Westmoreland Conservation District

E&S Errors & Updates

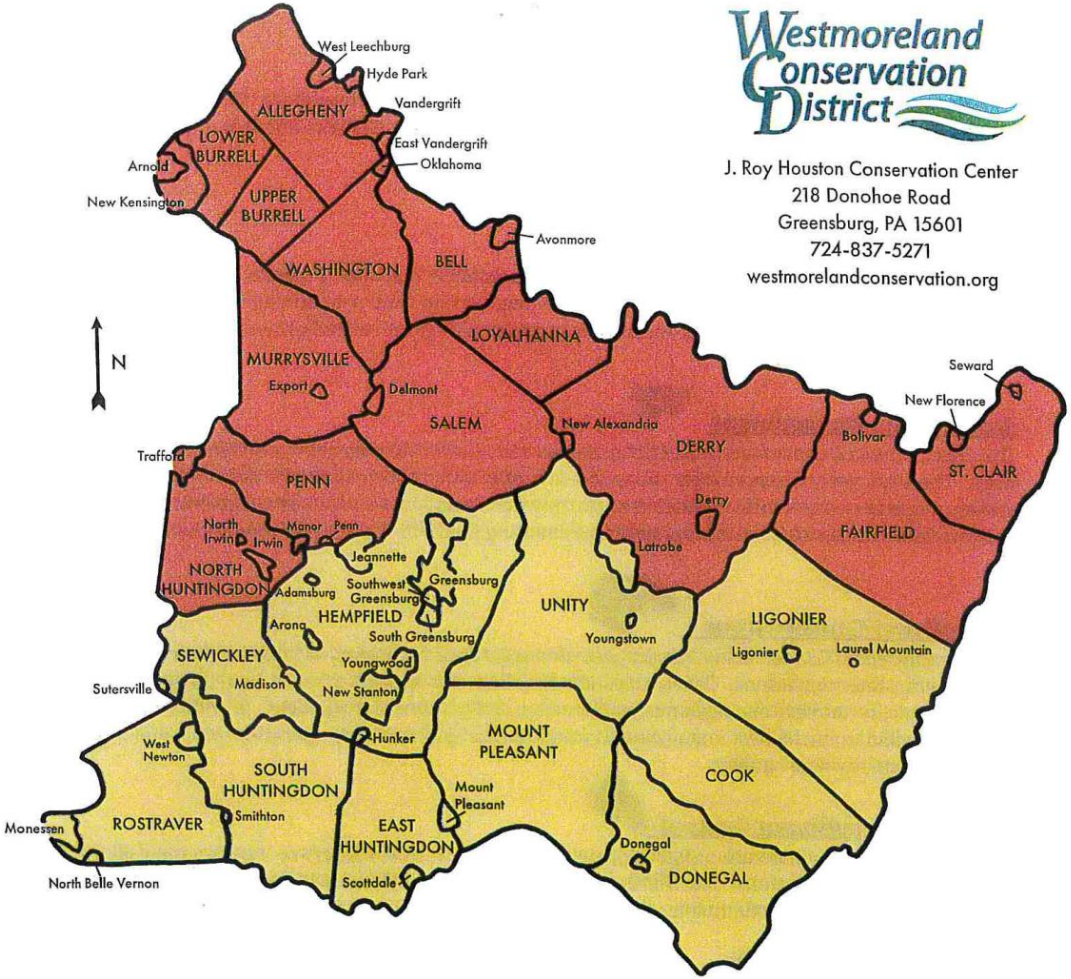
By Ryan Peckheiser & Jared Meharey, Erosion Control Specialists

E&S Basic Topics

- 5,000 sqft to 0.99 acres of earth disturbance = E&S plan
  - Check with township if they require WCD approval
- Over one acre = NPDES Permit

Ryan Peckheiser

Jared Meharey



Westmoreland Conservation District

Visual Site Inspection Reports

(VSIRs)

Visual Site Inspection Reports

- **<u>Only qualified inspectors can fill out VSIRs starting December 8th, 2025</u>**
- Training is available on <u>Clean Water Academy</u>
- Form has been <u>updated</u>. Required now

3800-FM-BCW0271d Rev. 12/2024
Inspection Report
Pennsylvania Department of Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

CHAPTER 102 VISUAL SITE INSPECTION REPORT

GENERAL INFORMATION

Project Site Name: _____ Permit No.: _____

Permit Type: ☐ PAG-01 ☐ PAG-02 ☐ Individual NPDES ☐ Individual E&S ☐ ESCGP

Approval Date: _____ Expiration Date: _____

Permittee Name: _____ Municipality: _____

Inspector Name: _____ County: _____

Inspector Firm: _____ Inspector Title: _____

Inspector Email: _____ Inspector Phone: _____

☐ The inspector named above is qualified *(check the appropriate box below)*

☐ DEP's Clean Water Academy Program ☐ CPESC ☐ CESSWI ☐ Other (equivalent)

INSPECTION INFORMATION

Inspection Date: _____ Inspection Time: _____ AM / PM Inspection No.: _____

Precipitation (Previous 24 hrs): _____ inch(es) Source: _____

Current Site Conditions: ☐ Active Earth Disturbance ☐ Fully Stabilized ☐ Snow Covered ☐ Other

Current Weather Conditions: ☐ Rain/Sleet/Snow ☐ Overcast ☐ Sunny/Partly Sunny

Inspection Type: ☐ Routine (Weekly) ☐ Post-Storm (≥ 0.25 inch) ☐ Corrective Action

INSPECTION CHECKLIST

Inspect all of the following areas of the project site. Check the box to certify these areas have been inspected and describe problems or deficiencies identified, if any. Use a separate sheet as necessary.

