

INDOT's Post-Construction Stormwater Management: Program Updates and Evolving Practices

Purdue Road School

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AGENDA

- DM 26-01
- PCSM Determination Flowchart
- Karst Protection
- Vegetation
- Detention
- Qualified Products Lists
- Recurring Special Provision (RSP)
- Available Resources
- Common Issues
- Documentation & Submittal Guidance



Design Memo 26-01 (1 of 2)

- Subject: Post-Construction Stormwater Management Updates
- From: Elizabeth Mouser, Standards and Policy Director
- Supersedes Design Memo 22-22
- Post-Construction Stormwater BMPs are required when both of the following conditions are met
 - The project requires a Construction Stormwater General Permit
 - The project includes new net impervious surface of
 - 1 acre or more, or
 - Between 10,000 sq. ft. and 1 acre as noted in Figure 1A, Post-Construction BMP Determination



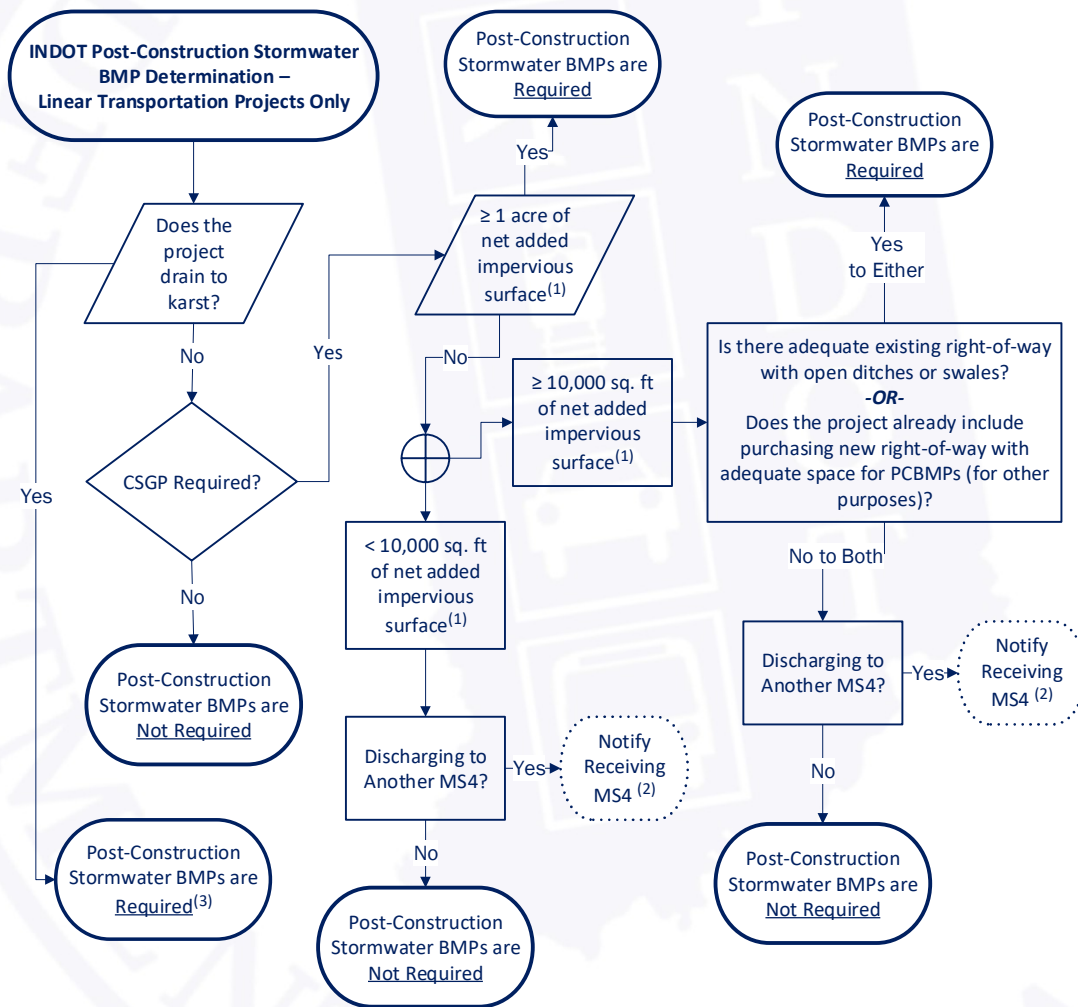
Design Memo 26-01 (2 of 2)

