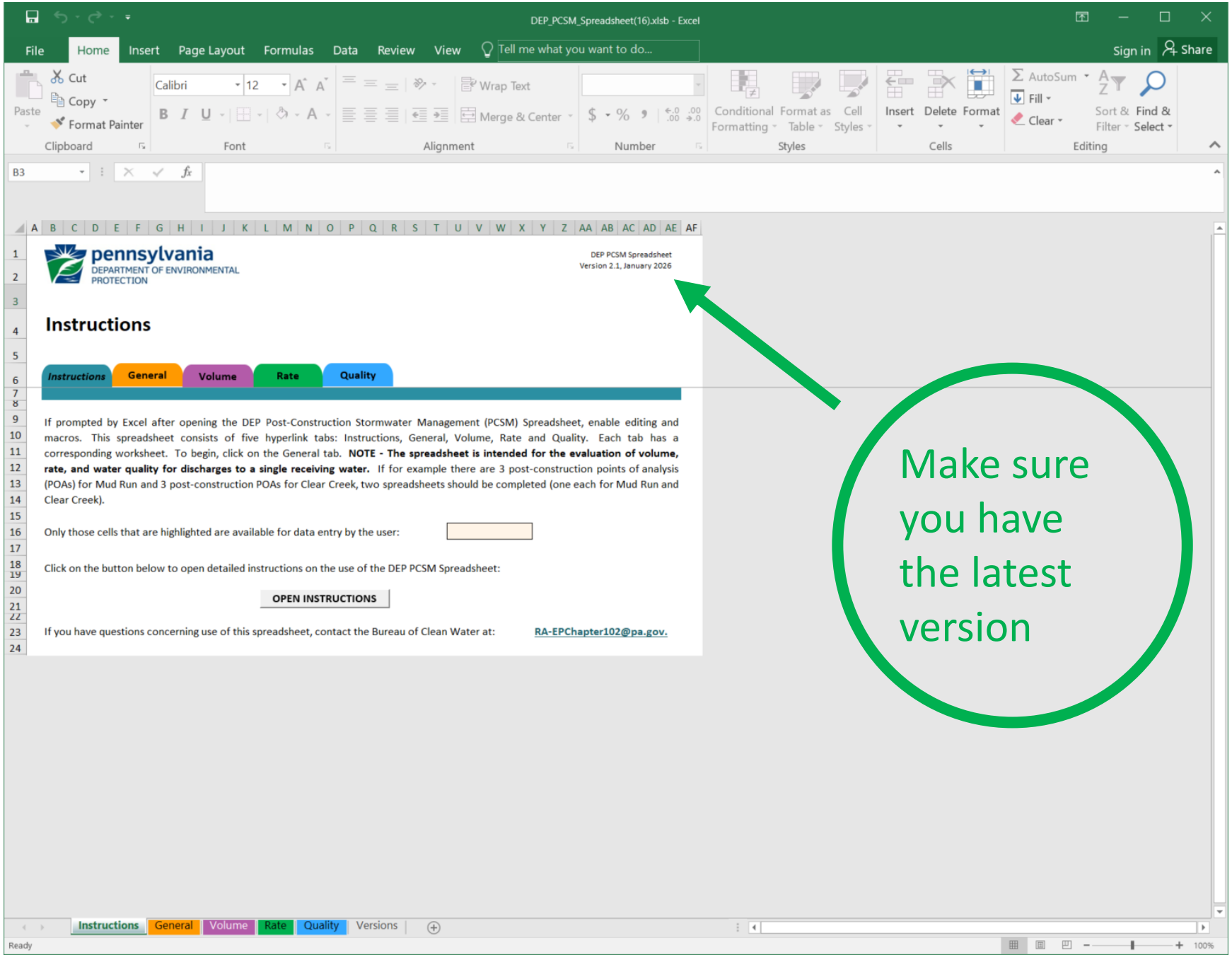
PCSM Spreadsheets

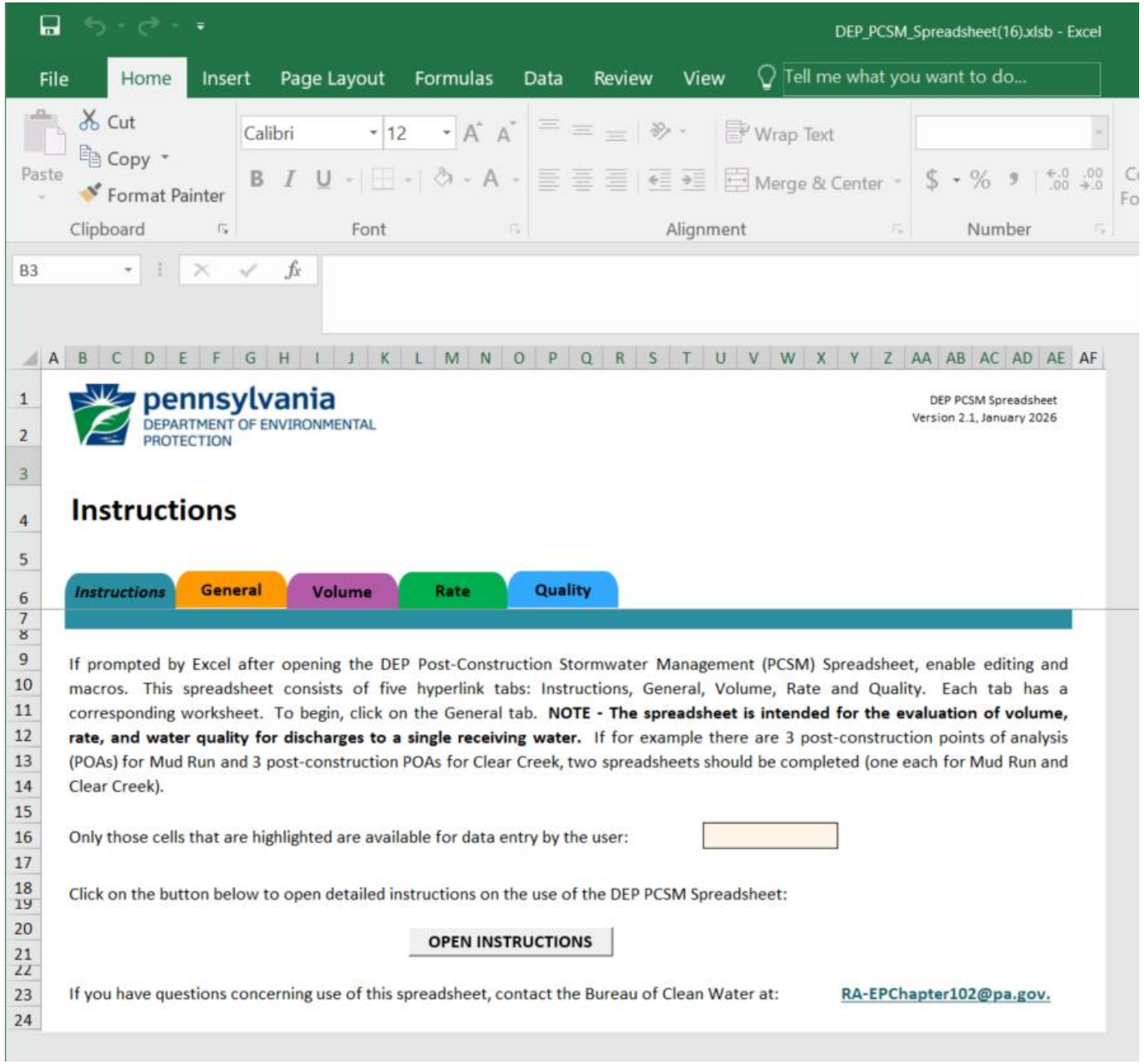
Westmoreland Conservation District

Engineers Workshop

March 19, 20 2026

The spreadsheet is a part of a complete NPDES permit application





Evaluate volume, rate, and quality for discharges to a single receiving water

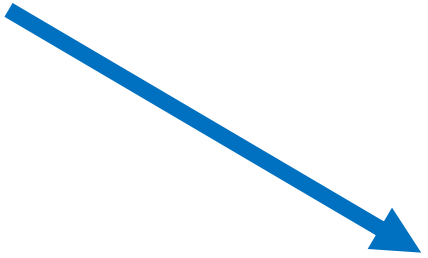
Multiple receiving waters will require multiple worksheets

You can also do the spreadsheets on a POA (point of analysis) basis

DEP updates the PCSM spreadsheet and the instructions from time to time.

The end goal of the spreadsheets is Water Quality.

If you have specific spreadsheet questions, DEP provides an email address for you to send questions.



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

DEP POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) SPREADSHEET INSTRUCTIONS

Revised, January 21, 2026

Introduction

The Department of Environmental Protection (DEP) has developed the DEP PCSM Spreadsheet (spreadsheet) to facilitate calculations necessary for completing the stormwater analysis required by § 102.8(g) for PCSM Plans. The spreadsheet is intended to streamline PCSM calculations and help applicants demonstrate compliance with the regulations when a permit under Chapter 102 is required. The spreadsheet was designed using the latest version of Microsoft Excel® and is in Excel binary workbook (XLSB) format.

The Volume Worksheet of the spreadsheet utilizes the Curve Number method from TR-55 to estimate runoff volumes from land covers. The Rate Worksheet utilizes the Graphical Peak Discharge Method from TR-55; as noted below, this method is limited in use and may not be appropriate in many cases. The Quality Worksheet utilizes the volumes determined in the Volume Worksheet to calculate pollutant loads from land cover concentrations using the National Stormwater Quality Database and stormwater control measure (SCM) outflow concentrations from the International BMP Database. The Quality Worksheet includes a Certification statement that must be acknowledged by the user of the spreadsheet for submission to DEP or delegated county conservation districts (CCDs) as part of a Chapter 102 permit application.

