

ANNUAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) STATUS REPORT

FOR THE PERIOD July 1, 2025 TO JUNE 30, 2026

GENERAL INFORMATION					
Permittee Name:	Souderton Borough	NPDES Permit No.:	PAI130069		
Mailing Address:	31 West Summit Street	Effective Date:	10/1/2024		
City, State, Zip:	Souderton, PA 18964	Expiration Date:	9/30/2029		
MS4 Contact Person:	Sara Jarrett-Eaton	Renewal Due Date:	3/30/2029		
Title:	Borough Manager	Municipality:	Souderton Borough		
Phone:	215-723-4371	County:	Montgomery County		
Email:	sjarrett@soudertonborough.org				
Co-Permittees (if applicable): N/A					
Appendix(ces) that permittee is subject to (select all that apply): ☐ Appendix A ☐ Appendix B ☐ Appendix C ☐ Appendix D ☒ Appendix E ☒ Appendix F					
WATER QUALITY INFORMATION					
Are there any discharges to waters within the Chesapeake Bay Watershed? ☐ Yes ☒ No					
Identify all surface waters that receive stormwater discharges from the permittee's MS4 and provide the requested information (see instructions).					
Receiving Water Name	Ch. 93 Class.	Impaired?	Cause(s)	TMDL?	WLA?
Skippack Creek	TSF.MF	Yes	Siltation, Nutrients, Excessive Algae Growth	Yes	Yes
Indian Creek	TSF,MF	Yes	Siltation, Nutrients	Yes	Yes

GENERAL MINIMUM CONTROL MEASURE (MCM) INFORMATION

Have you completed all MCM activities required by the permit for this reporting period? ☒ Yes ☐ No

List the current entity responsible for implementing each MCM of your SWMP, along with contact name and phone number.

MCM	Entity Responsible	Contact Name	Phone
#1 Public Education and Outreach on Storm Water Impacts	Souderton Brough	Sara Jarrett-Eaton	215-723-4371
#2 Public Involvement/Participation	Souderton Brough	Sara Jarrett-Eaton	215-723-4371
#3 Illicit Discharge Detection and Elimination (IDD&E)	Souderton Brough	Sara Jarrett-Eaton	215-723-4371
#4 Construction Site Storm Water Runoff Control	Souderton Brough	Sara Jarrett-Eaton	215-723-4371
#5 Post-Construction Storm Water Management in New Development and Redevelopment	Souderton Brough	Sara Jarrett-Eaton	215-723-4371
#6 Pollution Prevention / Good Housekeeping	Souderton Brough	Jason Kelly	215-723-4371

MCM #1 – PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS

BMP #1: Develop, implement and maintain a written Public Education and Outreach Program.

- For new permittees only, has the written PEOP been developed and implemented within the first year of permit coverage?
☐ Yes ☐ No
- Date of latest annual review of PEOP: June 2025 Were updates made? ☐ Yes ☒ No
- What were the plans and goals for public education and outreach for the reporting period?

The goals for this period remain the same as last year; these were to continue to distribute effective educational materials to current target audience and to continue the existing educational outreach practices in place. These consist of:
 - Distribution of DEP developer fact sheets to all applicants for building permits and land development.
 - Public display of applicable educational materials at Borough Hall; update as needed
 - Maintain and update relevant information on the Borough's website.
 - Continue its use of the Patch Media Website to post educational materials.
 - Maintaining Borough's partnership with the Perkiomen Watershed Conservancy for their continued assistance in meeting this BMP.
 - Maintaining practice of replacement of the previously installed storm drain markers on inlet tops ("Stormwater Only") throughout the Borough as needed. It was previously noted that a group of volunteers installed storm drain markers throughout the Borough during Year 9.

The Borough hosted a stormwater presentation on May 11, 2026 on behalf of Penn State Extension to educate residents on how to lessen their impact of stormwater runoff.

Two MS4 Presentations were held on January 20, 2026 and February 2, 2026 to provide an overview of the MS4 Permit and the Borough's responsibilities.
- Did the MS4 achieve its goal(s) for the PEOP during the reporting period? ☒ Yes ☐ No
- Identify specific plans and goals for public education and outreach for the upcoming year:

The Borough's plan is to continue all methods of education and outreach noted above. Additionally, the goals of this reporting period are to make use of more of the opportunities available through the Perkiomen Watershed Conservancy as well as to begin distributing Stormwater Pollution Prevention educational materials through their email, text distribution list and/or possibly use of FaceBook in the future.

BMP #2: Develop and maintain lists of target audience groups present within the areas served by your MS4.

1. For new permittees only, have the target audience lists been developed and implemented within the first year of permit coverage?
☐ Yes ☐ No
2. Date of latest annual review of target audience lists: June 2026 Were updates made? ☒ Yes ☐ No

BMP #3: Annually publish at least one educational item on your Stormwater Management Program.

1. For new permittees only, were stormwater educational and informational items produced and published in print and/or on the Internet within the first year of permit coverage?
☐ Yes ☐ No
2. Date of latest annual review of educational materials: June 2026 Were updates made? ☒ Yes ☐ No
3. Do you have a municipal website? ☒ Yes ☐ No (URL: <https://soudertonborough.org/stormwater-management/>)

If Yes, what MS4-related material does it contain?

The Stormwater Management Information link contains IDD&E program, Links to DEP/EPA Outreach materials, Homeowner's Guide to Stormwater BMP Maintenance, Seasonal Stormwater Management Tips, Perkiomen Creek Watershed Conservancy workshops and volunteer days

4. Describe any other method(s) used during the reporting period to provide information on stormwater to the public:
Three stormwater presentations, two of which were specific to MS4 permit requirements.
5. Identify specific plans for the publication of stormwater materials for the upcoming year:
The Borough plans to continue to monitor and evaluate its website and their materials posted in the Borough Lobby, as well as continue to post on the Patch Media Website. The Borough will be looking into using text and/or email blasts to send out more materials or other social media methods if they become available.

BMP #4: Distribute stormwater educational materials to the target audiences.

Identify the two additional methods of distributing stormwater educational materials during the previous reporting period (e.g., displays, posters, signs, pamphlets, booklets, brochures, radio, local cable TV, newspaper articles, other advertisements, bill stuffers, posters, presentations, conferences, meetings, fact sheets, giveaways, or storm drain stenciling).

As noted above, aside from the website, the Borough used Lobby Displays, the Patch Media Website and typically Email Blasts to distribute educational materials. Additionally, other materials are also available through the Perkiomen Watershed Conservancy's website and their emails. The Borough's Public Works Training Session also typically distributes information to their employees. Stormwater Pollution Prevention materials were handed out to contractors/developers at Pre-Construction Meeting and with building permits, if applicable.

MCM #1 Comments:

See Recordkeeping table for the list of specific activities completed this reporting period.

MCM #2 – PUBLIC INVOLVEMENT/PARTICIPATION

BMP #1: Develop, implement and maintain a written Public Involvement and Participation Program (PIPP)

1. For new permittees only, was the PIPP developed and implemented within one year of permit coverage?
☐ Yes ☐ No
2. Date of latest annual review of PIPP: June 2026 Were updates made? ☒ Yes ☐ No

BMP #2: Advertise to the public and solicit public input on ordinances, SOPs, Pollutant Reduction Plans (PRPs) (if applicable) and TMDL Plans (if applicable), including modifications thereto, prior to adoption or submission to DEP:

1. Was an MS4-related ordinance, SOP, PRP or TMDL Plan developed during the reporting period? ☒ Yes ☐ No
2. If Yes, describe how you advertised the draft document(s) and how you provided opportunities for public review, input and feedback:

PRP and TMDL Plan was published on the Borough's website and presented at two Council meetings (January 20, 2026 and February 2, 2026) for public review and comment for 30 days beginning on January 31, 2026.
3. If an ordinance, SOP or plan was developed or amended during the reporting period, provide the following information:

Ordinance / SOP / Plan Name	Date of Public Notice	Date of Public Hearing	Date Enacted or Submitted to DEP
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Combined TMDL and PRP for Indian Creek and Skeppack Creek	January 31, 2026		March 12, 2026

BMP #3: Regularly solicit public involvement and participation from the target audience groups using available distribution and outreach methods.

1. At least one public meeting or other MS4 event must be held during the 5-year permit coverage period to solicit participation and feedback from target audience groups. Was this meeting or event held during the reporting period?

☒ Yes ☐ No

If Yes, Date of Meeting or Event: January 20, 2026 and February 2, 2026

2. Report instances of cooperation and participation in MS4 activities; presentations the permittee made to local watershed and conservation organizations; and similar instances of participation or coordination with organizations in the community.

Hosted Robert S. Pace, a Penn State Extension Certified Master Watershed Steward on May 11, 2026. Pace is on the BOD for the Perkiomen Watershed Conservancy and a member of the Wissahickon Trails Conservation Committee.

3. Report activities in which members of the public assisted or participated in the meetings and in the implementation of the SWMP, including education activities or efforts such as cleanups, monitoring, storm drain stenciling, or others.

Many of the Souderton residents typically volunteer for the Annual Earth Day Clean-Up Event and/or the Perkiomen Creek Clean-Up Day which were advertised on the Borough's website.

MCM #2 Comments:

See the Public Participation and Involvement Recordkeeping Table for all activities performed this year.

MCM #3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDD&E)

BMP #1: Develop and implement a written program for the detection, elimination, and prevention of illicit discharges into the regulated small MS4.

1. For new permittees only, was the written IDD&E program developed within one year of permit coverage?

☐ Yes ☐ No

2. Date of latest annual review of IDD&E program: June 2026 Were updates made? ☐ Yes ☒ No

BMP #2: Develop and maintain map(s) that show permittee and urbanized area boundaries, the location of all outfalls and, if applicable, observation points, and the locations and names of all surface waters that receive discharges from those outfalls. Outfalls and observation points shall be numbered on the map(s).

1. Have you completed a map(s) that includes all components of BMP #2? ☒ Yes ☐ No

If Yes and you are a new permittee and have not submitted the map(s) previously, attach the map(s) to this report.

If No, date by which permittee expects map(s) to be completed:

2. Date of last update or revision to map(s): July 2025

3. Total No. of Outfalls in MS4: 6 Total No. of Outfalls Mapped: 6

4. Total No. of Observation Points: 9 Total No. of Observation Points Mapped: 9

5. During the reporting period, have you identified any existing outfalls that have not been previously reported to DEP in an NOI, application or annual report, or are any new MS4 outfalls proposed for the next reporting period?

☐ Yes ☒ No

If Yes, select: ☐ Existing Outfall(s) Identified ☐ New Outfall(s) Proposed

BMP #3: In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), the permittee shall develop and maintain map(s) that show the entire storm sewer collection system within the permittee's jurisdiction that are owned or operated by the permittee (including roads, inlets, piping, swales, catch basins, channels, and any other components of the storm sewer collection system), including privately-owned components of the collection system where conveyances or BMPs on private property receive stormwater flows from upstream publicly-owned components.

1. Have you completed a map(s) that includes all components of BMP #3? ☒ Yes ☐ No

If Yes and you are a new permittee and have not submitted the map(s) previously, attach the map(s) to this report.

If No, date by which permittee expects map(s) to be completed:

2. If Yes to #1, is the map(s) on the same map(s) as for outfalls and receiving waters? ☒ Yes ☐ No

3. Date of last update or revision to map(s): July 2026

BMP #4: Conduct dry weather screenings of MS4 outfalls to evaluate the presence of illicit discharges. If any illicit discharges are present, the permittee shall identify the source(s) and take appropriate actions to remove or correct any illicit discharges. The permittee shall also respond to reports received from the public or other agencies of suspected or confirmed illicit discharges associated with the storm sewer system, as well as take enforcement action as necessary. The permittee shall immediately report to DEP illicit discharges that would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property.

For new permittees, all identified outfalls (and if applicable observation points) must be screened during dry weather at least twice within the 5-year period following permit coverage. For existing permittees, all identified outfalls (and if applicable observation points) must be screen during dry weather at least once within the 5-year period following permit coverage and, for areas where past problems have been reported or known sources of dry weather flows occur on a continual basis, outfalls must be screened annually during each year of permit coverage.

1. How many unique outfalls (and if applicable observation points) were screened during the reporting period? 0
2. Indicate the percentage of all outfalls screened in the past five years. 0%
3. Indicate the percent of outfalls screened during the reporting period that revealed dry weather flows: 0%
4. Did any dry weather flows reveal color, turbidity, sheen, odor, floating or submerged solids? ☐ Yes ☒ No
5. If Yes for #4, attach all sample results to this report with a map identifying the sample location. Explain the corrective action(s) taken in the attachment.
6. Do you use the MS4 Outfall Field Screening Report form (3800-FM-BCW0521) provided in the permit?
☒ Yes ☐ No
If No, attach a copy of your screening report form.

BMP #5: Enact a Stormwater Management Ordinance or SOP to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that prohibits non-stormwater discharges? ☒ Yes ☐ No
If Yes, indicate the date of the ordinance or SOP: February 7, 2005 (Revisions to match model SWM Ord authroized for advertisement
2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j) with respect to authorized non-stormwater discharges? ☐ Yes ☒ No
If Yes to #2 and the ordinance or SOP has not been submitted to DEP previously, attach the ordinance or SOP.

3. Were there any violations of the ordinance or SOP during the reporting period? ☐ Yes ☒ No

If Yes to #3, complete the table below (attach additional sheets as necessary).

Violation Date	Nature of Violation	Responsible Party	Enforcement Taken

4. Did you approve any waiver or variance during the reporting period that allowed an exception to non-stormwater discharge provisions of an ordinance or SOP? ☐ Yes ☒ No

If Yes to #4, identify the entity that received the waiver or variance and the type of non-stormwater discharge approved.

BMP #6: Provide educational outreach to public employees, business owners and employees, property owners, the general public and elected officials (i.e., target audiences) about the program to detect and eliminate illicit discharges.

1. Was IDD&E-related information distributed to public employees, businesses, and the general public during the reporting period? ☒ Yes ☐ No

If Yes, what was distributed? As before, the Borough relies heavily on its partnership with the Perkiomen Watershed Conservancy (PWC) for meeting the goals of the BMP. The PWC submits press releases and other advertisements pertaining to stormwater management and the prevention of stormwater pollution. In conjunction with the PWC's resources, the Borough also distributes IDD&E related materials within the Borough Lobby, its website, email blasts and by handouts at any Pre-Construction Meetings or with building permits as applicable. Additionally, the Public Works Department reviews IDD&E related materials during their training sessions.

2. Is there a well-publicized method for employees, businesses and the public to report stormwater pollution incidents?

☒ Yes ☐ No

3. Do you maintain documentation of all responses, action taken, and the time required to take action? ☒ Yes ☐ No

MCM #3 Comments:

The Council authorized the advertisement of a Stormwater Management Ordinance consistent with DEP's 2022 Model Ordinance on September 8, 2026. Adoption of the new ordinance is expected in the next reporting period.

The Borough's website has a section that outlines what constitutes an illicit discharge and it gives contact information to report these incidents.

MCM #4 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Are you relying on PA's statewide program for stormwater associated with construction activities to satisfy this MCM?

☒ Yes ☐ No

(If Yes, respond to questions for BMP Nos. 1, 2 and 3 only in this section. If No, respond to questions for all BMPs in this section)

BMP #1: The permittee may not issue a building or other permit or final approval to those proposing or conducting earth disturbance activities requiring an NPDES permit unless the party proposing the earth disturbance has valid NPDES Permit coverage (i.e., not expired) under 25 Pa. Code Chapter 102.

During the reporting period, did you comply with 25 Pa. Code § 102.43 (relating to withholding building or other permits or approvals until DEP or a county conservation district (CCD) has approved NPDES permit coverage)?

☐ Yes ☐ No ☒ Not Applicable (no building permit applications received)

BMP #2: A municipality or county which issues building or other permits shall notify DEP or the applicable CCD within 5 days of the receipt of an application for a permit involving an earth disturbance activity consisting of one acre or more, in accordance with 25 Pa. Code § 102.42.

During the reporting period, did you comply with 25 Pa. Code § 102.42 (relating to notifying DEP/CCD within 5 days of receiving an application involving an earth disturbance activity of one acre or more)?

☐ Yes ☐ No ☒ Not Applicable (no building permit applications received)

BMP #3: Enact, implement and enforce an ordinance or SOP to require the implementation and maintenance of E&S control BMPs, including sanctions for non-compliance, as applicable.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that requires implementation and maintenance of E&S control BMPs? ☒ Yes ☐ No

If Yes, indicate the date of the ordinance or SOP: Ongoing Updates - To be updated to be consistent with Model Ord.

2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☐ Yes ☒ No

3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #4: Review Erosion and Sediment (E&S) control plans to ensure that such plans adequately consider water quality impacts and meet regulatory requirements.

Specify the number of E&S Plans you reviewed during the reporting period: N/A

BMP #5: Conduct inspections regarding installation and maintenance of E&S control measures during earth disturbance activities. Maintain records of site inspections, including dates and inspection results, in accordance with the record retention requirements in this permit.

Specify the number of E&S inspections you completed during the reporting period: N/A

BMP #6: Conduct enforcement when installation and maintenance of E&S control measures during earth disturbance activities does not comply with permit and/or regulatory requirements.

Specify the number of enforcement actions you took during the reporting period for improper E&S: N/A

BMP #7: Develop and implement requirements for construction site operators to control waste at construction sites that may cause adverse impacts to water quality. The permittee shall provide education on these requirements to construction site operators.

Specify the method(s) by which you are educating construction site operators on controlling waste at construction sites:

Pre-Construction Meetings

BMP #8: Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public to the permittee regarding local construction activities.

1. A tracking system has been established for receipt of public inquiries and complaints. ☒ Yes ☐ No

2. Specify the number of inquiries and complaints received during the reporting period: Non reported

MCM #4 Comments:

We note that the Borough and their Engineer have been working on a revised Stormwater Management Ordinance which is to be consistent with the DEP's 2022 Model Stormwater Management Ordinance. The Draft ordinance has been authorized for advertisement on 9/8/2026. It is expected to be adopted within the next reporting period.

MCM #5 – POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

BMP #1: Enact, implement and enforce an ordinance or SOP to require post-construction stormwater management from new development and redevelopment projects, including sanctions for non-compliance.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that requires implementation and maintenance of post-construction stormwater management (PCSM) BMPs? ☒ Yes ☐ No
If Yes, indicate the date of the ordinance or SOP: Draft Ordinance awaiting adoption
2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☐ Yes ☒ No
3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #2: Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new development and redevelopment. Measures should also be included to encourage retrofitting LID into existing development. Enact ordinances consistent with LID practices and repeal sections of ordinances that conflict with LID practices.

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that encourages and expands the use of LID in new development and redevelopment? ☒ Yes ☐ No
If Yes, indicate the date of the ordinance or SOP: Draft Ordinance awaiting adoption.
2. If Yes to #1, is the ordinance or SOP consistent with DEP's 2022 Model Stormwater Management Ordinance (3800-PM-BCW0100j)? ☐ Yes ☒ No
3. If Yes to #2 and the ordinance or SOP has not been submitted previously, attach a copy of the ordinance or SOP.

BMP #3: Ensure adequate O&M of all post-construction stormwater management BMPs that have been installed at development or redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale.

1. Do you have an inventory of all PCSM BMPs that were installed to meet requirements in NPDES Permits for Stormwater Discharges Associated with Construction Activities approved since March 10, 2003? ☒ Yes ☐ No
If Yes to #1, complete Table 1 on the next page.
2. Has proper O&M occurred during the reporting period for all PCSM BMPs? ☐ Yes ☒ No
3. If No to #2, explain what action(s) the permittee has taken or plans to take to ensure proper O&M.

The Borough has recently been working on confirming and updating their Inventory List. This list is scheduled to be completed at a later date. Additionally, the Borough is setting up a procedure to ensure that all of the Borough's PCSM BMP's listed receive the correct type and frequency of O&M inspections required.

If you are relying on PA's statewide program for stormwater associated with construction activities, you may skip to MCM #6, otherwise complete all questions for BMPs #4 - #6 in this section.

BMP #4: Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts, and that are designed to maintain pre-development runoff conditions.

1. Specify the number of PCSM Plans reviewed during the reporting period for projects disturbing greater than or equal to one acre (including projects less than one acre that are part of a larger common plan of development or sale): 0
2. Has a tracking system been established and maintained to record qualifying projects and their associated BMPs?
☐ Yes ☐ No

PCSM BMP INVENTORY

Table 1. To complete the information needed for MCM #5, BMP #3, list all existing structural BMPs that discharge stormwater to the permittee's MS4 that were installed to satisfy PCSM requirements for earth disturbance activities under Chapter 102, and provide the requested information (see instructions).

BMP No.	BMP Name	DA (ac)	Entity Responsible for O&M	Latitude	Longitude	Date Installed	O&M Requirements	NPDES Permit No.
1	See Appendix			0 1 "	0 1 "			
2				0 1 "	0 1 "			
3				0 1 "	0 1 "			
4				0 1 "	0 1 "			
5				0 1 "	0 1 "			
6				0 1 "	0 1 "			
7				0 1 "	0 1 "			
8				0 1 "	0 1 "			
9				0 1 "	0 1 "			
10				0 1 "	0 1 "			
11				0 1 "	0 1 "			
12				0 1 "	0 1 "			
13				0 1 "	0 1 "			
14				0 1 "	0 1 "			
15				0 1 "	0 1 "			
16				0 1 "	0 1 "			

BMP #5: Ensure that controls are installed that shall prevent or minimize water quality impacts. The permittee shall inspect all qualifying development or redevelopment projects during the construction phase to ensure proper installation of the approved structural PCSM BMPs. A tracking system (e.g., database, spreadsheet, or written list) shall be implemented to track the inspections conducted and to track the results of the inspections (e.g., BMPs were, or were not, installed properly).

1. During the reporting period have you inspected all qualifying development and redevelopment projects during the construction phase to ensure proper installation of approved structural BMPs?
☐ Yes ☐ No ☐ Not Applicable (no qualifying projects during reporting period)
2. Has a tracking system been established and maintained to record results of inspections?
☐ Yes ☐ No

BMP #6: Develop a written procedure that describes how the permittee shall address all required components of this MCM.

Have you developed a written plan that addresses: 1) minimum requirements for use of structural and/or non-structural BMPs in plans for development and redevelopment; 2) criteria for selecting and standards for sizing stormwater BMPs; and 3) implementation of an inspection program to ensure that BMPs are properly installed? ☐ Yes ☐ No

MCM #5 Comments:

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

BMP #1: Identify and document all operations that are owned or operated by the permittee and have the potential for generating pollution in stormwater runoff to the MS4. This includes activities conducted by contractors for the permittee.

1. Have you identified all facilities and activities owned and operated by the permittee that have the potential to generate stormwater runoff into the MS4? ☒ Yes ☐ No
2. When was the inventory last reviewed? June 2026
3. When was it last updated? September 2026 (Will submit next reporting period)

BMP #2: Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the MS4, as identified under BMP #1. This program shall address stormwater collection or conveyance systems within the regulated MS4.

1. Have you developed a written O&M program for the operations identified in BMP #1? ☒ Yes ☐ No
2. Date of last review or update to written O&M program: September 2026

BMP #3: Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from operations to the regulated small MS4. All relevant employees and contractors shall receive training.

1. Have you developed an employee training program? ☒ Yes ☐ No
2. Date of last review or update to training program: September 2026 Date of latest training: March 20, 2026

3. Training topics covered:

The training served as a comprehensive resource for municipal staff, addressing the following six core areas: Public Education and Outreach, Public Participation and Involvement, Illicit Discharge Detection and Elimination, Construction Site Runoff Control, Post-Construction Runoff Control, Pollution Prevention/Good Housekeeping for Municipal Operations. Presentations and educational sessions featured regional partners and organizations including the Center for Watershed Protection, the Perkiomen Flood Study, the Montgomery County Conservation District (MCCD), and the Perkiomen Watershed Conservancy (PWC).

4. Name(s) of training presenter(s):

Perkiomen Watershed Symposium

5. Names of training attendees:

2 Council Members

MCM #6 Comments:

The Borough is in the process of updating their O&M manuals and training program for future reporting periods.

POLLUTANT CONTROL MEASURES (PCMs)

Indicate the status of implementing PCMs in Appendices A, B and/or C by completing the table below. Skip this section if PCMs are not applicable.

Task	Date Completed	Attached	Anticipated Completion Date
Storm Sewershed Map(s)		☐	
Source Inventory		☐	
Investigation of Suspected Sources		☐	
Ordinance/SOP for Controlling Animal Wastes		☐	

PCM Comments:

Per the MS4 Municipal Requirements Table, Souderton Borough does not have any waters with impairments from Appendices A, B or C; therefore, no PCM's are required.

POLLUTANT REDUCTION PLANS (PRPs) AND TMDL PLANS

1. Complete this section if the development and submission of a PRP and/or TMDL Plan was required as an attachment to the latest NOI or application or was required by the permit, regardless of whether DEP has approved the plan(s).

Type of Plan	Submission Date	DEP Approval Date	Surface Waters Addressed by Plan
☐ Chesapeake Bay PRP (Appendix D)			Chesapeake Bay
☐ Impaired Waters PRP (Appendix E)			
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			Chesapeake Bay,

☒ Combined PRP / TMDL Plan	3/12/2026	TBD	Skippack & Indian Creek PRP/TMDL
☐ Joint Plan <i>(if checked, list the name of the MS4 group or names of all entities participating in the joint plan below)</i> Joint Plan Participants:			
2. Identify the pollutants of concern and pollutant load reduction requirements under the permit (see instructions).			
Type of Plan	TSS Load Reduction (lbs/yr)	TP Load Reduction (lbs/yr)	TN Load Reduction (lbs/yr)
☐ Chesapeake Bay PRP (Appendix D)			
☐ Impaired Waters PRP (Appendix E)			
☐ TMDL Plan (Appendix F)			
☐ Combined Chesapeake Bay / Impaired Waters PRP			
☒ Combined PRP / TMDL Plan	85,230	N/A	N/A

3. Date Final Report Demonstrating Achievement of Pollutant Load Reductions Due: 9/30/2030

4. Have any modifications to the plan(s) occurred since DEP approval? ☒ Yes ☐ No

If Yes to #4, was the updated plan(s) submitted to DEP? ☒ Yes ☐ No

If Yes to #4, did you comply with the public participation requirements of the applicable appendix? ☒ Yes ☐ No

If Yes to #4, describe the plan modifications.

