

**APPENDIX A-2.**  
**STORMWATER MANAGEMENT**  
**SMALL PROJECT DESIGN/APPLICATION**

**Elizabeth Township, Lancaster County, Pennsylvania**

This application pertains to projects that qualify as a Small Project (between 1,001 and 2,500 square feet of impervious area (cumulative)). If a formal Stormwater Management Plan is required in accordance with the Elizabeth Township Stormwater Management Ordinance, **please consult a qualified person (ex. Engineer, Surveyor, Landscape Architect).**

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

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

Parcel ID \_\_\_\_\_ - \_\_\_\_\_

Phone Number: Home: \_\_\_\_\_ Cell: \_\_\_\_\_

Email Address: \_\_\_\_\_

1000 SF Exemption Used since February 9, 2004: \_\_\_\_ No \_\_\_\_ Yes: how much: \_\_\_\_\_

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

Lot Size (Sq. Ft.) \_\_\_\_\_

Existing Impervious Coverage (Sq. Ft.) \_\_\_\_\_

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

**The allowable impervious coverage per lot is subject to the regulations of the Township Zoning Ordinance, as amended.**

***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 declare that the proposed construction is not within an existing easement or wetland area. 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 \_\_\_\_\_

\*All property owners must sign.

**Small Project Plan** – Regulated activities on existing lots of record that, measured on a cumulative basis from May 7, 2014 (effective date) create additional impervious areas of 1,001 sq. ft. to 2,500 sq. ft. or involves an Earth Disturbance Activity such as removal of ground cover, grading, filling or excavation of an area less than 5,000 sq. ft. and do not involve the alteration of SWM Facilities or watercourses.

- Small projects are not required to provide for Rate Control.
- Small projects are required to address at least the first one (1) inch of runoff from new impervious surfaces or an equivalent volume shall be permanently removed from the runoff flow – i.e. it shall not be released into the surface Waters of this Commonwealth. Removal options include reuse, evaporation, transpiration and infiltration.

**Disconnected Impervious Area (DIA)** – An impervious or impermeable surface that is disconnected from any stormwater drainage or conveyance system and is redirected or directed to a pervious area, which allows for infiltration, filtration, and increased time of concentration.

**Step 1:** Determine the amount of new impervious surface area created by the proposed project. This includes any new impervious surface area that prevents or decreases infiltration of stormwater into the ground. New stone and gravel areas are considered impervious. Impervious surface areas existing before May 7, 2014 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		=	
Other		x		=	
Existing Impervious Area to be Removed (if applicable)					
Surface	Length (ft)	x	Width (ft)	=	Impervious Area (ft <sup>2</sup> )
		x		=	
<b>Total Proposed Impervious Surface Area (Sum of all new impervious areas – all existing impervious area to be removed)</b>					

- If the total new impervious surface area is between 0 and 1,500 SF and the Applicant has previously used any available exemptions or is deferring any available exemption use to a future project or the area is between 1,001 and 2,500 ft<sup>2</sup> and the Applicant has not previously used any available exemption as part of this permit application, the project is eligible to qualify as a Small Project. Continue to Step 2.

- If total new impervious surface area is **greater than 2,501 ft<sup>2</sup>**, then a Stormwater Management Plan shall be submitted in accordance with the Elizabeth Township Stormwater Management Ordinance, Chapter 150, Stormwater Management.

**Step 2:** Determine Disconnected Impervious Area (DIA). All or parts of new 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 use of DIAs.

Partial Rooftop Disconnection	
Length of Pervious Flow Path (ft.)	DIA Credit Factor
75 or more	0
60 – 74	0.2
45 – 59	0.4
30 – 44	0.6
15 – 29	0.8
0 - 14	1.0
Pervious flow path must be at least 15 feet from any impervious surface	

