NPDES PAG-02 Update

October 16, 2020

Westmoreland Conservation District

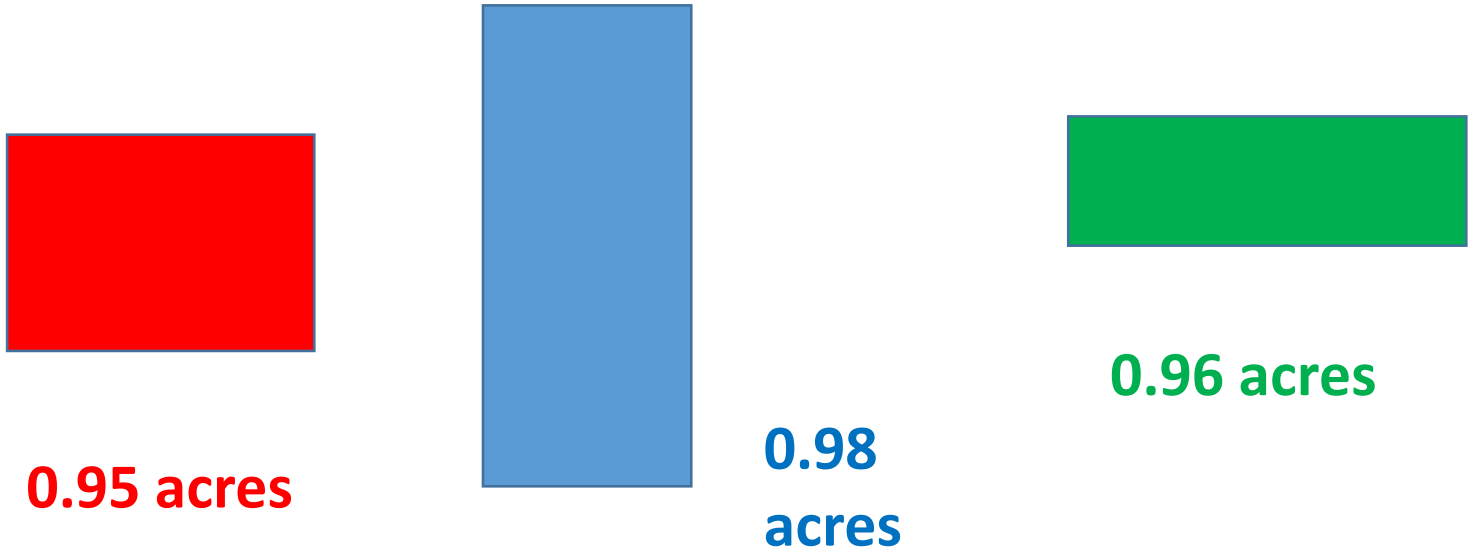
www.westmorelandconservation.org

www.westmorelandstormwater.org

By Jim Pillsbury PE

Who needs NPDES – PAG-02??

- Earth disturbance > 1 acre (43,560 square feet)
- Earth disturbance on any portion, part, or stage of a larger common plan of development which involves disturbing > 1 acre



Who needs NPDES??

- If you have a ‘Chapter 105’ permit, the area of the project which is directly covered by the Chapter 105 permit is not counted towards the NPDES disturbed area.

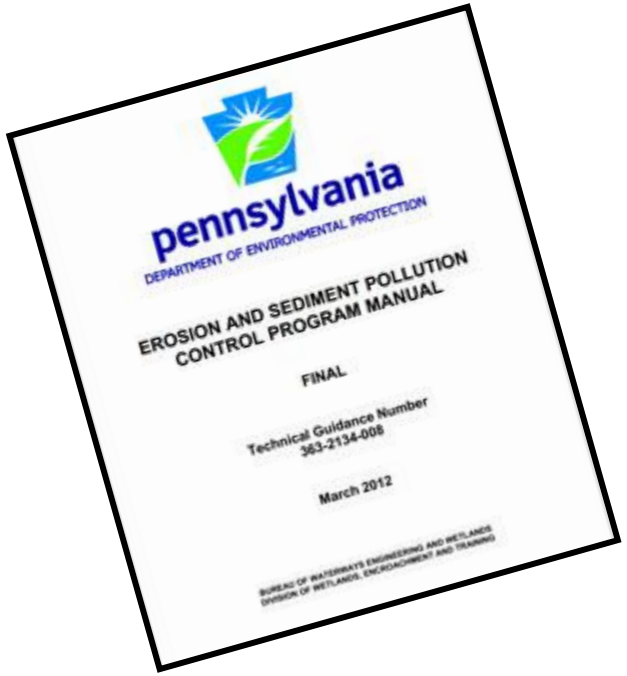
NPDES: general or individual?

- NPDES Notice of Intent (General Permit or PAG02) → **Review by WCD**
  - Most construction sites disturbing > 1 acre
- NPDES (Individual permit) → **Preliminary Review by WCD**, **FINAL Review by SWRO**, **Permit issued by SWRO**
  - Earth Disturbance in a Special Protection watershed (High Quality or Exceptional Value) ***List available from WCD***
  - Earth Disturbance on a site where there may be contamination

    Act 2 Sites, Brownfields

What’s the NPDES permit all about???

- Erosion and Sediment Control Plan (E&S)
- 2012 E&S Manual



What’s the NPDES permit all about??

- Post Construction Stormwater Management (PCSM)
- 2006 Stormwater Management Manual

Westmoreland Conservation Dist

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Flash Player will no longer be supported after December 2020 Turn off

Learn more

Contact

J. Roy Houston Conservation Center
218 Donohoe Road
Greensburg, PA 15601

(724) 837-5271

Office Hours:
Monday – Friday
8:00 a.m. – 4:00 p.m.

Closed for Lunch
Noon – 1:00 p.m.

Quick Links

Plans + Permits

Check Plan Status

Open Records Request Form

Conservation Partnership Agreements (CPA)

Act 167 Plan + Model Stormwater Ordinance

Subscribe for updates

First

Last

Email *

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By submitting this form, you are consenting to receive marketing emails from: Westmoreland Conservation District, J. Roy Houston Conservation Center, Greensburg, PA, 15601, http://www.wcdpa.com. You can revoke your consent to receive emails at any time by using the SafeUnsubscribe® link, found at the bottom of every email. Emails are serviced by Constant Contact

NPDES Permits + Applications are available on our website!

Navigating PA DEP

www.dep.pa.gov

Businesses

- Water
  - Bureau of Clean Water
    - Stormwater Management
      - Construction Stormwater
        - E&S Resources

To find NPDES permit application forms, worksheets and modules

NPDES permit documents

Location: eLibrary - FOLDERS / PERMIT AND AUTHORIZATION PACKAGES / CLEAN WATER / PAG-02 NPDES GENERAL PERMIT FOR DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES 3800-PM-BCW0405 /

PAG-02 NPDES GENERAL PERMIT FOR DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES **3800-PM-BCW0405**

	Name
	01 - NOTICE OF INTENT INSTRUCTIONS.PDF **3800-PM-BCW0405A**
	02 - NOTICE OF INTENT FORM.DOC **3800-PM-BCW0405B**
	02 - NOTICE OF INTENT FORM.PDF **3800-PM-BCW0405B**
	03 - CHECKLIST.DOC **3800-PM-BCW0405C**
	03 - CHECKLIST.PDF **3800-PM-BCW0405C**
	04 - SAMPLE PERMIT.PDF **3800-PM-BCW0405D**
	05 - FACT SHEET.PDF **3800-PM-BCW0405E**
	06 - COMMENT AND RESPONSE DOCUMENT.PDF **3800-PM-BCW0405**

Also accessed by the quick link from WCD's website!!

Notice of Intent (NOI)

- Use the most recent forms!
- Don't leave anything blank
- Project and Applicant information
- Site Restoration?

3800-PM-BCW0405b Rev. 4/2020
PAG-02 NOI

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PAG-02
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR DISCHARGES OF
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
NOTICE OF INTENT (NOI)

Before completing this form, read the step-by-step instructions provided in the PAG-02 NOI package.

DEP / CCD USE ONLY

Date Received: _____ Permit ID: _____
☐ Project Eligible ☐ NOI Complete Date of: ☐ Return ☐ Withdrawal ☐ Denial
Date Resubmission Received: _____ _____
Date Determined Complete: _____ Issuance Date: _____
Coverage Effective Date: _____ Coverage Expiration Date: _____

GENERAL INFORMATION

1. NOI Type: ☐ New ☐ Renewal ☐ Major Amendment ☐ Minor Amendment Permit No. PA_____
2. Primary NAICS Code: _____ 3. Additional NAICS Codes: _____
4. Project Description:
5. ☐ Site Restoration Project
6. ☐ Common Plan of Development or Sale No. phases: No. phases complete:

APPLICANT INFORMATION

1. Organization Name or Registered Fictitious Name 2. Employer ID# (EIN)
3. Individual Last Name First Name MI Suffix

What is a site restoration project?

- Pipelines and utilities
- Certain resource extraction activities
- Site reclamation

No new impervious surface created

Notice of Intent… stormwater discharge information

Is your receiving stream impaired by siltation, sediment, turbidity, water/flow variability, flow alterations/modifications, or nutrients??

Is there a TMDL for your receiving stream, for siltation, suspended solids, or nutrients??

ABACT BMP'S

3800-PM-BCW405b Rev. 4/2020
PAG-02 NOI

STORMWATER DISCHARGE INFORMATION

1. List all stormwater discharge points **during construction** and provide the information requested below (see instructions). ☐ Not Applicable

Discharge Point No.	LATITUDE	LONGITUDE	RECEIVING WATERS					
	Degrees	Degrees	Name of Receiving Waters	Ches. Bay?	Non-Surface Waters	Ch. 93 Class.	Impaired?	TMDL?
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐

2. List all stormwater discharge points **after construction and stabilization are complete** and provide the information requested below. ☐ Not Applicable

Discharge Point No.	LATITUDE	LONGITUDE	RECEIVING WATERS					
	Degrees	Degrees	Name of Receiving Waters	Ches. Bay?	Non-Surface Waters	Ch. 93 Class.	Impaired?	TMDL?
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐
				☐	☐		☐	☐

3. Will any of the points identified above discharge to a storm sewer system? ☐ Yes ☐ No Is the storm sewer an MS4 or CSS? ☐ Yes ☐ No
Name of storm sewer owner/operator: Discharge points discharging to storm sewer:

4. Identify and describe all non-stormwater discharges that are expected to occur during permit coverage. Describe the frequency and volume of all such discharges.

☐ No non-stormwater discharges are anticipated.

5. Will there be any new or increased discharge to non-surface waters prior to reaching surface waters? ☐ Yes ☐ No

If Yes, the applicant is expected to 1) secure legal authority for the non-surface water discharge if the discharge will be to property not owned by the applicant, and 2) provide for adequate E&S controls to prevent accelerated erosion.

NOI Checklist

- Check a box on every line
- Include everything that is Applicable

3800-PM-BCW0405c Rev. 1/2020
PAG-02 Checklist

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PAG-02
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR DISCHARGES OF
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
NOI CHECKLIST

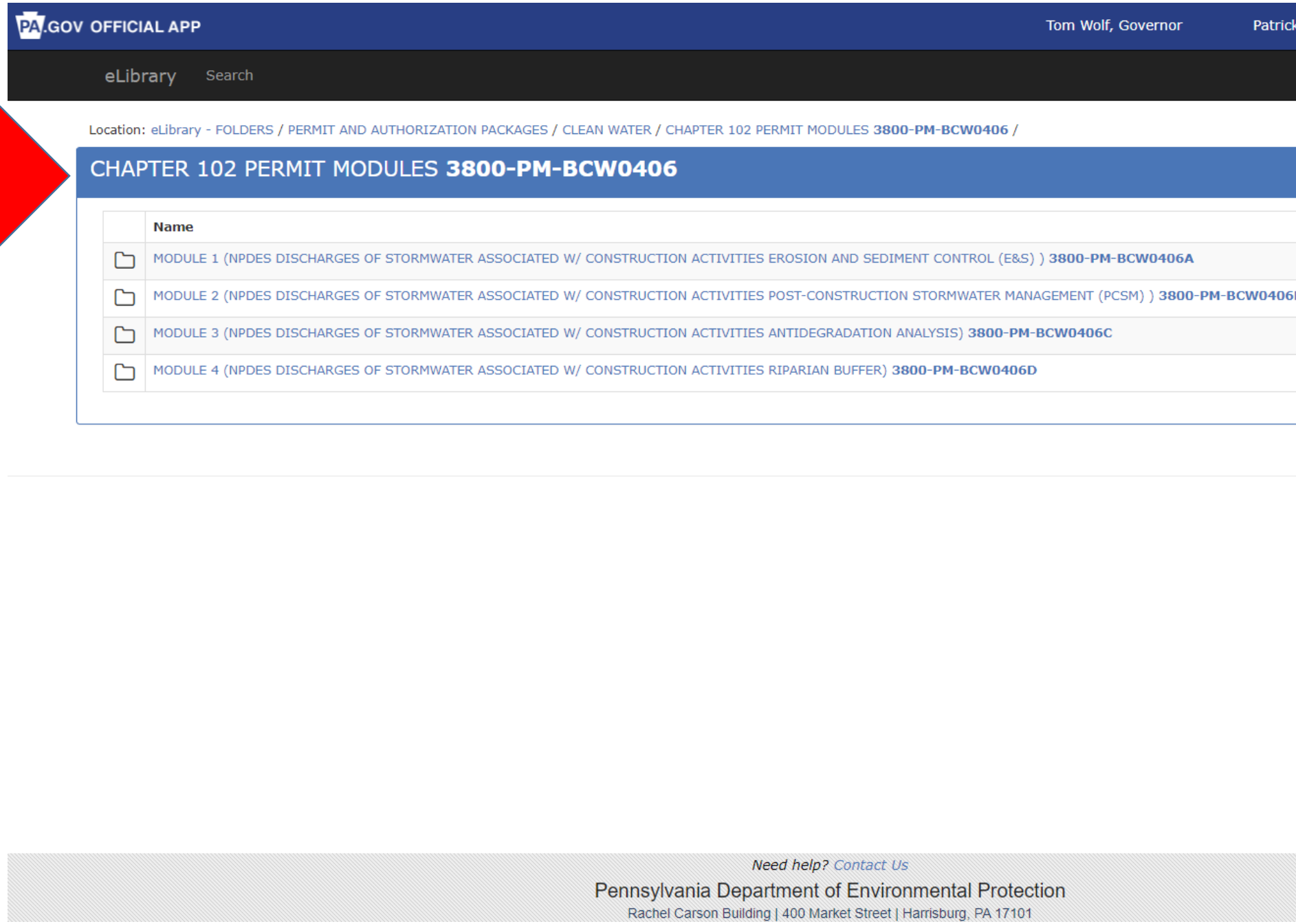
Applicant Name:	
Project Site Name:	

Place a checkmark in the box provided for all items completed and/or provided. Failure to provide all required information will delay the processing of the NOI. ENCLOSE THIS CHECKLIST WITH YOUR COMPLETED NOI.