**Table 1:
Project action
based on
project
development
process (PDP)
milestone**

New Net Impervious Area	PDP Milestone	Action
≥ 1 acre	Any Stage	PCBMPs are required.
10,000 sq. ft. up to 1 acre	Stage 3 as of February 1, 2026	Evaluate per Post-Construction BMP Determination flowchart. If required and not feasible, contact the INDOT Stormwater Team at PCSM@indot.in.gov .
10,000 sq. ft. up to 1 acre	Stage 2 as of February 1, 2026	Evaluate per Post-Construction BMP Determination flowchart. If required, credit PCBMPs already included in design through supporting calculations and submit Post-Construction BMP Report for review and approval. Contact the INDOT Stormwater Team at PCSM@indot.in.gov with project-specific questions.
10,000 sq. ft. up to 1 acre	Stage 1 on or after February 1, 2026	Evaluate per Post-Construction BMP Determination flowchart. Include PCBMPs, as required.
Less than 10,000 sq. ft	Any Stage	PCBMPs not required. Notification to receiving MS4 may be required.



PCSM Determination Flowchart (Figure 1A)



Notes:

(1) INDOT recognizes impervious surface as any land surface with a low or no capacity for soil infiltration, including, but not limited to, pavement (sidewalks, streets, parking areas, and driveways), packed gravel, and rooftops.

The net added impervious surface of separate projects shall be combined when determining post construction requirements when all the following conditions are met:

- The projects are owned by the same project sponsor.
- The projects are less than or equal to 0.25 miles of the closest point of each other.
- The projects outlet to the same perennial stream based on the 1:24,000 USGS Topo Quad solid blue line streams.

(2) Receiving MS4 shall be notified and given an opportunity to provide comments for consideration. However, the asset owner may follow their own design criteria, standards, and processes unless other agreements are in-place between the two entities.

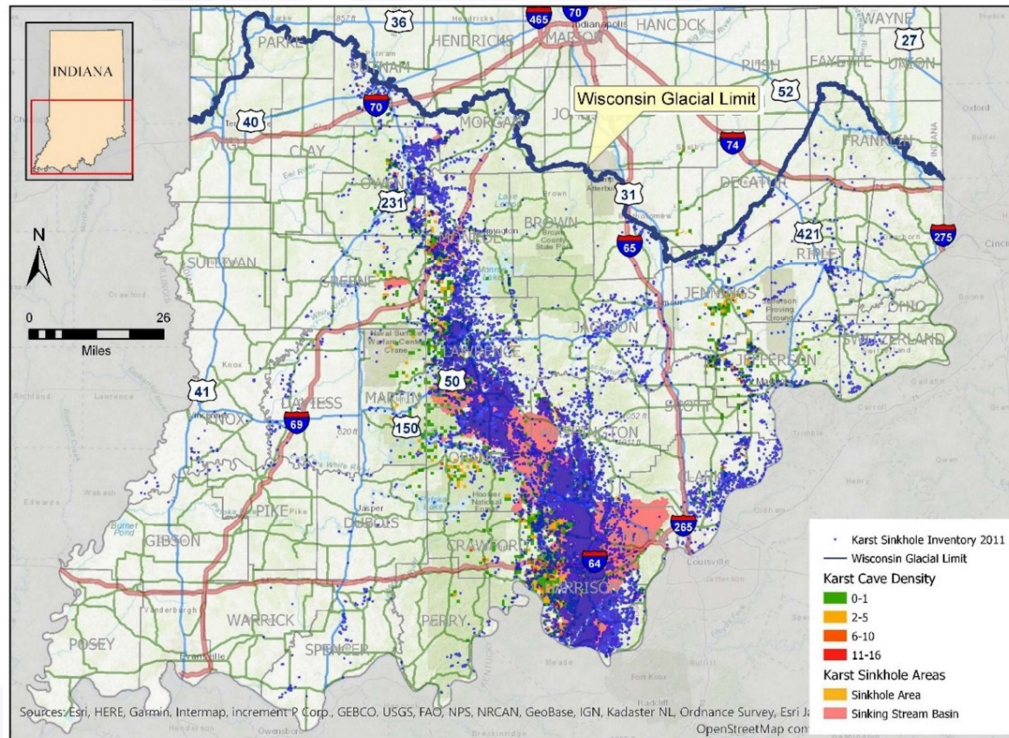
If discharging to a County Regulated Drain, there may be more strict requirements for water quality and peak flow mitigation to consider.

(3) If discharging to a karst feature refer to the INDOT karst procedure.



