



LUZERNE CONSERVATION DISTRICT

Erosion and Sediment Pollution Control (E&SCP) Plan Guide For Small Projects in Luzerne County

Plan Date:

Revision Date(s):

This *E&SCP Plan Guide For Small Projects in Luzerne County* provides a streamlined template to assist in developing an E&SCP plan for small, minor-impact grading projects (ex. fill site, single residential lot, etc.) that would meet the requirements of Pennsylvania's Chapter 102 Erosion & Sediment Control regulations.

Conditions for use of this guide:

- Total earth disturbance must be less than 1 acre (43,560 ft²) over the life of the project.
- The project will not disturb slopes over 10%.
- The project does not involve commercial or industrial development.
- Engineered structural E&SCP BMPs (sediment traps, sediment basins, etc.) are not proposed.
- Submissions not including a complete package (pages 1-19 of this document plus the District's 1-page E&SCP Project Application) will not be reviewed.
- The District may request more detailed plans (i.e. engineered E&S plans prepared by a licensed professional) based on scope of earthwork being proposed.

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Introduction

All earth disturbance activities in the Commonwealth of Pennsylvania are regulated by the requirements of the erosion and sediment pollution control regulations found in Title 25, Chapter 102 of the Pennsylvania Code. All earth disturbance activities, including those that disturb less than 5,000 square feet, must implement and maintain Best Management Practices (BMPs) to control erosion and sediment pollution.

A written Erosion and Sediment Pollution Control (E&SPC) Plan is required if one or more of the following apply: the total area of disturbance is 5,000 square feet or greater, or if the activity has the potential to discharge to a water classified as a High Quality (HQ) or Exceptional Value (EV) water published in Chapter 93 regulations (relating to water quality standards).

This document is intended to assist in the development of an E&SPC Plan where the total area of earth disturbance is less than 1 acre on slopes that are less than 10%. Soils in the Luzerne County Soil Survey that meet the slope guidelines have a three-letter abbreviation that ends in either an **A** or **B**. (example: AIB)

Some municipalities have local ordinances that require a written and approved E&SPC Plan even if the disturbance is less than 5,000 square feet. **It is recommended you contact your local municipality to determine whether a written plan is required under a local ordinance.**

Other agencies, such as the Pennsylvania Department of Environmental Protection (DEP), may require an E&SPC Plan be submitted to the conservation district office for review prior to construction of projects that impact waterways or wetlands. Please be aware that other federal, state and local approvals may be required, also. Contact DEP and the local municipality in which the construction is to take place to check on their requirements.

With this plan, homeowners and their earthmoving contractors should be able to develop an effective E&SPC plan for the grading of their lot, when conditions are as noted above. This plan, along with guidance by the conservation district office, will satisfy the Chapter 102 E&SPC requirements of the Pennsylvania Code.

If your project will disturb 1 or more acres, please contact the Luzerne Conservation District office. The Conservation District reserves the right to determine whether or not this guide is acceptable for any particular project, on a case-by-case basis.

TABLE OF CONTENTS

	Page
E&SPC Plan Narrative	4
Description of Erosion and Sediment Pollution Control Measures.....	6
Stabilization Methods	13
The Staging of Earthmoving Activities.....	15
Erosion and Sediment Pollution Control Plan Drawing	16
Appendix (Reference Materials)	18

E&SPC PLAN NARRATIVE

Please complete all sections.

1. GENERAL INFORMATION

A. Project Owner _____

Owner's Address _____

Owner's Phone _____

Owner's Email _____

B. Project Name _____

Project Address _____

Municipality _____

Has the municipality been contacted concerning this project? ____ Yes ____ No

(Please check with your local municipality regarding stormwater management, land development, and zoning requirements.)

Have you obtained a municipal stormwater management permit application for this project*? ____ Yes ____ No

If "No", please explain: _____

***NOTE: Stormwater management permits, when applicable, should be submitted to the District for reference only. The District does not review and approve municipal stormwater management permits. Permit reviews are conducted by the municipality.**

Total Site Area _____ (Acres or Square Feet)

Total Area to be Disturbed _____ (Acres or Square Feet)

Description of Project _____

C. Person(s) responsible for construction and maintenance of erosion and sediment pollution controls during earth disturbance activities:

Name _____

Address _____

Phone _____

- D. For new home construction within a larger development, you should locate a copy of the approved Erosion and Sediment Pollution Control Plan for that subdivision. Name of Development: _____

2. PROJECT SITE CHARACTERISTICS

A. Project Location/Topographic Map

Please include a copy of a U.S. Geological Services (USGS) topographic map that includes the approximate location of your project site drawn on the sheet. You can print a copy from your computer by accessing: <http://mapper.acme.com/> (Type in your property address in the search box on the bottom left of the screen. Then click "Topo" in the menu in the top right of the screen. Zoom in as close as the program will let you and click "Print".) Hardcopies of USGS topographic maps are also available at the conservation district's office.

- B. Name of Nearest Watercourse _____
(E.g. Toby Creek, wetland, roadside swale)

Chapter 93 classification of streams or other water bodies _____

(e.g. Cold Water Fishery (CWF), High Quality Cold Water Fishery (HQ-CWF), etc.)

Please refer to APPENDIX C. *Chapter 93 Stream Classifications* of this guide. It is also recommended that you check for classification updates in PA DEP's [Existing Use Designations for PA Water Bodies](http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf) list (found here: <http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf>).

Approximate Distance to Nearest Watercourse: _____ feet

Note: Earth disturbance or an obstruction or encroachment within 50 feet of a stream or other water of the Commonwealth may require additional permits or approvals by other agencies.

C. Types, Slopes, & Locations of Soil:

A soils map and soil characteristic information should be included with this guide. It is recommended that the map and related information be created and printed using the USDA Web Soil Survey:

<http://websoilsurvey.nrcs.usda.gov/>.

Are hydric soils or soils which may have hydric inclusions present on your site (see below)? ____ Yes ____ No

Luzerne County Soils that are Hydric and/or have Hydric Inclusions:

<i>Alluvial Land</i>	<i>Chenango</i>	<i>Mardin</i>	<i>Volusia</i>
<i>Alvira</i>	<i>Chippewa</i>	<i>Morris</i>	<i>Wayland</i>
<i>Atherton</i>	<i>Holly</i>	<i>Muck</i>	<i>Weikert</i>
<i>Basher</i>	<i>Kedron</i>	<i>Oquaga</i>	<i>Wellsboro</i>
<i>Bath</i>	<i>Klinesville</i>	<i>Pope</i>	<i>Wurstboro</i>
<i>Braceville</i>	<i>Lackawanna</i>	<i>Rexford</i>	<i>Wyoming</i>
<i>Buchanan</i>	<i>Linden</i>	<i>Shelmadine</i>	

Note: The presence of hydric soils may indicate that you have regulated wetlands on your property. The PA DEP Factsheet titled *CLUES TO WETLAND IDENTIFICATION: QUESTIONS FOR DEVELOPERS, CONTRACTORS, SURVEYORS*,

FARMERS AND LAND OWNERS (included at the end of this guide) will help in identifying if wetlands are available on your site. It is recommended that earth disturbance and construction activities be planned well away from possible wetlands. Impacts to wetlands will likely require additional permits or approvals by other agencies. A wetland delineation by an environmental consultant is recommended if hydric soils are present and project activities are planned in or near possible wetlands.