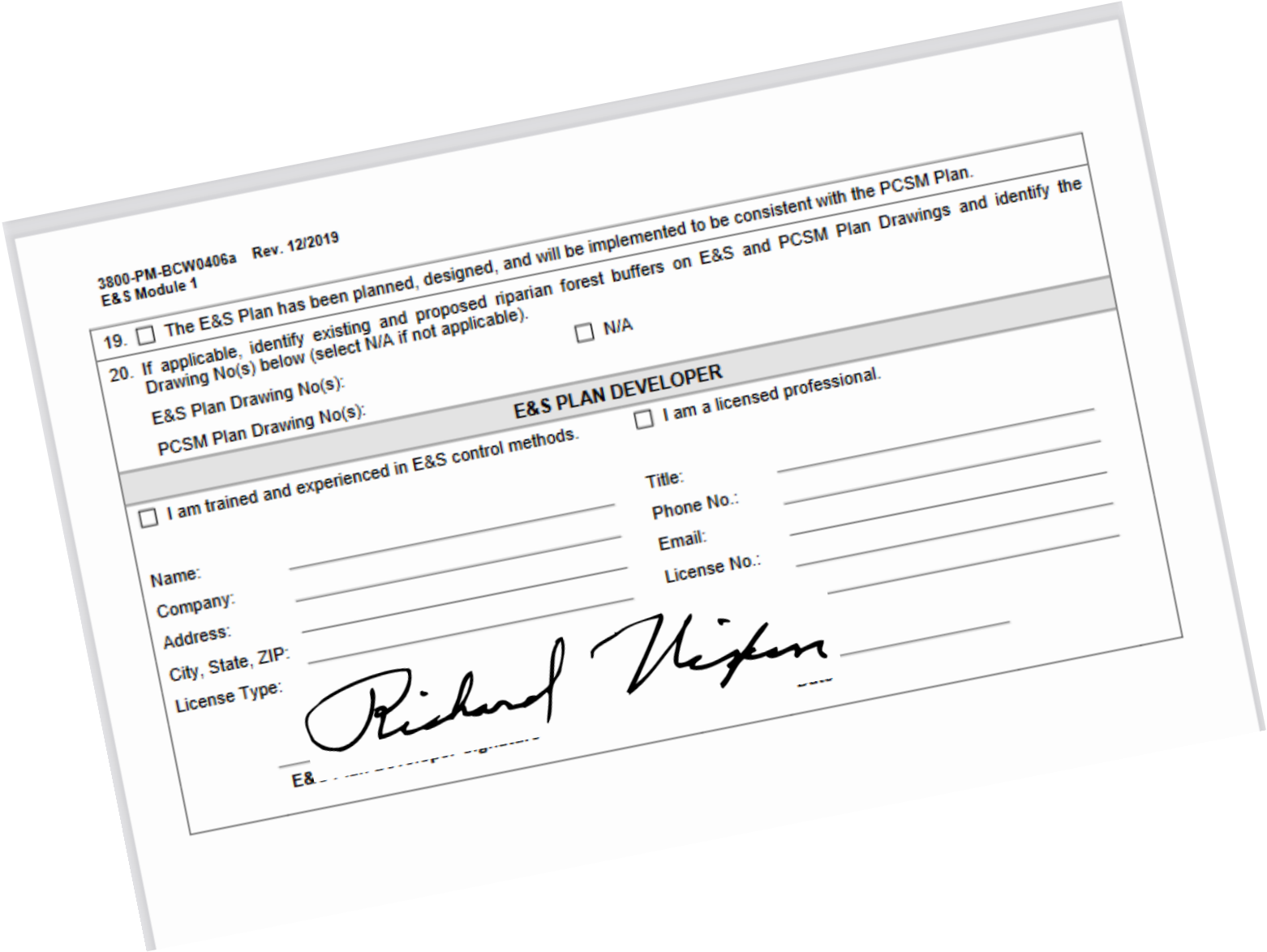
	NOI REQUIREMENTS [1,2]	Check ✓ If Included	Check ✓ If Not Applicable
1.	Complete NOI form (3800-PM-BCW0405b) with original signature(s)	☐	
2.	Administrative Filing Fee ($500 plus any additional CCD-specific fees, if applicable)	☐	
3.	One copy of the completed NOI form to DEP (if CCD will review NOI)	☐	☐
4.	Disturbed Acreage Fee ($100 x disturbed acres)	☐	
5.	County Notification Form (3800-FM-BCW0271b) [3]	☐	
6.	Municipal Notification Form (3800-FM-BCW0271c) [3]	☐	
7.	Proof of county and municipal receipt of Notification Forms (required if Notification Forms are not signed by county and/or municipality) [3]	☐	☐
8.	PNDI Receipt with original signature(s) [4]	☐	
9.	PNDI clearance letter(s) from jurisdictional agencies [4]	☐	☐
10.	One original and one copy of E&S Module 1 (3800-PM-BCW0406a)	☐	
11.	Two copies of E&S Plan Drawings [5]	☐	
12.	Two copies of E&S Standard Worksheets (or equivalent) and supporting calculations	☐	
13.	One original and one copy of PCSM Module 2 (3800-PM-BCW0406b)	☐	
14.	Two copies of PCSM Plan Drawings [5]	☐	
15.	Two copies of PCSM Supporting Calculations – BMP Design	☐	☐
16.	Two copies of PCSM Supporting Calculations – Stormwater Analysis (required where DEP PCSM Spreadsheet not used)	☐	☐
17.	Two copies of the DEP PCSM Spreadsheet – Volume Worksheet (optional)	☐	☐
18.	Two copies of the DEP PCSM Spreadsheet – Rate Worksheet (optional)	☐	☐
19.	Two copies of the DEP PCSM Spreadsheet – Quality Worksheet	☐	
20.	Two copies of soil/geologic test results (where BMPs relying on infiltration will be installed)	☐	☐

Modules

- Module 1
  - E&S
- Module 2
  - PCSM
- Module 3
  - ABACT (Individual Permit)
- Module 4
  - Riparian Buffer (Individual Permit)



The 4 modules each must be signed by the plan preparer



3800-PM-BCW0406a Rev. 12/2019
E&S Module 1

19. ☐ The E&S Plan has been planned, designed, and will be implemented to be consistent with the PCSM Plan.

20. If applicable, identify existing and proposed riparian forest buffers on E&S and PCSM Plan Drawings and identify the Drawing No(s) below (select N/A if not applicable). ☐ N/A

E&S Plan Drawing No(s):

PCSM Plan Drawing No(s):

E&S PLAN DEVELOPER

☐ I am trained and experienced in E&S control methods. ☐ I am a licensed professional.

Name:
Company:
Address:
City, State, ZIP:
License Type:

Title:
Phone No.:
Email:
License No.:

E&

Erosion and Sediment Control Module 1

- E&S Plan Information
  - Project Description
  - Soils
  - Land Use
  - Runoff

3800-PM-BCW0406a Rev. 12/2019
E&S Module 1

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
EROSION AND SEDIMENT CONTROL (E&S) MODULE 1

Applicant:		Project Site Name:	
Surface Water Name(s):		Surface Water Use(s):	

E&S PLAN INFORMATION

1. Describe the existing topographic features of the project site and the immediate surrounding area.

2. Complete the following table for soils present at the project site.

Map Unit Symbol	Map Unit Name	Acres	HSG	% of Disturbed Area	Depth (ft)	Hydric
						☐
						☐
						☐

Discuss any soil limitations and how the E&S Plan was designed to address those limitations.

If Hydric soils are present, is a wetland determination attached to this module? ☐ Yes ☐ No ☐ N/A

If soils are known to be contaminated, 1) identify the pollutants exceeding Act 2 standards in the space provided below, 2) identify the extent of soil contamination on an E&S Plan Drawing that is attached to this module, and 3) describe the methods that will be used to avoid or minimize disturbance of the contaminated soils in the space provided below.

3. Describe the characteristics of the earth disturbance activity, including the past, present and proposed land uses and the proposed alteration to the project site.

Module 1 Supporting Calculations

- E&S BMPs
  - Site Access
  - Sediment Barriers
  - Runoff Conveyance
  - Energy Reduction
  - Stilling Basins
  - Other BMPs
- Supporting Calculations
- E&S Worksheets
- Sequence

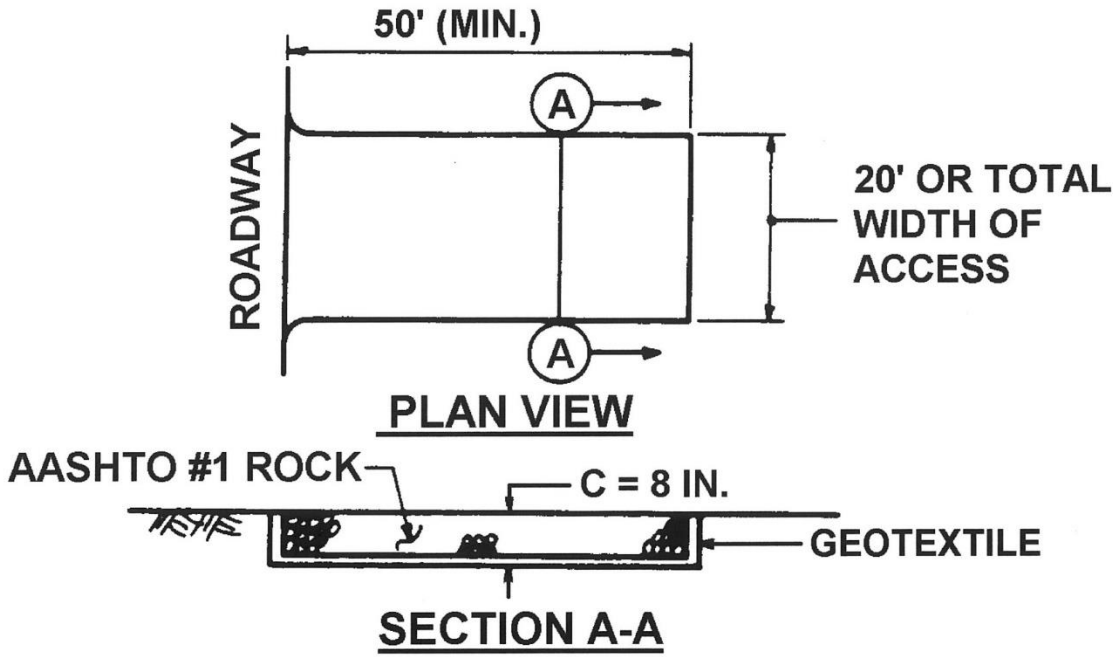
3800-PM-BCW0406a Rev. 12/2019
E&S Module 1

5. Check boxes to indicate all BMPs that will be installed or implemented, identify plan numbers for the BMPs, and describe any deviations from the E&S Manual.

	E&S BMPs	Plan No(s). Identified	Plan No(s). for O&M	Deviation(s) from E&S Manual
☐	Rock Construction Entrance			
☐	Rock Construction Entrance with Wash Rack			
☐	Rumble Pad			
☐	Wheel Wash			
☐	Temporary and Permanent Access Roads			
☐	Waterbar			
☐	Broad-based Dip			
☐	Open-top Culvert			
☐	Water Deflector			
☐	Roadside Ditch			
☐	Ditch Relief Culvert			
☐	Turnout			
☐	Compost Sock Sediment Trap			
☐	Temporary Stream Crossing			
☐	Temporary Wetland Crossing			
☐	Turbidity Barrier (Silt Curtain)			
☐	Dewatering Work Areas			
☐	Pumped Water Filter Bag			
☐	Sump Pit			
☐	Waste Management			
☐	Concrete Washout			
☐	Compost Filter Sock			
☐	Compost Filter Berm			
☐	Weighted Sediment Filter Tube			
☐	Rock Filter Outlet			
☐	Silt Fence (Filter Fabric Fence)			
☐	Reinforced Silt Fence			
☐	Super Silt Fence (Super Filter Fabric Fence)			

Site Access

Rock Construction Entrance (RCE)



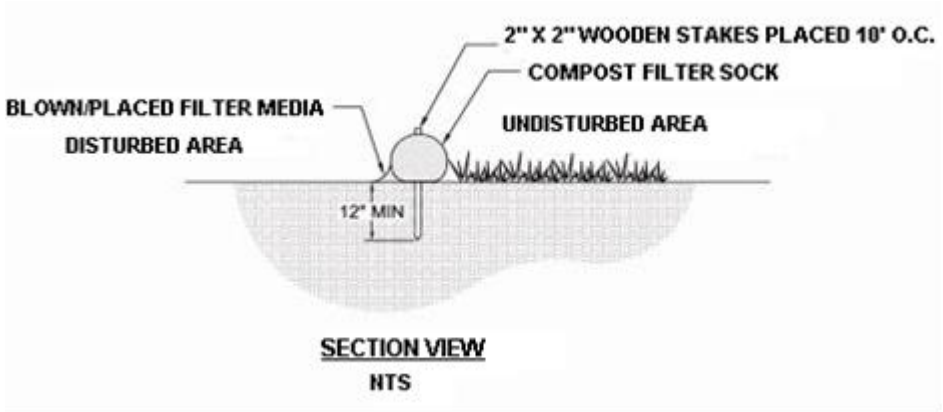
MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site.

