

Delaware
Sediment and Stormwater Program
Technical Document

Article 1.
Sediment and Stormwater
Program Background

1.01

Executive Summary

This Technical Document has been written to provide technical support to the *Delaware Sediment and Stormwater Regulations*, and to provide policies and procedures for implementation of the regulations. This Technical Document has been divided into five Articles, corresponding to varying aspects of the Delaware Sediment and Stormwater Program.

Article 1. Sediment and Stormwater Program Background

Article 1 provides background on the state program. Article 1 also includes information as to how the state program coordinates and merges with Federal NPDES requirements.

Article 2. Policies and Procedures

The State Sediment and Stormwater Program is implemented at the local level through Delegated Agencies. Article 2 includes procedures for requesting, gaining, and maintaining Delegated Agency status. This Article also includes plan review policies and procedures as well as information on fees, financial guarantees, and offset provisions including a fee-in-lieu option.

Article 3. Plan Review and Approval

The greater part of the technical information provided in the overall Technical Document is included in Article 3. This section describes the three-step plan review process and includes submittal requirements for each step. Workflow documents are provided to aid the plan designer in complying with the requirements of the regulations. Design examples are included for various types of development projects. The stormwater compliance tool, DURMM v.2, as well as supporting documentation and user guides, are incorporated into this Article.

Two major components of Article 3 include the Delaware Erosion and Sediment Control Handbook and the Post Construction Stormwater BMP Standards and Specifications. The Delaware Erosion and Sediment Control Handbook includes details for on-site controls used during construction and has long been a technical document supporting the Delaware Sediment and Stormwater Program; the Handbook has been updated and

will continue to be updated to meet and support improving technology. The Post Construction Stormwater BMP Standards and Specifications document includes design criteria for permanent stormwater management practices that will be implemented on sites to meet resource protection, runoff reduction and volume management requirements.

Article 4. Construction Review and Compliance

During construction the information included in Article 4 is necessary to aid owners, contractors, and construction reviewers in successfully completing construction. This Article includes guidelines for the construction reviewer to follow as well as information on enforcement of the regulations and penalties. The Department offers two levels of training for personnel involved in land disturbing activities; contractor and Certified Construction Reviewer training information is included in this Article as well.

Article 5. Maintenance of Permanent Stormwater Management Systems

Following construction, in most cases the owner is responsible for maintenance of stormwater management facilities rather than a public entity. Article 5 provides useful information for owners, including homeowners' associations, for maintenance of permanent stormwater management facilities.

This Technical Document is expected to be a "living" document that will continue to be amended and updated with new technology and technical information as it becomes available. Any future updates to the Technical Document will take place following an opportunity for public review and comment on the proposal.

1.02

Federal Clean Water Act Requirements

Background

The Clean Water Act authorizes EPA and states which are delegated the authority by EPA, to regulate point sources that discharge pollutants into waters of the United States through the National Pollutant Discharge Elimination System (NPDES) permit program. These "point sources" are generated from a variety of municipal and industrial operations, including treated wastewater, process water, cooling water, as well as stormwater runoff. The NPDES Storm Water Program, in place since 1990, regulates discharges from municipal separate storm sewer systems (MS4s), industrial activities, and construction activities. This document will discuss permitting requirements for construction activities.

Construction Activities

Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it can pick up pollutants such as sediment, debris, and chemicals and transport these to a nearby storm sewer system or directly to a river, lake, or coastal water. Polluted stormwater runoff can harm or kill fish and other wildlife. Sedimentation destroys aquatic habitat, and high volumes of runoff causes stream bank erosion. Debris can clog waterways and potentially reach the ocean where it can kill marine wildlife and impact habitat.

The NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more, including smaller sites in a larger common plan of development or sale, to obtain coverage under an NPDES permit for their stormwater discharges. Most states are authorized to implement the Stormwater NPDES permitting program. (*Stormwater Discharges From Construction Activities*)

Permitting in Delaware

The State of Delaware, Department of Natural Resources and Environmental Control (Department) is authorized to regulate all discharges including MS4s, industrial activities, and construction activities. The NPDES permit program is delegated to the

Department's Division of Water, Surface Water Discharges Section. Within the stormwater program, general permits are written to cover a category of dischargers, such as construction activities, instead of an individual facility. General permit coverage to discharge stormwater from a construction activity is obtained by submitting a "Notice of Intent" (NOI) to discharge stormwater and is less rigorous than applying for and obtaining an individual permit. The stormwater general permit program is regulated by 7 **Del. C.** Chapter 60. Part 2 of that regulation which covers construction activities is sub-delegated to the Department's Division of Watershed Stewardship, Sediment and Stormwater Program for implementation. Please see Appendix 1.02.1 which depicts the delegation.