D. Site Drainage & Runoff:

Prior to the start of the project, does offsite or upslope drainage exist? _____
(E.g. existing pipes, drainage swales, etc. that discharge to or flow on/through the property)

Will runoff from above the project site present problems or need to be controlled during construction?
_____ Yes _____ No

Will the completion of your project increase storm water runoff volume or channelize stormwater runoff?
_____ Yes _____ No

Note: If you indicated “yes” to the questions under D above, this runoff must be addressed in your E&SPC Plan.

Please include a copy of your stormwater management permit application and authorization, if applicable, for controlling post construction stormwater per your local municipality’s Stormwater Management Ordinance.

E. Slopes

What is the existing percent slope on the project site: _____%

Note: If greater than 10% slopes are to be disturbed, please contact the District regarding the use of this guide.

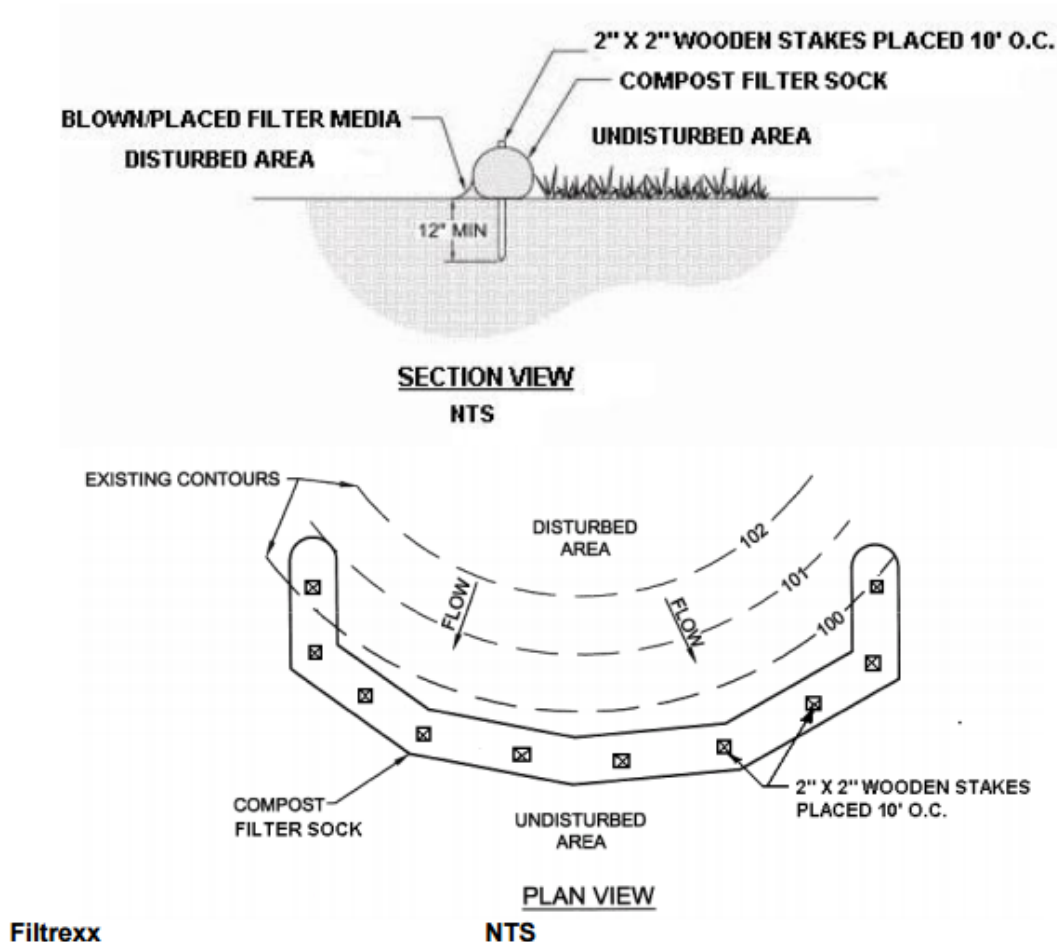
DESCRIPTION OF EROSION AND SEDIMENT POLLUTION CONTROL MEASURES

The standard Best Management Practice (BMP) drawings (Sections A-H) on the following pages have been provided to assist you in fulfilling the requirements of this plan. If you plan to use any of these recommended BMPs, please check the appropriate boxes for each Section and show the location on the sketch plan. If you plan to use alternative BMPs, you must provide drawings showing the details and specifications. Additional E&S BMPs, specifications, construction details, etc. can be found in *PADEP’s Erosion and Sediment Pollution Control Program Manual, March 2012, Technical Guidance Number 363-2134-008*.

A. Compost Filer Sock

Will this BMP be used? Yes____ No____

STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK



Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.

Traffic shall not be permitted to cross filter socks.

Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection.

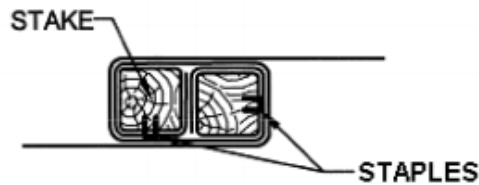
Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

B. Filter Fabric Fence

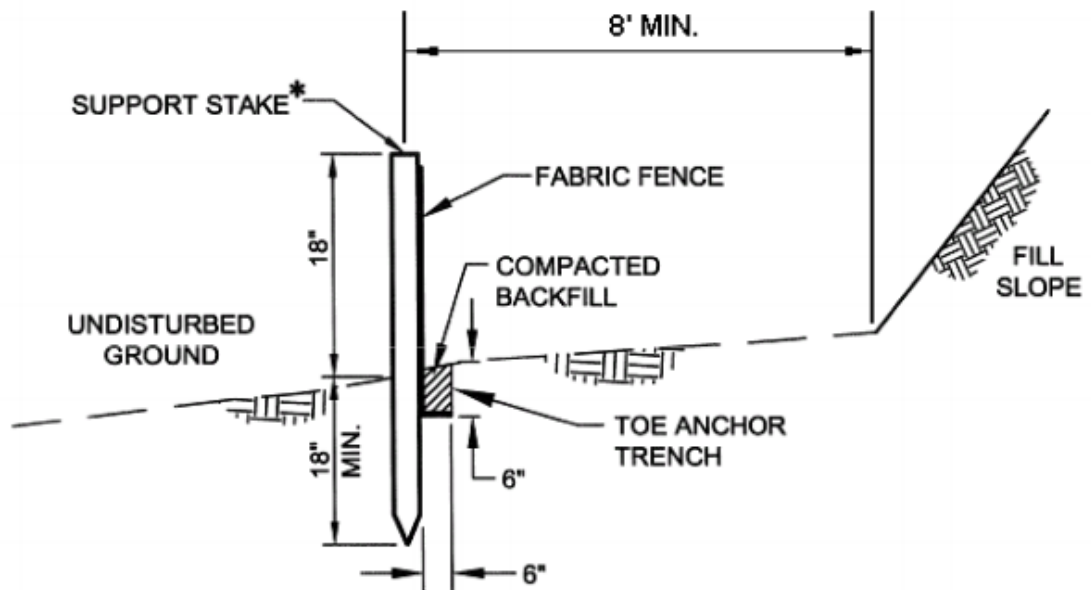
Will this BMP be used? Yes ☐ No ☐

STANDARD CONSTRUCTION DETAIL # 4-7 Standard Silt Fence (18" High)

*STAKES SPACED @ 8' MAX.
USE 2" x 2" ($\pm 3/8"$) WOOD
OR EQUIVALENT STEEL
(U OR T) STAKES



JOINING FENCE SECTIONS



ELEVATION VIEW

PA DEP

Fabric width shall be 30" minimum. Stakes shall be hardwood or equivalent steel (U or T) stakes.