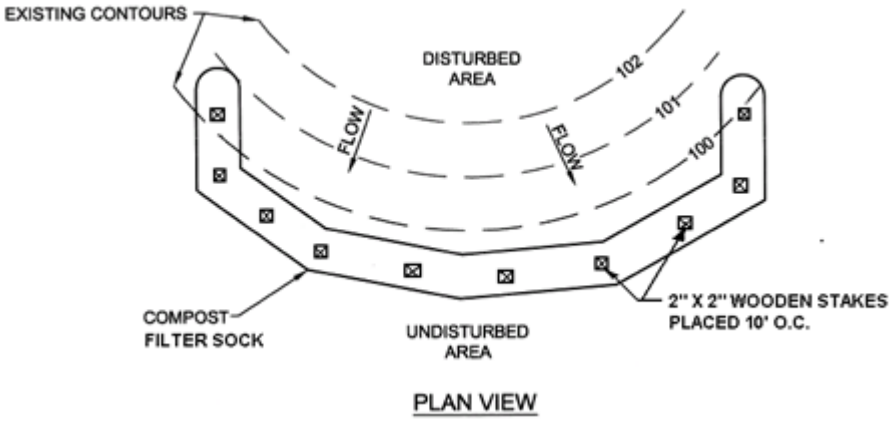
PA DEP STANDARD CONSTRUCTION DETAIL #16
Rock Construction Entrance

Line drawing provided by PA DEP Erosion and Sedimentation Pollution Control Program Manual

Sediment Barrier

Compost Filter Sock





Module 1 Table for entering all site E&S information

Table 1 – For PAG-01 applicants, complete the requested information for each selected E&S BMP, where a

Runoff Conveyance BMPs

BMP Name	Temporary	Design Storm	DA (ac)	Multiplier	Qr (cfs)	Q (cfs)	Manning's n	Va (fps)	V (fps)	D (ft)
Vegetated Channel	☐									
Sodded Channel	☐									
Riprap Channel	☐									

Energy Reduction BMPs

BMP Name	Downstream Distance to Drainage Course (ft)	Downstream % Slope	DA (ac)	Discharge (cfs)	Manhole Depth (ft)	Inflow Pipe Diameter (in)
Level Spreader						
Drop Structure						

Stilling Basins / Wells

BMP Name	Pipe Diameter (in)	Discharge (cfs)	Well Diameter (in)	Depth of Well Below Invert (ft)	Basin Depth (ft)	Median Riprap Size (in)	D Di to
Stilling Basin							
Stilling Well							

Other BMPs

BMP Name	DA (ac)	Pipe Diameter (in)	Berm Height (in)	Length (ft)	% Slope	Vertical Spacing (ft)	Channel Depth (ft)	Riprap Size	Riprap Thickness (in)	Initi Width
Temporary Slope Pipe										
Bench										
Rock Filter										
Riprap Apron										

Chelsea and Chris will review your NPDES permit Module 1.

Moving on to Module 2,

Post-Construction Stormwater Management

Post-Construction Stormwater Management Module 2

- Discharge Points
- BMP's
- Sequence of Construction

3800-PM-BCW0406b Rev. 12/2019
PCSM Module 2

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NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES
POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) MODULE 2

Applicant:		Project Site Name:	
Surface Water Name(s):		Surface Water Use(s):	

PCSM PLAN INFORMATION

1. Identify all structural and non-structural PCSM BMPs that have been selected and provide the information requested.

Discharge Point(s)	BMP ID	BMP Name	BMP Manual	Latitude	Longitude	DA Treated (ac)

Undetained Areas: acre(s)

☐ The Project Qualifies as a Site Restoration Project (25 Pa. Code §102.8(n))

Post-Construction Stormwater Management, Module 2

- Geologic Conditions
- Thermal Impacts

3800-PM-BCW0406b Rev. 12/2019
PCSM Module 2

3.	☐ Plan drawings have been developed for the project and will be available on-site.
4.	☐ Plan drawings have been developed for the project and are attached to the NOI/application.
5.	☐ Recycling and proper disposal of materials associated with PCSM BMPs are addressed as part of long-term operation and maintenance of the PCSM BMPs.
6.	Identify naturally occurring geologic formations or soil conditions that may have the potential to cause pollution after earth disturbance activities are completed and PCSM BMPs are operational and the applicant's plan to avoid or minimize potential pollution and its impacts.
7.	Identify whether the potential exists for thermal impacts to surface waters from post-construction stormwater. If such potential exists, identify BMPs that will be implemented to avoid, minimize, or mitigate potential thermal impacts.
8.	☐ The PCSM Plan has been planned, designed, and will be implemented to be consistent with the E&S Plan.
9.	☐ A pre-development site characterization has been performed.

Post-Construction Stormwater Management Module 2

- Stormwater Analysis—Runoff Volume

3800-PM-BCWD406b Rev. 12/2019
PCSM Module 2

STORMWATER ANALYSIS – RUNOFF VOLUME

Surface Water Name: **Discharge Point(s):**

1. ☐ The design standard is based on volume management requirements in an Act 167 Plan approved by DEP within the past five years.
2. ☐ The design standard is based on managing the net change for storms up to and including the 2-year/24-hour storm.
3. ☐ An alternative design standard is being used.
4. ☐ A printout of DEP's PCSM Spreadsheet – Volume Worksheet is attached.
5. 2-Year/24-Hour Storm Event: inches Source of precipitation data:
6. Stormwater Runoff Volume, Pre-Construction Conditions: CF ☐ Calculations attached
7. Stormwater Runoff Volume, Post-Construction Conditions: CF ☐ Calculations attached
8. Net Change (Post-Construction – Pre-Construction Volumes): CF
9. Identify all selected structural PCSM BMPs and provide the information requested. ☐ Calculations attached

DP No.	BMP ID	Series	Vol. Routed to BMP (CF)	Inf. Area (SF)	Inf. Rate (in/hr)	Inf. Period (hrs)	Veg?	Media Depth (ft)	Storage Vol. (CF)	Inf. Credit (CF)	ET Credit (CF)
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				
							☐				

Total Infiltration & ET Credits (CF):

Non-Structural BMP Volume Credits (CF) (Attach Calculations):

Managed Release Credits (CF) (Attach MRC Design Summary):

Volume Required to Reduce/Manage (CF):

Total Credits (CF):

Excel™ spreadsheet: Volume.

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DEP PCSM Spreadsheet
Version 1.5, January 2020

Volume Management

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

2-Year / 24-Hour Storm Event (NOAA Atlas 14): inches

Alternative 2-Year / 24-Hour Storm Event: inches

Alternative Source:

Pre-Construction Conditions: *No. Rows:*

☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

TOTAL (ACRES): **TOTAL (CF):**

Post-Construction Conditions:

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)

TOTAL (ACRES): **TOTAL (CF):**

NET CHANGE IN VOLUME TO MANAGE (CF):

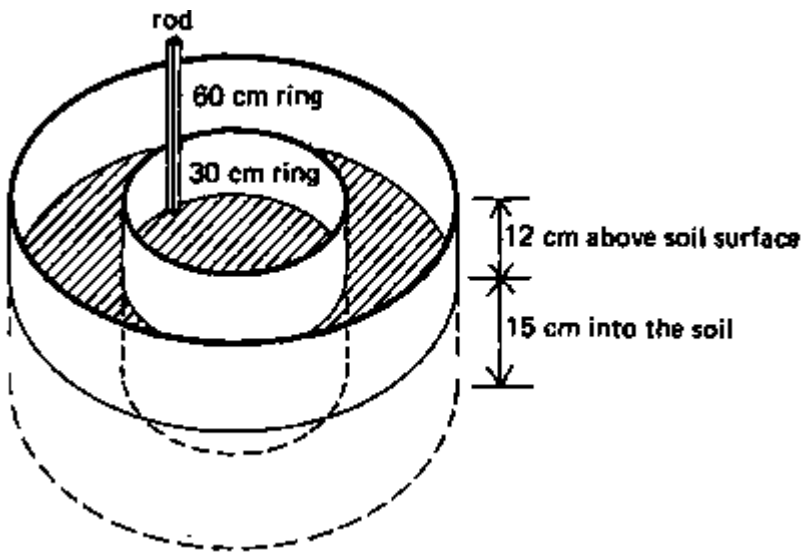
Non-Structural BMP Volume Credits:

Instructions | General | Volume | Rate | Quality | Versions

READY

Module 2: PCSM

- Stormwater Analysis
  - Infiltration Information



3800-PM-BCW0406b Rev. 12/2019
PCSM Module 2

INFILTRATION INFORMATION	
BMP ID:	☐ Soil/geologic test results are attached.
1. No. of infiltration tests completed:	
2. Method(s) used for infiltration testing:	
3. Test Pit Identifiers (from PCSM Plan Drawings):	
4. Avg Infiltration Rate: in/hr	5. FOS: : 1
6. Infiltration rate used for design: in/hr	
7. Separation distance between the BMP bottom and bedrock: feet	
8. Separation distance between the BMP bottom and seasonal high-water table: feet	
9. Comments:	
BMP ID:	☐ Soil/geologic test results are attached.
1. No. of infiltration tests completed:	
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3. Test Pit Identifiers (from PCSM Plan Drawings):	
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6. Infiltration Rate Used for Design: in/hr	
7. Separation distance between the BMP bottom and bedrock: feet	
8. Separation distance between the BMP bottom and seasonal high-water table: feet	
9. Comments:	

Post-Construction Stormwater Management Module 2

- Stormwater Analysis – Peak Rate

3800-PM-BCW0406b Rev. 12/2019
PCSM Module 2

STORMWATER ANALYSIS – PEAK RATE

Surface Water Name: **Discharge Point(s):**

1. ☐ The design standard is based on rate requirements in an Act 167 Plan approved by DEP within the past five years.
2. ☐ The design standard is based on managing the net change for 2-, 10-, 50-, and 100-year/24-hour storms.
3. ☐ An alternative design standard is being used.
4. ☐ A printout of DEP's PCSM Spreadsheet – Rate Worksheet is attached.
5. ☐ Alternative rate calculations are attached.
6. Identify precipitation amounts. Source of precipitation data:

2-Year/24-Hour Storm: 10-Year/24-Hour Storm

50-Year/24-Hour Storm: 100-Year/24-Hour Storm

7. Report peak discharge rates, pre- and post-construction (without BMPs), based on a time of concentration analysis.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (cfs)	Difference (cfs)
2-Year/24-Hour			
10-Year/24-Hour			
50-Year/24-Hour			
100-Year/24-Hour			

8. Identify all BMPs used to mitigate peak rate differences and provide the requested information.

BMP ID	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
	2-Yr	10-Yr	50-Yr	100-Yr	2-Yr	10-Yr	50-Yr	100-Yr

9. Report peak rates for pre-construction and post-construction with BMPs and identify the differences.

Design Storm	Pre-Construction Peak Rate (cfs)	Post-Construction Peak Rate (with BMPs) (cfs)	Difference (cfs)
2-Year/24-Hour			
10-Year/24-Hour			
50-Year/24-Hour			
100-Year/24-Hour			

Excel™ spreadsheet: Rate

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DEP PCSM Spreadsheet
Version 1.5, January 2020

Rate Control

Instructions | General | Volume | *Rate* | Quality

CLEAR FORM

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):		Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	

☐ **Report Summary of Peak Rates Only**

☐ **Time of Concentration (Tc) - Pre-Construction** ☐ ***Use Default (0.1 hr)***

☐ **Time of Concentration (Tc) - Post-Construction** ☐ ***Use Default (0.1 hr)***

Peak Rate Analysis:

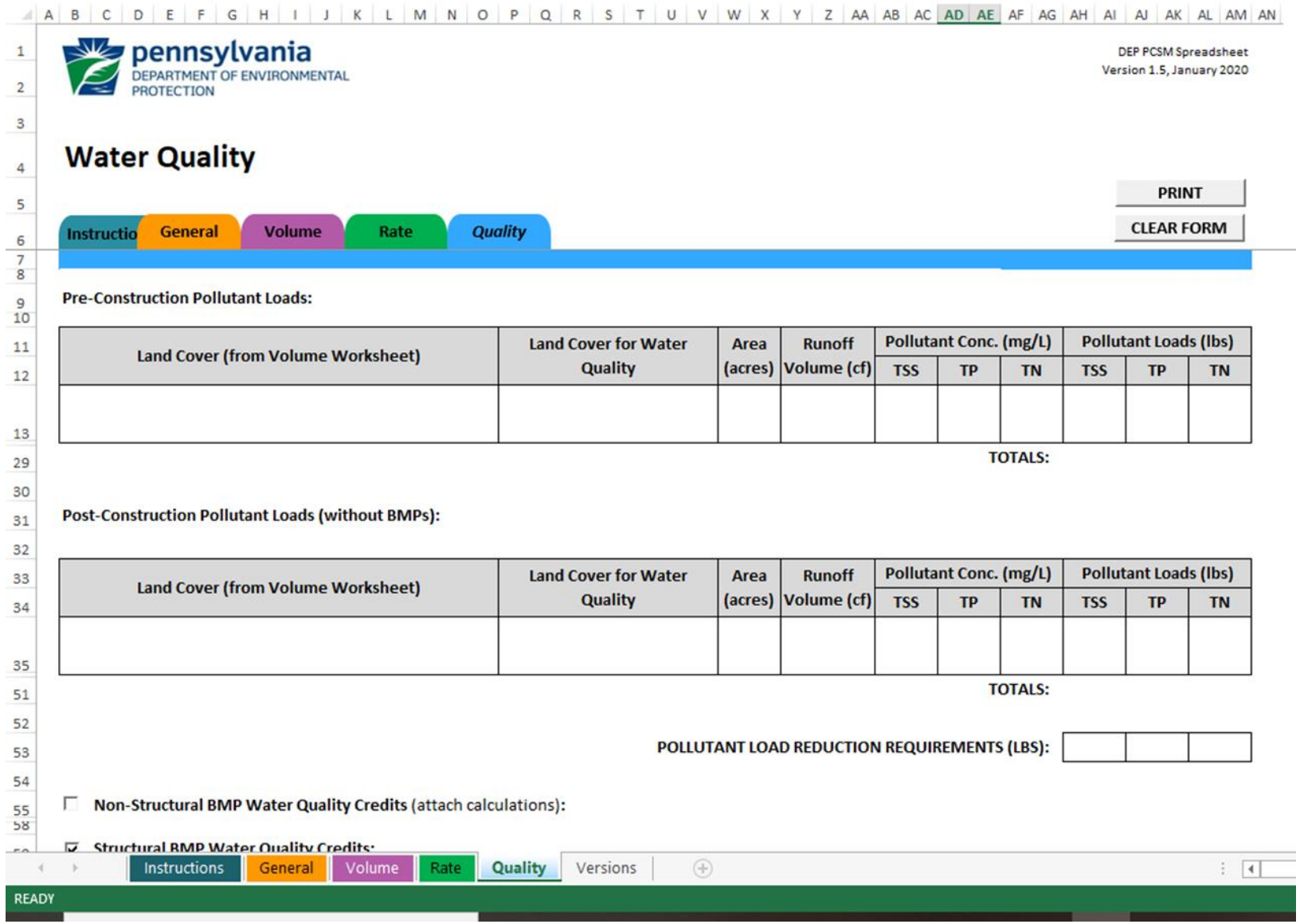
	Pre-Construction	Post-Construction without BMPs
Disturbed Area (mi^2)		
	Runoff Depth (inches)	
2-Year Storm:		
10-Year Storm:		
50-Year Storm:		

Instructions | General | Volume | Rate | Quality | Versions

READY

Post-Construction Stormwater Management Module 2

- Stormwater Analysis – Water Quality; attach the Quality spreadsheet



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DEP PCSM Spreadsheet
Version 1.5, January 2020

Water Quality

PRINT
CLEAR FORM

Instructio | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
				TSS	TP	TN	TSS	TP	TN
						TOTALS:			

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
				TSS	TP	TN	TSS	TP	TN
						TOTALS:			