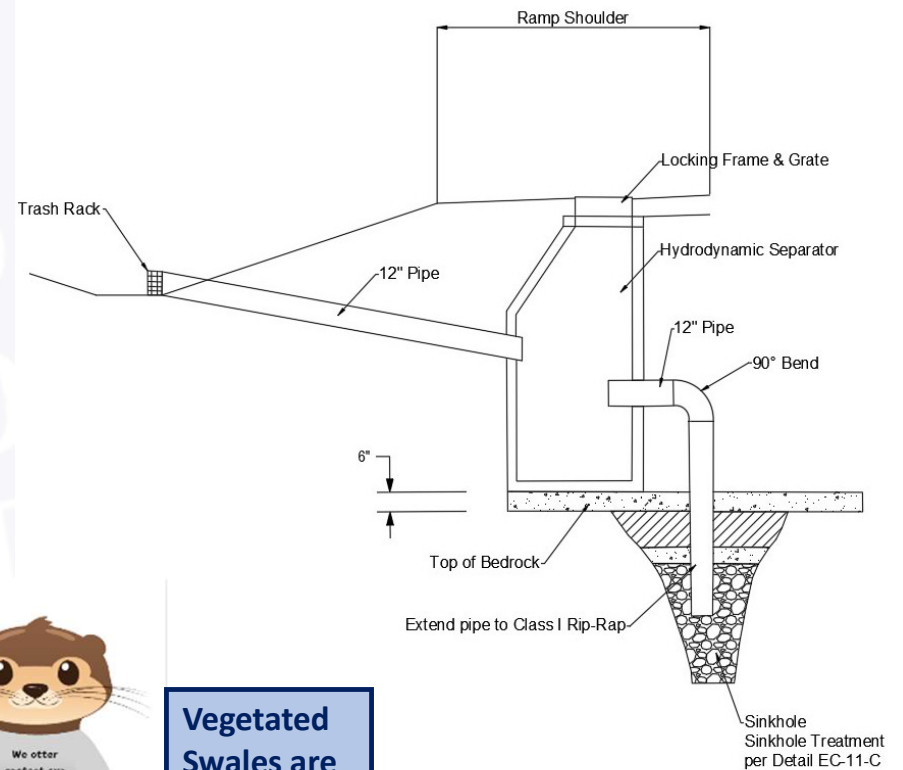
Karst Protection (1 of 3)

- Indiana has nearly 155,000 *mapped* karst features, including sinkholes, caves, springs, and sinking streams
- Karst terrain is environmentally sensitive



Karst Protection (2 of 3)

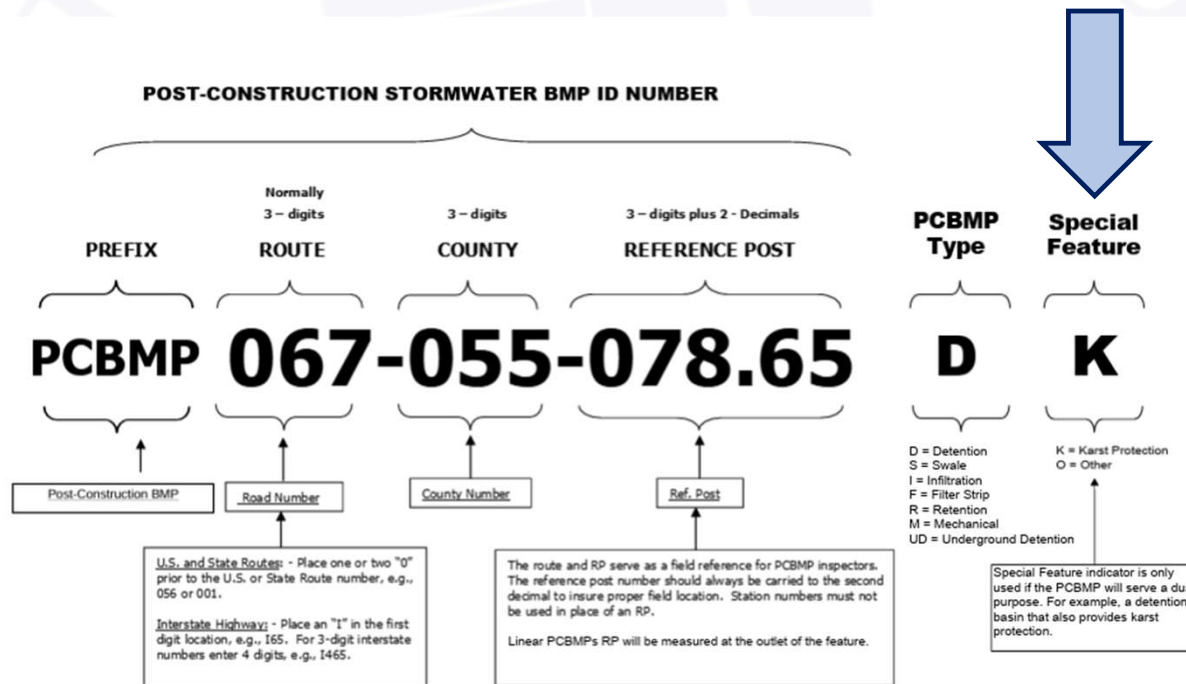
- Updates to INDOT Karst Procedure
 - [Protection of Karst Features during Project Development, Construction, and Post-Construction](#)
 - Requires PCBMPs be placed upstream of karst features, regardless of added pavement
 - Refers to PCSM Guidance Document
- Updates to PCSM Guidance Document
 - All impervious treated (vs added impervious)
 - Attempt to use PCBMPs provided in document if space allows