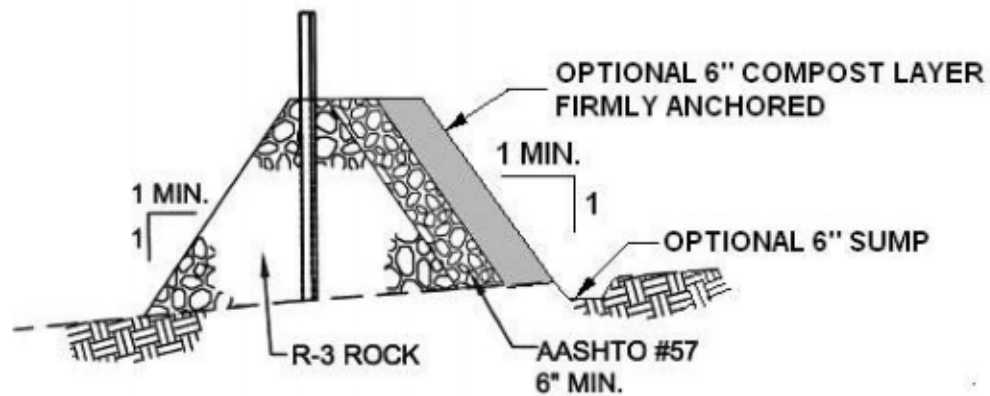
Silt fence shall be placed at level existing grade. Both ends of the fence shall be extended at least 8 feet up slope at 45 degrees to the main fence alignment.

Sediment shall be removed when accumulations reach half the aboveground height of the fence.

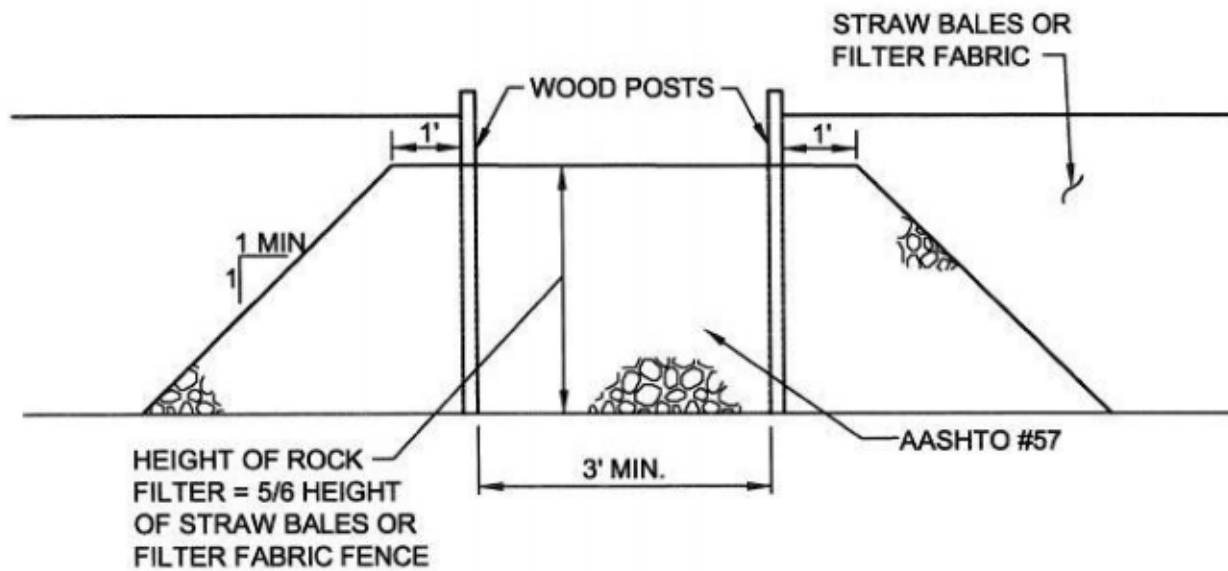
Any section of silt fence which has been undermined or topped shall be immediately replaced with a rock filter outlet (see Standard Construction Detail # 4-6 on next page).

Fence shall be removed and properly disposed of when tributary area is permanently stabilized.

STANDARD CONSTRUCTION DETAIL # 4-6 Rock Filter Outlet



OUTLET CROSS-SECTION



UP-SLOPE FACE

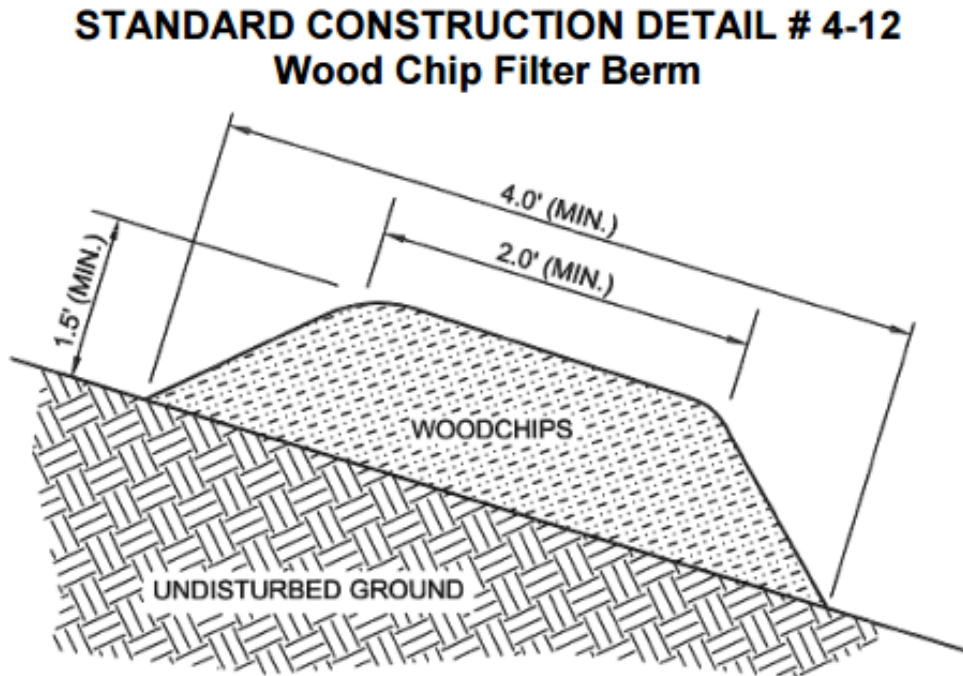
PA DEP

Rock filter outlets to be used for any section of silt fence which has been undermined or topped.

Sediment shall be removed when accumulations reach 1/3 the height of the outlet.

C. Wood Chip Filter Berm

Will this BMP be used? Yes____ No____



Adapted from Lebanon County Conservation district Conservation district

Prior to placement of the berm, obstructions such as tree limbs, large rocks, etc. shall be removed.