The Borough was issued their permit in October of 2024 without an approved PRP/TMDL plan in place. Since then the Borough has been in close collaboration with DEP to obtain plan approval. A draft PRP/TMDL plan was submitted to DEP after a 30-day public comment period on March 12, 2026 and after many discussions with DEP. Final DEP approval for the PRP/TMDL has not been received

5. Summary of progress achieved during reporting period.

The Borough applied for a Watershed Restoration Protection Program grant for Proposed BMP R, Tributary to Skippack Creek Stream Restoration, on May 29, 2026. Grant Awarding is expected in December of 2026. If grant funding is secured, the Borough intends to begin construction in the summer/fall of 2027.

6. Anticipated activities for next reporting period.

Pending the outcome on the grant funding from WRPP, design/permitting/construction of BMP R is expected in early 2027. .

PRP/TMDL Plan Comments:

NEW BMPs FOR PRP/TMDL PLAN IMPLEMENTATION

Table 2. List all new structural BMPs installed and ongoing non-structural BMPs implemented during the reporting period that are being used toward achieving load reductions in the permittee's PRP and/or TMDL Plan (see instructions).

BMP No.	BMP Name	DA (ac)	% Imp.	BMP Extent	Units	Latitude	Longitude	Date Installed or Implemented	Planning Area?	Ch. 102?	Annual Sediment Load Reduction (lbs/yr)
						O 1 11	O 1 11		☐	☐	
						O 1 11	O 1 11		☐	☐	
						O 1 11	O 1 11		☐	☐	
						O 1 11	O 1 11		☐	☐	
						O 1 11	O 1 11		☐	☐	

BMP INVENTORY FOR PRP/TMDL PLAN IMPLEMENTATION

Table 3. List all existing structural BMPs that have been installed in prior reporting periods and are eligible to use toward achieving load reductions in the permittee's PRP and/or TMDL Plan (see instructions).

BMP No.	BMP Name	DA (ac)	% Imp.	BMP Extent	Units	Latitude	Longitude	Date Installed	Annual Sediment Load Reduction (lbs/yr)	Date of Latest Inspection	Satisfactory?
						O 1 11	O 1 11				☐
						O 1 11	O 1 11				☐
						O 1 11	O 1 11				☐
						O 1 11	O 1 11				☐
						O 1 11	O 1 11				☐
						O 1 11	O 1 11				☐

CERTIFICATION

For PAG-13 Permittees: I have read the latest PAG-13 General Permit issued by DEP and agree and certify that (1) the permittee continues to be eligible for coverage under the PAG-13 General Permit and (2) the permittee will continue to comply with the conditions of that permit, including any modifications thereto. I understand that if I do not agree to the terms and conditions of the PAG-13 General Permit, I will apply for an individual permit within 90 days of publication of the General Permit. I also acknowledge that any facility construction needed to comply with the General Permit requirements shall be designed, built, operated, and maintained in accordance with operative laws and regulations.

For All Permittees: I certify under penalty of law that this report was 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 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Sara Jarrett-Eaton, Borough Manager

Name of Responsible Official

215-723-4371

Telephone No.

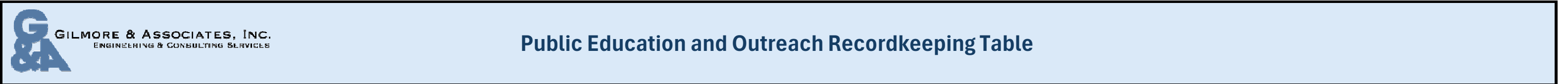


Signature

9/30/26

Date

MCM # 1 ATTACHMENTS



GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

Public Education and Outreach Recordkeeping Table

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Basics for Homeowners & Residents

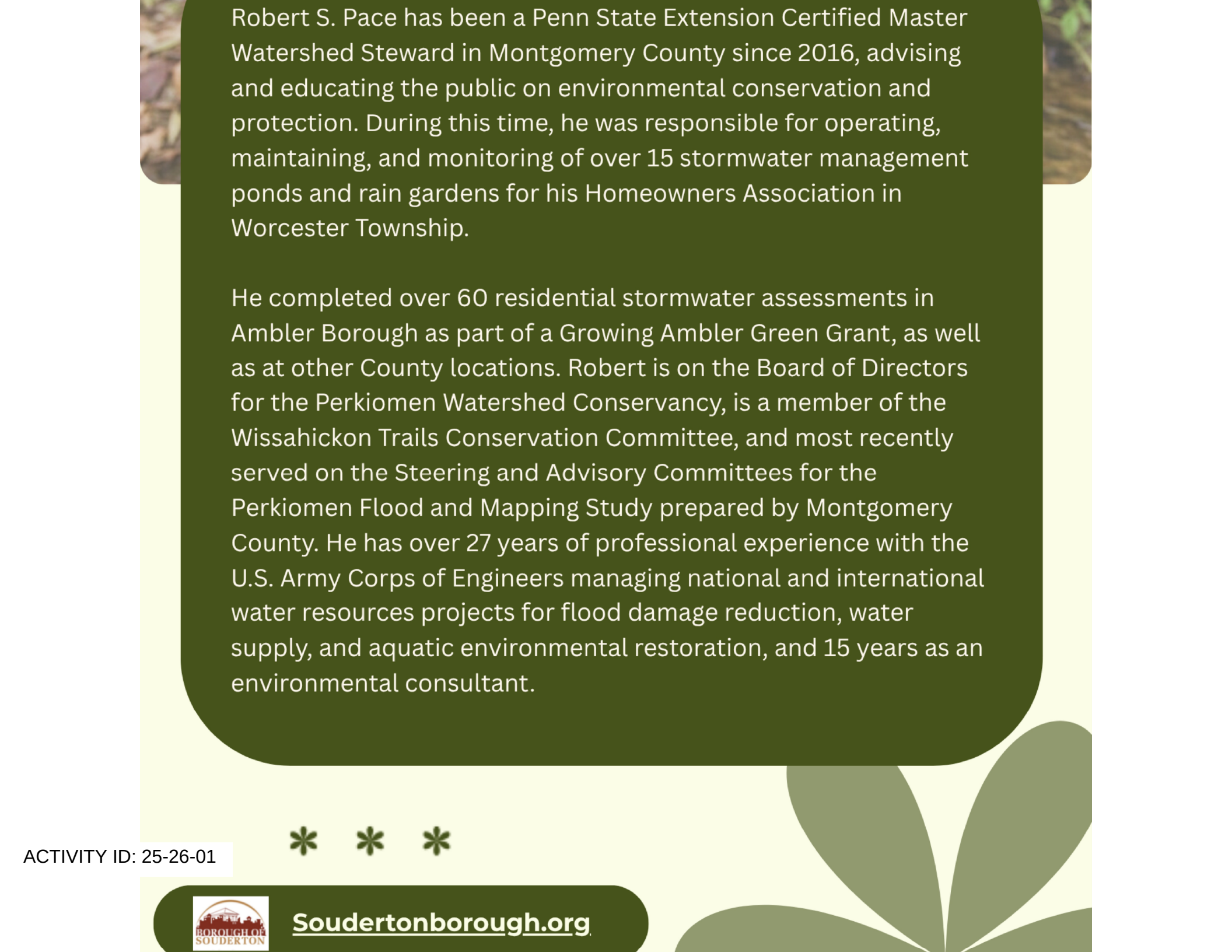
Speaker Robert S. Pace

The presentation will explore a variety of stormwater management tools and practices that residents can implement to lessen the impact of runoff to their property, community infrastructure, and to safeguard the natural environment.

Join us to learn practical steps you can take!

**Souderton Borough Municipal Building
31 W. Summit Street**

7 PM Monday, May 11, 2026



Robert S. Pace has been a Penn State Extension Certified Master Watershed Steward in Montgomery County since 2016, advising and educating the public on environmental conservation and protection. During this time, he was responsible for operating, maintaining, and monitoring of over 15 stormwater management ponds and rain gardens for his Homeowners Association in Worcester Township.

He completed over 60 residential stormwater assessments in Ambler Borough as part of a Growing Ambler Green Grant, as well as at other County locations. Robert is on the Board of Directors for the Perkiomen Watershed Conservancy, is a member of the Wissahickon Trails Conservation Committee, and most recently served on the Steering and Advisory Committees for the Perkiomen Flood and Mapping Study prepared by Montgomery County. He has over 27 years of professional experience with the U.S. Army Corps of Engineers managing national and international water resources projects for flood damage reduction, water supply, and aquatic environmental restoration, and 15 years as an environmental consultant.



ACTIVITY ID: 25-26-01



Soudertonborough.org



31 West Summit Street
Souderton, PA 18964
Phone: (215) 723-4371
Fax: (215) 723-5569

www.soudertonborough.org

Borough Council

Julie Munden
Daryl Littlefield
Stephanie Costa
Donna Rogers
Matthew Sholly
Andy Richter
Stephanie Cross
Daniel Bencsik

Mayor

Daniel L. Yocum

Borough Manager

Sara Jarrett-Eaton

Chief of Police

Jeffrey OBrien

AGENDA
BOROUGH COUNCIL WORK SESSION
Tuesday, January 20, 2026 (7:00 pm)

1. Interview of Ward 2 Councilor Applicants
2. Public Comment/ Special Presentations
 - a. MS4 Permit Presentation- Gilmore and Associates
3. Sewer Items
 - a. Monthly Departmental Report
4. Public Works Items
 - a. Monthly Departmental Report
5. Recreation Items
6. Police Items
 - a. Monthly Departmental Report
 - b. Requested Handicap Parking Spot- 33 Adams Ave.
7. Administrative Items
 - a. Tax Bills- 1 Bill vs. 2 Bills
 - b. Employee Handbook- Next Steps
 - c. Employee Longevity Payments
8. Requested Action Items
9. Executive Session- Personnel and Potential Litigation

Public Attendance and Participation Borough residents, property and business owners are always welcome to attend Borough Council Meetings and will be provided with an opportunity to make public comments. The Work Session Meeting will be held in the rear Conference Room of the Souderton Municipal Building and will not be available to access virtually.



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Daryl Littlefield
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BOROUGH COUNCIL WORK SESSION Tuesday, January 20, 2026 (7:00 pm)

Borough Council President Julie Munden called the meeting to order at 7:02 PM. Present were Councilors Bencsik, Sholly, Littlefield, Rogers, Munden and Richter and Mayor Yocum. Also present were Solicitor John Torrente, Chief OBrien, Police Sergeant Lukens, Manager Sara Jarrett-Eaton, and Public Works Director Jason Kelly. Absent was Councilors Costa and Cross.

1. Ward 2 Councilor Vacancy Applicants

The Councilors present interviewed Ward 2 candidates Stacy Dill and Reginald McClary for the vacant seat. President Munden thanked both applicants for their interest and reported that someone would be in contact with them prior to the February 2, 2026 council meeting.

2. Special Presentations

Engineers Geoffrey Attanasio and Colleen Kane provided a presentation on the state's MS4 program, the requirements of Souderton Borough, and the next steps to fulfill the current MS4 permit. They will return for the February 2nd council meeting to give a similar public presentation to fulfill the permit requirements.

2. Sewer Items - The monthly department report was provided by Mr. McCarthy to the council this evening. Mr. McCarthy and Mrs. Jarrett-Eaton also provided plant updates and upcoming projects to Borough Council. Mrs. Jarrett-Eaton announced that the Borough has received additional grant funding in the amount of \$50,000.00 from the state Small Water and Sewer program.

3. Public Works Items - The monthly department report was provided to the council in their meeting packet. Public Works Director Jason Kelly presented the upcoming projects for the remainder of the month and early next month.

4. Recreation Items – Mrs. Jarrett-Eaton provided a report from Mrs. Nicholas. The report was inclusive of the 2026 fitness offerings including yoga, bootcamp, and POUND, the recent Aging in Place Seminar, upcoming blood drive with Senator Collett's office, and an E-Recycle event in April. Mrs. Jarrett-Eaton reported that the borough has received \$50,000.00 in grant funding from Representative Malagari's office for West Street Park improvements.

5. Police Items- The monthly department report was provided to the council in their meeting packet. Chief OBrien provided departmental updates and upcoming events. Councilors and the Borough Manager discussed a handicap parking space request for 33 Adams Avenue. Borough Councilors and Mayor Yocum were supportive of adding the space and it will be done by resolution at the February council meeting.

6. Administrative Items- Mrs. Jarrett-Eaton and Borough Council reviewed a request from the new Tax Collector regarding billing. The items was tabled for additional information. Councilors and the Borough Manager discussed the presented updated employee policy book. They determined that councilors will review the proposed handbook and be prepared to discuss at the February work session meeting for official consideration for approval at the March council meeting.

The meeting adjourned at 8:51 p.m. into executive session to discuss personnel with a motion from Councilor Richter, seconded by Councilor Littlefield.

Respectfully Submitted,

Sara E. Jarrett-Eaton

Sara E. Jarrett-Eaton, Borough Secretary

County of Montgomery, Pennsylvania Incorporated 1887

31 West Summit Street • Souderton • PA 18964 • Telephone: 215-723-4371 • Fax: 215-723-5569



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Borough Manager

Sara Jarrett-Eaton

Chief of Police

Jeffrey OBrien

AGENDA
BOROUGH COUNCIL MEETING
Monday, February 2, 2026 (7:00 pm)

1. Opening of the Meeting
 - a. Invocation/Moment of Silent Reflection
 - b. Pledge of Allegiance
 - c. Attendance
2. Consent Agenda
 - a. Minutes
 - i. January 5, 2026- Regular Council Meeting Minutes
 - ii. January 20, 2026- Work Session Meeting Minutes
 - b. Approval of Bills
 - i. Approval of Bills for the Month of January 2026
 - ii. Approval to Pay Recurring Bills for February 2026
3. Presentations/Correspondences
 - a. MS4 Presentation- Gilmore and Assoc.
 - b. Souderton Connects- Jessica Cimini
 - c. Indian Valley Public Library- Penny Price
4. Administrative Reports:
 - a. Mayor
 - b. Chief of Police
 - c. Public Works Director
 - d. Borough Solicitor
 - e. Borough Manager
5. Committee Reports
6. Public Comment (Borough Residents, Property and Business Owners)
7. Business
 - a. Resolution 2026-06- Appointment to Ward 2 Council Vacancy
 - b. Appointment to Planning Commission Vacancy
 - c. Resolution 2026-07- Handicap Parking Space
8. Executive Session- Litigation & Personnel

Public Attendance and Participation Borough residents, property and business owners are always welcome to attend Borough Council Meetings and will be provided with an opportunity to make public comments. The Work Session Meeting will be held in the rear Conference Room of the Souderton Municipal Building and will not be available to access virtually.



Borough Council

Julie Munden, President
Daryl Littlefield, Vice President
Stephanie Costa
Donna Rogers
Matthew Sholly
Andy Richter
Stephanie Cross
Daniel Bencsik
Stacy Dill

Mayor

Daniel L. Yocum

Borough Manager

Sara Jarrett-Eaton

Police Chief

Jeffrey OBrien

Souderton Borough Council Regular Meeting Minutes

Monday, February 2, 2026

1. Opening of the Meeting

The Regular Meeting of Souderton Borough Council held on February 2, 2026, was called to order by Council President Julie Munden at 7:01pm. President Munden provided the invocation and moment of silence, which was followed by the Pledge of Allegiance to the Flag. Borough Secretary Sara E. Jarrett-Eaton noted that all councilors were present this evening. The following Borough Councilors and staff were present: Mayor Daniel L. Yocum, Borough Manager Sara Jarrett-Eaton, Solicitor John Torrente, Councilor Stephanie Costa, Councilor Donna M. Rogers, Councilor Julie Munden, Councilor Daryl Littlefield, Councilor Matthew Sholly, Councilor Andy Richter, Councilor Daniel Bencsik, Councilor Stephanie Cross, Junior Councilor Gabriel Longenecker, Police Chief Jeffrey OBrien, Public Works Director Jason Kelly, Executive Assistant Christine Nicholas, and Permits Clerk Laura McGuigan.

2. Consent Agenda

A motion was made by Councilor Sholly and seconded by Councilor Littlefield to approve the Consent Agenda to include the January 5, 2026, Council Meeting Minutes and the January 20, 2026, work session minutes and the bills for January & February 2026. The motion was passed unanimously.

3. Presentations

A. MS4 Presentation – Gilmore and Associates – Geoffrey Attanasio and Colleen Kane presented information on MS4 and how it effects Souderton Borough both financial and environmentally. They reviewed the timeline of the project and what the expectation is annually. Ms. Kane mentioned there is a 30-day comment period in which the public can view the report on the borough's website and contact the Borough Manager with any questions.

B. Souderton Connects – Jessica Cimini – Ms. Cimini highlighted 2 upcoming events:

The Front Street Fire and Frost will be held on Saturday February 28, 2026, from 5:00pm to 9:00pm. at Front and Broad Streets. The event will feature ice carvings, fire pits, food trucks (5), a band at the Brass Collar deck and fire & light performers. The event is fully funded by its events sponsors.

The 2nd annual Souderton Pub Crawl will be held on Saturday March 14, 2026. This is not a Souderton Connects event, but they assist with getting the word out. Brass Collar, Branch Creek and other local establishments are involved.

Also, the Souderton Connects website is ready to take sign ups for 3rd Fridays vendors and Food Trucks. She also reported that the beautification committee has their first clean up on March 28th.

C. Indian Valley Public Library- Penny Price – Ms. Price reported that February is “Love your Library” month and the library is kicking it off with their Wine Tasting Event on Saturday, February 7th from 7:00pm – 10pm . Tickets can be bought online or at the door.

Ms. Price also provided some statistics from 2025 regarding the public’s interest and use of the library and its facilities and programs.

4. Administrative Reports

a. Mayor Daniel Yocum – Perseverance Fie Company is celebrating their 125th anniversary this year. As many tributes will be made throughout the year, currently their 1917 Model T Chemical Truck, is being showcased in the Grand Hall at this year’s 2026 Philadelphia Auto Show.

b. Chief of Police Jeffrey OBrien – Chief OBrien spoke about the snowstorm. He mentioned the pride in the officers reaching out to assist and of the tireless work ethic of the Public Works Department, Fire Department and Fire Police. He was impressed with how the Mayor and Borough Manager stayed in contact with him throughout the day. Chief OBrien reported that officers were involved in three Physical Altercations in the last month. He added that Dianna Fields retired this past week after 17 years of service as the police secretary. The Monthly stats will be on Facebook on Wednesday.

c. Public Works Director Jason Kelly – Before Mr. Kelly’s Report, Council President Julie Munden extended gratitude to the Public Works Department. Mr. Kelly provided his report for January and referenced the various projects that were worked on by the Public Works department. There were 4 weather related incidents this month. The mayor asked about how we are affected by the salt shortage.

d. John Torrente of Begley, Carlin & Mandio – Mr. Torrente submitted his report to council before the meeting. He highlighted two items of interest. The Conditional use permit for Taco Bell and the preparation of the Employee Handbook as prepared by Ms. Kay Weeder of Begley, Carlin and Mandio and Borough manager Jarrett- Eaton. Council has received the handbook, and it is currently under review.

e. Borough Manager Sara Jarrett-Eaton – Mrs. Jarrett-Eaton explained our salt bid with consortium and how the consortium works on our behalf to get things satisfied in cases when there is a shortage or contract violation.

We received the delivery of small dump truck chassis purchased at the end of 2025. It is currently at E. M. Kutz to be outfitted and will be in our possession beginning of 3rd quarter.

5. Committee Reports

Public Safety – Councilor Matt Sholly announced the next meeting for the Public Safety Committee will be held on February 12, 2026, at 5:30 with topics including school zones and e-bikes.

Outreach and Economic Development – Councilor Stephanie Cross announced that their meeting will be held on Wednesday, February 11, 2026, at 4:30pm. Councilor Cross acknowledged Councilor Littlefield for his assistance acclimating our new councilors to the committee.

Trash Committee – The Ad Hoc trash committee will meet on Monday, February 9, 2026, to discuss the upcoming trash contract.

Parks and Recreation – The committee met on January 22, 2026, and discussed pool planning and improvements to West Street Park.

Executive Committee - President Munden announced the meeting is set for February 27, 2026

Financial Committee – Councilor Rogers announced the committee’s next meeting is Wednesday February 11, 2026, at 5:45pm.

6. Public Comment

Mr. Stern – 34 E. Reliance Road – Mr. Stern posed a question about the Rental Ordinance regarding in law suites. President Munden took Mr. Stern’s information at the end of the meeting and will review the information with the Planning Commission and our Solicitor.

7. Business

- a. Resolution#2026-06 – Appointment to Ward 2 Council Vacancy

Councilor Costa made a motion to appoint Stacy Dill to the Ward 2 Council Vacancy.

The motion was seconded by Councilor Sholly and passed unanimously.

- b. Appointment to Planning Commission Vacancy

Councilor Littlefield made a motion to appoint Wade Henshaw to the Planning

Commission. The motion was seconded by Councilor Cross and passed unanimously.

- c. Resolution# 2026-07- Handicap Parking Space – near 33 Adams Avenue

Councilor Sholly made a motion to approve Resolution# 2026-07- Handicap Parking Space. The motion was seconded by Councilor Cross and passed unanimously.

A motion was made by Councilor Bencik to adjourn to Executive Session to discuss Litigation and Personnel.

Respectfully Submitted,

Sara E. Jarrett-Eaton

Sara E. Jarrett-Eaton, Borough Secretary

Transcribed by: Christine Nicholas, Executive Assistant

Souderton Borough MS4 Permit Program Overview

January 20, 2026



GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES



What is MS4?

System Definition

Municipal Separate Storm Sewer System (MS4) collects and conveys stormwater separately from sanitary sewers, preventing untreated runoff from polluting local waterways.

Regulatory Authority

Regulated under EPA's NPDES Phase II permit program, administered by PADEP, with strict compliance and reporting requirements.

-  **Primary Goal:** Reduce pollutants entering local waterways from stormwater runoff through systematic management and community engagement.

Key MS4 Terminology

Understanding the core concepts is vital for effective stormwater management.



Best Management Practices (BMPs)

Practices or structural devices designed to reduce stormwater runoff pollution and manage its quantity. Examples include rain gardens and permeable pavement.



Stormwater Runoff

Precipitation or snowmelt that flows over land or impervious surfaces and does not infiltrate the ground, collecting pollutants as it goes.



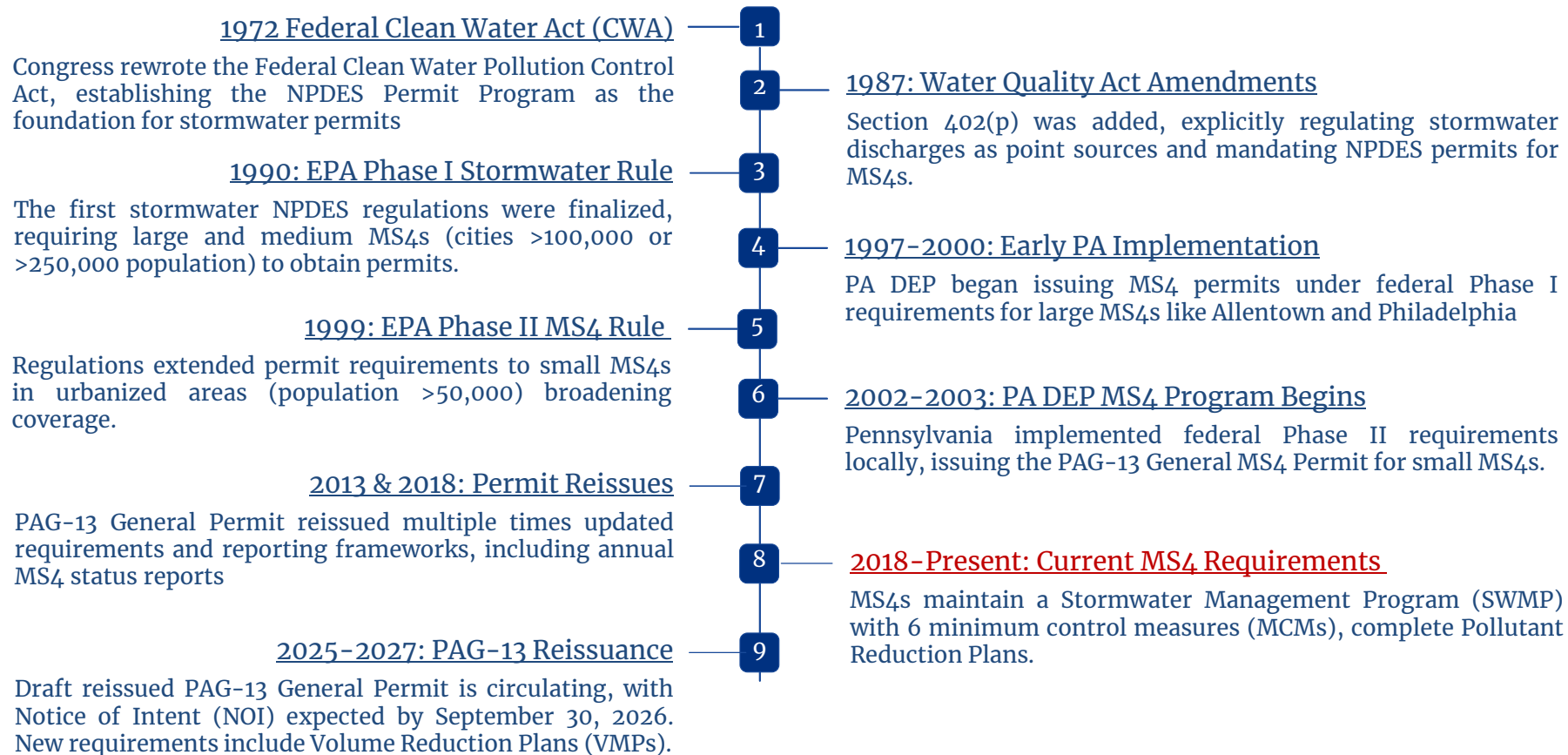
Point Source

Any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, or channel. Ms4 outfalls are regulated as point sources under the Clean Water Act (CWA).