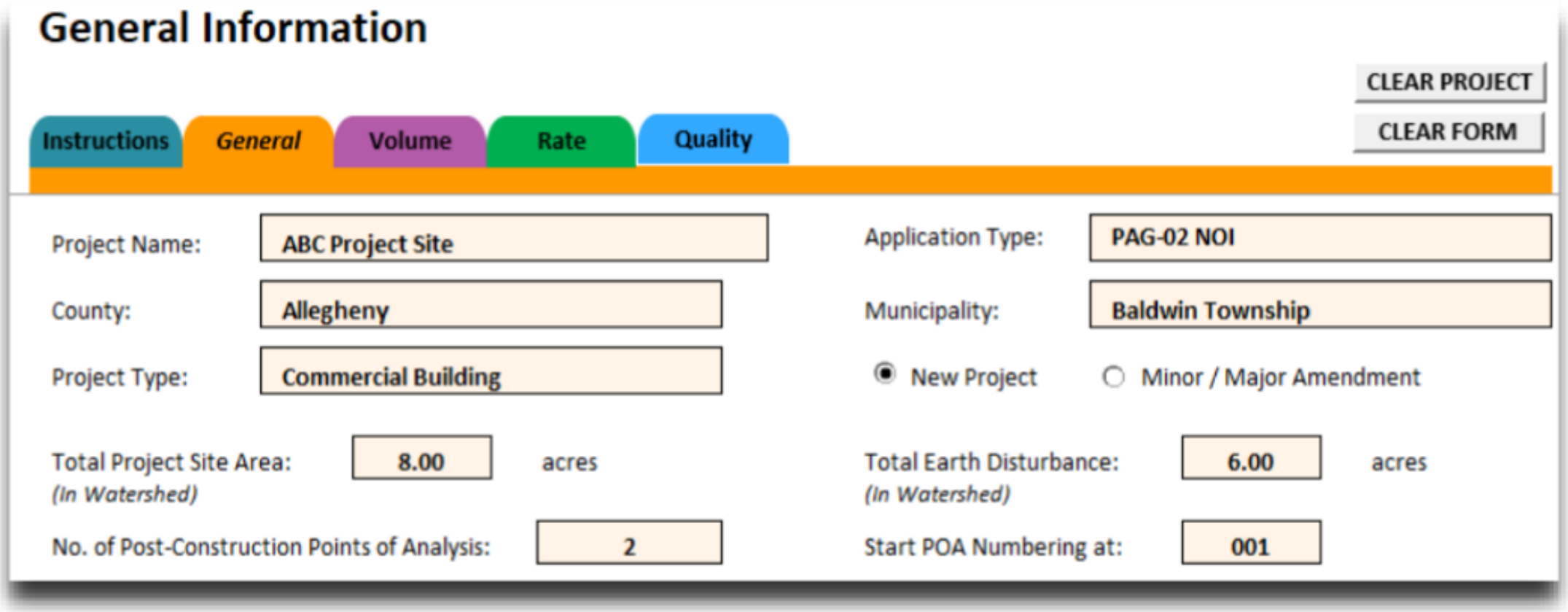
The spreadsheet contains default calculations that may in some cases be overridden by the user's own calculations through manual entry (e.g., runoff volumes), providing flexibility. However, if the user overrides any of the spreadsheet's calculations, the applicant should attach additional documentation explaining what specifically was overridden with justification. The use of the spreadsheet and attachment of spreadsheet printouts to Chapter 102 applications is encouraged, and in certain cases is required, because the reviewing agency will receive calculations in a consistent format, which is intended to provide for more efficient and timely reviews.

Users should check DEP's website periodically for updates to the spreadsheet and instructions by visiting www.dep.pa.gov/constructionstormwater and selecting "E&S Resources". In general, DEP/CCD will accept older versions of the spreadsheet no more than 6 months following the revision date of the spreadsheet. DEP/CCD also reserves the right to request completion of the latest version of the spreadsheet for any project.

Questions on the use of the spreadsheet can be directed to the Bureau of Clean Water at RA-EPCHAPTER102@pa.gov.

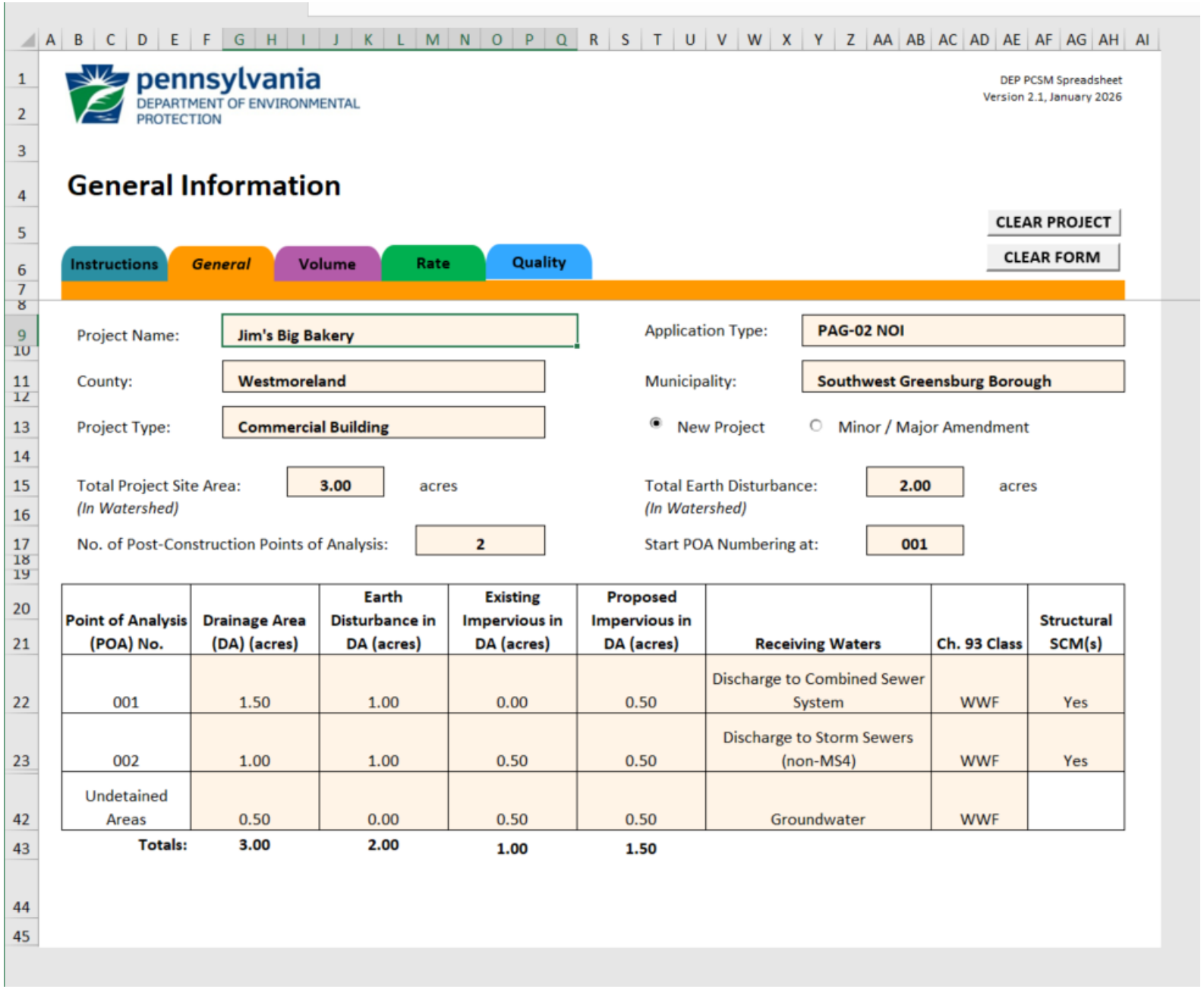
Use Tab, Arrow, or Enter to move from cell to cell.
Using the mouse may result in errors.

General Worksheet



Data you enter on the General spreadsheet tab carries through the rest of the spreadsheets

Make sure you have entered the same numbers and info on your NPDES and Module 2, etc.



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DEP PCSM Spreadsheet
Version 2.1, January 2026

General Information

CLEAR PROJECT
CLEAR FORM

Instructions | General | Volume | Rate | Quality

Project Name:	Jim's Big Bakery	Application Type:	PAG-02 NOI
County:	Westmoreland	Municipality:	Southwest Greensburg Borough
Project Type:	Commercial Building		● New Project ○ Minor / Major Amendment
Total Project Site Area: *(In Watershed)*	3.00 acres	Total Earth Disturbance: *(In Watershed)*	2.00 acres
No. of Post-Construction Points of Analysis:	2	Start POA Numbering at:	001

Point of Analysis (POA) 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 SCM(s)
001	1.50	1.00	0.00	0.50	Discharge to Combined Sewer System	WWF	Yes
002	1.00	1.00	0.50	0.50	Discharge to Storm Sewers (non-MS4)	WWF	Yes
Undetained Areas	0.50	0.00	0.50	0.50	Groundwater	WWF	
Totals:	**3.00**	**2.00**	**1.00**	**1.50**			

The spreadsheet has numerous internal checks.
The instructions explain what's going on.

VALIDATION – The ***Drainage Area*** for individual POAs and undetained areas may not exceed the ***Total Project Site Area*** entered on this worksheet. In addition, the sum of all drainage areas and undetained areas may not exceed the ***Total Project Site Area***.

- **Earth Disturbance in DA (acres)** – For each POA, report the area of earth disturbance within the post-construction drainage area.

  VALIDATION – The ***Earth Disturbance*** area for individual and all POAs and undetained areas may not exceed the ***Total Earth Disturbance Area*** entered on this worksheet. In addition, the ***Earth Disturbance*** area for any POA or undetained areas may not exceed the value entered for ***Drainage Area***.

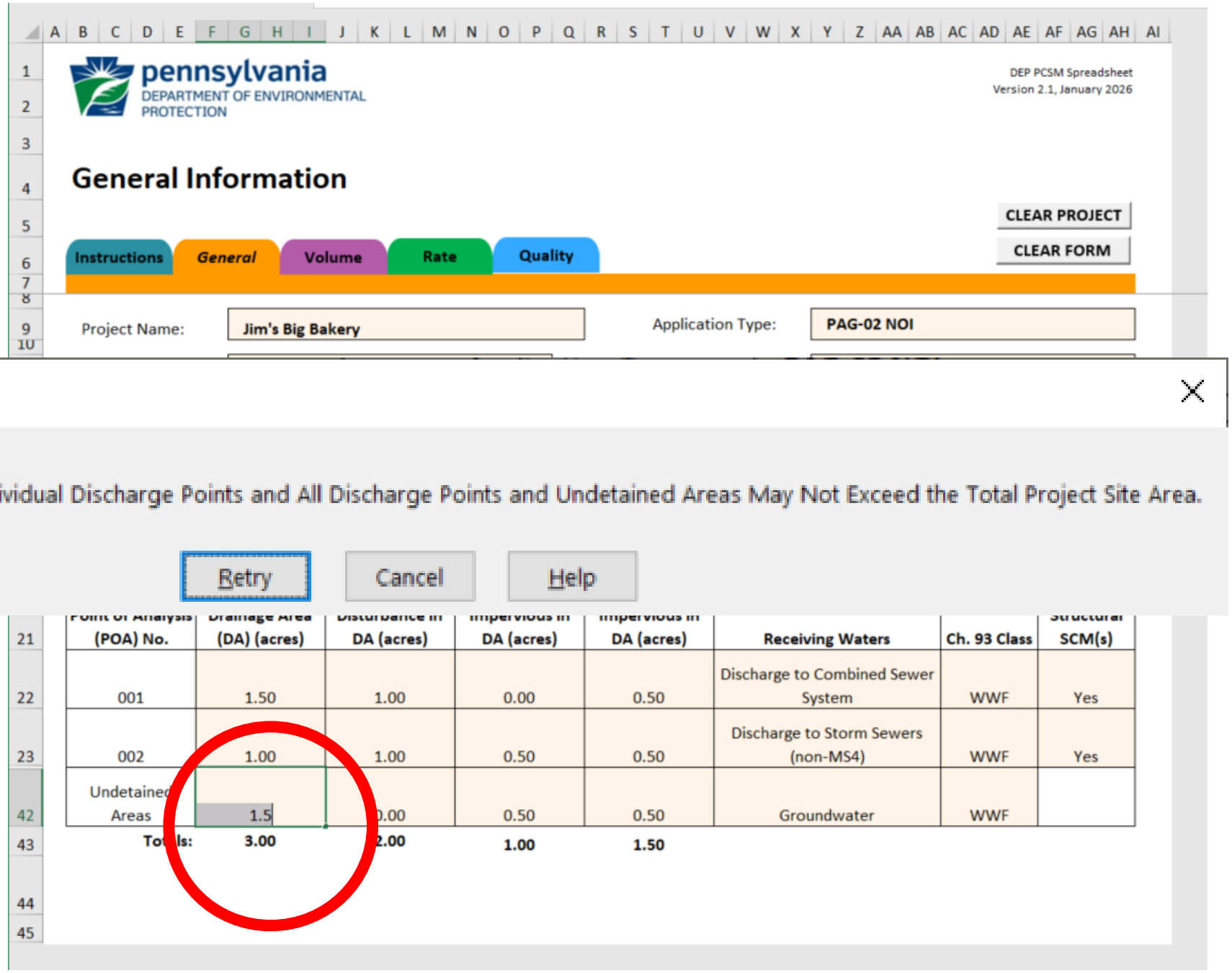
- **Existing Impervious in DA (acres)** – For each POA, enter the actual acres of impervious surface – prior to construction – within the post-construction drainage area.