In order to gain coverage under the stormwater general permit, the owner of a construction activity must submit an NOI with a signed certification that they will comply with the requirements of the general permit regulations. Coverage also requires a plan to be developed to guide the construction activity. In Delaware, this plan is the approved Sediment and Stormwater Management Plan. Guidance for obtaining permit coverage to discharge stormwater from a construction activity can be found in Appendix 1.02.2 of this document.

Total Maximum Daily Loads (TMDLs)

A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that load among the various sources of that pollutant. Pollutant sources are characterized as either point sources that receive a wasteload allocation (WLA), or nonpoint sources that receive a load allocation (LA). Point sources include all sources subject to regulation under the National Pollutant Discharge Elimination System (NPDES) program, e.g. wastewater treatment facilities, some stormwater discharges and concentrated animal feeding operations (CAFOs). Nonpoint sources include all remaining sources of the pollutant as well as anthropogenic and natural background sources.

The objective of a TMDL is to determine the loading capacity of the water body and to allocate that load among different pollutant sources so that the appropriate control actions can be taken and water quality standards achieved. The TMDL process is important for improving water quality because it links the development and implementation of control actions to the attainment of water quality standards. Overall, the goal of developing a TMDL is to end up with an implementation plan or a watershed plan designed to meet water quality standards and restore impaired waterbodies. These plans can build on information in one or more TMDLs. (*What is a TMDL?*)

Since 1998, the Department's Watershed Assessment Section has been modeling Delaware's watersheds to established TMDLs for nitrogen, phosphorus, and bacteria for all of the waters in Delaware impaired by these parameters. EPA has established TMDLs for several watersheds within the state. Once the TMDL is established, groups of stakeholders, sometimes in the form of Tributary Actions Teams, work together to recommend a list of actions to reduce nonpoint source pollution. These recommendations, which include both voluntary and regulatory actions, are called Pollution Control Strategies (PCSs), Watershed Implementation Plans (WIPs), or other types of plans. (*Watershed Assessment Section*)

Land development projects constructed under the *Delaware Sediment and Stormwater Regulations* will be required to meet TMDL requirements for the site's particular watershed through conservation design methods and construction of stormwater management BMPs.

Effluent Limitation Guidelines (ELGs)

EPA is proposing to establish effluent limitations guidelines (ELGs) and new source performance standards (NSPS) for stormwater discharges from the Construction and Development (C&D) industry. These guidelines and standards would require discharges from certain construction sites to meet a numeric turbidity limit. The guidelines and standards would also require all construction sites currently required to obtain a National Pollutant Discharge Elimination System (NPDES) to implement a variety of best management practices (BMPs) designed to limit erosion and control sediment discharges from construction sites. (*Effluent Guidelines: Construction and Development*)

Article I. Bibliography

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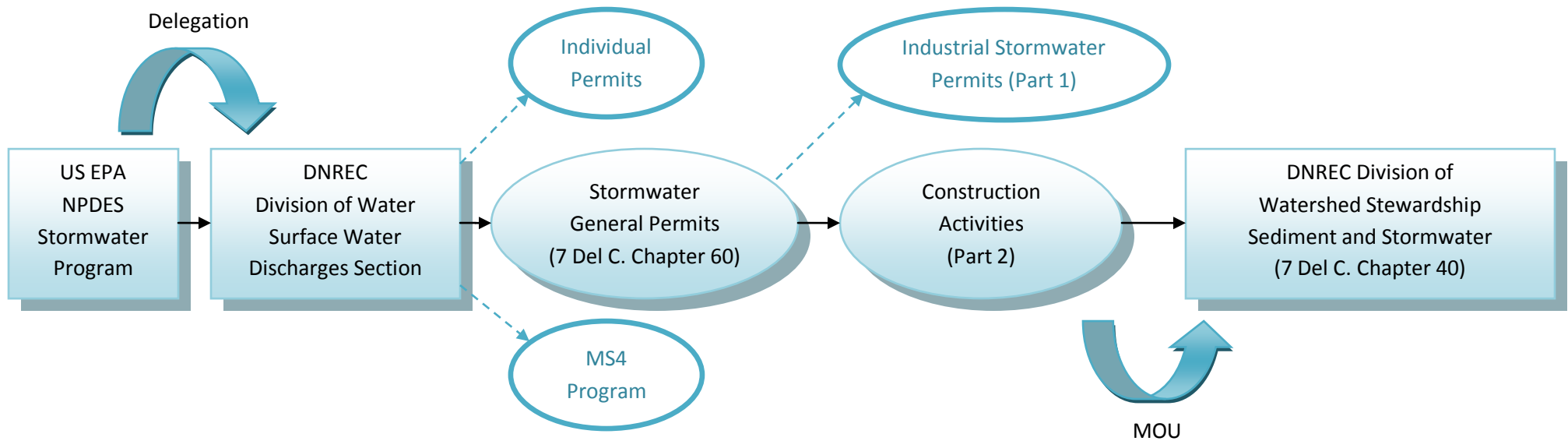
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Appendix 1.02.1 Construction General Permit Program Delegation