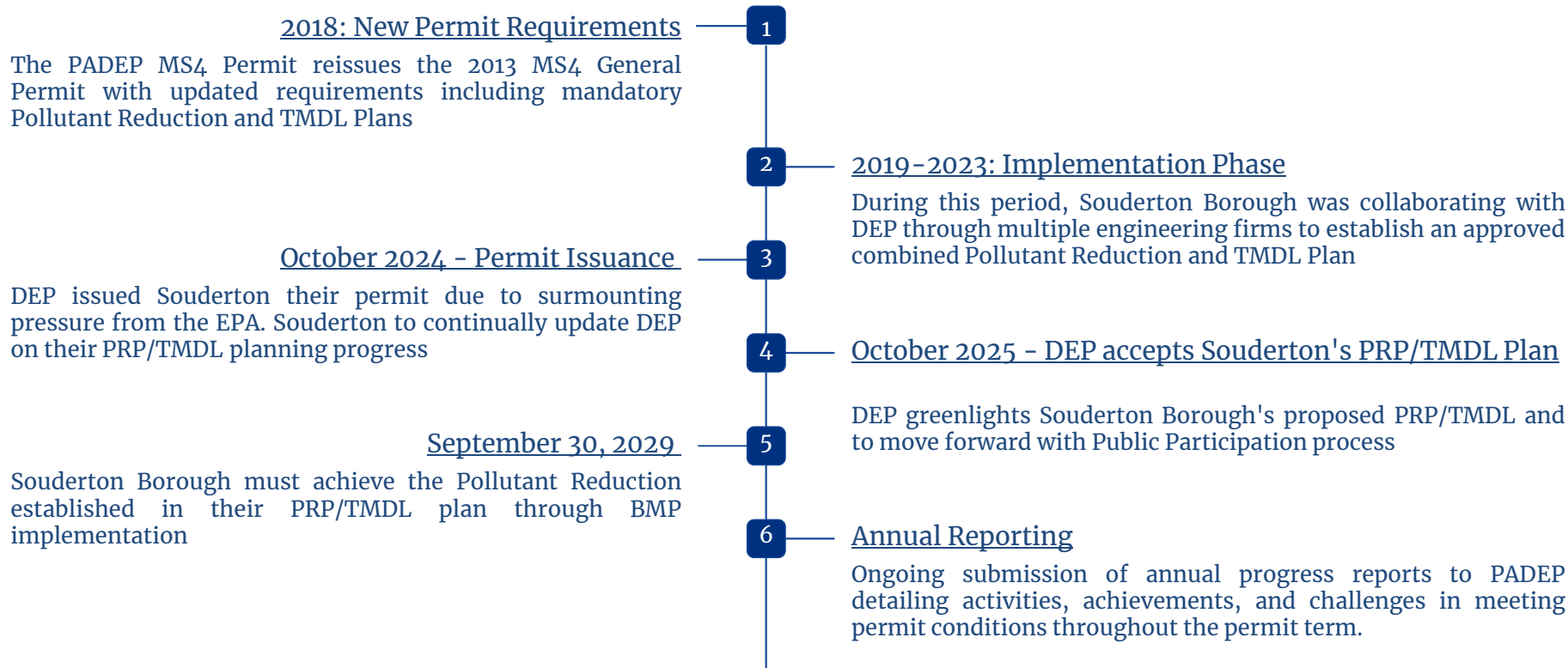
MS4 Requirements Timeline: From CWA to PA DEP

Key Milestones in stormwater regulation, from federal legislation to local implementation in Pennsylvania.



Souderton Borough's 2018 MS4 Permit Timeline

Understanding the key milestones and ongoing requirements of our MS4 permit is crucial for maintaining compliance and protecting local water quality.



Souderton Borough Watershed & Impairments

Watershed Location

- 1 Souderton Borough is located within the Indian Creek and Skippack Creek watershed, both tributary to the Perkiomen Creek Watershed which is a critical tributary system supporting regional water resources and ecological diversity.

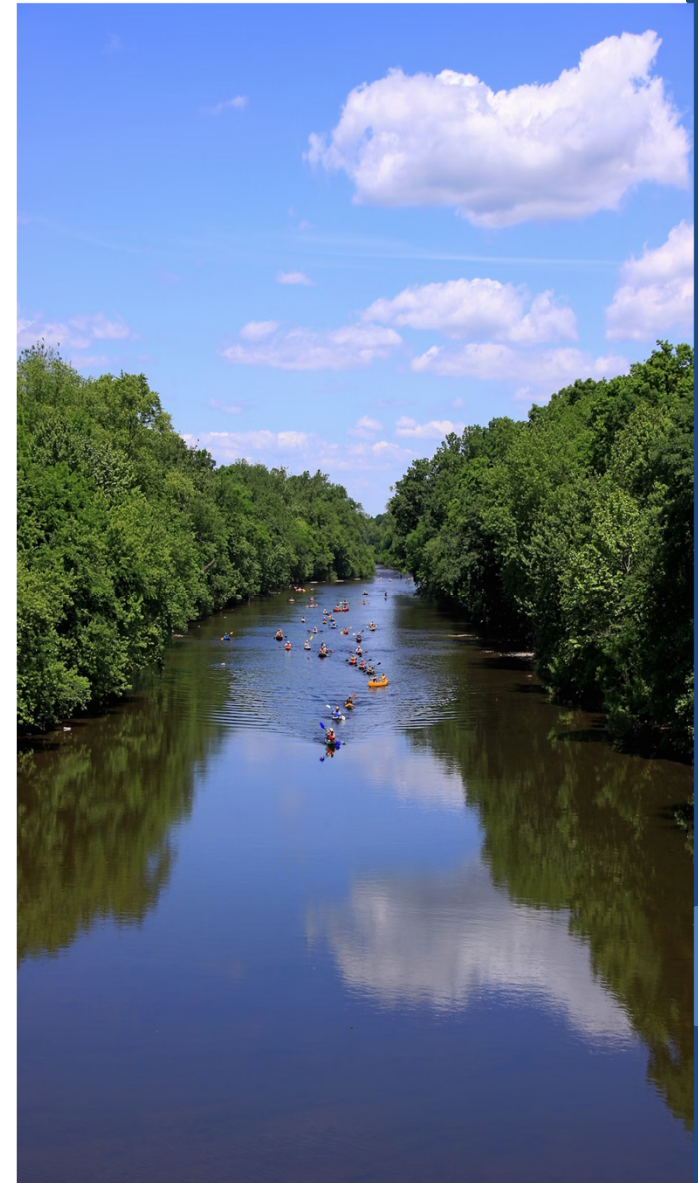
Stormwater Impact

- 2 Runoff from impervious surfaces—roads, parking lots, rooftops—contributes significantly to water quality degradation by carrying pollutants directly into streams.

Water Quality Impairments

- 3 Indian Creek and Skippack Creek are both impaired by excessive sedimentation and elevated nutrient loading

Protecting this watershed is critical for drinking water quality, recreational opportunities, and ecosystem health for current and future generations.



TMDL REQUIREMENTS

Total Maximum Daily Load (TMDL)

A TMDL is a regulatory framework specifying the maximum amount of a pollutant that a body of water can receive and still meet water quality standards. For Indian Creek and Skippack Creek, TMDLs establish limits for key pollutants to restore its ecological health.



Sediment Reduction

Targeting a significant reduction in **sediment** loading, often achieved through erosion control at construction sites, stream bank restoration, and volume reduction BMPs



Nutrient Management

Aimed at decreasing **nutrient** (nitrogen and phosphorus) runoff from fertilizers, septic systems, and animal waste to prevent algal blooms and oxygen depletion.

MS4 permits are integral to achieving these TMDL goals by implementing specific control measures and stormwater management practices, leading to cleaner water and healthier ecosystems within these watersheds.



Minimum Control Measures

1

Public Education & Outreach

Inform residents about stormwater impacts and pollution prevention strategies

2

Public Participation & Involvement

Engage community stakeholders in MS4 program development and implementation

3

Illicit Discharge Detection & Elimination

Identify and remove unauthorized connections and dumping into storm sewers and perform outfall inspections

4

Construction Site Runoff Control

Prevent sediment and pollutants from construction activities entering waterways

5

Post-Construction Stormwater Management

Ensure long-term stormwater controls for new development and redevelopment

6

Pollution Prevention & Good Housekeeping

Minimize pollution from municipal facilities, operations, and maintenance activities

Souderton's MS4 Permit Requirements

01	02	03
Implement & Document All Six MCMs	Develop & Enforce Stormwater Ordinances	Conduct Regular Inspections
Execute comprehensive programs for each Minimum Control Measure with detailed annual documentation	Establish legally binding regulations for construction and post-construction stormwater controls	Perform routine inspections of municipal operations, facilities, and outfalls
04	05	06
Maintain Public Education Program	Submit Annual Reports to PADEP	Implement Proposed BMPs
Deliver targeted educational campaigns tailored to local residents, businesses, and stakeholders	Document and report progress toward pollutant reduction goals and permit compliance annually	Construct the proposed BMPs within the PRP/TMDL plan to reduce the pollutant loading.

Addressing Pollutant Loading in Our Creeks

Understanding the current pollutant load is the first step towards effective remediation. Both Indian Creek and Skippack Creek face significant challenges from sediment and nutrient runoff, necessitating targeted interventions to meet water quality standards.

Current Estimated Annual Pollutant Load

Indian Creek

- Sediment: 118,385 lbs/yr

Skippack Creek

- Sediment: 733,928 lbs/yr

Total Sediment Loading: 852,313 lbs/yr



10% Sediment Reduction Required

85,231

Pounds per year

Our MS4 permit mandates a minimum **10% reduction** in total sediment loading. Achieving this goal requires a strategic combination of structural and non-structural Best Management Practices (BMPs).

BMP Implementation Summary

17

Total Projects (BMPs)

85,231

Required reduction

122,991

Total Sediment Reduction
(lbs/year)

\$2.4 mil

Total Investment

Project Types:

- 8 Rain Gardens (21,022 lbs reduction, ~\$1.2M)
- 2 Pervious Pavement projects (951 lbs, \$450K)
- 3 Tree Planting initiatives (1,090 lbs, \$13K)
- 1 Advanced HDS system (882 lbs, \$50K)
- 1 Basin Retrofit (8,928 lbs, \$225K)
- 1 Vegetated Swale (3,250 lbs, \$30K)
- 1 Stream Restoration (86,250 lbs, \$315K)

❏ The Stream Restoration project at the Sewage Treatment Plant provides 100% of the required reduction, making it the most critical component of our compliance strategy.

Key BMP: Souderton Stream Restoration Project

The Stream Restoration project at the Souderton Sewage Treatment Plant is a cornerstone of our sediment reduction strategy, offering a significant contribution towards meeting our permit obligations.

86,250

Sediment Reduced

Exceeding our 10% target by itself.

\$315,000

Estimated Cost

Investment in cleaner water.

This single project is projected to remove **86,250 pounds of sediment annually**, effectively achieving and surpassing our mandated 10% reduction goal of 85,231 lbs/yr.





FUNDING RESOURCES

Grant Opportunities to Fund MS4 Projects



Watershed Restoration and Protection Program Grant

State funding program supporting comprehensive watershed restoration initiatives. Applications accepted February 1st to May 31st, 2026. Award amounts up to \$300,000 for project with 15% local match.



Rivers Conservation and Development Grants

Funding for river and stream conservation projects, habitat restoration, and sustainable development initiatives. Applications accepted January 12th to April 30th, 2026. Award amounts up to \$250,000 with dollar-for-dollar match.



FINANCIAL PLANNING

Future Funding Strategies for Souderton Borough



Stormwater Utility Fees

Explore dedicated stormwater utility fees or special assessments to create sustainable, predictable funding streams for ongoing MS4 program operations and capital improvements.



Developer Contributions

Leverage developer fees and in-lieu payments for stormwater management related to new construction and redevelopment projects within the borough.



Regional Coordination

Coordinate regional funding initiatives with neighboring municipalities in the Perkiomen Creek watershed to maximize efficiency and leverage shared resources.



Grant Supplementation

Strategically utilize competitive grant funds to supplement municipal budgets, accelerate BMP implementation, and achieve pollutant reduction goals faster.

Projected Timeline for MS4 Compliance & BMP Implementation

- 1 2026-2027
Initiation & Resource Acquisition Phase
 - Conduct Preliminary Design Studies
 - Secure Essential Grants & Funding
- 2 2027
Detailed Design & Regulatory Compliance Phase
 - Finalize Engineering Designs
 - Acquire All Required Regulatory Approvals
- 3 2027-2028
Implementation & Construction Phase
 - Execute Stream Restoration and Coordinate BMP Credit with DEP.
- 4 2028-2029
Ongoing BMP Development & Compliance Phase
 - Evaluate and Implement Additional Best Management Practice (BMP) Projects as Required.

Anticipating Evolving MS4 Regulations

The regulatory landscape for stormwater management is continuously evolving. Souderton Borough must prepare for potential updates and more stringent requirements in upcoming PADEP MS4 permits to maintain compliance and protect our natural resources.



Higher Pollutant Reduction Targets

Future permits are expected to introduce more ambitious pollutant reduction goals for sediment, phosphorus, and nitrogen, demanding expanded and more effective BMP deployments.



Regional Collaboration & Watershed Focus

There may be a stronger push for inter-municipal cooperation and a more holistic watershed approach to address shared stormwater challenges and achieve broader environmental benefits.





Together for Cleaner Water: Souderton's MS4 Commitment

Shared Responsibility

Protecting Perkiomen Creek and local waterways requires collaboration between municipal government, residents, and businesses working toward common goals.

Borough Dedication

Souderton Borough is committed to meeting MS4 permit requirements through smart BMP implementation, strategic funding, and meaningful community engagement.

Future Vision

With your support and participation, we can reduce pollution, improve water quality, and enhance our environment for generations to come.

Questions & Discussion

We welcome your input, questions, and ideas for protecting Souderton's water resources.



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Combined Total Maximum Daily Load



JAN 30, 2026
GENERAL NEWS ▾

[Combined Total Maximum Daily Load and Pollutant Reduction Plan for Indian Creek and Skippack Creek Watershed](#)

ACTIVITY ID: 25-26-04

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Souderton Borough

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Phone: 215-723-4371

Fax: 215-723-5569

info@soudertonborough.org

Hours

Monday - Friday: 8:30 am - 5:00 pm

[View Contacts & Directory >](#)



2026 Spring Leaf & Brush Collection Information

We are starting the Spring season different this year!
The Public Works crew will start spot checking for leaf collection,
first week of April. Also, if you have Brush/Branches to be picked
up. They will be collected at the same time.

**PLEASE PLACE STICKS FOR BRUSH COLLECTION ON A SEPARATE PILE THAN
LEAVES. LEAVES AND STICKS ON THE SAME PILE WILL NOT BE PICKED UP.
THE STICKS CLOG THE LEAF MACHINE. PLEASE SEE THE STICK COLLECTION
POST FOR DETAILS ON MONTHLY STICK PICK UP. *THANK YOU***

**For more information please go to
www.soudertonborough.org**

Souderton Borough

Home / Information

Stormwater Management



Protect Our Water Supply

As storm water flows over roofs, across lawns, and down driveways, it picks up dirt, debris, and chemicals before entering storm drains. Storm drains then empties into the bodies of water we use for drinking, swimming, and fishing. Protect our water supply by helping to reduce the contaminants in our storm water.



[Souderton Borough MS 4 Program](#)



[Illicit Discharge Detection & Elimination Plan](#)

[MS4 Updated information](#)

Here's how to protect our water supply:

- Use the Waste System Authority of Eastern Montgomery County's Household Hazardous Waste Collection Program to dispose of hazardous household substances, such as used motor oil, cleaning supplies, and paint.
- Use pesticides, fertilizers, and herbicides properly to prevent excess runoff.
- Pick up after pets and dispose of their waste properly. If left in your yard or at the park, pet waste can be carried into the storm sewer system or a stream by storm water runoff.
- Instead of washing your car in your driveway, take it to a commercial car wash, where the water is treated and recycled.
- Plant drought-tolerant, native plants and grasses in your garden. They often require less water, fertilizer, and pesticides.



[Small MS4 Stormwater Program Overview](#)



[10 simple things identified by the EPA that the typical homeowner and/or business owner can do to help reduce stormwater pollution.](#)

For more information on how storm water affects our water supply, use the links below:

[Perkiomen Watershed Conservancy](#) ↗

[National Pollutant Discharge Elimination System](#) ↗

[Stormwater Management](#) ↗

EPA Stormwater Outreach Materials

- ☐ [MCM#1 Public Education Outreach Minimum Control Measure](#)
- ☐ [MCM#2 Public Participation Involvement Minimum Control Measure](#)
- ☐ [MCM#3 Illicit Discharge Detection And Elimination Minimum Control Measure](#)
- ☐ [MCM#4 Construction Site Runoff Control Minimum Control Measure](#)
- ☐ [MCM#5 Post Construction Runoff Control Minimum Control Measure](#)
- ☐ [MCM#6 Pollution Prevention Good Housekeeping Minimum Control Measure](#)



[Download the entire booklet.](#) Copies of the booklet may be picked up at the Borough office.

Helpful Storm water Links

- Montgomery County Conservation District: <http://montgomeryconservation.org/watershed-management/>

- Perkiomen Creek Watershed Map: <http://www.perkiomenwatershed.org/watershed-area-map/> ↗
- DEP Storm water website: <http://www.dep.pa.gov/Pages/default.aspx> ↗
- DEP Storm water PA is a great educational website: <http://www.stormwaterpa.org/pennsylvania.html> ↗

Articles

- ☐ [Deicing Newsletter Article](#)
- ☐ [E&S Controls Newsletter Article](#)
- ☐ [No Dumping To Inlets Newsletter Article](#)
- ☐ [Pick Up After Your Pet Newsletter Article](#)
- ☐ [Toxic Rainbows Newsletter Article](#)
- ☐ [Be Wise When You Fertilize PDA Newsletter Article](#)

Brochures

- ☐ [Rain Drain Brochure](#)
- ☐ [SW Pollution Prevention For Small Residential Construction Sites Brochure](#)

Information

- ☐ [2025 -2026 Winter Stormwater Management](#)
- ☐ [2026 Summer Stormwater Management](#)
- ☐ [2026 Spring Stormwater Management](#)
- ☐ [2025 Fall Stormwater Management](#)

Learn more about your environment and how to help prevent Stormwater pollution in your community.

Souderton Borough lies within the Perkiomen Creek Watershed. Learn more about your watershed and how you can help protect it by going on the Souderton Borough website to check out a wealth of information on preventing Stormwater pollution as well as other things you can do to help the environment and improve your lawn and gardens.

Additionally, the Perkiomen Creek Conservancy has more information about the entire watershed including the following workshops and volunteer days:

- [Rain Barrel Workshop](#) ↗

- [Native Plant-sale](#) 
- [STREAM CLEAN UP](#) 

Go to www.perkiomenwatershed.org  for more details and to learn more about these fun and helpful events and more!

How can you help?

Please report the following activities to the Borough if they are observed:

- Sediment leaving a construction site
- Spills such as chemicals, gas, diesel or oil
- Illegal dumping activity into streams or storm sewers (Dial 911)
- Sanitary sewer overflow
- Dry weather flows from outfall pipes into streams (please allow 72 hours after a rain event to report)
- Dumping or composting of firewood or leaves along stream embankments
- Storage of firewood or other loose materials along stream embankments

During normal business hours: Monday - Friday: 8:30 am – 5:00 pm, 215-723-4371 Souderton Borough Office

During all other hours: 215-723-6500 Souderton Borough Police Department



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Sara Eaton
Souderton Borough
31 West Summit
Souderton, PA 18964



September 3, 2026

RE: MS4 Benefits for Municipal Members - RENEWAL INFORMATION ENCLOSED

Dear Municipalities of the Perkiomen Creek Watershed,

The Perkiomen Watershed Conservancy (PWC) is your community resource for protecting our local waterways, especially from the ubiquitous problem of stormwater pollution. In addition to our award-winning conservation and restoration projects, environmental education classes, and our numerous community events, the Conservancy assists member municipalities in meeting the requirements of the Municipal Separate Stormwater System (MS4) permit.

Many of you have already taken advantage of this annual program, but others are missing out on a great opportunity to gain access to stormwater education materials and literature, public workshops and staff training, stormwater reduction statistics and grant funding designed specifically to help you meet your MS4 permit requirements. Member municipalities also receive a comprehensive summary of benefits to include in their year-end reports.

We invite your municipality to join or renew your membership with the Perkiomen Watershed Conservancy for the 2027 MS4 permit year (Year 25). Membership levels and corresponding benefits are outlined in the enclosed form. Please note that Patron and Benefactor levels include all benefits of the lower levels as well. To ensure your municipality receives these benefits, simply complete the attached membership form and return it with your payment.

Thank you for your continued commitment to clean water and a healthier Perkiomen Watershed. We look forward to partnering with you in 2027!

Sincerely,

Jessie Kemper
Director of Conservation
Perkiomen Watershed Conservancy

2027 Membership Offerings

Listed below are the program offerings for the 2027 permit year. Please note that Patron and Benefactor levels will also receive all benefits of the lower levels.

Benefactor Level: \$1,000

Benefactors are eligible for the following membership benefits:

1. *Municipal MS4 Grant Program*

Benefactor members may submit a grant application to install a stormwater BMP within their municipality. Applications will be reviewed, selected and implemented by PWC. Benefactor municipalities will receive the application and additional program details separately.



Municipal grant project installed in Upper Gwynedd in 2024.

2. *Riparian Buffer Project Support & Grant Assistance*

Benefactor municipalities receive project support and grant assistance for riparian buffer plantings through the Trees for Watersheds grant program. PWC will assist with identifying suitable planting sites, developing project plans, preparing and submitting grant related materials, as well as project implementation, planting and maintenance. Riparian buffer projects improve water quality, reduce stormwater runoff, stabilize streambanks and enhance habitat, while providing measurable outcomes and documentation to support MS4 reporting.



Riparian buffer planting installed in Lower Salford Township in 2025.

3. *Two Free Tickets to the Perkiomen Stormwater Symposium*

Benefactor municipalities receive two complimentary tickets for staff members to attend the Stormwater Symposium, scheduled for March 19, 2027. This training serves as a one-stop resource for municipal staff, covering all six MCMs, while also providing educational materials and volunteer opportunities for residents.



Ursinus College in March of 2025.

4. *Community Engagement Workshop*

PWC will host an educational workshop for your residents at a municipal location of your choosing. Possible workshop topics include rain barrel building, rain gardens, converting lawn to native garden, native plants and stormwater management. Municipalities are responsible for scheduling the workshop and PWC will provide materials as needed.

5. *Stormwater Reduction Statistics Package*

Benefactor members receive a detailed report summarizing PWC events your municipality and/or residents participated in, with statistics available for inclusion in your MS4 reports.



Rain barrel workshop hosted by PWC in Worcester Township.



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Patron Level: \$500

Patrons are eligible for the following membership benefits:

1. *Stormwater Reduction Statistics Package*

A detailed report summarizing PWC events your municipality and/or residents participated in, with statistics available for inclusion in your MS4 reports.

Promoter Level: \$250

Promoters are eligible for the following membership benefits:

1. *Educational Articles*

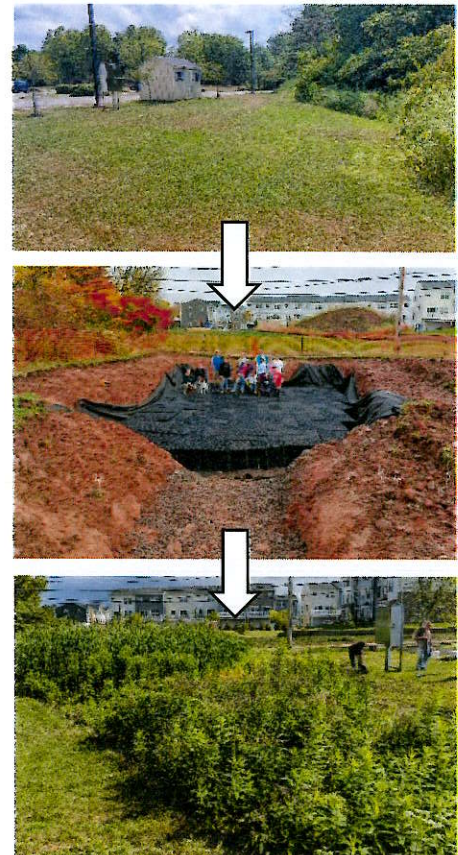
Access to educational articles, pamphlets and handouts created by PWC to help educate residents about stormwater pollution issues. Materials will be provided electronically and municipalities are responsible for distributing them.

Your Community Resource for Stormwater Projects

The Conservancy is always looking for new and exciting opportunities to help communities address stormwater challenges! In addition to partnering with local municipalities through our MS4 Grant Program, we also provide support for other grant opportunities and stormwater projects. By collaborating with public works staff, municipalities and community volunteers, we help reduce project costs while implementing DEP-approved stormwater BMPs.

Here are just a few examples of stormwater projects we have completed with municipal partners:

- **Rain Gardens:** From 2025–2026, the Conservancy installed two rain gardens, one at Douglass Park in Douglass Township and one at Jacob Reiff Park in Lower Salford Township.
- **Riparian Tree Plantings:** In 2026, the Conservancy is set to plant a total of 950 native trees and shrubs along local waterways across eight different municipalities.
- **Aqua-Block Installations:** Aqua-blocks are modular underground tank systems that increase stormwater infiltration capacity. In 2022, the Conservancy helped install aqua-blocks beneath a rain garden at Stony Creek Park in Lansdale.
- **Stormwater Basin Naturalizations:** In 2025, the Conservancy installed native perennials and shrubs as part of a stormwater basin naturalization project in Douglass Township.
- **Streambank Restorations:** From 2021–2022, the Conservancy partnered with Lower Salford Township to restore streambank habitat along the Skippack Creek. The project included re-grading the streambank and planting 10,000 native perennials, 125 trees, and 2,000 live stakes. Through its partnership with PWC, the Township saved more than \$300,000 in project costs! In 2023, the project received the Governor's Award for Environmental Excellence. **Phase 2 of the project will be completed this fall!**



Installation of aqua-blocks followed by hundreds native plants in the Stony Creek rain garden project.