  VALIDATION – The ***Existing Impervious in DA (acres)*** may not exceed the value entered for ***Drainage Area*** for the POA.

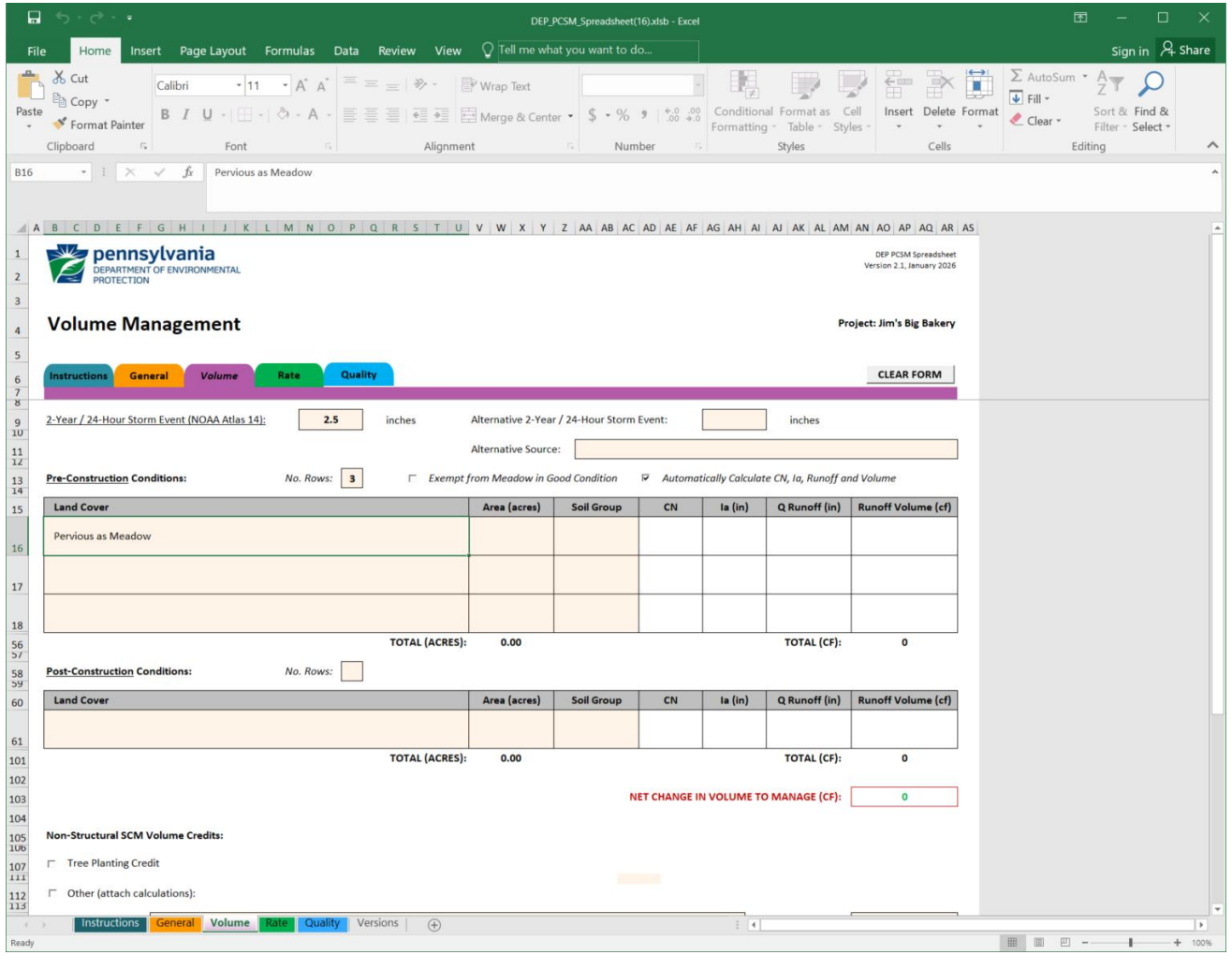
- **Proposed Impervious in DA (acres)** – For each POA, enter the acres of impervious surface that are planned within the post-construction drainage area.

  VALIDATION – The ***Proposed Impervious in DA (acres)*** may not exceed the value entered for ***Drainage Area*** for the POA.

If you make a mistake…

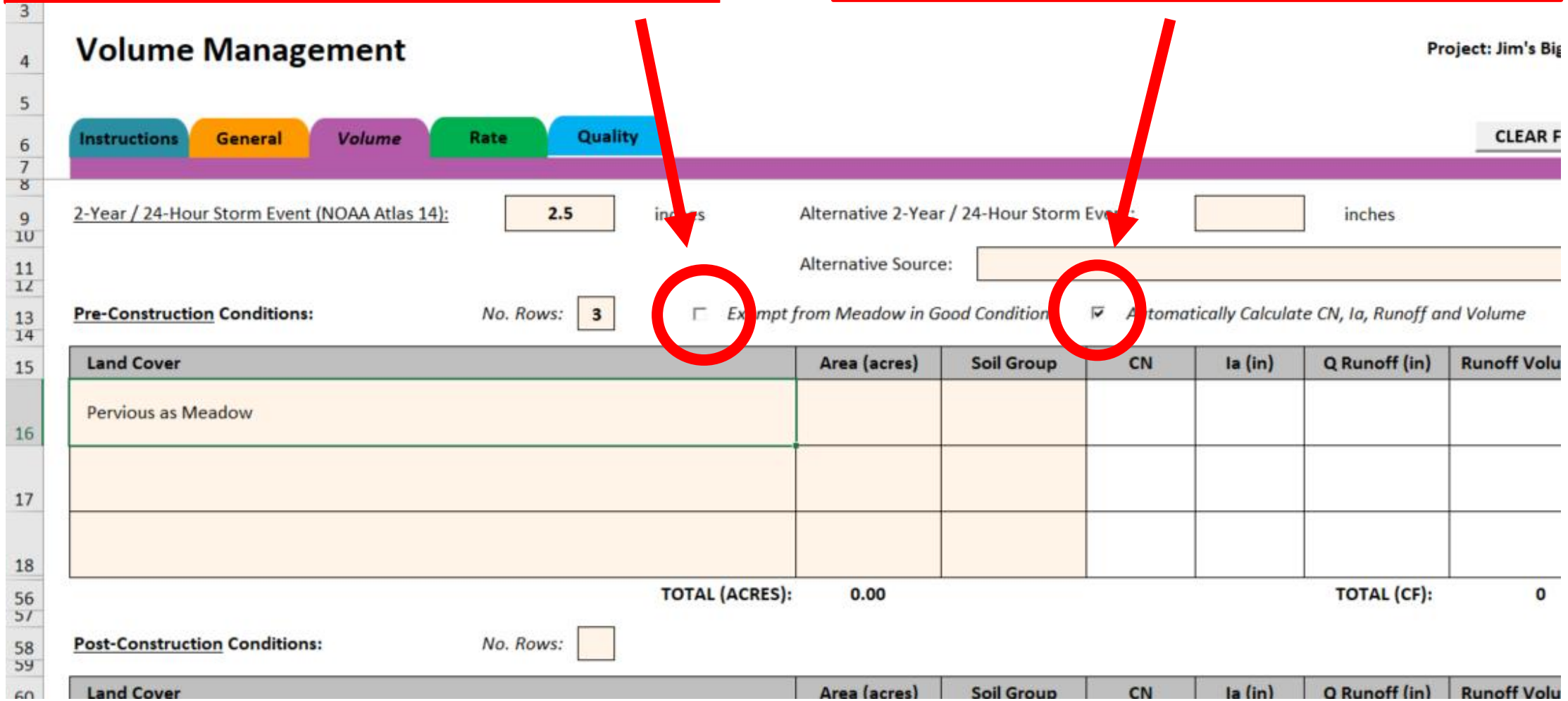


You need to fill out the Volume worksheet in order to progress thru the spreadsheets to the Quality worksheet.



