

# **Municipal Stormwater Management Worksheets**

# Municipal Stormwater Management Worksheet A

Property Owner's Name \_\_\_\_\_

Address of Property \_\_\_\_\_

Parcel ID # \_\_\_\_\_ Municipality \_\_\_\_\_

Phone Number \_\_\_\_\_ New Impervious Area Associated with this Project \_\_\_\_\_

Stormwater Project Type: \_\_\_\_\_ Level 1      \_\_\_\_\_ Level 2      \_\_\_\_\_ Level 3      \_\_\_\_\_ Level 4  
    Exempt                      Exempt                      Minor Plan                      Formal Plan

**Estimated Project Disturbed Area (Square Feet or Acres)** \_\_\_\_\_

Total New Impervious Area Since Adoption of SWM Plan \_\_\_\_\_

**Acknowledgement** - I declare that I am the property owner, or representative of the owner, and that the information provided is accurate to the best of my knowledge. I understand that stormwater may not adversely affect adjacent properties or be directed onto another property without written permission. I also understand that false information may result in a stop work order or revocation of permits. Municipal representatives are also granted reasonable access to the property for review and/ or inspection of this project if necessary.

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Step 1:** Determine the amount of new impervious area created by the proposed project. This includes any new surface areas that prevent infiltration of stormwater into the ground. New stone and gravel areas are considered impervious. Impervious areas existing before July 9<sup>th</sup>, 2012 are not included in this calculation. Use additional sheets if necessary

*Calculate new impervious area by completing this table.*

Surface	Length (ft)	x	Width (ft)	=	Impervious Area (ft <sup>2</sup> )
Buildings		x		=	
Driveway		x		=	
Parking Areas		x		=	
Patios/ walkways		x		=	
Other		x		=	
<b>Total Proposed Impervious Surface Area (Sum of all impervious areas)</b>					

- Level 1 - If the total new impervious surface area is **up to 1,000 ft<sup>2</sup>**, the project is exempt from the requirement to submit a plan for approval. Sign Acknowledgement and file this sheet with municipality.
- Level 2 - If total impervious surface area is **1,001 ft<sup>2</sup> to 10,000 ft<sup>2</sup>**, continue to Step 2.
  - If project area can be entirely disconnected, sign Acknowledgement and file worksheets with municipality.
- Level 3 - If project is between 1,000 ft<sup>2</sup> and 5,000 ft<sup>2</sup> and requires BMPs, complete step 3.
- Level 4 - If project area is greater than 5,000 ft<sup>2</sup> and cannot be disconnected, the project does not qualify for the Simplified Approach.

# Municipal Stormwater Management Worksheet B

**Step 2:** Determine Disconnected Impervious Area (DIA). All or parts of proposed impervious surfaces may qualify as Disconnected Impervious Area if runoff is directed to a pervious area that allows for infiltration, filtration, and increased time of concentration. The volume of stormwater that needs to be managed could be reduced through DIA. Prepare a minor stormwater site plan (see page 6 for requirements).

**Criteria**

- Overland flow path from the discharge area or impervious area has a positive slope of 5% or less.
- Contributing area to each rooftop discharge (downspout) is 500 ft<sup>2</sup> or less.
- Soils are not classified as hydrologic soil group “D”.
- The receiving pervious area shall not include another person’s property unless written permission has been obtained from the affected property owner.

Partial Rooftop Disconnection		
Length of Pervious Flow Path (ft) Lots ≤ 10,000 ft <sup>2</sup>	Length of Pervious Flow Path (ft)	DIA Credit Factor
35 or more	75 or more	0
30 – 34.9	60 – 74	0.2
23 – 29.9	45 – 59	0.4
16 – 22.9	30 – 44	0.6
8 – 15.9	15 – 29	0.8
0 – 7.9	0 - 14	1.0
Pervious flow path must be at least 15 feet from any impervious surface		

**Paved Disconnection Criteria:** Paved surfaces (driveways, walkways, etc.) and gravel can be considered disconnected if it meets the criteria above and:

- Runoff does not flow over impervious area for more than 75 feet.
- The length of overland flow is greater than or equal to the contributing flow path.
- The slope of the contributing impervious areas is 5% or less.
- If discharge is concentrated at one or more discrete points, no more than 1,000 ft<sup>2</sup> may discharge to any one point. In addition, a gravel strip or other spreading device is required for concentrated discharges. Non-concentrated discharges along the entire edge of paved surface must include provisions for the establishment of vegetation along the paved edge and temporary stabilization of the area until the vegetation is established.
- If these criteria can be met, the DIA credit = 0

*Using the calculations from Step 1, complete the table below. This will determine the impervious area that may be excluded from the area that needs to be managed through stormwater BMPs. If the total impervious area to be managed =0, the area can be considered entirely disconnected.*