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Souderton Borough Stormwater Reduction Statistics Package

The chart below shows the statistics for your municipality during the 2026 membership year:

Conservation Project	Site(s)	Number Municipal Volunteers	Municipal Volunteer Hours	Amount
Tree Plantings	0	0	0	0 trees planted
Stream Clean-up	4	73	219	29 bags of trash removed
Water Chestnut Removal	0	0	0	0 bags of EWC removed
Native Garden Installations	0	0	0	0 perennials planted
Community Stormwater Workshops	0	0	0	0 rain barrels made
TOTALS	4	73	219	29

The chart below shows the statistics for the entire Perkiomen Watershed during the 2026 membership year:

Conservation Project	Site(s)	Number of Volunteers	Volunteer Hours	Total Amount
Tree Plantings	9	160	480	866 trees planted
Stream Clean-up	182	2,052	6,156	1,512 bags of trash removed
Water Chestnut Removal	1	50	1,600	200 bags of EWC removed
Native Garden Installations	1	20	80	500 native plants installed
Community Stormwater Workshops	13	118	118	51 rain barrels made 140 native plants given to residents
TOTALS	206	2,400	8,434	3,269

Serving the people and communities of the Perkiomen Watershed
 by conserving and protecting land and water resources through commitment to and leadership
 in environmental education, watershed stewardship and conservation programs



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2026 Benefactor Benefits Received

1. **Seasonal Educational Articles** – Access to four seasonal educational flyers to share with municipal staff and residents:
 - Fall Stormwater Solutions
 - Winter Stormwater Solutions
 - Spring Stormwater Solutions
 - Summer Stormwater Solutions
2. **Stormwater Statistics Package** – Municipalities received an annual summary highlighting their participation in Perkiomen Watershed Conservancy conservation projects, volunteer events and the resulting environmental benefits.
3. **Perkiomen Stormwater Symposium** – Municipal staff members were eligible to receive two complimentary tickets to the annual Perkiomen Stormwater Symposium. This full-day training brought together regional experts and partners to discuss innovative stormwater management strategies while covering all six MS4 Minimum Control Measures. Attendees also received educational resources and information about volunteer and community engagement opportunities.
4. **Community Stormwater Workshops** – Municipal residents were given the opportunity to participate in hands-on workshops focused on practical stormwater management techniques, including installing rain gardens, converting sections of their lawns to native gardens, and building rain barrels for use at home.
5. **MS4 Municipal Grant Program** – Municipalities were eligible to apply for grant funding to support the installation of stormwater Best Management Practices, including rain gardens, stormwater basin naturalizations, riparian buffer plantings and other green infrastructure projects.

Please contact Jessie (jkemper@perkiomenwatershed.org) if you need copies any benefits listed above.

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MCM # 2 ATTACHMENTS

 GILMORE & ASSOCIATES, INC. ENGINEERING & CONSULTING SERVICES Public Involvement and Participation Recordkeeping Table										
<u>MCM # 2</u> <u>Applicable</u>	<u>Activity -</u> <u>ID</u>	<u>Outreach Activity</u>	<u>Date of</u> <u>Activity</u>	<u>Delivery</u> <u>Method</u>	<u>Audience Targeted</u>	<u>Audience Size</u>	<u>Participation and Involvement</u> <u>Description</u>	<u>Materials Distributed</u>	<u>Key Outcome/Metrics</u>	<u>Documentation</u>
Yes	25-26-01	Stormwater Basics Presentation	5/11/2026	In-Person	Homeowners and Residents	Unknown	Stormwater Management Tools and practices residents can implement to lessen impact of runoff	Speaker Robert Pace distributed practical steps to lessen runoff impact	Unknown how many attendees	Print Out of Event
Yes	25-26-02	Borough Council Work Session - MS4 Presentation	1/20/2026	In-Person	Council Members and General Public	9 Council Members, Mayor, 3 Residents, Municipal Staff	Overview of MS4 Permit Program, highlighting MCMs, Pollutant Reducation Goals	Powerpoint Presentation on MS4 Permit	Council Members were grateful for the information (some were unaware of program)	Meeting Minutes and Agenda
Yes	25-26-03	Borough Council Meeting	2/2/2026	In-Person/Televised/Recorded	Council Members and General Public	9 Council Members, Mayor, 10 Residents, Municipal Staff	Overview of MS4 Permit Program, highlighting MCMs, Pollutant Reducation Goals	Powerpoint Presentation on MS4 Permit	Council Members were grateful for the information (some were unaware of program)	Meeting Minutes and Agenda
Yes	25-26-04	PRP/TMDL Plan on Township Website	1/30/2026 published	Website	General Public	5,000 Visits per Month	Overview of the Borough's PRP/TMDL	PRP/TMDL Plan	No comments were received	Screenshot of Website
Yes	25-26-05	Spring Leaf and Brush Collection	First Week of April 2026	Website / Newsletter	General Public	Residents	Public Works Leaf Collection Notice	Newsletter/Flyer	Unknown how many pounds of leaves retrieved	Screenshot of Flyer
No	25-26-06	Stormwater Management Info on Township Website	Ongoing	Website	General Public	5,000 Visits per Month	MS4 Related Information, DEP/EPA Links, Guides for Stormwater, Various Newsletters, Perkiomen Workshop/Clean Up Day Links	Website Links	5,000 Visits per Month	Screenshot of Website
Yes	25-26-07	Perkiomen Creek Membership	Ongoing	Resource	General Public	Municipality	Community resource for stormwater educational materials, public workshops, and staff training	Various materials	4 Stream Clean Ups, 73 Municipal Volunteers, 219 Volunteer Hours, 29 Bags of trash removed	Souderton Borough Stormwater Reduction Statistics Package
Yes	25-26-08	Perkiomen Stormwater Symposium	3/20/2026	In-Person	Municipal Staff	2 Council Members Attended	Six Minimum Control Measures	Various materials	Council Members registered the Borough for Perkiomen Watershed membership	---
Yes	25-26-09	Stream Clean Up	4/10/2026, 4/11/2026	In-Person	General Public	73 Volunteers	Stream Clean Up	Gloves, Trash Bags	29 Bags of Trash Removed from 4 Locations, 219 Volunteer Hours, 73 Volunteers	Souderton Borough Stormwater Reduction Statistics Package

NOTE: SEE ATTACHMENTS IN MCM #1

MCM # 3 ATTACHMENTS

Outfall Inventory																
Permit Cycle (10/1/2024 to 9/30/2029)																
No. Outfalls	No. Obs. Pts	Watershed	Outfall/ Obs. ID	Outfall/Obs. Pt. Desc.	Date of Last Inspection	Required Inspection	Latitude	Longitude	# of Screenings	Dry Weather Flow (Y/N)	Sampling (Y/N)	Results	Illicit Discharge (Y/N)	Historical Dry Weather Flow (Y/N)	Condition	Notes
	1	Skippack Creek	TSC_01120-001			6/30/2029	40°18'15.05"	-75°19'49.90"								Swale onto Chestnut Street from private property?
	2	Skippack Creek	TSC_01120-002			6/30/2029	40°18'41.89"	-75°19'51.59"								Inlet on Colonial Avenue prior to discharge into adjacent municiplity
1		Skippack Creek	TSC_01120-003			6/30/2029	40°18'20.31"	-75°19'49.35"								Endwall from Basin
	3	Skippack Creek	TSC_01120-004			6/30/2029	40°18'27.68"	-75°19'50.22"								Endwall from Green Street
2		Skippack Creek	TSC_01120-005			6/30/2029	40°18'23.94"	-75°19'44.71"								Endwall from Hunsberger
3		Skippack Creek	TSC_01120-005A			6/30/2029	40°18'27.64"	-75°19'44.01"								Endwall discharge to swale
4		Skippack Creek	TSC_01120-006			6/30/2029	40°18'28.67"	-75°19'41.99"								Endwall from West Street
5		Skippack Creek	TSC_01120-007			6/30/2029	40°18'29.16"	-75°19'41.24"								NE Incoming pipe into inlet on upstream side on West Street
6		Skippack Creek	TSC_01120-008			6/30/2029	40°18'31.92"	-75°19'35.61"								Headwall discharge of underground stream
	4	Skippack Creek	TSC_01121-001			6/30/2029	40°18'13.04"	-75°19'18.77"								Inlet on Mifflin Street
	5	Skippack Creek	TSC_01121-002			6/30/2029	40°18'05.41"	-75°19'09.86"								Inlet at corner of Cherry Lane and Mufflin Stret
	6	Skippack Creek	SC-001			6/30/2029	40°18'11.03"	-75°19'03.88"								Inlet at corner of Penn Avenue and Cherry Lane
	7	Indian Creek	IC-001			6/30/2029	40°19'04.20"	-75°19'52.90"								Inlet on Railroad Avenue
	8	Indian Creek	IC-002			6/30/2029	40°18'57.63"	-75°19'58.26"								Endwall from Harleysville Pike
	9	Indian Creek	TIC-001			6/30/2029	40°18'50.52"	-75°20'05.25"								Road Surface Drainage on Colonial Avenue prior to discharge into adjacent municipality

MCM # 5 ATTACHMENTS

MCM # 5 Post Construction BMP Inventory (Updated 2026) Ongoing												
No.	*BMP No	*BMP Name	Drainage area (ac)	*Entity Responsible for O&M	*Latitude	*Longitude	*Date Installed	O&M Requirements	NPDES Permit No	Date of Last Inspection	*Satisfactory?	Maintenance Required
1	4	Underground Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
2	5A	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
3	5B	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
4	5C	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
5	5D	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
6	6	Dry Extended Detention Basin	TBD	TBD; Private			2011	See PCSM Plan	TBD		TBD	
7	7	Raingarden	0.52	Souderton Borough			2011	See PCSM Plan	TBD		TBD	
8	8(A-E)	Raingarden	10.31	Reliance Crossing			2016	See PCSM Plan	TBD		TBD	
9	9A	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
10	9B	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
11	10A	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
12	10B	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
13	10C	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
14	10D	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
15	10E	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
16	11A	Raingarden	1.24	Souderton Borough			2023	See PCSM Plan	TBD		TBD	
17	11B	Raingarden	3.43	Souderton Borough			2023	See PCSM Plan	TBD		TBD	
18	11C	Tree Planting	N/A	Souderton Borough			2023	See PCSM Plan	TBD		TBD	

NOTE: THIS INVENTORY IS A WORKING DOCUMENT AND IS UPDATED AS INFORMATION BECOMES AVAILABLE

MCM # 6 ATTACHMENTS

O&M Manual
Updated 2026

September 2026

Operations and Maintenance Program (O&M)

Project Information

Souderton Borough
Montgomery County

G&A File No. 2309027

Prepared for:
Souderton Borough
31 West Summit Street
Souderton, Pa 18964

Prepared by:
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Basic Inventory of Various Municipal Operations and Facilities for Souderton Borough

Municipal operations, facilities and activities and land uses that may contribute to stormwater runoff within areas of municipal operations that discharges to the regulated small MS4 are as follows:

Municipal Operations, Facilities and Land Uses		
Streets, roads, highways	16.91 miles of Municipal roadways	Various Locations
Maintenance and storage yards	Public Works Buildings	154 North Second Street
Parks	Rotary Park – Wile Avenue and Reliance Road Holly’s Hill Park – Wile Avenue and Diamond Street Chestnut Street Playground – Wile Avenue and West Chestnut Street West Street Park – West Street, South of Green Street Lawn Avenue Park - Lawn Avenue	
Fleet or maintenance shops	Public Works Building	154 North Second Street
Stormwater conveyances (open and closed pipe)	Storm drain inlets, 6 outfalls, 9 observation points, storm sewer piping and several large box culverts.	Various Locations
Municipal Pools	Souderton Community Pool	Wile Avenue
Stormwater storage or treatment units (e.g., basins, infiltration/filtering structures, constructed wetlands, etc.)	Parkview Drive Basin Madison Avenue Basin Souderton Borough Community Pool Rain Garden	Parkview Drive Madison Avenue 460 Wile Avenue

Activities that may contribute to stormwater runoff within areas of municipal operations that discharge to the regulated small MS4 are as follows:

Street sweeping
Snow removal/deicing/Salt Storage
Inlet/outfall cleaning
Lawn/grounds care
General storm sewer system inspections and maintenance/repairs
Park and open space maintenance
Community Pool Maintenance
Municipal building maintenance
New construction and land disturbances
Right-of-way maintenance
Vehicle operation, fueling, washing and maintenance
Material transfer operations, including leaf/yard debris pickup and disposal procedures
Stormwater Management Facilities

Souderton Borough Public Works

Operations & Maintenance Plan

Standard Operating Procedures (SOPs)

Updated September 2026

Souderton Borough Department of Public Works has developed SOPs to address the various municipal facilities and activities that have the potential to affect stormwater quality. These SOPs are intended to support the municipality's MS4 Stormwater Management Program, particularly MCM #6 – Pollution Prevention/Good Housekeeping.

Under Pennsylvania DEP's MS4 program, municipalities must identify operations with the potential to generate pollution, maintain written operation and maintenance procedures, and provide employee training to prevent or reduce pollutant discharges.

These SOPs shall be reviewed:

- At least once during each applicable permit cycle.
- When the municipality's MS4 permit or SWMP is revised.
- When recurring stormwater pollution concerns are identified
- When applicable federal, state, or local requirements change

SOP: Municipal Street Sweeping

This SOP establishes procedures for municipal street sweeping activities that may affect stormwater quality. It is intended for use by municipalities in Pennsylvania, including MS4 permittees, to reduce the discharge of sediment, trash, nutrients, hydrocarbons, and other pollutants to the municipal separate storm sewer system (MS4) and receiving waters.

1. Purpose

The purpose of this SOP is to establish consistent procedures for street sweeping operations that:

1. Reduce the quantity of sediment, trash, leaves, and other pollutants entering storm drains and receiving waters.
2. Minimize the potential for street sweeping activities to generate or transport pollutants to the MS4.
3. Ensure proper collection, handling, storage, transport, and disposal of street-sweeping debris.
4. Establish documentation and inspection procedures for demonstrating implementation of municipal pollution prevention and good housekeeping practices.

Street sweeping is a municipal activity that may help remove pollutants from roadways before they are transported by stormwater runoff. However, improper sweeping, debris handling, or disposal can create additional pathways for pollutant discharge.

2. Scope

This SOP applies to:

- Municipal public works employees.
- Municipal employees assigned to street sweeping.
- Contractors performing street sweeping on behalf of the municipality.
- Council members responsible for street sweeping scheduling, equipment, and documentation.
- Staff responsible for MS4 compliance and municipal operations reporting.

The SOP applies to street sweeping conducted on:

- Municipal streets and roadways.
- Municipal parking lots.
- Curb and gutter areas.
- Designated paved municipal facilities.
- Other publicly maintained paved surfaces, as applicable.

The SOP covers routine sweeping, seasonal sweeping, post-storm cleanup, and collection of accumulated roadway debris.

3. Potential Stormwater Pollutants

Street sweeping is intended to remove pollutants before they enter the stormwater system. Materials that may be present in roadway sweepings include:

Potential pollutant	Typical source
Sediment and fine particles	Roadway wear, soil, erosion, vehicle tracking
Trash and litter	Roadside litter, commercial areas, public spaces
Leaves and organic debris	Trees, landscaping, seasonal accumulation
Nutrients	Organic debris, soil, fertilizer-containing particles
Petroleum hydrocarbons	Vehicle leaks, roadway residues
Metals	Brake and tire wear, vehicle and roadway deterioration
Chlorides and antiskid materials	Winter maintenance operations
Microplastics and tire particles	Vehicle tire wear and roadway deposits

The actual pollutants present will vary based on land use, traffic, season, winter maintenance activities, and surrounding sources. This list is for operational awareness and does not imply that each pollutant is present at every sweeping location.

4. Responsibilities

Public Works Director / Supervisor

- Establish and maintain the sweeping schedule.
- Assign personnel and equipment.
- Designate debris storage and disposal procedures.
- Review inspection records and corrective actions.
- Ensure employees receive applicable training.

Street Sweeper Operator

- Conduct pre-operation equipment inspections.
- Operate equipment according to manufacturer requirements.
- Follow stormwater pollution prevention procedures.
- Identify and report spills, unusual discharges, and hazardous materials.
- Complete sweeping logs and document collected debris.

MS4 Coordinator / Municipal Engineer

- Incorporate the activity into the municipal operations inventory and O&M program, as applicable.
- Review documentation for MS4 reporting and program evaluation.
- Coordinate with Public Works on identified stormwater concerns.
- Assist with evaluating recurring pollutant sources or areas requiring additional controls.

Contractors

- Follow the municipality's approved sweeping and stormwater pollution prevention requirements.
- Maintain records of routes, dates, equipment, and debris handling.
- Immediately report spills, prohibited discharges, or unusual materials.

5. Street Sweeping Procedures

5.1 Sweeping Schedule and Route Planning

The Public Works Director shall establish a sweeping schedule based on the municipality's roadway network, operational needs, available resources, and potential stormwater pollutant loading.

The following factors should be considered when prioritizing sweeping routes:

- Areas with heavy traffic.
- Commercial and industrial areas.
- Municipal parking lots and high-use public facilities.
- Locations with recurring litter or sediment accumulation.
- Areas with significant leaf accumulation.
- Roadways near storm drains, streams, and other sensitive receiving waters.
- Areas affected by winter road salt, antiskid, or other roadway maintenance.
- Locations with recurring complaints or documented pollutant sources.

The schedule should be reviewed periodically and adjusted based on field observations and available records. Sweeping frequency should not be established solely on aesthetics where roadway pollutant accumulation may affect stormwater quality.

5.2 Weather and Operating Conditions

Before beginning sweeping operations, the operator or supervisor shall evaluate current conditions.

Preferred operating conditions:

- Dry roadway surfaces where feasible.

- Adequate visibility and safe traffic conditions.
- Conditions that allow debris to be effectively collected without creating unnecessary dust or runoff.
- No active conditions that would cause collected material to wash away or migrate into storm drains.

If sweeping during or immediately following rainfall would cause collected debris to be mobilized, the operation should be postponed when practicable.

The operator shall exercise caution when sweeping wet or saturated material. Equipment settings and procedures should be adjusted to minimize residual debris, unnecessary water use, or pollutant-laden runoff.

5.3 Pre-Operation Equipment Inspection

Before each sweeping operation, the operator shall inspect the sweeper and associated equipment.

Pre-Operation Checklist

Required

Inspect hopper, seals, and covers for leaks.

Check brushes, brooms, suction components, and water systems, as applicable.

Verify that hydraulic and fuel systems do not exhibit leaks.

Confirm that the hopper has adequate capacity for the planned route.

Verify that spill response supplies are available.

Confirm that warning lights, safety equipment, and traffic controls are operational.

Review the designated sweeping route and any known problem locations.

Equipment with leaks or other conditions that could cause a pollutant discharge shall be removed from service or repaired as appropriate before operation.

5.4 Sweeping Operations

Operators shall follow the procedures below:

1. Operate the sweeper at a speed appropriate for effective collection and safe operation.
2. Adjust brush pressure, suction, and water application, where available, according to roadway conditions and manufacturer recommendations.
3. Avoid pushing accumulated debris directly into storm drains, inlets, ditches, or watercourses.
4. Sweep curb lines, gutter areas, and other areas where sediment and litter accumulate.
5. Avoid creating unnecessary dust or blowing debris onto adjacent properties.

6. Use caution when approaching storm drains, stream crossings, and stormwater BMPs.
7. Report unusual discharges, visible contamination, or materials that cannot be appropriately collected or handled as routine sweepings.
8. Do not intentionally discharge collected material, wash water, or sweepings into a storm drain, ditch, stream, or other waterbody.

If an operator observes a suspected illicit discharge or a spill, the operator shall notify the supervisor and follow the municipality's spill response and illicit discharge procedures.

5.5 Storm Drain and BMP Protection

Street sweeping shall be conducted in a manner that protects the function of stormwater infrastructure.

The operator shall:

- Avoid depositing sweepings near or into inlets.
- Avoid damaging inlet grates, curb inlets, or other drainage structures.
- Prevent the migration of accumulated debris into stormwater conveyances.
- Report clogged or heavily sedimented inlets identified during sweeping.
- Notify the supervisor if debris is observed entering a stormwater BMP or receiving water.
- Coordinate additional cleaning or maintenance where recurring sediment or litter accumulation indicates a potential drainage or land-use problem.

Street sweeping does not replace routine inspection and maintenance of the storm sewer system or stormwater management facilities.

5.6 Sweeping of Winter Maintenance Materials

Where sweeping includes salt, antiskid, or winter roadway materials:

- Collect accumulated material as soon as practicable when conditions allow.
- Avoid sweeping in a manner that transports material to storm drains or receiving waters.
- Do not assume that collected antiskid or salt-contaminated material is suitable for unrestricted reuse.
- Segregate materials when necessary to prevent contamination or improper disposal.
- Manage and dispose of material in accordance with applicable DEP requirements and receiving facility acceptance criteria.

The municipality should document the source and general composition of material when winter maintenance debris is collected in substantial quantities.

6. Collection, Storage, and Disposal of Street-Sweeping Debris

6.1 General Requirements

Collected street-sweeping debris shall be managed to prevent the release of pollutants to stormwater, groundwater, or surface waters.

The municipality shall establish a designated location for temporary storage, transfer, or handling of collected debris. The location should be selected based on:

- Protection from stormwater runoff.
- Distance from storm drains, inlets, and surface waters.
- Ability to contain and manage accumulated sediment.
- Access for loading, unloading, and transport.
- Prevention of windblown litter and off-site tracking.
- Applicable facility and environmental requirements.

6.2 Debris Storage

When temporary storage is necessary, the following procedures shall be followed:

1. Store debris only in designated areas approved by the municipality.
2. Prevent accumulated material from being deposited directly on unprotected ground where it could migrate into stormwater.
3. Use appropriate containment, cover, or other controls based on the material and site conditions.
4. Inspect storage areas for evidence of runoff, sediment tracking, litter, or leaks.
5. Remove accumulated debris in a timely manner and avoid unnecessary long-term storage.
6. Maintain access for inspection and cleanup.

If the storage area has the potential to discharge pollutants to the MS4, the municipality shall evaluate and implement appropriate controls.

6.3 Disposal and Reuse

Before disposal or reuse, the municipality shall evaluate the collected material and confirm the applicable requirements.

Potential management pathways may include:

- Disposal at an authorized facility.
- Beneficial reuse where specifically permitted and appropriate.
- Transfer to an approved contractor or waste management facility.
- Other methods authorized by applicable environmental requirements.

The municipality shall maintain documentation of the disposal or reuse method, including facility information and relevant acceptance documentation, where applicable.

Do not automatically classify all sweepings as clean fill, uncontaminated soil, or material suitable for unrestricted land application. Roadway sweepings may contain mixed pollutants and require evaluation under applicable Pennsylvania requirements.

For Pennsylvania municipalities, consult PA DEP's Disposal/Reuse of Street-Sweeping Debris and Antiskid guidance before implementing a reuse or disposal program.

6.4 Prohibited Practices

The following practices are prohibited:

- Discharging sweepings into storm drains, catch basins, streams, or other receiving waters.
- Washing sweepings into a storm sewer.
- Dumping accumulated sweepings on road shoulders or other locations where material may enter stormwater.
- Storing debris in a manner that allows uncontrolled runoff or windblown material.
- Disposing of suspected hazardous materials through routine sweeping debris procedures without appropriate evaluation.
- Mixing sweepings with other waste streams in a manner that prevents appropriate disposal.

7. Spill Response and Unusual Materials

7.1 Identification of Problem Materials

Operators shall remain alert for materials that are not appropriate for routine sweeping or that may indicate a spill or illicit discharge.

Examples include:

- Visible oil or petroleum contamination.
- Unusual chemical residues.
- Paint, solvents, or other potentially hazardous materials.
- Large quantities of sewage-related or animal waste.
- Unidentified liquid discharges.
- Significant quantities of contaminated sediment.
- Materials associated with a vehicle accident or industrial spill.

7.2 Response Procedure

If a spill or unusual material is identified:

1. Stop or modify operations as necessary. Do not knowingly spread the material or cause it to enter a storm drain.
2. Notify the Public Works Supervisor. Provide the location, type of material if known, and the apparent extent of the issue.
3. Protect stormwater infrastructure. Use appropriate response materials and procedures if safe and authorized to do so.
4. Follow the municipality's spill response procedures. Contact emergency responders or appropriate agencies when required.
5. Document the incident. Record the date, location, observed material, response actions, and notifications.

Employees shall not handle unknown or potentially hazardous substances beyond their training and available protective equipment.

8. Equipment Maintenance and Cleaning

Street sweeping equipment shall be maintained in accordance with the manufacturer's recommendations and municipal fleet maintenance procedures.

8.1 Equipment Maintenance

- Inspect equipment for hydraulic, fuel, and other fluid leaks.
- Repair leaks promptly.
- Maintain brushes, suction components, filters, and hopper seals.
- Conduct routine preventative maintenance.
- Document maintenance and repairs in accordance with municipal fleet procedures.

8.2 Equipment Washing

Equipment washing shall be conducted at an appropriate designated facility or location in accordance with municipal procedures.

The municipality shall prevent wash water containing sediment, oil, or other pollutants from entering storm drains or receiving waters without appropriate authorization and controls.

Where practicable:

- Remove accumulated debris before washing.
- Use designated wash areas.
- Prevent contaminated wash water from entering the MS4.

- Manage wash water in accordance with applicable requirements.
- Inspect the washing area for sediment accumulation and evidence of runoff.

9. Inspection and Corrective Action

9.1 Routine Inspection

The Public Works Supervisor or designee shall periodically review street sweeping operations to confirm that the SOP is being followed.

Inspections should consider:

Inspection item	Evaluation
Sweeping routes	Routes are being completed as scheduled
Equipment condition	No observed leaks or operational deficiencies
Stormwater protection	Debris is not intentionally or improperly discharged to drains
Debris storage	Storage area is adequately managed
Disposal records	Material is transferred or disposed of through approved procedures
Documentation	Sweeping logs are complete and retained
Employee practices	Operators are following required procedures

The inspection frequency shall be established by the municipality based on operational needs and the potential for stormwater pollution.

9.2 Corrective Actions

If deficiencies are identified, the supervisor shall document the issue and establish appropriate corrective action.

Examples include:

- Repairing leaking equipment.
- Cleaning debris from an improperly managed storage area.
- Revising sweeping routes or schedules.
- Providing additional employee training.
- Correcting improper disposal practices.
- Investigating recurring sediment or pollutant accumulation.
- Implementing additional controls to prevent stormwater contamination.

Corrective actions shall be tracked to completion where appropriate.

10. Documentation and Recordkeeping

Accurate records should be maintained to demonstrate implementation of the street sweeping program and support the municipality's MS4 documentation requirements.

PA DEP's MS4 resource materials identify the importance of documenting operations and maintaining an O&M program for activities that have the potential to discharge pollutants. Street sweeping records may also be relevant to evaluating and verifying the effectiveness of sweeping as a stormwater BMP.

10.1 Street Sweeping Log

The following information may be used as a model daily sweeping record. A recordkeeping table which contains the following information is included at the end of the SOP.