Vegetated Swales are preferred when feasible



Karst Protection (3 of 3)



Add a "K" to the PCBMP name to indicate the asset protects a karst feature



Contact PCSM@indot.IN.gov for questions regarding PCBMP asset ID numbers

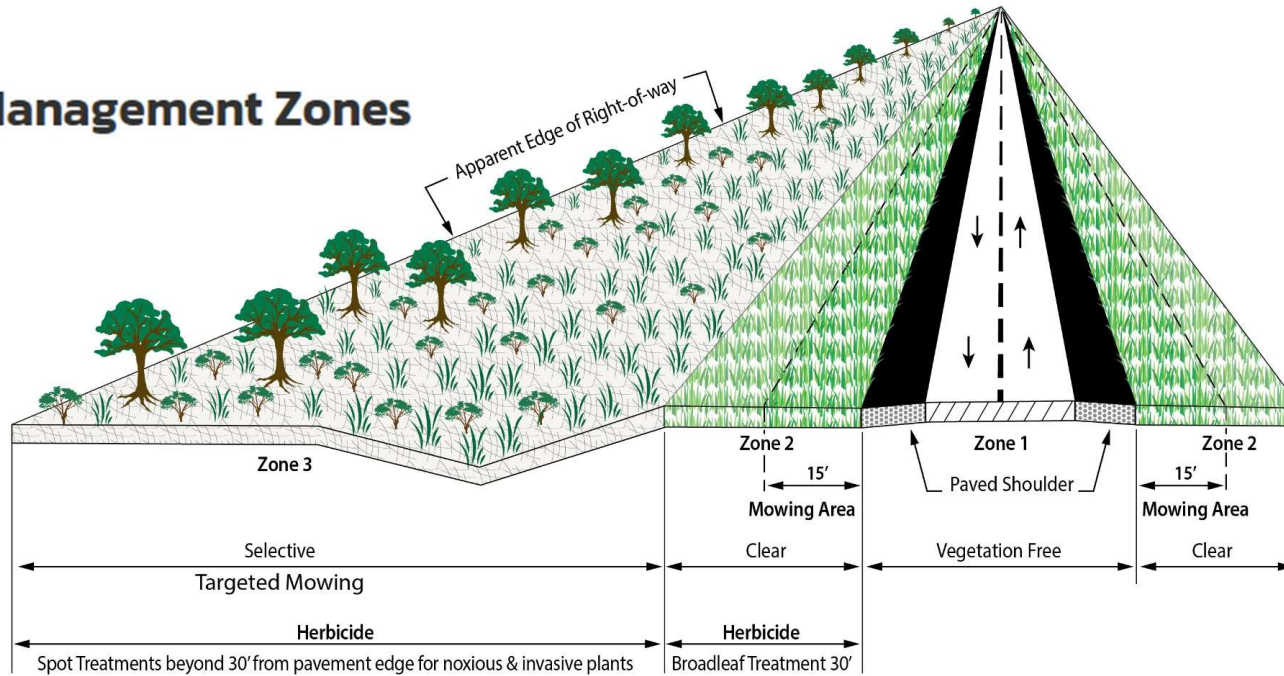
POST-CONSTRUCTION STORMWATER MANAGEMENT NUMBERING SYSTEM



Vegetation

- Native grasses are planted with INDOT Seed Mixture Floodplain
- INDOT Seed Mixture Floodplain must be noted in the plans (PCBMP detail sheets)
- Other mixes can be proposed, but there needs to be a reason (coordinate ahead)
- Do not use native grasses within 30 feet of the edge of pavement

Vegetation Management Zones



Detention

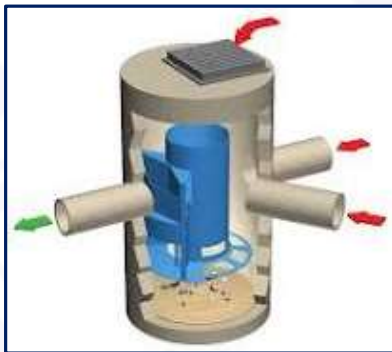


- Sediment forebays should be installed when possible
 - Helps with maintenance, confines to a smaller more accessible area
 - Designed to hold the Water Quality Volume
 - Do not get additional right-of-way just to install a sediment forebay
- Stone trench and perforated pipe underdrain system are required if the primary outlet pipe is less than 6 inches (instead of less than *or equal to* 6 inches)
 - Avoid using this configuration when possible
 - Try other PCBMPs first to lower maintenance costs (such as vegetated swales)



