps after reviewing Chapters 4 and 5 and any applicable BMP design manual to select appropriate BMPs for your site.

Use Site Maps to Track Progress

Develop and keep up-to-date site maps showing non-structural BMPs that change frequently in location as the work on a construction site progresses. Your permit requires that you keep your SWPPP up-to-date, so mark up the site map with the location of these BMPs. Indicate the current location of the following:

- Portable toilets
- Material storage areas
- Vehicle and equipment fueling and maintenance areas
- Concrete washouts
- Paint and stucco washouts
- Dumpsters or other trash and debris containers
- Spill kits
- Stockpiles
- Any other non-structural non-stormwater management BMPs
- Any temporarily removed structural BMPs
- Any changes to the structural BMPs

If a marked-up site map is too full to be easily read, you should date and fold it, put it in the SWPPP for documentation, and start a new one. That way, there is a good hard copy record of what has occurred on-site.

Construction sites are dynamic. As conditions change at the construction site, such as the locations of BMPs, your SWPPP must reflect those changes.

Chapter 4: SWPPP Development—Selecting Erosion and Sediment Control BMPs

▶ This chapter presents a brief discussion of erosion and sediment control principles and a discussion of some commonly used BMPs.

This document is not intended as an engineering or design manual on BMPs. The engineer or other qualified person that develops the details of your sediment and erosion control plan should be using the appropriate state or local specifications. The descriptions below provide a kind of checklist of the things to look for and some helpful installation and maintenance hints.

Erosion and sediment controls are the structural and non-structural practices used during the construction process to keep sediment in place (erosion control) and to capture any sediment that is moved by stormwater before it leaves the site (sediment control). Erosion controls—keeping soil where it is—are the heart of any effective SWPPP. Your SWPPP should rely on erosion controls as the primary means of preventing stormwater pollution. Sediment controls provide a necessary second line of defense to properly designed and installed erosion controls.

The suite of BMPs that you include in your SWPPP should reflect the specific conditions at the site. The information that you collected in the previous steps should help you select the appropriate BMPs for your site. An effective SWPPP includes a combination or suite of BMPs that are designed to work together.

Ten Keys to Effective Erosion and Sediment Control (ESC)

The ultimate goal of any SWPPP is to protect rivers, lakes, wetlands, and coastal waters that could be affected by your construction project. The following principles and tips should help you build an effective SWPPP. **Keep in mind that there are many BMP options available to you. We have selected a few common BMPs to help illustrate the principles discussed in this chapter.**

Erosion Control (keeping the dirt in place) and Minimizing the Impact of Construction

1. Minimize disturbed area and protect natural features and soil
2. Phase construction activity
3. Control stormwater flowing onto and through the project
4. Stabilize soils promptly
5. Protect slopes

Sediment Controls (the second line of defense)

6. Protect storm drain inlets
7. Establish perimeter controls
8. Retain sediment on-site and control dewatering practices
9. Establish stabilized construction exits
10. Inspect and maintain controls

Take a Closer Look...

BMPs in Combination

BMPs work much better when they are used in combination. For instance, a silt fence should not be used alone to address a bare slope. An erosion control BMP should be used to stabilize the slope, and the silt fence should serve as the backup BMP.

What does this mean to me?

Wherever possible, rely on erosion controls to keep sediment in place. Back up those erosion controls with sediment controls to ensure that sediment doesn't leave your site. Continually evaluate your BMPs. Are they performing well? Could the addition of a supplemental BMP improve performance? Should you replace a BMP with another one that might work better? Using BMPs in series also gives you some protection in case one BMP should fail.

Erosion Control and Minimizing the Impact of Construction

ESC Principle 1: Minimize disturbed area and protect natural features and soil. As you put together your SWPPP, carefully consider the natural features of the site that you assessed in Chapter 3. By carefully delineating and controlling the area that will be disturbed by grading or construction activities, you can greatly reduce the potential for soil erosion and stormwater pollution problems. Limit disturbed areas to only those necessary for the construction of your project. Natural vegetation is your best and cheapest erosion control BMP.

Figure 7. Protect vegetated buffers by using silt fence or other sediment controls.

Protecting and preserving topsoil is also a good BMP. Removing topsoil exposes underlying layers that are often more prone to erosion and have less infiltration capacity. Keeping topsoil in place preserves the natural structure of the soils and aids the infiltration of stormwater.

ESC Principle 2: Phase construction activity. Another technique for minimizing the duration of exposed soil is phasing. By scheduling or sequencing your construction work and concentrating it in certain areas, you can minimize the amount of soil that is exposed to the elements at any given time. Limiting the area of disturbance to places where construction activities are underway and stabilizing them as quickly as possible can be one of your most effective BMPs.

ESC Principle 3: Control stormwater flowing onto and through your project. Plan for any potential stormwater flows coming onto the project area from upstream locations, and divert (and slow) flows to prevent erosion. Likewise, the volume and velocity of on-site stormwater runoff should be controlled to minimize soil erosion.

Example BMP: Diversion Ditches or Berms

Description: Diversion ditches or berms direct runoff away from unprotected slopes and may also direct sediment-laden runoff to a sediment-trapping structure. A diversion ditch can be located at the upslope side of a construction site to prevent surface runoff from entering the disturbed area. Ditches or berms on slopes need to be designed for erosive velocities. Also, ensure that the diverted water is released through a stable outlet and does not cause downslope or downstream erosion or flooding.

Installation Tips:

- Divert run-on and runoff away from disturbed areas
- Ensure that the diversion is protected from erosion, using vegetation, geotextiles, or other appropriate BMPs
- Divert sediment-laden water to a sediment-trapping structure
- Use practices that encourage infiltration of stormwater runoff wherever possible

Maintenance:

- Inspect diversions and berms, including any outlets, regularly and after each rainfall
- Remove any accumulated sediment

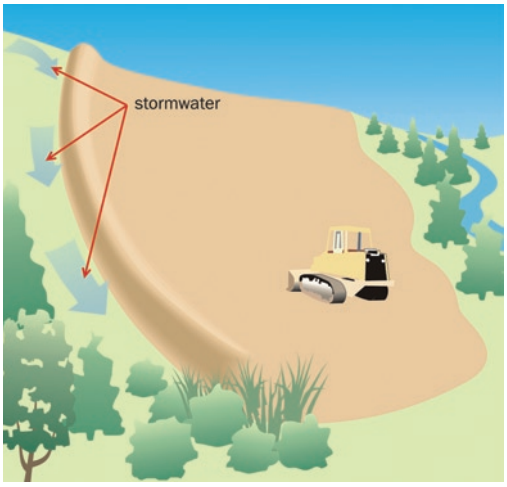


Figure 8. Illustration of a construction berm to divert stormwater away from the disturbed construction area.

ESC Principle 4: Stabilize soils promptly. Where construction activities have temporarily or permanently ceased, you should stabilize exposed soils to minimize erosion. You should have stabilization measures in place after grading activities have ceased (many permits require stabilization within a specified time frame). You can provide either temporary or permanent cover to protect exposed soils. Temporary measures are necessary when an area of a site is disturbed but where activities in that area are not completed or until permanent BMPs are established. Topsoil stockpiles should also be protected to minimize any erosion from these areas. Temporary-cover BMPs include temporary seeding, mulches, matrices, blankets and mats, and the use of soil binders (there may be additional state and local requirements for the use of chemical-based soil binders). Permanent-cover BMPs include permanent seeding and planting, sodding, channel stabilization, and vegetative buffer strips. Silt fence and other sediment control measures are not stabilization measures.

SWPPP Tip!

Final Stabilization

Once construction activity in an area is completed and the area is stabilized (typically by achieving 70 percent permanent vegetative cover), you can mark this area on your SWPPP and discontinue inspections in that area. By bringing areas of your site to final stabilization, you can reduce your workload associated with maintaining and inspecting BMPs. For more information on final stabilization, see Chapter 9.

Example BMP: Temporary Seeding

Description: Temporarily seeding an area to establish vegetative cover is one of the most effective, and least expensive, methods of reducing erosion. This approach, as a single BMP, might not be appropriate on steep slopes, when vegetation cannot be established quickly enough to control erosion during a storm event, or when additional activities might occur soon in the area.

Installation Tips:

- Seed and mulch area (the mulch provides temporary erosion protection by protecting the soil surface, moderating temperature, and retaining moisture while seeds germinate and grow)
- Water regularly, if needed, to ensure quick growth
- Maintain backup BMPs, such as silt fence or settling ponds

SWPPP Tip!

Wind Control BMPs

In areas where dust control is an issue, your SWPPP should include BMPs for wind-erosion control. These consist of mulching, wet suppression (watering), and other practices.

ESC Principle 5: Protect slopes. Protect all slopes with appropriate erosion controls. Steeper slopes, slopes with highly erodible soils, or long slopes require a more complex combination of controls. Erosion control blankets, bonded fiber matrices, or turf reinforcement mats are very effective options. Silt fence or fiber rolls may also be used to help control erosion on moderate slopes and should be installed on level contours spaced at 10- to 20-foot intervals. You can also use diversion channels and berms to keep stormwater off slopes.

Example BMP: Rolled erosion control products

Description: Erosion control products include mats, geotextiles, and erosion control blankets and products that provide temporary stabilization and help to establish vegetation on disturbed soils. Such products help control erosion and help establish vegetation and are often used on slopes, channels, or stream banks.

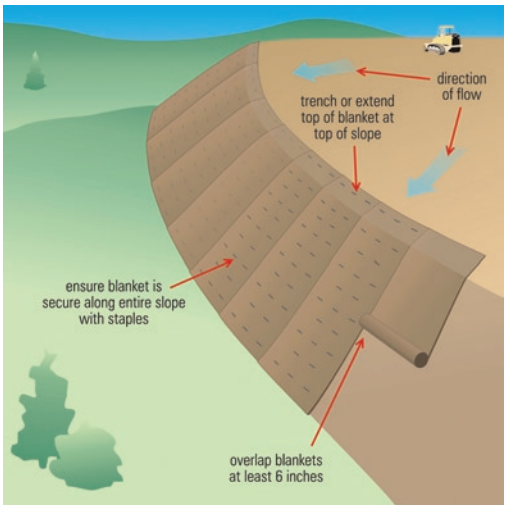


Figure 9. Illustration of erosion control blankets installed on slope.

Installation Tips:

- Use rolled erosion-control products on slopes steeper than 3 to 1 (horizontal to vertical) and in swales or long channels

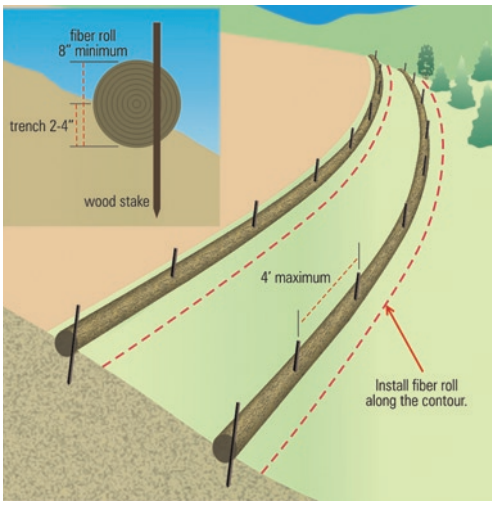


Figure 10. Illustration of a fiber roll installation along a slope.

- Trench the top of the blanket into the ground to prevent runoff from flowing under the blanket
- Overlap the lower end of the top mat over the top of the downslope mat to ensure that runoff stays on top of the blankets and mats
- Staple blankets and mats according to specifications

Maintenance:

- Periodically inspect for signs of erosion or failure
- Repair the blanket or mat if necessary
- Continue inspections until vegetation is established at the level required to qualify as final *stabilization*

ESC Principle 6: Protect storm drain inlets. Protect all inlets that could receive stormwater from the project until final stabilization of the site has been achieved. Install inlet protection before soil-disturbing activities begin. Maintenance throughout the construction process is important. Upon completion of the project, storm drain inlet protection is one of the temporary BMPs that should be removed. Storm drain inlet protection should be used not only for storm drains within the active construction project, but also for storm drains outside the project area that might receive stormwater discharges from the project. If there are storm drains on private property that could receive stormwater runoff from your project, coordinate with the owners of that property to ensure proper inlet protection.

Example BMP: Storm Drain Inlet Protection

Description: Storm drain inlet protection prevents sediment from entering a storm drain by surrounding or covering the inlet with a filtering material. Several types of filters are commonly used for inlet protection: silt fence, rock-filled bags, or block and gravel. The type of filter used depends on the inlet type (for example, curb inlet, drop inlet), slope, and volume of flow. Many different commercial inlet filters are also available. Some commercial inlet filters are placed in front of or on top of an inlet, while others are placed inside the inlet under the grate.

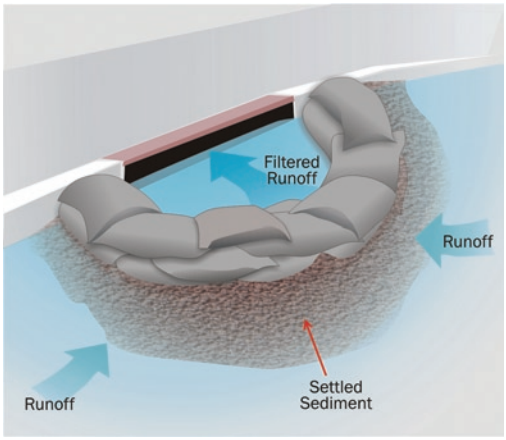


Figure 11. Illustration of a storm drain inlet with rock-filled bags filtering stormwater.

Installation Tips:

- Install inlet protection as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems
- Protect all inlets that could receive stormwater from your construction project
- Use in conjunction with other erosion prevention and sediment control BMPs—remember, inlet protection is a secondary BMP!
- Design your inlet protection to handle the volume of water from the area being drained. Ensure that the design is sized appropriately.

Maintenance:

- Inspect inlets frequently and after each rainfall

- Remove accumulated sediment from around the device and check and remove any sediment that might have entered the inlet
- Replace or repair the inlet protection if it becomes damaged
- Sweep streets, sidewalks, and other paved areas regularly

SWPPP Tip!

Storm drain inlet protection should never be used as a primary BMP! Use erosion control techniques such as hydromulching or erosion-control blankets to prevent erosion. Use inlet protection and other sediment control BMPs as a *backup* or last line of defense.

ESC Principle 7: Establish perimeter controls. Maintain natural areas and supplement them with silt fence and fiber rolls around the perimeter of your site to help prevent soil erosion and stop sediment from leaving the site. Install controls on the downslope perimeter of your project (it is often unnecessary to surround the entire site with silt fence). Sediment barriers can be used to protect stream buffers, riparian areas, wetlands, or other waterways. They are effective only in small areas and should not be used in areas of concentrated flow.

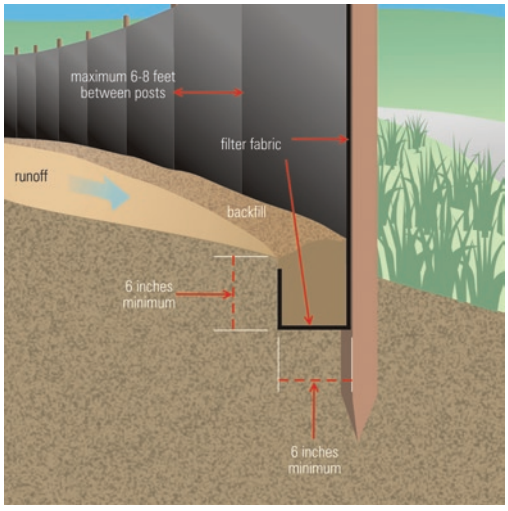


Figure 12. Illustration of proper techniques to use in installing silt fence.