Date
Operator
Equipment ID
Weather / Roadway Conditions
Route / Roadway Segments
Approx. Miles Swept
Approx. Area Swept
Debris Quantity / Volume
Disposal / Transfer Location
Debris Type / Observations
Equipment Issues / Spill or Incident Notes
Corrective Action / Supervisor Review

11. Employee Training

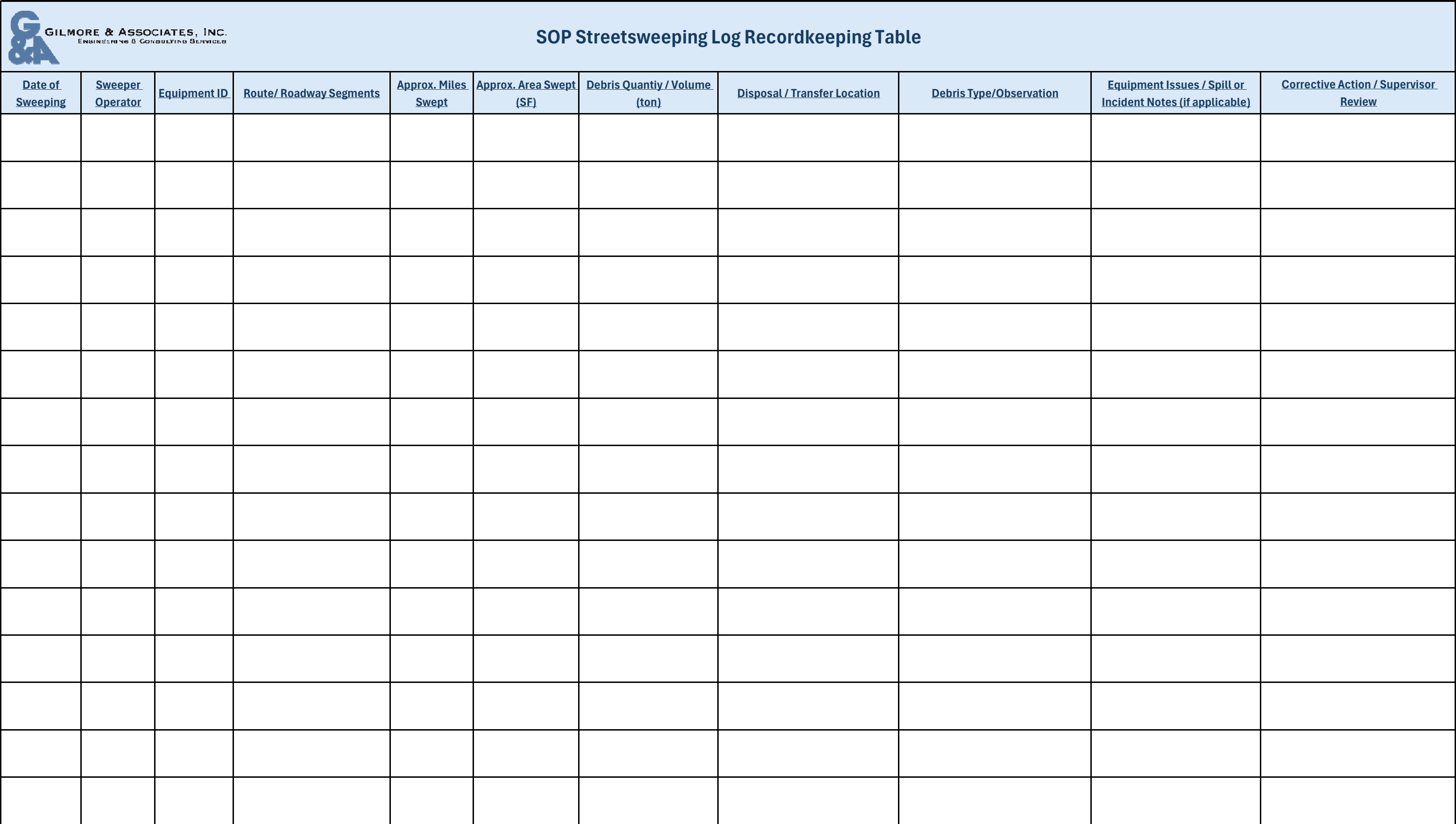
The municipality shall provide appropriate training to employees responsible for street sweeping and related debris management activities.

Training should address:

1. The relationship between street sweeping and stormwater quality.
2. Common pollutants found in roadway debris.
3. Proper operation of sweeping equipment.
4. Protection of storm drains and receiving waters.
5. Spill response and reporting procedures.
6. Proper collection, storage, and disposal of debris.
7. Equipment inspection and leak prevention.
8. Completion of street sweeping logs.
9. Identification and reporting of unusual materials or potential illicit discharges.

Training should be provided to new employees before performing applicable duties and periodically thereafter in accordance with the municipality's MS4 training program.

Training records should include the training date, topics, attendees, instructor or training source, and any applicable supporting materials.



SOP: Snow Removal, Deicing Activities, Salt Storage

This SOP establishes procedures for municipal snow removal, deicing, anti-icing, salt storage, and winter roadway maintenance activities that may affect stormwater quality.

The purpose is to maintain safe travel conditions while minimizing the discharge of chloride, sediment, nutrients, metals, and other pollutants to the municipal separate storm sewer system (MS4) and receiving waters.

Key operational principle: Apply only the amount of deicing material needed to achieve the required level of service, and prevent unnecessary accumulation, storage-related runoff, and transport of salt-contaminated snowmelt to receiving waters.

1. Purpose

The purpose of this SOP is to establish procedures for winter maintenance activities that:

1. Maintain safe travel and access conditions during snow and ice events.
2. Minimize excessive application of deicing chemicals, salt, and antiskid materials.
3. Reduce chloride and other pollutant discharges to the municipal storm sewer system and receiving waters.
4. Prevent improper storage, handling, and disposal of winter maintenance materials.
5. Establish employee training, inspection, documentation, and corrective action procedures.

Snow removal and deicing activities can affect stormwater quality through the application and transport of salt, brine, antiskid materials, sediment, and accumulated snowmelt. Proper planning and material management are necessary to balance public safety with pollution prevention.

2. Scope

This SOP applies to all municipal personnel and contractors performing or supporting winter maintenance activities, including:

- Snow plowing and snow removal.
- Application of solid deicing chemicals.
- Liquid brine and anti-icing applications.
- Pre-wetting and treatment of antiskid materials.
- Snow storage and snow disposal.
- Loading, transfer, and handling of salt and other deicing products.
- Winter maintenance equipment operation, inspection, and maintenance.

It applies to municipal roadways, parking lots, sidewalks, facilities, and other paved surfaces under the municipality's operational control, as applicable.

Contractors performing winter maintenance on behalf of the municipality shall be required to follow applicable portions of this SOP or equivalent documented procedures approved by the municipality.

3. Potential Stormwater Pollutants

Potential pollutant	Source during winter operations
Chlorides	Sodium chloride, calcium chloride, magnesium chloride, and other deicers
Sodium and other dissolved ions	Salt and deicing materials
Sediment	Roadway debris, antiskid, snow piles, plowing operations
Nutrients	Soil and organic debris transported with snowmelt
Metals	Roadway deposits, vehicle wear, accumulated sediment
Petroleum hydrocarbons	Vehicle leaks, roadway deposits, maintenance areas
Trash and litter	Debris accumulated in snow and along roadways

The composition and concentration of pollutants vary depending on the materials used, roadway conditions, traffic, winter maintenance practices, and snow storage locations.

4. Responsibilities

Public Works Director / Supervisor

- Establish winter maintenance policies and operational priorities.
- Approve material application practices and storage procedures.
- Assign personnel and equipment.
- Ensure appropriate employee and contractor training.
- Review inspections, incidents, and corrective actions.

Winter Maintenance Operator

- Conduct equipment inspections before operation.
- Operate snow removal and deicing equipment safely.
- Follow approved application procedures.
- Report spills, excessive material accumulation, and unusual conditions.
- Complete required winter maintenance activity records.

MS4 Coordinator / Municipal Engineer

- Coordinate the SOP with the municipal O&M program.
- Review stormwater protection practices and documentation.
- Assist in identifying recurring pollutant concerns.
- Support MS4 reporting and program review.

Contractors

- Follow municipal winter maintenance and pollution prevention requirements.
- Maintain applicable records.
- Use and maintain equipment properly.
- Report spills, material losses, and other conditions that may affect stormwater quality.

5. Winter Maintenance Planning and Scheduling

5.1 Route and Priority Planning

The Public Works Supervisor shall establish winter maintenance routes and priorities based on public safety, roadway conditions, municipal service commitments, and operational resources.

Priority considerations may include:

- Emergency response routes.
- Major collector roads and intersections.
- Steep grades and hazardous roadway segments.
- Bridges and shaded areas prone to icing.
- Access to schools, municipal buildings, emergency facilities, and critical services.
- Locations with recurring icing or drainage-related concerns.
- Roadways near streams, stormwater BMPs, and other sensitive receiving waters.

Winter maintenance activities shall be coordinated to minimize unnecessary material application while maintaining the municipality's required level of service.

5.2 Weather Monitoring and Pre-Storm Planning

Before a forecasted snow or ice event, the supervisor should review:

- Forecasted precipitation type and accumulation.
- Expected temperature and pavement conditions.
- Anticipated duration of the event.
- Available salt, brine, and antiskid inventory.
- Equipment readiness.
- Personnel and contractor availability.
- Potential impacts to salt storage and snow disposal locations.

Where feasible, route plans and application settings should be adjusted based on anticipated weather and pavement conditions rather than relying solely on a fixed application rate for every event.

5.3 Emergency and Safety Considerations

Public safety and emergency access take priority during hazardous winter conditions.

Operators may adapt procedures when necessary to address immediate safety hazards. Any significant departure from routine procedures that affects material use, snow disposal, or stormwater protection should be documented and evaluated by the supervisor.

6. Deicing and Anti-Icing Procedures

6.1 General Application Principles

The municipality shall implement procedures to minimize unnecessary use of deicing materials while achieving the intended safety objectives.

Operators shall:

1. Use the approved deicing material for the roadway and weather conditions.
2. Apply material at the lowest effective rate consistent with the municipality's safety requirements and established application guidance.
3. Use properly calibrated application equipment.
4. Avoid unnecessary repeated applications when existing material remains effective.
5. Consider pavement temperature, precipitation, and roadway conditions when determining whether additional material is needed.
6. Prevent material from being applied directly to streams, storm drains, and other receiving waters.
7. Report malfunctioning spreaders or equipment that may result in excessive application.

Application rates must be established by the municipality's winter maintenance policy, equipment calibration procedures, and applicable manufacturer or agency guidance. This SOP does not prescribe a universal salt rate because appropriate rates depend on material type, pavement temperature, weather conditions, and required service level.

6.2 Anti-Icing

Anti-icing may be used when appropriate to help prevent or reduce the bonding of snow and ice to pavement.

Where anti-icing is used:

- Select the appropriate material for the expected conditions.
- Apply using properly calibrated equipment.
- Avoid excessive application.
- Monitor roadway conditions and adjust operations as needed.

- Prevent brine leakage, spills, or uncontrolled discharges during loading and transfer.
- Document the use of anti-icing materials where required by the municipality's recordkeeping procedures.

6.3 Pre-Wetting and Treated Materials

Pre-wetting or treating solid deicing materials may be used when appropriate to improve performance and reduce material loss.

Operators shall:

- Follow approved material mixing and application procedures.
- Verify equipment settings and material compatibility.
- Prevent leaks and spills during loading and transfer.
- Keep treated material within designated storage and handling areas.
- Manage excess or unused material in accordance with municipal procedures.

6.4 Solid Deicing Materials

Solid deicing materials may include sodium chloride, calcium chloride, magnesium chloride, and approved blended products.

Before use, the operator shall verify that the material is suitable for the intended application and that equipment is functioning properly.

The municipality shall avoid applying deicing material solely for the purpose of melting all snow and ice when mechanical removal and other operational methods can achieve the required safety objective.

6.5 Application Equipment Calibration

Deicing equipment shall be calibrated and maintained in accordance with municipal procedures and manufacturer recommendations.

Calibration procedures should account for:

- Material type and density.
- Spreader or brine system settings.
- Vehicle speed.
- Application width.
- Application rate.
- Equipment wear and maintenance condition.

The municipality should retain calibration documentation and update calibration when equipment, materials, or application systems change.

7. Snow Removal Procedures

7.1 Snow Plowing

Snow plowing shall be performed in a manner that maintains roadway safety and minimizes unnecessary impacts to stormwater infrastructure.

Operators shall:

1. Plow snow according to the established route and priority schedule.
2. Avoid pushing snow, sediment, or accumulated debris into storm drains, streams, wetlands, or other receiving waters.
3. Avoid blocking stormwater inlets where practicable.
4. Use appropriate plow settings to minimize damage to pavement, curbs, and drainage structures.
5. Report drainage structures that become blocked or damaged during operations.
6. Coordinate additional deicing or snow removal when snow accumulation creates a safety or drainage concern.

7.2 Snow Piling and Temporary Storage

Snow shall be placed in designated locations when practicable.

The municipality shall consider:

- Potential snowmelt runoff.
- Distance from storm drains and receiving waters.
- Accumulated salt and sediment.
- Available site drainage and containment.
- Protection of stormwater BMPs.
- Access for cleanup and inspection.
- Potential impacts to adjacent properties and public facilities.

Snow shall not be intentionally placed in streams, wetlands, stormwater ponds, or other waterbodies.

Snow storage areas should be selected and managed to minimize the discharge of pollutants to the MS4. Where practicable, use designated areas with appropriate controls for managing snowmelt and accumulated sediment.

9.3 Snow Disposal

When snow must be removed from roadways or municipal facilities and transported to a disposal location, the municipality shall use designated disposal areas approved for the intended use.

The supervisor shall consider:

- Site drainage and potential runoff pathways.
- Proximity to surface waters.
- Potential accumulation of salt, sediment, litter, and other pollutants.
- Accessibility for snow hauling and equipment.
- Post-event cleanup and inspection.
- Applicable environmental requirements.

Snow disposal areas shall be inspected as appropriate following significant events or seasonal use to identify accumulated sediment, debris, or evidence of uncontrolled pollutant runoff.

9.4 Post-Storm Cleanup

Following a snow or ice event, the municipality should conduct cleanup and review activities as conditions permit.

These may include:

- Removing accumulated antiskid or sediment from roadways and curb lines.
- Collecting excess salt or other recoverable deicing material where practicable.
- Inspecting storm drains and inlets for accumulated sediment or debris.
- Inspecting snow storage areas.
- Repairing or cleaning equipment.
- Documenting unusual conditions, spills, and corrective actions.

Collected materials shall be handled and disposed of in accordance with applicable requirements.

8. Salt, Brine, and Antiskid Material Storage

8.1 General Storage Requirements

Deicing materials shall be stored in designated locations that minimize exposure to precipitation, stormwater runoff, and uncontrolled material loss.

The municipality shall evaluate its storage facilities and implement appropriate controls for:

- Salt and solid deicing chemicals.
- Liquid brine and other deicing solutions.
- Sand and antiskid.
- Treated antiskid materials.
- Bagged deicing products.
- Material transfer and loading areas.

PennDOT's winter maintenance guidance emphasizes properly prepared salt storage locations, orderly handling, and protection of the environment from leaching and runoff associated with treated antiskid materials. Municipal facilities should use applicable storage standards and current requirements when establishing their procedures.

8.2 Solid Salt and Deicing Material Storage

The municipality shall:

1. Store solid salt and deicing materials in designated storage areas.
2. Use covered or enclosed storage as appropriate to the material and applicable requirements.
3. Minimize exposure to precipitation and uncontrolled runoff.
4. Maintain orderly stockpiles and prevent unnecessary material loss.
5. Keep loading and transfer areas clean.
6. Prevent salt and deicing materials from being deposited in storm drains or receiving waters.
7. Inspect storage areas for leaks, runoff, sediment, and material accumulation.

Storage controls shall be consistent with applicable MS4 permit requirements and, where applicable, the BMPs for existing salt storage and distribution sites under PAG-03.

8.3 Liquid Brine Storage

Where the municipality uses liquid brine or other liquid deicing chemicals:

- Store liquids in suitable containers or tanks compatible with the material.
- Inspect tanks, piping, valves, and fittings for leaks.
- Maintain appropriate containment and spill response supplies.
- Prevent overfilling during delivery and transfer.
- Maintain safe access to storage equipment.
- Document leaks, repairs, and corrective actions.
- Manage wash water and residual material according to applicable procedures.

8.4 Loading and Material Transfer

During loading, unloading, or transfer operations:

1. Inspect the equipment and transfer area before starting.
2. Confirm that the receiving container or vehicle has sufficient capacity.
3. Minimize spillage and material loss.
4. Clean up spilled material promptly using appropriate procedures.
5. Do not wash salt or deicing chemicals into storm drains.
6. Inspect the surrounding area after material transfer.

7. Document significant spills and corrective actions.

8.5 Storage Area Inspections

The supervisor or designated employee shall periodically inspect storage areas, particularly before and during the winter season and after significant material transfers.

Inspection items include:

Item	Inspection criteria
Storage structure	Covers, roofs, walls, and containment in suitable condition
Stockpiles	Stable and appropriately managed
Loading area	Free of excessive spilled material
Drainage	No uncontrolled salt-contaminated runoff
Liquid tanks	No visible leaks or damaged fittings
Spill supplies	Available and accessible
Housekeeping	Material and debris managed appropriately

Deficiencies shall be documented and corrected according to their severity and potential environmental impact.

9. Stormwater Infrastructure Protection

Winter maintenance activities shall be coordinated with the municipality's storm sewer inspection and maintenance program.

9.1 Storm Drain and Inlet Protection

Operators shall:

- Avoid pushing snow, salt, or antiskid directly into inlets.
- Report clogged or blocked drainage structures.
- Avoid intentionally discharging salt-contaminated snowmelt to stormwater infrastructure where practicable.
- Inspect priority inlets after significant events when conditions allow.
- Coordinate cleaning or maintenance when material accumulation affects drainage.

9.2 Stormwater BMPs and Receiving Waters

Municipal staff shall avoid placing snow, salt, or antiskid on stormwater BMPs unless the BMP was specifically designed and approved for the intended activity.

Where winter maintenance occurs near stormwater facilities, staff should consider:

- Protecting infiltration and filtration areas from excessive sediment or salt loading.
- Avoiding snow piles over infiltration areas.
- Maintaining access for inspection and maintenance.
- Reporting damage or unusual pollutant accumulation.
- Reviewing recurring runoff concerns during the annual O&M program evaluation.

The municipality should identify locations where winter maintenance activities could adversely affect water quality and incorporate those locations into its route planning and inspection procedures.

10. Equipment Maintenance and Spill Prevention

10.1 Equipment Inspection

Before each winter maintenance shift, operators shall inspect equipment, as appropriate, for:

- Fuel, hydraulic, and other fluid leaks.
- Proper operation of spreaders and brine systems.
- Functioning controls and application mechanisms.
- Proper plow and blade condition.
- Equipment lighting and safety systems.
- Adequate spill response materials.

Equipment with leaks or significant defects that may create a pollutant discharge shall be repaired or removed from service as appropriate.

10.2 Equipment Washing and Maintenance

Equipment washing and maintenance shall be performed at designated locations in accordance with municipal procedures.

The municipality shall manage wash water, sediment, salt, and other residues to prevent improper discharge to the MS4 or receiving waters.

Where practicable:

- Remove excess deicing material before washing.
- Use designated maintenance and wash areas.
- Prevent contaminated wash water from entering storm drains.
- Collect and manage accumulated sediment and debris.
- Document significant equipment-related incidents.

10.3 Spill Response

If a spill or uncontrolled release occurs:

1. Stop the source if safe and authorized. Prevent further release of salt, brine, fuel, or other material.
2. Protect stormwater infrastructure. Use appropriate containment or response measures to prevent migration to drains and receiving waters.
3. Notify the supervisor. Report the location, material, approximate quantity, and conditions.
4. Implement the municipal spill response procedure. Obtain emergency assistance or environmental response support when necessary.
5. Clean up and document the incident. Record the response actions, disposal or recovery of materials, and any corrective measures.

Unknown or potentially hazardous materials shall be handled only by appropriately trained personnel using applicable safety procedures.

11. Inspection and Corrective Action

11.1 Routine Operational Inspections

The Public Works Supervisor or designee shall periodically evaluate winter maintenance activities and related facilities to confirm that the SOP is being implemented.

The inspection program should include:

- Snow removal practices.
- Deicing material application and equipment calibration.
- Salt, brine, and antiskid storage.
- Material loading and transfer areas.
- Snow storage and disposal locations.
- Stormwater infrastructure near winter maintenance operations.
- Equipment condition and spill prevention.
- Required documentation and employee training.

The municipality shall establish inspection frequencies based on the nature of the operation, facility conditions, weather, and potential for pollutant discharges.

11.2 Corrective Action

If deficiencies are identified, the supervisor shall determine appropriate corrective measures.

Examples include:

Observed deficiency	Potential corrective action
Excessive material spillage	Clean up material, review loading procedures
Uncalibrated spreader	Calibrate or repair equipment
Salt storage runoff	Inspect and improve storage or drainage controls
Blocked inlet	Schedule appropriate inspection and cleaning
Snow pile affecting drainage	Relocate or modify snow storage practices
Equipment leak	Repair equipment and address affected area
Incomplete activity log	Provide employee instruction and complete documentation

Corrective actions shall be tracked to completion where appropriate. Significant or recurring deficiencies should be evaluated during the annual review of the municipal O&M program.

12. Employee Training

The municipality shall provide training to employees and contractors responsible for snow removal, deicing, material handling, and related winter maintenance operations.

Training should address:

1. The relationship between winter maintenance and stormwater quality.
2. Potential pollutants associated with salt, brine, antiskid, and snowmelt.
3. Proper deicing material application and equipment calibration.
4. Anti-icing and pre-wetting procedures, where applicable.
5. Salt and brine storage requirements.
6. Snow storage and disposal practices.
7. Spill prevention, response, and reporting.
8. Storm drain and stormwater BMP protection.
9. Equipment inspection and maintenance.
10. Recordkeeping and corrective action procedures.

PA DEP identifies employee training as a component of the MCM #6 O&M program. The municipality should coordinate winter maintenance training with its overall municipal operations training schedule and current permit requirements.

12.1 Training Schedule

Training activity	Recommended timing
Seasonal winter maintenance refresher	Before each winter season
New operator training	Before performing assigned winter maintenance duties
Equipment calibration training	When equipment or application systems change
Spill response training	Initial training and periodic refresher
Storage and material handling training	Before seasonal material loading and transfer
SOP review	Annually and following significant procedural changes

The municipality shall retain documentation of training dates, topics, attendees, and instructors or training sources, as applicable.

13. Documentation and Recordkeeping

The municipality shall maintain records necessary to demonstrate implementation of its winter maintenance procedures and support the MS4 O&M program.

13.1 Winter Maintenance Activity Log

The following information may be used as a model daily sweeping record. A recordkeeping table which contains the following information is included at the end of the SOP.

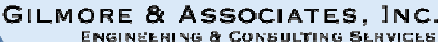
Winter Maintenance Activity Log

Date
Operator
Equipment / Vehicle ID
Route / Area Serviced
Deicing Material Used
Estimated Quantity
Snow Removal / Deicing Observations
Spills, Equipment Issues, or Stormwater Concerns
Corrective Action / Supervisor Review

13.2 Storage Area Inspection Log

The municipality should maintain an inspection log for salt, brine, and antiskid storage locations. A recordkeeping table which contains the following information is included at the end of the SOP.

Inspection item	Condition / Notes
Storage structure and cover	_____
Stockpile condition	_____
Material loading area	_____
Drainage and runoff controls	_____
Liquid storage tanks and piping	_____
Spill supplies	_____
Corrective action needed	_____
Inspector / Date	_____



SOP Winter Maintenance Recordkeeping Table

[illegible]



MCM #6 Salt Storage Inspection Log

Indicate Condition of Each Item: (S)= Satisfactory, (US)= Unsatisfactory

[illegible]

SOP: Stormwater Inlet and Outlet Cleaning and General Maintenance

This SOP establishes procedures for municipal cleaning and maintenance of stormwater inlets, outlets, and associated drainage structures to reduce sediment, debris, trash, and other pollutants from entering or being discharged through the municipal separate storm sewer system (MS4).

It covers routine inspection, sediment and debris removal, inlet cleaning, outlet structure maintenance, safe material handling, disposal, employee training, and recordkeeping.

Operational principle: Maintain stormwater drainage structures so they function as intended, while ensuring that cleaning activities do not mobilize accumulated pollutants into receiving waters or create unauthorized discharges.

1. Purpose

The purpose of this SOP is to establish consistent procedures for inspecting, cleaning, maintaining, and documenting municipal stormwater inlets and outlets to:

1. Maintain the intended hydraulic function of stormwater drainage infrastructure.
2. Remove accumulated sediment, trash, debris, and other pollutants.
3. Minimize the release of collected material into receiving waters.
4. Identify structural damage, blockages, erosion, and potential illicit discharges.
5. Establish appropriate material handling, disposal, employee safety, and recordkeeping procedures.
6. Support the municipality's MCM #6 Pollution Prevention/Good Housekeeping Program.

This SOP applies to routine municipal maintenance and does not replace engineering design, structural repairs, emergency response procedures, or applicable environmental permits.

2. Scope

This SOP applies to municipal employees and contractors performing cleaning, inspection, and maintenance of stormwater drainage structures, including:

- Curb inlets and catch basins.
- Inlet grates and inlet boxes.
- Manholes and junction structures, where access is safe and authorized.
- Stormwater conveyance structures associated with municipal drainage systems.

This SOP applies to routine maintenance, post-storm inspections, and identified cleaning needs. It does not authorize entry into confined spaces or work within regulated waterways without the necessary training, safety procedures, and applicable approvals.

3. Potential Stormwater Pollutants and Maintenance Concerns

Pollutant / concern	Potential source or condition
Sediment and silt	Roadway runoff, erosion, construction-related deposits
Trash and floatables	Litter, roadside debris, illegal dumping
Leaves and organic matter	Seasonal accumulation, landscaping
Chlorides	Winter deicing materials and snowmelt
Petroleum hydrocarbons	Roadway residues, spills, vehicle leaks
Nutrients and bacteria	Organic debris, animal waste, sewage-related discharges
Metals	Roadway deposits, vehicle wear, contaminated sediment
Erosion and scour	Concentrated discharge, damaged outlet protection, high flow
Structural damage	Cracked structures, displaced grates, damaged pipes or headwalls

Observed pollutants or unusual conditions shall be documented and evaluated for appropriate follow-up.

4. Responsibilities

Public Works Director / Supervisor

- Establish cleaning and inspection priorities.
- Assign personnel, equipment, and contractors.
- Ensure employees follow applicable safety procedures.
- Review maintenance records and corrective actions.
- Coordinate disposal and material handling procedures.