1. Areas that have been cleared and grubbed, graded, excavated, or otherwise disturbed and are not yet stabilized.
   - ☐ These areas have been inspected ☐ N/A (no areas on-site meet these conditions)
   - ☐ Areas are dormant for four (4) days or longer and are not temporarily stabilized.
   - ☐ Areas have been final graded but have not yet been stabilized.
   - ☐ All disturbances are being actively graded and are not yet ready for temporary or permanent stabilization.
2. BMPs/SCMs installed to comply with the permit (including site perimeter BMPs).
   - ☐ BMPs/SCMs have been inspected ☐ N/A (there are no BMPs/SCMs on-site at the time of inspection)
   - ☐ Photographs of BMPs/SCMs on-site are attached with a date/time stamp.
   - ☐ Photographs of all observed deficiencies are attached with a date/time stamp.
   - ☐ A BMP/SCM Inspection checklist has been completed and is attached for one or more BMPs/SCMs.

   Description of problems or deficiencies identified: ☐ No deficiencies identified

Westmoreland Conservation District

Erosion Potential Analysis

(EPA)

Erosion Potential Analysis (EPA)

3800-FM-BCW0271h Rev. 10/2024
Erosion Potential Analysis
Pennsylvania Department of Environmental Protection

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

EROSION POTENTIAL ANALYSIS FOR CHAPTER 102 PERMITS

DISCHARGE POINT (DP) ID: _____ ☐ **DURING** ☐ **FOLLOWING CONSTRUCTION**

Applicant Name: Project Site Name:

CONVEYANCE INFORMATION

Type of Conveyance:

☐ Existing channel/swale or other flow path that will be partially improved

☐ Existing channel/swale or other flow path that will not be improved

Distance to Property Boundary: ft Distance to Surface Water or Storm Sewer: ft

FLOW PATH INFORMATION

The entire flow path is shown on: ☐ E&S ☐ PCSM Plan Drawings

Plan Drawing No(s):

Description of land cover of flow path:

☐ Photographs of the flow path are attached.

Critical Section Data:

Peak discharge rate at 10-year/24-hour storm *(attach calculations or model output)*: cfs

Slope: % Soil type(s): Soil Erodibility (k) factor:

Maximum Allowable Velocity: fps Source:

Maximum Allowable Shear: psf Source:

Calculated Maximum Velocity: fps *(Attach calculations or model output)*

Calculated Maximum Shear: psf *(Attach calculations or model output)*

Source of topographic data for flow path:

☐ The flow path will be improved as described below.

Affected Landowners: ☐ Stormwater discharges will not flow off-site.

Landowner Name	Address	Phone No.	Email

☐ Landowner consent has been or will be obtained for stormwater discharges.

Name of Individual Completing Form Date

- Description of the flow path from a discharge point
- Must prove that the discharge path will be stable
- Was called **Off-Site Discharge Analysis**
- Provide photos of flow path as evidence of stability.

Westmoreland Conservation District

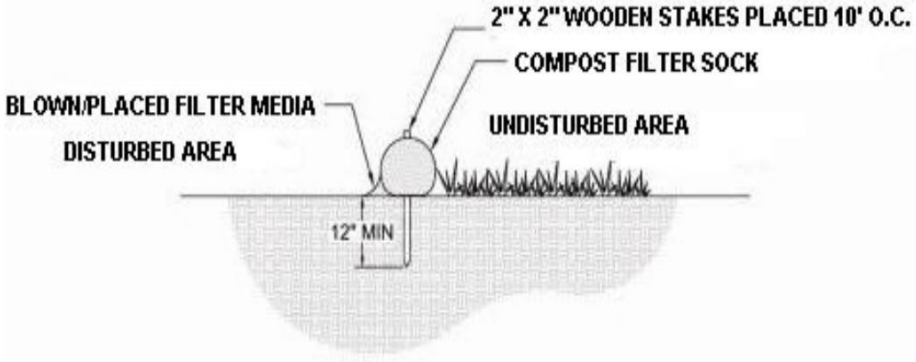
Completeness/Technical Review Errors

Common Completeness Review Errors

- **<u>Make sure to have updated forms</u>**
- Missing signatures and worksheets
  - Example: Worksheet #1 for Compost filter sock (CFS)
- <u>Official</u> County/Municipal notification forms

STANDARD E&S WORKSHEET #1
Compost Filter Socks

PROJECT NAME: _____
LOCATION: _____
PREPARED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____