Example BMP: Silt Fence and Fiber Rolls

Description: A silt fence is a temporary sediment barrier consisting of a geotextile attached to supporting posts and trenched into the ground. Silt fencing is intended to retain sediment that has been dislodged by stormwater. It is designed only for runoff from small areas and is not intended to handle flows from large slopes or in areas of concentrated flow. Fiber rolls serve the same purpose and consist of an open mesh tubular sleeve filled with a fibrous material which traps sediment. Fiber rolls are generally staked to the ground.

Installation Tips:

DO:

- Use silt fence or fiber rolls as perimeter controls, particularly at the lower or down slope edge of a disturbed area
- Leave space for maintenance between toe of slope and silt fence or roll
- Trench in the silt fence on the uphill side (6 inches deep by 6 inches wide)
- Install stakes on the downhill side of the fence or roll
- Curve the end of the silt fence or fiber roll up-gradient to help it contain runoff

DON'T:

- Install a silt fence or fiber rolls in ditches, channels, or areas of concentrated flow
- Install it running up and down a slope or hill
- Use silt fencing or fiber rolls alone in areas that drain more than a quarter-acre per 100 feet of fence

Maintenance:

- Remove sediment when it reaches one-third of the height of the fence or one-half the height of the fiber roll
- Replace the silt fence or roll where it is worn, torn, or otherwise damaged
- Retrench or replace any silt fence or roll that is not properly anchored to the ground

ESC Principle 8: Retain sediment on-site and control dewatering practices. Sediment barriers described in ESC Principle 7 can trap sediment from small areas, but when sediment retention from a larger area is required, consider using a temporary sediment trap or sediment basin. These practices detain sediment-laden runoff for a period of time, allowing sediment to settle before the runoff is discharged. Proper design and maintenance are essential to ensure that these practices are effective.

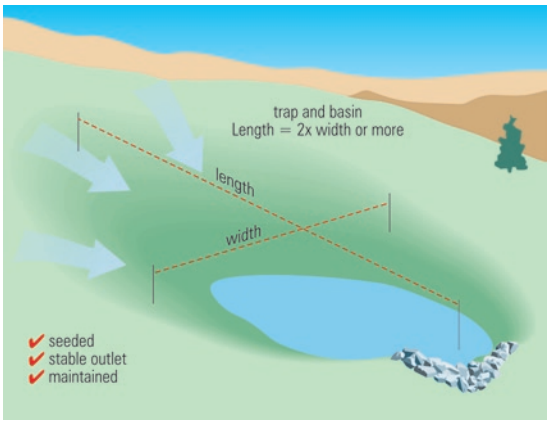


Figure 13. Illustration of a sediment basin.

You should use a sediment basin for common drainage locations that serve an area with 10 or more acres disturbed at any one time. The basin should be designed to provide storage for the volume of runoff from the drainage area for at least a 2-year, 24-hour storm (or 3,600 cubic feet of storage per acre drained, which is enough to contain 1 inch of runoff, if the 2-year, 24-hour calculation has not been performed). Check your permit for exact basin sizing requirements. Sediment basins should be located at low-lying areas of the site and on the down-gradient side of bare soil areas where flows converge. Do not put sediment traps or basins in or immediately adjacent to flowing streams or other waterways.

Where a large sediment basin is not practical, use smaller sediment basins or sediment traps (or both) where feasible. At a minimum, use silt fences, vegetative buffer strips, or equivalent sediment controls for all down-gradient boundaries (and for those side-slope boundaries deemed appropriate for individual site conditions).

Dewatering practices are used to remove ground water or accumulated rain water from excavated areas. Pump muddy water from these areas to a temporary or permanent sedimentation basin or to an area completely enclosed by silt fence in a flat vegetated area where discharges can infiltrate into the ground. Never discharge muddy water into storm drains, streams, lakes, or wetlands unless the sediment has been removed before discharge.

Keep in mind that some states and local jurisdictions require a separate permit for dewatering activities at a site.

ESC Principle 9: Establish stabilized construction exits. Vehicles entering and leaving the site have the potential to track significant amounts of sediment onto streets. Identify and clearly mark one or two locations where vehicles will enter and exit the site and focus stabilizing measures at those locations. Construction entrances are commonly made from large crushed rock. They can be further stabilized using stone pads or concrete. Also, steel wash racks and a hose-down system will remove even more mud and debris from vehicle tires. Divert runoff from wash areas to a sediment trap or basin. No system is perfect, so sweeping the street regularly completes this BMP.

Example BMP: Stabilized Construction Exit

Description: A rock construction exit can reduce the amount of mud transported onto paved roads by vehicles. The construction exit does this by removing mud from vehicle tires before the vehicle enters a public road.

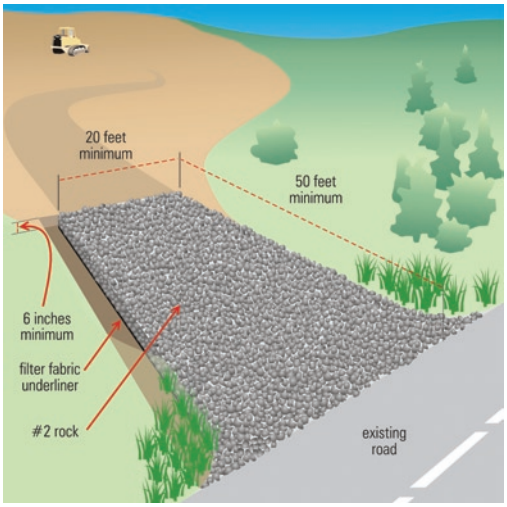


Figure 14. Illustration of a stabilized construction exit.

You might also want to install a wheel wash when mud is especially difficult to remove or space doesn't allow sufficient tire revolutions (four or five are needed) before exiting the site. Direct wash water to a suitable settling area—do not discharge wash water to a stream or storm drain!

Installation tips:

- Ensure that the exit is at least 50 feet long (generally, the length of two dump trucks) and graded so runoff does not enter the adjacent street
- Place a geotextile fabric under a layer of aggregate at least 6–12 inches thick. The stones or aggregate should be 3–6 inches in diameter
- Train employees and subcontractors to use the designated construction exits. Empower your employees to provide directions to subcontractors and others that are not on the site every day

Maintenance:

- Replenish or replace aggregate if it becomes clogged with sediment
- Sweep the street regularly

ESC Principle 10: Inspect and maintain controls. Inspection and maintenance is just as important as proper planning, design, and installation of controls. Without adequate maintenance, erosion and sediment controls will quickly fail, sometimes after just one rainfall, and cause significant water quality problems and potential violations of the NPDES construction general permit. Your permit likely requires you to maintain your BMPs at all times. To do this effectively, you should establish an inspection and maintenance approach or strategy that includes both regular and spot inspections. Inspecting both prior to predicted storm events and after will help ensure that controls are working effectively. Perform maintenance or corrective action as soon as problems are noted. **Inspection and maintenance of BMPs are addressed in more detail in Chapter 6.**

Other Sediment and Erosion Control Techniques

As mentioned at the beginning of this chapter, there are many other erosion and sediment control techniques that can be used effectively. The BMPs highlighted in this chapter are among those more commonly used and highlight many general erosion and sediment control principles for which other BMPs may be used effectively. Check to see if your state or local government has developed a BMP design manual for detailed information on any BMP you are considering. Appendix D lists several good BMP design manuals. You can also find out more about various BMPs by visiting EPA's Menu of BMPs at **www.epa.gov/npdes/menuofbmps**

The following BMPs are also commonly used at construction sites.

Erosion control measures:

- Surface roughening, trackwalking, scarifying, sheepsfoot rolling, imprinting
- Soil bioengineering techniques (e.g., live staking, fascines, brush wattles)
- Composting
- Sodding

Sediment control and runoff management measures:

- Gravel bag barrier
- Compost berm
- Rock or brush filters
- Baffles or skimmers in sediment basins to increase effectiveness
- Lowering soil levels near streets and sidewalks to prevent runoff
- Level spreaders
- Energy dissipaters
- Check dams

Chapter 5: SWPPP Development—Selecting Good Housekeeping BMPs

> This chapter presents a brief discussion of good housekeeping principles to consider to ensure your construction site does not contaminate stormwater runoff.
>
> As noted in Chapter 3, sediment is the principal pollutant of concern in stormwater discharges from construction sites. But, EPA's CGP and many state construction general permits require that the SWPPP describe good housekeeping measures for other pollutants that might be found on construction sites. This chapter discusses these measures.

Six Key Pollution Prevention Principles for Good Housekeeping

Construction projects generate large amounts of building-related waste, which can end up polluting stormwater runoff if not properly managed. The suite of BMPs that are described in your SWPPP must include pollution prevention (P2) or good housekeeping practices that are designed to prevent contamination of stormwater from a wide range of materials and wastes at your site. The six principles described below are designed to help you identify the pollution prevention practices that should be described in your SWPPP and implemented at your site.

1. Provide for waste management
2. Establish proper building material staging areas
3. Designate paint and concrete washout areas
4. Establish proper equipment/vehicle fueling and maintenance practices
5. Control equipment/vehicle washing and allowable non-stormwater discharges
6. Develop a spill prevention and response plan

P2 Principle 1: Provide for waste management. Design proper management procedures and practices to prevent or reduce the discharge of pollutants to stormwater from solid or liquid wastes that will be generated at your site. Practices such as trash disposal, recycling, proper material handling, and cleanup measures can reduce the potential for stormwater runoff to pick up construction site wastes and discharge them to surface waters.

Figure 15. Illustration showing construction materials with secondary containment and overhead cover to prevent stormwater contamination.

Provide convenient, well-maintained, and properly located toilet facilities. Provide for regular inspections, service, and disposal. Locate toilet facilities away from storm drain inlets and waterways to prevent accidental spills and contamination of stormwater. Treat or dispose of sanitary and septic waste in accordance with state or local regulations.

Proper material use, storage, waste disposal, and training of employees and subcontractors can prevent or reduce the discharge of hazardous and toxic wastes to stormwater. Implement a comprehensive set of waste-management practices for hazardous or toxic materials, such as paints, solvents, petroleum products, pesticides, wood preservatives, acids, roofing tar, and other materials. Practices should include storage, handling, inventory, and cleanup procedures, in case of spills (see the following P2 principles).

Waste Management Checklist

Solid or Construction Waste

- ✓ Designate trash and bulk waste-collection areas on-site
- ✓ Recycle materials whenever possible (e.g., paper, wood, concrete, oil)
- ✓ Segregate and provide proper disposal options for hazardous material wastes
- ✓ Clean up litter and debris from the construction site daily
- ✓ Locate waste-collection areas away from streets, gutters, watercourses, and storm drains. Waste-collection areas (dumpsters, and such) are often best located near construction site entrances to minimize traffic on disturbed soils. Consider secondary containment around waste collection areas to further minimize the likelihood of contaminated discharges.

Sanitary and Septic Waste

- ✓ Provide restroom facilities on-site
- ✓ Maintain clean restroom facilities and empty porta-johns regularly
- ✓ Provide secondary containment pans under porta-johns, where possible
- ✓ Provide tie-downs or stake downs for porta-johns in areas of high winds
- ✓ Educate employees, subcontractors, and suppliers on locations of facilities
- ✓ Do not discharge or bury wastewater at the construction site
- ✓ Inspect facilities for leaks, repair or replace immediately

Hazardous Materials and Wastes

- ✓ Develop and implement employee and subcontractor education, as needed, on hazardous and toxic waste handling, storage, disposal, and cleanup
- ✓ Designate hazardous waste-collection areas on-site
- ✓ Place all hazardous and toxic material wastes in secondary containment
- ✓ Hazardous waste containers should be inspected to ensure that all containers are labeled properly and that no leaks are present

P2 Principle 2: Establish proper building material handling and staging areas.
Your SWPPP should include comprehensive handling and management procedures for building materials, especially those that are hazardous or toxic. Paints, solvents, pesticides, fuels and oils, other hazardous materials or any building materials that have the potential to contaminate stormwater should be stored indoors or under cover whenever possible or in areas with secondary containment. Secondary containment prevents a spill from spreading across the site and include dikes, berms, curbing, or other containment methods. Secondary containment techniques should also ensure the protection of ground water. Designate staging areas for activities such as fueling vehicles, mixing paints, plaster, mortar, and so on. Designated staging areas will help you to monitor the use of materials and to clean up any spills. Training employees and subcontractors is essential to the success of this pollution prevention principle.

SWPPP Tip!

Material Staging Area Measures

Your SWPPP should include procedures for storing materials that can contribute pollutants to stormwater. Consider the following:

- Train employees and subcontractors in proper handling and storage practices
- Designate site areas for storage. Provide storage in accordance with secondary containment regulations and provide cover for hazardous materials when necessary. Ensure that storage containers are regularly inspected for leaks, corrosion, support or foundation failure, or any other signs of deterioration and tested for soundness
- Reuse and recycle construction materials when possible

P2 Principle 3: Designate washout areas.
Concrete contractors should be encouraged, where possible, to use the washout facilities at their own plants or dispatch facilities. If it is necessary to provide for concrete washout areas on-site, designate specific washout areas and design facilities to handle anticipated washout water. Washout areas should also be provided for paint and stucco operations. Because washout areas can be a source of pollutants from leaks or spills,

EPA recommends that you locate them at least 50 yards away from storm drains and watercourses whenever possible.

Several companies rent or sell prefabricated washout containers, and some provide disposal of waste solids and liquids along with the containers. These prefabricated containers are sturdy and provide a more reliable option for preventing leaks and spills of wash water than self-constructed washouts. Alternatively, you can construct your own washout area, either by digging a pit and lining it with 10 mil plastic sheeting or creating an aboveground structure from straw bales or sandbags with a plastic liner. If you create your own structure, you should inspect it daily for leaks or tears in the plastic because these structures are prone to failure.

Regular inspection and maintenance are important for the success of this BMP. Both self-constructed and prefabricated washout containers can fill up quickly when concrete, paint, and stucco work are occurring on large portions of the site. You should also inspect for evidence that contractors are using the washout areas and not dumping materials onto the ground or into drainage facilities. If the washout areas are not being used regularly, consider posting additional signage, relocating the facilities to more convenient locations, or providing training to workers and contractors.

SWPPP Tip!

Washout Area Measures

When concrete, paint, or stucco is part of the construction process, consider these practices which will help prevent contamination of stormwater. Include the locations of these areas and your maintenance and inspection procedures in your SWPPP.

- Do not washout concrete trucks or equipment into storm drains, streets, gutters, uncontained areas, or streams
- Establish washout areas and advertise their locations with signs
- Provide adequate containment for the amount of wash water that will be used
- Inspect washout structures daily to detect leaks or tears and to identify when materials need to be removed
- Dispose of materials properly. The preferred method is to allow the water to evaporate and to recycle the hardened concrete. Full service companies may provide dewatering services and should dispose of wastewater properly. Concrete wash water can be highly polluted. It should not be discharged to any surface water, storm sewer system, or allowed to infiltrate into the ground. It should not be discharged to a sanitary sewer system without first receiving written permission from the system operator

P2 Principle 4: Establish proper equipment/vehicle fueling and maintenance practices. Performing equipment/vehicle fueling and maintenance at an off-site facility is preferred over performing these activities on the site, particularly for road vehicles (e.g., trucks, vans). For grading and excavating equipment, this is usually not possible or desirable. Create an on-site fueling and maintenance area that is clean and dry. The on-site fueling area should have a spill kit, and staff should know how to use it. If possible, conduct vehicle fueling and maintenance activities in a covered area; outdoor vehicle fueling and maintenance is a potentially significant source of stormwater pollution. Significant maintenance on vehicles and equipment should be conducted off-site.

SWPPP Tip!

Equipment/Vehicle Fueling and Maintenance Measures

Consider the following practices to help prevent the discharge of pollutants to stormwater from equipment/vehicle fueling and maintenance. Include the locations of these areas and your inspection and maintenance procedures in your SWPPP.