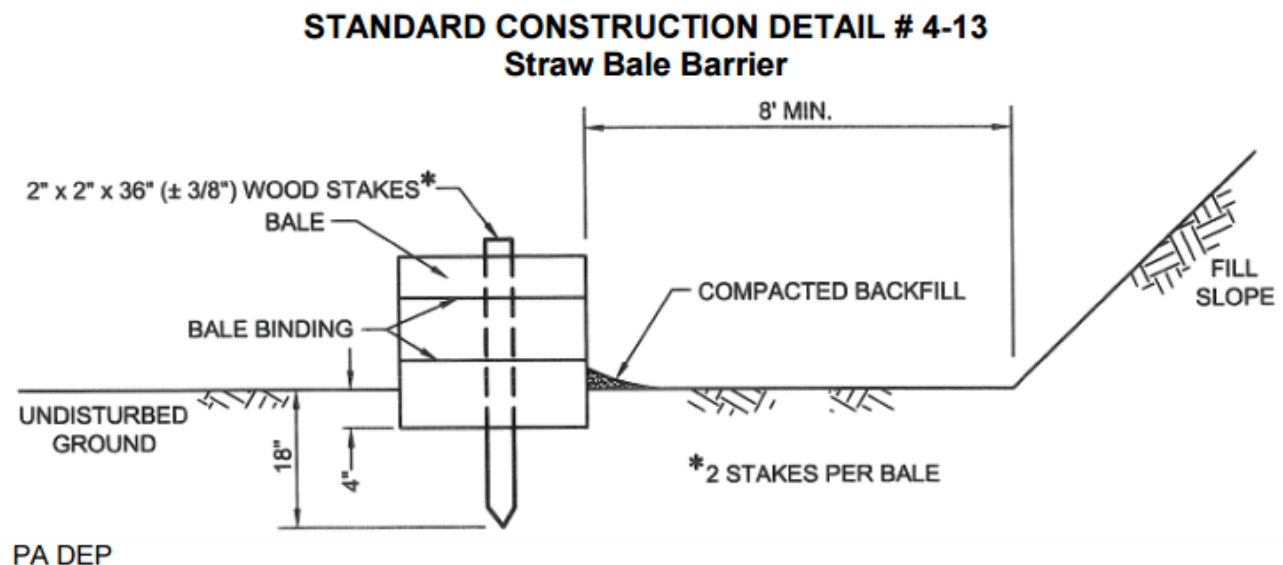
Wood chip filter berm shall be placed at existing level grade. Both ends of the berm shall be extended at least 8 feet up slope at 45 degrees to the main berm alignment. Wood chip berms shall not be located in areas of concentrated flow or used to construct sediment traps or other impoundments.

Berms shall be inspected weekly and after each runoff event. Sediment shall be removed when accumulations reach half the height of the berm. Damaged or deteriorated portions of the berm shall be replaced immediately upon inspection.

Berms may be leveled when the tributary area has been permanently stabilized or left in place.

D. Straw Bale Barrier

Will this BMP be used? Yes ☐ No ☐



Straw bale barriers shall not be used for projects extending more than 3 months.

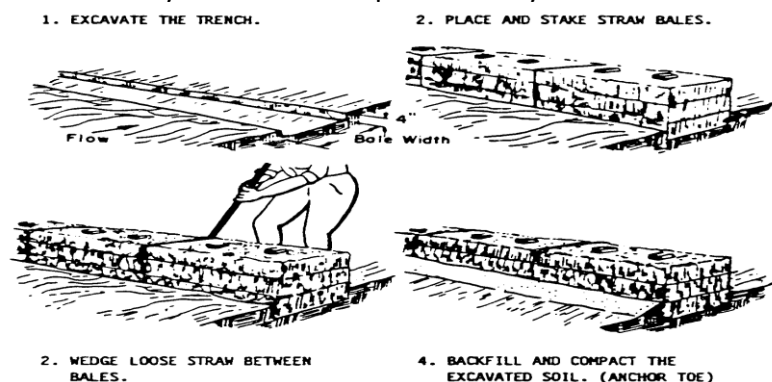
Straw bale barriers shall be placed at existing level grade with ends tightly abutting the adjacent bales. First stake of each bale shall be angled toward adjacent bale to draw bales together. Stakes shall be driven flush with the top of the bale (see Figure 4.4). Both ends of the barrier shall be extended at least 8 feet up slope at 45 degrees to the main barrier alignment (see Figure 4.1).

Compacted backfill shall extend approximately 4 inches above ground level.

Sediment shall be removed when accumulations reach $1/3$ the aboveground height of the barrier. Damaged or deteriorated bales shall be replaced immediately upon inspection.

Any section of straw bale barrier which has been undermined or topped shall be immediately replaced with a rock filter outlet (Standard Construction Detail # 4-6).

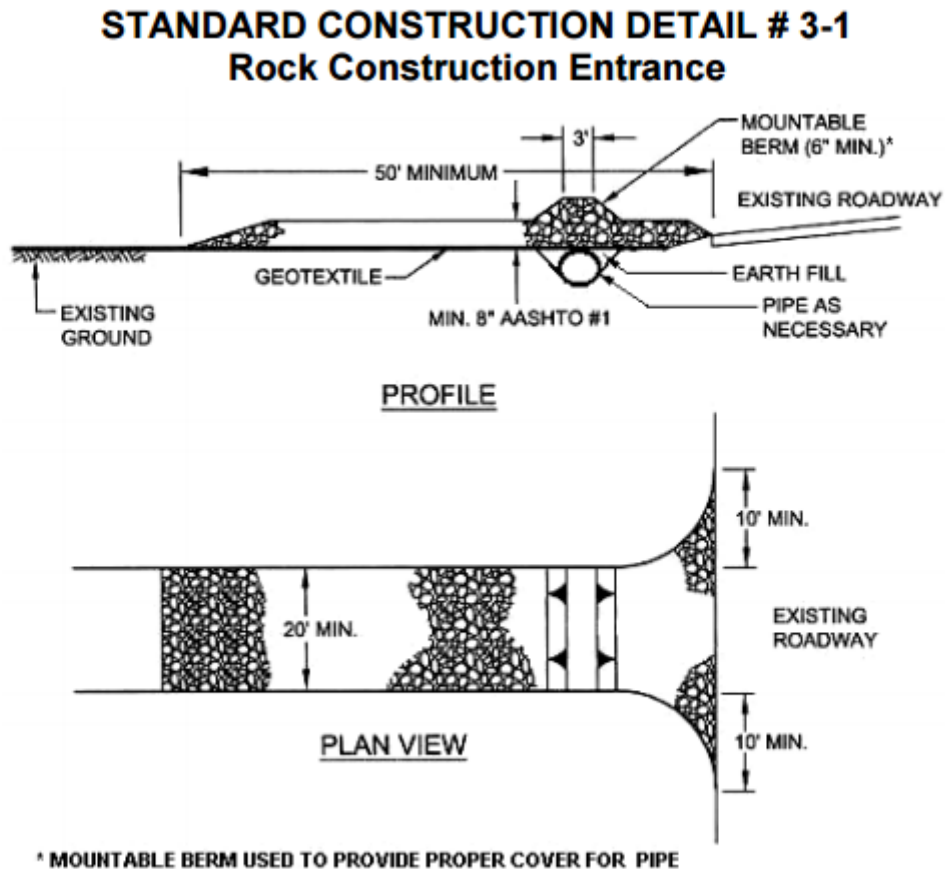
Bales shall be removed when the tributary area has been permanently stabilized.



E. Stabilized Rock Construction Entrance

The purpose of this is to remove mud from tires and keep it from being tracked onto public roadway. Construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock.

Will this BMP be used? Yes___ No___



Modified from Maryland DOE

Remove topsoil prior to installation of rock construction entrance. Extend rock over full width of entrance.

Runoff shall be diverted from roadway to a suitable sediment removal BMP prior to entering rock construction entrance.

Mountable berm shall be installed wherever optional culvert pipe is used and proper pipe cover as specified by manufacturer is not otherwise provided. Pipe shall be sized appropriately for size of ditch being crossed.

MAINTENANCE: Rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. All sediment deposited on paved roadways shall be removed and returned to the construction site immediately. If excessive amounts of sediment are being deposited on roadway, extend length of rock construction entrance by 50 foot increments until condition is alleviated or install wash rack. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable.