Usually check this box only if it's a road project or a utility line

If you uncheck this box, you have to enter data manually, which you can do, but it can lead to errors



Volume Management

Project: Jim's Big

Instructions | General | *Volume* | Rate | Quality

CLEAR F

2-Year / 24-Hour Storm Event (NOAA Atlas 14): 2.5 inches

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

Alternative Source:

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

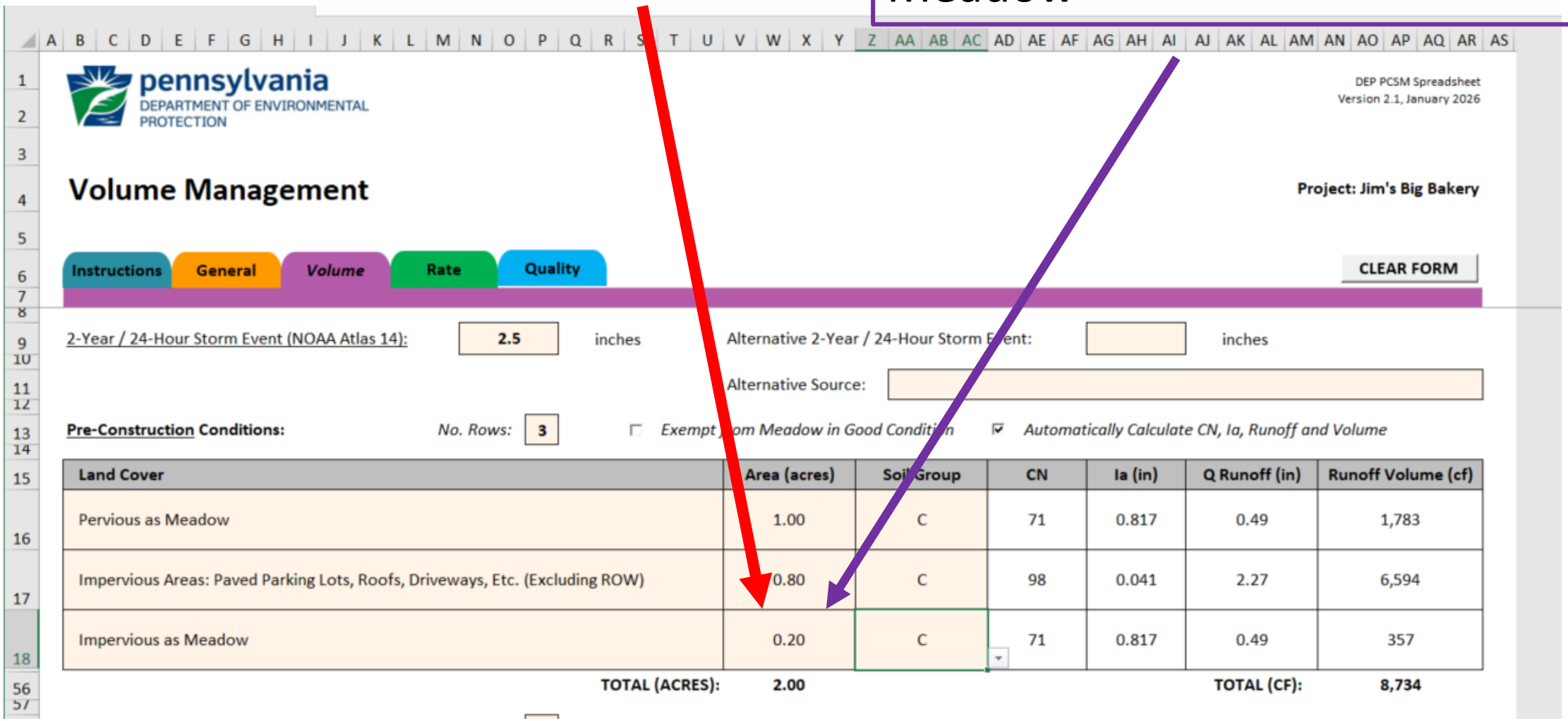
Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volu
Pervious as Meadow						
TOTAL (ACRES):	0.00				TOTAL (CF):	0

Post-Construction Conditions: *No. Rows:*

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

Acreage can't exceed what was listed as *disturbed* on General

If you have existing impervious, usually need to consider 20% as Meadow



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP PCSM Spreadsheet
Version 2.1, January 2026

Volume Management

Project: Jim's Big Bakery

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **2.5** inches

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

Alternative Source:

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	1.00	C	71	0.817	0.49	1,783
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.80	C	98	0.041	2.27	6,594
Impervious as Meadow	0.20	C	71	0.817	0.49	357
TOTAL (ACRES):	**2.00**				**TOTAL (CF):**	**8,734**

In the post-developed condition, select surfaces in the table.
Several different choices are available.
This does not necessarily affect the CN, but it affects water quality, so choose your coverage wisely.

DEP PCSM Spreadsheet Instructions
Revised, January 26, 2026

- **Impervious Areas: Commercial** – select this impervious land cover for all impervious surfaces (including roofs, parking lots, walkways, etc.) on commercial sites except for streets and roads, in which one or more of the selections above should be made.

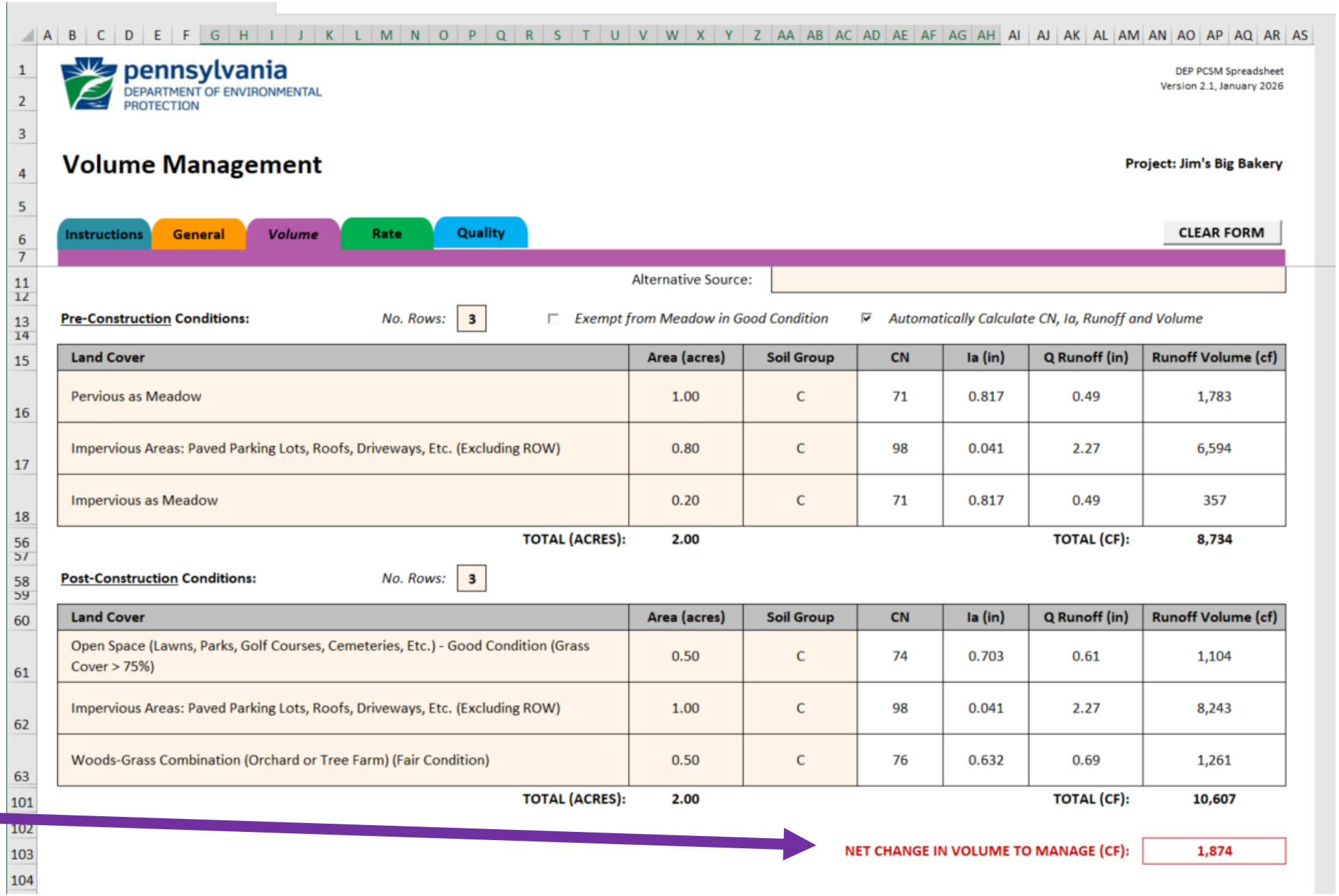
- **Impervious Areas: Industrial** – select this impervious land cover for all impervious surfaces on industrial sites except for streets and roads, in which one or more of the selections above should be made.

- **Impervious Areas: Institution** – select this impervious land cover for all impervious surfaces on institutional sites (e.g., college campuses) except for streets and roads, in which one or more of the selections above should be made.

Maybe this was partly meadow…

This sure is not meadow!

Enter the Post-Construction conditions. The spreadsheet calculates the volume increase.



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DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP PCSM Spreadsheet
Version 2.1, January 2026

Volume Management

Project: Jim's Big Bakery

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

Alternative Source:

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

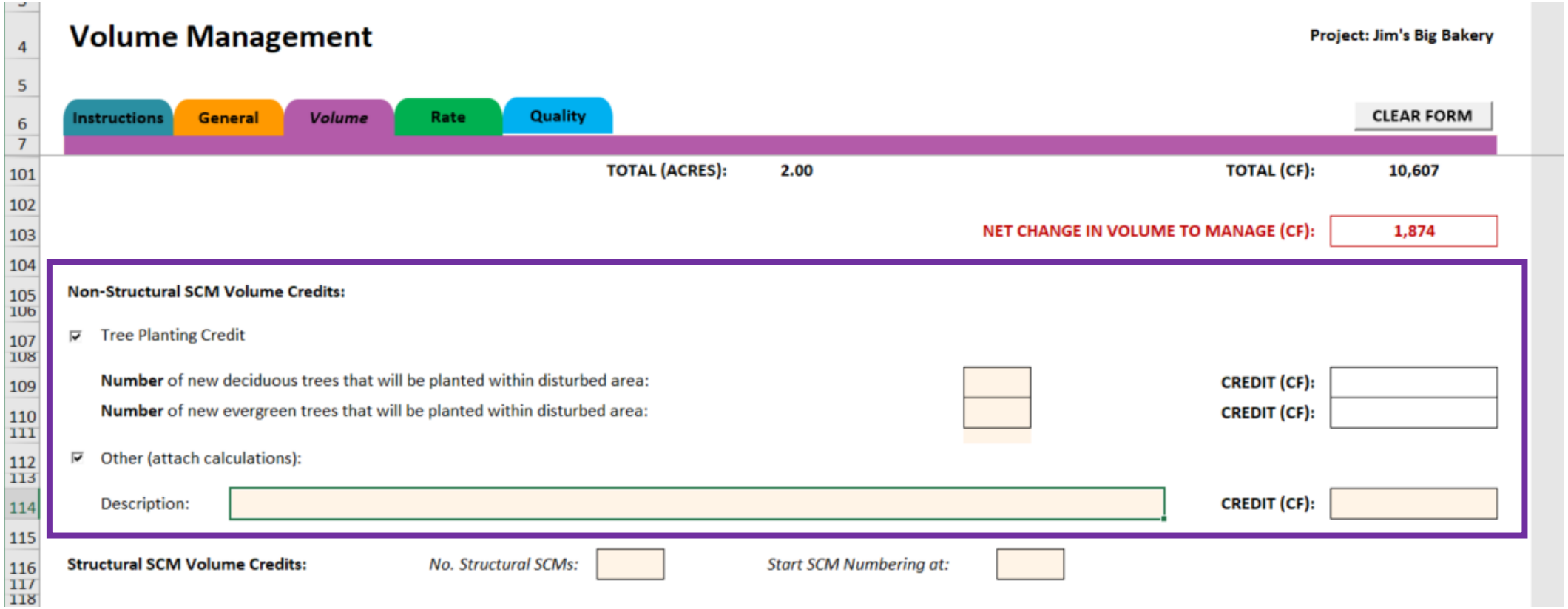
Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	1.00	C	71	0.817	0.49	1,783
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.80	C	98	0.041	2.27	6,594
Impervious as Meadow	0.20	C	71	0.817	0.49	357
TOTAL (ACRES):	**2.00**				**TOTAL (CF):**	**8,734**

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	0.61	1,104
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	1.00	C	98	0.041	2.27	8,243
Woods-Grass Combination (Orchard or Tree Farm) (Fair Condition)	0.50	C	76	0.632	0.69	1,261
TOTAL (ACRES):	**2.00**				**TOTAL (CF):**	**10,607**

NET CHANGE IN VOLUME TO MANAGE (CF): **1,874**

The volume spreadsheet allows credit for tree planting and for other non-structural SCM credits.