- Train employees and subcontractors in proper fueling procedures (stay with vehicles during fueling, proper use of pumps, emergency shut-off valves, and such)
- Inspect on-site vehicles and equipment daily for leaks, equipment damage, and other service problems
- Clearly designate vehicle/equipment service areas away from drainage facilities and water-courses to prevent stormwater run-on and runoff
- Use drip pans, drip cloths, or absorbent pads when replacing spent fluids
- Collect all spent fluids, store in appropriate labeled containers in the proper storage areas, and recycle fluids whenever possible

P2 Principle 5: Control equipment/vehicle washing and allowable non-stormwater discharges. Environmentally friendly washing practices can be practiced at every construction site to prevent contamination of surface and ground water from wash water. Procedures and practices include using off-site facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water or routing to the sanitary sewer; and training employees and subcontractors in proper cleaning procedures.

Take a Closer Look...

Non-Stormwater Runoff

A construction site might have sources of runoff that are not generated by stormwater. These non-stormwater discharges include fire hydrant flushing, vehicle or equipment wash water (no detergents!), water used to control dust, and landscape irrigation.

What does this mean to me?

Take steps to infiltrate these sources of uncontaminated water into the ground. You can also route these sources of water to sediment ponds or detention basins or otherwise treat them with appropriate BMPs.

SWPPP Tip!

Equipment/Vehicle Washing Measures

The following equipment/vehicle washing measures will help prevent stormwater pollution. Include the location of your washing facilities and your inspection and maintenance procedures in your SWPPP.

- Educate employees and subcontractors on proper washing procedures
- Clearly mark the washing areas and inform workers that all washing must occur in this area
- Contain wash water and treat and infiltrate it whenever possible
- Use high-pressure water spray at vehicle washing facilities without any detergents because water can remove most dirt adequately
- Do not conduct any other activities, such as vehicle repairs, in the wash area

P2 Principle 6: Develop a spill prevention and response plan. Most state and EPA construction general permits require the preparation of spill prevention and response plans. Generally, these plans can be included or incorporated into your SWPPP. The plan should clearly identify ways to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and response. The plan should also specify material handling procedures and storage requirements and ensure that clear and concise spill cleanup procedures are provided and posted for areas in which spills may potentially occur. When developing a spill prevention plan, include, at a minimum, the following:

- Note the locations of chemical storage areas, storm drains, tributary drainage areas, surface waterbodies on or near the site, and measures to stop spills from leaving the site
- Specify how to notify appropriate authorities, such as police and fire departments, hospitals, or municipal sewage treatment facilities to request assistance
- Describe the procedures for immediate cleanup of spills and proper disposal
- Identify personnel responsible for implementing the plan in the event of a spill

SWPPP Tip!

Spill Prevention Measures

Additional spill prevention measures that will help prevent spills and leaks include the following:

- Describe and list all types of equipment to be used to adequately clean up the spill
- Provide proper handling and safety procedures for each type of waste
- Establish an education program for employees and subcontractors on the potential hazards to humans and the environment from spills and leaks
- Update the spill prevention plan and clean up materials as changes occur to the types of chemicals stored and used at the facility

Take a Closer Look...

Spill Prevention, Control and Countermeasure (SPCC) Plan

Construction sites may be subject to 40 CFR Part 112 regulations that require the preparation and implementation of a SPCC Plan to prevent oil spills from aboveground and underground storage tanks. Your facility is subject to this rule if you are a nontransportation-related facility that:

- Has a total storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons and
- Could reasonably be expected to discharge oil in quantities that may be harmful to navigable waters of the United States and adjoining shorelines

Furthermore, if your facility is subject to 40 CFR Part 112, your SWPPP should reference the SPCC Plan. To find out more about SPCC Plans, see EPA's website on SPPC at **www.epa.gov/oilspill/spcc.htm**

What does this mean to me?

Reporting Oil Spills

In the event of an oil spill, you should contact the National Response Center toll free at 1-800-424-8802 for assistance, or for more details, visit their website: ***www.nrc.uscg.mil/nrchp.html***

Chapter 6: **SWPPP Development—Inspections, Maintenance, and Recordkeeping**

▶ **This chapter describes the inspection and maintenance procedures your SWPPP should include, as well as recordkeeping requirements.**

A. Describe Your Plans and Procedures for Inspecting BMPs

Earlier discussions in this manual pointed out that the effectiveness of erosion and sediment control BMPs and good housekeeping and pollution prevention measures depend on consistent and continual inspection and maintenance. This step focuses on developing a plan for BMP inspection and maintenance to ensure that a schedule and procedures are in place.

Inspections

Your responsibility does not stop after BMPs are installed. Your BMPs must be maintained in good working order at all times. Further, your permit requires that you conduct regular inspections and document the findings of those inspections in your SWPPP.

Your construction general permit describes the ***minimum*** frequency of inspections, which is typically weekly or bi-weekly and after each rainfall event exceeding one-half inch. To meet the requirement to maintain all BMPs in good working order, EPA recommends that you develop an inspection schedule that goes beyond these minimums and is customized for your site and the conditions affecting it.

In developing your inspection schedule consider the following:

- Consider using *spot* inspections. You may want to inspect certain parts of your site more frequently or even daily. Target places that need extra attention, such as areas around construction site entrances, check nearby streets for dirt, check inlet protection, and so on.
- Consider using informal inspections. Your permit outlines the minimum requirements for formal inspections that must be documented and included in your SWPPP. You can also add informal inspections that wouldn't require documentation, unless of course, a problem is identified. Always document any problems you find and those that are identified by staff.
- Consider adding inspections *before or even during* rain events. Many permits require inspections of BMPs after rain events. You should consider adding inspections ***before or during*** predicted rain events. Consult a local weather source and initiate inspections before predicted storm events as a way to ensure that controls are operational.
- Train staff and subcontractors. Use your staff and subcontractors to help identify any potential problems with your BMPs. Again, document any issues that are confirmed problems.

SWPPP Tip!

Inspection Guide

The State of Minnesota has developed a *Stormwater Construction Inspection Guide* to assist municipal site inspectors in procedures for conducting a compliance inspection at construction sites. This guide can also be useful for construction operators conducting self-inspections. Available at **www.pca.state.mn.us/water/stormwater/stormwatr-c.html**

EPA recommends that you develop an inspection schedule that meets the needs of your site. You'll probably also want to update and refine this schedule based on your experiences, the findings of your inspections, and the changing conditions at your site.

SWPPP Tip!

Selecting BMP Inspectors

A BMP inspection is only as good as the inspector. Therefore, it is important to select qualified personnel to conduct BMP inspections. The SWPPP should identify who has the responsibility for conducting inspections. Personnel selected to conduct inspections should be knowledgeable in the principles and practices of erosion and sediment controls, possess the technical skills to assess conditions at the construction site that could impact stormwater quality, and assess the effectiveness of any sediment and erosion control measures selected.

Several states and other organizations offer training that will help prepare inspectors to accurately evaluate BMPs, decide when maintenance is appropriate, or when a different BMP should be substituted. (Several states require that sites be inspected by someone that the state certifies as a qualified inspector.) One national organization offers two certification programs that would be useful for personnel who are developing and implementing SWPPPs and conducting inspections. These certification programs are called: "*Certified Professional in Erosion and Sediment Control (CPESC)*" and "*Certified Professional in Stormwater Quality (CPSWQ)*." You can find more information on these programs at **www.cpesc.org**

Inspection Reports

Complete an inspection report after each inspection. You should retain copies of all inspection reports and keep them with or in your SWPPP. Generally, the following information is required to be included in your inspection report:

- Inspection date
- Inspector information, including the names, titles, and qualifications of personnel conducting the inspection
- Weather information for the period since the last inspection (or for the first inspection since commencement of construction activity) including a best estimate of the beginning of each storm, its duration, approximate amount of rainfall for each storm (in inches), and whether any discharges occurred. You may create a log to record the basic weather information or you may keep copies of weather information from a reliable local source, such as the internet sites of local newspapers, TV stations, local universities, etc.
- Current weather information and a description of any discharges occurring at the time of the inspection
- Descriptions of evidence of previous or ongoing discharges of sediment or other pollutants from the site
- Location(s) of BMPs that need to be maintained
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a location
- Location(s) where additional BMPs are needed but did not exist at the time of inspection
- Corrective action required, including any necessary changes to the SWPPP and implementation dates
- Reference to past corrective actions documenting follow-up actions taken

Consider taking digital photographs during inspections to document BMPs, problems identified, and progress in implementing the SWPPP.

Appendix B includes an example stormwater inspection report. You should use this report, or a similar report, to document your stormwater construction site inspections. Check to see if your state or local authority has developed an inspection checklist for your use. The inspection report is broken up into two main sections—site-specific BMPs and overall site issues. For the site-specific BMPs, you should number the structural and non-structural BMPs in your SWPPP on a copy of your site map (preferably in the order in which you would inspect them on the site). Then as you conduct your inspections, you can verify whether each BMP has been installed and maintained. If a BMP has not been installed or needs maintenance, describe this in the corrective action section and list a date for when the corrective action will be completed and who will be responsible for completing the action. The overall site issues section describes 11 common issues at construction sites you should inspect for. You can customize this form to meet the needs of your particular situation.

Make sure each inspection report is signed and certified consistent with your permit's requirements.

Chapter 8, Section D contains more information on implementing an inspection program. Also, see the suggested inspection report form in Appendix B.

SWPPP Tip!

Consider More Effective BMPs

During inspections, consider whether the installed BMPs are working effectively. If you find a BMP that is failing or overwhelmed by sediment, you should consider whether it needs to be replaced with a more effective BMP or enhanced by the addition of another, complimentary BMP. Ensure that you record such changes in your SWPPP and on your site map.

B. BMP Maintenance

Implementing a good BMP maintenance program is essential to the success of your SWPPP and to your efforts to protect nearby waterways. You should conduct maintenance of BMPs regularly and whenever an inspection (formal or informal) identifies a problem or potential issue. For instance, trash and debris should be cleaned up, dumpsters should be checked and covered, nearby streets and sidewalks should be swept daily, and so on. Maintenance on erosion and sediment controls should be performed as soon as site conditions allow. Consider the following points when conducting maintenance:

- Follow the designers or manufacturer's recommended maintenance procedures for all BMPs
- Maintenance of BMPs will vary according to the specific area and site conditions
- Remove sediment from BMPs as appropriate and properly dispose of sediment into controlled areas to prevent soil from returning to the BMP during subsequent rain events
- Remove sediment from paved roadways and from around BMPs protecting storm drain inlets
- Ensure that construction support activities, including borrow areas, waste areas, contractor work areas, and material storage areas and dedicated concrete and asphalt batch plants are cleaned and maintained
- Replace damaged BMPs, such as silt fences, that no longer operate effectively

You should keep a record of all maintenance activities, including the date, BMP, location, and maintenance performed in your SWPPP.

C. Recordkeeping

You must keep copies of the SWPPP, inspection records, copies of all reports required by the permit, and records of all data used to complete the NOI to be covered by the permit for a period of at least 3 years from the date that permit coverage expires or is terminated.

Records should include:

- A copy of the SWPPP, with any modifications
- A copy of the NOI and Notice of Termination (NOT) and any stormwater-related correspondence with federal, state, and local regulatory authorities
- Inspection forms, including the date, place, and time of BMP inspections
- Names of inspector(s)
- The date, time, exact location, and a characterization of significant observations, including spills and leaks
- Records of any non-stormwater discharges
- BMP maintenance and corrective actions taken at the site (Corrective Action Log)
- Any documentation and correspondence related to endangered species and historic preservation requirements
- Weather conditions (e.g., temperature, precipitation)
- Date(s) when major land disturbing (e.g. clearing, grading, and excavating) activities occur in an area
- Date(s) when construction activities are either temporarily or permanently ceased in an area
- Date(s) when an area is either temporarily or permanently stabilized

Chapter 7: Certification and Notification

▶ This chapter describes how, after developing your SWPPP, you can obtain permit coverage for your stormwater discharges.

A. Certification

Signature and Certification

The construction site operator must sign the permit application form, which is often called a *Notice of Intent* or *NOI*. (In some instances, the construction general permit may not require the submission of an NOI or application. Construction activities may be covered automatically.)

All reports, including SWPPPs and inspection reports, generally must be signed by the construction site operator or a duly authorized representative of that person. The authorized representative is typically someone who has direct responsibility for implementing the SWPPP. If the operator chooses to designate an authorized representative, a signed letter or statement to that effect must be included in the SWPPP. Check your permit for exact requirements.

Your SWPPP must include the signature of the construction site operator or authorized representative and the certification statement provided in the general permit. An example of the certification language from EPA's Construction General Permit follows:

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

This ensures that the SWPPP was developed and reviewed by a responsible party with the ability to implement the BMPs and other commitments described in the SWPPP.

SWPPP Tip!

Posting a sign at the construction entrance

EPA and many state general permits require that you post a sign or other notice conspicuously near the main entrance of the construction site. EPA's permit requires that the sign contain a copy of the NOI, the location of the SWPPP, and a contact person for viewing the SWPPP.

Copy of Permit Requirements

Most general permits require you to keep a copy of the permit and your NOI with your SWPPP. This allows you to quickly check the permit if a question arises about a permit requirement.

Other State, Tribal, and Local Programs

Include in your SWPPP a description of any other federal, state, tribal, or local requirements for erosion and sediment control and stormwater management that apply to your site. Many local governments also impose erosion and sediment control requirements; your SWPPP should comply with both the general permit and any applicable local requirements.

SWPPP Tip!

Making your SWPPP available

While EPA and most states do not require you to submit a copy of your SWPPP for review, your SWPPP must be available to these and other government agencies for inspection. Your permit may also require you to make your SWPPP available to the public, if requested. If you have the ability, you should consider posting your SWPPP on the Internet and publicizing the URL. Check your permit for exact requirements.

B. Notification

Now that you have developed your SWPPP and before you begin construction, you must begin the process of obtaining permit coverage from your authorized state or EPA. Authorized states and EPA use *general* permits to cover all construction sites. These broadly written general or *umbrella* permits apply to all construction activities in a given state.

Obtaining Coverage Under a General Permit

Important! Before obtaining permit coverage, you should read a copy of the appropriate construction general permit *and* develop your SWPPP.

To obtain coverage under a state or EPA construction general permit, you will typically need to fill out and submit an application form, often called a Notice of Intent or NOI. Submitting this form to the permitting authority indicates your *intent* to be authorized to discharge stormwater under the appropriate general permit for construction activities. Depending on the permit, you may be authorized to discharge immediately or at some later time. In some cases, you are not authorized to discharge until the state has notified you accordingly. EPA's Construction General Permit requires a 7-day waiting period after a complete NOI is received and posted on EPA's website (**www.epa.gov/npdes/noisearch**). The waiting period expires when the permit's status changes from *waiting* to *active*.

Take a Closer Look...

Information on the Application or Notice of Intent (NOI)

The NOI provides the permitting authority with pertinent information about your construction site, such as owner/operator information, site location, estimated project start and completion dates, approximate area to be disturbed, information about your SWPPP, receiving waters, and endangered species review certification. An appropriate person who is authorized to represent your organization must sign and verify that the facts contained in the NOI are true and accurate. For businesses, a certifying official is typically a corporate officer, such as a president, vice president, or manager of operations. For municipalities, it's typically a principal executive officer or ranking elected official. Check your permit for exact signature requirements.

In general, the only information you need to submit to the permitting authority is the NOI. EPA and most authorized state agencies do not require you to submit your SWPPP for approval. However, many local governments review and approve at least the erosion and sediment control component of your SWPPP.

What does this mean to me?

There are significant penalties for failing to obtain authorization to discharge or for submitting inaccurate information. If you are the certifying official, make sure you are authorized to discharge before construction activities begin.

SWPPP Tip!

Deadline for submitting NOIs under EPA's Construction General Permit

For EPA's construction general permit, the fastest and easiest way to obtain permit coverage is to use EPA's electronic permit application system, called "eNOI" at **www.epa.gov/npdes/stormwater/enoi**. Using this approach, you may be authorized to discharge in as little as 7 days after submission of your electronic NOI. If you choose to submit your NOI by mail, EPA recommends that you send it at least one month before you need permit coverage.

