pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

Erosion and Sediment Control

Frequently Asked Questions (FAQ)
October 16, 2020
Version 1.0

Background

The regulatory requirements for an Erosion and Sediment Control (E&S) Plan are identified in 25 Pa. Code Chapter 102. To assist the regulated community with recommended best management practices (BMPs) for E&S, the Department of Environmental Protection (DEP) developed the Erosion and Sediment Pollution Control Program Manual (E&S Manual) (also see corrections list for the E&S Manual). The purpose of this FAQ document is to provide additional/updated information since the last revision to the E&S Manual related to the regulatory requirements for E&S, the development of an E&S Plan, and the implementation of E&S BMPs. This FAQ document will be updated with additional questions and answers over time.

Nothing in this document affects regulatory requirements. The interpretations herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the interpretations in this document that weight or deference. This document provides a framework within which DEP and delegated county conservation districts (CCDs) will exercise administrative discretion in the future. DEP reserves the discretion to deviate from the interpretations in this document if circumstances warrant.

General Information

FAQ #1: What is soil erosion?

As defined at 25 Pa. Code § 102.1, erosion is a natural process by which the surface of the land is worn away by water, wind, or chemical action, and accelerated erosion is the removal of the surface of the land through the combined action of human activities and natural processes, at a rate greater than would occur because of the natural process alone. Sedimentation, which is defined as the action or process of forming or depositing sediment in waters of this Commonwealth, may occur from either erosion or accelerated erosion. DEP does not regulate erosion but does regulate accelerated erosion.

FAQ #2: Is sediment really a pollutant?

As noted in FAQ #1, a certain amount of erosion and sedimentation occurs naturally, and surface waters are generally able to assimilate naturally occurring sedimentation without adverse effects. Adverse effects from sedimentation more frequently due to accelerated erosion from human induced earth disturbance activities such as surface mining, agricultural plowing and tilling, construction, and timber harvesting operations.

FAQ #3: Is sediment pollution harmful?

Yes, sediment pollution can be harmful to various human and ecological receptors:

- Fish have gills, which extract oxygen from the water. These gills can become clogged when the water transports excessive amounts of sediment.
- Sediment can cover fish eggs and the gravel nests they rest in.
- Sediment can destroy the food supply for many species of fish by covering aquatic insect habitat on the stream bottom.
- Sediment clouds the water and deprives aquatic plants of light needed for photosynthesis.
- Sediment can behave like a sponge and may carry with it other pollutants such as heavy metals, pesticides, and excess nutrients that are spread by moving water and cause problems not only at the source, but also at distant locations downstream.
- Pollutants that are absorbed by sediments can make their way into the food chain, accumulating in wildlife and eventually humans through consumption.
- Sediment loads in our waterways often result in sediment bars, further erosion and unstable stream geometry.
- Sediment increases public drinking water treatment costs or may render unfiltered drinking water supplies harmful for consumption.
- Excess sediment deposits in streams and rivers may necessitate the dredging of a reservoir or other body of water which can cause temporary cessation of services for water supply or recreation, and incur costs on users.

FAQ #4: How is erosion and sediment control regulated?

The Environmental Quality Board (EQB) approved statewide regulations for Erosion and Sediment Control, 25 Pa. Code Chapter 102 in September 1972 and amended the regulations on November 19, 2010. These regulations are authorized under Pennsylvania's Clean Streams Law, 35 P.S. §§ 691.1 *et seq.*, which prohibits the discharge of pollutants to waters of the Commonwealth without a permit. Under the Chapter 102 regulations, anyone conducting earth disturbance activities must use best management practices BMPs to minimize the potential for accelerated erosion and sedimentation and obtain a permit when specific criteria are met.

DEP is responsible for the administration and enforcement of Chapter 102 regulations and the Clean Streams Law. CCDs with trained staff are delegated the responsibility to review E&S Plans, process permit applications, conduct training, perform site inspections, and in certain

circumstances, conduct enforcement actions. Every county in Pennsylvania except Philadelphia County has a CCD office (although the Philadelphia Water Department performs many of these functions and collaborates closely with DEP).

FAQ #5: What is required under Chapter 102?

E&S BMPs must be implemented and maintained for any earth disturbance activity. In addition, a written E&S Plan meeting the requirements of Chapter 102 must be developed and implemented, and must be available on-site anytime 1) the area of an earth disturbance will be at least 5,000 square feet, 2) an E&S Plan is required under DEP regulations, or 3) when DEP determines that an earth disturbance activity has the potential to discharge to a water classified as a High Quality (HQ) or Exceptional Value (EV) water under Chapter 93.