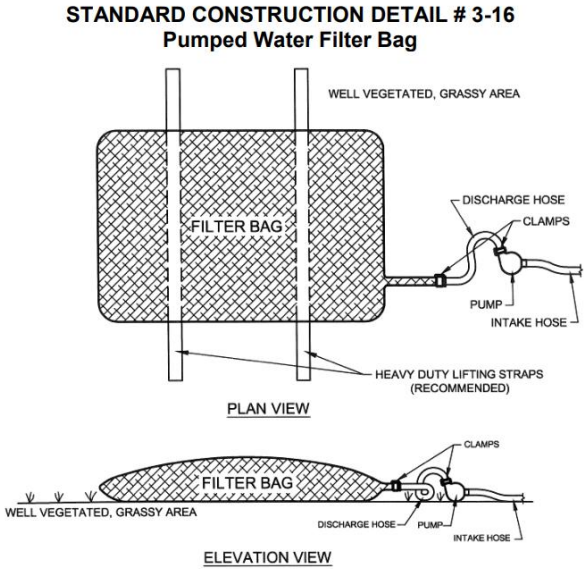
Common Technical Review Errors

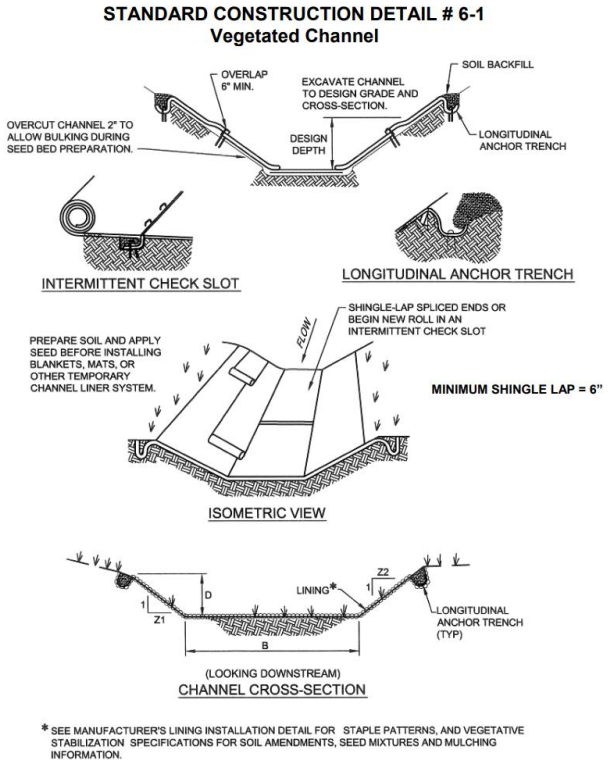
Taken by Dana Rukse

- CFS against contours.
- Not enough room for CFS maintenance
- Missing symbols on map sheet and legend
  - Concrete Washout

Common Technical Review Errors

- Housing/buildings on neighboring properties not shown
- Not providing permit boundary or LOD
- **Cluttered/hard to read maps**
- Missing E&S BMP details





Common Technical Review Errors

- Concrete washouts are not allowed within 50ft of **water bodies** and **inlets**
- Incorrect/missing calculations on worksheets:
  - **Channels**
  - **Basins**
- Basin measurement worksheets not matching with what's on E&S BMP sheets
  - **Elevations**
  - **Cleanout Stake**
  - **Spillway Dimensions**

Standard Worksheets: Channels

- Common values missed:
  - Temporary or permanent
  - Design Storm:
    - 2, 5, 10
  - Acres
  - Shear Stress measurements

STANDARD E&S WORKSHEET # 11
Channel Design Data

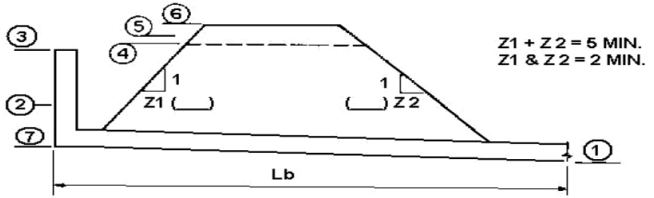
PROJECT NAME: _____
LOCATION: _____
PREPARED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

CHANNEL OR CHANNEL SECTION						
TEMPORARY OR PERMANENT?	(T OR P)					
DESIGN STORM	(2, 5, OR 10 YR)					
ACRES	(AC)					
MULTIPLIER	(1.6, 2.25, or 2.75)[1]					
Q_r (REQUIRED CAPACITY)	(CFS)					
Q (CALCULATED AT FLOW DEPTH d)	(CFS)					
PROTECTIVE LINING[2]						
n (MANNING'S COEFFICIENT)[2]						
V_a (ALLOWABLE VELOCITY)	(FPS)					
V (CALCULATED AT FLOW DEPTH d)	(FPS)					
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)					
τ_d (CALC'D SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)					
CHANNEL BOTTOM WIDTH	(FT)					
CHANNEL SIDE SLOPES	(H:V)					
D (TOTAL DEPTH)	(FT)					
CHANNEL TOP WIDTH @ D	(FT)					
d (CALCULATED FLOW DEPTH)	(FT)					
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)					
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)					
d_{50} STONE SIZE	(IN)					
A (CROSS-SECTIONAL AREA)	(SQ. FT.)					
R (HYDRAULIC RADIUS)						
S (BED SLOPE)[3]	(FT/FT)					
S_c (CRITICAL SLOPE)	(FT/FT)					
$.7S_c$	(FT/FT)					
$1.3S_c$	(FT/FT)					
STABLE FLOW?	(Y/N)					
FREEBOARD BASED ON UNSTABLE FLOW	(FT)					
FREEBOARD BASED ON STABLE FLOW	(FT)					
MINIMUM REQUIRED FREEBOARD[4]	(FT)					
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBLE VELOCITY (V) OR SHEAR STRESS (S)						