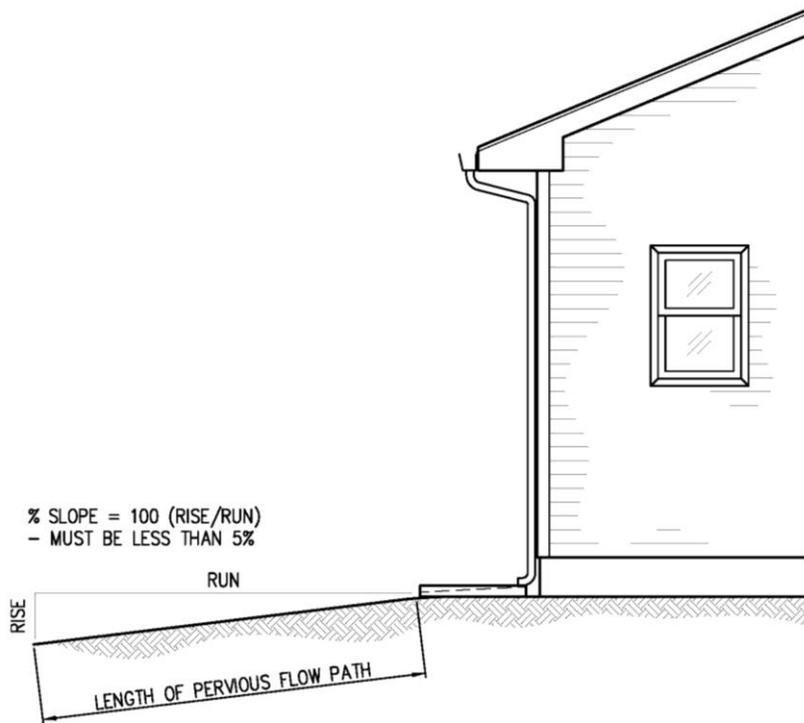
**Rooftop Disconnection Criteria**

- Overland flow path from the discharge area or impervious area has a positive slope of 5% or less.
- Runoff is not directed towards dwellings or other occupied structures.
- 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 and a copy is provided to Township from the affected property owner.

**Paved Disconnection**

**Criteria:** Other impervious surfaces (driveways, walkways, porches, decks with porous ground surface, etc. to be confirmed by Township Engineer or Zoning officer) 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.



**Disconnected Impervious Area - Rooftop Disconnection**

NOT TO SCALE

- 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. 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 the total new impervious surface area can be entirely disconnected, sign Acknowledgement and file worksheets with the Township.
- If the total new impervious surface area cannot be entirely disconnected, continue to Step 3.

**Step 3:** Calculate the volume of stormwater runoff created by new impervious surfaces. Use the following chart to determine this volume.

Impervious Area (ft <sup>2</sup> ) to be Managed (Sum of Step 2)	X	1.0 in/12 in = 0.083	=	Amount of Stormwater to be Managed (ft <sup>3</sup> )
	X	0.083	=	

**Step 4:** Determine the techniques to be used to manage the stormwater volume calculated in Step 3. Use the following information to determine the BMPs to be used to manage the proposed stormwater volume.

Where permitted by Elizabeth Township, planting of new trees may be used to manage a portion of the proposed stormwater volume. First, calculate the cubic feet of stormwater that can be managed by planting new trees. If the criteria below can be met, planting of new trees can be used to manage a portion of the proposed stormwater volume:

**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 (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> )
	-		=	

Second, subtract the stormwater volume that can be managed by tree planting from the overall stormwater volume calculated in Step 3. The remaining cubic feet of stormwater must be managed through the installation of properly sized Stormwater BMPs. Select BMPs and size according to the volume of stormwater that needs to be managed.

Alternatively, stormwater BMPs may be sized using the following Simple BMP Sizing table.

BMP Type		Simple BMP Sizing - Amount New Impervious Area to be Managed (ft <sup>2</sup> )											
		250	500	750	1000	1500	2000	2500	3000	3500	4000	4500	5000
Bioretention	Ex. Rain garden, Vegetated swale	21 ft <sup>3</sup> or	42 ft <sup>3</sup> or	62 ft <sup>3</sup> or	83 ft <sup>3</sup> or	125 ft <sup>3</sup> or	166 ft <sup>3</sup> or	208 ft <sup>3</sup> or	249 ft <sup>3</sup> or	291 ft <sup>3</sup> or	332 ft <sup>3</sup> or	374 ft <sup>3</sup> or	415 ft <sup>3</sup> or
Infiltration	Ex. Dry well, Infiltration trench	53 ft <sup>3</sup>	105 ft <sup>3</sup>	155 ft <sup>3</sup>	208 ft <sup>3</sup>	313 ft <sup>3</sup>	415 ft <sup>3</sup>	520 ft <sup>3</sup>	623 ft <sup>3</sup>	728 ft <sup>3</sup>	830 ft <sup>3</sup>	935 ft <sup>3</sup>	1,038 ft <sup>3</sup>

(Source: Lycoming County Planning Department)

The Simple BMP Sizing table is used as follows. After subtracting the stormwater volume that can be managed through the planting of new trees (if desired), match the remaining stormwater volume to the “Amount of New Impervious Area to be Managed” in white boxes in the table (rounding up to the next value if the number is between two values). Then look in the light grey box to determine the required size of the type of Stormwater BMP (bioretention or infiltration) being considered. For example, 1,000 square foot of new impervious surface area could be accommodated by an 83 cubic foot bioretention system.