The E&S Plan must show how land and water resources are to be protected against accelerated erosion and sedimentation through the use of BMPs. Examples of BMPs include, but are not limited to: minimizing earth disturbance, silt fence, mulch, channels, sediment traps, sediment basins, and the establishment of permanent stabilization. The E&S Plan must show the full extent of the site, location of BMPs, the timing and sequence of BMP installation, and other information required by the regulations. CCDs can provide guidance for E&S Plan development. After the E&S Plan is completed, it is often submitted to the CCD or DEP for review and approval. The CCD may charge a fee to review the E&S Plan. Guidance for preparing an E&S Plans is available in the E&S Manual.

Permitting requirements depend on the type of activity and are summarized below. Note that this document is intended to be informational only (i.e., it is not comprehensive and should not be relied upon exclusively when determining if a permit is required).

- Construction projects (other than agricultural plowing and tilling, animal heavy use areas, timber harvesting, road maintenance activities, and oil and gas activities) that will disturb at least **one acre** of land must obtain a National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Construction Activities before commencing any earth disturbance. For more information regarding Chapter 102 NPDES permits, please refer DEP's FAQ for PAG-02 General Permit and Individual NPDES Permit.

- Timber harvesting activities that disturb **25 acres** or more of land for haul roads, skid trails, and landing areas or road maintenance activities disturbing **25 acres** or more of land, must obtain an Erosion and Sediment Control (E&S) Permit.

- Oil and gas activities that involve **five acres** or more of earth disturbance over the life of the project shall obtain an E&S Permit (an Erosion and Sediment Control General Permit (ESCGP) is often used for permit coverage of oil and gas activities).

- Agricultural plowing or tilling activities and animal heavy use areas, as defined in Chapter 102, do not require permit coverage, but they still require the development of an E&S Plan or conservation plan, which specifies the implementation and maintenance of BMPs. Note that

construction activities on agricultural lands may be required to obtain permit coverage if one or more of the criteria above apply.

CCD and DEP staff conduct periodic inspections of earth disturbance activities to ensure that E&S Plans and BMPs are adequate and are properly implemented and maintained. In addition, permittees, or anyone who conducts earth disturbance activities, must conduct routine site inspections and maintenance to ensure that BMPs are operational and effective and minimize the potential for pollution.

FAQ #6: What can a person do to minimize accelerated erosion and sedimentation?

Proper planning and implementation of BMPs is the key to a successful project and the protection of the Commonwealth's water resources. Before beginning the project, the applicant or project site owner should (1) become familiar with Chapter 102 E&S requirements, (2) inform the contractor or equipment operator of the need for E&S Plans or permits as part of the project, and (3) seek assistance or additional information, as needed, from the appropriate CCD or DEP regional office.

If a person notices accelerated erosion or sediment pollution occurring on another property, or if there is evidence that sediment pollution has occurred due to an on-going earth disturbance activity, the person should contact the local CCD where the project is located. Click here to search for your local CCD. You should be prepared to provide the location, type of activity, name of the project (if known), and whether pollution is occurring. Photo documentation is also helpful, when available.

E&S Plans

FAQ #7: What should be in an E&S Plan?

E&S Plan requirements are can be found in 25 Pa. Code § 102.4. Subsection (a) is dedicated to agricultural plowing or tilling activities and animal heavy use areas. Subsection (b) is for all other earth disturbance activities. Both subsections (a) and (b) require the implementation and maintenance of E&S BMPs to minimize the potential for accelerated erosion and sedimentation from earth disturbance activities. The basic concept of providing effective, efficient and practical erosion and sediment control should be based on the site characteristics at the project site (e.g., drainage patterns, seeps and springs, steepness and stability of slopes, sinkholes, wetlands, streams, etc.). In other words, the E&S Plan should be specific to the site and based on the site characteristics. Specific information that is required to in an E&S Plan is identified in 25 Pa. Code § 102.4(a)(4) or (b)(5), depending on the type of earth disturbance activity. The E&S Manual is a resource for appropriate BMPs that can be utilized in an E&S Plan.

FAQ #8: Who can write an E&S Plan?

For those projects that fall under § 102.4(b), the regulations require that the E&S Plan must be prepared by a person trained and experienced in E&S control methods and techniques applicable to the size and scope of the project being designed (25 Pa. Code § 102.4(b)(3)). For example, the construction of a single-family home on one lot has significantly different considerations than a large commercial development. When a project triggers permitting requirements (see 25 Pa. Code § 102.5), additional requirements will apply and there will also be Post-Construction Stormwater Management (PCSM) requirements per § 102.8 in addition to E&S. If structurally engineered BMPs are used (either for E&S or PCSM), they should be designed by a licensed professional.

FAQ #9: What is a licensed professional?