Guidance Document to Support:

**The Regulations Governing Storm Water Discharges Associated with Industrial Activity
Part 2 – Special Conditions for Storm Water Discharges Associated with Construction Activities**

I. Background

The EPA can authorize any state to operate the National Pollutant Discharge Elimination System (NPDES) program. Delaware received this authority in April, 1974. The 1987 amendments to the Clean Water Act require national regulations to be issued to address the control of pollutants entrained in storm water discharges.

Under the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et.seq.; the Act), except as provided by Part I.B.3 of the permit, Federal law prohibits discharges of pollutants in storm water from construction activities without an NPDES Permit. A General Permit, as defined by federal law in 40 C.F.R. §122.28, authorizes the discharge of storm water associated with industrial activity from sources within a defined area or sources that share certain similarities.

In 1993, Section 9 (The General Permit Program) of the State of Delaware, Department of Natural Resources and Environmental Control (DNREC), Regulations Governing the Control of Water Pollution was issued. Subsection 1 of the General Permits Program contains The Regulations Governing Storm Water Discharges Associated with Industrial Activity and are referred to as the "General NPDES Storm Water Permit Program". In order to obtain coverage through the General NPDES Storm Water Permit Program, persons will be required to file a Notice of Intent (NOI) with DNREC. The NOI requirement is in accordance with 40 C.F.R. §122.28(b)(2) of the USEPA NPDES Program. The NOI is the equivalent of an NPDES permit application for General NPDES Storm Water Permit coverage.

II. Requirement to Obtain Permit Coverage

In Delaware, any land disturbing activity exceeding 5,000 square feet is required to obtain an approved Sediment and Stormwater Plan prior to the initiation of land disturbance, or construction activities. All projects requiring a detailed Sediment and Stormwater Plan must also submit the Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under a NPDES General Permit (FORM 1). Submittal of the NOI together with approval of the detailed Sediment and Stormwater Plan provide the site with permit coverage to be authorized to discharge storm water associated with construction activity.

As a matter of practice, the NOI must be submitted to DNREC prior to approval of the Sediment and Stormwater Plan by the local plan approval agency. Projects eligible for Sediment and Stormwater Plan approval through a Standard Plan, where the total limits of disturbance do not exceed one (1) acre, are not required to submit the NOI.

III. Who is Responsible?

Persons with "operational control" of the site activities manage and have control of the construction activity, construction plans and specifications, and have the ability to make modifications to the plans and specifications. Any modification to the plans and/or specifications will require an approval of the modification by the local plan approval agency. It is the person with operational control, or the operator, who must sign the certification on the NOI. By signing the certification, the signatory agrees to fully comply with the *Special Conditions for Storm Water Discharges Associated with Construction Activities*.



Persons with operational control may include:

- owners,
- developers, and
- homebuilders in residential development projects.

A general and/or site contractor who is under contract with the owner, developer, and/or homebuilder is not considered to be an operator when they are acting at the direction of the owner, developer and/or homebuilder, when they do not have the authority to make modifications to the plans and specifications without the consent of the owner, developer and/or homebuilder. The land development plan consultant, engineer, surveyor, landscape architect, or architect is not considered to be an operator, and NOIs submitted under the signature of those individuals will be returned for a proper owner certification signature. The certification shall be signed as follows:

- For a corporation: by a responsible corporate officer which means: (i) president, secretary, treasurer, vice-president of the corporation in charge of a principal business function, or any person who performs similar policy or decision making function, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- For a partnership or sole proprietorship: by a general partner of the proprietor; or
- For a municipality, state, federal, or other public facility: by either a principal executive or ranking elected official.