### **Infiltration Trench/Bed Criteria**

- Stone bed shall not be located within 10 feet of any On-lot Sewage Disposal Systems.
- Stone used in the infiltration trenches shall be “clean” stone, i.e. #67, #57, #5 or clean 2B stone for the smaller facilities, and #1 or #3 ballast or R-3 for larger deeper facilities. Copies of the receipt(s) shall be provided to the Township for their records. **NO MODIFIED STONE MIXES SHALL BE UTILITZED FOR INFILTRATION.**
- The standard void ratio for stone is 0.40 (40% storage for each CF) if calculating by hand or follow the BMP sizing table above.
- It is recommended that the property owner verify that the ground will infiltrate water, this can be accomplished by excavating the trench or pit and placing a large amount of water into the pit to see how long it take to infiltrate.

Once the sizing of necessary stormwater BMPs has been determined, prepare the required information and submit to the Township for review and approval. Bring the worksheets, BMP information (size, location, etc.), Owner Acknowledgement, and BMP Facilities and Maintenance Agreement (if applicable) to the Township.

If an area greater than 5,000 square feet of earth is disturbed, the project qualifies as a minor stormwater management plan and shall be prepared as outlined in the Township’s Code of Ordinances.

## OWNER ACKNOWLEDGMENT

- Development activities shall begin only after Elizabeth Township approves the Small Project.
- The installed Stormwater BMPs will not adversely affect any property, septic systems, or drinking water wells on this or any other property.
- The landowner shall keep on file with the Township the name, address and telephone number of the person or company responsible for maintenance activities; in the event of a change, new information shall be submitted to the Township within 10 days of the change.
- If, after approval of the Small Project by the Township, the applicant wishes to pursue alternative stormwater management measures in support of the project, the applicant will submit revised Small Project information and worksheets to Elizabeth Township for approval. If a site requires a more complex system or if problems arise, the applicant may need the assistance of a licensed professional engineer, landscape architect or surveyor.
- The applicant acknowledges that the proposed Disconnected Impervious Area and/or Stormwater BMPs will be a permanent fixture of the property that cannot be altered or removed without approval by Elizabeth Township.
- All small projects upon approval of the design application and prior to the Township's issuance of the Stormwater Management Permit, the applicant shall provide the required Small Project Financial Guarantee amount to the Township. The financial guarantee will be released to the applicant upon satisfactory completion of the proposed improvements.

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 submission, including but not limited to Elizabeth Township Stormwater Worksheet, and the Stormwater Management / BMP Facilities and Maintenance Agreement (if applicable) will be adhered to.

### Applicant Acknowledgement of Submission

Signature: \_\_\_\_\_  
(All Property Owners Must Sign)

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

### Elizabeth Township Acknowledgement of Receipt

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

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

Prepared By: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Return To: \_\_\_\_\_  
Parcel ID #: Same \_\_\_\_\_

**SMALL PROJECT STORMWATER MANAGEMENT AGREEMENT  
AND DECLARATION OF EASEMENT**

**THIS AGREEMENT AND DECLARATION OF EASEMENT** made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_ with a mailing address of \_\_\_\_\_

\_\_\_\_\_ (hereinafter, whether singular or plural, referred to as the "Grantor"), and **ELIZABETH TOWNSHIP**, Lancaster County, Pennsylvania, a municipal corporation duly organized under the laws of the Commonwealth of Pennsylvania, with its municipal office located at 423 South View Drive, Lititz, Pennsylvania (hereinafter referred to as the "Township").

**BACKGROUND**

Grantor is the owner of premises located at \_\_\_\_\_

\_\_\_\_\_, in the Township of Elizabeth, Lancaster County, Pennsylvania, as more specifically described in a deed recorded in Deed or Record Book \_\_\_\_\_, Volume \_\_\_\_\_, Page \_\_\_\_\_, or at Document No. \_\_\_\_\_ in the Office of the Recorder of Deeds in and for Lancaster County, Pennsylvania (hereinafter referred to as the "Premises"). Grantor is proceeding to build on and develop the Premises in such manner as requires the submission of a Small Project Stormwater Site Plan pursuant to the Elizabeth Township Stormwater Management Ordinance (hereinafter "SWM Ordinance").

Grantor's Small Project Stormwater Site Plan, which is expressly made a part hereof, as approved or to be approved by the Township, provides for detention of stormwater within the confines of the Premises through the use of Stormwater Best Management Practices ("Stormwater BMPs").

In the interest of protecting the health, safety, and welfare of the residents of the Township, the Township requires that on-site Stormwater BMPs as shown on the Small Project Stormwater Site Plan be constructed and adequately maintained by Grantor, his heirs, personal representatives, successors and assigns. Any additional requirements imposed by the Township are considered part of the Small Project Stormwater Site Plan.

The purpose of this Agreement and Declaration of Easement is to describe the ownership and maintenance responsibilities for the on-site Stormwater BMPs, which will be located on the Premises and to impose the ownership and maintenance responsibilities upon Grantor, his heirs,

personal representatives and assigns and upon successor owners of the Premises, and set forth the rights of the Township.