F. Temporary and Permanent Stabilization

↑

Prior to the completion of the project, state regulations require that the project site be **permanently** stabilized with a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Descriptions of revegetation should include the seeding mixture to be used, topsoil application, lime, fertilizer and mulch application rates. Cessation of earth disturbance activities for at least 4 days requires **temporary** stabilization.

TEMPORARY SEEDING & MULCHING

SEED*: -10 lbs per acre Annual Ryegrass (anytime) OR
 -64 lbs per acre Spring Oats (spring) OR
 -90 lbs per acre Winter Wheat (fall) OR
 -50 lbs per acre Winter Rye (fall)

MULCH: Clean straw or hay mulch applied at 3 tons/acre. Straw/hay mulch should be anchored or tackified after application to prevent being windblown. Tackifiers (polymeric, gum, cellulose fiber, etc.) should be applied according to manufacturer's recommendations. Alternatively, a heavy disk harrow with the blades set straight may be used to press some of the hay or straw stems into the soil. Mulch may also be held in place by commercial netting.

LIME: 1 ton per acre (40 lbs per 1,000 ft²) ground agricultural limestone

FERTILIZER: 500 lbs per acre (12.5 lbs per 1,000 ft²) of 10-10-10 fertilizer

PERMANENT SEEDING & MULCHING

Soil testing is recommended prior to permanent seeding and mulching to determine the proper soil amendments and application rates to support vegetative growth. Soil test kits may be obtained from the county Cooperative Extension Service office. Please submit soil test results to the District if available. In the absence of a soil test, soil amendments should be added per the application rates below.

TOPSOIL: At least 6" of raked topsoil.

SEED*: -35 lbs per acre Fine Fescue (sun or shade) OR
 -60 lbs per acre Turf-type Tall Fescue (sun to moderate shade) OR
 -15 lbs per acre Turf-type Perennial Ryegrass (sun) OR
 -30 lbs per acre Tall Fescue + 6 lbs per acre Birdsfoot Trefoil (sloped areas)

A nurse crop may be necessary if the selected species do not rapidly germinate. If a nurse crop is used in conjunction with permanent seeding, the nurse crop should not hinder the establishment of permanent vegetation. A nurse crop should not be applied at a rate exceeding 50% of the temporary seeding rates above.

MULCH: Same as Temporary Seeding & Mulching above.

LIME: 6 tons per acre (240 lbs per 1,000 ft²) ground agricultural limestone

FERTILIZER: 1,000 lbs per acre (25 lbs per 1,000 ft²) of 10-10-20 fertilizer

*All seed mixtures are shown in terms of Pure Live Seed (PLS). To calculate PLS from your seed lot/bag, multiply the percentage of pure seed by the percentage of germination, and divide the product by 100. Thus: (85% pure seed x 72% germination) ÷ 100 = 61% PLS. Note that pure seed and germination percentages can be found on the seed tags.

To determine how much actual seed to plant, divide the percentage PLS into 100. Thus, in our example, $100 \div 61 = 1.6$. Hence, 1.6 pounds of seed with a purity of 85% and a germination of 72% would need to be planted for each pound specified in the desired seed mixture. If 10 lbs/A of annual ryegrass is required, $10 \times 1.6 = 16$ lbs/A of seed must be applied.

Will the above temporary and permanent stabilization specifications be used? _____ Yes _____ No

If "No," fill out the below with proposed stabilization specifications.

(TEMPORARY)

SPECIES: _____
 % PURE LIVE SEED: _____ %
 APPLICATION RATE: _____ LB./ACRE
 TYPE: _____ (X-X-X)
 FERTILIZER APPL. RATE: _____ LB./ACRE
 LIMING RATE: _____ T./ACRE
 MULCH TYPE: _____
 MULCHING RATE: _____ T./ACRE

(PERMANENT)

SPECIES: _____
 % PURE LIVE SEED: _____ %
 APPLICATION RATE: _____ LB./ACRE
 FERTILIZER TYPE: _____ (X-X-X)
 FERTILIZER APPL. RATE: _____ LB./ACRE
 LIMING RATE: _____ T./ACRE
 MULCH TYPE: _____
 MULCHING RATE: _____ T./ACRE
 ANCHOR MATERIAL: _____
 ANCHORING METHOD: _____
 RATE OF ANCHOR MATERIAL APPL.: _____ LB./ACRE
 SEEDING SEASON DATES: _____

G. Construction Sequence (List steps, numbering)

(See below for example.)

A construction sequence is a step-by-step description of a proposed earthmoving activity relating the various stages of construction to the BMPs that must be installed prior to each stage. It should also describe the conditions of stabilization that will exist prior to removal of temporary BMPs or the conversion to permanent stormwater management facilities as well as the process of converting those facilities.

Example:

THE STAGING OF EARTHMOVING ACTIVITIES

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

1. At least 7 days before starting any earth disturbance activities, the operator shall invite all contractors involved in those activities, the landowner, all appropriate municipal officials, the erosion and sediment control plan preparer, and the Conservation District to an on-site meeting. Also, at least 3 days before starting any earth disturbance activities, all contractors involved in those activities shall notify the Pennsylvania One Call System Incorporated at 1-800-242-1776 for buried utilities locations.
2. INSTALL Rock Construction Entrance (RCE) and Silt Fence 1 and 2 (SF1 & SF2).
3. After Stages 1 and 2 have been completed and stabilized, CONSTRUCT AND STABILIZE the lot improvements.
4. After Stage 3 has been completed and all areas have achieved final stabilization, REMOVE silt fence, straw bales, etc. and all accumulated sediment. IMMEDIATELY STABILIZE THE AFFECTED AREAS.
An area shall be considered to have achieved final stabilization when it has a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion.

H. Erosion and Sediment Pollution Control Plan Drawing:

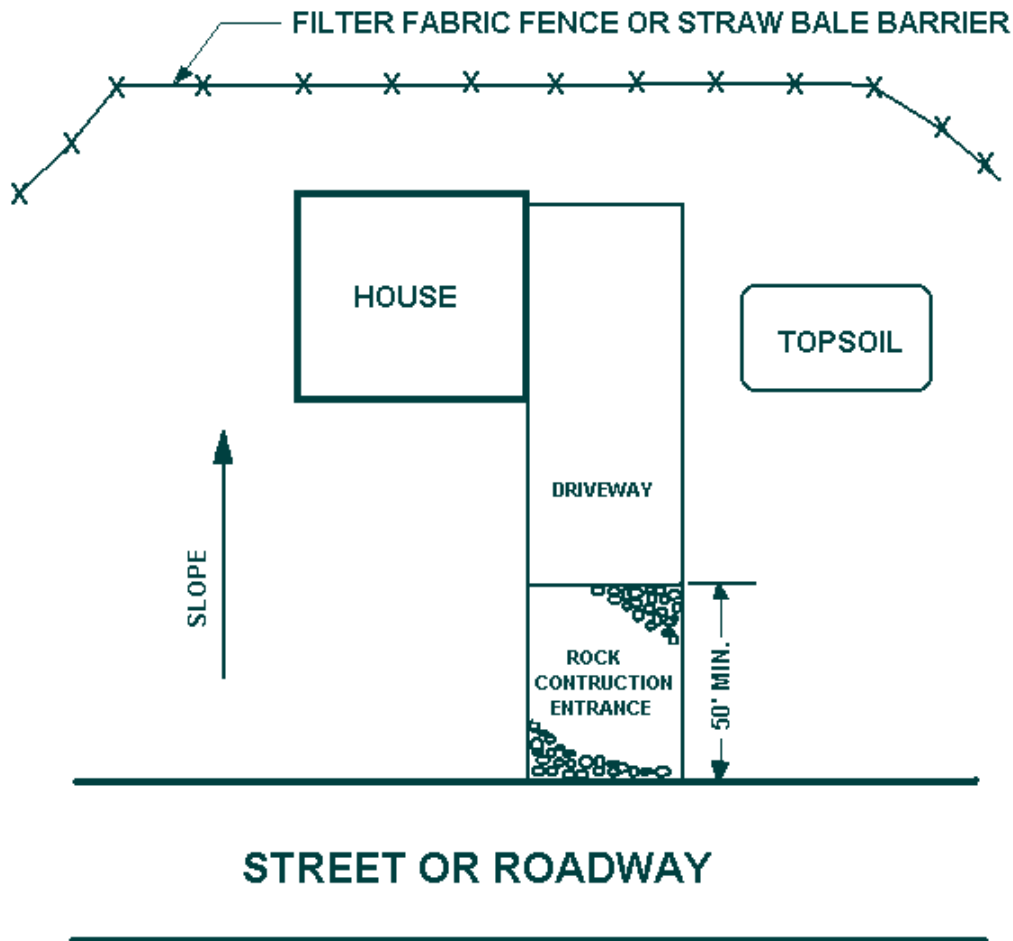
(See below for example.)