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS): | | |

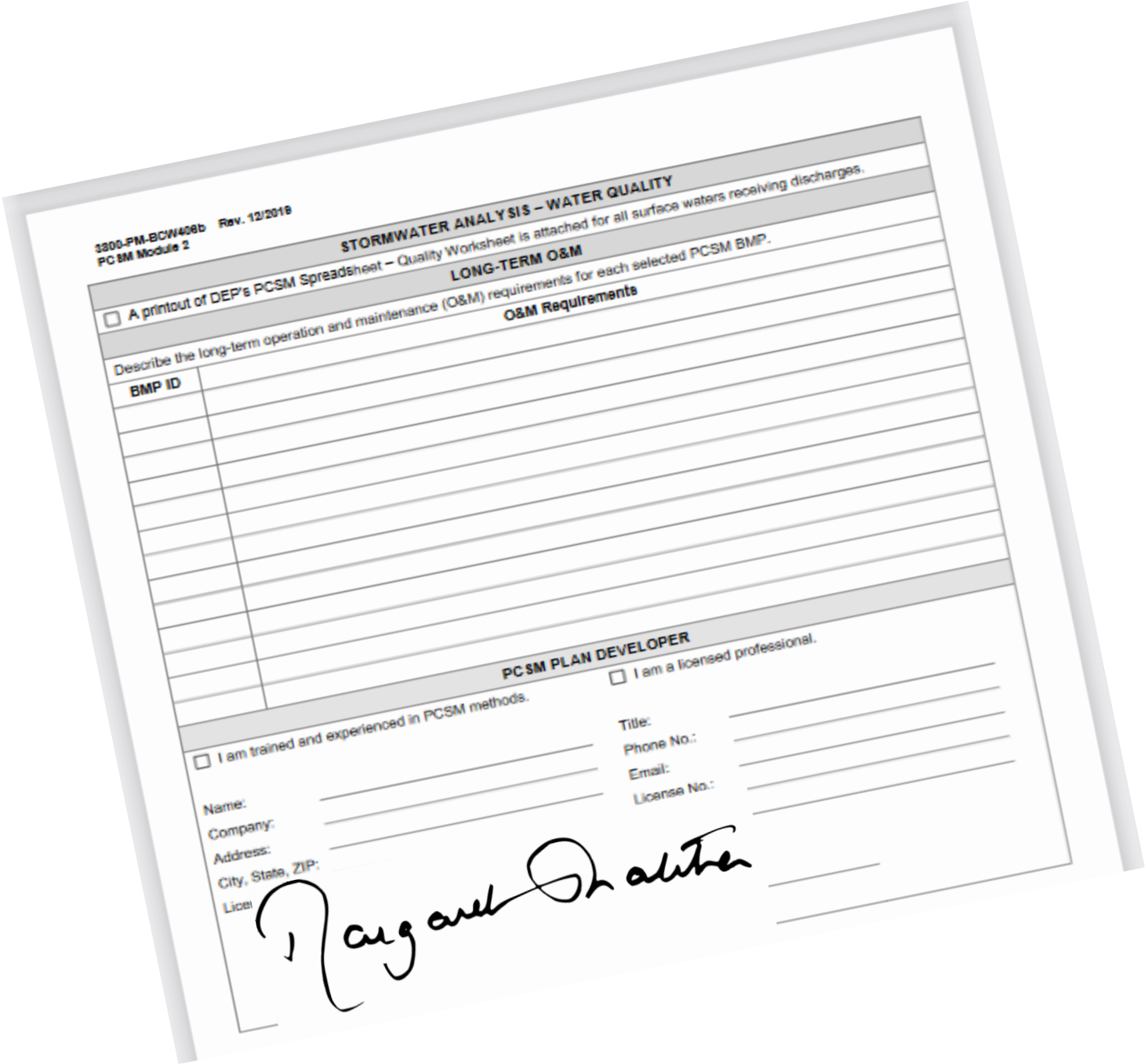
☐ Non-Structural BMP Water Quality Credits (attach calculations):

☑ Structural BMP Water Quality Credits:

Instructions | General | Volume | Rate | Quality | Versions

READY

List O&M
and
Sign Module 2



3300-PM-BCW408b Rev. 12/2019
PCSM Module 2

STORMWATER ANALYSIS – WATER QUALITY

☐ A printout of DEP's PCSM Spreadsheet – Quality Worksheet is attached for all surface waters receiving discharges.

LONG-TERM O&M

Describe the long-term operation and maintenance (O&M) requirements for each selected PCSM BMP.

BMP ID	O&M Requirements

PCSM PLAN DEVELOPER

☐ I am trained and experienced in PCSM methods.

☐ I am a licensed professional.

Name:
Company:
Address:
City, State, ZIP:
License No.:

Title:
Phone No.:
Email:
License No.:

Please note:

- Please note that Module 2 does not take the place of calculations and a narrative. You need to submit material including calculations and narrative to back up what you put into the Module, and also what you put into the Excel Spreadsheets.
- Engineering judgment is necessary!!

Module 3: For Individual NPDES permits.

Erosion and Sediment Control Plan

3800-PM-BCW0406o 12/2019
Antidegradation Module 3

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES ANTIDEGRADATION ANALYSIS MODULE 3

Applicant: _____ Project Site Name: _____

Surface Water Name: _____ Surface Water Use: _____

ANTIDEGRADATION – EROSION AND SEDIMENT CONTROL (E&S) PLAN

☐ A **Non-Discharge Alternative will be utilized** for the project that will either individually or collectively eliminate the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm during earth disturbance activities.

Identify the E&S BMP(s) that will be utilized to achieve the non-discharge alternative:

- ☐ Alternative Siting: Location
- ☐ Alternative Siting: Configuration
- ☐ Alternative Siting: Location of Discharge
- ☐ Other: _____
- ☐ Limiting Extent & Duration of Disturbance
- ☐ Riparian Buffer (150 ft min.)
- ☐ Riparian Forest Buffer (150 ft min.)
- ☐ Limited Disturbed Area

Explain how the E&S BMP(s) will individually or collectively eliminate the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm during earth disturbance activities.

If a **Non-Discharge Alternative will not be utilized**, explain the rationale for non-selection, including why none of the alternatives are considered environmentally sound and cost-effective.

☐ **Antidegradation Best Combination of Technologies (ABACT) BMP(s) will be utilized** for the project that will either individually or collectively manage the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm during earth disturbance activities.

Identify the ABACT E&S BMP(s) that will be utilized:

- ☐ Rock Construction Entrance with Wash Rack
- ☐ Wheel Wash
- ☐ Pumped Water Filter Bag with Sump Pit
- ☐ Compost Filter Berm (HQ Only)
- ☐ Silt Fence with Vegetative Filter Strip
- ☐ Wood Chip Filter Berm (HQ Only)
- ☐ Sediment Basin with Perforated Riser (HQ Only)
- ☐ Stone Inlet Protection with Compost Layer (HQ Only)
- ☐ Embankment Sediment Trap with Compost Layer (HQ Only)
- ☐ Sediment Trap with Perforated Riser (HQ Only)
- ☐ Erosion Control Blankets within 50 ft of Surface Waters
- ☐ Flocculant with PAMs
- ☐ Riparian Buffer (< 150 ft)
- ☐ Rock Construction Entrance with Street Sweeping
- ☐ Pumped Water Filter Bag with Compost Sock Ring
- ☐ Compost Filter Sock
- ☐ Weighted Sediment Filter Tube (HQ Only)
- ☐ Super Silt Fence with Vegetative Filter Strip
- ☐ Vegetative Filter Strip (HQ Only)
- ☐ Sediment Basin with Skimmer
- ☐ Compost Filter Sock Sediment Trap
- ☐ Embankment Sediment Trap with Compost Sock
- ☐ Sediment Trap with Skimmer
- ☐ Immediate Stabilization
- ☐ Vegetative Conveyance
- ☐ Riparian Forest Buffer (< 150 ft)

Module 3:
ABACT E&S BMP's!!

Module 3: For Individual NPDES permits.

PCSM Plan

Photo by Tom Keller

Sewickley Creek Watershed Association volunteer tree planting at Jack's Run

Non-discharge alternative: riparian buffer

3800-PM-BCW0406o 12/2019
Antidegradation Module 3

☐ Approved Alternative: _____

Explain how the E&S BMP(s) will individually or collectively manage the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm during the earth disturbance activities.

ANTIDEGRADATION – POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN

☐ A **Non-Discharge Alternative will be utilized** for the project that either individually or collectively eliminate the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm after earth disturbance activities.

Identify the PCSM BMPs that will be used to achieve the non-discharge alternative:

- ☐ Alternative Siting: Location
- ☐ Alternative Siting: Configuration
- ☐ Alternative Siting: Location of Discharge
- ☐ Infiltration
- ☐ Other: _____
- ☐ Low Impact Development
- ☐ Riparian Buffer (150-ft. min.)
- ☐ Riparian Forest Buffer (150-ft. min.)
- ☐ Water Reuse

Explain how the PCSM BMP(s) will individually or collectively eliminate the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm after earth disturbance activities.

If a **Non-Discharge Alternative will not be utilized**, explain the rationale for non-selection, including why none of the alternatives are considered environmentally sound and cost-effective.

☐ **Antidegradation Best Combination of Technologies (ABACT) has been selected** for the project that will either individually or collectively manage the net change in stormwater volume, rate, and quality for storm events up to and including the 2-year/24-hour storm after earth disturbance activities.

Identify the ABACT PSCM BMPs that will be utilized:

- ☐ Rain Garden (with Infiltration)
- ☐ Rain Garden (without Infiltration)
- ☐ Constructed Filter
- ☐ Vegetated Swale
- ☐ Vegetated Filter Strip
- ☐ Constructed Wetland
- ☐ Wet Pond
- ☐ Dry Extended Detention Basin
- ☐ Water Quality Device
- ☐ Spray / Drip Irrigation
- ☐ Rain Barrel
- ☐ Protect / Utilize Natural Flow Pathways (on-site)
- ☐ Disconnection of Impervious / Roof Area
- ☐ Pervious Pavement with Infiltration Bed
- ☐ Infiltration Basin
- ☐ Infiltration Bed
- ☐ Infiltration Trench
- ☐ Soil Amendment
- ☐ Dry Well / Seepage Pit
- ☐ Infiltration Berm / Retentive Grading
- ☐ Protect Sensitive / Special Value Features
- ☐ Street Sweeping
- ☐ Green Roof

Module 3:
ABACT PCSM BMP's!!

Photo by Kathy Hamilton

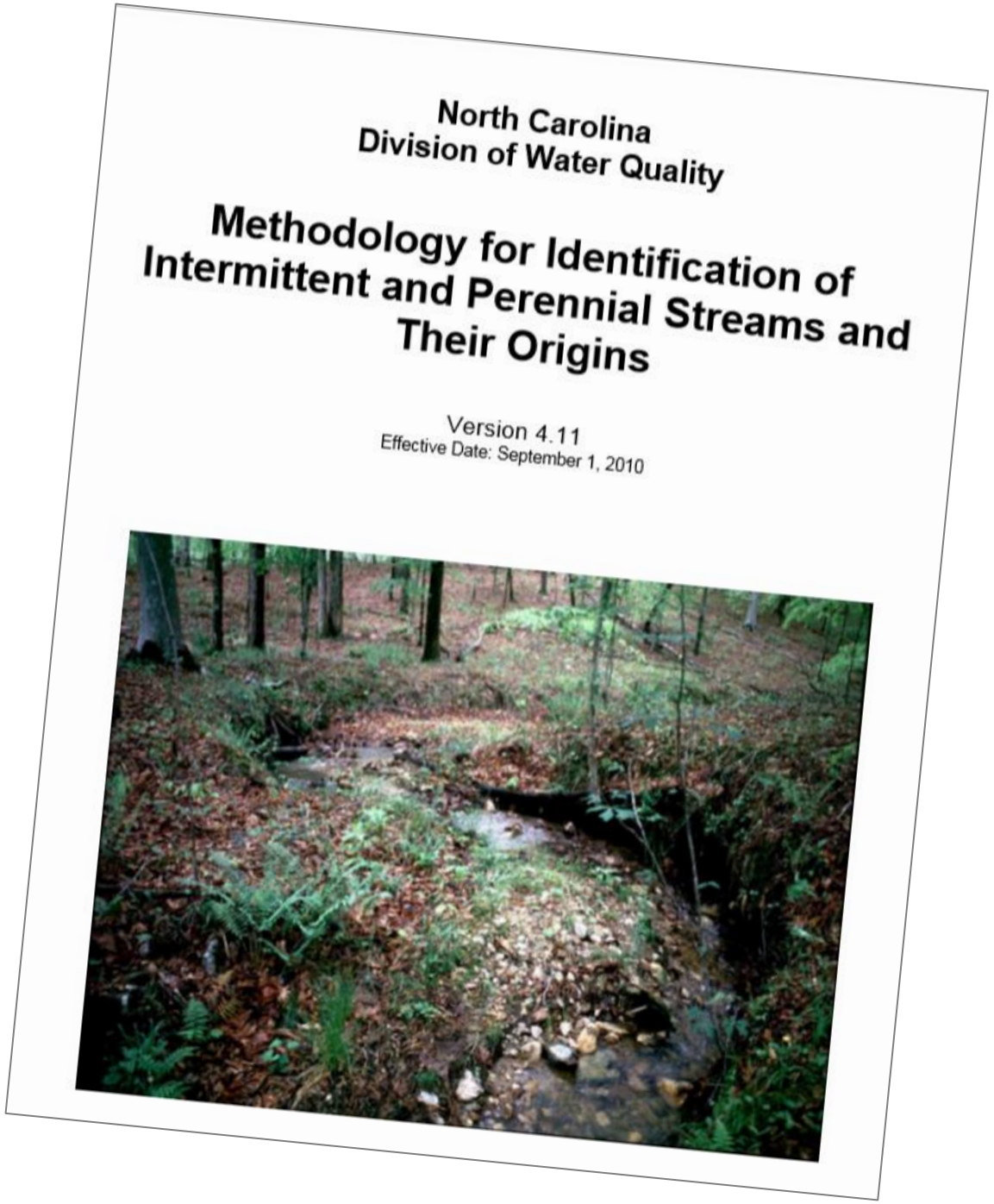
Permeable paving parking demonstration at the J.Roy Houston Conservation Center funded by Richard King Mellon Foundation, 2016.

Remember to use the **BMP Treatment Train** for maximum benefit!

Module 4: Riparian Buffers, For Individual NPDES Permits

- If earth disturbance is within 150 feet of a perennial or intermittent river, stream, creek, lake, pond, or **reservoir** designated for Special Protection (HQ or EV).

Does it need a buffer? Is it a stream? How can I tell?