For Delaware businesses, the form certification shall be signed as follows:

- For a Corporation: by an Authorized Officer (8 Del. C., Chapter 1),
- For a Limited Liability Company: by an Authorized Person (6 Del C., Chapter 18),
- For a Limited Partnership: by a General Partner (6 Del C., Chapter 17),
- For a General Partnership: by a Partner or Authorized Person (6 Del. C., Chapter 15),
- For a Limited Liability Partnership: by a Partner or Authorized Person (6 Del. C., Chapter 15),
or
- For a Statutory Trust: by a Trustee (12 Del. C., Chapter 38).

Reference the Delaware Code as listed for definitions of the individuals who may sign for the various business entities.

A. Transfer of Authorization

If an owner who submitted the NOI prior to approval of the Sediment and Stormwater Plan does not intend to manage or control the permitted activities during construction, that owner may choose to transfer authorization to discharge to a duly authorized person by submitting a Transfer of Authorization form (FORM 3). By transferring control of permitted activities, the original permittee relinquishes their own responsibility under the permit. The duly authorized person accepts all responsibility for compliance with the permit conditions. A general and/or site contractor who is under contract with the owner, developer, and/or homebuilder and has the authority to make modifications to the plans and specifications without the consent of the owner, developer and/or homebuilder may be considered to have operational control and authorization to discharge may be transferred to that general and/or site contractor.



The Transfer of Authorization form must be submitted to DNREC no less than ten (10) days prior to beginning construction activities. Transfer of Authorization, except in the case of an ownership change, may not take place once construction activities have commenced. After construction begins, if the original permittee wishes to share authorization to discharge with a duly authorized person, the original permittee and the duly authorized person may share operational control through submittal of the Co-Permittee Application [FORM 4, See C. Shared Operational Control (Co-Permittees)]. The Transfer Agreement on the Transfer of Authorization form must provide effective dates of the transfer and be signed by both the original permittee and the duly authorized person, or transferee. The Transfer of Authorization form includes the NOI Certification that must be signed by the transferee. By signing the certification, the transferee agrees to fully comply with the *Special Conditions for Storm Water Discharges Associated with Construction Activities*.

It is the responsibility of the original permittee, not the local plan approval agency, to provide the transferee with the current approved Sediment and Stormwater Plan.

B. New Owner

Should ownership of the project change after submittal of the NOI, either before or during the construction period, the original permittee must transfer authorization to discharge to the new owner by completing the Transfer of Authorization form. The Transfer Agreement on the Transfer of Authorization form must provide effective dates of the transfer and be signed by both the original permittee and the new owner. The Transfer of Authorization form includes the NOI Certification that must be signed by the new owner. By signing the certification, the new owner agrees to fully comply with the *Special Conditions for Storm Water Discharges Associated with Construction Activities*.

In addition to submitting the Transfer of Authorization form to DNREC, the new owner must submit required documentation of the ownership change to the local plan approval agency for the purpose of updating the agency's owner contact information. At a minimum, the Owner's Certification as required by the *Delaware Sediment and Stormwater Regulations* must bear the original signature of the new owner; this may be accomplished through submittal of a revised Sediment and Stormwater Plan. The new owner should contact the local plan approval agency to determine what additional documentation will be required.

It is the responsibility of the original owner, not the local plan approval agency, to provide the new owner with the current approved Sediment and Stormwater Plan.

C. Shared Operational Control (Co-Permittees)

A single project may have multiple persons with operational control. Examples of this condition include:

- A residential development project with an original developer who is responsible for construction of roads, utility infrastructure, open spaces, and stormwater management components, and one or more homebuilders responsible for home construction and having operational control on individual residential lots.
- An office or business park complex having an original developer who is responsible for construction of roads, utility infrastructure, open spaces, and stormwater management components, while individual lots each have individual owners with operational control on those lots.