Volume Management

Project: Jim's Big Bakery

Instructions | General | *Volume* | Rate | Quality

CLEAR FORM

TOTAL (ACRES): 2.00

TOTAL (CF): 10,607

NET CHANGE IN VOLUME TO MANAGE (CF): 1,874

Non-Structural SCM Volume Credits:

☑ Tree Planting Credit

Number of new deciduous trees that will be planted within disturbed area: CREDIT (CF):

Number of new evergreen trees that will be planted within disturbed area: CREDIT (CF):

☑ Other (attach calculations):

Description: CREDIT (CF):

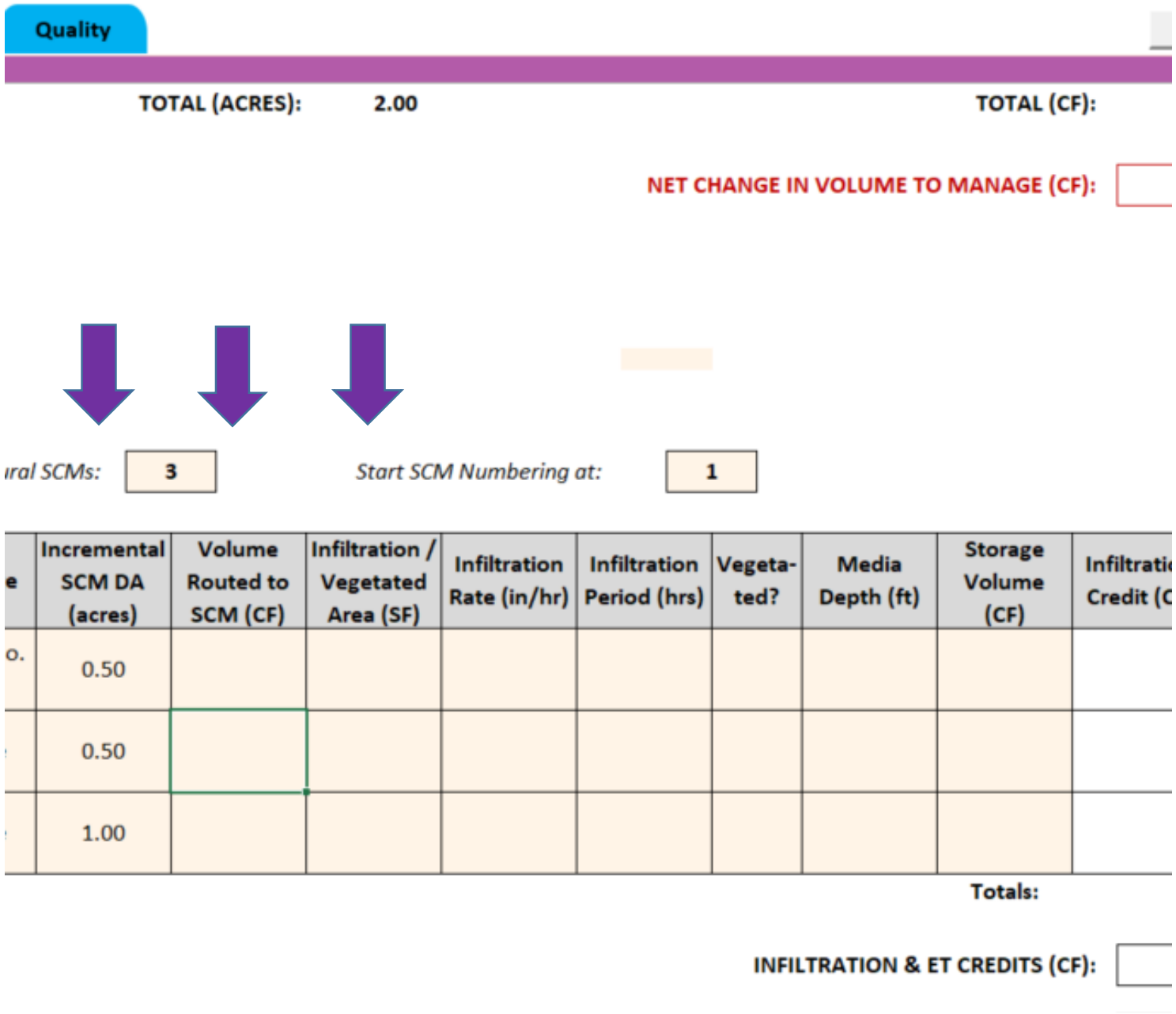
Structural SCM Volume Credits: *No. Structural SCMs:* *Start SCM Numbering at:*

You must provide details, drawings, and specs for Tree Planting or for Other BMP's.

Incremental Drainage Area is from the disturbed area only.

Volume routed to SCM is from your disturbed area and comes from your calculations.

Infiltration/vegetated area is only the bottom area of the SCM, not the sides. Must match the drawing!



Quality

TOTAL (ACRES): 2.00

TOTAL (CF):

NET CHANGE IN VOLUME TO MANAGE (CF):

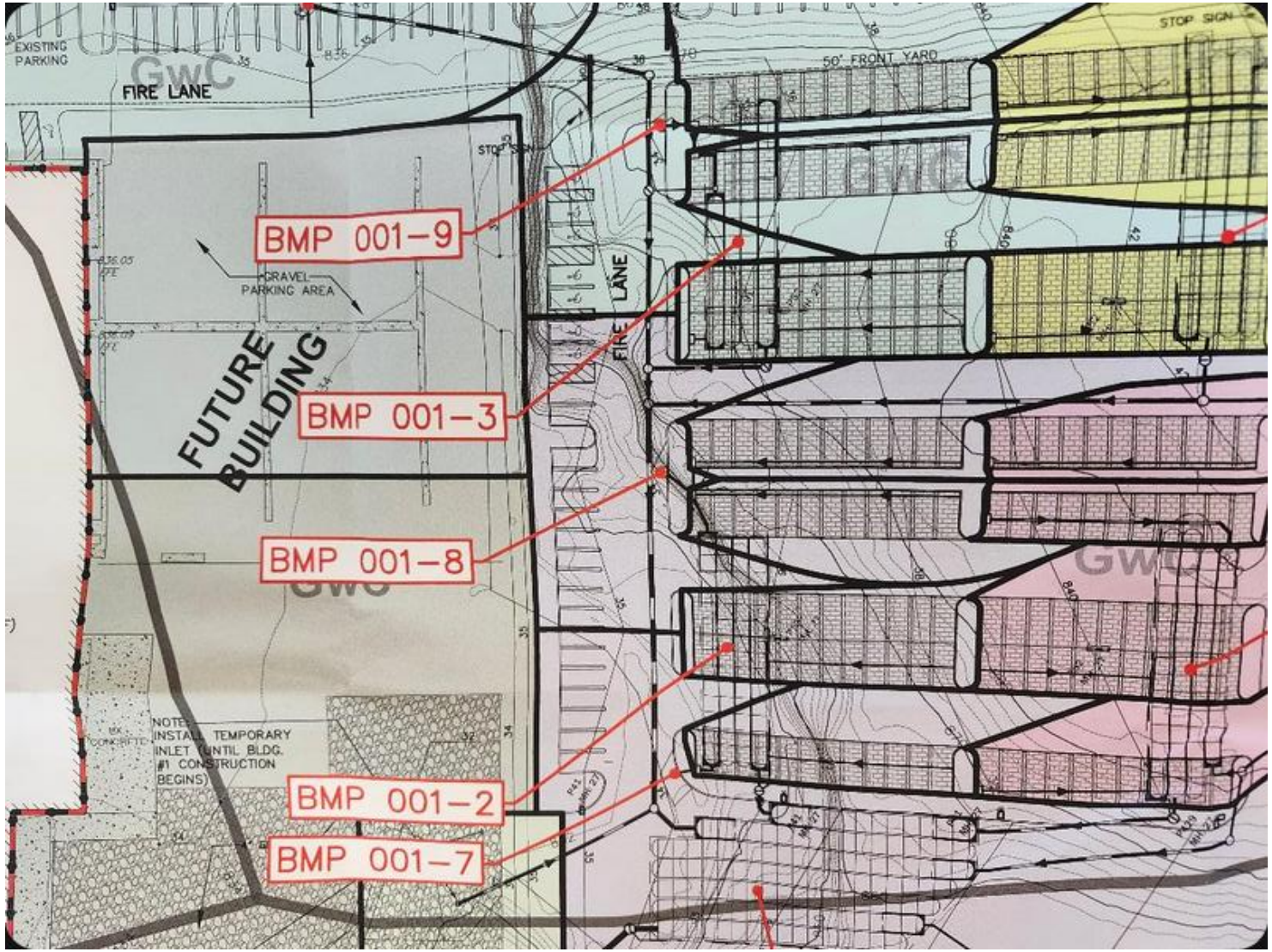
ural SCMs: 3 *Start SCM Numbering at:* 1

e	Incremental SCM DA (acres)	Volume Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltrati Credit (C
o.	0.50								
	0.50								
	1.00								

Totals:

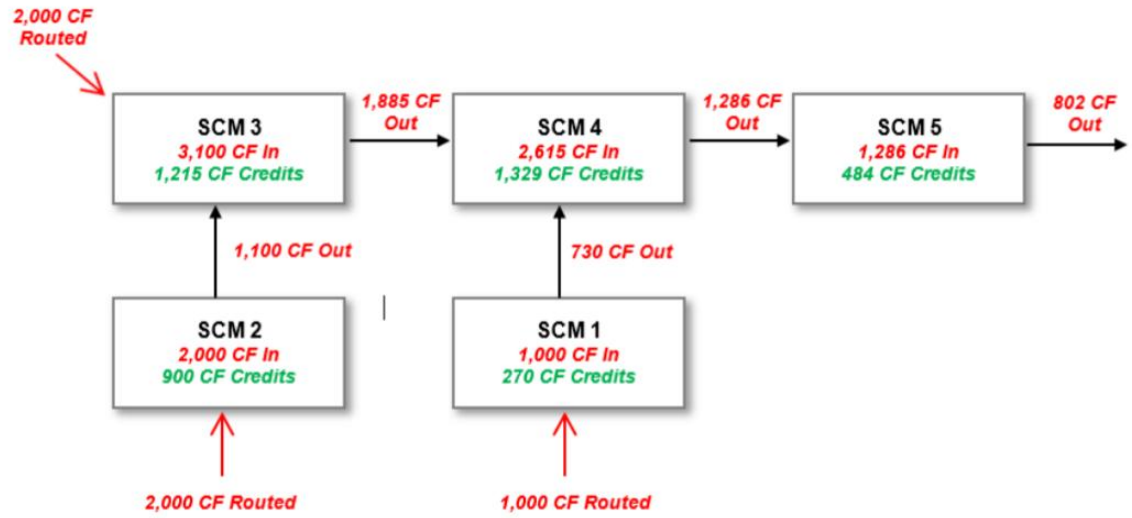
INFILTRATION & ET CREDITS (CF):

A nice example of a drainage area map with BMP's clearly labeled.