Maintenance Crew / Operator

- Perform pre-work safety and equipment inspections.
- Inspect and clean structures according to approved procedures.
- Prevent collected material from entering the stormwater system or receiving waters.
- Report structural deficiencies, spills, and unusual discharges.
- Complete required maintenance records.

MS4 Coordinator / Municipal Engineer

- Coordinate the SOP with the municipal O&M program.
- Review recurring maintenance problems and pollutant concerns.
- Assist with structural repair recommendations and documentation.
- Evaluate potential illicit discharges under the municipality's MCM #3 procedures.
- Support MS4 reporting and program evaluation.

Contractors

- Follow applicable municipal cleaning, safety, and stormwater pollution prevention requirements.
- Use authorized equipment and disposal locations.
- Report spills, structural concerns, and unusual materials.
- Submit required work records and disposal documentation.

5. Inspection Program and Cleaning Priorities

5.1 Stormwater Structure Inventory

The municipality shall maintain, or coordinate with, an inventory of municipal stormwater inlets and outlets subject to routine maintenance.

The inventory should include, where available:

- Structure identification number.
- Structure type (inlet, catch basin, outlet, headwall, etc.).
- Location or GIS coordinates.
- Associated drainage area or route.
- Inspection date.
- Cleaning date.
- Observed sediment and debris conditions.
- Structural deficiencies.
- Maintenance priority.
- Photographs, when appropriate.

The inventory may be maintained in a GIS platform, asset management system, spreadsheet, or other municipal recordkeeping system.

5.2 Inspection Frequency

Inspection and cleaning frequency shall be based on:

- The current MS4 permit and municipal O&M requirements.
- Drainage structure location and function.
- History of sediment accumulation.
- Proximity to construction sites or erosion sources.

- Roadway traffic and winter maintenance impacts.
- Known flooding or drainage complaints.
- Proximity to streams, wetlands, and other receiving waters.
- Previous maintenance findings.

The municipality should establish a routine inspection schedule and conduct additional inspections after significant storm events, flooding, or reported drainage problems.

Frequency is not a substitute for condition-based maintenance. Structures that accumulate sediment rapidly or pose a safety or water quality concern should be prioritized for earlier inspection or cleaning.

5.3 Cleaning Prioritization

The following conditions may warrant priority maintenance:

High

Immediate / Priority Response

- Blocked inlet causing flooding or roadway safety concerns.
- Significant blockage at an outlet or culvert.
- Suspected sewage or hazardous discharge.
- Structural failure posing immediate public safety risk.
- Active erosion or uncontrolled pollutant release.

Medium

Scheduled Maintenance

- Significant sediment accumulation.
- Partial obstruction or reduced drainage capacity.
- Damaged or displaced grate, trash rack, or headwall.
- Recurrent trash or organic debris accumulation.
- Erosion requiring maintenance planning.

Routine

Regular Program Maintenance

- Routine cleaning and inspection.
- Minor debris accumulation.
- Monitoring of stable structures.
- Preventive maintenance and housekeeping.

6. Pre-Work Safety and Equipment Inspection

6.1 General Safety

All work shall be performed by trained personnel using applicable municipal safety procedures.

Before beginning work, the supervisor or crew shall evaluate:

- Traffic exposure and required traffic control.
- Weather and site conditions.
- Water depth, flow, and potential flooding.
- Structure access and stability.
- Equipment suitability.
- Potential exposure to contaminated sediment or debris.
- Presence of utilities, overhead hazards, or other site risks.
- Whether the work involves a confined space or requires specialized entry procedures.

Confined-space warning: Stormwater inlets, manholes, and outlet structures may present confined-space hazards, including toxic gases, oxygen deficiency, flooding, and engulfment. Employees shall not enter a structure unless the municipality has established and implemented the applicable OSHA-compliant confined-space entry procedures, training, equipment, and permits where required. Cleaning should be performed from the surface whenever feasible.

6.2 Personal Protective Equipment

Appropriate PPE shall be selected based on the task and site conditions, and may include:

- High-visibility clothing.
- Work gloves.
- Safety boots.
- Safety glasses or face protection.
- Protective clothing appropriate for contaminated materials.
- Hearing protection where needed.
- Respiratory protection only when required by the hazard assessment and applicable respiratory protection program.

PPE requirements shall be determined by the municipality's safety policies and the actual hazards encountered.

6.3 Equipment Inspection

Before cleaning operations, inspect the equipment, as applicable:

Pre-Work Checklist

Traffic control and warning devices available.
Vacuum truck, pumps, hoses, or hand tools inspected.
Equipment is suitable for the anticipated sediment and debris.
Spill response materials available.
PPE available and in suitable condition.
Safe access and work area reviewed.
Structure access hazards and flow conditions evaluated.
Debris containment and disposal arrangements confirmed.

7. Inlet Cleaning Procedures

7.1 General Procedure

Inlet and catch basin cleaning shall be performed in a manner that removes accumulated material while preventing additional pollutant transport.

The following procedure shall be followed:

1. Locate and identify the structure. Confirm the inlet or catch basin identification number and location.
2. Establish site safety controls. Implement traffic control and secure the work area as necessary.
3. Inspect the inlet externally. Check the grate, frame, surrounding pavement, curb, and visible drainage conditions.
4. Remove surface debris. Clear trash, leaves, sediment, and other material from the grate or opening using appropriate tools.
5. Open the structure safely. Use approved lifting equipment or procedures. Do not enter the structure without appropriate authorization and confined-space procedures.
6. Inspect the interior. Observe sediment accumulation, water depth, debris, pipe connections, structural condition, and evidence of unusual discharges.
7. Remove accumulated material. Use a vacuum truck, suction equipment, or manual tools as appropriate. Avoid pushing material into connecting pipes.
8. Inspect the cleaned structure. Verify that the inlet opening, sump, and accessible connections are reasonably clear for intended function.
9. Replace and secure the grate or cover. Confirm that the structure is safely restored.
10. Document the work. Record cleaning details, removed material, structural observations, and follow-up needs.

7.2 Sediment Removal

Sediment removal should be conducted with appropriate equipment to minimize mobilization into the stormwater system.

- Use a vacuum truck or other appropriate collection equipment where available.
- Remove sediment from the sump and accessible areas without unnecessarily disturbing accumulated material.
- If water is present, manage the collected water in accordance with the municipality's approved procedure.
- Prevent removed sediment from being washed into the inlet or downstream pipe.
- Inspect the surrounding pavement for spilled or tracked material.
- Contain and transport collected sediment for appropriate disposal or evaluation.

The municipality should establish a target cleaning condition based on structure type, hydraulic function, and maintenance needs rather than using an arbitrary depth for all structures.

7.3 Cleaning with Water or High-Pressure Equipment

Water or high-pressure cleaning may be used when appropriate for the structure and approved maintenance method.

Where water is used:

- Avoid flushing sediment and debris downstream.
- Capture and recover dirty water where practicable and necessary.
- Use vacuum recovery or other appropriate collection methods.
- Do not discharge contaminated wash water into a storm drain or receiving water without authorization.
- Evaluate the need for additional downstream inspection or cleaning.

7.4 Inlet Deficiencies

The following conditions shall be documented and reported for follow-up:

Observed condition	Potential action
Broken or missing grate	Repair or replacement
Damaged frame	Evaluate structural repair
Blocked connecting pipe	Investigate and clean as appropriate
Excessive sediment accumulation	Schedule additional cleaning or source evaluation
Inlet bypassing	Inspect grading, structure, or roadway condition
Erosion around inlet	Evaluate stabilization or drainage improvements
Standing water or unusual flow	Investigate drainage or possible illicit discharge

Structural cracking

Refer for engineering evaluation as needed

8. Material Handling, Storage, and Disposal

8.1 General Requirements

Collected sediment, trash, vegetation, and other debris shall be managed to prevent re-entry into the MS4 or release to receiving waters.

The municipality shall establish appropriate procedures for:

- Temporary staging of collected material.
- Loading and transport.
- Storage of collected sediment.
- Disposal or reuse evaluation.
- Documentation of the final disposal or management method.

8.2 Collected Sediment and Debris

Collected material shall be evaluated based on its source and apparent composition.

The municipality shall:

1. Prevent collected material from being deposited near storm drains or receiving waters.
2. Use covered or contained transport where appropriate.
3. Avoid uncontrolled dumping on municipal property.
4. Identify unusual or potentially contaminated material.
5. Follow applicable waste disposal and environmental requirements.
6. Maintain documentation of the disposal or transfer location.

Important: Sediment removed from inlets and outlets should not automatically be treated as clean fill or unrestricted reusable material. The municipality should evaluate the source and applicable disposal requirements before selecting a disposal or reuse pathway.

8.3 Equipment Washing and Water Management

Equipment washing shall be performed at a designated location using appropriate procedures.

- Do not discharge sediment-laden wash water into storm drains or receiving waters without authorization.
- Capture and manage dirty water when necessary.
- Remove accumulated sediment from equipment before washing.
- Prevent contaminated runoff from leaving the work area.

- Document significant spills or improper discharges.

9. Illicit Discharge Identification and Reporting

Inlet and outlet cleaning activities may reveal unusual discharges or materials that require investigation under the municipality's MCM #3 – Illicit Discharge Detection and Elimination (IDD&E) procedures.

9.1 Conditions Requiring Reporting

Operators shall notify the supervisor when they observe:

- Sewage-related odors or visible sanitary waste.
- Unusual liquid discharges during dry weather.
- Oil sheen or petroleum contamination.
- Discolored or unusually foamy flow.
- Significant bacterial or organic material accumulation.
- Unidentified chemical residues.
- Repeated unusual discharge at an inlet or outlet.
- Other conditions suggesting a potential illicit discharge.

9.2 Response

1. Document the location and structure identification number.
2. Record observations, including flow, odor, color, visible material, and weather conditions, where safe.
3. Notify the supervisor and MS4 Coordinator according to the municipal reporting procedure.
4. Do not intentionally flush or remove suspected contamination in a manner that could spread pollutants.
5. Initiate the municipality's IDD&E investigation procedure when warranted.
6. Document any corrective action, sampling, source investigation, or agency notification required by the applicable procedure.

Cleaning crews should not independently determine that an unusual discharge is harmless solely based on appearance. Potential illicit discharges shall be evaluated under the municipality's established IDD&E process.

10. Inspection, Corrective Action, and Maintenance Tracking

10.1 Routine Inspection

The supervisor or designee shall periodically review inlet and outlet cleaning activities to confirm that the SOP is being implemented.

Inspection should consider:

- Completion of scheduled maintenance.
- Condition of cleaned structures.
- Adequacy of debris removal.
- Proper handling and disposal of collected material.
- Identification of recurring blockages or sediment sources.
- Documentation of repairs and corrective actions.
- Protection of stormwater infrastructure and receiving waters.

10.2 Corrective Action

If deficiencies are identified, the supervisor shall document the issue and determine appropriate action.

Deficiency	Corrective action
Inlet remains blocked	Reclean, inspect pipe, or schedule additional maintenance
Sediment reaccumulates rapidly	Investigate upstream sediment source
Damaged grate or frame	Repair or replace
Outlet erosion	Engineering evaluation and stabilization plan
Improper material disposal	Correct disposal practice and provide employee training
Unusual discharge	Coordinate MCM #3 investigation
Structural damage	Refer for engineering or repair evaluation
Incomplete records	Complete documentation and reinforce procedures

Recurring maintenance issues should be evaluated during the annual review of the municipal O&M program.

10.3 Maintenance Prioritization

The municipality should use a maintenance tracking system to identify structures that require recurring cleaning or capital improvements.

Potential tracking fields include:

- Structure ID.
- Date of inspection.
- Date of cleaning.
- Sediment accumulation.
- Debris quantity.
- Structural condition.
- Repair priority.

- Follow-up date.
- Completion status.
- Photographs.

11. Employee Training

The municipality shall provide appropriate training to employees and contractors responsible for stormwater inlet and outlet cleaning.

Training should address:

1. The purpose of inlet and outlet cleaning under MCM #6.
2. Stormwater pollutant prevention.
3. Safe inlet and catch basin cleaning.
4. Outlet and outfall maintenance near receiving waters.
5. Confined-space awareness and entry restrictions.
6. Traffic and work zone safety.
7. Sediment and debris collection.
8. Material handling and disposal.
9. Spill response and illicit discharge reporting.
10. Completion of maintenance records.

Training should be provided before employees perform assigned duties and periodically thereafter in accordance with the municipality's MS4 training program.

Training records should include the date, subject matter, attendees, and instructor or training source.

12. Documentation and Recordkeeping

The municipality shall maintain records demonstrating implementation of the inlet/outlet cleaning program. A recordkeeping table which contains the following information is included at the end of the SOP.

12.1 Inlet / Outlet Cleaning Log

Stormwater Structure Cleaning Log

Date

Inspector / Operator

Structure ID

Location / Roadway

Structure Dimensions

Estimated Material Removed

Structural Deficiencies / Unusual Discharge Observations

Disposal / Transfer Location

Structure Condition

2026 Storm water inlet box cleaning / inventory

<u>Location</u>	<u>Which corner</u>	<u>Condition</u>	<u>Box Size</u>	<u>Pipe Size</u>	<u>Type of material cleaned out</u>
161 W Cherry Lane	both on NE	Good	both are 2x4	15"	Silt, Stone, Leaves
301 Mifflin	SE	Good	2x4	15"	Silt, Stone, Leaves
255 Mifflin	NE	Good	2x4	15"	Silt, Stone, Leaves
220 Mifflin	Front of Property	Good	2x4	15"	Silt, Stone, Leaves
102 Adams	SE Mifflin & Highland	Good	2x4	15"	Silt & Stones
Meadow & Mifflin	Both E & W sides	Good	2x4	15"	Silt, Stone, Leaves
220 W Broad St	Both on SW corner	Good	2x4	15"	Silt, Stone, Leaves
206 W Broad St	Both on SE Corner	Good	2x4	15"	Silt, Stone, Leaves
24 W Broad St	On Washington Ave	Good	2x4 into the culvert	10"	Blacktop, leaves, stone
203 E Broad St	NE Corner	Good	2x4	15"	Silt, Leaves
130 Wile Ave	Front of Property	Replaced the hood	2x4 into the culvert	10"	Silt, Stone, Leaves
21 S Front St	Parking Lot	Replaced box & hood	2x2	10"	Stone, Concrete
19 Central Ave	Front of Property	Repair storm Line		12"	Dirt, Stone
Duke Alley & Clarion	SE Corner	Replace the Hood	2x4	12"	Silt, Stone, Leaves
40 Walnut St	Front of Property	Repair storm Line		12"	
334 W Cherry Lane	All 3 Inlets in front	Good	2x4	12"	Silt, Stone, Leaves
205 Mifflin St	NE, SE corner	Good	2x4	12"	Silt, Stone, Leaves
205 Highland Ave	All 4 Inlets	Good	2x4	15"	Silt, Stone, Leaves
412 E Chestnut St	Front of Property	Good	2x4 into the culvert	-	Silt, Debris
412 E Chestnut St	Storm Culvert	Joint Repair		40"	Sealed Joints

MS4 Inlet Reporting - Inventory, Inspection, and Cleaning Schedule w/ Pollutant Credit (Year 1)																						
						Inlet Dimensions																
No. Inlet	Inlet ID (if available)	Watershed	Location / Street	Date Cleaned	Crew / Contractor	Length (ft) ¹	Width (ft) ¹	Depth, Post (ft) ¹	Depth, Pre (ft) ¹	Volume (CF) of Sediment ²	Volume of Sediment (CY)	Total Wet Weight (lbs) ³	Sediment (lbs) (Wet Weight) ⁴	Organic Matter (lbs) (Wet Weight) ⁴	Trash (lbs) (Wet Weight) ⁴	Sediment (lbs) (Dry Weight) ⁵	Organic Matter (lbs) (Dry Weight) ⁵	TN Removed ⁶	TP Removed ⁶	TSS Removed ⁶	Disposal Site	Structure Condition
																TOTAL (Neshaminy) (lbs)	0.000	0.000	0.000			
																TOTAL (Southampton) (lbs)	0.000	0.000	0.000			

User Input Only

1: Field measurements, Depth,pre = Depth of inlet before cleaning, Depth,post = Depth of inlet after cleaning

2: Volume of Sediment (CF) = Inlet Length (ft) x Inlet Width (ft) x(Depth,post - Depth, pre(ft))

3: Multiply the Volume of Sediment (CY) by the Wet Weight conversion rate = 331 lbs/cubic yard based upon a study in Baltimore by the CWP (2008)

4. Multiply the Total Wet Weight by the Mean composition of Materials removed based upon CWP study (2008); 39% Sediment, 52.10% Leaves, 8.90% Trash

5. Convert the wet sediment and wet organic matter weight into dry weight by multiplying the default factors of 0.7 for sediment and 0.2 for organic matter in the BMP Effectiveness Values table.

6. Multiply the dry weight of each pollutant by the default concentration factors as shown on the BMP Effectiveness columns to obtain the TSS, TN, and TP removed (lbs)

TN = (Sediment (Dry weight) x 0.0027) + (Organic Matter (Dry Weight) x 0.0111)

TP= (Sediment (Dry weight) x 0.0006) + (Organic Matter (Dry Weight) x 0.0012)

TSS = ((Sediment (Dry weight) x (1-(0.0027+.0006)))+ Organic Matter (Dry weight)) x (1-(0.0111+0.0012))

FOR FINAL REPORTING PURPOSES: TOTAL SEDIMENT (LBS) OF EACH WATERSHED FOR EACH REPORTING PERIOD MUST BE SUMMED AND DIVIDED BY 5.

FOR INSTANCE:
YEAR 1: 1000 LBS
YEAR 2: 2000 LBS
YEAR 3: 1000 LBS
YEAR 4: 5000 LBS
YEAR 5: 6000 LBS
= (1000+2000+1000+5000+6000)/5 = 3000 LBS (THIS IS THE # FOR FINAL REPORT!)

SOP: Lawns and Ground Care, Right of Way Maintenance, Park and Open Space Maintenance, Leaf/Yard Pickup and Disposal, Fertilizer Application

This SOP establishes procedures for maintaining municipal lawns, landscaped areas, parks, rights-of-way, and other grounds in a manner that minimizes stormwater pollution, protects receiving waters, and supports compliance with the municipality's MS4 Pollution Prevention/Good Housekeeping program.

The procedures are designed for municipal employees, contractors, and other personnel responsible for mowing, landscaping, fertilization, pesticide application, leaf collection, vegetation management, and grounds maintenance.

1. Purpose

The purpose of this SOP is to establish consistent practices for municipal lawns and grounds care that:

- Minimize pollutants transported by stormwater runoff.
- Reduce the use and potential discharge of fertilizers, pesticides, herbicides, and other landscape chemicals.
- Prevent grass clippings, leaves, soil, mulch, and landscape debris from entering storm drains and receiving waters.
- Protect municipal stormwater infrastructure, drainage systems, and downstream waterways.
- Establish procedures for material storage, application, cleanup, inspection, training, and recordkeeping.
- Support the municipality's Stormwater Management Program (SWMP) under MCM #6 — Pollution Prevention/Good Housekeeping.

Pennsylvania DEP identifies lawn and grounds care and park/open-space maintenance as municipal activities that may have the potential to generate stormwater pollution and should be addressed through the MS4 operations and maintenance program.

2. Scope

This SOP applies to municipal employees, seasonal staff, contractors, and other personnel performing or supervising grounds-related activities at:

- Municipal buildings and properties.
- Public parks and recreational facilities.
- Athletic fields and playgrounds.
- Municipal lawns and landscaped areas.
- Roadway rights-of-way and medians.

- Maintenance yards and storage areas.
- Cemeteries and other municipally maintained properties.
- Other locations where municipal lawn and landscape activities occur.

Activities covered by this SOP include:

1. Mowing and grass trimming.
2. Fertilizer application.
3. Herbicide, pesticide, and other chemical applications.
4. Planting, mulching, and landscaping.
5. Leaf and yard debris collection.
6. Soil disturbance and reseeding.
7. Vegetation management near streams and stormwater facilities.
8. Equipment cleaning and maintenance associated with grounds care.
9. Landscape material storage and handling.
10. Post-maintenance inspections and corrective actions.

This SOP does not replace applicable pesticide licensing requirements, product labels, permit conditions, safety requirements, or engineering requirements for work involving significant earth disturbance or stormwater facilities.

3. Potential Stormwater Pollutants

Grounds-care activities can contribute the following pollutants to stormwater runoff:

Activity or Material	Potential Pollutants / Impacts
Mowing and trimming	Grass clippings, organic matter, nutrients
Fertilizer application	Nitrogen, phosphorus, dissolved nutrients
Pesticide and herbicide use	Chemical residues and toxic substances
Mulching and landscaping	Sediment, mulch, organic debris
Soil disturbance	Sediment and turbidity
Leaf collection	Nutrients, organic matter, bacteria
Equipment maintenance	Fuel, oil, grease, hydraulic fluids
Chemical storage	Spills, leaks, contaminated runoff
Streamside mowing	Bank instability, increased erosion, habitat impacts
Grounds cleanup	Trash, litter, and debris

Grounds maintenance shall be planned and performed to prevent these materials from being carried into the municipal separate storm sewer system (MS4) or nearby waterways.

4. Responsibilities

4.1 Public Works Director / Grounds Supervisor

The Public Works Director or designated supervisor shall:

- Assign and oversee grounds-maintenance activities.
- Ensure personnel are trained in this SOP.
- Establish maintenance priorities and schedules.
- Verify that required equipment and spill-response materials are available.
- Ensure chemicals and landscape materials are properly stored.
- Review application records and maintenance logs.
- Coordinate corrective actions for recurring problems.
- Ensure contractors follow applicable municipal requirements.

4.2 Municipal Employees and Grounds Personnel

Employees performing grounds-care activities shall:

- Follow this SOP and applicable safety procedures.
- Use fertilizers and chemicals only as authorized.
- Prevent clippings, leaves, mulch, and soil from entering storm drains.
- Inspect work areas before and after maintenance.
- Report spills, leaks, erosion, or unusual discharges.
- Properly collect and dispose of excess materials.
- Complete required maintenance and application records.

4.3 MS4 Coordinator / Municipal Engineer

The MS4 Coordinator or Municipal Engineer shall:

- Coordinate this SOP with the municipality's SWMP.
- Review recurring stormwater pollution issues.
- Assist with identifying priority areas near outfalls, streams, and stormwater BMPs.
- Coordinate with the MCM #3 Illicit Discharge Detection and Elimination program when unusual discharges or contamination are observed.
- Maintain records needed for MS4 reporting and program evaluation.
- Recommend revisions to procedures based on inspection results.

4.4 Contractors

Contractors performing lawn and grounds care on behalf of the municipality shall:

- Follow this SOP and all applicable contract requirements.
- Maintain required licenses and certifications.

- Use and store materials in accordance with product labels and applicable laws.
- Prevent pollutants from entering storm drains or receiving waters.
- Report spills, improper application, and other environmental incidents immediately.
- Provide application and disposal records when requested.

5. General Grounds-Care Requirements

The following requirements apply to all lawn and grounds-care activities.

5.1 Weather and Site Conditions

Before beginning work, personnel shall consider:

- Forecasted rainfall and storm conditions.
- Soil saturation and erosion potential.
- Proximity to storm drains, streams, wetlands, and drainage channels.
- Slope and runoff direction.
- Potential for wind to carry granular or spray-applied materials.
- Whether the work area is within or adjacent to a stormwater BMP.
- Public access and safety.

Chemical applications shall be postponed when weather conditions could result in off-site transport, runoff, drift, or ineffective application.

5.2 Protection of Stormwater Infrastructure

Personnel shall:

- Keep grass clippings, leaves, mulch, soil, and other debris away from inlets, catch basins, curb lines, and drainage channels.
- Avoid blowing or sweeping landscape debris into streets or storm drains.
- Remove accumulated debris from paved surfaces after maintenance.
- Protect stormwater facilities from direct material placement or discharge.
- Report damaged, blocked, or eroded stormwater infrastructure to the supervisor.

5.3 Work Near Waterways

When working near streams, wetlands, ponds, outfalls, or stormwater facilities:

- Minimize soil disturbance.
- Avoid unnecessary removal of stabilizing vegetation.
- Do not place grass clippings, mulch, leaves, or chemical containers near water.
- Maintain existing riparian vegetation where practicable.
- Avoid mowing or disturbing areas designated as stream buffers, wetland buffers, or conservation areas unless authorized.

- Stop work and notify the supervisor if erosion, bank instability, or a potential discharge is observed.

6. Mowing and Grass-Trimming Procedures

6.1 Before Mowing

Personnel shall:

1. Inspect the mowing area for trash, rocks, branches, animal waste, and other hazards.
2. Identify nearby storm drains, inlets, streams, and drainage swales.
3. Confirm that mowing equipment is in good working condition.
4. Check for oil, fuel, hydraulic fluid, or other leaks.
5. Determine whether grass clippings could be discharged toward a stormwater conveyance.
6. Remove litter and other debris before mowing.

6.2 During Mowing

Personnel shall:

- Direct mower discharge away from storm drains, waterways, sidewalks, and paved drainage paths.
- Avoid discharging grass clippings into streets or gutters.
- Avoid mowing excessively wet or saturated areas where rutting and soil disturbance may occur.
- Use appropriate mowing heights and practices to maintain healthy turf.
- Avoid unnecessary mowing of riparian buffers and naturalized areas.
- Keep equipment away from unstable streambanks and steep erodible slopes.
- Immediately stop work if equipment leaks fuel, oil, or hydraulic fluid.

6.3 After Mowing

Personnel shall:

1. Inspect adjacent streets, sidewalks, curbs, and drainage inlets.
2. Remove grass clippings from paved surfaces.
3. Remove clippings from stormwater inlets and drainage channels.
4. Collect significant accumulations of clippings rather than washing or blowing them into drains.
5. Report erosion, exposed soil, or damaged drainage structures.
6. Document unusual conditions or corrective actions when required.

Prohibited practice: Grass clippings shall not intentionally be blown, swept, or discharged into storm drains, drainage channels, streams, or other receiving waters.

7. Fertilizer Management

7.1 General Requirements

Fertilizer applications shall be based on actual landscape needs and shall avoid excessive nutrient application. Where practical, the municipality should use:

- Soil testing.
- Nutrient management planning.
- Slow-release or enhanced-efficiency products.
- Appropriate application timing.
- Native or low-maintenance vegetation.
- Grass species and landscape practices that reduce fertilizer demand.
- Vegetated buffers and stabilized areas near waterways.

Pennsylvania fertilizer requirements include nutrient application limits, location restrictions, and best management practices. Fertilizer applications must follow applicable law, the product label, and any more restrictive municipal or site-specific requirements.