Chapter 8: **SWPPP Implementation**

> **Your SWPPP is your guide to preventing stormwater pollution. However, it is just a plan. Implementing your SWPPP, maintaining your BMPs, and then constantly reevaluating and revising your BMPs and your SWPPP are the keys to protecting your local waterways.**

A. Train Your Staff and Subcontractors

Your site's construction workers and subcontractors might not be familiar with stormwater BMPs, and they might not understand their role in protecting local rivers, lakes and coastal waters. Training your staff and subcontractors in the basics of erosion control, good housekeeping, and pollution prevention is one of the most effective BMPs you can institute at your site.

Basic training should include

- Spill prevention and cleanup measures, including the prohibition of dumping any material into storm drains or waterways
- An understanding of the basic purpose of stormwater BMPs, including what common BMPs are on-site, what they should look like, and how to avoid damaging them
- Potential penalties associated with stormwater noncompliance

Staff directly responsible for implementing the SWPPP should receive comprehensive stormwater training, including

- The location and type of BMPs being implemented
- The installation requirements and water quality purpose for each BMP
- Maintenance procedures for each of the BMPs being implemented
- Spill prevention and cleanup measures
- Inspection and maintenance recordkeeping requirements

You can train staff and subcontractors in several ways: short training sessions (food and refreshments will help increase attendance), posters and displays explaining your site's various BMPs, written agreements with subcontractors to educate their staff members, signs pointing out BMPs and reminders to keep clear of them. Every construction site operator should try to train staff and subcontractors to avoid damaging BMPs. By doing so, operators can avoid the added expense of repairs.

SWPPP Tip!

Train your staff and subcontractors!

Here are a few key things you will want to cover with each person working on your site:

- Use only designated construction site entrances
- Keep equipment away from silt fences, fiber rolls, and other sediment barriers
- Know the locations of disposal areas, and know the proper practices for trash, concrete and paint washout, hazardous chemicals, and so on
- Keep soil, materials, and liquids away from paved areas and storm drain inlets. Never sweep or wash anything into a storm drain
- Know the location and understand the proper use of spill kits
- Know the locations of your site's designated protection areas. Keep equipment away from stream banks, valuable trees and shrubs, and steep slopes. Clearly mark these areas with signs
- Keep equipment off mulched, seeded, or stabilized areas. Post signs on these areas, too
- Know who to contact when problems are identified!

B. Ensure Responsibility—Subcontractor Agreements

At any given site, there might be multiple parties (developer, general contractor, builders, subcontractors) that have roles and responsibilities for carrying out or maintaining stormwater BMPs at a given site. These roles and responsibilities should be documented clearly in the SWPPP (see Chapter 2, Section D). In some cases (state requirements vary), there may be one entity that has developed the SWPPP and filed for permit coverage and, therefore, is designated as the *operator*. When other parties at a site are not officially designated as operators, many operators are incorporating the roles and responsibilities of these *non-operators* in the agreements and contracts they have with these companies and individuals. This contract language should spell out responsibilities implementing and maintaining stormwater BMPs, for training staff, and for correcting damage to stormwater BMPs on the site. Several states have stormwater regulations that hold other parties liable even if they are not identified as the *operator*.

C. Implement Your SWPPP Before Construction Starts

Once you have obtained permit coverage and you are ready to begin construction, it is time to implement your SWPPP. You must implement appropriate parts of your SWPPP before construction activity begins. This generally involves installing storm drain inlet protection, construction entrances, sediment basins, and perimeter silt fences before clearing, grading, and excavating activities begin.

After construction activities begin, your SWPPP should describe when additional erosion and sediment controls will be installed (generally after initial clearing and grading activities are complete). You should also begin BMP inspections once clearing and grading activities begin.

SWPPP Tip!

Take Photographs During Inspections

Taking photographs can help you document areas that need maintenance and can help identify areas where subcontractors might need to conduct maintenance. Photographs can also help provide documentation to EPA or state inspectors that maintenance is being performed.

SWPPP Tip!

Prepare for the rain and snowmelt!

In some areas of the country, construction site operators are required to develop *weather triggered* action plans that describe additional activities the operator will conduct 48 hours before a predicted storm (at least a 50 percent forecasted chance of rain). It is also a good idea to stockpile additional erosion and sediment control BMPs (such as silt fencing, and fiber rolls) at the site for use when necessary.

D. Conduct Inspections and Maintain BMPs

As mentioned earlier (Chapter 6), EPA recommends that you develop an inspection schedule for your site that considers the size, complexity, and other conditions at your site. This should include regularly scheduled inspections and less formal inspections. EPA recommends that you develop a plan that includes inspections before and after anticipated rain events. You might also want to inspect some BMPs during rain events to see if they are actually keeping sediment on site! Conducting inspections during rain events also allows a construction site operator to address minor problems before they turn into major problems.

Temporarily Removed BMPs

BMPs sometimes need to be temporarily removed to conduct work in an area of the site. These temporarily removed BMPs should be noted on the site plan and replaced as soon as possible after the completion of the activity requiring their removal. If a rain is forecast, the BMPs should be replaced as soon as possible before the rain event.

Recommended Inspection Sequence

You should conduct thorough inspections of your site, making sure to inspect all areas and BMPs. The seven activities listed below are a recommended inspection sequence that will help you conduct a thorough inspection (adapted from MPCA 2004).

1. Plan your inspection

- ☑ Create a checklist to use during the inspection (see Appendix B)
- ☑ Obtain a copy of the site map with BMP locations marked
- ☑ Plan to walk the entire site, including discharge points from the site and any off-site support activities such as concrete batch plants should also be inspected
- ☑ Follow a consistent pattern each time to ensure you inspect all areas (for example, starting at the lowest point and working uphill)

2. Inspect discharge points and downstream, off-site areas

- ☑ Inspect discharge locations to determine whether erosion and sediment control measures are effective
- ☑ Inspect nearby downstream locations, if feasible
- ☑ Walk *down the street* to inspect off-site areas for signs of discharge. This is important in areas with existing curbs and gutters
- ☑ Inspect downslope municipal catch basin inlets to ensure that they are adequately protected

3. Inspect perimeter controls and slopes

- ☑ Inspect perimeter controls such as silt fences to determine if sediment should be removed
- ☑ Check the structural integrity of the BMP to determine if portions of the BMP need to be replaced
- ☑ Inspect slopes and temporary stockpiles to determine if erosion controls are effective

4. Compare BMPs in the site plan with the construction site conditions

- ☑ Determine whether BMPs are in place as required by the site plan
- ☑ Evaluate whether BMPs have been adequately installed and maintained
- ☑ Look for areas where BMPs are needed but are missing and are not in the SWPPP

5. Inspect construction site entrances

- ☑ Inspect the construction exits to determine if there is tracking of sediment from the site onto the street
- ☑ Refresh or replace the rock in designated entrances
- ☑ Look for evidence of additional construction exits being used that are not in the SWPPP or are not stabilized
- ☑ Sweep the street if there is evidence of sediment accumulation

6. Inspect sediment controls

- ☑ Inspect any sediment basins for sediment accumulation
- ☑ Remove sediment when it reduces the capacity of the basin by the specified amount (many permits have specific requirements for sediment basin maintenance. Check the appropriate permit for requirements and include those in your SWPPP)

7. Inspect pollution prevention and good housekeeping practices

- ☑ Inspect trash areas to ensure that waste is properly contained
- ☑ Inspect material storage and staging areas to verify that potential pollutant sources are not exposed to stormwater runoff
- ☑ Verify that concrete, paint, and stucco washouts are being used properly and are correctly sized for the volume of wash water
- ☑ Inspect vehicle/equipment fueling and maintenance areas for signs of stormwater pollutant exposure

Common Compliance Problems During Inspections

The following are problems commonly found at construction sites. As you conduct your inspections, look for these problems on your site (adapted from MPCA 2004).

Problem #1—Not using phased grading or providing temporary or permanent cover (i.e., soil stabilization)

In general, construction sites should phase their grading activities so that only a portion of the site is exposed at any one time. Also, disturbed areas that are not being actively worked should have temporary cover. Areas that are at final grade should receive permanent cover as soon as possible.

Problem #2—No sediment controls on-site

Sediment controls such as silt fences, sediment barriers, sediment traps and basins must be in place before soil-disturbance activities begin. Don't proceed with grading work out-of-phase.

Problem #3—No sediment control for temporary stockpiles

Temporary stockpiles must be seeded, covered, or surrounded by properly installed silt fence. Stockpiles should never be placed on paved surfaces.

Problem #4—No inlet protection

All storm drain inlets that could receive a discharge from the construction site must be protected before construction begins and must be maintained until the site is finally stabilized.

Problem #5—No BMPs to minimize vehicle tracking onto the road

Vehicle exits must use BMPs such as stone pads, concrete or steel wash racks, or equivalent systems to prevent vehicle tracking of sediment.

Problem #6—Improper solid waste or hazardous waste management

Solid waste (including trash and debris) must be disposed of properly, and hazardous materials (including oil, gasoline, and paint) must be properly stored (which includes secondary containment). Properly manage portable sanitary facilities.

Problem #7—Dewatering and other pollutant discharges at the construction site

Construction site dewatering from building footings or other sources should not be discharged without treatment. Turbid water should be filtered or allowed to settle.

Problem #8—Poorly managed washouts (concrete, paint, stucco)

Water from washouts must not enter the storm drain system or a nearby receiving water. Make sure washouts are clearly marked, sized adequately, and frequently maintained.

Problem #9—Inadequate BMP maintenance

BMPs must be frequently inspected and maintained if necessary. Maintenance should occur for BMPs that have reduced capacity to treat stormwater (construction general permits or state design manuals often contain information on when BMPs should be maintained), or BMPs that have been damaged and need to be repaired or replaced (such as storm drain inlet protection that has been damaged by trucks).

Problem #10—Inadequate documentation or training

Failing to develop a SWPPP, keep it up-to-date, or keep it on-site, are permit violations. You should also ensure that SWPPP documentation such as a copy of the NOI, inspection reports and updates to the SWPPP are also kept on-site. Likewise, personnel working on-site must be trained on the basics of stormwater pollution prevention and BMP installation/maintenance.

E. Update and Evaluate Your SWPPP

Like your construction site, your SWPPP is dynamic. It is a document that must be amended to reflect changes occurring at the site. As plans and specifications change, those changes should be reflected in your SWPPP. If you find that a BMP is not working and you decide to replace it with another, you must reflect that change in your SWPPP. Document in your SWPPP transitions from one phase of construction to the next, and make sure you implement new BMPs required for that next phase.

Are Your BMPs Working?

You should evaluate the effectiveness of your BMPs as part of your routine inspection process. An informal analysis of both your inspection's findings and your list of BMP repairs will often reveal an inadequately performing BMP. An inspection immediately after a rain event can indicate whether another approach is needed.

You may decide to remove an existing BMP and replace it with another, or you may add another BMP in that area to lessen the impact of stormwater on the original installation.

When you update your SWPPP, you can simply mark it up, particularly for relatively simple changes and alterations. More significant changes might require a rewriting of portions of the SWPPP. The site map should also be updated as necessary.

Chapter 9: **Final Stabilization and Permit Termination**

▶ **This chapter describes what you must do to stabilize your construction site and end permit coverage.**

Stabilize Disturbed Areas

As your construction project progresses, you must stabilize areas not under construction. EPA and most states have specific requirements and time frames that must be followed. Generally, it is a wise management practice to stabilize areas as quickly as possible to avoid erosion problems that could overwhelm silt fences, sediment basins, and other sediment control devices.

SWPPP Tip!

Stabilize as soon as practicable

EPA's Construction General Permit states that, "stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased."

Temporary stabilization can be achieved through a variety of BMPs, including mulching, seeding, erosion control blankets, hydroseeding, and other measures.

Permanent or final stabilization of areas on your site is generally accomplished by installing the final landscape requirements (e.g., trees, grass, gardens, or permanent stormwater controls). Once the site has been stabilized, you can terminate your permit coverage.

Sediment controls, such as silt fence, berms, sediment ponds or traps, alone, are not stabilization measures. You should continue to use these kinds of measures (e.g., silt fence around an area that has been seeded) until full stabilization is achieved.

A. Final Stabilization

When you have completed your construction project or an area within the overall project, you must take steps to permanently and finally stabilize it. Check your permit for the specific requirements you must meet. After a project or an area in the project has been fully stabilized, you should remove temporary sediment and erosion control devices (such as silt fences). You might also be able to stop routine inspections in these stabilized areas. However, in some states such as Colorado, inspections are required every 30 days (after the construction has been completed and the site is stabilized) until permit coverage has been terminated. In general, you should be aware that

Figure 16. Seeding is an effective BMP that can be used to temporarily or permanently stabilize disturbed areas.

final stabilization often takes time (weeks or even months), especially during times of low rainfall or during the colder months of the year. You should not discontinue routine inspections until you have met the final stabilization requirements in your permit.

EPA and many states define final stabilization as occurring when a uniform, evenly distributed perennial vegetative cover with a density of 70 percent of the native background cover has been established on all unpaved areas and areas not covered by permanent structures. Some states have a higher percentage of vegetative cover required (e.g., New York requires 80 percent). Please review your state's construction general permit for specific requirements.

Native vegetation must be established uniformly over each disturbed area on the site. Stabilizing seven of ten slopes, or leaving an area equivalent to 30 percent of the disturbed area completely unstabilized will not satisfy the *uniform vegetative cover* standard.

The contractor must establish vegetation over the entire disturbed soil area at a minimum density of 70 percent of the native vegetative coverage. For example, if native vegetation covers 50 percent of the undisturbed ground surface (e.g., in an arid or semi-arid area), the contractor must establish 35 percent vegetative coverage uniformly over the entire disturbed soil area ($0.70 \times 0.50 = 0.35$ or 35 percent). Several states require perennial native vegetative cover that is *self-sustaining* and capable of providing *erosion control equivalent to preexisting conditions* to satisfy the 70 percent coverage requirement.

In lieu of vegetative cover, you can apply alternate measures that provide equivalent soil stabilization to the disturbed soil area. Such equivalent measures include blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion-resistant soil covering or treatments. Your construction general permit might allow all or some of these alternate measures for equivalent soil stabilization for final stabilization; check your general permit.

B. Permit Termination

Once construction activity has been completed and disturbed areas are finally stabilized, review your general permit for specific steps to end your coverage under that permit. EPA and many states require you to submit a form, often called a notice of termination (NOT), to end your coverage under that construction general permit. Before terminating permit coverage, make sure you have accomplished the following:

- Remove any construction debris and trash
- Remove temporary BMPs (such as silt fence). Remove any residual sediment as needed. Seed and mulch any small bare spots. BMPs that will decompose, including some fiber rolls and blankets, may be left in place
- Check areas where erosion-control blankets or matting were installed. Cut away and remove all loose, exposed material, especially in areas where walking or mowing will occur. Reseed all bare soil areas
- Ensure that 70 percent of background native vegetation coverage or equivalent stabilization measures have been applied for final soil stabilization of disturbed areas
- Repair any remaining signs of erosion
- Ensure that post-construction BMPs are in place and operational. Provide written maintenance requirements for all post-construction BMPs to the appropriate party
- Check all drainage conveyances and outlets to ensure they were installed correctly and are operational. Inspect inlet areas to ensure complete stabilization and remove any brush or debris that could clog inlets. Ensure banks and ditch bottoms are well vegetated. Reseed bare areas and replace rock that has become dislodged
- Seed and mulch or otherwise stabilize any areas where runoff flows might converge or high velocity flows are expected
- Remove temporary stream crossings. Grade, seed, or re-plant vegetation damaged or removed
- Ensure subcontractors have repaired their work areas before final closeout

You might also be required to file an NOT if you transfer operational control to another

Take a Closer Look…

Is there a deadline to submit an NOT?