Qualified Products Lists

- [INDOT Division of Materials and Tests - Qualified Products List Requirements - ITM No. 806-25](#)
- [INDOT Qualified Products Lists](#)
- Stormwater Treatment Units
 - Hydrodynamic Separators
 - See PCSM RSP and PCSM Design Guidance Document



Trash Racks

- Installed on F7 inlets
- See PCSM RSP and CAD Templates

PRODUCT ID	MATERIAL	COATING	WEIGHT
LSW-1212-P	ASTM A36 MILD STEEL	NA	20 LBS.
LSW-1212-G	ASTM A36 MILD STEEL	GA. VANADIZED	20 LBS.
LSW-1212-PC	ASTM A36 MILD STEEL	POWDER COAT	20 LBS.
LSW-1212-SS	304 STAINLESS STEEL	NA	20 LBS.
LSW-1212-AL	6061-T6 ALUMINUM	NA	7 LBS.

CUSTOM SIZES AVAILABLE
OPTIONS: HINGED ACCESS, ANY

TRASHRACKS.COM FILE: LSW-1212
A DIVISION OF J.R. HBE 12"x12" SIDE WALL TRASH RACK
MADE IN THE U.S.A.



Stormwater Treatment Units (1 of 2)

[Stormwater Treatment Units Qualified Products List](#)

- Based on calculated treatment rates
- QPL is in excel form
 - $0.00 < Q_{wq} \leq 1.81$ cfs -> Type A
 - $1.81 < Q_{wq} \leq 4.07$ cfs -> Type B
 - $4.07 < Q_{wq} \leq 11.3$ cfs -> Type C
 - $11.3 < Q_{wq} \leq 16.2$ cfs -> Type D

- Aqua-Swirl Xcelerator (XC-2 to XC-13)
- Barracuda Max (S3 to S8)
- Cascade Separator (CS-3 to CS-12)
- First Defense Optimum (FDO-3 to FDO-10)

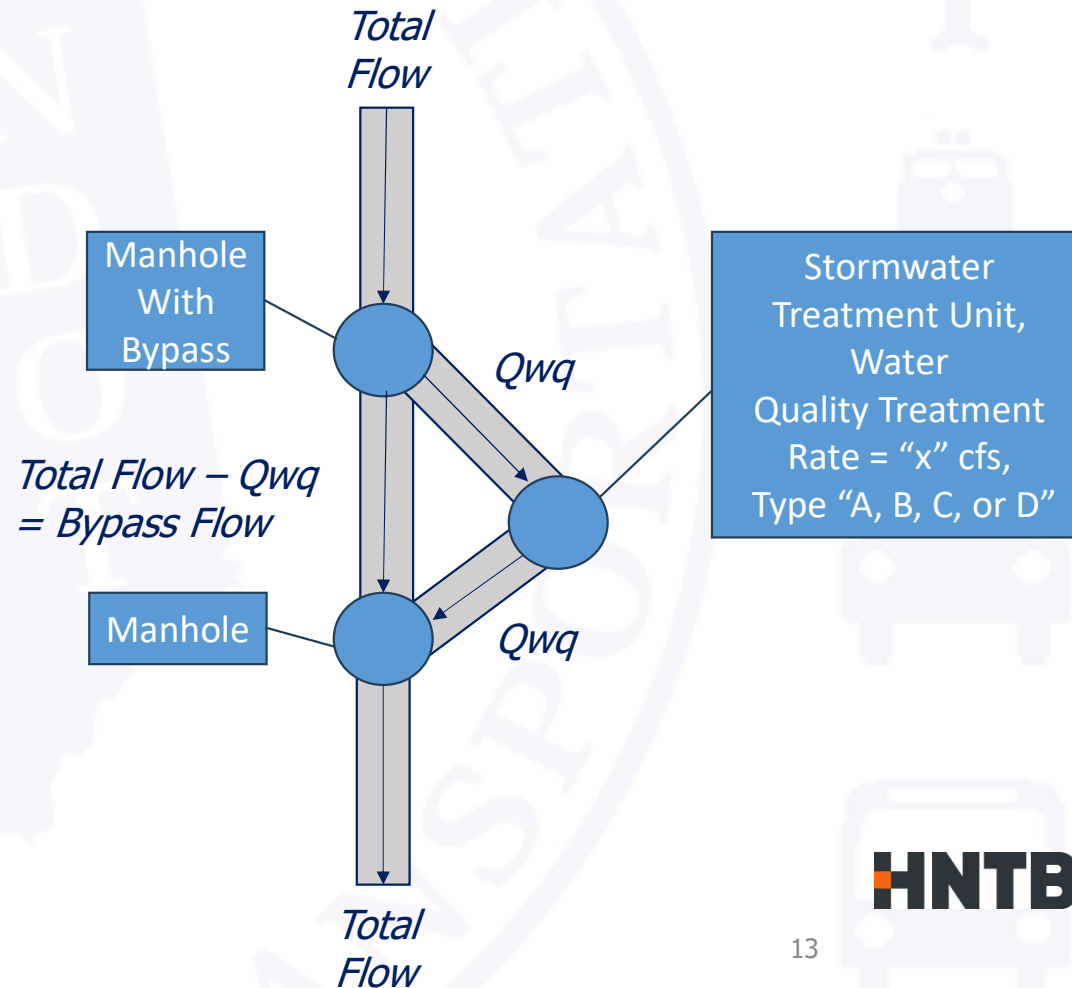
The maximum treatment rate for the device and model selected shall meet or exceed the treatment rate shown on the plans.