North Carolina
Division of Water Quality

Methodology for Identification of Intermittent and Perennial Streams and Their Origins

Version 4.11
Effective Date: September 1, 2010

Module 4: Riparian Buffers. For Individual NPDES Permits

Exceptions and Allowable activities

3300-PM-BCW0406d 12/2019
Riparian Buffer Module 4

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGES OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES RIPARIAN BUFFER MODULE 4

Applicant: _____ Project Site Name: _____

Surface Water Name(s): _____ Surface Water Use(s): _____

APPLICABILITY INFORMATION

Permit Type: ☐ Individual NPDES Permit ☐ Erosion and Sediment Control (E&S) Permit

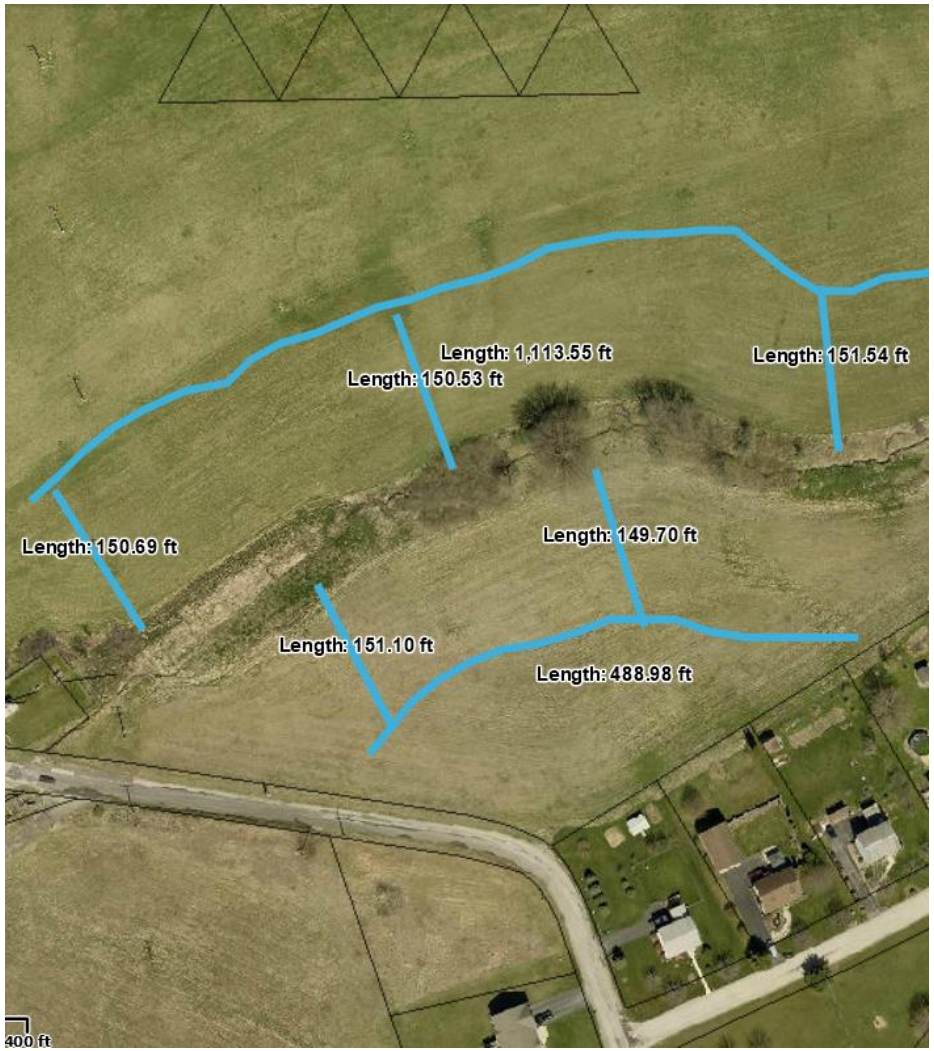
Check the appropriate box if the project is characterized by any of the following exceptions in 25 Pa. Code § 102.14(d)(1):

- ☐ Road maintenance activities where any existing riparian buffer will be undisturbed to the extent practicable.
- ☐ Repair and maintenance of existing pipelines and utilities where any existing buffer will be undisturbed to the extent practicable.
- ☐ Oil and gas, timber harvesting, or mining activities for which site reclamation or restoration is part of the permit authorization in Chapters 78, 86-90 and 102 where any existing buffer will be undisturbed to the extent practicable.
- ☐ A single-family home that is not part of a larger common plan of development or sale and the parcel was acquired by the applicant prior to November 19, 2010.
- ☐ Activities authorized by a DEP permit under other regulations which contain setback requirements and the activity complies with those setback requirements.

Check the appropriate box if the project is characterized by any of the following allowed or allowable activities in 25 Pa. Code §§ 102.14(f)(2) and (3):

- ☐ Activities or practices used to maintain the riparian buffer including the disturbance of existing vegetation, and tree and shrub removal, as needed to allow for natural succession of native vegetation and protection of public health and safety.
- ☐ Timber harvesting activities in accordance with the riparian forest buffer management plan as part of the PCSM Plan.
- ☐ Passive or low impact recreational activities so long as the functioning of the riparian buffer is maintained.
- ☐ Emergency response and other similar activities.
- ☐ Research and data collection activities, which may include water quality monitoring and stream gauging.
- ☐ Construction or placement of roads, bridges, trails, storm drainage, utilities or other structures that has been or is expected to be authorized by DEP.
- ☐ Water obstructions or encroachments that have been or are expected to be authorized by DEP.
- ☐ Restoration projects that have been or are expected to be authorized by DEP.

Module 4: Riparian Buffers



RIPARIAN BUFFER OR RIPARIAN FOREST BUFFER INFORMATION

1. Will earth disturbance activities occur within 150 feet of a perennial or intermittent stream, creek, lake, pond or reservoir with a designated use of High Quality Waters (HQ) or Exceptional Value Waters (EV)?

   ☐ Yes ☐ No

   If Yes to question #1, identify the option selected by the applicant to meet the requirements of 25 Pa. Code § 102.14(a)(1) or Act 162 of 2014:

   ☐ A 150-foot (min.) riparian buffer or riparian forest buffer will be implemented *(Individual NPDES Permits Only)*.

   ☐ An equivalency demonstration will be conducted *(Individual NPDES Permits Only)*.

   ☐ Applicant is seeking a waiver *(E&S Permits Only)*.

2. Will the project site exist within 150 feet of a perennial or intermittent stream, creek, lake, pond or reservoir with a designated use of High Quality Waters (HQ) or Exceptional Value Waters (EV) where the use is not being attained (i.e., water is impaired)?

   ☐ Yes ☐ No

- 1 -

3800-PM-BCW0406d 12/2019
Riparian Buffer Module 4

If Yes to question #2, identify the option selected by the applicant to meet the requirements of 25 Pa. Code § 102.14(a)(2) or Act 162 of 2014:

☐ A 150-foot (min.) riparian forest buffer will be implemented (maintained, converted or established).

☐ An equivalency demonstration to a riparian forest buffer will be conducted *(Individual NPDES Permits Only)*.

☐ Applicant is seeking a waiver *(E&S Permits Only)*.

3. Species that will be planted: _____

4. Average minimum widths: Zone 1: _____ ft Zone 2: _____ ft

5. Buffer linear length: _____ ft

6. ☐ A riparian forest buffer management plan has been included in the PCSM Plan for the project.

7. The buffer will be protected in perpetuity by: ☐ Deed restriction ☐ Conservation easement ☐ Other: _____

Module 4: Riparian Buffers (for Individual NPDES permits)

EQUIVALENCY DEMONSTRATION

☐ Worksheets 12 and 13 from DEP's Pennsylvania Stormwater BMP Manual (363-0300-002) and Worksheets 14 and 15 from DEP's Riparian Buffer or Riparian Forest Buffer Equivalency Demonstration (310-2135-002) have been completed and are attached to this module and demonstrate that proposed PCSM BMPs will provide equivalent or better pollutant load reductions as a riparian buffer or riparian forest buffer.

☐ The Checklist for Functional Equivalency of Riparian Buffers and Riparian Forest Buffers as contained in DEP's Riparian Buffer or Riparian Forest Buffer Equivalency Demonstration (310-2135-002) is attached to this module.

Will there be any earth disturbance within 100 feet of a surface water (as defined in 25 Pa. Code § 102.1)?

☐ Yes ☐ No

If Yes, complete the Riparian Forest Buffer Offset Information section. If No, skip to the Certification section.

RIPARIAN FOREST BUFFER OFFSET INFORMATION

1. Area that must be offset (show on PCSM Plan Drawing): _____ acre(s)
2. Proposed offset area (show on PCSM Plan Drawing): _____ acre(s)
3. Ch. 93 Drainage List of Project Site Waters: _____
4. Ch. 93 Drainage List of Offset Site Waters: _____ Name of Offset Site Waters: _____
5. Offset Property Owner Name and Address: _____

☐ Authorization to implement a new riparian forest buffer at the offset site has been provided and is attached.

☐ A Plan showing the location of the offset site and the buffer extent and an implementation plan are attached.

6. Species that will be planted: _____
7. Average minimum widths: Zone 1: _____ ft Zone 2: _____ ft
8. Buffer linear length: _____ ft
9. ☐ A riparian forest buffer management plan has been included in the PCSM Plan for the project.
10. The buffer will be protected in perpetuity by: ☐ Deed restriction ☐ Conservation easement ☐ Other: _____

Creating a Riparian Buffer involves planting trees up to 150 feet back from the bank

Module 4: Riparian Buffers (for Individual NPDES permits)

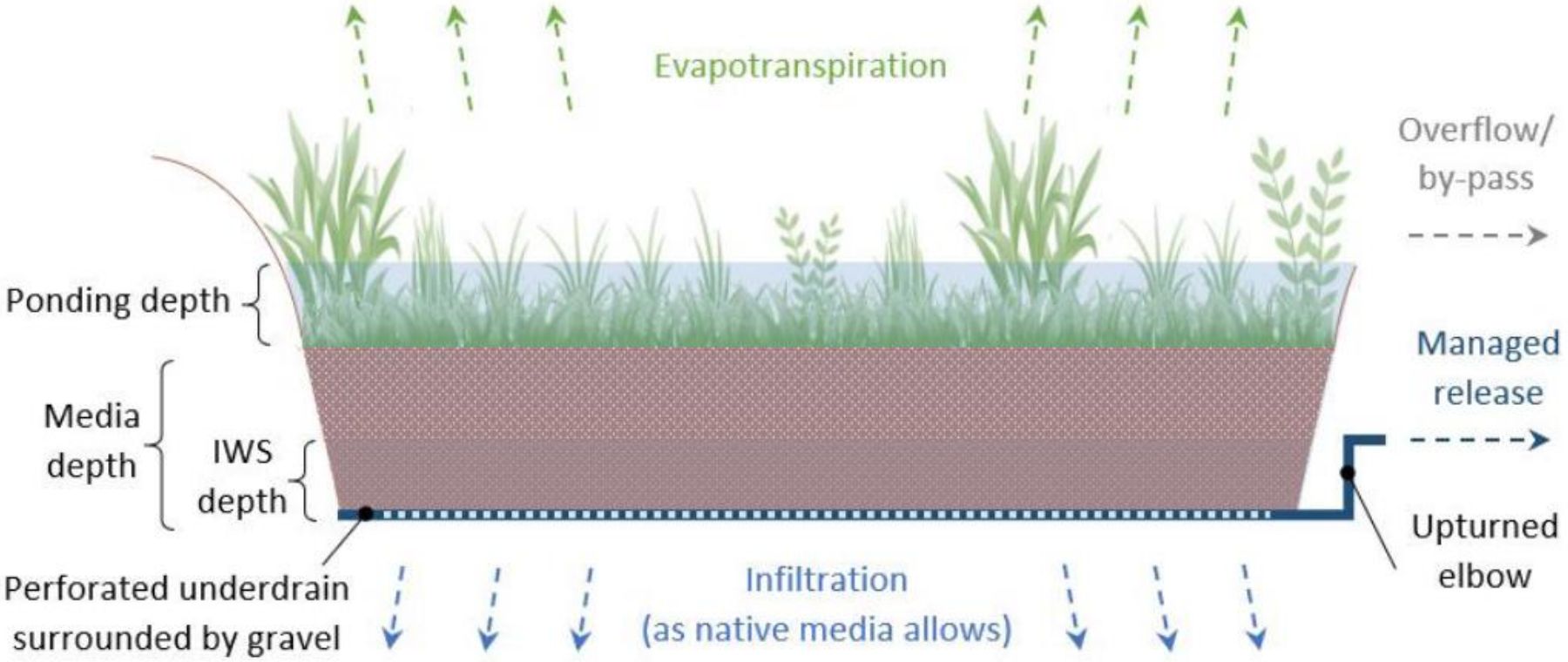
Quick Summary:

- Equivalency—replace a lost buffer with special BMP's
  - Use worksheets 12 and 13, and worksheets 14 and 15, to demonstrate pollutant load reductions

- Offset—replace the lost buffer with another buffer
  - Need a planting plan
  - Need a perpetual easement to protect the buffer

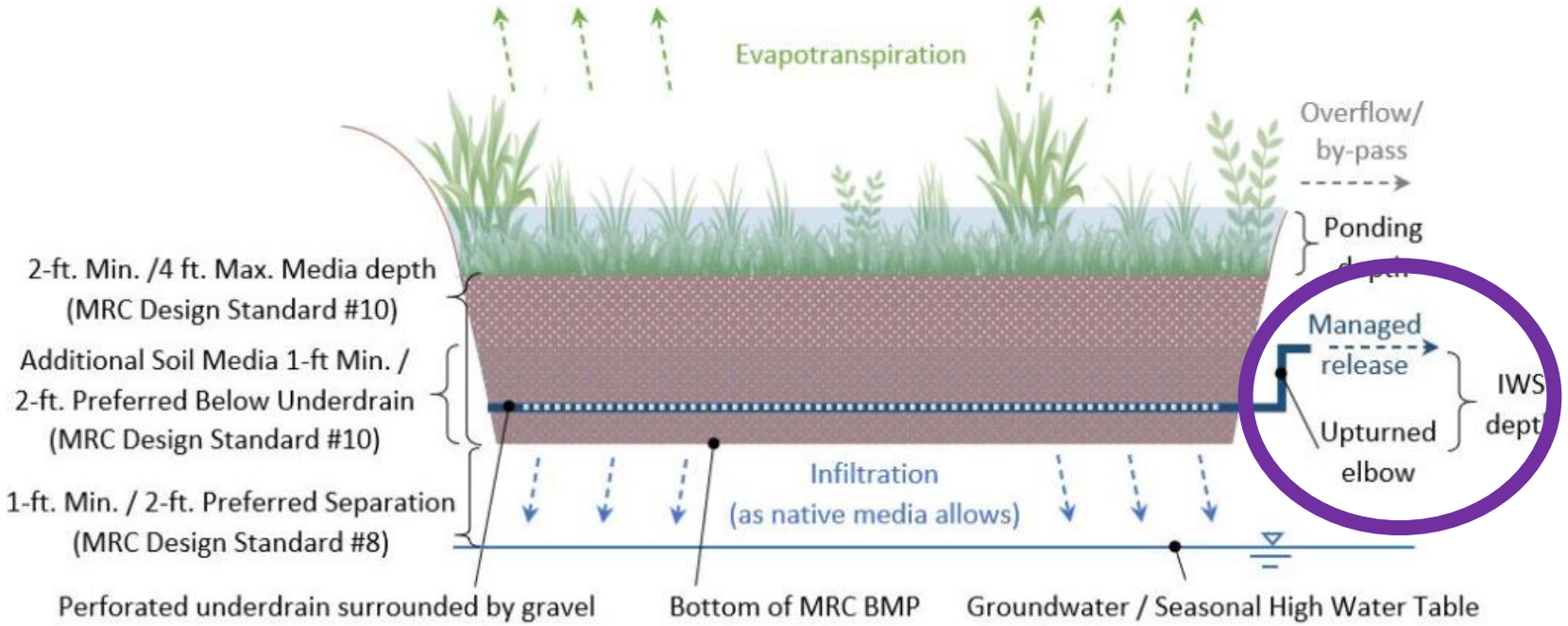
MRC—the Managed Release Concept, an option for Water Quality compliance on NPDES sites.