Include a sketched plan on the following page.

The District may request more detailed plans (i.e. engineered E&SPC plans) based on scope of earthwork being proposed.

Example:



Site Specific Erosion & Sediment Pollution Control Plan Drawing

APPENDIX (REFERENCE MATERIALS)

APPENDIX A: E&SPC PLAN CHECKLIST

Please provide the following on your E&SPC sketch plan and/or as part of your plan submittal:

1. EXISTING TOPOGRAPHIC FEATURES OF THE PROJECT SITE

- ☐ The existing topographic features of the project site and the immediate surrounding area are shown on maps included in the drawings.
- ☐ A location map has been provided (8.5" x 11" copy of USGS map with the outline of the project area).

2. THE TYPES, DEPTH, SLOPES, LOCATIONS OF THE SOILS

- ☐ Soils map with project area outlined has been provided.

3. CHARACTERISTICS OF THE EARTH DISTURBANCE ACTIVITY

- ☐ Limits of the project are shown on the plan map (i.e. line boundary for Total Project Area and Total Disturbed Area).
- ☐ Original and proposed contours or slope % are shown on the plan map.

4. THE LOCATION OF SURFACE WATERS WHICH MAY RECEIVE RUNOFF WITHIN OR FROM THE PROJECT SITE

- ☐ The location(s) of streams or other water bodies which may receive site runoff are shown on the plan map.
- ☐ The Chapter 93 classification of streams or other water bodies which may receive site runoff is provided.

5. THE LOCATIONS AND TYPES OF PERIMETER AND ON-SITE BEST MANAGEMENT PRACTICES (BMPs)

- ☐ Plan map shows locations of proposed temporary BMPs to control runoff and provide sediment removal.
- ☐ Plan map shows locations of proposed permanent BMPs to control erosion.
- ☐ Construction details and specifications for all proposed BMPs are included with the plan map.

6. Sequence of BMPs installation and removal

- ☐ A construction sequence has been provided with the plan map.

APPENDIX B: STANDARD E&SPC PLAN NOTES FOR SMALL PROJECTS (Please include in your plan submittal.)

1. Stockpile heights must not exceed 35 feet Stockpile slopes must be 2:1 or flatter.
2. The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented.
3. Until the site is stabilization, all erosion and sediment BMPs shall be maintained properly. Maintenance shall include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, and reseeding, remulching and renetting must be performed immediately.
4. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or the regional office of the Department.
5. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
6. All off-site waste and borrow areas must have an E&S plan approved by the local conservation district or the Department fully implemented prior to being activated.
7. All pumping of water from any work area shall be done through a pumped water filter bag over non-disturbed areas.
8. A copy of the approved erosion and sediment control plan must be available on site at all times during construction.
9. E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the local conservation district or the Department.
10. After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs shall be stabilized immediately.
11. At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, all appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of the critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on pre-construction meeting.
12. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
13. All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawing. Deviation from that sequence must be approved in writing from the local conservation district or by the Department prior to implementation.
14. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
15. Permanent stabilization is defined as a minimum uniform, perennial 70% vegetative cover or other permanent non- vegetative cover with a density sufficient to resist accelerated surface erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.
16. Hay or straw mulch must be applied at 3.0 tons per acre.
17. All sediment removed from BMPs shall be disposed of in a manner described on the plan drawings.
18. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1 et seq., and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped or discharged at the site.

APPENDIX C: CHAPTER 93 STREAM CLASSIFICATIONS

Stream (numbers indicate hydrological order)	Zone	County	Water Uses Protected*
2—Lehigh River	Basin, Source to Tobyhanna Creek	Luzerne-Monroe-Carbon	EV, MF
1—Susquehanna River	Main Stem, PA-NY State Border near Milltown to Lackawanna River	Luzerne	WWF, MF
2—Unnamed Tributaries to Susquehanna River	Basins, Wyalusing Creek to Lackawanna River	Bradford- Wyoming- Lackawanna- Luzerne	CWF, MF
3—South Branch Bowman Creek	Basin, Source to Confluence with North Branch	Luzerne	HQ-CWF, MF
3—North Branch Bowman Creek	Basin, Source to Confluence with South Branch	Luzerne	HQ-CWF, MF
3—Unnamed Tributaries to Bowman Creek	Basins, Confluence of South and North Branches to Mouth	Luzerne- Wyoming	HQ-CWF, MF
3—Bean Run	Basin	Luzerne	HQ-CWF, MF
3—Wolf Run	Basin	Luzerne	HQ-CWF, MF
3—Beth Run	Basin	Luzerne	HQ-CWF, MF
3—Butternut Run	Basin	Luzerne	HQ-CWF, MF
2—Dymond Creek	Basin	Luzerne	CWF, MF
2—Sutton Creek	Basin	Luzerne	CWF, MF
2—Lewis Creek	Basin	Lackawanna	CWF, MF
2—Gardner Creek	Basin	Luzerne	CWF, MF
2—Obendoffers Creek	Basin	Luzerne	CWF, MF
2—Hicks Creek	Basin	Luzerne	CWF, MF
2—Lackawanna River	Main Stem, SR 0347 Bridge to Mouth	Luzerne	CWF, MF
3—Unnamed Tributaries to Lackawanna River	Basins, SR 0347 Bridge to Mouth	Luzerne	CWF, MF
3—St. Johns Creek	Basin	Luzerne	CWF, MF
3—Red Spring Run	Basin	Luzerne	CWF, MF
2—Unnamed Tributaries To Susquehanna River	Basins, Lackawanna River to Mahoning Creek	Luzerne- Columbia- Montour- Northumberland	CWF, MF
2—Abrahams Creek	Basin	Luzerne	CWF, MF
2—Mill Creek (Warden Creek)	Basin	Luzerne	CWF, MF
2—Toby Creek	Basin, Source to Huntsville Creek	Luzerne	CWF, MF
3—Huntsville Creek	Basin	Luzerne	CWF, MF
2—Toby Creek	Basin, Huntsville Creek to the point where the stream is piped underground at Pringle	Luzerne	TSF, MF
2—Toby Creek	Basin, from the point where the stream is piped underground at Pringle to the Mouth	Luzerne	WWF, MF
2—Brown Creek	Basin	Luzerne	CWF, MF
2—Wadham Creek	Basin	Luzerne	CWF, MF
2—Coal Creek	Basin	Luzerne	CWF, MF
2—Solomon Creek	Basin, Source to Pine Creek	Luzerne	HQ-CWF, MF
3—Pine Creek	Basin	Luzerne	CWF, MF
2—Solomon Creek	Basin, Pine Creek to Mouth	Luzerne	CWF, MF
2—Warrior Creek	Basin	Luzerne	CWF, MF
2—Nanticoke Creek	Basin	Luzerne	CWF, MF
2—Harvey Creek	Basin, Source to Pikes Creek	Luzerne	HQ-CWF, MF
3—Pikes Creek	Basin	Luzerne	HQ-CWF, MF
2—Harvey Creek	Basin, Pikes Creek to Mouth	Luzerne	CWF, MF