Unit Type / Material Code	Source ID	Source	Product Name	Maximum Water Quality Treatment	Approval Number
				Rate* (cfs)	
Type A / 720M00101	STU08962	AQUASHIELD, INC.	Aqua-Swirl Xcelerator XC-2	0.57	W257029
Type A / 720M00101	STU08961	ADVANCED DRAINAGE SYSTEMS, INC.	Barracuda Max S3	0.85	W257030
Type A / 720M00101	STU08963	CONTECH ENGINEERED SOLUTIONS, LLC Hartford, CT	Cascade Separator CS-3	1.02	W257031
Type A / 720M00101	STU08964	CONTECH ENGINEERED SOLUTIONS, LLC Norwalk, OH	Cascade Separator CS-3	1.02	W257031
Type A / 720M00101	STU08965	HYDRO INT'L/OLDCASTLE INFRASTRUCTURE Elgin, IL	First Defense Optimum FDO-3	1.02	W257032
Type A / 720M00101	STU08965	HYDRO INT'L/OLDCASTLE INFRASTRUCTURE Kalamazoo, MI	First Defense Optimum FDO-3	1.02	W257032
Type A / 720M00101	STU08967	HYDRO INT'L/OLDCASTLE INFRASTRUCTURE Lexington, KY	First Defense Optimum FDO-3	1.02	W257032
Type A / 720M00101	STU08962	AQUASHIELD, INC.	Aqua-Swirl Xcelerator XC-3	1.13	W257033
Type A / 720M00101	STU08961	ADVANCED DRAINAGE SYSTEMS, INC.	Barracuda Max S4	1.52	W257034
Type A / 720M00101	STU08963	CONTECH ENGINEERED SOLUTIONS, LLC Hartford, CT	Cascade Separator CS-4	1.8	W257035
Type A / 720M00101	STU08964	CONTECH ENGINEERED SOLUTIONS, LLC Norwalk, OH	Cascade Separator CS-4	1.8	W257035
Type A / 720M00101	STU08965	HYDRO INT'L/OLDCASTLE INFRASTRUCTURE Elgin, IL	First Defense Optimum FDO-4	1.81	W257036