Many states require a Notice of Termination (NOT) or similar form to indicate that the construction phase of a project is completed and that all the terms and conditions have been met. This notification informs the permitting authority that coverage under the construction general permit is no longer needed. If your permitting authority requires such a notification, check to see what conditions must be met in order to submit it and check to see if there is a deadline for submission. EPA's Construction General Permit requires that you submit an NOT when you have met all your permit requirements. The NOT is due no later than 30 days after meeting these requirements.

What does this mean to me?

Check your permit carefully for details and conditions relating to terminating your permit coverage.

party before the project is complete. The new operator would be required to develop and implement a SWPPP and to obtain permit coverage as described above.

EPA and most states allow homebuilders to terminate permit coverage when the property has been transferred to the homeowner with temporary or final stabilization measures in place. If the transfer is made with temporary stabilization measures in place, EPA expects the homeowner to complete the final landscaping. Under these circumstances, EPA and most states do not require homeowners to develop SWPPPs and apply for permit coverage.

C. Record Retention

EPA's regulations specifies that you must retain records and reports required in the permit, including SWPPPs and information used to complete the NOI, for at least 3 years from the termination of coverage or expiration of the permit. You should also keep maintenance and inspection records related to the SWPPP for this same time frame. General permits issued by states may have a longer period for retention.

Figure 17. Make sure inlets, outlets, and slopes are well stabilized before leaving the site and filing your "Notice of Termination" for ending permit coverage.

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Acknowledgements

The graphics used in this guide were developed by Tetra Tech, Inc. for the Kentucky Divison of Water's Erosion and Sediment Control Field Guide.

Appendix A: **SWPPP Template**

An electronic copy of the SWPPP template is available on EPA's web site at:
http://www.epa.gov/npdes/swpppguide

Appendix B: **Sample Inspection Report**

An electronic copy of the sample inspection report is available on EPA's web site at:
http://www.epa.gov/npdes/swpppguide

Appendix C: **Calculating the Runoff Coefficient**

The following information is largely taken from EPA's 1992 guidance *Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices* (EPA 832-R-92-005).

It is important to estimate your development's impact on runoff after construction is complete. This can be done by estimating the runoff coefficient for pre- and post-construction conditions. The runoff coefficient ("C" value) is the partial amount of the total rainfall which will be come runoff. The runoff coefficient is used in the "rational method" which is:

$$Q = CiA,$$

Where Q = the rate of runoff from an area,
i = rainfall intensity, and
A = the area of the drainage basin.

There are many methods which can be used to estimate the amount of runoff from a construction site. You are not required to use the rationale method to design stormwater conveyances or BMPs. Consult your State/local design guides to determine what methods to use for estimating design flow rates from your development.

The less rainfall that is absorbed (infiltrates) into the ground, evaporates, or is otherwise absorbed on site, the higher the "C" value. For example, the "C" value of a lawn area is 0.2, which means that only 20 percent of the rainfall landing on that area will run off, the rest will be absorbed or evaporate. A paved parking area would have a "C" value of 0.9, which means that 90 percent of the rainfall landing on that area will become runoff. You should calculate the runoff coefficient for conditions before construction and after construction is complete. It is suggested that a runoff coefficient be calculated for each drainage basin on the site. The following is an example of how to calculate the "C" value.

The runoff coefficient or "C" value for a variety of land uses may be found in Table C-1 (NOTE: Consult your State/local design guide, if available, to determine if specific "C" values are specified for your area). The "C" values provide an estimate of anticipated runoff for particular land uses. Most sites have more than one type of land use and therefore more than one "C" value will apply. To have a "C" value that represents your site you will need to calculate a "weighted C value."

Calculating a "Weighted C value"

When a drainage area contains more than one type of surface material with more than one runoff coefficient a "weighted C" must be calculated. This "weighted C" will take into account the amount of runoff from all the various parts of the site. A formula used to determine the "weighted C" is as follows:

$$C = \frac{A_1C_1 + A_2C_2 + \ldots + A_xC_x}{(A_1 + A_2 + \ldots + A_x)}$$

Where A = acres and C = coefficient.

Therefore, if a drainage area has 15 acres (ac.) with 5 paved acres ($C = 0.9$), 5 grassed acres ($C = 0.2$), and 5 acres in natural vegetation ($C = 0.1$), a "weighted C" would be calculated as follows:

$$C = \frac{(5 \text{ ac} \times 0.9) + (5 \text{ ac} \times 0.2) + (5 \text{ ac} \times 0.1)}{(5 \text{ ac} + 5 \text{ ac} + 5 \text{ ac})} = 0.4$$

Table C-1. Typical "C" Values

Description of Area	Runoff Coefficients
Business	
Downtown Areas	0.70 – 0.95
Neighborhood Areas	0.50 – 0.70
Residential	
Single-family areas	0.30 – 0.50
Multi-units, detached	0.40 – 0.60
Multi-units, attached	0.60 – 0.75
Residential (suburban)	0.25 – 0.40
Apartment dwelling areas	0.50 – 0.70
Industrial	
Light Areas	0.50 – 0.80
Heavy Areas	0.60 – 0.90
Parks, cemeteries	0.10 – 0.25
Playgrounds	0.20 – 0.35
Railroad yard areas	0.20 – 0.40
Unimproved areas	0.10 – 0.30
Streets	
Asphalt	0.70 – 0.95
Concrete	0.80 – 0.95
Brick	0.70 – 0.85
Drives and Walks	0.75 – 0.85
Roofs	0.75 – 0.95
Lawns – course textured soil (greater than 85% sand)	
Slope: Flat, 2%	0.05 – 0.10
Average, 2-7%	0.10 – 0.15
Steep, 7%	0.15 – 0.20
Lawns – fine textured soil (greater than 40% clay)	
Slope: Flat, 2%	0.13 – 0.17
Average, 2-7%	0.18 – 0.22
Steep, 7%	0.25 – 0.35

Appendix D: **Resources List**

The following are just a few of the many resources available to assist you in developing your SWPPP. The inclusion of these resources does not constitute an endorsement by EPA.

EPA Resources

EPA Stormwater Construction Website
http://www.epa.gov/npdes/stormwater/construction

- EPA's Construction General Permit (**http://www.epa.gov/npdes/stormwater/cgp**)
  EPA's general permit that applies to all construction activity disturbing greater than one acre in the states and territories where EPA is the permitting authority.
- Construction SWPPP Guide, SWPPP Template and inspection form (**www.epa.gov/npdes/swpppguide**)
  A downloadable copy of this guide, the SWPPP template and inspection form.
- Menu of BMPs (**http://www.epa.gov/npdes/stormwater/menuofbmps**)
  Site containing over 40 construction BMP fact sheets. Also contains fact sheets on other stormwater program areas, and case studies organized by program area.

National Management Measures to Control Nonpoint Source Pollution from Urban Areas
http://www.epa.gov/owow/nps/urbanmm/index.html

Managing Your Environmental Responsibilities: A Planning Guide for Construction and Development
http://www.epa.gov/compliance/resources/publications/assistance/sectors/constructmyer/index.html

Expedited Settlement Offer Program for Stormwater (Construction)
http://www.epa.gov/Compliance/resources/policies/civil/cwa/esoprogstormwater.pdf
A supplemental program to ensure consistent EPA enforcement of stormwater requirements at construction sites for relatively minor violations.

Construction Industry Compliance Assistance
http://www.cicacenter.org
Plain language explanations of environmental rules for the construction industry. Links to stormwater permits and technical manuals for all 50 states.

Smart Growth and Low Impact Development Resources

Using Smart Growth Techniques as Stormwater Best Management Practices
http://www.epa.gov/livablecommunities/pdf/sg_stormwater_BMP.pdf

Stormwater Guidelines for Green, Dense Development
http://www.epa.gov/smartgrowth/pdf/Stormwater_Guidelines.pdf

Protecting Water Resources with Smart Growth
http://www.epa.gov/smartgrowth/pdf/waterresources_with_sg.pdf

Parking Spaces / Community Places: Finding the Balance Through Smart Growth Solutions
http://www.epa.gov/smartgrowth/parking.htm

EPA Nonpoint Source Low Impact Development site
http://www.epa.gov/owow/nps/lid/

Better Site Design: A Handbook for Changing Development Rules in Your Community
Available from **http://www.cwp.org**

State BMP/Guidance Manuals

Kentucky Erosion Prevention and Sediment Control Field Guide
http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/
Easy to read field guide describing erosion and sediment control BMP selection, installation and maintenance.

Minnesota Stormwater Construction Inspection Guide
http://www.pca.state.mn.us/publications/wq-strm2-10.pdf
A manual designed to assist municipal construction inspectors in the procedures for conducting a compliance inspection at construction sites.

California Stormwater Quality Association's Construction Handbook
http://www.cabmphandbooks.org/Construction.asp

Delaware Erosion and Sediment Control Handbook
http://www.dnrec.state.de.us/dnrec2000/Divisions/Soil/Stormwater/StormWater.htm

Western Washington Stormwater Management Manual – Volume II – Construction Stormwater Pollution Prevention
http://www.ecy.wa.gov/programs/wq/stormwater/manual.html

Eastern Washington Stormwater Management Manual
http://www.ecy.wa.gov/biblio/0410076.html
A guidance document addressing stormwater design and management in more arid climates.

Certification Programs

Certified Professional in Erosion and Sediment Control
http://www.cpesc.org

Virginia Erosion and Sediment Control Certification Program
http://www.dcr.virginia.gov/sw/estr&crt2.htm

Florida Stormwater, Erosion and Sedimentation Control Inspector Certification
http://www.dep.state.fl.us/water/nonpoint/erosion.htm

Other Resources

International Erosion Control Association
http://www.ieca.org
A non-profit organization helping members solve the problems caused by erosion and its byproduct—sediment.

Erosion Control Magazine
http://www.erosioncontrol.com
A journal for erosion and sediment control professionals.

Designing for Effective Sediment & Erosion Control on Construction Sites by Jerald S. Fifield, PH.D., CPESC. Available from Forester Press
http://www.foresterpress.com
Book describing proven and practical methods for minimizing erosion and sedimentation on construction sites.

Stormwater Permitting: A Guide for Builders and Developers by National Association of Home Builders (NAHB). Available from NAHB **http://www.nahb.org**

APPENDIX E

STORMWATER MANAGEMENT PLAN FOR EMPLOYEES

Village of Greenport

Storm Water Management Program

Pollution Prevention and Good Housekeeping

Storm Water Management Program Plan

Village of Greenport MS4 Permit Number: NYR20A528

Village of Greenport
236 Third Street
Greenport, NY 11944

December 2014

This Pollution Prevention and Good Housekeeping Program Plan was prepared for the Village of Greenport as part of the Storm Water Management Program. This Pollution Prevention and Good Housekeeping Program Plan will be adopted into the Village of Greenport's Storm Water Management Program Plan.

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 water quality.

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 Storm Water discharges to the maximum extent practicable.

8.3. VILLAGE FACILITIES AND OPERATIONS

The Village has many facilities which it operates for public interaction:

Mary H. Smith Recreation Center
Mitchell Park Complex
Greenport Water Dept.
Greenport Sewer Dept.
Greenport Highway Dept.
Greenport Municipal Electric Dept.
Village Hall

8.4. BUILDING MAINTENANCE

Each individual department maintains its own department specific buildings in terms of maintenance and repairs. As buildings require renovations, the Village

attempts (to the maximum extent practicable) to comply with LEED requirements. The interior lighting has been converted to high efficiency bulbs in Village Hall, Village owned Power Plant, Village Road Barn, and Wastewater Treatment Facility.

When existing mercury containing lighting is at the end of its useful life such as fluorescent interior lighting or exterior street lights, the Village stores these materials for proper disposal in accordance with the Federal legislation.

8.5. VILLAGE PARKS

Highway Dept. also maintains all of the Village Parks.

8.5.1. GRASS MOWING

Highway Department uses mulching lawn mowers to cut grass in the Village Parks. The clippings are returned to the soil for fertilizer.

The Highway Department maintains approximately 8 mowers. These mowers are inspected for leaks and any other fluid leaks, and efficient operation.

8.6. ROADWAY MAINTENANCE

8.6.1. GRASS MOWING

The Highway Dept. also owns and maintains mowers which are utilized to mow the Right of Ways (ROWs) of the Village's roadway system.

8.6.2. TREE TRIMMING

The Highway 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.

8.6.3. ROAD KILL REMOVAL

The Highway 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 Storm Water management. The carcasses are brought to the Town of Southold's Landfill for proper disposal.

8.6.4. STREET SWEEPING

The Highway Department performs the street sweeping operations. There is currently only one Hwy Dept. street sweeper for the Village; it is regularly maintained by the department. There are two staff members that run this sweeper, they have both attended and received training in pollution prevention, good housekeeping and Storm Water 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 Village has completed a rehabilitation of the Village's Road Barn Highway facility on Sixth Street. The rehabilitation included new salt storage bins. The bins are located under a roofed structure. The rehabilitation helps 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 Village 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 Village 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 Village would not utilize this in and around wetlands, as the Village has TMDL's for pathogens in Stirling Creek.

8.6.6. STORM WATER SYSTEM MAINTENANCE

In the past, cleaning of the Storm Water 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 our street sweepers and vacuum trucks [when available.] 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. Cleaners inspect for construction types, potential illicit connections, and structural integrity. In the next two years, the Village will incorporate its cleaning, inventory progress in the GIS System.

8.7. EVAULATING AND MEASURING PROGRESS

The Village 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 Village 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 Village 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 applies in chemical fertilizer
- Lbs of pesticide/herbicide applied as pure product
- Quantity of Storm Water 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 Storm Water management training.

Village of Greenport – Facilities List

1. **Village Hall – 236 Third Street**

   Main offices for Village Administration

2. **Mitchell Park Complex – 115 Front Street**

   Harbor Managers Office, Carousel Building, mechanical building for ice skating rink, camera obscura, marina and other ancillary buildings

3. **Little Red School House – 115 Front Street**

   Restored 1800's school house located on the corner of Front Street and the entrance of the Mitchell Park Complex.

4. **Black Smith Shop – 115 Front Street**

   Building is located behind the little red school house along the driveway for the entrance to Mitchell Park Complex.

5. **Jailhouse – Carpenter Street**

   Historic building (not currently used)

6. **Road Barn – 419 Sixth Street**

   Headquarters for the Village's Road Department

7. **Wastewater Treatment Plant – 1885A Moore's Lane**

   Headquarters for the Village's Sewer Department and final lift station for the Greenport Sewer System.

   Pump Stations:

   8. Station 1 – 144 Sixth Street
   9. Station 2 – End of Main Street
   10. Station 3 – Sterling Ave

Pump Stations: *(continued…)*

11. Station 4 – End of Manor Place
12. Central Station – North and Third Street
13. Peconic Landing – Brecknock Road, Greenport, NY
14. Cliffside Resorts – County Rd 48, Greenport, NY
15. San Simeon – County Rd 48, Greenport, NY

16. **No. 10 Downing Building – Moore's Lane**

    Storage facility for seasonal items.

17. **Greenport Power Plant – 400 Moore's Lane**

    Headquarters for the Village's Electrical Department and substation/switchgear for the Village's distribution system.

18. **McCann's Campground – Moore's Lane**

    Municipal campground

19. **Third Street Park – Third Street and Center Street**

    Park has playground equipment for local youths.

20. **Third Street Memorial Park – 408 Third Street**

    Park has a basketball court and common space for picnicking and events.

21. **Greenhill Cemetery – Webb Street**

    Municipal owned cemetery

22. **Steamboat Corner – First and Main Street**

    Veterans Memorial

23. **Sandy Beach 9/11 Memorial – Sandy Beach**

    9/11 Memorial

24. **5th and 6th Street Park – Between 5th and 6th Street south of Johnson Place**

    Park has playground equipment, basketball court, and volleyball court. Common areas are available for picnicking. This location also has a beach and fishing dock.