See the *PCSM Spreadsheet Instructions* for an explanation of volume routing to SCMs.

DEP PCSM Spreadsheet Instructions
Revised, January 26, 2026



The spreadsheet enforces a rule that downstream SCMs in series must receive volume routed to it that is at least as large as the outflow from upstream SCMs. The following (abbreviated) table illustrates how this scenario appears in the Structural SCMs table:

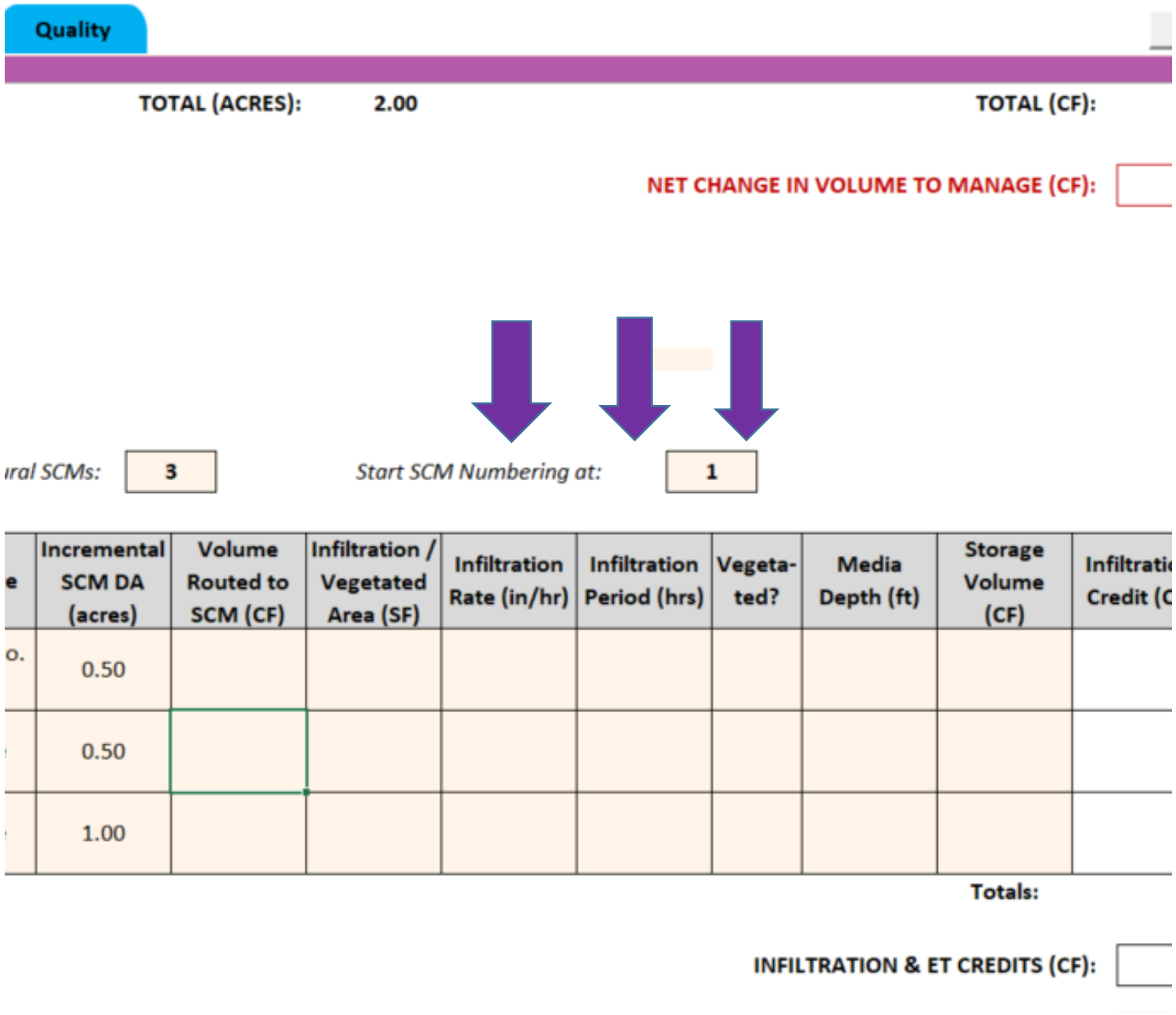
SCM No.	SCM No.	SCM Name	MRC?	Discharge	Incremental SCM DA (acres)	Volume Routed to SCM (CF)
001	1	Vegetated Swale	-	to SCM No. 4	4.00	1,000
001	2	Rain Garden / Bioretention	-	to SCM No. 3	3.00	2,000
001	3	Vegetated Swale	-	to SCM No. 4	2.00	3,100
001	4	Infiltration Basin	-	to SCM No. 5	0.00	2,615
001	5	Infiltration Basin	-	Off-Site	0.00	1,286

The following (abbreviated) table illustrates how this scenario appears in the Structural SCM Water Quality Credits table in the Quality Worksheet:

Infiltration rate comes from your site tests.

Infiltration period should be calculated based on your actual site SCMs and your calculations.

A vegetated SCM should include plug plantings with a mix of deep-rooted native species, spaced 2-3 feet on center.



Quality

TOTAL (ACRES): 2.00

TOTAL (CF):

NET CHANGE IN VOLUME TO MANAGE (CF):

ıral SCMs: 3

Start SCM Numbering at: 1

e	Incremental SCM DA (acres)	Volume Routed to SCM (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltrati Credit (C
o.	0.50								
	0.50								
	1.00								

Totals:

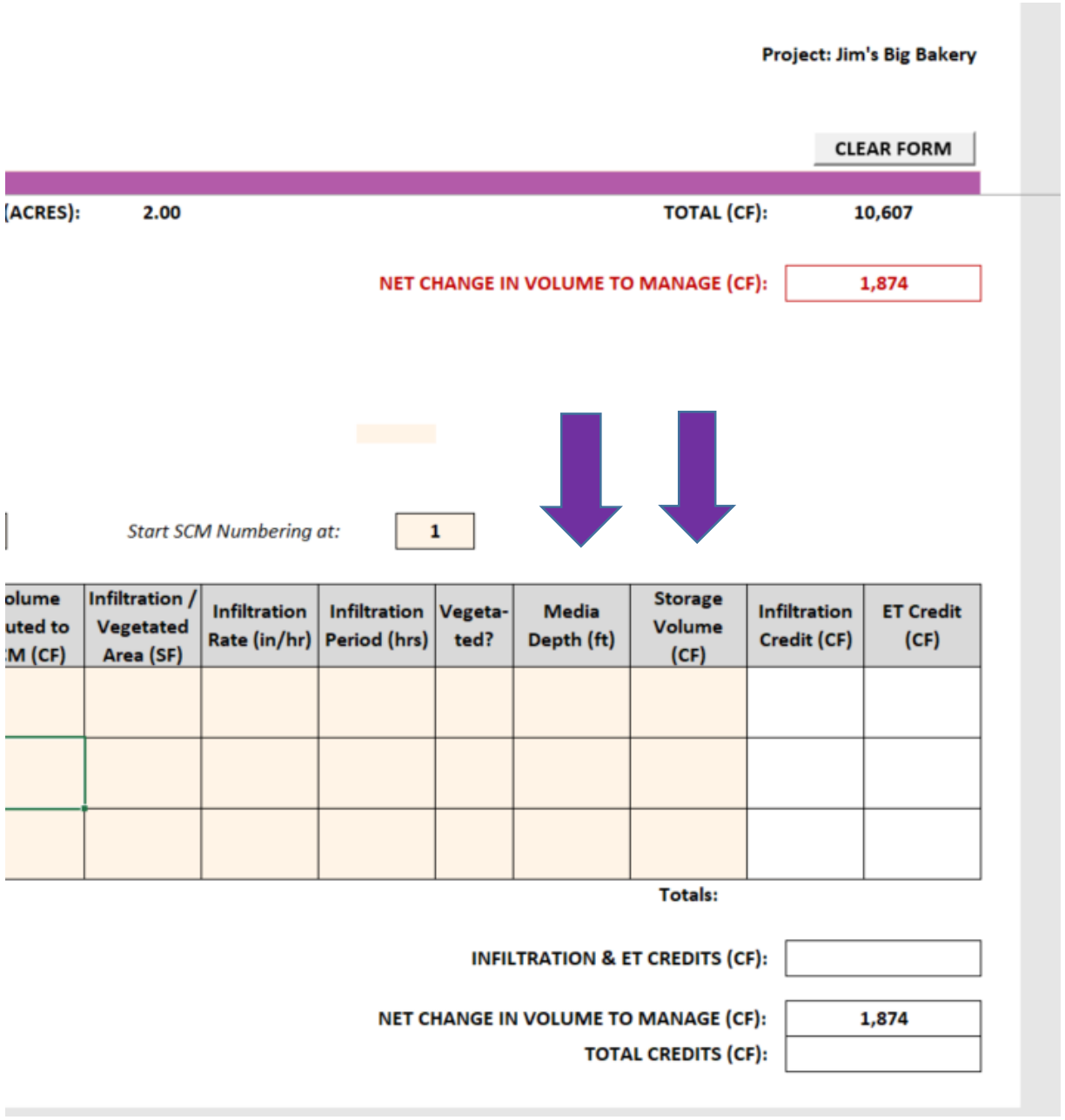
INFILTRATION & ET CREDITS (CF):

Media depth—a minimum of six inches to get credit.

Soil media for a SCM: we recommend approximately 50% coarse sand, 30% topsoil, and 20% compost.