1. Use 1.6 for Temporary Channels; 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds; 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach appropriate Worksheets.
2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.
3. Slopes may not be averaged.
4. Minimum Freeboard is 0.5 ft. or ¼ Total Channel Depth, whichever is greater
5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% or greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

STANDARD E&S WORKSHEET # 13
Sediment Basin Dimensions and Elevations

PROJECT NAME: _____
LOCATION: _____
PREPARED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____



BASIN NUMBER			
1. DISCHARGE PIPE ELEVATION	(FT)		
2. ELEVATION AT TOP OF SEDIMENT STORAGE ZONE (@ Sd) (MIN. 1.0' ABOVE ELEVATION 7)	(FT)		
3. ELEVATION AT TOP OF DEWATERING ZONE (St) (CREST OF PRINCIPAL SPILLWAY)	(FT)		
4. EMERGENCY SPILLWAY CREST ELEVATION (MIN. 0.5' ABOVE ELEVATION 3)	(FT)		
5. 2 CFS/ACRE OR 25-YR/24-HR FLOW ELEVATION	(FT)		
6. TOP OF EMBANKMENT ELEVATION (MIN. 24" ABOVE ELEVATION 5 OR 12" WITH ROUTED 100-YR/24-HR STORM)	(FT)		
7. BASIN BOTTOM ELEVATION	(FT)		
AVERAGE BOTTOM WIDTH	(FT)		
AVERAGE BOTTOM LENGTH	(FT)		
(SA_{min}) REQUIRED SURFACE AREA AT ELEVATION 2	(SQ. FT.)		
SURFACE AREA PROVIDED AT ELEVATION 2	(SQ. FT.)		
AVERAGE BASIN WIDTH (W) AT ELEVATION 3	(FT)		
FLOW LENGTH (L) AT ELEVATION 3	(FT)		
FLOW LENGTH:WIDTH RATIO AT ELEVATION 3	(L/W)		
SILT CURTAIN OR FOREBAY? (IF YES, INDICATE WHICH)			
EMBANKMENT TOP WIDTH	(FT, 8' MIN.)		
EMBANKMENT SOIL TYPE(S)			
KEY TRENCH DEPTH	(FT, 2' MIN.)		
KEY TRENCH WIDTH	(FT, 4' MIN.)		
RISER DIAMETER/TYPE	(15" MIN.)		
BARREL DIAMETER/TYPE	(12" MIN.)		
Lb (BARREL LENGTH)	(FT)		
EMERGENCY SPILLWAY WIDTH	(FT)		
EMERGENCY SPILLWAY SIDE SLOPES	(H:V)		
EMERGENCY SPILLWAY DEPTH	(FT)		

For irregular shaped traps, provide stage storage data

Standard Worksheets: Basins

- Common values missed:
  - Basin number
  - Emergency Spillway information
  - Incorrect elevation values

Westmoreland Conservation District

On-Site Errors

Common On-Site Errors

- Damaged compost filter sock
- Filled/damaged inlet filter bags
- Temporary stabilization not being applied after 4 days
  - Work ceases in an area after 4 days.
- Rock construction entrances (RCE) not being maintained
- Erosion gullies along basins
- **Risers not being sealed properly**