In these cases, each of those individual entities will be “co-permittees” under the original NOI for the site. Multiple NOIs are not required and will not be accepted for individual lots within the limits of a project already receiving permit coverage through submittal of an NOI. Should the original permittee sell one or more lots to another person or persons during the construction period, the original permittee must share operational control with each new owner by completing the Co-Permittee Application form (FORM 4). The Shared Operational Control Agreement on the Co-Permittee Application form must provide effective dates of shared operational control and be signed by both the original permittee and the new co-permittee. The Co-Permittee Application form includes the NOI Certification that must be signed by the new co-permittee. By signing the certification, the co-permittee agrees to fully comply with the *Special Conditions for Storm Water Discharges Associated with Construction Activities*. If more than one co-permittee is added for permit coverage under the same NOI, a separate Co-Permittee Application must be submitted for each additional co-permittee.

DNREC and/or its delegated agency will not be responsible for dictating when additional co-permittees must be added to the NOI to gain permit coverage for their construction activities. DNREC recommends that when individual lots are conveyed to new owners (homebuilders or pad site owners, for example), the new owner will at that time become a co-permittee for the overall site with the original permittee as a condition of the sale of property.

It is the responsibility of the original permittee, not the local plan approval agency, to provide the new co-permittee with the current approved Sediment and Stormwater Plan. The Sediment and Stormwater Plan should include a plan sheet that further defines the responsibilities of the co-permittee(s). That plan sheet, titled, “Individual Lot Erosion and Sediment Control Plan”, shall include, at a minimum, the following information:

- For residential development projects, Standard Detail No. DE-ESC-3.7.1 titled ESC for Minor Development,
- A separate sequence of construction for individual lot construction if not included in the Standard Detail, and
- Notes defining who is responsible for cleanup of transported sediment and maintenance of sediment and stormwater best management practices (BMPs) during the lot construction phase

The Erosion and Sediment Controls Operations and Maintenance Responsibilities matrix attached to this Guidance Document as Appendix A should be used as a guide to define items that require maintenance throughout the construction phase. Construction, operation, or maintenance of each of these items must be assigned to one or more permittee for the site and defined in an agreement to accompany the co-permittee form when it is submitted to DNREC.

Adding a co-permittee on the original NOI does not relieve the original permittee from responsibility for compliance with the permit. If the original permittee makes changes to the Plan without notification to the co-permittees, that original permittee assumes full responsibility for implementation of the Plan. In enforcement action the original permittee, or overall owner/developer, will be held jointly responsible for any violations of the Plan or permit with any of the subsequent co-permittees. Individual co-permittees, such as individual lot developers, will be responsible in an enforcement action only for construction activities that have occurred on their lot(s), or for violations and/or damages that have occurred as a result of construction activities that have occurred on their lot(s).



IV. Termination of Coverage

Individuals who submit for coverage under the permit must terminate coverage once construction activities have been completed. The original permittee or the transferee must submit the Notice of Termination (NOT) form (FORM 2) to DNREC; individual co-permittees need not submit individual NOTs (see below for termination of individual coverage for co-permittees). The NOT should not be submitted until the following conditions have been met:

- All items and condition of the Plan have been satisfied in accordance with the Delaware Sediment and Stormwater Regulations,
- As-built documentation verifies that the permanent stormwater management measures have been constructed in accordance with the approved Plan and the Regulations, and
- Final stabilization of the site has been achieved in accordance with the definition in Section 9.1.02.0.

The local plan approval agency will notify the permittee when they consider the project to be complete and recommend submittal of the NOT to DNREC. When DNREC receives the NOT form from the permittee, DNREC will await verification from the local plan approval agency that the project has indeed met all of the above conditions before terminating permit coverage. Individual delegated agencies will agree with DNREC on the best way to provide this verification. It is noted that permit coverage in multi-lot projects, such as residential development projects, may not be terminated until construction of each individual lot has been completed.

When a co-permittee has met all of the termination of coverage conditions for their individual lots within the total project site, the co-permittee shall submit to DNREC a Notice of Termination of Shared Operational Control form (FORM 5). For example, a homebuilder owning a block of 25 lots within a residential development of greater than 25 lots may submit a Notice of Termination of Shared Operational Control to DNREC when each of those 25 lots has been built out, Certificates of Occupancy have been issued, and final stabilization has been achieved in accordance with the definition in Section 9.1.02.0. Once the NOT of Shared Operational Control form is submitted to and accepted by DNREC through verification with the local plan approval agency, the co-permittee is relieved of his responsibility under the permit and will no longer share operational control with the other co-permittees of the site.