2—Hunlock Creek	Basin	Luzerne	CWF, MF
2—Shickshinny Creek	Main Stem	Luzerne	CWF, MF
3—Unnamed Tributaries to Shickshinny Creek	Basins	Luzerne	CWF, MF
3—Culver Creek	Basin	Luzerne	CWF, MF
3—Reyburn Creek	Basin	Luzerne	CWF, MF
3—Little Schickshinny Creek	Basin	Luzerne	HQ-CWF, MF
2—Black Creek	Basin	Luzerne	CWF, MF
2—Turtle Creek	Basin	Luzerne	CWF, MF
2—Rocky Run	Basin	Luzerne	CWF, MF
2—Little Wapwallopen Creek	Basin	Luzerne	CWF, MF
2—Wapwallopen Creek (Big Wapwallopen Creek)	Basin	Luzerne	CWF, MF
2—Walker Run	Basin	Luzerne	CWF, MF
2—Salem Creek	Basin	Luzerne	CWF, MF
2—Nescopeck Creek	Basin, Source to PA 309 Bridge	Luzerne	HQ-CWF, MF
2—Nescopeck Creek	Main Stem, PA 309 Bridge to Mouth	Luzerne- Columbia	TSF, MF
3—Unnamed Tributaries to Nescopeck Creek	Basins, PA 309 Bridge to Mouth	Luzerne- Columbia	CWF, MF
3—Creasy Creek	Basin	Luzerne	CWF, MF
3—Little Nescopeck Creek	Basin	Luzerne	CWF, MF
3—Oley Creek	Basin, Source to farthest downstream crossing of State Game Lands No. 187 Border	Luzerne	HQ-CWF, MF
3—Oley Creek	Basin, Farthest down-stream crossing of State Game Lands No. 187 Border to Mouth	Luzerne	CWF, MF
3—Long Run	Basin	Luzerne	CWF, MF
3—Little Nescopeck Creek	Basin	Luzerne	CWF, MF
3—Black Creek	Basin	Luzerne	CWF, MF
3—Huntingdon Creek	Basin, Source to Kitchen Creek	Luzerne	HQ-CWF, MF
4—Kitchen Creek	Basin	Luzerne	HQ-CWF, MF
4—Unnamed Tributaries to Huntingdon Creek	Basins, Kitchen Creek to Mouth	Luzerne	CWF, MF
4—Rogers Creek	Basin	Luzerne	CWF, MF
4—Kingsbury Brook	Basin	Luzerne	CWF, MF
4—Pine Creek	Basin	Luzerne	CWF, MF
3—Unnamed Tributaries to Catawissa Creek	Basins, Source to Rattling Run	Luzerne-Schuylkill	CWF, MF
3—Hunkydory Creek	Basin	Luzerne	CWF, MF

***Water Uses Protected Symbols:**

Aquatic Life:

CWF Cold Water Fishes—Maintenance or propagation, or both, of fish species including the family Salmonidae and additional flora and fauna which are indigenous to a cold water habitat.

WWF Warm Water Fishes—Maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.

MF Migratory Fishes—Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which move to or from flowing waters to complete their life cycle in other waters.

TSF Trout Stocking—Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna which are indigenous to a warm water habitat.

Special Protection:

HQ High Quality Waters

EV Exceptional Value Waters

APPENDIX D: DEFINITIONS OF COMMONLY USED E&S TERMS:

AASHTO #1 Stone – A standard size range for Coarse Aggregate Stone ranging from ¾" to 4" in diameter.

Acre – A measure of area equal to 43,560 square feet (4,046.87 square meters). One square mile equals 640 acres.

Best Management Practice (BMP) – Activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this Commonwealth before, during and after earth disturbance activities.

Chapter 102 – The Department's regulations concerning Erosion and Sediment Control found in Chapter 102 of Title 25 of the Pa. Code.

Clean Streams Law (CSL) – (35 P.S. § 691.1 – 691.1001) Pennsylvania law passed in 1937 to preserve and improve the purity of the waters of the Commonwealth.

Construction Detail – A drawing of a BMP showing all critical dimensions and elevations.

Construction Sequence (aka BMP sequence) – A step by step description of a proposed earthmoving activity relating the various stages of construction to the BMPs that are to be installed prior to each stage. It should also describe the conditions of stabilization that will exist prior to removal of temporary BMPs or their conversion to permanent stormwater management facilities as well as the process of converting those facilities.

Contour – A line connecting points having the same elevation on a topographic map.

DEP or Department (The) – The Pennsylvania Department of Environmental Protection.

Disturbed Area – Unstabilized land area where an earth disturbance activity is occurring or has occurred.

Earth Disturbance Activity – A construction or other human activity which disturbs the surface of the land, including land clearing and grubbing, grading, excavations, embankments, land development, agricultural plowing or tilling, operation of animal heavy use areas, timber harvesting activities, road maintenance activities, oil and gas activities, well drilling, mineral extraction, and the moving, depositing, stockpiling, or storing of soil, rock or earth minerals.

Erosion – The loosening and removal by wind and/or water of soil and/or rock from its location and moving it to a place of deposition.

- **Accelerated Erosion** -----Erosion much more rapid than normal, primarily due to human activity
- **Geologic Erosion** -----The normal or natural erosion caused by geological processes acting over long periods of time, resulting in wearing away of mountains and building up of floodplains.
- **Gully Erosion** -----The erosion process whereby water accumulates in narrow channels over short periods, and removes the soil from this narrow area to considerable depths.
- **Natural Erosion** -----Wearing away of the earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc.
- **Normal Erosion** -----The gradual erosion of land use by man that does not greatly exceed natural erosion.
- **Rill Erosion** -----An erosion process in which numerous small channels only several inches deep are formed.
- **Sheet Erosion** -----The removal of a fairly uniform layer of soil from the land surface by stormwater runoff.
- **Splash Erosion** -----The spattering of small soil particles caused by the impact of raindrops on unprotected soil. The loosened particles are often removed by subsequent surface runoff.

Erosion & Sediment Pollution Control (E&SPC) Plan – A site-specific plan identifying BMPs to minimize accelerated erosion and sedimentation and which meets the requirements of 25 Pa. Code Chapter 102 regulations. For agricultural plowing or tilling activities, the E&SPC Plan is that portion of a conservation plan identifying BMPs to minimize accelerated erosion and sedimentation.

Filter Fabric – A manufactured water-permeable geotextile material — woven or non-woven — used to filter sediment from runoff coming from a disturbed area. It is typically made from synthetic products such as polypropylene.

Filter Fabric Fence or Silt Fence – A sediment barrier constructed from filter fabric attached to support stakes.

Hydric Soil – A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions. When such a soil present in an area that has hydrophytic vegetation and wetland hydrology, a wetland is present.

Limit of Disturbance – The boundary within which it is anticipated that earthmoving (including installation of BMPs) will take place.