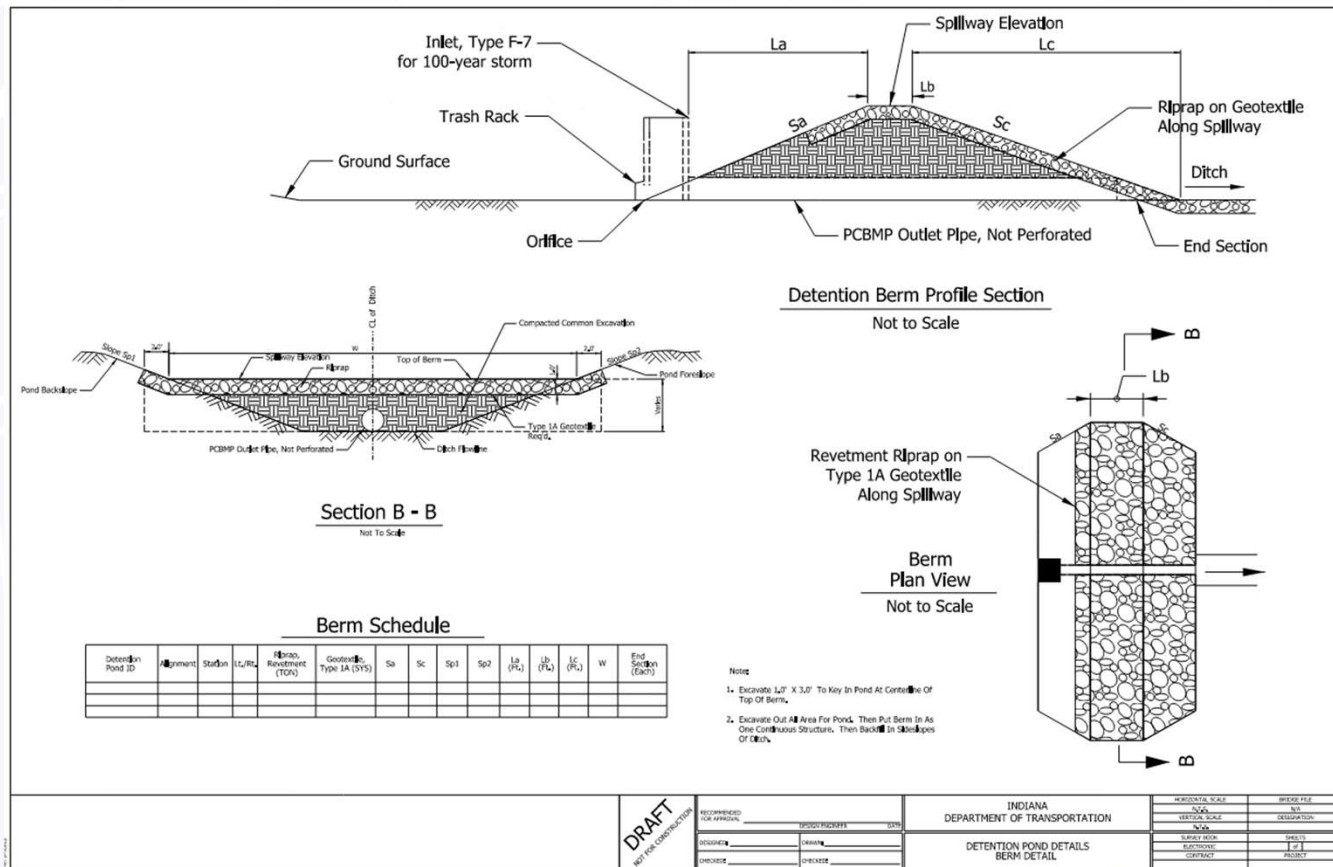
Stormwater Treatment Units (2 of 2)

1. Designer calculates the Water Quality Treatment Rate (Q_{wq})
2. Designer chooses Type A-D from the QPL, based on that treatment rate
3. Designer calculates bypass flow and designs bypass (only the Q_{wq} is treated in the unit)
4. Designer calls out the treatment rate and Type in the plans
5. Contractor chooses unit from the QPL



PCSM Recurring Special Provisions

- Effective for December 01, 2025, Lettings
- [PCSM Recurring Special Provisions](#)
- New Pay Items for PCBMP Outlet Pipe and Risers
- CAD Templates for use now, will become Standard Drawings



Available Resources

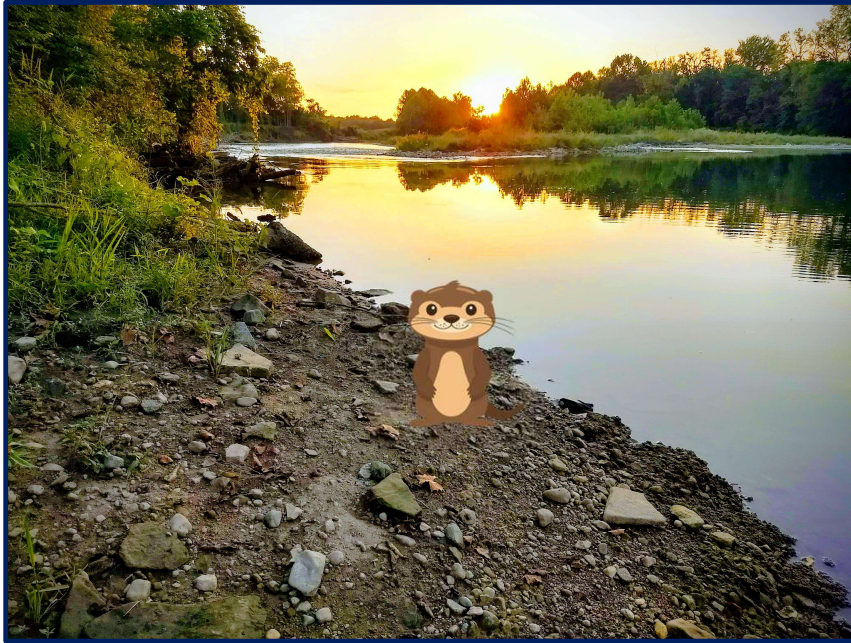
- [INDOT Stormwater Webpage](#)
 - PCSM Training Video
 - PCSM CAD Templates
 - PCSM Submittal Guidance
 - PCSM Asset Naming Guidance
 - Hydraulic Residence Time Template
 - Water Quality Volume Template
 - PCSM FAQs
 - Inspection and Maintenance Templates
 - Operations and Maintenance Manuals
 - And More....