**NOW, THEREFORE**, intending to be legally bound hereby and in consideration of receiving approval of its Small Project Stormwater Site Plan from the Board of Supervisors, and in consideration of receiving permits from the Township to develop the Premises, Grantor, for Grantor and the heirs, personal representatives, successors and assigns of Grantor, covenant and declare as follows:

1. In accordance with the specifications identified within the Small Project Stormwater Site Plan, Grantor shall construct the on-site Stormwater BMPs, which will be owned by Grantor, his heirs, personal representatives, successors and assigns.

2. Grantor, his heirs, personal representatives, successors and assigns, shall adequately maintain the Stormwater BMPs, including all pipes and channels built to convey stormwater, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions.

3. Grantor, his heirs, personal representatives, successors and assigns, shall inspect the Stormwater BMPs after all rainfall events exceeding four (4) inches of precipitation in a 24-hour period.

4. Grantor agrees that this Agreement creates upon the Premises, for the benefit of all present and future owners of the Premises or part of the Premises, the Township, and all other property owners affected by the stormwater facilities, the perpetual right, privilege and easement for the draining of stormwater in and through the Stormwater BMPs, and other stormwater facilities depicted on the Small Project Stormwater Site Plan submitted to the Township by Grantor.

5. Grantor, his heirs, personal representatives, successors and assigns, hereby grants permission to the Township, by its authorized agents and employees, to enter upon the Premises without prior notification at reasonable times and upon presentation of proper identification to inspect the Stormwater BMPs whenever the Township deems necessary.

6. In the event the Grantor, or his heirs, personal representatives, successors and assigns, fails to maintain the Stormwater BMPs as shown on the Small Project Stormwater Site Plan and in good working condition, the Township may enter upon the Premises and take whatever action it deems necessary to maintain said Stormwater BMPs and to charge the costs of such repairs to the Grantor, his heirs, personal representatives, successors and assigns. This provision shall not be construed to allow the Township to erect any structure of permanent nature on the Premises unless such structure(s) were part of the approved Small Project Stormwater Site Plan. It is expressly understood and agreed that the Township is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the Township.

7. In the event that the Township, pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Grantor shall reimburse the Township within thirty (30) days of receipt of

invoice for all expenses incurred. The Township has the right to file a municipal lien for unpaid costs and expenses that have not been reimbursed thirty (30) days after receipt of invoice. Any municipal lien filed pursuant to this Agreement shall be in the amount of all costs incurred by the Township, plus a penalty of ten percent (10%) of such costs, plus the Township's reasonable attorneys' fees.

8. The intent and purpose of this Agreement is to ensure the proper maintenance of the Stormwater BMPs by the Grantor. This Agreement shall not be deemed to create any additional liability upon any party for damage(s) alleged to result from or be caused by nonpoint source pollution runoff. Furthermore, this Agreement imposes no liability of any kind whatsoever on the Township, or its elected and appointed officials, agents and employees.

9. Grantor agrees to indemnify the Township and all of its elected and appointed officials, agents and employees (hereafter collectively referred to as the "Indemnitees") against and hold Indemnitees harmless from any and all liability, loss or damage, including attorneys' fees and costs of investigation and defense, as a result of claims, demands, costs or judgments against Indemnitees which arise as a result of the design, installation, construction or maintenance of the Stormwater BMPs or any omissions relating thereto. In the event that a claim arising from Grantor's actions or omissions relating to the installation, construction or maintenance of Stormwater BMPs on the Premises is asserted against Indemnitees, the Township shall promptly notify Grantor, and Grantor shall defend, at his own expense, any suit based on the claim. If any judgment against Indemnitees shall be entered as a result of such claim, the Grantor agrees to indemnify Indemnitees and pay all costs and expenses stemming from said judgment.

10. This Agreement is not intended to, nor shall operate to limit the Township's rights and remedies under the SWM Ordinance. The Township may, in addition to the remedies prescribed herein, proceed with any action at law or in equity to bring about compliance with the Township SWM Ordinance and this Agreement.

11. This Agreement shall be binding on Grantor, his heirs, personal representatives, administrators, executors, assigns, and any other successors in interests, in perpetuity.

**IN WITNESS WHEREOF**, the undersigned have caused this Agreement and Declaration to be executed on the day and year first above written.

ELIZABETH TOWNSHIP  
Lancaster County, Pennsylvania

Attest: \_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman  
Board of Supervisors

[TOWNSHIP SEAL]

Witness:  
  
\_\_\_\_\_

GRANTOR:  
  
\_\_\_\_\_ (SEAL)

Print Name: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (SEAL)

Print Name: \_\_\_\_\_

*All property owners must sign the Stormwater Management Agreement in the presence of a notary public who must complete the acknowledgment on the following page. If the property is jointly owned by husband and wife, both must sign.*