Surface	Proposed Impervious Area	x	DIA Credit	=	Impervious Area (ft <sup>2</sup> ) to be Managed
Buildings (area to each downspout)		x		=	
Driveway		x		=	
Parking Areas		x		=	
Patios/ walkways		x		=	
Other		x		=	
<b>Total Proposed Impervious Surface Area to be managed (Sum of all impervious areas)</b>					

*\* If Total Proposed Impervious Surface Area to be managed if greater than 0, continue to Step 3.  
 \*\* If Total Proposed Impervious Surface Area to be managed is greater than 5,000 s.f., a Formal Stormwater Management Plan is required and a Qualified Professional must be contacted.*

# Municipal Stormwater Management Worksheet B

**Step 3:** Calculate the volume of stormwater runoff created by proposed impervious surfaces or see Simple BMP Sizing in Step 4.

Impervious Area (ft <sup>2</sup> ) to be Managed (Sum of Step 2)	X	3.0 in/12 in = 0.25 (3.0 in is 2-year 24-hour rainfall amount)	=	Amount of Stormwater to be Managed (ft <sup>3</sup> )
	X	0.25	=	

**Step 4:** Select BMPs and size according to the volume of stormwater that needs to be managed. The Guide to Choosing Stormwater BMPs, included in the Simplified Approach, includes sizing calculations for specific techniques. The table below should be used only when a Minor Stormwater Site Plan is appropriate. Other BMPs may be utilized if selected out of the Guide to Choosing Stormwater BMPs provided calculations are provided to show that the required volume has been met.

Best Management Practices need to be used to manage the volume of stormwater created by the proposed impervious areas. The cubic feet of stormwater that need to be managed may also be further reduced by planting new trees. If the criteria below can be met, the amount of stormwater to be managed can be reduced per the following:

**Deciduous Trees = 6 ft<sup>3</sup> per tree**

**Evergreen Trees = 10 ft<sup>3</sup> per tree**

**Criteria:**

- Trees must be PA native species (See PA Stormwater BMP Manual for a list)
- Trees shall be a minimum 1" caliper tree and 3 feet tall shrub (min)
- Trees shall be adequately protected during construction
- No more than 25% of the required capture volume can be mitigated through the use of trees
- Dead trees shall be replaced by the property owner within 12 months
- Please consider the specifications for each tree species when determining location and spacing

Amount of Stormwater to be Managed (ft <sup>3</sup> ) (Sum of Step 3)	-	Tree Planting Credit (ft <sup>3</sup> )	=	Amount of Stormwater to be Managed (ft <sup>3</sup> )
	-		=	

<b>Proposed BMP</b>	<b>Length (Feet)</b>		<b>Width (Feet)</b>		<b>Depth (Feet)</b>		<b>Void Ratio</b>		<b>Volume (Cubic Feet)</b>
<b>Infiltration Bed</b>		x		x		x	<b>0.4</b>	=	
<b>Infiltration Berm</b>		x		x		x	<b>1.0</b>	=	
<b>Rain Garden</b>		x		x		x	<b>1.0</b>	=	
<b>Rain Barrel</b>	<b>Gallons</b>			x	<b>Cubic Feet Per Gallon</b>			=	
					<b>0.134</b>				
<b>Tree Credit</b>	<b>Calculated Above (Can be up to a maximum of 25% of the required volume calculated in Step 3)</b>							=	
<b>Total Volume Credit (Sum of Volumes above)</b>								=	
<b>Required Volume (Calculated above in Step 3)</b>								=	
<b>Surplus Volume (Total Volume – Required Volume)</b>								=	

Bring the worksheets, Site Sketch Plan, Owner Acknowledgement, and Stormwater Management Practices, Facilities, and Systems Maintenance and Monitoring Agreement to the municipality. If an area greater than 5,000 square feet of earth is disturbed, an erosion and sedimentation (E & S) control plan must be prepared and kept on site during construction activities. If an area greater than 1.0 acres is disturbed during the project, an NPDES Permit will be required to be obtained from the Adams County Conservation District.

## OWNER ACKNOWLEDGMENT

- Development activities shall begin only after the municipality approves the plan.
- The installed BMPs will not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- If a stormwater management alternative to the approved minor stormwater site plan is used, the applicant will submit a revised plan to the municipality for approval. If a site requires a more complex system or if problems arise, the applicant may need the assistance of a licensed professional.
- The applicant acknowledges that the proposed stormwater management BMPs will be a permanent fixture of the property that cannot be altered or removed without approval by the Township.

I (we) \_\_\_\_\_, hereby acknowledge the above statements and agree to assume full responsibility for the implementation, construction, operation, and maintenance of the proposed stormwater management facilities. Furthermore, I (we) also acknowledge that the steps, assumptions, and guidelines provided in this simplified approach package (minor stormwater site plan & Municipal Stormwater Worksheet(s)) will be adhered to.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_