25. **Pologrounds Sports Complex – Moore's Lane**

Park has three baseball fields, a skate park and common areas available for hosting large outdoor events

26. Adam's Street Parking Lots – Adam's Street

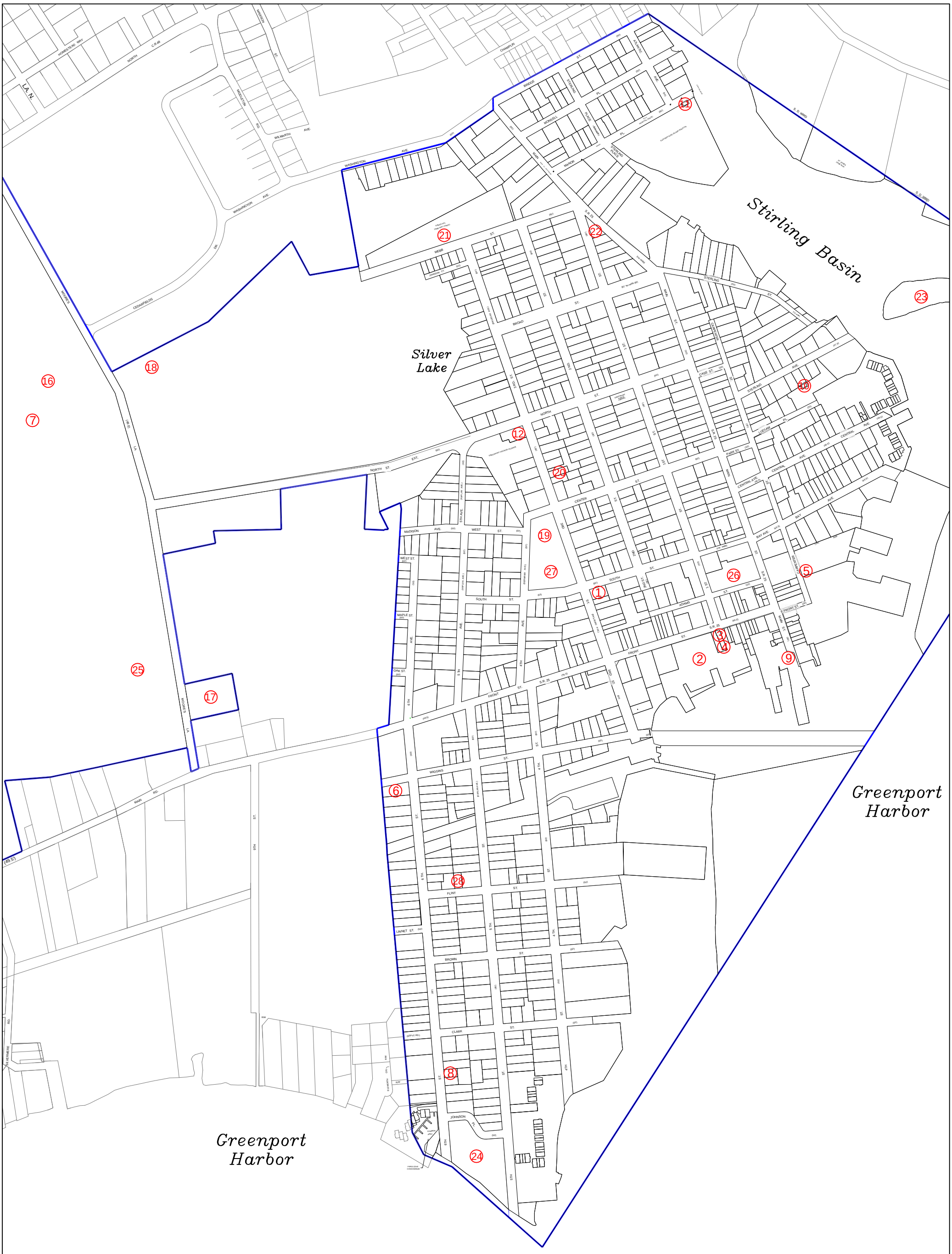
Parking lots have common areas with benches and monuments.

27. Third Street Fire House – Third Street

Main fire station for the Greenport Fire Department

28. Flint Street Fire House – Flint Street

Sub-station for the Greenport Fire Department



MAP LEGEND

①	VILLAGE HALL	⑪	PUMP STATION 4	㉑	GREENHILL CEMETERY
②	MITCHELL PARK COMPLEX	⑫	CENTRAL PUMP STATION	㉒	STEAMBOAT CORNER
③	LITTLE RED SCHOOLHOUSE	⑬	PECONIC LAND. PUMP STAT.*	㉓	SANDY BEACH 9/11 MEMORIAL
④	BLACK SMITH SHOP	⑭	CLIFFSIDE PUMP STATION *	㉔	5TH AND 6TH STREET PARK
⑤	JAILHOUSE	⑮	SAN SIMEON PUMP STATION *	㉕	POLOGROUNDS SPORTS CMPLX.
⑥	ROAD BARN	⑯	NO. 10 DOWNING BUILDING	㉖	ADAM'S ST. PARKING LOTS
⑦	WASTEWATER TREAT. PLANT	⑰	GREENPORT POWER PLANT	㉗	THIRD STREET FIREHOUSE
⑧	PUMP STATION 1	⑱	MCCANN'S CAMPGROUND	㉘	FLINT STREET FIREHOUSE
⑨	PUMP STATION 2	⑲	THIRD STREET PARK		
⑩	PUMP STATION 3	⑳	THIRD STREET MEM. PARK		

* NOT IN THE VILLAGE

VILLAGE OF GREENPORT FACILITIES MAP

Scale in Feet

0 250 500 750 1,000

APPENDIX F

VILLAGE OF GREENPORT LOCAL LAW

Chapter 114. Stormwater Management and Erosion and Sediment Control

[HISTORY: Adopted by the Board of Trustees of the Village of Greenport 10-27-2014 by L.L. No. 2-2014. Amendments noted where applicable.]

GENERAL REFERENCES
Building construction — See Ch. **65**.
Flood damage prevention — See Ch. **68**.
Sewers — See Ch. **105**.
Illicit discharges, activities and connections to storm sewers — See Ch. **114A**.
Subdivision and merger of land — See Ch. **118**.
Wetlands, floodplains and drainage — See Ch. **142**.
Zoning — See Ch. **150**.

Article I. General Provisions

§ 114-1. Findings of fact.

It is hereby determined that:

A. Land development activities and associated increases in site impervious cover often alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, flooding, stream channel erosion, or sediment transport and deposition.

B. This stormwater runoff contributes to increased quantities of water-borne pollutants, including siltation of aquatic habitat for fish and other desirable species.

C. Clearing and grading during construction tends to increase soil erosion and add to the loss of native vegetation necessary for terrestrial and aquatic habitat.

D. Improper design and construction of stormwater management practices can increase the velocity of stormwater runoff, thereby increasing stream bank erosion and sedimentation.

E. Impervious surfaces allow less water to percolate into the soil, thereby decreasing groundwater recharge and stream base flow.

F. Substantial economic losses can result from these adverse impacts on the waters of the municipality.

G. Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from land development activities.

H. The regulation of stormwater runoff discharges from land development activities in order to control and minimize increases in stormwater runoff rates and volumes, soil erosion, stream channel erosion, and nonpoint source pollution associated with stormwater runoff is in the public interest and will minimize threats to public health and safety.

I. Regulation of land development activities by means of performance standards governing stormwater management and site design will produce development compatible with the natural

functions of a particular site or an entire watershed and thereby mitigate the adverse effects of erosion and sedimentation from development.

§ 114-2. Purpose; objectives.

The purpose of this chapter is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing within this jurisdiction and to address the findings of fact in § **114-1** hereof. This chapter seeks to meet those purposes by achieving the following objectives:

A. Meet the requirements of minimum measures 4 and 5 of the SPDES general permit for stormwater discharges from municipal separate stormwater sewer systems (MS4s), Permit No. GP-0-08-002, or as amended or revised;

B. Require land development activities to conform to the substantive requirements of the New York State Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) general permit for construction activities GP-02-01, or as amended or revised;

C. Minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, increases in stream temperature, and streambank erosion and maintain the integrity of stream channels;

D. Minimize increases in pollution caused by stormwater runoff from land development activities which would otherwise degrade local water quality;

E. Minimize the total annual volume of stormwater runoff which flows from any specific site during and following development to the maximum extent practicable; and

F. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management practices and to ensure that these management practices are properly maintained and eliminate threats to public safety.

§ 114-3. Statutory authority.

In accordance with Article 10 of the Municipal Home Rule Law of the State of New York, the Board of Trustees of the Village of Greenport has the authority to enact local laws and amend local laws for the purpose of promoting the health, safety or general welfare of the residents of the Village of Greenport and for the protection and enhancement of its physical environment. The Board of Trustees of the Village of Greenport may include in any such local law provisions for the appointment of any municipal officer, employees, or independent contractor to effectuate, administer and enforce such local law.

§ 114-4. Definitions.

As used in this chapter, the following terms shall have the meanings indicated:

AGRICULTURAL ACTIVITY

The activity of an active farm, including grazing and watering livestock, irrigating crops, harvesting crops, using land for growing agricultural products, and cutting timber for sale, but shall not include the operation of a dude ranch or similar operation or the construction of new structures associated with agricultural activities.

APPLICANT

A property owner or agent of a property owner who has filed an application for a land development activity.

BUILDING

Any structure, either temporary or permanent, having walls and a roof, designed for the shelter of any person, animal, or property and occupying more than 100 square feet of area.

CHANNEL
A natural or artificial watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

CLEARING
Any activity that removes the vegetative surface cover.

DEDICATION
The deliberate appropriation of property by its owner for general public use.

DEPARTMENT
The New York State Department of Environmental Conservation.

DESIGN MANUAL
The New York State Stormwater Management Design Manual, most recent version, including applicable updates, which serves as the official guide for stormwater management principles, methods and practices.

DEVELOPER
A person who undertakes land development activities.

EROSION CONTROL MANUAL
The most recent version of the New York Standards and Specifications for Erosion and Sediment Control Manual, commonly known as the "Blue Book."

GRADING
Excavation or fill of material, including the resulting conditions thereof.

IMPERVIOUS COVER
Those surfaces, improvements and structures that cannot effectively infiltrate rainfall, snow melt and water (e.g., building rooftops, pavement, sidewalks, driveways, etc.).

INDUSTRIAL STORMWATER PERMIT
A State Pollutant Discharge Elimination System permit issued to a commercial industry or group of industries which regulates the pollutant levels associated with industrial stormwater discharges or specifies on-site pollution control strategies.

INFILTRATION
The process of percolating stormwater into the subsoil.

JURISDICTIONAL WETLAND
An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as "hydrophytic vegetation."

LAND DEVELOPMENT ACTIVITY
Construction activity, including clearing, grading, excavating, soil disturbance or placement of fill, that results in land disturbance of equal to or greater than one acre, or activities disturbing less than one acre of total land area that is part of a larger common plan of development or sale, even though multiple separate and distinct land development activities may take place at different times on different schedules.

LANDOWNER
The legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

MAINTENANCE AGREEMENT

A legally recorded document that acts as a property deed restriction and which provides for long-term maintenance of stormwater management practices.

NONPOINT SOURCE POLLUTION

Pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, silvicultural, mining, construction, subsurface disposal and urban runoff sources.

PHASING

Clearing a parcel of land in distinct pieces or parts, with the stabilization of each piece completed before the clearing of the next.

POLLUTANT OF CONCERN

Sediment or a water quality measurement that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the land development activity.

PROJECT

Land development activity.

RECHARGE

The replenishment of underground water reserves.

SEDIMENT CONTROL

Measures that prevent eroded sediment from leaving the site.

SENSITIVE AREAS

Cold-water fisheries, shellfish beds, swimming beaches, groundwater recharge areas, water supply reservoirs, habitats for threatened, endangered or special concern species.

SPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES GP-02-01

A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to developers of construction activities to regulate disturbance of one or more acres of land.

SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM MUNICIPAL SEPARATE STORMWATER SEWER SYSTEMS GP-02-01

A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to municipalities to regulate discharges from municipal separate storm sewers for compliance with EPA-established water quality standards and/or to specify stormwater control standards.

STABILIZATION

The use of practices that prevent exposed soil from eroding.

STOP-WORK ORDER

An order issued which requires that all construction activity on a site be stopped.

STORMWATER

Rainwater, surface runoff, snowmelt and drainage.

STORMWATER HOTSPOT

A land use or activity that generates higher concentrations of hydrocarbons, trace metals or toxicants than are found in typical stormwater runoff, based on monitoring studies.

STORMWATER MANAGEMENT

The use of structural or nonstructural practices that are designed to reduce stormwater runoff and mitigate its adverse impacts on property, natural resources and the environment.

STORMWATER MANAGEMENT FACILITY

One or a series of stormwater management practices installed, stabilized and operating for the purpose of controlling stormwater runoff.

STORMWATER MANAGEMENT OFFICER (SMO)

An employee or officer designated by the municipality to accept and review stormwater pollution prevention plans, forward the plans to the applicable municipal board and inspect stormwater management practices.

STORMWATER MANAGEMENT PRACTICES (SMP)

Measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing flood damage and preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A plan for controlling stormwater runoff and pollutants from a site during and after construction activities.

STORMWATER RUNOFF

Flow on the surface of the ground, resulting from precipitation.

SURFACE WATERS OF THE STATE OF NEW YORK

Lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the territorial seas of the State of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction. Storm sewers and waste treatment systems, including treatment ponds or lagoons which also meet the criteria of this definition are not waters of the state. This exclusion applies only to man-made bodies of water which neither were originally created in waters of the state (such as a disposal area in wetlands) nor resulted from impoundment of waters of the state.

WATERCOURSE

A permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

WATERWAY

A channel that directs surface runoff to a watercourse or to the public storm drain.

§ 114-5. Applicability.

A. This chapter shall be applicable to all land development activities as defined in this chapter, § **114-4**.

B. The Village shall designate a Stormwater Management Officer (SMO) who shall accept and review all stormwater pollution prevention plans and forward such plans to the applicable municipal board. The SMO may:

(1) Review the plans;

(2) Upon approval by the Board of Trustees of the Village of Greenport, engage the services of a registered professional engineer to review the plans, specifications and related documents at a cost not to exceed a fee schedule established by said governing board; or

(3) Accept the certification of a licensed professional that the plans conform to the requirements of this chapter.

C. All land development activities subject to review and approval by the Planning Board of the Village of Greenport under subdivision and/or site plan regulations shall be reviewed subject to the standards contained in this chapter.

D. All land development activities not subject to review as stated in § **114-5C** shall be required to submit a stormwater pollution prevention plan (SWPPP) to the SMO, who shall approve the SWPPP if it complies with the requirements of this chapter.

§ 114-6. Exemptions.

The following activities may be exempt from review under this chapter.

A. Agricultural activity as defined in this chapter.

B. Routine maintenance activities that disturb less than five acres and are performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility.

C. Repairs to any stormwater management practice or facility deemed necessary by the SMO.

D. Any part of a subdivision if a plat for the subdivision has been approved by the Village on or before the effective date of this chapter.

E. Land development activities for which a building permit has been approved on or before the effective date of this chapter.

F. Installation offence, sign, telephone, and electric poles and other kinds of posts or poles.

G. Emergency activity immediately necessary to protect life, property or natural resources.

H. Activities of an individual engaging in home gardening by growing flowers, vegetables and other plants primarily for use by that person and his or her family.

I. Landscaping and horticultural activities in connection with an existing structure.

Article II. Stormwater Pollution Prevention Plans

§ 114-7. Stormwater pollution prevention plan requirement.

No application for approval of a land development activity shall be reviewed until the appropriate board has received a stormwater pollution prevention plan (SWPPP) prepared in accordance with the specifications in this chapter.

§ 114-8. Contents of stormwater pollution prevention plans.