Limiting Exposed Areas – 1. Minimizing the area to be disturbed by proposed earthmoving. 2. Minimizing the time period from initial disturbance to final stabilization.

Location Map – Map insert on Plan Drawings and in the Narrative showing the location of the project. A photocopy of the USGS Quad with the project outlined and the quad name provided is recommended.

Maintenance – The regular inspection of BMPs to ensure proper functioning and timely repairs to damaged BMPs.

- Mulch** – A natural or artificial layer of plant residue or other materials placed on the soil surface to protect seeds, prevent blowing, retain soil moisture, curtail erosion, aid in establishing plant cover, and minimize soil temperature fluctuations.
- Narrative** – The part of an E&SPC plan which contains the applicant and plan designer information, soil use limitations and resolutions, wetland identification and delineation information, supporting calculations, stream classification information and any other pertinent data not required to be on the plan drawings.
- Permanent Stabilization** – Long-term protection of soil and water resources from accelerated erosion.
- Plan Drawings** – The drawings used by a contractor to construct a project. In E&SPC Plans, these drawings should include maps, construction details and typicals, sequencing, maintenance information, seeding and mulching specs, and other information needed by the contractor to comply with the Department's rules and regulations.
- Potential Sediment Pollution** – Site conditions, such as a failure to install or maintain BMPs specified in the E&S Plan that if not corrected, could result in sediment pollution to surface waters if a design storm occurs.
- Pumped Water Filter Bag** – A bag manufactured from filter fabric and used to filter water pumped from a disturbed area prior to discharging it to Surface waters.
- Revegetation** – Reestablishing vegetative cover on ground that has been disturbed, such as a construction site.
- Rock Filter Outlet** – A sediment barrier constructed at points where concentrated flow is anticipated at a Filter Fabric Fence or Straw Bale Barrier or where concentrated flow has caused the failure of a barrier.
- Runoff** – That portion of a rainfall or snow melt which flows over the surface.
- Sediment** – Soils or other erodible materials transported by stormwater as a product of erosion.
- Sediment Barrier** – A permeable wall or fence constructed used to filter sediment out of runoff from a disturbed area.
- Sediment Pollution** - Discharging sediment to surface waters.
- Slope** – Deviation of a surface from horizontal measured in ratio, percent, or degrees, such as ft/ft with the first number typically being the horizontal distance [run] and the second the vertical [rise]. percent, or degrees.
- Soil Classification** – The systematic arrangement of soils into groups or categories based on their characteristics.
- Soil Map** – A map showing soil boundaries, such as those in the Soil Survey.
- Soil Survey** – A publication by the NRCS on a county-wide basis containing soil maps, soil descriptions, and tables of soil characteristics and limitations.
- Standard Construction Detail** – Typical details provided by the Department for use on Plan Drawings to provide information to contractors necessary to install BMPs according to Department standards.
- Standard Silt Fence** – 18" High Silt Fence. Also called a Standard Filter Fabric Fence.
- Stabilization** – The proper placing, grading, constructing, reinforcing, lining, and covering of soil, rock or earth to ensure their resistance to erosion, sliding or other movement.
- Straw Bale Barrier** – A sediment barrier constructed from stakes straw bales.
- Temporary Vegetation** – A vegetative cover — annual or perennial, but typically rapid growing annual grasses, small grains, or legumes — used to provide erosion protection to a disturbed area until active earthmoving resumes or permanent protection is provided.
- Vegetative Stabilization** – 1. A vegetative cover that has achieved a Uniform 70% Cover. 2. Protection of erodible soil in a disturbed area by the establishment of a uniformly thick, perennial vegetation that is erosion-resistant.
- Wetland** – 1. An area that meets the criteria — hydric soils, hydrophytic plants, and hydrology — set forth in the 1987 Corps of Engineers Wetlands Delineation Manual 2. An area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs and similar areas.

DEP Fact Sheet

Commonwealth of Pennsylvania - Department of Environmental Protection

CLUES TO WETLAND IDENTIFICATION: QUESTIONS FOR DEVELOPERS, CONTRACTORS, SURVEYORS, FARMERS, AND LAND OWNERS

Wetlands are areas where ground and/or surface water lingers for at least brief periods during the growing season

In Pennsylvania, wetlands are protected by both state and federal regulations and may also be protected by local (municipal) regulations or ordinances. Wetlands are valuable because they function in ways that benefit the natural world, including the human community (see DEP Fact Sheet, ***Wetlands: Functions at the Junctions***).

ARE WETLANDS PRESENT ON YOUR SITE? Make a walking inventory of fields, forests and woodlots. Ask the following questions:

Yes	No	
☐	☐	Are there open bodies of water, ponds, lakes, streams or reservoirs?
☐	☐	Are there natural drainage channels (permanent or temporary)?
☐	☐	Is the ground soggy or spongy under foot at any time during the growing season?
☐	☐	Are there "low spots" or depressions where water lies or pools for more than seven days during the growing season?
☐	☐	Are swales, springs or seeps present?
☐	☐	Are there areas you would not cross by vehicles, tractors or other machinery for fear or "getting stuck"?
☐	☐	Has the site been "ditched" or "tiled" in spots to "dry it out"?
☐	☐	Do some plants have roots growing from their stems, above the soil line?
☐	☐	Do you see these plants: cattails, sedges (frequently with triangular stems) iris (flags), arrowheads, joe pye weed, touch-me-not (jewelweed), rushes, sensitive fern, ironweed or skunk cabbage?
☐	☐	Do you see these trees or saplings: willows, red or silver maples, box elders, black or green ash, sycamore or black gum?
☐	☐	Are tree trunks expanded or swollen at the base?
☐	☐	Are any trees "blown down" (windthrows), exposing a shallow but extensive root system?
☐	☐	Are there any of these shrubs present: blueberry, bush-type dogwoods (for example, red osier), alders, buttonbush or spicebush?
		Do you see:
☐	☐	Cleared areas where water has scoured the surface and removed the plants?
☐	☐	Places where fallen leaves are discolored gray or black?
☐	☐	Silt/sedimentation deposits on decaying leaves lying on the ground, lining plant leaves, or on stems or tree trunks?
☐	☐	Drift lines (wrack lines) where sticks, leaves, and other water-carried debris have lodged along a contour or at the base of vegetation?

- ☐ ☐ Is there a dark-brown layer of organic matter, over two inches thick on the soil surface?
- ☐ ☐ Does sphagnum moss (a lush, green, juicy moss) cover the site?
- ☐ ☐ Is the soil composed primarily of peat (decaying sphagnum moss)?
- ☐ ☐ Does the soil smell like rotten eggs (sulfur)?
- ☐ ☐ Digging to a depth of 18 inches, is the soil gray, gray-blue, or gray-green, or marked with spots, streaks, or lines of different color? Note: In agricultural fields these characteristics are observed below the plow line.
- ☐ ☐ Does the soil test pit (a hole dug to 18 inches) fill with water or does water "trickle down the sides"?

If you have answered "Yes" to any of these questions, a wetland may be present on your project site or property. Further information/assistance is available. Seek the advice of professionals. Observe! Ask questions! Be alert to changes in state and federal regulations! Be aware of local regulations/ordinances! Seek professional advice at state, federal and private levels! **It is important to note that permits are normally needed before you perform any work in a wetland.** Contact: Regional Offices of DEP Soils and Waterways Section, DEP Water Quality Protection, your local county conservation district or the Natural Resource Conservation Service.

This fact sheet and related environmental information are available electronically via the Internet, Access the DEP website at

<http://www.dep.state.pa.us>