V. Fees

Until permit coverage is terminated, the original permittee will be assessed an annual NOI permit fee of \$195. The permittee will be notified to submit the fee to DNREC twice, after which a Notice of Violation will be issued and enforcement action will proceed.



Clarifications:

During the public review period, comments were received requesting clarification of the term “larger common plan of development or sale” used in the definition of Construction Activity. EPA’s Fact Sheet on NPDES General Permit for Storm Water Discharges from Construction Activities uses the term “common plan” as follows:

Any construction activity that will, or is part of a “common plan” of development or sale that will, disturb one or more acres and has the potential to have a discharge of storm water to a water of the United States must either have a permit OR have qualified for a waiver. These regulated discharges are broken into two categories: “Large” and “Small”. A large construction activity is one that will disturb, or is part of a “common plan” that will cumulatively disturb, five or more acres. A small construction activity is one that will disturb, or is part of a “common plan” that will cumulatively disturb, one or more acres.

In Delaware, land development projects such as residential subdivisions and business or industrial park complexes would include lots and construction activities that may be part of a larger “common plan”. An individual residential lot that is less than one acre in size, but is part of a land development project such as a subdivision of one (1) acre or more, is not precluded from permit coverage because it is part of that larger “common plan”. Individual residential or commercial lots that fall within a larger “common plan” that has already gained permit coverage through approval of the Sediment and Stormwater Plan and submittal of the NOI will also have permit coverage under that Plan and NOI. If the ownership or operator of the individual parcel is different than the ownership or operator of the larger “common plan”, a Co-permittee Form must be filed to allow for Shared Operational Control of the parcel.

Definitions:

“Standard Plan” means a set of pre-defined standards and/or specification for minor land disturbing activities that may preclude the preparation of a detailed plan under specific conditions.



Appendix A.

Erosion and Sediment Control Operations and Maintenance Responsibilities

Prior To Bulk Grading	Bulk Grading And Infrastructure	Home Building Phase	Post Home Building Phase
Stabilized Construction Entrance	Maintenance of SCE Road Stabilization	Lot Silt Fence	Clean Sediment out of Pipes and Drainage
Dikes, Berms, Diversions	Swales, Berms, Diversions, Tracking	Lot Stabilized Driveway Entrance	Other Repairs to Stormwater Conveyance
Sediment Basins, Traps	Maintenance of Traps and Basins	Maintain Perimeter Controls/Traps/Basins	Remove other E&S Controls
Silt Fence	Maintenance of Silt Fence	Maintain Inlet Protection	Sediment Basin Conversion
	Temporary Stabilization of Bulk Fill Areas	Downspout Slope Drains	As-Built
	Stone Check Dams	Permanent Lot Stabilization	
	Inlet Protection	Street Cleaning/Sweeping	
	Stabilization of the Lot Areas		

1.03

State Responsibilities

General Information

The Department of Natural Resources and Environmental Control (DNREC) is responsible for the statewide implementation and supervision of the Delaware Sediment and Stormwater Program which is established by 7 **Del. C.** Ch. 40. In addition, the DNREC Sediment and Stormwater Program has been delegated the responsibility of implementing the Federal NPDES general permitting program for stormwater discharges associated with construction activities. All land development projects in Delaware that disturb more than one acre must also submit a Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity to DNREC in order to gain permit coverage to discharge stormwater from the construction activity.

Program Implementation and Management

The DNREC Sediment and Stormwater Program implements all aspects of the Sediment and Stormwater Law and Regulations on State and Federal project sites. Local implementation of the Sediment and Stormwater Program for privately-owned projects is carried out by local agencies known as Delegated Agencies. Additional information on Delegated Agencies can be found in Article 2.01 of this document. In addition to implementing the program for projects on State and Federal sites, DNREC provides technical guidance and oversight of program implementation by the Delegated Agencies. DNREC also provides education and training relative to the Sediment and Stormwater Program. DNREC maintains all current information regarding implementation of the Delaware Sediment and Stormwater Program on the program website. In addition, the DNREC Sediment and Stormwater Program keeps a monthly list serve to distribute emerging information and training dates to those that subscribe.

Coordination with Other Agencies

DNREC and the Delegated Agencies coordinate with other local, state, and federal agencies throughout the plan review and approval, construction review and maintenance review of projects. These other agencies include DeIDOT, DNREC's Division of Water and Division Waste Management, as well as EPA, US Army Corps of Engineers, and local municipal separate storm sewer system (MS4) permittees.