Figure 1: Managed Release Concept with Internal Water Storage (IWS) and Upturned Elbow for a Vegetated BMP



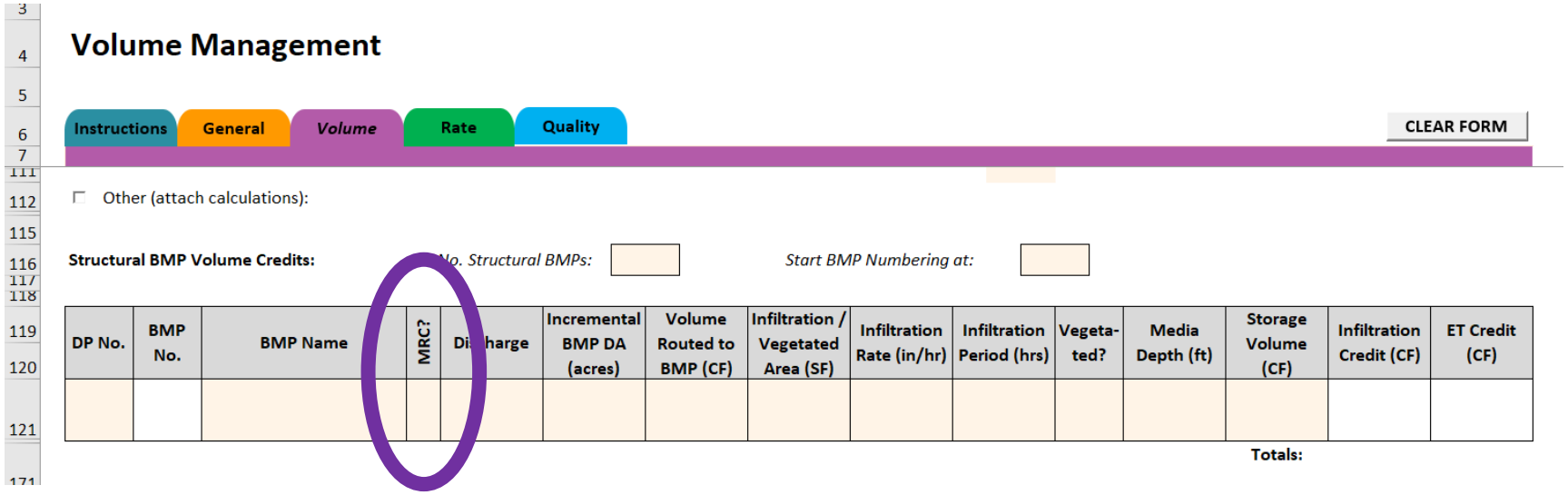
Managed Release Concept

- To meet water quality requirements
- Use where infiltration is considered limited
- Use where other BMP's are not sufficient to manage volume
- Has an underdrain and **internal water storage** to remove nitrogen



Managed Release Concept

- If used with a non-vegetated BMP, must provide pre-treatment
- For small drainage areas only
- Runoff from the 1.2 inch, 2 hour storm is handled
- Release rate of 0.01 cfs or 4.5 gpm
- Maximum drawdown time 72 hours



Volume Management

Instructions | General | *Volume* | Rate | Quality | CLEAR FORM

☐ Other (attach calculations):

Structural BMP Volume Credits: *No. Structural BMPs:* *Start BMP Numbering at:*

DP No.	BMP No.	BMP Name		MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)

Totals:

MRC appears on the Volume spreadsheet

We've already been (sort of) doing MRC for years… a rain garden, an underdrain. The big difference is the IWS which is due to the upturned underdrain.

Managed Release Concept

MRC Design Summary must be filed with the NPDES permit documents

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

MANAGED RELEASE CONCEPT (MRC) DESIGN SUMMARY

Complete One Design Summary Sheet for Each BMP Designed for MRC

GENERAL INFORMATION

Applicant Name: _____ Project Name: _____

Applicant Address: _____ Municipality: _____

City, State, Zip: _____ County: _____

Permit Type: ☐ NPDES PAG-02 ☐ NPDES IP ☐ ESCGP ☐ ESP

	Pre-Development	Post-Development	Change
Impervious Area (acres):			

MRC BMP INFORMATION

MRC BMP Type: _____ Stormwater BMP Manual Section: _____

Will the BMP Include Vegetation? ☐ Yes ☐ No

If Yes, Identify Proposed Vegetation: _____

For Non-Vegetated BMPs Will There Be Pre- or Post-Treatment? ☐ Yes (Pre-) ☐ Yes (Post-) ☐ No

If Yes, Identify Proposed Pre- or Post-Treatment: _____

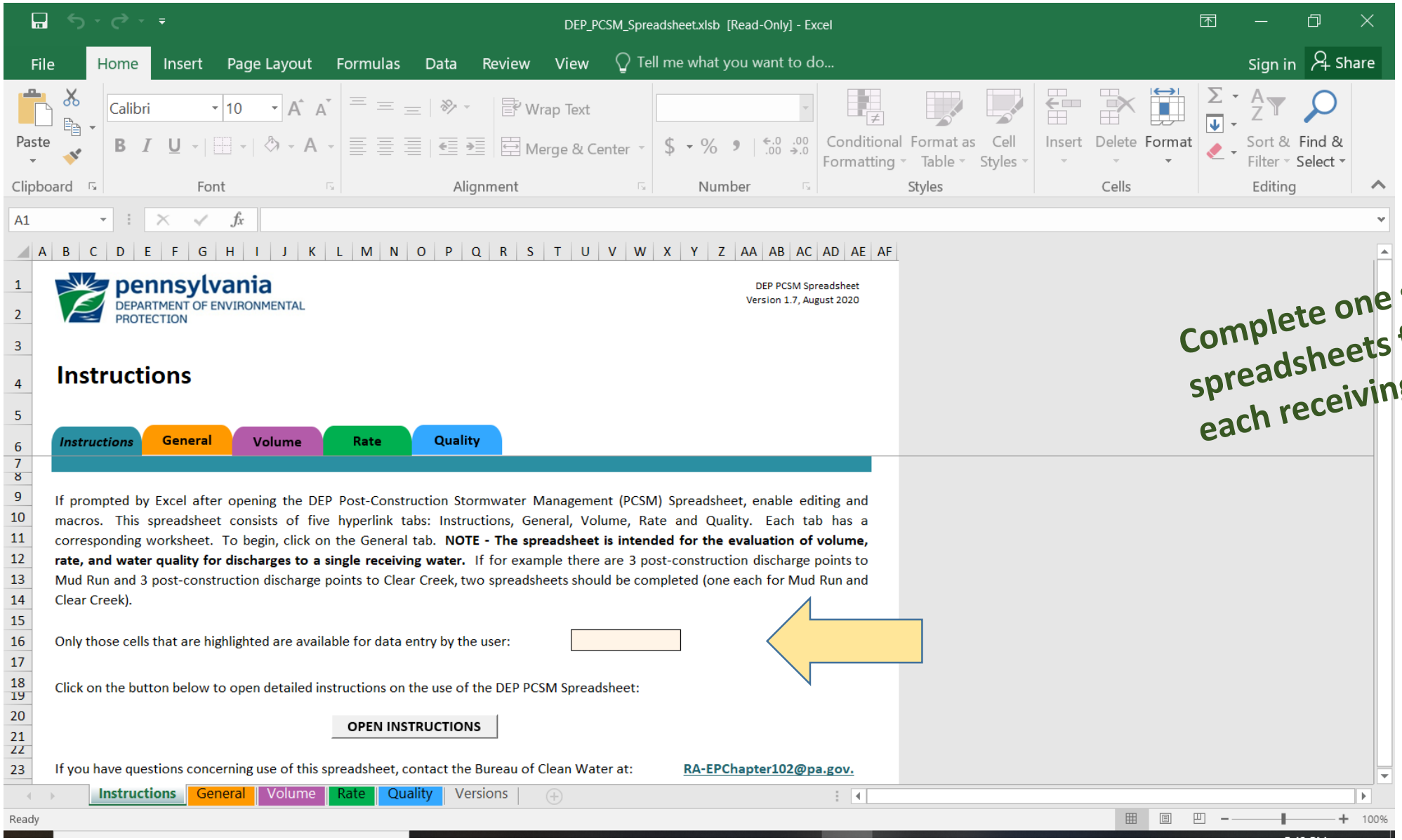
Name of Surface Water to Receive MRC BMP Discharges: _____

Putting it all together!

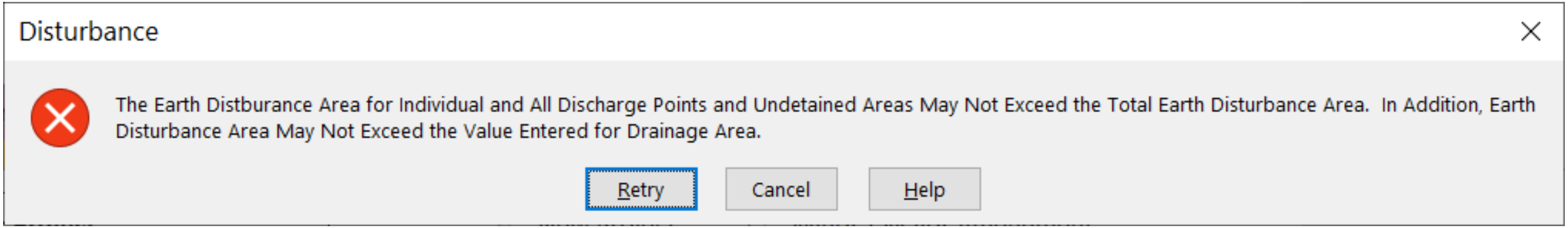
- Using the DEP **Excel™** Spreadsheets to calculate for your site
- The **Volume** and **Rate** spreadsheets are recommended; if you choose not to use them you need to provide alternative documentation that your project will meet these requirements
- Spreadsheets are required for **Module 4** if you have a Buffer situation
- The use of the **Quality** spreadsheet is required for all NPDES permits

Use of the Excel Spreadsheets will speed up your PCSM review!

DEP's Excel Spreadsheets, Version 1.7, strongly recommended for use

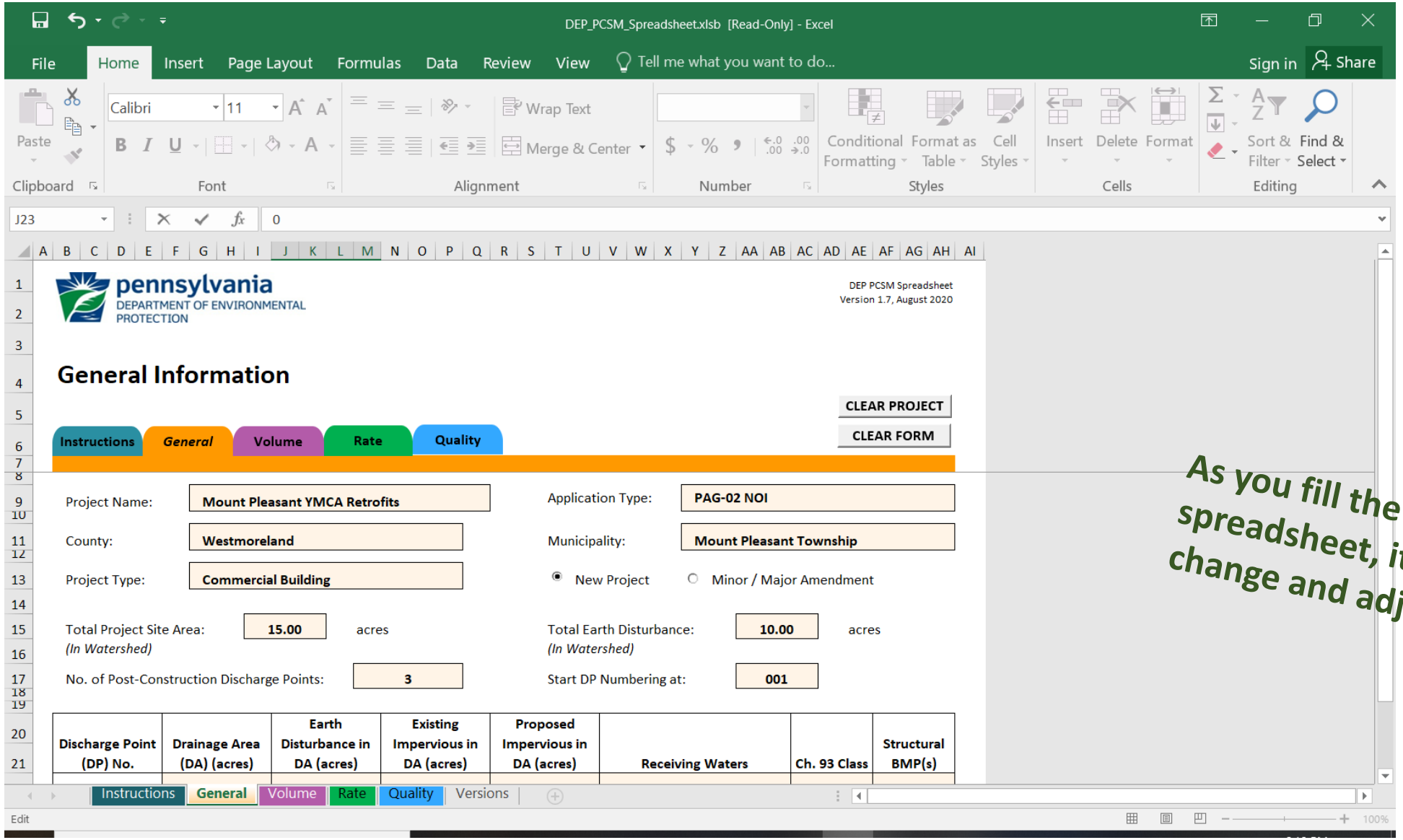


Sometimes you get an error message. Remember that data you enter is used on later slides and so the program catches "errors" you may make… Try again!!