A. All SWPPPs shall provide the following background information and erosion and sediment controls:

(1) Background information about the scope of the project, including location, type and size of project;

(2) Site map/construction drawing(s) for the project shall be at a scale no smaller than one inch equals 100 feet and include a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-equipment storage areas; and location(s) of the stormwater discharges(s);

(3) Description of the soil(s) present at the site;

(4) Construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Standards and Specifications for Erosion and Sediment Control (Erosion Control Manual), not more than five acres shall be disturbed at any one time unless pursuant to an approved SWPPP;

(5) Description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in stormwater runoff;

(6) Description of construction and waste materials expected to be stored on site with updates as appropriate, and a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;

(7) Temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land clearing and grubbing to project close-out;

(8) A site map/construction drawing(s) specifying the location(s), size(s) and length(s) of each erosion and sediment control practice;

(9) Dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;

(10) Temporary practices that will be converted to permanent control measures;

(11) Implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and duration that each practice should remain in place;

(12) Maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practice;

(13) Name(s) of the receiving water(s);

(14) Delineation of SWPPP implementation responsibilities for each part of the site;

(15) Description of structural practices designed to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

(16) Any existing data that describes the stormwater runoff at the site.

B. Land development activities as defined in § **114-4** of this chapter and meeting Condition A, B or C below shall also include water quantity and water quality controls (post-construction stormwater runoff controls) as set forth in § **114-8C** below as applicable:

(1) Condition A: Stormwater runoff from land development activities discharging a pollutant of concern to either an impaired water identified on the Department's 303(d) list of impaired waters or a total maximum daily load (TMDL) designated watershed for which pollutants in stormwater have been identified as a source of the impairment.

(2) Condition B: Stormwater runoff from land development activities disturbing five or more acres.

(3) Condition C: Stormwater runoff from land development activity disturbing between one acre and five acres of land during the course of the project, exclusive of the construction of single-family residences and construction activities at agricultural properties.

C. SWPPP requirements for conditions A, B and C above.

(1) All information in § **114-8A** of this chapter.

(2) Description of each post-construction stormwater management practice.

(3) Site map/construction drawing(s) showing the specific location(s) and size(s) of each post-construction stormwater management practice.

(4) Hydrologic and hydraulic analysis for all structural components of the stormwater management system for the applicable design storms.

(5) Comparison of post-development stormwater runoff conditions with pre-development conditions.

(6) Dimensions, material specifications and installation details for each post-construction stormwater management practice.

(7) Maintenance schedule to ensure continuous and effective operation of each post-construction stormwater management practice.

(8) Maintenance easements to ensure access to all stormwater management practices at the site for the purpose of inspection and repair. Easements shall be recorded on the plan and shall remain in effect with transfer of title to the property.

(9) Inspection and maintenance agreement binding on all subsequent landowners served by the on-site stormwater management measures in accordance with Article **IV** of this chapter.

(10) For Condition A, the SWPPP shall be prepared by a landscape architect, certified professional or professional engineer and must be signed by the professional preparing the plan, who shall certify that the design of all stormwater management practices meet the requirements in this chapter.

§ 114-9. Other environmental permits.

The applicant shall assure that all other applicable environmental permits have been or will be acquired for the land development activity prior to approval of the final stormwater design plan.

§ 114-10. Contractor certification.

A. Each contractor and subcontractor identified in the SWPPP who will be involved in soil disturbance and/or stormwater management practice installation shall sign and date a copy of the following certification statement before undertaking any land development activity: "I certify under penalty of law that I understand and agree to comply with the terms and conditions of the stormwater pollution prevention plan. I also understand that it is unlawful for any person to cause or contribute to a violation of water quality standards."

B. The certification must include the name and title of the person providing the signature, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

C. The certification statement(s) shall become part of the SWPPP for the land development activity.

§ 114-11. SWPPP availability.

A copy of the SWPPP shall be retained at the site of the land development activity during construction from the date of initiation of construction activities to the date of final stabilization.

Article III. Performance and Design Criteria

All land development activities shall be subject to the following performance and design criteria.

§ 114-12. Technical standards.

For the purpose of this chapter, the following documents shall serve as the official guides and specifications for stormwater management. Stormwater management practices that are designed and constructed in accordance with these technical documents shall be presumed to meet the standards imposed by this chapter.

A. The New York State Stormwater Management Design Manual (New York State Department of Environmental Conservation, most current version or its successor, hereafter referred to as the "Design Manual").

B. New York Standards and Specifications for Erosion and Sediment Control (Empire State Chapter of the Soil and Water Conservation Society, 2004, most current version or its successor, hereafter referred to as the "Erosion Control Manual").

§ 114-13. Equivalence to technical standards.

Where stormwater management practices are not in accordance with technical standards, the applicant or developer must demonstrate equivalence to the technical standards set forth in § **114-12**, and the SWPPP shall be prepared by a licensed professional.

§ 114-14. Water quality standards.

Any land development activity shall not cause an increase in turbidity that will result in substantial visible contrast to natural conditions in surface waters of the State of New York.

Article IV. Maintenance, Inspection and Repair of Stormwater Facilities

§ 114-15. Maintenance and inspection during construction.

A. The applicant or developer of the land development activity or their representative shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the applicant or developer to achieve compliance with the conditions of this chapter. Sediment shall be removed from sediment traps or sediment ponds whenever their design capacity has been reduced by 50%.

B. For land development activities as defined in § **114-4** and meeting Condition A, B or in § **114-8B**, the applicant shall have a qualified professional conduct site inspections and document the effectiveness of all erosion and sediment control practices every seven days and within 24 hours of any storm event producing 0.5 inch of precipitation or more. Inspection reports shall be maintained in a site log book.

§ 114-16. Maintenance easement(s).

Prior to the issuance of any approval that has a stormwater management facility as one of the requirements, the applicant or developer must execute a maintenance easement agreement that shall be binding on all subsequent landowners served by the stormwater management facility. The easement shall provide for access to the facility at reasonable times for periodic inspection by the Village of Greenport to ensure that the facility is maintained in proper working condition to meet design standards

and any other provisions established by this chapter. The easement shall be recorded by the grantor in the office of the County Clerk after approval by the counsel for the Village of Greenport.

§ 114-17. Maintenance after construction.

The owner or operator of permanent stormwater management practices installed in accordance with this chapter shall ensure they are operated and maintained to achieve the goals of this chapter. Proper operation and maintenance also includes, as a minimum, the following:

A. A preventive/corrective maintenance program for all critical facilities and systems of treatment and control (or related appurtenances) which are installed or used by the owner or operator to achieve the goals of this chapter.

B. Written procedures for operation and maintenance and training new maintenance personnel. Discharges from the SMPs shall not exceed design criteria or cause or contribute to water quality standard violations in accordance with § **114-14**.

§ 114-18. Maintenance agreements.

The Village of Greenport shall approve a formal maintenance agreement for stormwater management facilities binding on all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property prior to final plan approval. The maintenance agreement shall be consistent with the terms and conditions this chapter. The Village of Greenport, in lieu of a maintenance agreement, at its sole discretion may accept dedication of any existing or future stormwater management facility, provided that such facility meets all the requirements of this chapter and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

Article V. Administration and Enforcement

§ 114-19. Construction inspection.

A. Erosion and sediment control inspection.

(1) The Village of Greenport Stormwater Management Officer (SMO) may require such inspections as necessary to determine compliance with this chapter and may either approve that portion of the work completed or notify the applicant wherein the work fails to comply with the requirements of this chapter and the stormwater pollution prevention plan (SWPPP) as approved. To obtain inspections, the applicant shall notify the Village of Greenport enforcement official at least 48 hours before any of the following as required by the SMO:

(a) Start of construction.

(b) Installation of sediment and erosion control measures.

(c) Completion of site clearing.

(d) Completion of rough grading.

(e) Completion of final grading.

(f) Close of the construction season.

(g) Completion of final landscaping.

(h) Successful establishment of landscaping in public areas.

(2) If any violations are found, the applicant and developer shall be notified in writing of the nature of the violation and the required corrective actions. No further work shall be conducted except for site stabilization until any violations are corrected and all work previously completed has received approval by the SMO.

B. Stormwater management practice inspections. The Village of Greenport SMO is responsible for conducting inspections of stormwater management practices (SMPs). All applicants are required to submit "as-built" plans for any SMPs located on site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer.

C. Inspection of stormwater facilities after project completion. Inspection programs shall be established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher-than-typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher-than-usual discharges of contaminants or pollutants or with discharges of a type which are more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the SPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other SMPs.

D. Submission of reports. The Village of Greenport SMO may require monitoring and reporting from entities subject to this chapter as are necessary to determine compliance with this chapter.

E. Right of entry for inspection. When any new stormwater management facility is installed on private property or when any new connection is made between private property and the public stormwater system, the landowner shall grant to the Village of Greenport the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection as specified in § **114-19C**.

§ 114-20. Performance guarantee.

A. Construction completion guarantee. In order to ensure the full and faithful completion of all land development activities related to compliance with all conditions set forth by the Village of Greenport in its approval of the SWPPP, the Village of Greenport may require the applicant or developer to provide, prior to construction, a performance bond, cash escrow, or irrevocable letter of credit from an appropriate financial or surety institution which guarantees satisfactory completion of the project and names the Village of Greenport as the beneficiary. The security shall be in an amount to be determined by the Village of Greenport based on submission of final design plans, with reference to actual construction and landscaping costs. The performance guarantee shall remain in force until the surety is released from liability by the Village of Greenport, provided that such period shall not be less than one year from the date of final acceptance or such other certification that the facility(ies) have been constructed in accordance with the approved plans and specifications and that a one-year inspection has been conducted and the facilities have been found to be acceptable to the Village of Greenport. Per annum interest on cash escrow deposits shall be reinvested in the account until the surety is released from liability.

B. Maintenance guarantee. Where stormwater management and erosion and sediment control facilities are to be operated and maintained by the developer or by a corporation that owns or manages a commercial or industrial facility, the developer, prior to construction, may be required to provide the Village of Greenport with an irrevocable letter of credit from an approved financial institution or surety to ensure proper operation and maintenance of all stormwater management and erosion control facilities both during and after construction and until the facilities are removed from operation. If the developer or landowner fails to properly operate and maintain stormwater

management and erosion and sediment control facilities, the Village of Greenport may draw upon the account to cover the costs of proper operation and maintenance, including engineering and inspection costs.

C. Recordkeeping. The Village of Greenport may require entities subject to this chapter to maintain records demonstrating compliance with this chapter.

§ 114-21. Enforcement; penalties for offenses.

A. Notice of violation. When the Village of Greenport determines that a land development activity is not being carried out in accordance with the requirements of this chapter, it may issue a written notice of violation to the landowner. The notice of violation shall contain:

(1) The name and address of the landowner, developer or applicant.

(2) The address, when available, or a description of the building, structure or land upon which the violation is occurring.

(3) A statement specifying the nature of the violation.

(4) A description of the remedial measures necessary to bring the land development activity into compliance with this chapter and a time schedule for the completion of such remedial action.

(5) A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed.

(6) A statement that the determination of violation may be appealed to the municipality by filing a written notice of appeal within 15 days of service of notice of violation.

B. Stops-work orders. The Village of Greenport may issue a stop-work order for violations of this chapter.

C. Persons receiving a stop-work order shall be required to halt all land development activities, except those activities that address the violations leading to the stop-work order. The stop-work order shall be in effect until the Village of Greenport confirms that the land development activity is in compliance and the violation has been satisfactorily addressed. Failure to address a stop-work order in a timely manner may result in civil, criminal, or monetary penalties in accordance with the enforcement measures authorized in this chapter.

D. Violations. Any land development activity that is commenced or is conducted contrary to this chapter may be restrained by injunction or otherwise abated in a manner provided by law.

E. Penalties. In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this chapter shall be guilty of a violation punishable by a fine not exceeding $350 or imprisonment for a period not to exceed six months, or both, for conviction of a first offense; for conviction of a second offense, both of which were committed within a period of five years, punishable by a fine not less than $350 nor more than $700 or imprisonment for a period not to exceed six months, or both; and upon conviction for a third or subsequent offense, all of which were committed within a period of five years, punishable by a fine not less than $700 nor more than $1,000 or imprisonment for a period not to exceed six months, or both. However, for the purposes of conferring jurisdiction upon courts and judicial officers generally, violations of this chapter shall be deemed misdemeanors, and for such purpose only, all provisions of law relating to misdemeanors shall apply to such violations. Each week's continued violation shall constitute a separate additional violation.

F. Certificate of occupancy. If any building or land development activity is installed or conducted in violation of this chapter, the SMO may prevent the occupancy of said building or land.

G. Restoration of lands. Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the Village of

Greenport may take necessary corrective action, the cost of which shall become a lien upon the property until paid.

§ 114-22. Fees for services.

The Village of Greenport may require any person undertaking land development activities regulated by this chapter to pay reasonable costs at prevailing rates for review of SWPPPs, inspections, or SMP maintenance performed by the Village of Greenport or performed by a third party for the Village of Greenport.

§ 114-23. Severability; when effective.

A. Severability. The provisions of this chapter are hereby declared to be severable, and if any section, clause, sentence, paragraph or phase of this chapter or the application thereof to any person, establishment, or circumstances shall be held invalid or unconstitutional, such decision shall not affect the validity of the remaining sections, clauses, sentences, paragraphs or phases of this chapter, but they shall remain in effect, it being the legislative intent that this chapter and application of this chapter shall stand, not withstanding the invalidity of any part.

B. Effective date. This chapter shall take effect immediately upon filing in the office of the Secretary of State in accordance with § 27 of the Municipal Home Rule Law.

Chapter 114A. Stormwater Management: Illicit Discharges, Activities, and Connections to Storm Sewers

[HISTORY: Adopted by the Board of Trustees of the Village of Greenport 10-27-2014 by L.L. No. 3-2014. Amendments noted where applicable.]

GENERAL REFERENCES
Building construction — See Ch. **65**.
Flood damage prevention — See Ch. **68**.
Sewers — See Ch. **105**.
Stormwater management and erosion and sediment control — See Ch. **114**.
Subdivision and merger of land — See Ch. **118**.
Wetlands, floodplains and drainage — See Ch. **142**.
Zoning — See Ch. **150**.

§ 114A-1. Intent; objectives.

The purpose of this chapter is to provide for the health, safety, and general welfare of the citizens of the Village of Greenport through the regulation of nonstormwater discharges to the municipal separate storm sewer system (MS4) to the maximum extent practicable as required by federal and state law. This chapter establishes methods for controlling the introduction of pollutants into the MS4 in order to comply with requirements of the SPDES general permit for municipal separate storm sewer systems. The objectives of this chapter are:

A. To meet the requirements of the SPDES general permit for stormwater discharges from MS4s, Permit No. GP-0-08-002, or as amended or revised;

B. To regulate the contribution of pollutants to the MS4 since such systems are not designed to accept, process or discharge nonstormwater wastes;

C. To prohibit illicit connections, activities and discharges to the MS4;

D. To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this chapter; and

E. To promote public awareness of the hazards involved in the improper discharge of trash, yard waste, lawn chemicals, pet waste, wastewater, grease, oil, petroleum products, cleaning products, paint products, hazardous waste, sediment and other pollutants into the MS4.

§ 114A-2. Definitions.

Whenever used in this chapter, unless a different meaning is stated in a definition applicable to only a portion of this chapter, the following terms will have meanings set forth below:

303(D) LIST
A list of all surface waters in the state for which beneficial uses of the water (drinking, recreation, aquatic habitat, and industrial use) are impaired by pollutants, prepared periodically by the Department as required by Section 303(d) of the Clean Water Act.[1] Section 303(d) listed waters

are estuaries, lakes and streams that fall short of state surface water quality standards and are not expected to improve within the next two years.

BEST MANAGEMENT PRACTICES (BMPS)

Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

CLEAN WATER ACT

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

CONSTRUCTION ACTIVITY

Activities requiring authorization under the SPDES permit for stormwater discharges from construction activity, GP-02-01, as amended or revised. These activities include construction projects resulting in land disturbance of one or more acres. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

DEPARTMENT

The New York State Department of Environmental Conservation.