DeIDOT is a Delegated Agency of the Sediment and Stormwater Program; however DeIDOT is delegated the implementation authority of the Sediment and Stormwater Program over its own construction projects only. Therefore, for private development

projects that include any entrance or roadway improvements, or where the stormwater from the site will discharge to the drainage system within the DelDOT right-of-way, both DelDOT and a local Delegated Agency or DNREC review different aspects of the same project. The Sediment and Stormwater Program invites DelDOT to participate at the project application meeting for these projects. Discussion at the project application meeting determines what portions of the Sediment and Stormwater plan review and subsequent construction review is the responsibility of the Delegated Agency or DNREC and what is the responsibility of DelDOT. The construction review is the responsibility of the agency that approves the plan elements.

There are many other programs operating within the Department of Natural Resources and Environmental Control (DNREC) that relate to the Sediment and Stormwater Program. These programs include Watershed Assessment (TMDLs), Sourcewater Protection, Groundwater Discharges, Water Allocation, Wetlands and Subaqueous Lands, Surface Water Discharges, and Site Investigation and Restoration Section.

The **Watershed Assessment** section implements the Total Maximum Daily Loads (TMDLs) for each watershed in the state. The TMDL for each project subject to the Sediment and Stormwater Regulations may be met through a combination of runoff reduction measures and stormwater best management practices. \

Runoff reduction is a primary goal of the Sediment and Stormwater Regulations. Infiltration is strongly encouraged as a means to achieve the runoff reduction goal. When a project is located in an excellent recharge area as designated by the **Sourcewater Protection** program, impervious cover limits and recharge are often mandated by local codes. The Sediment and Stormwater Program has collaborated with the Sourcewater Protection program to develop recharge feasibility mapping to assist designers in determining appropriate sites for infiltration.

Furthermore, when projects implement stormwater best management practices that intercept the water table, those facilities could be classified as Class V injection wells. The Sediment and Stormwater Program works with the **Groundwater Discharges Section** to properly report those facilities classified as a Class V Injection Well. Any pond that will be used for water supply purposes or for irrigation must obtain approval for that use from the **Water Allocation Branch** pursuant to the requirements of 7. Del. C. Ch. 60.

Oftentimes wetland permitting is necessary for a project prior to approval for construction. In these cases, when a wetland permit is necessary in order to construct the temporary or permanent stormwater management system on the site, the Sediment

and Stormwater Plan is not approved until those permits are secured. The Sediment and Stormwater Program coordinates with the **DNREC Wetlands and Subaqueous Lands Section** and/or the **US Army Corps of Engineers** who issues those wetland permits. When existing wetlands are intended to serve as a component of the overall stormwater management system for a site, the disturbance to the wetland will be minimized to include only the disturbance necessary to construct necessary components of the stormwater management system. The applicant must demonstrate that the existing wetlands will be maintained or enhanced and that disturbance within the wetland for stormwater management is the only reasonable alternative for the site.

More often, however, the Sediment and Stormwater Program coordinates with wetland permitting programs on violation sites. When there has been a violation of the wetland regulations regarding filling or disturbance, there is almost always a violation of the Sediment and Stormwater Regulations as well.

Stormwater discharges from industrial sites are permitted by the DNREC **Surface Water Discharges Section**. When a new construction activity occurs on a site having permit coverage for storm water discharges from an industrial site, the Sediment and Stormwater Program coordinates with the Surface Water Discharges Section. In addition, the Surface Water Discharges Section manages the MS4 permits within Delaware. Many MS4 permittees are also Delegated Agencies of the Sediment and Stormwater Program. DNREC works with the MS4s in cross-implementation of the MS4 permit requirements with the Sediment and Stormwater Program requirements.

DNREC's Division Waste Management's **Site Investigation and Restoration Section (SIRS)** issues permits for clean-up of contaminated sites. These clean-up projects are generally private projects; however, SIRB-permitted projects are retained at DNREC for review of the Sediment and Stormwater Plan and construction inspection. OSHA 40-hour HAZWOPER training is often a requirement for entry onto these sites for inspection so the DNREC Sediment and Stormwater Program coordinates with SIRB in completing those inspections.

New Requirements

The Sediment and Stormwater Regulations have been in effect since 1991 and with the current version of the regulations, there are many new requirements that are significant changes from previous versions of the Sediment and Stormwater Regulations. These changes are highlighted below.