Storage volume can include surface and subsurface storage (void space 20% - 40%)

Storage volume is only what is below the lowest orifice elevation



Project: Jim's Big Bakery

CLEAR FORM

(ACRES): 2.00 TOTAL (CF): 10,607

NET CHANGE IN VOLUME TO MANAGE (CF): 1,874

Start SCM Numbering at: 1

olume uted to M (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)

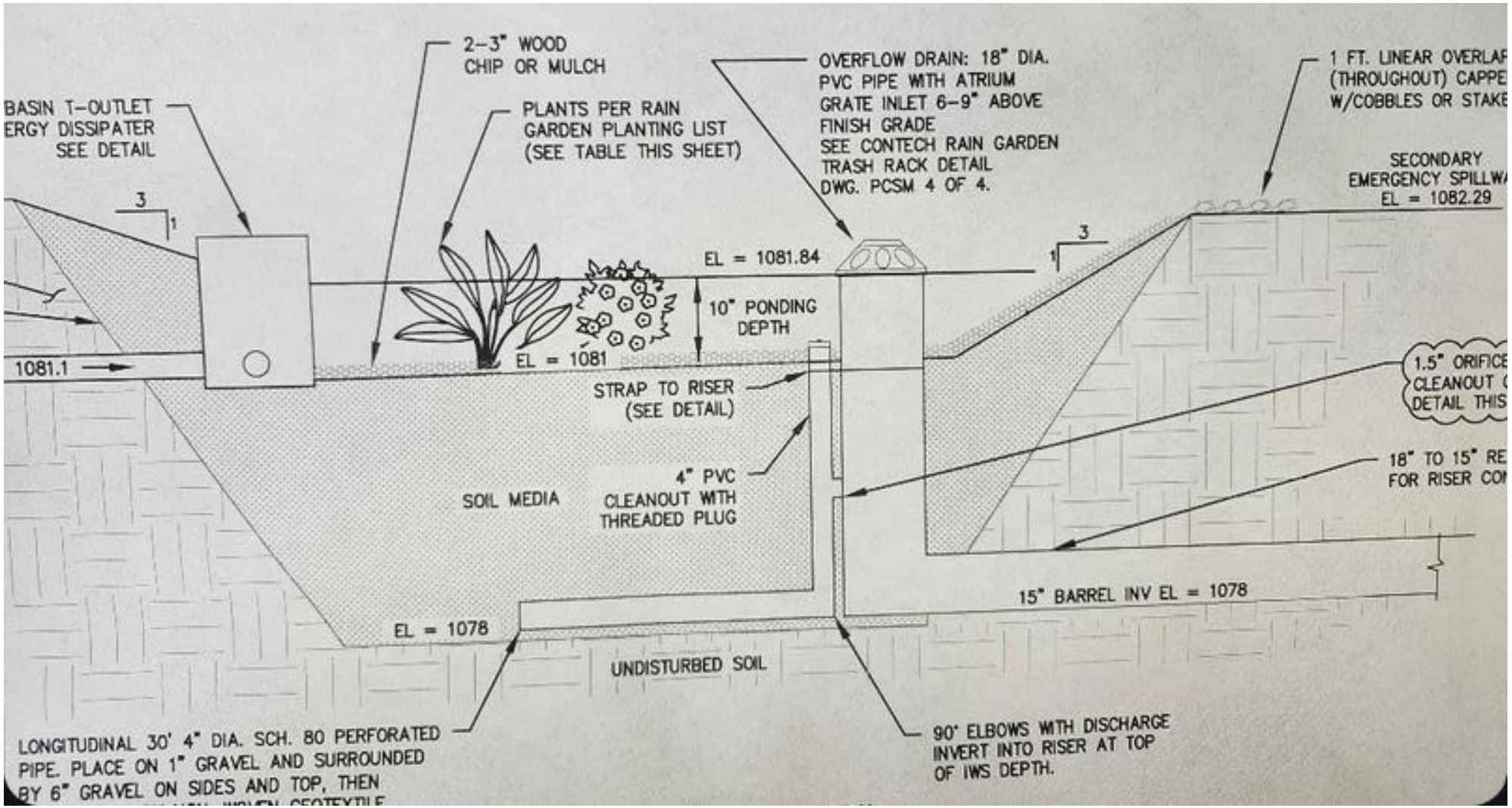
Totals:

INFILTRATION & ET CREDITS (CF):

NET CHANGE IN VOLUME TO MANAGE (CF): 1,874

TOTAL CREDITS (CF):

A nice example of soil media mix, plants, and riser design

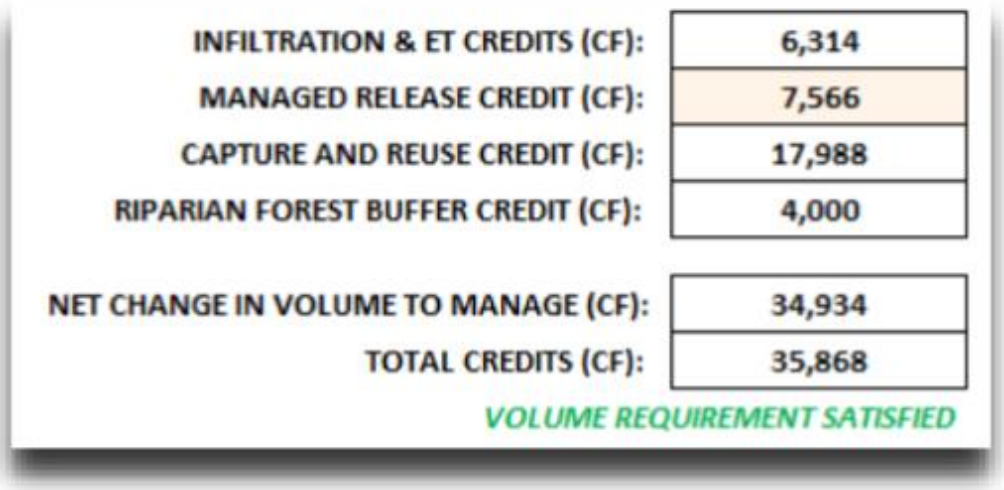


Note: Neither Infiltration Credit nor Evapotranspiration (ET) Credit, can exceed the **Volume Routed** to the SCM.

nenta DA es)	Volume Routed to SCM (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)
71	3,022	2,880	0.09	94	Yes	3.0	2,041	1,827	1,195
69	3,462	1,320	0.39	81	Yes	3.0	3,462	3,127	335
62	7,492	2,480	0.35	67	Yes	0.5	4,840	4,362	425
14	2,308	1,555			Yes	2.5	467		1,003
63	5,629	1,425	0.38	32	Yes	3.0	1,444	1,300	1,082
45	2,043	2,050	0.18	96	Yes	0.5	3,685	2,043	0
							Totals:	12,659	4,039

The bottom line of the Volume tab: a combination of various credits will allow you to meet the requirement.
You have to choose enough SCMs for your site, large enough SCMs, and designed to meet the standards.

- **Total Credits** – The bottom of the worksheet displays the cumulative credits (non-structural, structural, managed release, capture and reuse, and riparian forest buffer credits) and compares it to the net change in volume to manage, calculated previously. When the number of credits meets or exceeds the net change in volume, satisfaction of the volume management requirement will be shown in green text; in the interim, red text will indicate the volume requirement is not satisfied.

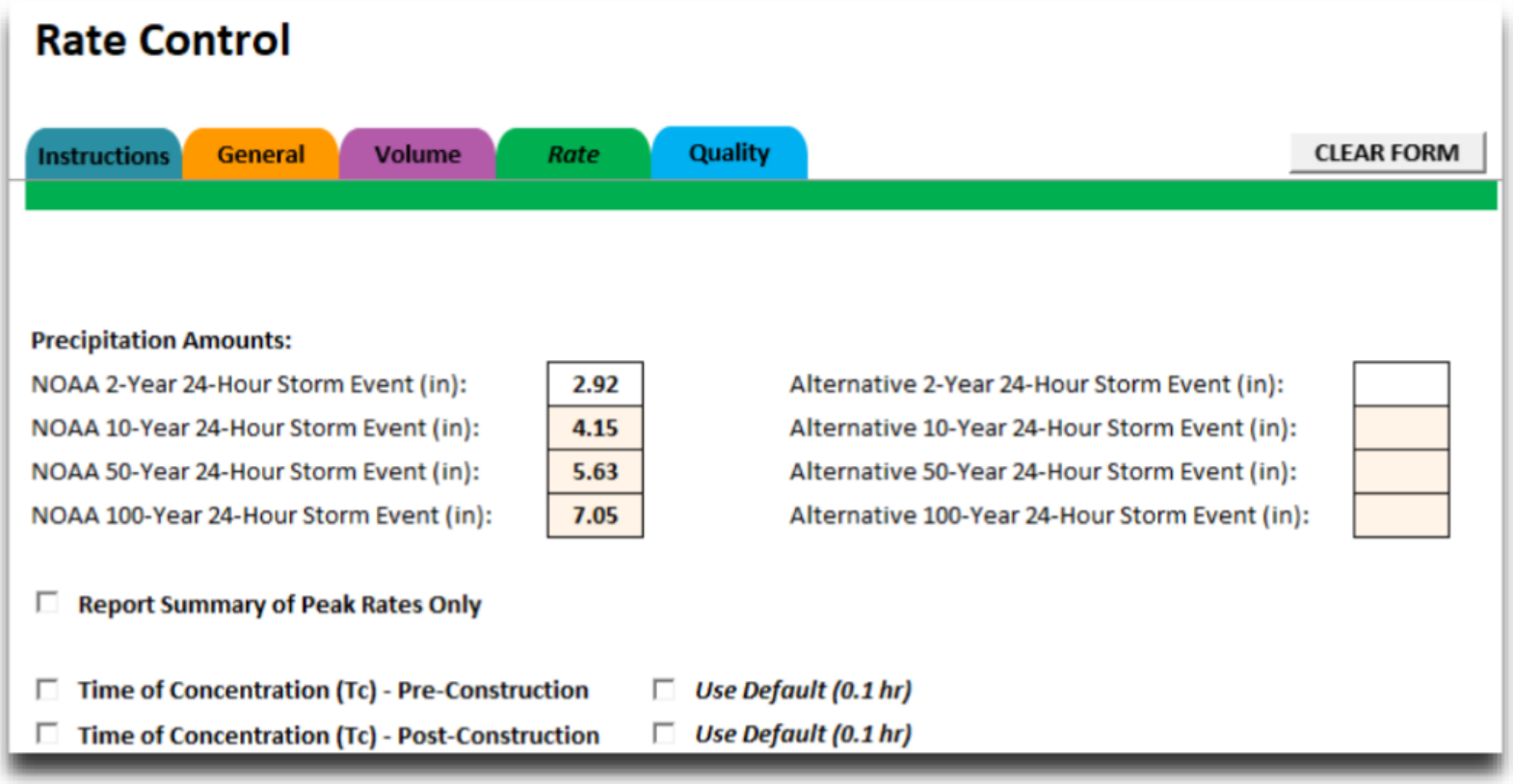


INFILTRATION & ET CREDITS (CF):	6,314
MANAGED RELEASE CREDIT (CF):	7,566
CAPTURE AND REUSE CREDIT (CF):	17,988
RIPARIAN FOREST BUFFER CREDIT (CF):	4,000
NET CHANGE IN VOLUME TO MANAGE (CF):	34,934
TOTAL CREDITS (CF):	35,868

VOLUME REQUIREMENT SATISFIED

Rate control: Remember to use the NOAA routing. Do not use weighted curve numbers. Choose appropriate time of concentration flow paths.