7.2 Pre-Application Procedures

Before applying fertilizer, personnel shall:

1. Confirm that fertilizer application is authorized.
2. Identify the area to be treated and estimate the application area.
3. Review soil test results or other available nutrient information.
4. Select an appropriate product and application rate.
5. Check weather conditions and the likelihood of rainfall.
6. Identify nearby storm drains, streams, ponds, and drainage swales.
7. Calibrate application equipment when applicable.
8. Confirm that the applicator has required training or certification.

7.3 Application Procedures

Personnel shall:

- Apply fertilizer at the lowest rate necessary to achieve the intended result.
- Follow the product label and applicable Pennsylvania requirements.
- Avoid application to impervious surfaces.
- Maintain appropriate setbacks from waterbodies and stormwater conveyances.
- Use deflector shields or other controls near sidewalks, curbs, and paved surfaces.
- Avoid application immediately before forecasted rainfall.
- Prevent fertilizer from entering catch basins, inlets, ditches, streams, and wetlands.
- Collect spilled fertilizer promptly.
- Do not hose fertilizer into a storm drain.

Fertilizer Spill Response

In the event of a fertilizer spill:

1. Stop the application and secure the area.
2. Prevent the material from reaching storm drains or waterways.
3. Recover dry material using appropriate methods.
4. Do not wash fertilizer into the drainage system.
5. Notify the supervisor.
6. Document the spill and corrective actions.
7. Initiate the municipality's spill-response procedures if material has entered or may enter the MS4.

8. Pesticide, Herbicide, and Chemical Management

8.1 General Requirements

The municipality shall use an integrated pest management approach where practical. This may include:

- Preventive maintenance.
- Proper mowing and watering practices.
- Manual weed removal.
- Mulching.
- Plant selection.
- Targeted treatment rather than broad application.
- Use of the least hazardous effective product.
- Evaluation of whether chemical treatment is necessary.

Pesticides, herbicides, and other landscape chemicals shall be applied only by authorized personnel and in accordance with applicable licensing, label, storage, and application requirements.

8.2 Chemical Application Procedures

Before application, personnel shall:

1. Verify the product, intended use, and application rate.
2. Review the product label and SDS.
3. Confirm applicable applicator certification requirements.
4. Check weather conditions, including wind and rainfall.
5. Identify nearby storm drains, streams, ponds, wetlands, and sensitive areas.
6. Establish measures to prevent drift and runoff.
7. Notify affected personnel or the public when required.
8. Confirm that spill-response materials are available.

During application, personnel shall:

- Follow the label exactly.
- Use only the amount necessary for the intended treatment.
- Prevent spray drift onto water, pavement, vehicles, playground equipment, or unintended vegetation.
- Avoid application during high winds or when rainfall could transport the product.
- Prevent equipment leaks and overfilling.
- Keep unauthorized individuals away from the treatment area.

After application, personnel shall:

- Secure and store remaining product.
- Clean equipment in an authorized location.
- Prevent wash water from entering storm drains or surface waters.
- Document the product, application area, date, rate, and applicator.
- Follow any required reentry or posting period.

8.3 Chemical Storage

Chemicals shall be:

- Stored in a secure, designated area.
- Kept in original, properly labeled containers whenever practicable.
- Protected from precipitation, flooding, and vehicle impacts.
- Stored away from storm drains, inlets, wells, streams, and drainage channels.
- Segregated as necessary for compatibility and safety.
- Inspected periodically for damaged or leaking containers.
- Managed to prevent unauthorized access.

Chemical storage areas should have spill-response supplies appropriate to the materials stored.

8.4 Empty Containers and Unused Chemicals

Personnel shall:

- Follow product-label disposal instructions.
- Never dispose of chemicals in storm drains, sanitary sewers, soil, or surface waters.
- Never reuse chemical containers for food, water, or other unrelated purposes.
- Manage unused or expired chemicals through an approved disposal method.
- Maintain disposal documentation when applicable.

9. Leaf, Grass, and Yard Debris Management

9.1 Collection Procedures

Personnel shall:

1. Collect leaves and yard debris before significant rainfall when practicable.
2. Prevent piles from being placed over storm drains, inlets, ditches, or drainage channels.
3. Avoid placing debris directly against streambanks or within flood-prone areas.
4. Use designated collection and staging locations.
5. Inspect the area after collection for remaining debris.
6. Remove debris from paved surfaces and curb lines.

9.2 Leaf and Yard Waste Storage

Temporary staging areas shall:

- Be located away from storm drains and surface waters.
- Avoid steep slopes and areas prone to erosion.
- Be protected from runoff and wind dispersal.
- Be monitored for leachate, sediment, or debris migration.
- Be cleared within a reasonable timeframe.
- Be managed in accordance with municipal collection and disposal procedures.

9.3 Composting and Reuse

Where composting or reuse is authorized:

- Materials shall be placed in an approved location.
- Stockpiles shall be stabilized and managed to prevent runoff.
- The site shall be inspected for erosion, sediment transport, and excessive ponding.
- Contaminated or unsuitable material shall not be reused without an appropriate evaluation.
- Composting operations shall not obstruct stormwater conveyance systems.

9.4 Disposal

Leaves, grass, branches, and other yard debris shall be transported to an approved disposal, composting, or reuse location. Disposal practices shall prevent material from entering the MS4 or receiving waters.

10. Mulch, Soil, and Landscaping Activities

10.1 Material Handling

When handling soil, mulch, compost, stone, or other landscaping materials:

- Store materials away from storm drains and waterways.
- Avoid stockpiling material on steep slopes or in drainage paths.
- Use covers, berms, or other controls when needed.
- Minimize the time materials remain exposed.
- Clean up spills and material placed on paved surfaces.
- Prevent material from being tracked onto public roads.

10.2 Landscaping and Planting

Personnel shall:

1. Minimize the disturbed area.
2. Maintain stabilized access routes.
3. Use appropriate erosion and sediment controls when needed.
4. Avoid disturbing streambanks unless the work is authorized and properly planned.
5. Stabilize exposed soil as soon as practicable.
6. Inspect the area after rainfall.
7. Remove temporary controls only after stabilization is established.

Important: Work involving significant soil disturbance may require separate review for erosion and sediment control requirements, permits, or design considerations. The supervisor shall consult the Municipal Engineer or appropriate regulatory authority when necessary.

10.3 Work Near Stormwater BMPs

Grounds personnel shall not:

- Place mulch, soil, or yard waste within infiltration areas unless specifically authorized.
- Compact soil within infiltration or filtration areas.
- Block engineered overflow structures.
- Alter basin embankments, outlet structures, swales, or infiltration facilities without authorization.
- Use herbicides or fertilizers in a manner inconsistent with the BMP design or applicable O&M requirements.

Stormwater BMP maintenance shall be coordinated with the municipality's separate inspection and maintenance procedures.

11. Equipment Operation and Cleaning

11.1 Equipment Inspection

Before use, personnel shall inspect equipment for:

- Fuel leaks.
- Oil and hydraulic fluid leaks.
- Damaged hoses.
- Loose fittings.
- Worn or damaged components.
- Improperly secured chemical tanks or containers.

Defective equipment shall be removed from service or repaired before use.

11.2 Equipment Refueling

Refueling shall be performed:

- In a designated area where practicable.
- Away from storm drains, streams, and drainage channels.
- With spill-response materials readily available.
- Using appropriate fueling and shutoff procedures.
- In a manner that prevents overfilling and spillage.

11.3 Equipment Washing

Equipment shall be washed only at designated locations where wash water can be properly managed.

Personnel shall not:

- Wash equipment directly into storm drains.
- Discharge chemical-contaminated wash water to surface waters.
- Allow grass clippings, soil, oil, or pesticide residues to enter drainage systems.
- Use uncontrolled high-pressure washing near stormwater inlets.

12. Inspection and Corrective Action Program

12.1 Routine Inspections

Grounds-maintenance areas shall be inspected as appropriate based on:

- Maintenance frequency.
- Proximity to storm drains and waterways.
- Chemical storage and application activities.
- Known erosion or drainage problems.
- History of litter or yard waste accumulation.
- Public use and accessibility.
- Weather and seasonal conditions.

Inspections may be conducted during routine maintenance, following significant rainfall, or in response to a reported concern.

12.2 Inspection Items

Personnel should evaluate:

- Grass clippings on paved surfaces.
- Leaves or yard debris near storm drains.
- Exposed or eroding soil.
- Mulch or soil migration.
- Fertilizer or chemical spills.
- Chemical container condition.
- Evidence of runoff from stockpiles.
- Damaged streambanks or drainage channels.
- Oil, fuel, or hydraulic leaks.
- Unusual discharges or odors.
- Blocked or damaged stormwater infrastructure.

12.3 Corrective Action Table

Observation	Required Corrective Action
Grass clippings near inlet	Remove clippings and clean surrounding area
Leaves blocking drainage	Collect and properly dispose of debris
Fertilizer spill	Recover material and prevent runoff
Chemical container leak	Secure area, contain spill, notify supervisor
Exposed soil	Evaluate stabilization and erosion controls
Mulch or soil entering street	Remove material and stabilize source
Equipment oil leak	Stop use, contain spill, repair equipment

Erosion near stream or outfall	Notify supervisor and evaluate corrective measures
Unusual discharge	Document and notify MS4 Coordinator for possible MCM #3 investigation
Repeated maintenance-related pollution	Review work practices and implement preventive measures

13. Training Requirements

The municipality shall provide appropriate training to personnel and contractors whose activities may affect stormwater quality.

Training topics shall include:

- Purpose of MCM #6.
- Stormwater pollution from lawn and grounds maintenance.
- Proper mowing and grass-clipping management.
- Fertilizer application and nutrient pollution.
- Pesticide and herbicide safety.
- Product labels and SDS requirements.
- Chemical storage and spill response.
- Leaf and yard debris collection.
- Mulch and soil stockpile management.
- Protection of streams, inlets, and stormwater BMPs.
- Equipment fueling and washing.
- Erosion prevention and stabilization.
- Identification and reporting of potential illicit discharges.
- Required inspection and recordkeeping procedures.

Training shall be documented with the following information:

- Date of training.
- Name of instructor or training provider.
- Topics covered.
- Names of attendees.
- Department or contractor.
- Applicable materials or handouts.

14. Recordkeeping Requirements

Grounds Maintenance Record

A recordkeeping table which contains the following information is included at the end of the SOP.

Date / Time

Employee / Contractor

Location / Property

Activity

Mowing / Fertilizer / Chemical / Landscaping / Debris /
Other

Materials Used

Application Rate / Quantity

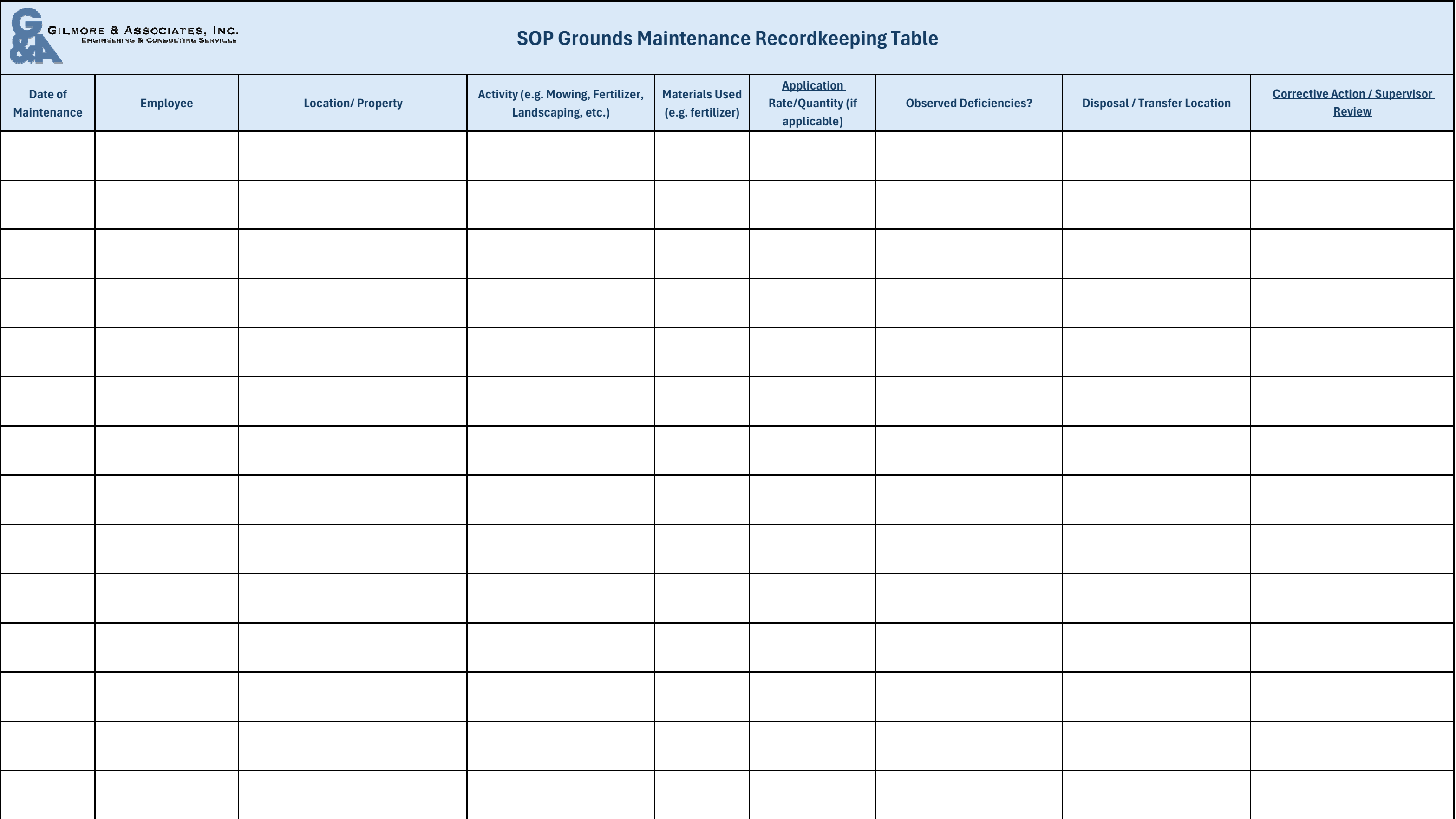
Observed Deficiencies

None / Clippings / Debris / Erosion / Spill / Other

Corrective Action

Disposal / Cleanup

Location



SOP: Municipal Building and Public Works Yard Maintenance and Vehicle Washing and Maintenance

This SOP establishes procedures for maintaining municipal buildings, public works facilities, maintenance yards, equipment, materials, and associated paved and landscaped areas in a manner that minimizes stormwater pollution and supports compliance with the municipality's MS4 Pollution Prevention/Good Housekeeping program.

The SOP addresses routine maintenance, vehicle and equipment management, material storage, spill prevention, waste handling, facility inspections, employee training, and corrective actions.

1. Purpose

The purpose of this SOP is to establish consistent operating and maintenance procedures for municipal buildings and public works yards that:

- Prevent pollutants from entering the municipal separate storm sewer system (MS4).
- Minimize spills, leaks, and improper discharges.
- Properly manage fuels, oils, chemicals, waste, equipment, and stockpiled materials.
- Protect stormwater inlets, drainage systems, outfalls, and receiving waters.
- Establish routine facility inspections and corrective actions.
- Provide employee and contractor training requirements.
- Support the municipality's written Stormwater Management Program (SWMP) under MCM #6.

This SOP is intended to apply to routine municipal operations and does not replace applicable environmental permits, safety requirements, hazardous-material regulations, or manufacturer instructions.

2. Scope

This SOP applies to municipal employees, contractors, seasonal staff, and other personnel conducting work at or managing:

- Municipal office buildings.
- Public works garages and maintenance facilities.
- Highway maintenance yards.
- Fleet and vehicle storage areas.
- Parks and recreation maintenance facilities.
- Equipment and material storage yards.
- Salt and deicing material storage areas.
- Fueling and refueling areas.
- Municipal workshops and repair facilities.
- Outdoor storage areas.

- Paved parking, loading, and staging areas.
- Areas containing stormwater inlets, drainage channels, or outfalls.

Covered activities include:

1. Building and facility maintenance.
2. Vehicle and equipment maintenance.
3. Fueling and fluid handling.
4. Storage of materials, chemicals, and waste.
5. Salt and deicing material management.
6. Outdoor material stockpiling.
7. Equipment and surface cleaning.
8. Spill prevention and response.
9. Stormwater drainage protection.
10. Facility inspection and corrective action.

3. Potential Stormwater Pollutants

Municipal buildings and public works yards may contain or generate the following pollutants:

Activity / Material	Potential Pollutants
Vehicle and equipment maintenance	Oil, grease, fuel, hydraulic fluid, antifreeze
Fueling	Gasoline, diesel, petroleum products
Salt storage	Chlorides, sediment, contaminated runoff
Sand and aggregate storage	Sediment, suspended solids
Chemical storage	Cleaning agents, solvents, pesticides, other chemicals
Outdoor material storage	Sediment, rust, debris, chemical residues
Waste storage	Litter, organic matter, hazardous substances
Equipment washing	Oil, grease, sediment, detergents
Building maintenance	Paint, solvents, dust, construction debris
Loading and unloading	Spills, leaks, material loss
Vehicle parking	Oil, fuel, metals, sediment, litter
Snow and ice operations	Chlorides, sediment, accumulated debris

Operations shall be conducted in a manner that prevents these pollutants from being discharged to storm drains, surface waters, or adjacent properties.

4. Responsibilities

4.1 Public Works Director / Facility Supervisor

The Public Works Director or designated supervisor shall:

- Oversee implementation of this SOP.
- Assign facility maintenance and inspection responsibilities.
- Establish appropriate storage, housekeeping, and spill-response procedures.
- Ensure employees have access to required PPE and spill-control materials.
- Verify that chemicals, fuels, and waste are properly managed.
- Review facility inspection records and corrective actions.
- Coordinate required repairs and maintenance.
- Ensure contractors follow applicable municipal requirements.

4.2 Public Works and Facility Personnel

Personnel shall:

- Follow this SOP and applicable safety procedures.
- Maintain clean and orderly work areas.
- Inspect equipment for leaks before use.
- Prevent spills and releases where practicable.
- Immediately report spills, damaged containers, and unusual discharges.
- Keep storm drains and drainage structures clear of pollutants.
- Properly store, use, and dispose of materials.
- Complete required inspection and maintenance records.

4.3 MS4 Coordinator / Municipal Engineer

The MS4 Coordinator or Municipal Engineer shall:

- Coordinate the SOP with the municipality's SWMP.
- Review facility-related stormwater concerns.
- Assist with identifying potential pollutant sources.
- Coordinate with the MCM #3 IDDE program when an unusual discharge is observed.
- Review recurring deficiencies and recommend corrective actions.
- Support MS4 reporting and program evaluation.
- Coordinate engineering review when facility modifications could affect stormwater management.

4.4 Contractors and Vendors

Contractors and vendors shall:

- Follow applicable municipal facility and environmental procedures.
- Maintain required licenses, certifications, and insurance.
- Properly manage materials and waste.
- Protect storm drains and surface waters.
- Report spills, leaks, and other environmental incidents.
- Provide documentation for waste disposal, chemical use, or other activities when required by contract.

5. General Facility Housekeeping

5.1 General Requirements

Municipal buildings and public works yards shall be maintained in a clean, organized condition to reduce pollutant exposure and prevent materials from being transported by stormwater.

Personnel shall:

- Keep work areas free of unnecessary debris.
- Store materials in designated locations.
- Maintain clear access to stormwater inlets and emergency equipment.
- Remove accumulated oil, grease, sediment, and other pollutants.
- Keep waste containers closed when not in use.
- Inspect outdoor storage areas for evidence of runoff or material migration.
- Clean up spills promptly using appropriate methods.
- Avoid placing materials in drainage paths or near stormwater inlets.

5.2 Dry Cleanup Practices

Dry cleanup methods shall be used whenever practicable, including:

- Sweeping.
- Shoveling.
- Vacuuming.
- Absorbent materials.
- Manual collection.
- Other methods that collect and contain pollutants.

Prohibited practice: Pollutants shall not be washed into storm drains, drainage channels, or surface waters as a substitute for proper collection and disposal.

Water-based cleaning may be used only when the resulting wastewater can be properly collected, managed, and disposed of in accordance with applicable requirements.

6. Municipal Building Maintenance

6.1 Interior Maintenance

Personnel performing building maintenance shall:

- Store paints, solvents, cleaners, and other chemicals in designated areas.
- Keep containers closed and properly labeled.
- Maintain SDS documentation for applicable products.
- Use spill trays or secondary containment where appropriate.
- Prevent chemicals and wash water from entering floor drains unless the discharge is authorized.
- Collect maintenance debris and dispose of it properly.
- Inspect plumbing, floor drains, and utility areas for leaks.
- Keep loading and service areas free of spilled materials.

6.2 Exterior Building Maintenance

Exterior maintenance may include painting, pressure washing, roof work, masonry repair, landscaping, and building repairs.

Before work begins, personnel shall:

1. Identify nearby storm drains, inlets, and surface waters.
2. Determine whether the work may generate sediment, paint residue, chemicals, or contaminated wastewater.
3. Install appropriate protection measures.
4. Secure and cover materials that could be mobilized by wind or rainfall.
5. Establish a method for collecting waste and runoff.
6. Confirm whether permits or additional environmental controls are required.

During and after work, personnel shall:

- Prevent paint chips, dust, debris, and chemicals from entering stormwater systems.
- Collect construction and maintenance debris.
- Prevent wash water from discharging to storm drains.
- Keep containers and equipment away from drainage paths.
- Inspect the work area after completion.
- Restore disturbed surfaces and stabilize exposed soil.

6.3 Roof and Gutter Maintenance

Personnel shall:

- Collect leaves, sediment, roofing debris, and other material removed from roofs and gutters.
- Prevent debris from entering downspouts and storm drains.
- Avoid discharging contaminated cleaning water onto paved areas or into drainage systems.
- Inspect downspouts and discharge points for erosion.
- Report damaged roof drainage components.
- Properly dispose of collected debris.

Roof maintenance involving hazardous materials, significant debris, or contaminated runoff shall be evaluated before work begins.

7. Vehicle, Equipment Maintenance, and Vehicle Washing

7.1 General Requirements

Vehicle and equipment maintenance and washing shall be performed in a manner that prevents pollutants from entering the MS4, stormwater inlets, drainage channels, or receiving waters.

Whenever practicable:

- Perform maintenance and washing in designated areas.
- Use indoor or covered facilities for activities that could generate contaminated runoff.
- Keep vehicles and equipment away from stormwater inlets and surface waters.
- Use dry cleanup methods to remove oil, grease, sediment, and debris before washing.
- Maintain spill-response materials near maintenance and washing areas.
- Inspect vehicles and equipment for leaks before and after use.
- Properly collect and manage wastewater when required.
- Document and report spills, leaks, and improper discharges.

7.2 Vehicle and Equipment Maintenance Area Requirements

Vehicle and equipment maintenance should be performed indoors or in a designated area designed to minimize pollutant exposure.

Where practicable:

- Perform maintenance under cover.
- Use drip pans and absorbent materials.
- Keep repair areas away from stormwater inlets.
- Store replacement fluids in secure containers.
- Maintain spill kits near maintenance areas.
- Keep tools and parts organized.
- Collect used fluids and contaminated materials for proper disposal.
- Prevent maintenance wastewater from entering the stormwater drainage system.

7.3 Pre-Maintenance Procedures

Before performing maintenance, personnel shall:

1. Identify the equipment and planned maintenance activity.
2. Inspect the area for existing spills or leaks.
3. Identify nearby stormwater inlets and drainage pathways.
4. Place drip pans or containment materials as appropriate.
5. Confirm that required tools and spill-response supplies are available.
6. Review SDS information for materials being used.
7. Determine the appropriate method for collecting used fluids and waste.
8. Verify that the maintenance activity will not result in an unauthorized discharge.

7.4 During Maintenance

Personnel shall:

- Use appropriate containers for draining fluids.
- Keep used fluids separate and properly labeled.
- Avoid leaving equipment or containers unattended during fluid transfer.
- Replace damaged hoses, fittings, and seals.
- Immediately contain leaks.
- Keep used parts and contaminated absorbents in designated containers.
- Prevent fluids from entering floor drains or outdoor drainage systems.
- Clean up spills using appropriate dry methods.
- Properly manage contaminated cleanup materials.

7.5 Vehicle Washing Procedures

7.5.1 General Requirements

Vehicle washing shall be conducted at a designated facility or location where wash water can be appropriately managed.

The municipality shall distinguish between:

- Routine exterior washing to remove dirt, salt, mud, and ordinary road debris.
- Heavy-duty or contaminated washing involving oil, grease, chemicals, or other pollutants.
- Specialized equipment cleaning, such as washing street sweepers, snowplows, salt trucks, vacuum trucks, and other maintenance equipment.

Vehicle washing shall not be performed in a manner that allows contaminated wash water to enter a storm drain, drainage ditch, stream, wetland, or other receiving water.

7.5.2 Preferred Washing Location

Whenever practicable, vehicle washing shall occur:

- In a designated wash bay.
- On an appropriate impervious surface.
- Under cover when feasible.
- At a location with suitable wastewater collection and management.
- Away from stormwater inlets and surface waters.
- In accordance with applicable wastewater discharge requirements.

The municipality shall verify that its wash-water collection, treatment, reuse, sanitary sewer connection, or disposal method is authorized before routinely conducting vehicle washing at the facility.

7.5.3 Pre-Washing Inspection

Before washing a vehicle or piece of equipment, personnel shall:

1. Inspect the vehicle for oil, fuel, grease, hydraulic fluid, and chemical leaks.
2. Repair or contain active leaks before washing.
3. Remove excessive mud, sediment, salt, and debris using dry methods where practicable.
4. Remove trash and loose materials from the vehicle.
5. Identify nearby stormwater inlets and drainage pathways.
6. Confirm that the wash area and wastewater controls are operational.
7. Verify that required spill-response materials are available.

8. Determine whether the vehicle requires specialized cleaning or contaminated wastewater handling.

Vehicles with significant oil, fuel, chemical, or other pollutant contamination shall not be washed in a manner that allows the contaminated water to enter the stormwater system.