2023/07/25 22:25


Inlet filter bag ripped open
2025/02/11 10:29


2023/09/19 11:28

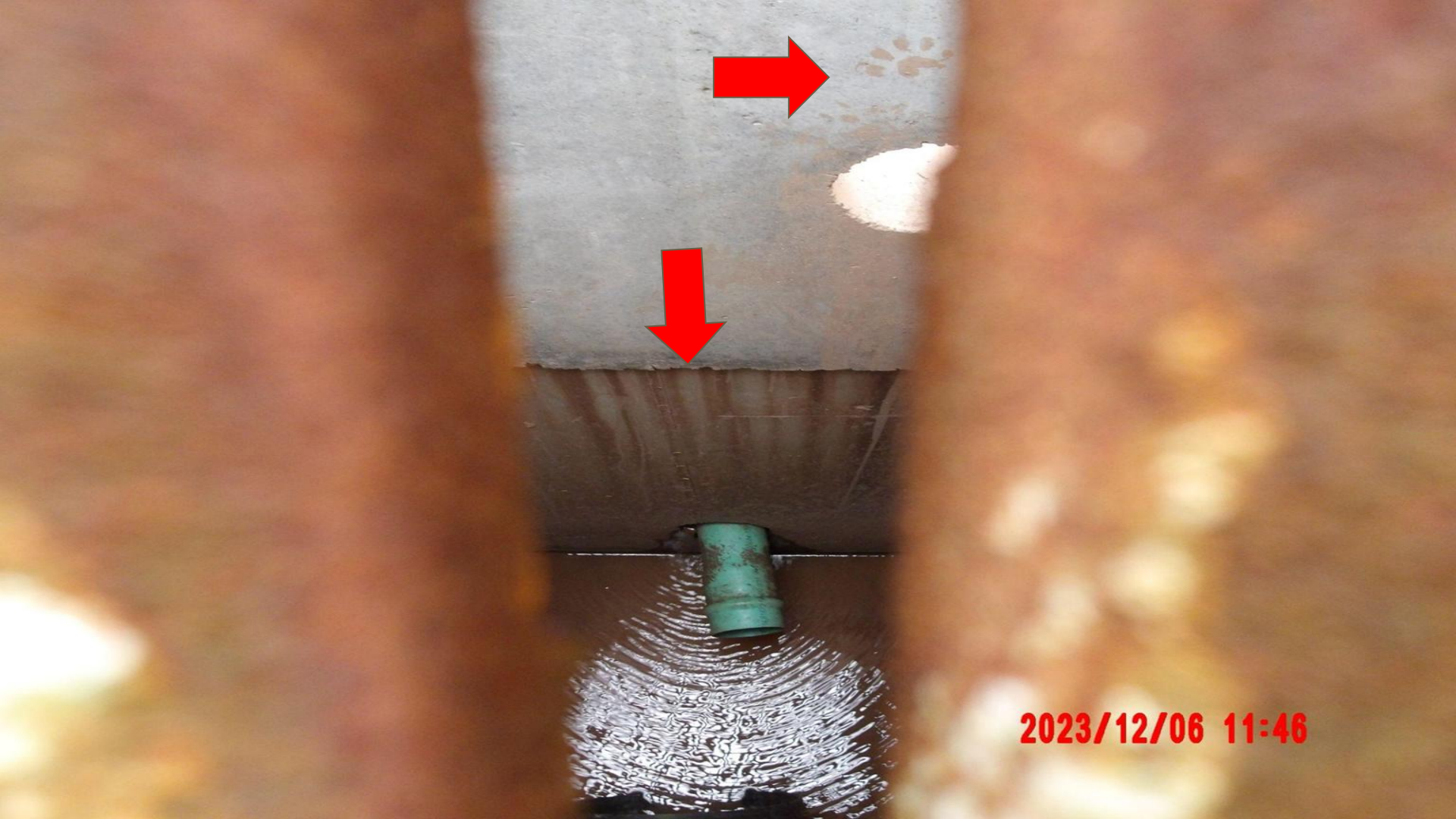

2023/12/14 14:05

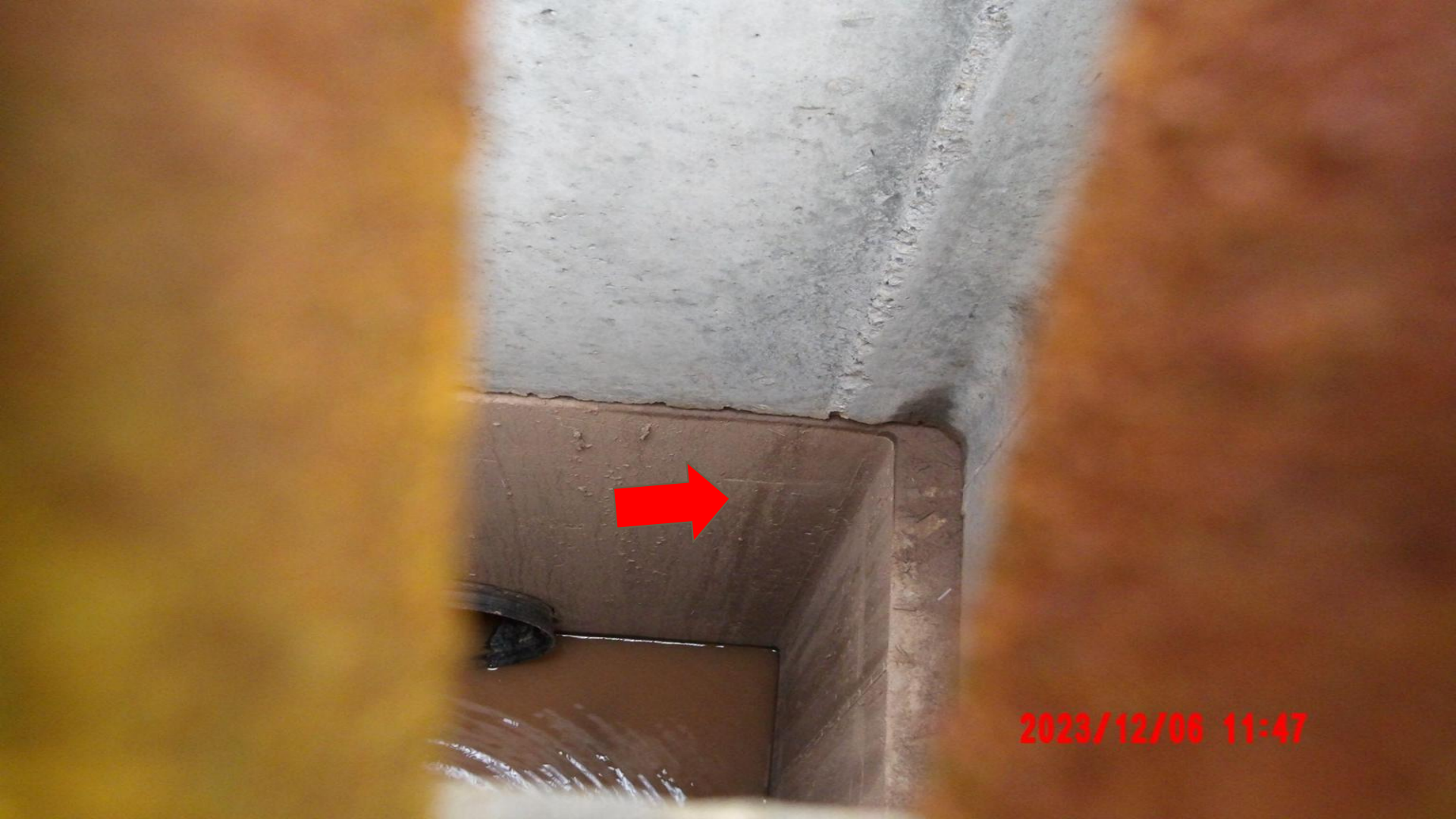

2023/12/14 14:05


2023/12/14 14:09


2023/12/06 11:46


2023/12/06 11:46


2023/12/06 11:46


2023/12/06 11:47


2025/02/11 10:39


Not sealed properly
2025/02/11 10:45


RCE not refreshed with clean/new stone
2024/12/18 10:44


2023/07/25 21:36


2023/11/09 12:48


VOLVO


2023/10/30 14:18


2023/10/30 14:18


2023/10/30 14:18


4X4
2023/10/30 14:18


2023/10/30 14:21