- **Three-Step Plan Review Process**

It is important to the regulated community that the Sediment and Stormwater plan review and approval process is as predictable as possible. The Department with input from the Delegated Agencies, local governments and the regulated community have developed a distinct three-step plan review process. The first step is a required project application meeting. This meeting brings together all individuals and agencies that would have input in the Sediment and Stormwater Plan, including the project designer, owner, Delegated Agency, DelDOT, and Drainage Program as necessary to discuss the site's limitations prior to a preliminary site layout or stormwater management design. The Delegated Agency schedules a pre-application meeting within two weeks of receipt of a completed Stormwater Assessment Report. More information on the required project application meeting can be found in **Article 3.02 Plan Review Process** of this document.

The second step of the three step process is the Preliminary Sediment and Stormwater Management Plan. This step takes the input from the project application meeting to design the stormwater management system on the site as well as the schematic erosion and sediment control plan. This step does not include a detailed review of the construction drawings; however a detailed review of the hydrologic and hydraulic design does take place at this time.

The final step of the three-step process is the Sediment and Stormwater Management Plan. This Sediment and Stormwater Management Plan is reviewed to ensure that all necessary notes, details, sequence of construction, certifications, etc. are included on the plan. The Sediment and Stormwater Management Plan is approved when all required elements have been satisfactorily addressed. A checklist is used by the designer and the Department or the Delegated Agency to verify that all applicable items have been addressed. The Sediment and Stormwater Management Plan Checklist is included as an appendix to Article 3.02.

- **Site vs. Watershed Management**

Previous versions of the Delaware Sediment and Stormwater Regulations focused on stormwater management at the site level. New development projects designed stormwater management systems based upon a comparison of pre and post development discharges from the site being developed. This method of analysis treated each site the same way, regardless of its size or location in the

watershed. While a site-level pre vs. post development comparison is a reasonable approach, the long-term result of multiple projects developing in a single watershed is still an overall increase in the peak flow within that watershed. Furthermore, with the increase in flow stream degradation continues even though stormwater management is occurring in the watershed.

A watershed management approach looks at more than just the site being developed. The watershed approach to stormwater management accounts for the site's relative size and position in the watershed. This approach also looks at the existing drainage systems to determine their ability to handle the runoff generated by the new development.

Watershed master plans are developed for watersheds and subwatersheds throughout Delaware. These watershed master plans use a projected build-out scenario based upon zoning and comprehensive planning to determine what management strategies are implemented at various points throughout the watershed. Development in the lower part of the watershed may not be required to detain runoff prior to discharge, while the upper portion of the watershed may need to over-detain of runoff. These watershed master plans also identify structures within the watershed that need improvement.

- **Peak Discharge Control vs. Runoff Reduction**

Management of a site's post development peak discharges back to the pre development peak discharge rate assures that the one site being managed does not increase the flood flows downstream. However, instituting peak discharge limits on developed sites where there is an increase in the volume of runoff can make downstream flooding worse by extending the duration of flow so that it coincides with the peak discharges of other sites. Extending the duration of flow at an elevated rate, even if it does not exceed the pre development peak discharge rate, leads to instability in the stream channel and stream degradation.

Controlling the volume of runoff is a preferred management method. In order to discharge a volume equivalent to the pre development condition, some level of recharge or reuse of runoff must occur on the site. Rather than collecting and conveying the runoff in pipes to discharge to the stream, allowing runoff to soak into the ground recharges groundwater and supports baseflow in streams. Sites that manage the volume of runoff release the runoff in a hydrograph that mimics the pre development condition. The volume of runoff is not spread out into an extended duration of flow in the stream as is seen with peak discharge

management. The result of volume management is a more stable stream system that does not experience the eroding flows and flashy peaks of a peak discharge management system. In addition, the problem with increased hydrograph volume coinciding with peak discharges and exasperating downstream flooding is minimized.

The Delaware Sediment and Stormwater Regulations require the Resource Protection Event Volume (RPv) of runoff, which is the volume generated by the 1-year 24-hour rainfall event, to be reduced through recharge or reuse. Where site conditions allow, recharge and reuse of the 10- and 100-year storm runoff volume must be provided to the maximum extent practicable. Methods to achieve the required runoff reduction are covered in Article 3.04 of this document titled Post Construction Stormwater Management.