It is a computer program.
It has a few issues.
You have to learn to
work around them.

DEP's Excel spreadsheets… work your way through them in order!



As you fill the spreadsheet, it will change and adjust

Data you enter on General will be used on the other spreadsheets

0.75

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DEP PCSM Spreadsheet
Version 1.7, August 2020

General Information

CLEAR PROJECT
CLEAR FORM

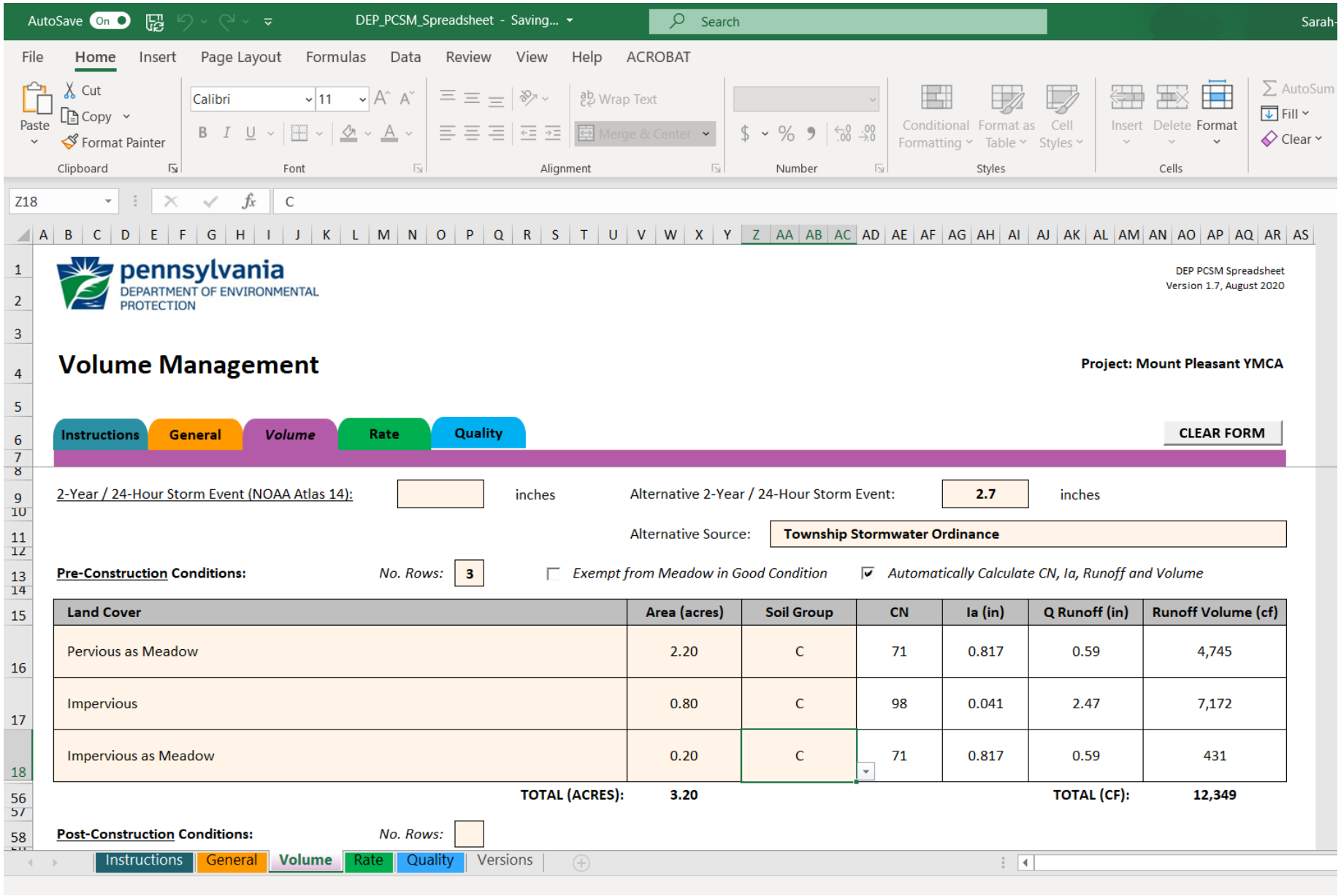
Instructions | *General* | Volume | Rate | Quality

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	3.60	2.45	0.50	2.45	Sherrick Run	WWF	Yes
002	10.00	6.80	0.50	0.50	Sherrick Run	WWF	Yes
003	0.75	0.75	0.00	0.75	Sherrick Run	WWF	Yes
Undetained Areas							
Totals:	**14.35**	**10.00**	**1**	**3.7**			

Instructions | General | Volume | Rate | Quality | Versions

When you enter a number into a box, hit "return"

Volume spreadsheet, top portion… enter land cover information here



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DEP PCSM Spreadsheet
Version 1.7, August 2020

Volume Management

Project: Mount Pleasant YMCA

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

2-Year / 24-Hour Storm Event (NOAA Atlas 14): [ ] inches

Alternative 2-Year / 24-Hour Storm Event: **2.7** inches

Alternative Source: **Township Stormwater Ordinance**

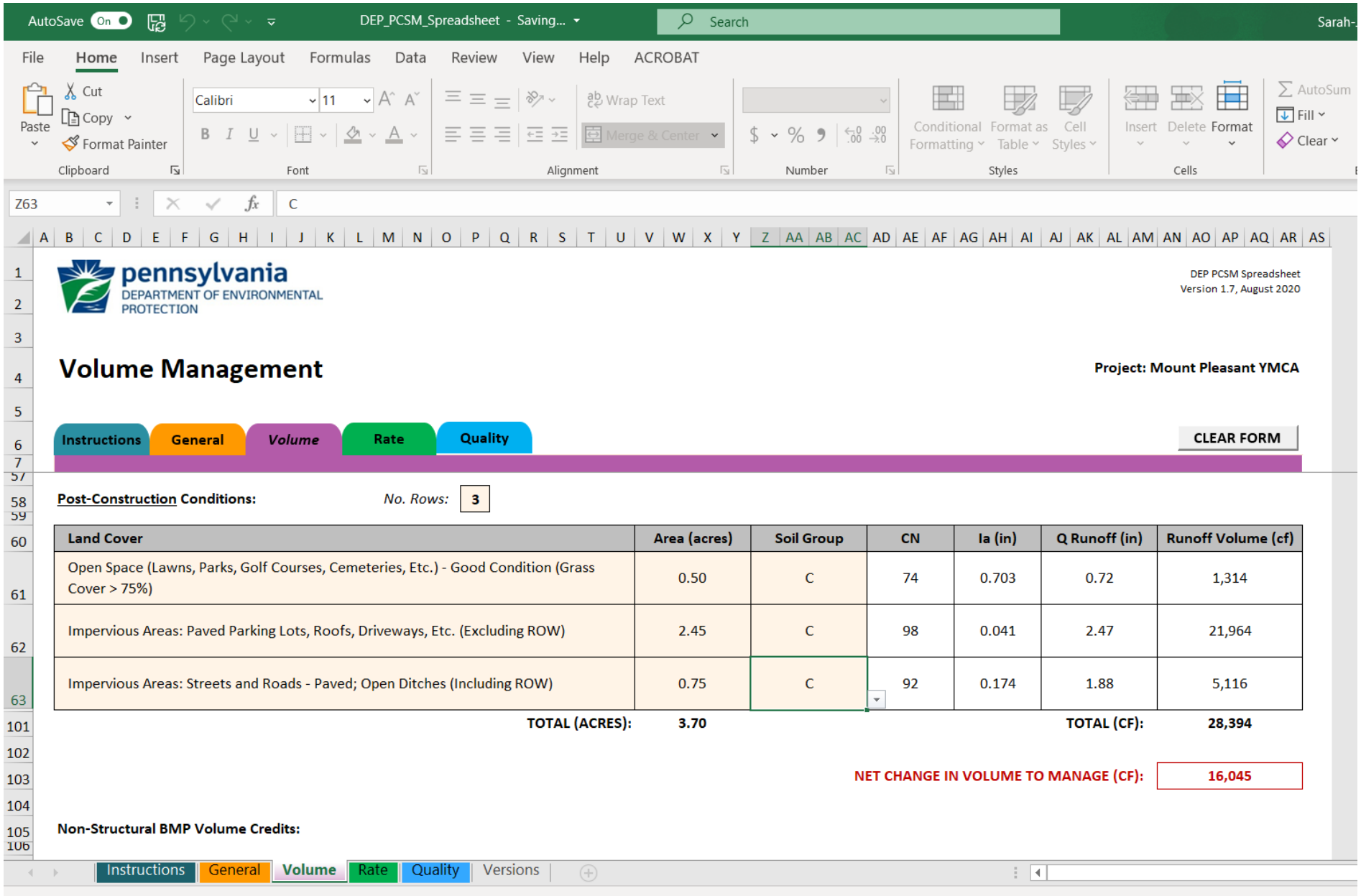
Pre-Construction Conditions: *No. Rows:* **3** ☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	2.20	C	71	0.817	0.59	4,745
Impervious	0.80	C	98	0.041	2.47	7,172
Impervious as Meadow	0.20	C	71	0.817	0.59	431
TOTAL (ACRES):	**3.20**				**TOTAL (CF):**	**12,349**

Post-Construction Conditions: *No. Rows:* [ ]

Instructions | General | Volume | Rate | Quality | Versions

Volume spreadsheet, middle portion, it calculates requirement for you



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP PCSM Spreadsheet
Version 1.7, August 2020

Volume Management

Project: Mount Pleasant YMCA

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

Post-Construction Conditions: *No. Rows:* 3

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.50	C	74	0.703	0.72	1,314
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.45	C	98	0.041	2.47	21,964
Impervious Areas: Streets and Roads - Paved; Open Ditches (Including ROW)	0.75	C	92	0.174	1.88	5,116
TOTAL (ACRES):	**3.70**				**TOTAL (CF):**	**28,394**

NET CHANGE IN VOLUME TO MANAGE (CF): **16,045**

Non-Structural BMP Volume Credits:

Volume spreadsheet, bottom portion: are you OK or not??

Township Stormwater Ordinance

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Volume Management

Project: Mount Pleasant YMCA

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Wet Pond / Retention Basin	-	Off-Site	2.45	6,000	1,250	0.50	8	Yes	1.5	5,000	**375**	**523**
002	2	Vegetated Swale	-	Off-Site	6.80	10,000	2,400	0.50	2	Yes	0.5	1,000	**180**	**412**
003	3	Porous Pavement w/Infiltration Bed	-	to BMP No. 1	0.74	5,000	5,000	0.50	9	No	2.0	4,000	**1,688**	
												Totals:	**2,243**	**935**

INFILTRATION & ET CREDITS (CF):	**3,177**
NET CHANGE IN VOLUME TO MANAGE (CF):	**16,045**
TOTAL CREDITS (CF):	**3,177**

VOLUME REQUIREMENT NOT SATISFIED

Instructions | General | Volume | Rate | Quality | Versions

Enter data for your BMP's.

Looks like we are **NOT OK.** We will have to expand our BMP's!

Volume Control: now we are OK.

DEP_PCSM_Spreadsheet - Saving...

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Volume Management

Project: Mount Pleasant YMCA

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

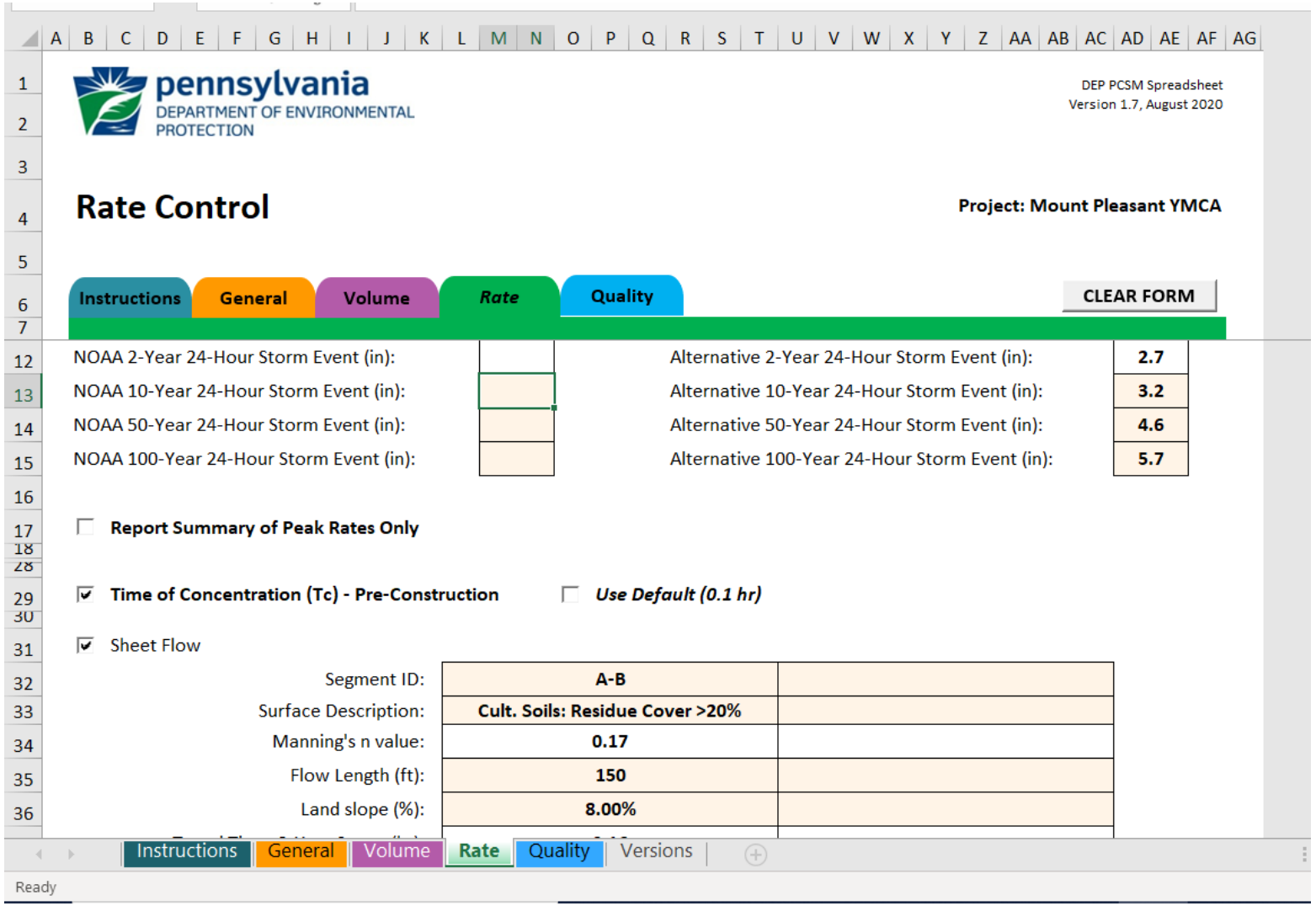
DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Wet Pond / Retention Basin	-	Off-Site	2.45	10,000	9,000	0.50	18	Yes	1.5	5,000	**6,075**	**3,767**
002	2	Vegetated Swale	-	Off-Site	6.80	10,000	2,400	0.75	2	Yes	0.5	1,000	**270**	**412**
003	3	Porous Pavement w/Infiltration Bed	-	to BMP No. 1	0.74	7,000	5,000	0.75	18	No	2.0	4,000	**5,063**	
												Totals:	**11,408**	**4,178**

INFILTRATION & ET CREDITS (CF):	**15,586**
NET CHANGE IN VOLUME TO MANAGE (CF):	**14,967**
TOTAL CREDITS (CF):	**15,586**

VOLUME REQUIREMENT SATISFIED

You have to work with it back and forth!!
Make sure you take the credit you can from your various BMP's.