2023/10/23 14:03


2023/12/14 13:57

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Other On-Site Examples


2024/01/26 11:07


2023/07/21 02:00


2023/09/20 10:38

What a basin should look like when submitting NOT


2024/09/17 15:07


2023/11/09 12:30


2023/12/04 10:54

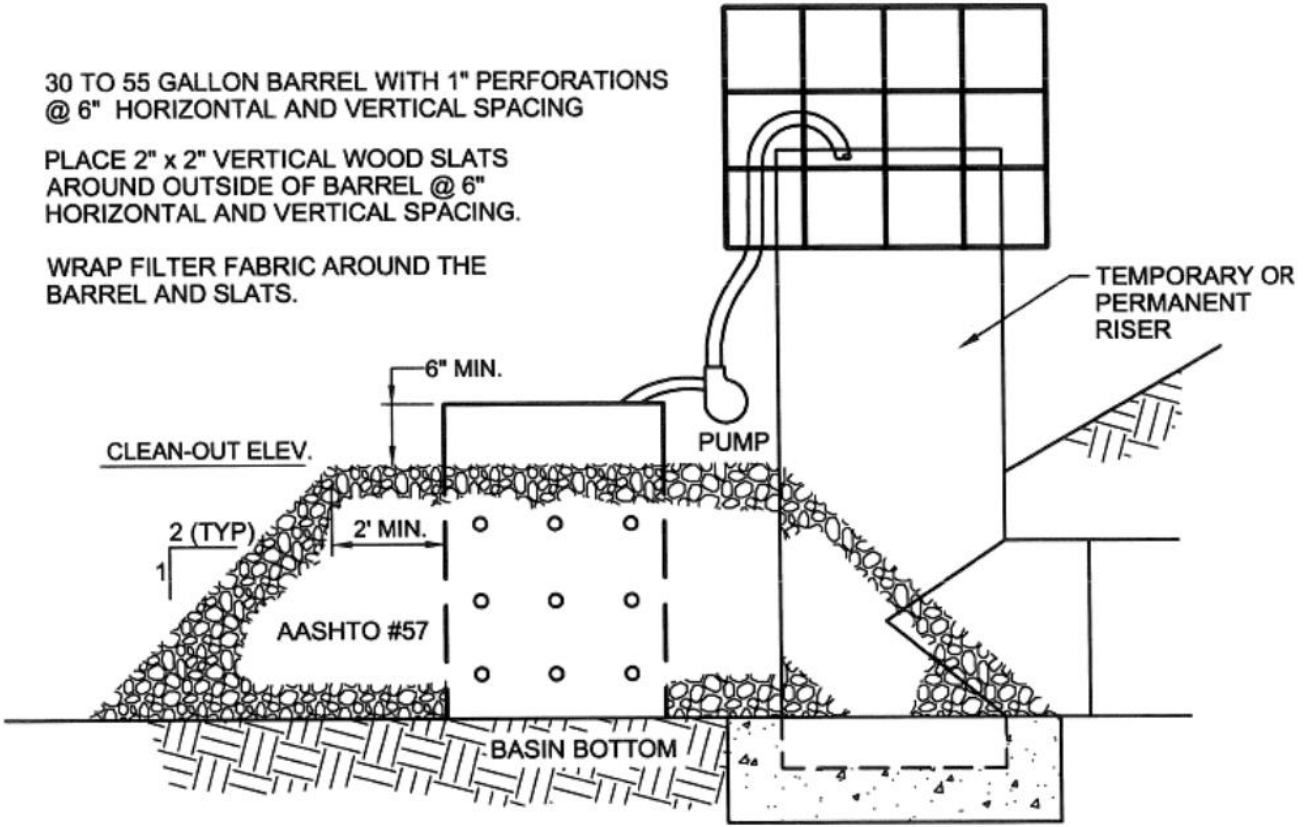
Westmoreland Conservation District

Basin Dewatering Facility

Basin Dewatering Facility

- 1” diameter holes from bottom to top
- Vertical wood slats around the barrel
- Wrapped with filter fabric
- Pump leading into temporary or permanent riser