HAZARDOUS MATERIALS

Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

ILLICIT CONNECTIONS

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the MS4, including but not limited to:

A. Any conveyances which allow any nonstormwater discharge, including treated or untreated sewage, process wastewater, and wash water, to enter the MS4 and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or

B. Any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

ILLICIT DISCHARGE

Any direct or indirect nonstormwater discharge to the MS4, except as exempted in § **114A-5** of this chapter.

INDUSTRIAL ACTIVITY

Activities requiring the SPDES permit for discharges from industrial activities except construction, GP-98-03, as amended or revised.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

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

A. Owned or operated by the Village of Greenport;

B. Designed or used for collecting or conveying stormwater;

C. Which is not a combined sewer; and

D. Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR 122.2.

MUNICIPALITY
The Village of Greenport.

NONSTORMWATER DISCHARGE
Any discharge to the MS4 that is not composed entirely of stormwater.

PERSON
Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting either as the owner or as the owner's agent.

POLLUTANT
Dredged spoil, filter backwash, solid waste, incinerator residue, treated or untreated sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards.

PREMISES
Any building, lot, parcel of land, or portion of land, whether improved or unimproved, including adjacent sidewalks and parking strips.

SPECIAL CONDITIONS
Conditions including:

A. Discharge compliance with water quality standards. The condition that applies where a municipality has been notified that the discharge of stormwater authorized under its MS4 permit may have caused or has the reasonable potential to cause or contribute to the violation of an applicable water quality standard. Under this condition the municipality must take all necessary actions to ensure future discharges do not cause or contribute to a violation of water quality standards.

B. 303(d) Listed Waters. The condition in the municipality's MS4 permit that applies where the MS4 discharges to a 303(d) listed water. Under this condition the stormwater management program must ensure no increase of the listed pollutant of concern to the 303(d) listed water.

C. Total maximum daily load (TMDL) strategy. The condition in the municipality's MS4 permit where a TMDL including requirements for control of stormwater discharges has been approved by EPA for a water body or watershed into which the MS4 discharges. If the discharge from the MS4 did not meet the TMDL stormwater allocations prior to September 10, 2003, the municipality was required to modify its stormwater management program to ensure that reduction of the pollutant of concern specified in the TMDL is achieved.

D. The condition in the municipality's MS4 permit that applies if a TMDL is approved in the future by EPA for any water body or watershed into which an MS4 discharges. Under this condition the municipality must review the applicable TMDL to see if it includes requirements for control of stormwater discharges. If an MS4 is not meeting the TMDL stormwater allocations, the municipality must, within six months of the TMDL's approval, modify its stormwater management program to ensure that reduction of the pollutant of concern specified in the TMDL is achieved.

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) STORMWATER DISCHARGE PERMIT
A permit issued by the Department that authorizes the discharge of pollutants to waters of the state.

STORMWATER

Rainwater, surface runoff, snowmelt and drainage.

STORMWATER MANAGEMENT OFFICER (SMO)

An employee, the Municipal Engineer or other public official(s) designated by the Village of Greenport to enforce this chapter. The SMO may also be designated by the municipality to accept and review stormwater pollution prevention plans, forward the plans to the applicable municipal board and inspect stormwater management practices.

TMDL

Total maximum daily load.

TOTAL MAXIMUM DAILY LOAD

The maximum amount of a pollutant to be allowed to be released into a water body so as not to impair uses of the water, allocated among the sources of that pollutant.

WASTEWATER

Water that is not stormwater, is contaminated with pollutants and is or will be discarded.

[1] *Editor's Note: See 33 U.S.C. § 1313(d).*

§ 114A-3. Applicability.

This chapter shall apply to all water entering the MS4 generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

§ 114A-4. Responsibility for administration.

The Stormwater Management Officer(s) (SMO[s]) shall administer, implement, and enforce the provisions of this chapter. Such powers granted or duties imposed upon the authorized enforcement official may be delegated in writing by the SMO as may be authorized by the municipality.

§ 114A-5. Discharge prohibitions; exemptions; illicit connections.

A. Prohibition of illegal discharges. No person shall discharge or cause to be discharged into the MS4 any materials other than stormwater except as provided in Subsection **A(1)** through **(4)**. The commencement, conduct or continuance of any illegal discharge to the MS4 is prohibited, except as described as follows:

(1) The following discharges are exempt from discharge prohibitions established by this chapter, unless the Department or the municipality has determined them to be substantial contributors of pollutants: water line flushing or other potable water sources, landscape irrigation or lawn watering, existing diverted stream flows, rising groundwater, uncontaminated groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains, crawl space or basement sump pumps, air-conditioning condensate, irrigation water, springs, water from individual residential car washing, natural riparian habitat or wetland flows, dechlorinated swimming pool discharges, residential street wash water, water from firefighting activities, and any other water source not containing pollutants. Such exempt discharges shall be made in accordance with an appropriate plan for reducing pollutants.

(2) Discharges approved in writing by the SMO to protect life or property from imminent harm or damage, provided that such approval shall not be construed to constitute compliance with other applicable laws and requirements, and further provided that such discharges may be permitted for a specified time period and under such conditions as the SMO may deem appropriate to protect such life and property while reasonably maintaining the purpose and intent of this chapter.

(3) Dye testing in compliance with applicable state and chapters is an allowable discharge but requires a verbal notification to the SMO prior to the time of the test.

(4) The prohibition shall not apply to any discharge permitted under a SPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Department, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the MS4.

B. Prohibition of illicit connections.

(1) The construction, use, maintenance or continued existence of illicit connections to the MS4 is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(3) A person is considered to be in violation of this chapter if the person connects a line conveying sewage to the municipality's MS4 or allows such a connection to continue.

§ 114A-6. Prohibition against failing individual sewage treatment systems.

No persons shall operate a failing individual sewage treatment system in areas tributary to the municipality's MS4. A failing individual sewage treatment system is one which has one or more of the following conditions:

A. The backup of sewage into a structure.

B. Discharges of treated or untreated sewage onto the ground surface.

C. A connection or connections to a separate stormwater sewer system.

D. Liquid level in the septic tank above the outlet invert.

E. Structural failure of any component of the individual sewage treatment system that could lead to any of the other failure conditions as noted in this section.

F. Contamination of off-site groundwater.

§ 114A-7. Prohibition against activities contaminating stormwater.

A. Activities that are subject to the requirements of this section are those types of activities that:

(1) Cause or contribute to a violation of the municipality's MS4 SPDES permit.

(2) Cause or contribute to the municipality being subject to the special conditions as defined in § **114A-2** of this chapter.

B. Such activities include failing individual sewage treatment systems as defined in § **114A-6**, improper management of pet waste or any other activity that causes or contributes to violations of the municipality's MS4 SPDES permit authorization.

C. Upon notification to a person that he or she is engaged in activities that cause or contribute to violations of the municipality's MS4 SPDES permit authorization, that person shall take all reasonable actions to correct such activities such that he or she no longer causes or contributes to violations of the municipality's MS4 SPDES permit authorization.

§ 114A-8. Use of best management practices to prevent, control, and reduce Stormwater Pollutants.

A. Best management practices. Where the SMO has identified illicit discharges as defined in § **114A-2** or activities contaminating stormwater as defined in § **114A-7**, the municipality may require implementation of best management practices (BMPs) to control those illicit discharges and activities.

(1) The owner or operator of a commercial or industrial establishment shall provide, at his or her own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the MS4 through the use of structural and nonstructural BMPs.

(2) Any person responsible for a property or premises which is, or may be, the source of an illicit discharge as defined in § **114A-2** or an activity contaminating stormwater as defined in § **114A-7** may be required to implement, at said person's expense, additional structural and nonstructural BMPs to reduce or eliminate the source of pollutant(s) to the MS4.

(3) Compliance with all terms and conditions of a valid SPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section.

B. Individual sewage treatment systems: response to special conditions requiring no increase of pollutants or requiring a reduction of pollutants. Where individual sewage treatment systems are contributing to the municipality's being subject to the special conditions as defined in § **114A-2** of this chapter, the owner or operator of such individual sewage treatment systems shall be required to:

(1) Maintain and operate individual sewage treatment systems as follows:

(a) Inspect the septic tank annually to determine scum and sludge accumulation. Septic tanks must be pumped out whenever the bottom of the scum layer is within three inches of the bottom of the outlet baffle or sanitary tee or the top of the sludge is within 10 inches of the bottom of the outlet baffle or sanitary tee;

(b) Avoid the use of septic tank additives;

(c) Avoid the disposal of excessive quantities of detergents, kitchen wastes, laundry wastes, and household chemicals; and

(d) Avoid the disposal of cigarette butts, disposable diapers, sanitary napkins, trash and other such items.

(2) Repair or replace individual sewage treatment systems as follows:

(a) In accordance with 10 NYCRR Appendix 75-A to the maximum extent practicable.

(b) A design professional licensed to practice in New York State shall prepare design plans for any type of absorption field that involves:

[1] Relocating or extending an absorption area to a location not previously approved for such.

[2] Installation of a new subsurface treatment system at the same location.

[3] Use of alternate system or innovative system design or technology.

(c) A written certificate of compliance shall be submitted by the design professional to the municipality at the completion of construction of the repair or replacement system.

§ 114A-9. Emergency situations.

A. Suspension of access to MS4. The SMO may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, to the health or welfare of persons, or to the MS4. The SMO shall notify the person of such suspension within a reasonable time thereafter in writing of the reasons for the suspension. If the violator fails to comply with a suspension order issued in an emergency, the SMO may take such steps as deemed necessary to prevent or minimize damage to the MS4 or to minimize danger to persons.

B. Suspension due to the detection of illicit discharge. Any person discharging to the municipality's MS4 in violation of this chapter may have its MS4 access terminated if such termination would abate or reduce an illicit discharge. The SMO will notify a violator in writing of the proposed termination of its MS4 access and the reasons therefor. The violator may petition the SMO for a reconsideration and hearing. Access may be granted by the SMO if he/she finds that the illicit discharge has ceased and the discharger has taken steps to prevent its recurrence. Access may be denied if the SMO determines in writing that the illicit discharge has not ceased or is likely to recur. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section without the prior approval of the SMO.

§ 114A-10. Industrial or construction activity discharges.

Any person subject to an industrial or construction activity SPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the municipality prior to the allowing of discharges to the MS4.

§ 114A-11. Access and monitoring of discharges.

A. Applicability. This section applies to all facilities that the SMO must inspect to enforce any provision of this chapter or whenever the authorized enforcement agency has cause to believe that there exists, or potentially exists, in or upon any premises any condition which constitutes a violation of this chapter.

B. Access to facilities.

(1) The SMO shall be permitted to enter and inspect facilities subject to regulation under this chapter as often as may be necessary to determine compliance with this chapter. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to the SMO.

(2) Facility operators shall allow the SMO ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records as may be required to implement this chapter.

(3) The municipality shall have the right to set up on any facility subject to this chapter such devices as are necessary in the opinion of the SMO to conduct monitoring and/or sampling of the facility's stormwater discharge.

(4) The municipality has the right to require the facilities subject to this chapter to install monitoring equipment as is reasonably necessary to determine compliance with this chapter. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.

(5) Unreasonable delays in allowing the municipality access to a facility subject to this chapter are a violation of this chapter. A person who is the operator of a facility subject to this chapter commits an offense if the person denies the municipality reasonable access to the facility for the purpose of conducting any activity authorized or required by this chapter.

(6) If the SMO has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this chapter, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this chapter or any order issued hereunder, then the SMO may seek issuance of a search warrant from any court of competent jurisdiction.

§ 114A-12. Notification of spills.

A. Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation, has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into the MS4, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release.

B. In the event of such a release of hazardous materials, said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services.

C. In the event of a release of nonhazardous materials, said person shall notify the municipality in person or by telephone or facsimile no later than the next business day. Notifications in person or by telephone shall be confirmed by written notice addressed and mailed to the municipality within three business days of the telephone notice.

D. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

§ 114A-13. Enforcement; penalties for offenses.

A. Notice of violation. When the municipality's SMO finds that a person has violated a prohibition or failed to meet a requirement of this chapter, he/she may order compliance by written notice of violation to the responsible person. Such notice may require, without limitation:

(1) The elimination of illicit connections or discharges;

(2) That violating discharges, practices, or operations shall cease and desist;

(3) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;

(4) The performance of monitoring, analyses, and reporting;

(5) Payment of a fine; and

(6) The implementation of source control or treatment BMPs.

B. If abatement of a violation and/or restoration of affected property is required, the notice of violation shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

C. Penalties. In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this chapter shall be guilty of a violation punishable by a fine not exceeding $350 or imprisonment for a period not to exceed six months, or both, for conviction of a first offense; for conviction of a second offense, both of which were committed within a period of five years, punishable by a fine not less than $350 nor more than $700 or imprisonment for a period not

to exceed six months, or both; and upon conviction for a third or subsequent offense, all of which were committed within a period of five years, punishable by a fine not less than $700 nor more than $1,000 or imprisonment for a period not to exceed six months, or both. However, for the purposes of conferring jurisdiction upon courts and judicial officers generally, violations of this chapter shall be deemed misdemeanors, and for such purpose only, all provisions of law relating to misdemeanors shall apply to such violations. Each week's continued violation shall constitute a separate additional violation.

§ 114A-14. Appeal of notice of violation.

Any person receiving a notice of violation may appeal the determination of the SMO to the Village Board of Trustees within 15 days of its issuance, which shall hear the appeal within 30 days after the filing of the appeal and, within five days of making its decision, file its decision in the office of the Municipal Clerk and mail a copy of its decision by certified mail to the discharger.

§ 114A-15. Corrective measures after appeal.

A. If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or, in the event of an appeal, within five business days of the decision of the municipal authority upholding the decision of the SMO, then the SMO shall request the owner's permission for access to the subject private property to take any and all measures reasonably necessary to abate the violation and/or restore the property.

B. If refused access to the subject private property, the SMO may seek a warrant in a court of competent jurisdiction to be authorized to enter upon the property to determine whether a violation has occurred. Upon determination that a violation has occurred, the SMO may seek a court order to take any and all measures reasonably necessary to abate the violation and/or restore the property. The cost of implementing and maintaining such measures shall be the sole responsibility of the discharger.

§ 114A-16. Injunctive relief.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this chapter. If a person has violated or continues to violate the provisions of this chapter, the SMO may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

§ 114A-17. Alternative remedies.

A. Where a person has violated a provision of this chapter, he/she may be eligible for alternative remedies in lieu of a civil penalty, upon recommendation of the Municipal Attorney and concurrence of the Municipal Code Enforcement Officer, where:

   (1) The violation was unintentional.

   (2) The violator has no history of pervious violations of this chapter.

   (3) Environmental damage was minimal.

   (4) The violator acted quickly to remedy violation.

   (5) The violator cooperated in investigation and resolution.

B. Alternative remedies may consist of one or more of the following:

(1) Attendance at compliance workshops.

(2) Storm drain stenciling or storm drain marking.

(3) River, stream or creek cleanup activities.

§ 114A-18. Violations deemed public nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare and is declared and deemed a nuisance and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

§ 114A-19. Remedies not exclusive.

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state or local law, and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

§ 114A-20. Severability.

The provisions of this chapter are hereby declared to be severable, and if any section, clause, sentence, paragraph or phase of this chapter or the application thereof to any person, establishment, or circumstances shall be held invalid or unconstitutional, such decision shall not affect the validity of the remaining sections, clause, sentences, paragraphs or phases of this chapter, but they shall remain in effect, it being the legislative intent that this chapter and application of this chapter shall stand, not withstanding the invalidity of any part.

§ 114A-21. When effective.

This chapter shall take effect immediately upon filing in the office of the Secretary of State in accordance with § 27 of the Municipal Home Rule Law.