QR Code to Webpage



Common Issues



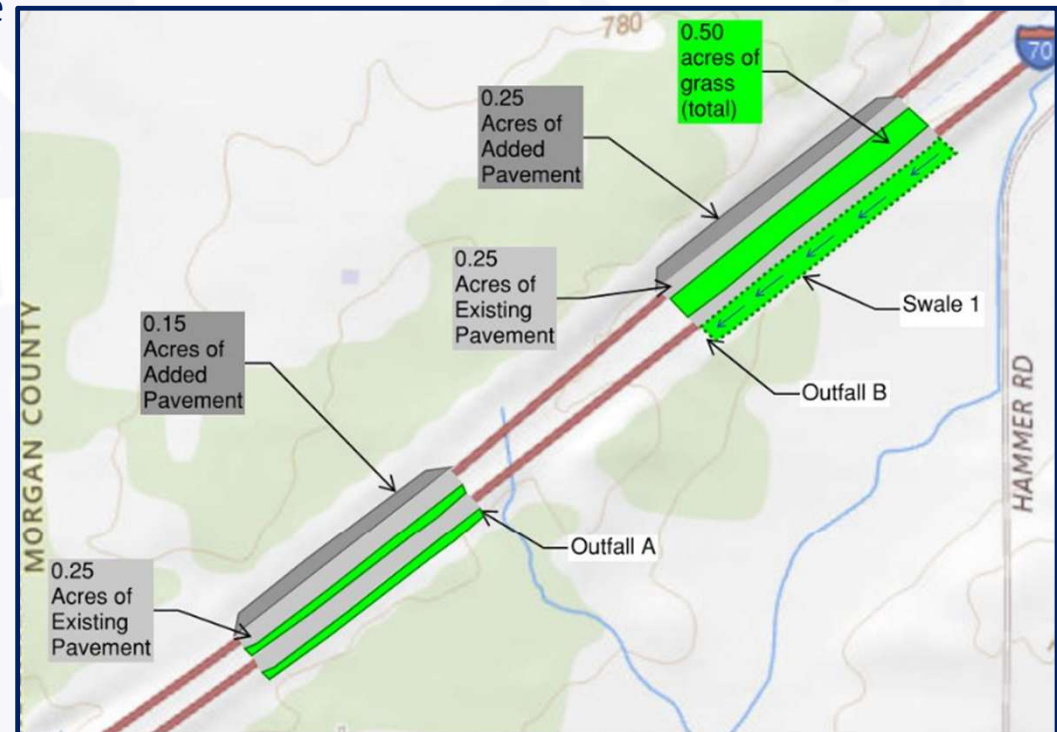
- Not submitting the plans with the report or not including detail sheets
- Not submitting the shapefiles of the PCBMPs with the report
- Not naming detention ponds (for peak flow mitigation) per the naming convention
- Temporary pavement should not be included in the net impervious surface calculation
- Not using swales as the chosen PCBMP when swales would work
- Not using % impervious for swale design in the Qwq calc.
- Not accounting for offsite flow into swale

[PCSM Frequently Asked Questions](#)



Common Issue - Treating in Another Outfall

- For various reasons, it is sometimes infeasible to treat added pavement in an outfall
 - Option to treat the same value in acres of pavement in another outfall
 - Must drain to same receiving stream
 - Outfall A: 0.15 acre of net added pavement
 - Outfall B: 0.25 acre of net added pavement
 - Outfall B has more right-of-way space for vegetated swales
 - Solution
 - Treat 0.4 acre of pavement in Swale 1 in Outfall B
 - Total area draining to Swale 1 is 1 acre
 - 0.5 acre of pavement
 - 0.5 acre of grass
- 0.5 acre of pavement treated in Swale 1
✓ > 0.4 acre of added pavement



A common mistake is to calculate the Qwq for Outfall A and adding it to the Qwq for Outfall B

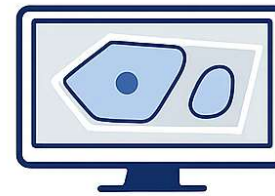
Submittal Guidance



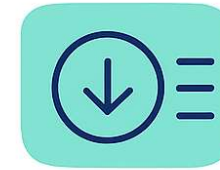
No longer using ERMS – email to PCSM@indot.IN.gov only



Assume 30-day review period



Submit shapefiles for all PCBMPs, including detention, for asset tracking



Include relevant plans

Links for the team to download



Include relevant plans



Include inspection and maintenance templates



[PCSM Submittal Requirements](#)

Questions

- [INDOT Stormwater Webpage](#)
- PCSM@indot.IN.gov
- Sandy Bowman, MPA, MSL, JD
 - INDOT EWPSO Manager
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