DEP PCSM Spreadsheet Instructions
Revised, January 26, 2026



Rate Control

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

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	2.92	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	4.15	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	5.63	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	7.05	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)***

The Water Quality tab of the PCSM Spreadsheets:

- Applicants must manage the net change in pollutant loads for Total Suspended Solids (TSS), Total Phosphorus (TP), and Total Nitrogen (TN)
- Manage these pollutants up to and including the 2 year, 24 hour storm
- Reduce the pollution levels to where they were before the work took place (pre-development)

The information you entered in General and the results of Volume are used to populate the Quality tab

PRE

POST without SCMs

Water Quality

PRINT

CLEAR FORM

Instructions | 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
Pervious as Meadow	Grassland/Herbaceous	1.0	994	49	0.22	2.3	3.03	0.01	0.14
						TOTALS:	3.03	0.01	0.14

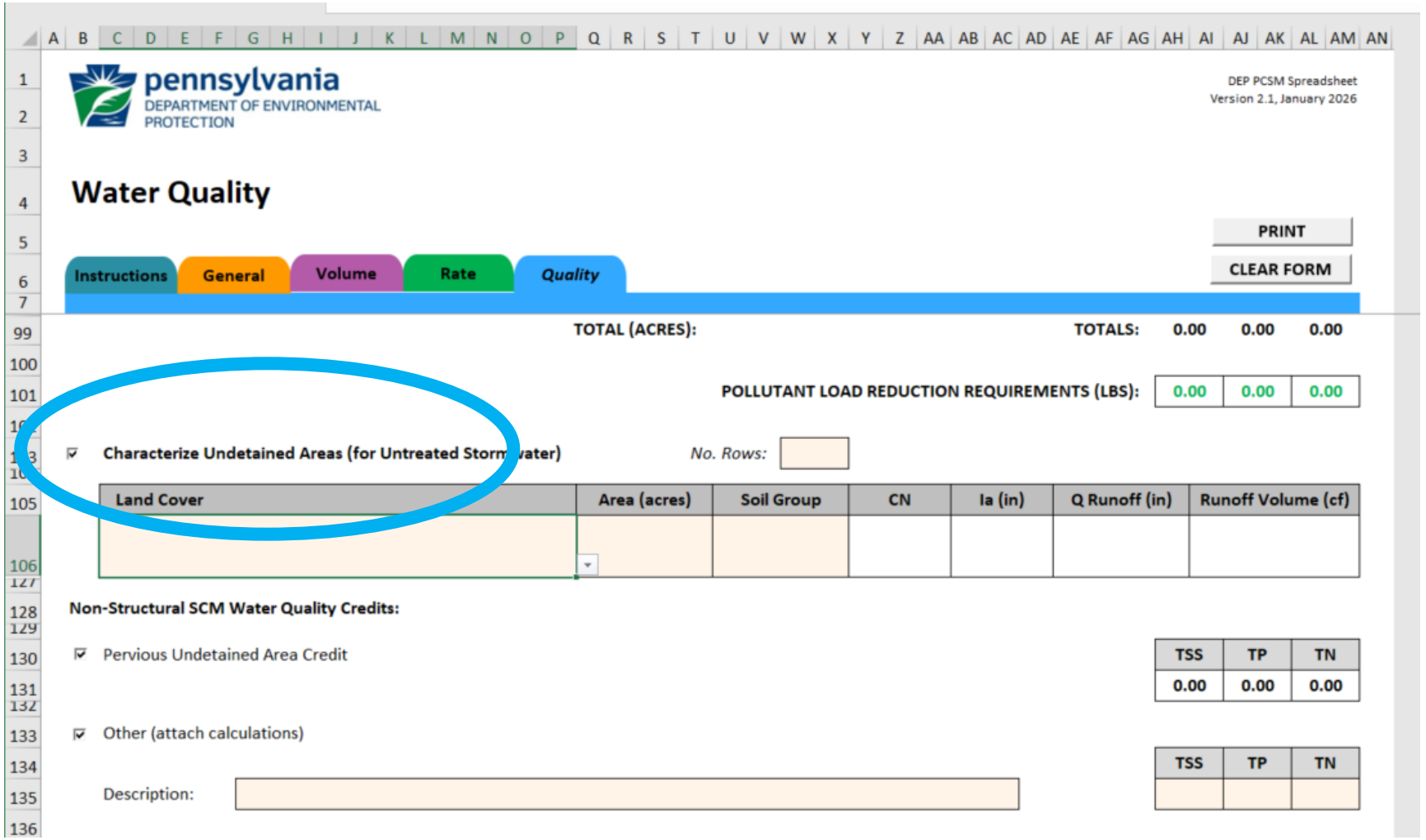
Post-Construction Pollutant Loads (without BMPs):

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
Impervious Areas: Streets and Roads - Gravel (Including ROW)	Highway (general)	1.0	5,765	141	0.43	2.65	50.76	0.15	0.95
						TOTALS:	50.76	0.15	0.95

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	47.73	0.14	0.81

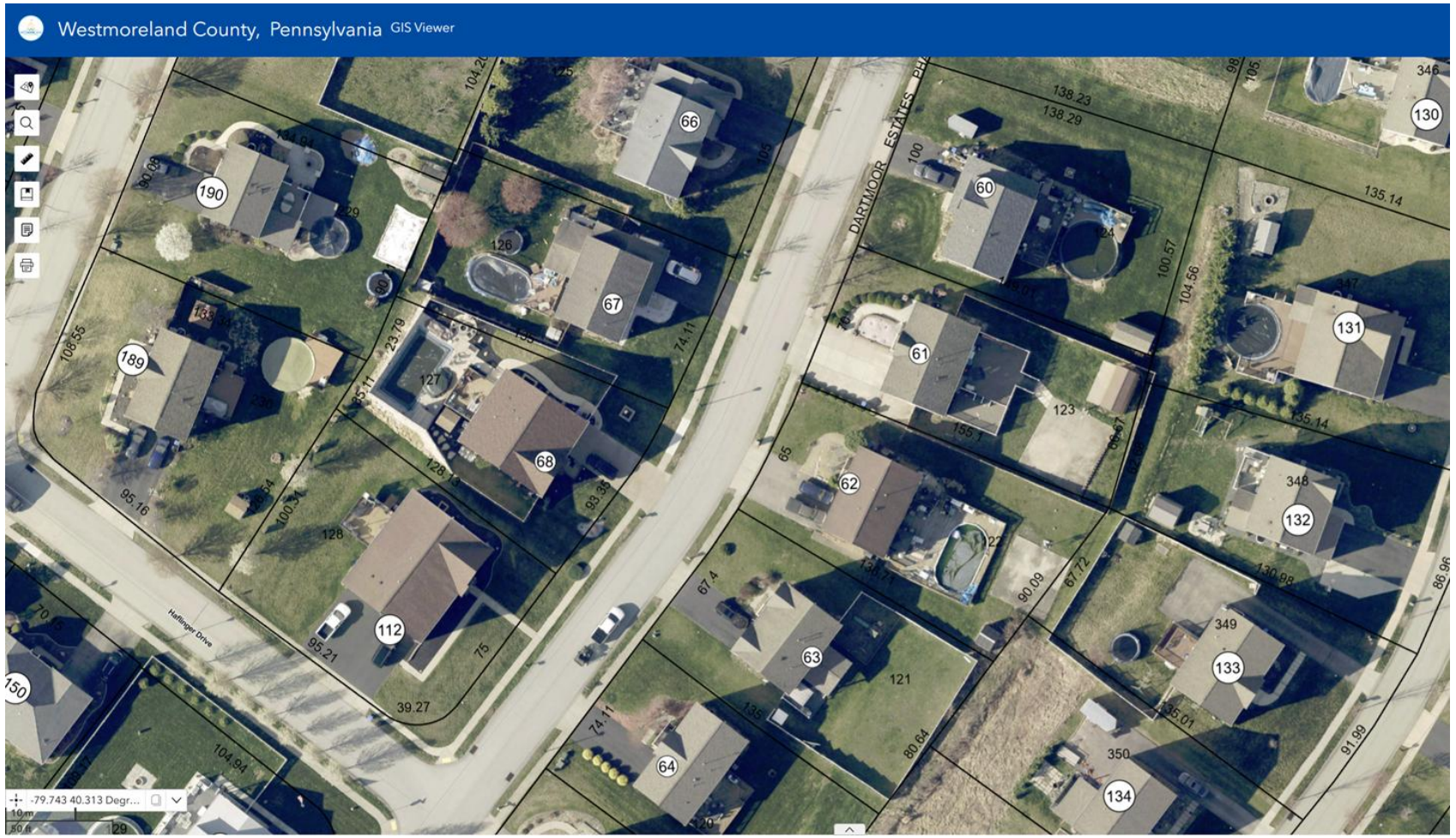
Characterize Undetained Area takes into account pollutants from places that can't get to the stormwater control measures.

Pervious undetained area credit gives you credit towards reduction of TSS, TP, and TN



Pervious undetained area is classified as a SCM

- It must be protected on the plans
- It must receive O&M



Over-reliance on Street Sweeping for the **Other** box…

- Is the municipality going to do it for you?
- Is the HOA going to do it regularly?

DEP PCSM Spreadsheet Instructions
Revised, January 26, 2026

ATTACHMENT D
STREET SWEEPING CREDITING

If street sweeping is used for additional water quality treatment, the PCSM Plan preparer may reduce the land cover Event Mean Pollutant Concentrations in **Attachment C** for developed roads and impervious land covers in accordance with Table 3. These values are in accordance with current protocols utilized by the Chesapeake Bay Program. The reductions are applied to an area of roads or impervious surfaces; generally, one curb-lane mile equals one acre in terms of area swept.

Table 3: Street Sweeping reductions (Chesapeake Bay Program 2024)

Type	Practice Identifier	Description of passes by sweeper; approx. # of passes per year	TSS Reduction (%)	TP Reduction (%)	TN Reduction (%)
Advanced†	SCP-2	1 pass/week; ~50/year	16	8	3
Advanced†	SCP-3	1 pass/2 weeks; ~25/year	11	5	2
Advanced†	SCP-4	1 pass/4 weeks; ~10/year	6	3	1
Advanced†	SCP-5	1 pass/8 weeks; ~6/year	4	2	0.7

Using all the data which you entered, and the previous calculations, the PCSM spreadsheet calculates pollutant loads and BMP effectiveness

Structural SCM Water Quality Credits:

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

POA No.	SCM No.	SCM Name	MRC?	SCM DA (acres)	Vol. Routed to SCM (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	Vegetated Swale	-	4.00	14,955	4,174		10,781	13.70	0.18	0.63	9.22	0.12	0.42

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL SCM (TREATED) OUTFLOWS (LBS):	9.27	0.12	0.43
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	11.60	0.04	0.19
NON-STRUCTURAL SCM WATER QUALITY CREDITS (LBS):	8.81	0.12	0.45
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	12.05	0.04	0.16
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	13.22	0.05	0.50

WATER QUALITY REQUIREMENT SATISFIED

PCSM Spreadsheets…

Are your friend!!

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