Chapter 102 regulations define a licensed professional as professional engineers, landscape architects, geologists, and land surveyors, licensed to practice in Pennsylvania. These professionals may design structurally engineered BMPs as allowed by their licensing boards and commissions. For projects that require an NPDES or E&S permit, a licensed professional also has obligations for oversight of critical stages per 102.8(k).

FAQ #10: Must I use the design standards in the E&S Manual for BMPs?

No. DEP allows for alternative BMP design standards. The E&S Manual lists various BMPs and design standards which are acceptable in Pennsylvania. BMPs, when designed, implemented and maintained in accordance with the E&S Manual, are expected to achieve regulatory requirements. BMPs and design standards other than those listed in the E&S Manual may be used for E&S Plans when a person conducting or proposing an earth disturbance activity demonstrates to DEP that the alternative BMP or design standard minimizes erosion and sedimentation and manages stormwater during earth disturbance activities, and meets all regulatory requirements. Alternative BMPs and design standards may also be pursued for PCSM.

Applicants for permits under Chapter 102 are advised that E&S Plans proposing alternative BMPs may take longer to review since the demonstration must be made that the alternative BMPs are as protective as the BMPs and design standards contained in the E&S Manual. DEP's Bureau of Clean Water maintains a list of Alternative E&S and PCSM BMPs that have been reviewed by DEP, which contains both approved and disapproved alternative BMPs. When identified in this list as an approved alternative BMP, the BMP may be utilized on any project site throughout Pennsylvania.

FAQ #11: May I use soil binders and flocculants containing polyacrylamide during construction?

The use of soil binders and flocculants containing polyacrylamide is addressed in DEP's list of Alternative E&S and PCSM BMPs. The list describes the circumstances under which soil binders and flocculants containing polyacrylamide may be approved without DEP review, is subject to DEP review, and is prohibited.

Temporary and Permanent Vegetation

FAQ #12: How do I properly stabilize my project site?

The regulations at 25 Pa. Code § 102.22 address both temporary and permanent stabilization. For temporary stabilization, see FAQ #14. For permanent stabilization, upon final completion of an earth disturbance activity or any stage or phase of an activity, the permittee must immediately have topsoil restored, replaced, or amended, seeded, mulched or otherwise permanently stabilized and protected from accelerated erosion and sedimentation. To be considered permanently stabilized the disturbed area that will remain in a pervious condition must be covered by either 1) a minimum uniform 70% perennial vegetative cover, with a density capable of resisting accelerated erosion, or 2) an acceptable BMP which permanently minimizes erosion and sedimentation. After permanent stabilization has been established, temporary E&S BMPs such as silt fence are to be removed.

FAQ #13: What does a permittee or co-permittee do if the earth disturbance is completed outside of the normal growing season for vegetative cover?

If a permitted earth disturbance activity is completed during a time of the year that is outside of the normal growing season for vegetative stabilization, the permittee and co-permittee should not submit their Notice of Termination (NOT) form to terminate the permit until sufficient vegetative cover has been established. Appropriate BMPs must be implemented to reduce accelerated erosion until vegetative cover can be established. If the permit coverage will expire prior to permanent stabilization, the permittee/co-permittee should contact DEP and conservation district to notify them that additional time is needed to stabilize the site. DEP/CCD may administratively extend the existing permit until sufficient vegetative cover is established and the NOT form is submitted and approved to terminate the permit. No other activities except for stabilization may take place at the project site during the administratively extended permit coverage period. If additional earth disturbance activities will occur or the site is not stabilized properly the permittee/co-permittee will need to renew their permit.

FAQ #14: What happens if I must stop work temporarily?

The Chapter 102 regulations require temporary stabilization whenever an earth disturbance activity, or any stage or phase of an activity, will cease for more than 4 days. The site should be

seeded, mulched, or otherwise protected from accelerated erosion and sedimentation, pending future earth disturbance activity.

FAQ #15: Does DEP recommend a particular seed mixture?

It is advantageous to select seed mixes that accomplish stabilization quickly and uniformly. However, there are additional factors to consider, such as the long-term utilization of the land (i.e., use as a PCSM BMP) and ecological benefits. These considerations illustrate the importance of the use of native and non-invasive species.

Used effectively, native seeds and plants play important roles in our landscapes. Over the years our understanding of the importance of native seed mixes and plants has improved. Nationwide, projects are being designed, built, and installed with native plants and seed mixes as an integral part of those projects. The landscape and erosion control industry has developed several categories of plantings such as "native plant establishment", "habitat establishment", and "restoration, and/or revegetation services" to support the trend toward native plant establishment.

There are multiple benefits of using native plant seed over more "traditional" seed, including:

- **Promotion of Biodiversity**: Native seed mixes contribute to the ecological balance of flora and fauna that have evolved in the geographic area. Natives perpetuate the relationships that exist between our native plants, the soils, and the many organisms that depend upon them for survival.