STANDARD CONSTRUCTION DETAIL # 7-18
Sediment Basin or Sediment Trap Sediment Storage Dewatering Facility



Westmoreland Conservation District

Solar Farms

Solar Farms

- Solar Farm plan submissions on the uprise recently
- Solar Farm FAQ contains:
  - E&S
  - Stormwater

Image Source: Trib Live- As solar farms begin to blossom in region, some townships look to adopt regulations

Solar Farm Common Issues

- Vegetation:
  - ***Requires 90% uniform vegetative cover***
  - Hard to grow grass directly underneath panels
- Runoff:
  - Maintaining Sheet Flow
  - Trenches and roads catching the runoff

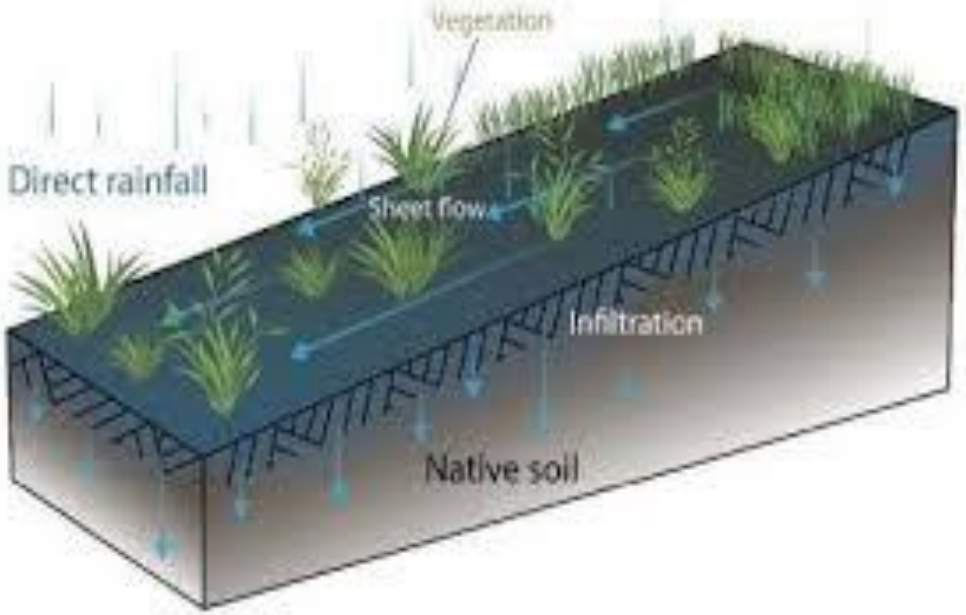


Image Source: Stormwaterhawaii.com

Solar Farm Common Issue Solutions

- Vegetation:
  - **Utilizing Growing Seasons/Weather Patterns**
    - Maintain/constantly apply seeding and straw to promote the best odds of growing vegetation
    - **Gravel**
      - Replacing vegetation underneath the panels with gravel creates less worries about achieving the **90% uniform vegetation cover**

Image Source: Milorganite.com

Solar Farm Common Issue Solutions

- <u>Runoff:</u>
  - **Diversions and Channels:**
    - Assist with moving any runoff away from earthwork
    - Use pumped water filter bags if water reaches trenches


Trouble growing grass underneath panels
2024/10/01 10:53

Trenches filled with water


Proper uniform vegetative cover.
2024/10/01 10:15

Westmoreland Conservation District

Common Plan of Development

Common Plan of Development

A **contiguous area** where **multiple separate and distinct construction activities** may be taking place at **different times** on different schedules under one common plan

Image source:
Levelarchitecture.co.uk/projects/feasibility

Common Plan of Development Examples

- Residential Developments
- County Business/Industrial Parks
- Does **NOT** include:
  - Timber Harvests
  - Road Maintenance
  - Agriculture
  - Oil & gas

Image source: westmorelandcountypa.gov/589/Industrial-Park-IV

Westmoreland Conservation District

Dust

Dust

- DEP Air Quality has **<u>jurisdiction</u>** over dust control
- Consider including dust control within E&S notes
- Ways to combat/prepare for dust:
  - <u>Water Trucks</u>
  - <u>Paying attention to weather patterns</u>

Westmoreland Conservation District

Differences between Field Changes and Minor/Major Amendments

Field Changes

- Small Change to E&S or PCSM plans
- Does not increase earth disturbance or effect the approach of stormwater management
- Referred to as “Red-Line Changes”

Field Change Examples

- Adding Compost Filter Sock or Silt Fence
- Changing locations of stockpile within Limit of Disturbance
- Altering the type or location of RCE
- **Slightly** shifting the location of a PCSM or E&S BMP