Rate worksheet requests precipitation amounts, and then you can choose whether you want the spreadsheet to calculate time of concentration or not. If not, you can choose 'default'.



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Rate Control

Project: Mount Pleasant YMCA

Instructions | General | Volume | *Rate* | Quality

CLEAR FORM

NOAA 2-Year 24-Hour Storm Event (in):		Alternative 2-Year 24-Hour Storm Event (in):	2.7
NOAA 10-Year 24-Hour Storm Event (in):		Alternative 10-Year 24-Hour Storm Event (in):	3.2
NOAA 50-Year 24-Hour Storm Event (in):		Alternative 50-Year 24-Hour Storm Event (in):	4.6
NOAA 100-Year 24-Hour Storm Event (in):		Alternative 100-Year 24-Hour Storm Event (in):	5.7

☐ **Report Summary of Peak Rates Only**

☑ **Time of Concentration (Tc) - Pre-Construction** ☐ ***Use Default (0.1 hr)***

☑ Sheet Flow

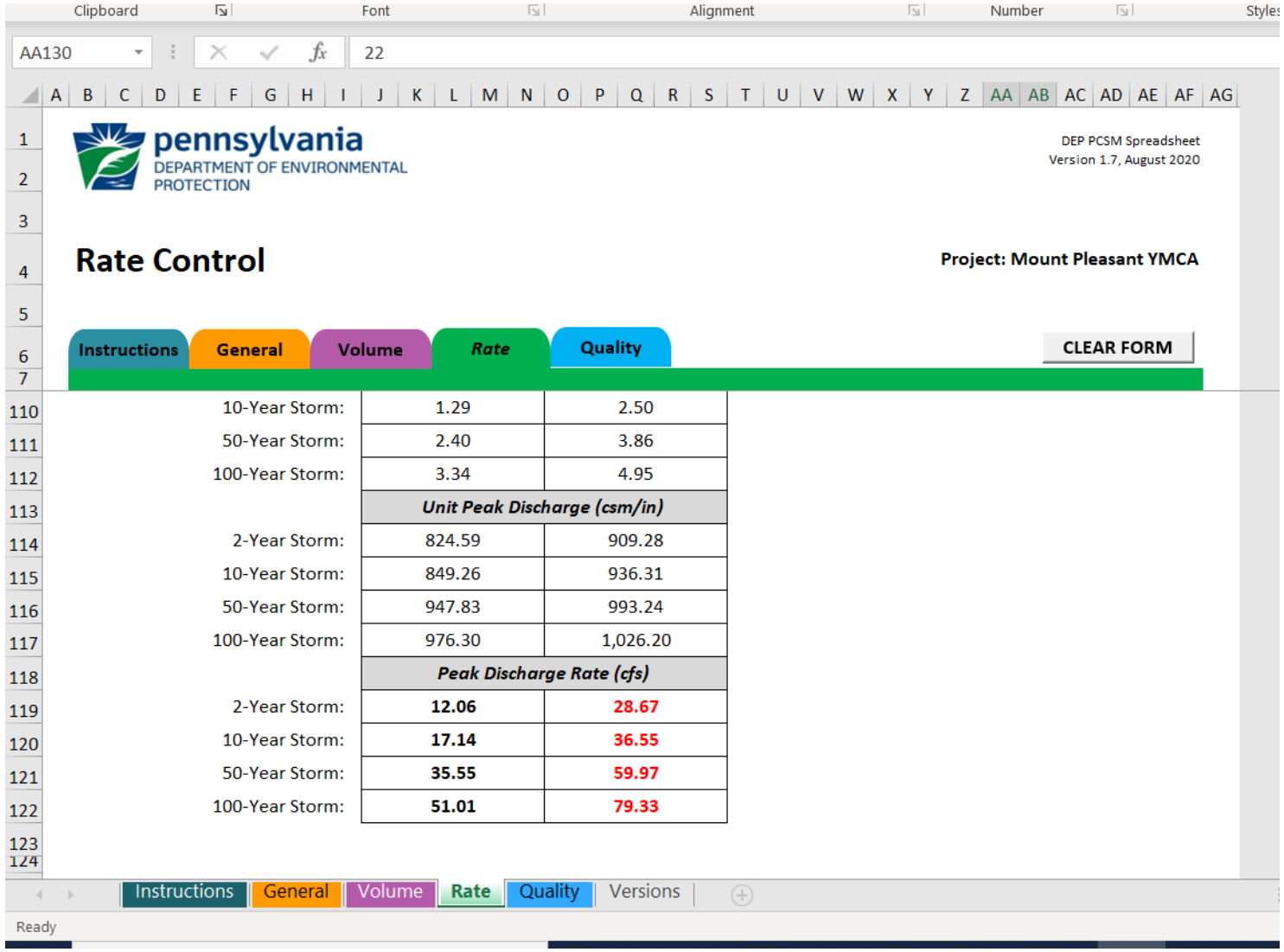
Segment ID:	**A-B**	
Surface Description:	**Cult. Soils: Residue Cover >20%**	
Manning's n value:	**0.17**	
Flow Length (ft):	**150**	
Land slope (%):	**8.00%**	

Instructions | General | Volume | Rate | Quality | Versions

Ready

The program uses a version of TR-55 to calculate peak flow rates. If you enter your own rates, you will need data from a program to back it up for the reviewer.

Using tc and precipitation info, the spreadsheet calculates peak discharge rates pre and post.



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Rate Control

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Instructions | General | Volume | *Rate* | Quality

CLEAR FORM

10-Year Storm:	1.29	2.50
50-Year Storm:	2.40	3.86
100-Year Storm:	3.34	4.95
	Unit Peak Discharge (csm/in)	
2-Year Storm:	824.59	909.28
10-Year Storm:	849.26	936.31
50-Year Storm:	947.83	993.24
100-Year Storm:	976.30	1,026.20
	Peak Discharge Rate (cfs)	
2-Year Storm:	**12.06**	**28.67**
10-Year Storm:	**17.14**	**36.55**
50-Year Storm:	**35.55**	**59.97**
100-Year Storm:	**51.01**	**79.33**

The program won't work if you calculate pre tc but ask it to do default post… so you have to calculate both pre and post tc, or do default both pre and post

Rate worksheet summarizes the function of BMP's.

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Rate Control

Project: Mount Pleasant YMCA

Instructions | General | Volume | *Rate* | Quality

CLEAR FORM

BMP No.	No.	BMP Name	MP	2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
001	1	Wet Pond / Retention Basin	-	10.00	12.00	20.00	28.00	4.00	6.00	11.00	17.00
002	2	Vegetated Swale	-	12.00	16.00	24.00	32.00	6.00	8.00	16.00	22.00
003	3	Porous Pavement w/Infiltration Bed	-	6.00	8.00	12.00	18.00	1.00	2.00	4.00	8.00

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction without BMPs**	**Post-Construction with BMPs**	
2-Year Storm:	**12.06**	**28.67**	**11.67**	*Rate Control Satisfied*
10-Year Storm:	**17.14**	**36.55**	**16.55**	*Rate Control Satisfied*
50-Year Storm:	**35.55**	**59.97**	**34.97**	*Rate Control Satisfied*
100-Year Storm:	**51.01**	**79.33**	**48.33**	*Rate Control Satisfied*

Instructions | General | Volume | Rate | Quality | Versions

Rate control worksheet does not calculate orifices, spillways, pipes, etc. You have to do that yourself and provide the input for the table. Remember to show your work for the reviewer!!

Water Quality spreadsheet is required.

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DEP PCSM Spreadsheet
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Water Quality

Project: Mount Pleasant YMCA

PRINT

CLEAR FORM

Instructions | General | Volume | Rate | *Quality*

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.50	C	1,314	78.00	0.25	1.25	6.40	0.02	0.10
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.45	C	21,964	65.00	0.29	2.05	89.15	0.40	2.81
Impervious Areas: Streets and Roads - Paved; Open Ditches (Including ROW)	Highway (general)	0.75	C	5,116	141.00	0.43	2.65	45.04	0.14	0.85
	TOTAL (ACRES):	**3.70**					**TOTALS:**	**140.59**	**0.56**	**3.76**
							POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**69.58**	**0.31**	**1.71**

Instructions | General | Volume | Rate | Quality | Versions

Ready

Pollutant load and required reductions are calculated. This takes the place of old Worksheets 12 and 13.

The Quality spreadsheet calculates the effectiveness of the BMP's.

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Water Quality

Project: Mount Pleasant YMCA

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CLEAR FORM

Instructions | General | Volume | Rate | *Quality*

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Wet Pond / Retention Basin	-	2.45	10,000	9,842		159	11.70	0.09	1.20	0.12	0.00	0.01
002	2	Vegetated Swale	-	6.80	10,000	682		9,318	24.00	0.20	0.85	13.96	0.12	0.49
003	3	Porous Pavement w/Infiltration Bed	-	0.74	7,000	5,063		1,938	-	-	-	-	-	-

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	**14.08**	**0.12**	**0.51**

Instructions | General | Volume | Rate | Quality | Versions

Ready

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Water Quality

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CLEAR FORM

Instructions | General | Volume | Rate | *Quality*

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	14.08	0.12	0.51
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	16.49	0.07	0.44
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):			
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	30.58	0.18	0.95
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	71.01	0.24	2.05

WATER QUALITY REQUIREMENT SATISFIED

Looks like we are OK. If not, you need to add BMP's.

Instructions | General | Volume | Rate | *Quality*

CLEAR FORM

CERTIFICATION

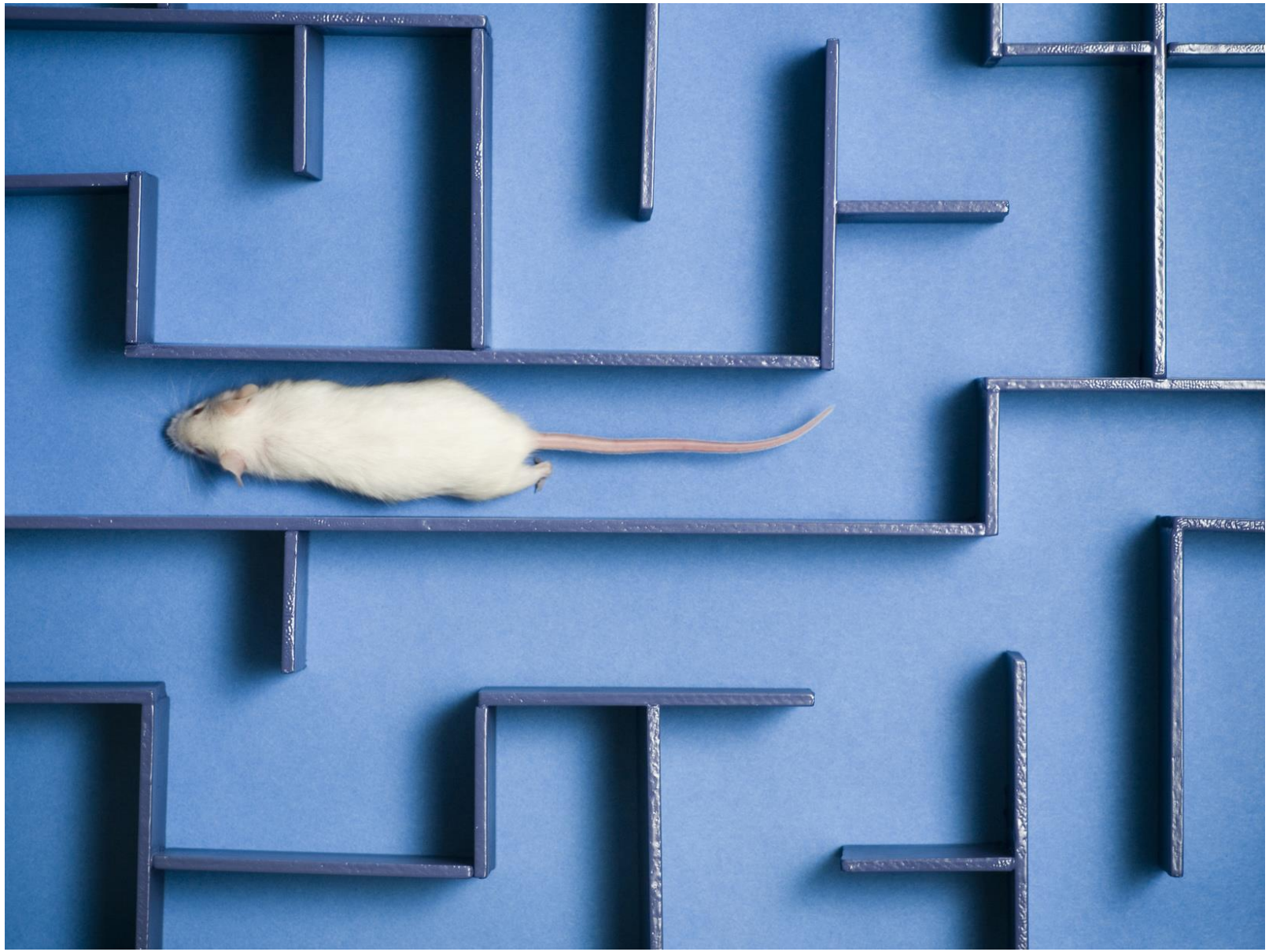
I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Ronald Reagan

Date

You have to sign the box!

The first few times you use the Spreadsheets you will feel like…



But when you get the hang of it… it works quite well.

Stormwater Management

Is your friend.

Jim Pillsbury

Westmoreland Conservation District

jim@wcdpa.com