- **Time, Money, and Energy Savings**: When used wisely, native plants generally require less maintenance. Native plants are less expensive in the end and save energy because they do not have to be mowed or manicured as frequently as "conventional" lawn and plantings.

- **Natural Resources Conservation**: Since they are adapted to local soils, temperatures and rainfall patterns, native plants typically require less irrigation and fertilization than traditional plantings. This does not mean that native plants and seedlings don't require any water for establishment, but over time native flora will not have the demands of non-native plantings.

- **Wildlife:** Native plants are the best choice for attracting and nourishing native wildlife. Birds, mammals, butterflies and other wildlife enjoy the many characteristics that native plants provide. The National Wildlife Federation, The Audubon Society, and other wildlife conservation organizations are strong advocates for the use of native plants.

- **Education/Awareness:** The community as a whole learns that native plants, if used and managed correctly, can provide beauty and variety, as well as practical and functional landscapes. An appreciation is gained for the plants and animals that people see while hiking, camping, and traveling through an open natural area.

In recognition of these benefits, there has been efforts set forth by agencies such as the Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Department of

Conservation and Natural Resources (DCNR) to update specifications and lists to reflect a more native approach to vegetation management. The current edition of the E&S Manual includes recommended seed mixtures in Table 11.4 (Page 268). In the future DEP expects to revise this table to be consistent with initiatives by PennDOT and DCNR to recognize more native and non-invasive species and provide guidance on matching seed mixes with project objectives (e.g., uplands vs. wetlands). The reader is referred to PennDOT publications 408 (see Section 804 – Seeding and Soil Supplements) and 13M (see Chapter 13) and DCNR's Planting and Seeding Guidelines for additional information.

FAQ #16: How do I determine what seed mixture is appropriate throughout my project?

Each location at a site might need a different type of seed mix, and each seed mix should be evaluated individually. The first step is to determine the purpose and objective of the seeding. The type of seeding or planting should match the overall objectives. Stabilization of an aquatic resource, like a wetland, should be planted differently than an upland area. The type of seeding also depends on whether the area will be utilized as a PCSM BMP such as a detention basin, rain garden, or revegetation and soil restoration BMP. Seeding may also vary based on the degree of steepness on a slope.

As PennDOT updates their seeding specifications, DEP expects to take a similar action and update Table 11.5 (Page 269) of the E&S Manual.

FAQ #17: Crown-vetch is identified on the Department of Conservation and Natural Resources Invasive Plant List. Is it appropriate to plant crown-vetch?

Crown-vetch (*securigera varia)* is a useful species for stabilization of certain areas such as steep slopes. DCNR identifies crown-vetch as a significant threat invasive species on their Invasive Plant List. Currently, crown-vetch is identified under two (2) recommended seed mixtures in the E&S Manual. Those seed mixtures are recommended for areas that are not to be mowed and for gullies and other eroded areas. The E&S Manual also recommends that crown-vetch should not be used in areas adjacent to wetlands or stream channels, due to its invasive nature. These recommendations may change when DEP updates the E&S Manual.

FAQ #18: Is it appropriate to use non-native species and other invasive species in seed mixtures or plantings?

DEP recommends utilizing native and non-invasive species that are acclimated to Pennsylvania's climate and selecting species appropriate for the intended use (wetland plantings, riparian area plantings, temporary stabilization, BMP plantings, etc.).

DEP highly recommends avoiding the use of any species listed as a Severe Threat on DCNR's Invasive Plant List, and extreme care should be used when selecting a species listed as a Significant or Lesser Threat.

E&S BMPs

FAQ# 19: Is a forebay or turbidity barrier considered part of the volume of a sediment basin?

When a designer chooses to utilize a forebay or turbidity barrier in-lieu of the recommended minimum surface area of the sediment storage zone or the recommended flow length to width ratio, the volume of the forebay or turbidity barrier is considered part of the volume of the sediment basin.

FAQ #20: What elevation should the forebay crest be set at?

The forebay crest elevation is recommended to be set such that it is equal to the top of the sediment storage zone. If the forebay will be designed to have distinct spillway, as opposed to the entire forebay embankment being used as the spillway, the top of the forebay embankment should be set six (6) inches above the forebay's spillway elevation.

FAQ #21: Does the use of a forebay or turbidity barrier "stack"?

Yes. When a designer chooses to utilize a forebay or turbidity barrier in-lieu of the recommended minimum surface area of the sediment storage zone, that forebay or turbidity barrier can also be used in-lieu of the flow length to width ratio without any additional design. This is also the case for using a forebay or turbidity barrier in-lieu of the flow length to width ratio, where the recommended minimum surface area of the sediment storage zone does not have to be provided.

Version History

Date	Version	Revision Reason
10/16/2020	1.0	Original