Minor Amendment

- Change to a plan on a smaller scale but are larger than Field Changes, also includes removing LOD
- Alterations to LOD up to a certain scale
    - LOD is less than 25 acres, must be ≤ 10%
    - LOD is greater than 25 acres, must be ≤ 2.5 acres
- Relocation of PCSM BMP that does not affect calculations

Minor Amendment Examples

- Moving a road which cause more earth disturbance but its under the requirement
- **Partial Terminations**
- Relocating a BMP/SCM to a new area

Major Amendment

- Similar to Minor Amendments but on a larger scale
  - LOD is less than 25 acres, must be ≥ 10%
  - LOD is 25 acres or greater, must be ≥ 2.5 acres
- Relocation of PCSM BMP that **does** affect calculations

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Clean Water

Chapter 102 Permitting for Solar Panel Farms

Frequently Asked Questions (FAQ)

January 2, 2019
Revised, April 30, 2021
Version 1.1

Background

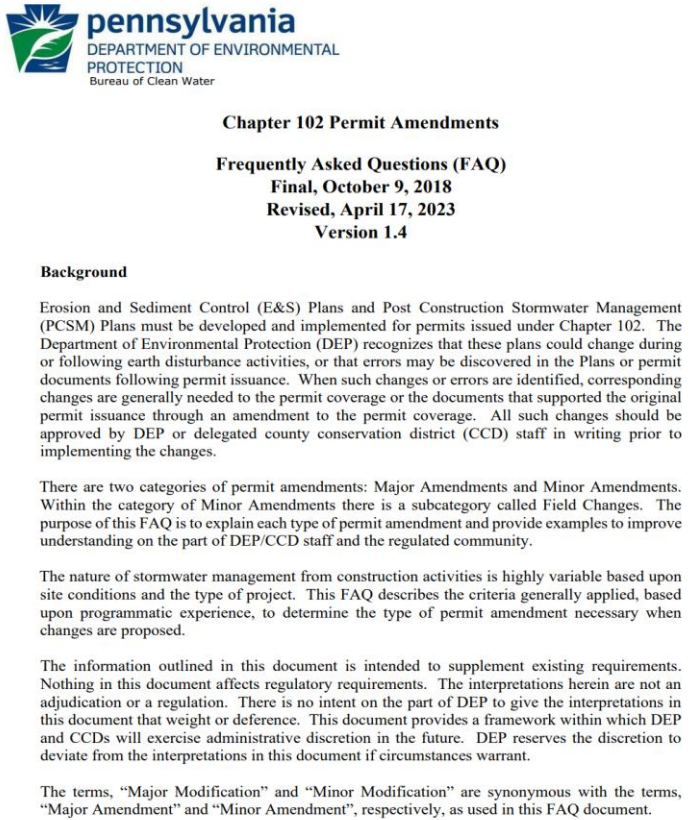
With renewed interest in the development of clean, renewable energy in Pennsylvania, the development of solar photovoltaic installations is increasing in the state. Responsible development of solar farms must balance the growth of this valuable industry with the need to protect our natural resources, including addressing issues related to stormwater runoff. This FAQ document was developed to clarify the Department of Environmental Protection's (DEP's) interpretations concerning applicability and implementation of National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges associated with construction activities, including erosion and sediment control (E&S) and post-construction stormwater management (PCSM) for solar panel farms. This document provides recommended guidance for ground level solar projects with one acre or greater of earth disturbance.

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.

For additional information on solar energy, visit the Solar Energy Resource Hub on the DEP website.

DEP Solar FAQ

DEP Field Change and Minor/Major Amendment FAQ



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Bureau of Clean Water

Chapter 102 Permit Amendments

Frequently Asked Questions (FAQ)
Final, October 9, 2018
Revised, April 17, 2023
Version 1.4

Background

Erosion and Sediment Control (E&S) Plans and Post Construction Stormwater Management (PCSM) Plans must be developed and implemented for permits issued under Chapter 102. The Department of Environmental Protection (DEP) recognizes that these plans could change during or following earth disturbance activities, or that errors may be discovered in the Plans or permit documents following permit issuance. When such changes or errors are identified, corresponding changes are generally needed to the permit coverage or the documents that supported the original permit issuance through an amendment to the permit coverage. All such changes should be approved by DEP or delegated county conservation district (CCD) staff in writing prior to implementing the changes.

There are two categories of permit amendments: Major Amendments and Minor Amendments. Within the category of Minor Amendments there is a subcategory called Field Changes. The purpose of this FAQ is to explain each type of permit amendment and provide examples to improve understanding on the part of DEP/CCD staff and the regulated community.

The nature of stormwater management from construction activities is highly variable based upon site conditions and the type of project. This FAQ describes the criteria generally applied, based upon programmatic experience, to determine the type of permit amendment necessary when changes are proposed.

The information outlined in this document is intended to supplement existing requirements. 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 CCDs will exercise administrative discretion in the future. DEP reserves the discretion to deviate from the interpretations in this document if circumstances warrant.

The terms, “Major Modification” and “Minor Modification” are synonymous with the terms, “Major Amendment” and “Minor Amendment”, respectively, as used in this FAQ document.

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