7.5.4 Washing Procedures

Personnel shall:

- Use the minimum amount of water necessary.
- Use cleaning products appropriate for the vehicle and designated wash system.
- Follow manufacturer instructions and applicable product labels.
- Prevent wash water from flowing to stormwater inlets or surface waters.
- Use containment, collection, treatment, or an authorized discharge method as applicable.
- Remove accumulated sediment and debris from the wash area.
- Inspect hoses, fittings, and wash equipment for leaks.
- Immediately stop washing if wastewater controls fail.
- Keep wash water from contacting exposed chemicals, waste, or other pollutant sources.

7.5.5 Washing of Salt and Deicing Equipment

Vehicles and equipment used for snow and ice operations may contain elevated concentrations of chlorides, sediment, and other road pollutants.

When washing salt trucks, plows, spreaders, and related equipment:

- Remove excess salt and solid debris before washing where practicable.
- Conduct washing at an approved location.
- Prevent salt-contaminated wash water from entering storm drains or surface waters.
- Manage collected wastewater in accordance with applicable requirements.
- Inspect the washing area for accumulated salt and sediment.
- Prevent wash-water discharge to unprotected soil or drainage pathways.
- Document corrective actions if salt-contaminated runoff is observed.

Washing procedures should be coordinated with the municipality's Snow Removal and Deicing SOP.

7.5.6 Washing of Street Sweepers and Vacuum Equipment

Street sweepers, vacuum trucks, and other equipment that collect sediment, litter, organic debris, or potentially contaminated material shall receive special consideration.

Personnel shall:

- Remove collected solids before washing.
- Manage collected material in accordance with the municipality's disposal procedures.
- Avoid washing collected material into the stormwater system.
- Inspect equipment for oil, fuel, and hydraulic leaks.
- Use a designated washing area with appropriate wastewater controls.
- Collect or otherwise properly manage wastewater when required.
- Document any unusual contamination or disposal concern.

7.5.7 Detergents and Cleaning Products

Cleaning products shall be selected and used carefully.

Personnel shall:

- Use only the quantity necessary.
- Follow product-label directions.
- Avoid unnecessary use of detergents for routine dirt removal.
- Prevent concentrated cleaning products from entering storm drains.
- Store detergents and cleaning products in designated areas.
- Manage leftover products and containers properly.
- Review SDS documentation when appropriate.

Detergent use does not authorize the discharge of contaminated wastewater to a storm drain or surface water.

9.5.8 Wash-Water Management

Before routine vehicle washing begins, the municipality shall identify how wash water will be managed.

Potential management methods may include:

- Collection and reuse.
- Collection and treatment through an appropriately designed system.
- Discharge to a properly authorized sanitary sewer connection.
- Transport to an approved wastewater management facility.
- Another method authorized by the applicable regulatory authority.

The municipality shall not assume that wash water may be discharged to the storm sewer solely because the washing occurs on municipal property.

Stormwater discharges from vehicle washing areas shall be evaluated for potential pollutants and applicable authorization requirements.

7.5.9 Vehicle Washing Prohibitions

Unless specifically authorized and appropriately controlled, personnel shall not:

- Wash vehicles directly over stormwater inlets.
- Discharge wash water to streets, gutters, ditches, or storm drains.
- Wash oil- or chemical-contaminated equipment on unprotected ground.
- Use stormwater inlets as disposal points.
- Allow detergent, sediment, salt, or grease to be carried into surface waters.
- Wash equipment while an active leak is present.
- Discharge wastewater from a wash bay without verifying the discharge method.

7.6 Post-Washing Procedures

After washing, personnel shall:

1. Inspect the wash area for sediment, salt, oil, grease, and debris.
2. Remove accumulated solids using dry cleanup methods.
3. Verify that no wash water is flowing toward stormwater inlets or surface waters.
4. Inspect wash-bay drains, collection systems, and controls, where applicable.
5. Report leaks, blockages, or wastewater-control failures.
6. Properly store hoses, detergents, and cleaning equipment.
7. Document maintenance or corrective actions when required.

7.7 Vehicle Washing Inspection and Maintenance

The designated supervisor shall establish routine inspections of vehicle washing areas, including:

Inspection Item	Acceptable Condition
Wash area	Clean, stable, and free of accumulated pollutants
Wastewater controls	Operational and free of blockages
Stormwater inlets	Protected from wash-water discharge
Oil and fuel leaks	No active leaks
Sediment and salt	Removed and properly managed
Detergent storage	Containers closed and properly stored
Spill kit	Available and adequately stocked
Drainage pathways	No evidence of unauthorized discharge
Wastewater management	Authorized method established and followed

Deficiencies shall be corrected promptly and documented according to the facility inspection procedures.

7.8 Used Fluids and Maintenance Waste

Used oil, antifreeze, hydraulic fluid, filters, batteries, tires, and contaminated absorbents shall be:

- Collected in designated containers.
- Properly labeled where required.
- Stored to prevent leaks and precipitation exposure.
- Kept separate from incompatible materials.
- Removed by an approved disposal or recycling provider.
- Documented when required by law, contract, or municipal procedure.

Used fluids shall never be discharged to the ground, storm drain, sanitary sewer, or surface waters unless specifically authorized by applicable requirements.

8. Fueling and Petroleum Product Management

8.1 Fueling Procedures

Fueling shall be conducted in designated areas whenever practicable.

Personnel shall:

- Inspect fueling equipment and hoses before use.
- Remain present during fueling.
- Avoid overfilling tanks.
- Secure caps and connections after fueling.
- Maintain spill-control materials nearby.
- Keep fueling areas free of accumulated petroleum products.
- Report and respond to spills immediately.
- Prevent stormwater from contacting contaminated surfaces when practicable.

8.2 Fuel and Oil Storage

Fuel and oil containers shall:

- Be clearly labeled.
- Be stored in designated areas.
- Be protected from damage and unauthorized access.
- Be inspected periodically for leaks, corrosion, or deterioration.
- Be located away from storm drains and drainage channels.
- Have appropriate secondary containment where required or appropriate.

- Be managed in accordance with applicable storage and spill-prevention regulations.

8.3 Spill Prevention

The municipality should establish controls such as:

- Drip pans.
- Secondary containment.
- Automatic shutoff equipment.
- Routine hose and fitting inspections.
- Spill kits.
- Employee training.
- Designated fueling areas.
- Emergency contact information.

9. Public Works Yard Material Storage

9.1 General Storage Practices

Materials stored at the public works yard shall be organized to prevent contact with stormwater and minimize the risk of spills.

Personnel shall:

- Store materials in designated areas.
- Keep containers closed when not in use.
- Use covers or shelters where appropriate.
- Avoid storage in drainage pathways.
- Keep materials away from stormwater inlets and outfalls.
- Inspect containers for leaks and deterioration.
- Maintain adequate aisle and emergency access.
- Remove obsolete or unused materials promptly.

9.2 Outdoor Storage

Outdoor storage areas shall be inspected for:

- Evidence of runoff contacting stored materials.
- Leaking or damaged containers.
- Material migration.
- Accumulated sediment or debris.
- Uncontrolled drainage.
- Improperly stored waste.
- Exposed chemicals or petroleum products.
- Potential pathways to storm drains.

Materials that could contaminate stormwater shall be stored indoors, under cover, or with appropriate containment when practicable and as required by applicable regulations.

9.3 Stockpiles

Sand, stone, soil, mulch, millings, and other bulk materials shall:

- Be stored in designated locations.
- Be kept away from storm drains and drainage channels.
- Be protected from runoff and wind dispersal when appropriate.
- Have stabilized access routes.
- Be inspected for erosion and material migration.
- Be covered or contained when necessary.
- Be removed or relocated if the stockpile creates a recurring pollution concern.

If stockpiling involves significant soil disturbance or runoff, the municipality shall evaluate applicable erosion and sediment control requirements.

10. Waste and Scrap Material Management

10.1 Waste Containers

Waste containers shall:

- Be suitable for the material stored.
- Remain closed or covered when not in use.
- Be inspected for damage and leakage.
- Be located away from storm drains where practicable.
- Be emptied before overflowing.
- Be secured against wind dispersal.
- Be managed in accordance with applicable disposal requirements.

10.2 Scrap Metal and Parts

Scrap metal, equipment parts, and discarded materials shall be:

- Stored in designated areas.
- Organized to prevent runoff contact where practicable.
- Inspected for oil, grease, or other residues.
- Protected from stormwater when contamination is possible.
- Removed by an appropriate recycling or disposal provider.

10.3 Hazardous or Special Waste

Potentially hazardous waste, including contaminated absorbents, batteries, solvents, and chemical residues, shall be evaluated and managed in accordance with applicable requirements.

Personnel shall not mix incompatible wastes or place regulated materials in ordinary trash without confirming that the disposal method is permitted.

11. Stormwater Drainage Protection

11.1 Facility Drainage Inspections

Municipal buildings and public works yards shall be inspected for:

- Blocked or damaged stormwater inlets.
- Sediment accumulation.
- Oil sheen or petroleum residue.
- Unusual odors or discoloration.
- Discharges from indoor floor drains.
- Improper connections or drainage pathways.
- Erosion at discharge locations.
- Materials stored adjacent to drainage structures.

11.2 Drainage System Maintenance

Drainage structures shall be maintained according to the municipality's stormwater inspection and maintenance program.

Personnel shall:

- Keep grates and inlets free of debris.
- Prevent waste and chemicals from entering drains.
- Report structural damage or recurring blockages.
- Avoid using storm drains for disposal.
- Coordinate cleaning of contaminated structures with the supervisor and MS4 Coordinator.
- Document significant repairs and corrective actions.

11.3 Unusual Discharges

Personnel shall notify the supervisor and MS4 Coordinator if they observe:

- Unusual dry-weather flow.
- Oil sheen.
- Chemical odors.
- Discolored water.
- Foam.
- Suspected sanitary sewage.
- Unusual sediment or organic waste.
- Repeated discharge from a maintenance area.
- Evidence of an illicit connection.

The MS4 Coordinator shall determine whether an MCM #3 IDDE investigation is necessary.

12. Spill Response Procedures

12.1 General Response

In the event of a spill or release:

1. Stop the source if it is safe to do so.
2. Protect personnel and the public.
3. Prevent the material from reaching storm drains or surface waters.
4. Use appropriate absorbent materials, booms, drain covers, or other controls.
5. Notify the supervisor immediately.
6. Identify the material and consult the SDS when necessary.
7. Collect and properly manage contaminated absorbents and cleanup materials.
8. Document the incident and corrective actions.
9. Notify emergency or regulatory agencies when required.
10. Coordinate with the MS4 Coordinator if the MS4 or receiving waters may have been impacted.

12.2 Spill Kit Locations

The municipality shall identify appropriate spill kit locations, which may include:

- Vehicle maintenance areas.
- Fueling areas.
- Chemical storage areas.
- Salt storage or loading areas.
- Equipment garages.
- Outdoor material storage areas.
- Other areas with elevated spill risk.

Spill kits shall be inspected periodically and replenished after use.

12.3 Spill Documentation

Spill reports should include and included at the end of this SOP:

- Date and time.
- Location.
- Person reporting the spill.
- Material released.
- Estimated quantity, if known.
- Source or cause.
- Weather conditions, if relevant.
- Stormwater features potentially affected.
- Response actions.

13. Facility Inspection Program

13.1 Inspection Frequency

The municipality shall establish facility inspection frequencies based on:

- Applicable permit requirements.
- Facility size and activities.
- Quantity and type of stored materials.
- Proximity to storm drains and surface waters.
- History of spills or deficiencies.
- Seasonal operations.
- Risk associated with fueling, maintenance, and chemical storage.

The inspection schedule shall be documented and periodically reviewed.

13.2 Inspection Checklist

Inspectors shall evaluate, as applicable:

- General housekeeping.
- Chemical and fuel storage.
- Container integrity.
- Secondary containment.
- Equipment leaks.
- Spill kit availability.
- Waste containers.
- Scrap material storage.
- Salt and deicing material storage.

- Stormwater inlets and drainage pathways.
- Evidence of spills or pollutant migration.
- Outdoor stockpiles.
- Loading and unloading areas.
- Equipment washing areas.
- Facility roof and gutter drainage.
- Signs of illicit discharges.
- Previous corrective actions.

13.3 Priority Classification

Priority	Example Conditions	Response
High	Active spill, pollutant entering storm drain, major leaking container, hazardous discharge	Immediate containment and supervisor notification
Medium	Damaged container, recurring runoff, exposed chemical storage, blocked inlet	Correct promptly and document
Routine	Housekeeping deficiency, minor debris, worn labeling, incomplete records	Address through routine maintenance

14. Corrective Action Procedures

Corrective actions shall be assigned based on the severity and potential environmental impact of the observed condition.

Deficiency	Corrective Action
Oil or fuel leak	Stop source, contain material, repair equipment
Uncovered chemical container	Secure container and relocate or cover
Blocked storm drain	Remove debris safely and inspect source
Salt or aggregate migration	Recover material and improve storage controls
Overflowing waste container	Remove waste and correct collection frequency
Contaminated wash water	Stop activity and establish proper wastewater handling
Damaged secondary containment	Repair or replace containment
Outdoor material exposed to runoff	Relocate, cover, or install appropriate controls
Unusual discharge	Notify MS4 Coordinator and evaluate for IDDE
Repeated spill or housekeeping problem	Review procedures, retrain personnel, and assign long-term corrective action

Corrective actions shall remain open until the responsible supervisor verifies completion.

15. Training Requirements

Training shall be provided to employees and contractors whose work may affect stormwater quality.

Training topics shall include:

- MCM #6 objectives.
- Pollution sources at municipal buildings and public works yards.
- General housekeeping and dry cleanup.
- Spill prevention and response.
- Fueling and vehicle maintenance.
- Chemical and waste storage.
- Salt and deicing material management.
- Equipment washing.
- Stormwater inlet and drainage protection.
- Use of spill kits and PPE.
- SDS and product-label requirements.
- Reporting of unusual discharges.
- MCM #3 IDDE coordination.
- Inspection and recordkeeping procedures.

Training records shall include:

- Training date.
- Instructor or training provider.
- Topics covered.
- Names of attendees.
- Department or contractor.
- Training materials used.

16. Facility Inspection and Maintenance Log

Use for routine inspections, follow-up inspections, and documented maintenance activities and included at the end of this SOP.

Inspection Date / Time

Facility / Yard

Inspector

Weather / Site Conditions

Chemical / Fuel Storage Acceptable / Deficiency / N/A

Equipment / Vehicle Leaks None / Observed / N/A

Waste and Scrap Storage Acceptable / Deficiency / N/A

Stormwater Inlets / Drainage Acceptable / Deficiency / N/A

Spill Kit Available
Deficiencies Identified

Yes / No / Replenishment Required





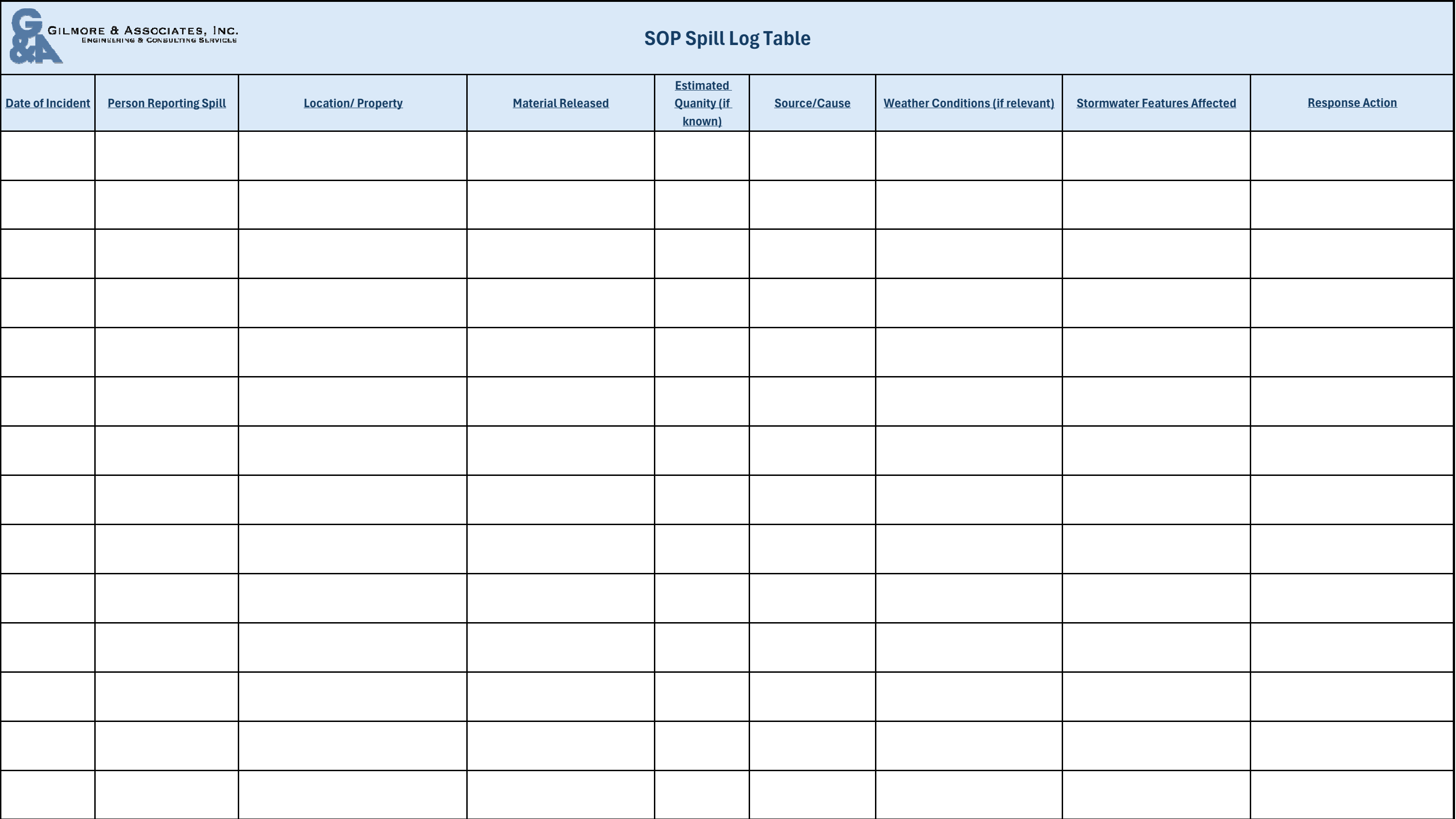
GILMORE & ASSOCIATES, INC.

ENGINEERING & CONSULTING SERVICES

MCM #6 Facilities Inspection Log

Indicate Condition of Each Item: (S)= Satisfactory, (US)= Unsatisfactory, (N/A)= Not Applicable

[illegible]



SOP: Community Pool Operations and Maintenance

1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to establish procedures for the operation, maintenance, inspection, chemical handling, cleaning, and discharge management of municipal community pool facilities.

This SOP is intended to:

1. Prevent pollutants associated with community pool operations from entering the municipal separate storm sewer system (MS4).
2. Prohibit the discharge of swimming pool water and pool-related wastewater to the MS4.
3. Prevent chemical spills, leaks, sediment, debris, detergents, and contaminated wash water from entering stormwater drainage systems.
4. Establish proper procedures for pool draining, filter backwashing, filter cleaning, and pool-deck maintenance.
5. Protect stormwater inlets, drainage infrastructure, streams, wetlands, and other receiving waters.
6. Establish inspection, training, recordkeeping, and corrective-action requirements.
7. Support the Municipality's Stormwater Management Program and applicable PA DEP MS4 permit obligations.

2. Scope

This SOP applies to all municipal employees, seasonal employees, contractors, and other personnel performing work at or on behalf of the Municipality at community pool facilities.

Covered facilities and activities include:

- Swimming pools and associated pool buildings.
- Pool decks, sidewalks, paved areas, and surrounding grounds.
- Pool pumps, filters, heaters, and mechanical equipment.
- Chemical storage and chemical feed systems.
- Chlorine, bromine, acid, and other pool chemical handling.
- Pool filling, draining, and water replacement.
- Filter backwashing and cleaning.
- Pool-deck washing and cleaning.
- Restroom, bathhouse, and shower maintenance.
- Trash and recycling management.
- Landscaping and grounds maintenance.
- Stormwater inlets, trench drains, and drainage structures.
- Equipment and vehicle access.
- Spill response and unusual discharge investigations.

This SOP supplements, but does not replace, applicable pool health regulations, chemical safety requirements, manufacturer instructions, sewer authority requirements, permits, and emergency response procedures.

3. Definitions

3.1 Pool Water Discharge

Any intentional or unintentional release of swimming pool water, including draining, overflow, water replacement, or maintenance-related discharge.

3.2 Filter Backwash

Water released during cleaning or backwashing of pool filtration equipment.

3.3 Pool Chemical

Any chemical used to disinfect, balance, clean, or maintain pool water or equipment, including chlorine, bromine, acids, alkalinity adjusters, stabilizers, and algaecides.

3.4 Approved Discharge or Disposal Method

A discharge or disposal method that has been reviewed and authorized by the applicable regulatory authority, sewer authority, or Municipality, as appropriate.

3.5 Corrective Action

An action taken to eliminate, reduce, contain, or prevent a spill, leak, unauthorized discharge, equipment failure, or other pollutant source.

3.6 Unusual Discharge

A discharge exhibiting unusual color, odor, turbidity, foam, sheen, chemical characteristics, or flow that may indicate a pollutant source or unauthorized discharge.

4. Responsibilities

4.1 Parks and Recreation Director / Facility Supervisor

The Facility Supervisor shall:

- Ensure implementation of this SOP.
- Coordinate routine maintenance and inspections.
- Maintain chemical inventories and SDS documentation.
- Ensure employees receive appropriate safety and stormwater training.

- Confirm approved discharge or disposal methods before pool draining or filter maintenance.
- Ensure chemical storage areas are maintained properly.
- Coordinate with the MS4 Coordinator or Municipal Engineer when necessary.
- Ensure spills, leaks, and unusual discharges are reported and documented.
- Track corrective actions.
- Confirm contractors follow applicable municipal requirements.

4.2 Pool Operators and Maintenance Personnel

Personnel shall:

- Follow this SOP and manufacturer instructions.
- Use appropriate PPE.
- Prevent chemicals and contaminated water from entering the MS4.
- Inspect equipment and chemical containers for leaks.
- Report spills, unusual discharges, and unsafe conditions immediately.
- Use dry cleanup methods whenever practicable.
- Complete assigned inspections and maintenance records.
- Stop work when an unauthorized discharge is occurring or is likely to occur.

4.3 MS4 Coordinator / Municipal Engineer

The MS4 Coordinator or Municipal Engineer shall:

- Provide guidance on MS4 and stormwater requirements.
- Review proposed or unusual discharge activities when needed.
- Coordinate investigations of potential illicit discharges.
- Assist with corrective-action tracking.
- Coordinate with the sewer authority or PA DEP when appropriate.
- Review this SOP periodically for consistency with the Municipality's MS4 program.

4.4 Contractors

Contractors shall:

- Follow this SOP while working at the pool facility.
- Properly store and handle chemicals, detergents, fuels, and waste.
- Prevent discharges to the MS4.
- Report spills and leaks immediately.
- Obtain approval before conducting pool-related discharge or cleaning activities.
- Provide required disposal, maintenance, or discharge documentation.

5. General Good Housekeeping Requirements

The pool facility shall be maintained in a clean and orderly condition to reduce the potential for pollutants to enter stormwater systems.

Personnel shall:

1. Keep chemical storage and mechanical rooms organized.
2. Maintain access to stormwater inlets and drainage structures.
3. Remove trash, leaves, sediment, and debris routinely.
4. Use dry cleanup methods whenever practicable.
5. Keep chemical containers closed when not in use.
6. Store chemicals in designated areas under cover.
7. Inspect containers for damage, corrosion, or leaks.
8. Prevent chemicals from contacting stormwater.
9. Minimize outdoor storage of maintenance materials.
10. Maintain appropriate spill-response supplies.
11. Prevent wash water from entering the MS4.
12. Keep pool-related wastewater separate from uncontaminated stormwater.

Prohibited Practices

The following practices are prohibited:

- Discharging pool water to the MS4.
- Discharging dechlorinated pool water to the MS4.
- Discharging filter backwash to stormwater inlets.
- Washing chemical spills into drains or paved drainage areas.
- Disposing of chemicals through stormwater inlets.
- Leaving chemical containers open or unsecured.
- Allowing chemical storage areas to drain to the MS4.
- Using excessive detergent or cleaning chemicals.
- Allowing contaminated wash water to flow into stormwater structures.
- Storing materials where they can be transported by runoff.

6. Pool Chemical Management

6.1 Chemical Inventory

The Facility Supervisor shall maintain an inventory of chemicals used at the pool, including:

- Product name.
- Chemical type.
- Approximate quantity.
- Storage location.

- SDS availability.
- Manufacturer handling requirements.
- Expiration or inspection information, where applicable.

The inventory shall be reviewed at least annually and updated when new chemicals are introduced.

6.2 Chemical Storage

Pool chemicals shall be stored:

- In designated, secured, and properly ventilated areas.
- Under cover and protected from precipitation.
- On suitable stable surfaces.
- In accordance with manufacturer instructions.
- Away from stormwater inlets and drainage pathways.
- Separately from fuels, oils, fertilizers, and incompatible chemicals.
- In properly labeled containers.
- In a manner that prevents accidental mixing.

Chemical storage areas shall be inspected for:

- Leaking or damaged containers.
- Corrosion.
- Spilled material.
- Missing labels.
- Incompatible storage.
- Water intrusion.
- Evidence of chemical reaction or deterioration.

6.3 Chemical Handling

Personnel shall:

1. Review the applicable SDS before handling unfamiliar chemicals.
2. Use required PPE.
3. Follow manufacturer mixing and application instructions.
4. Use designated equipment for chemical handling.
5. Keep containers closed when not in use.
6. Prevent chemical dust, granules, and liquids from entering drains.
7. Never mix chlorine products with acids or incompatible chemicals.
8. Report spills and chemical reactions immediately.
9. Avoid transferring chemicals during rainfall or where runoff could occur, unless adequate controls are in place.

Chemicals shall not be rinsed into stormwater inlets, surface drainage channels, or outdoor paved areas.

6.4 Chemical Spill Response

In the event of a chemical spill:

1. Protect personnel and the public.
2. Stop the source only if it is safe to do so.
3. Keep unauthorized personnel away from the affected area.
4. Do not mix spilled chemicals.
5. Prevent the spill from reaching stormwater inlets and surface waters.
6. Notify the Facility Supervisor.
7. Contact emergency responders when required.
8. Use spill-response materials only when personnel are trained and it is safe.
9. Collect and dispose of contaminated materials appropriately.
10. Notify the MS4 Coordinator if the spill may affect the MS4.
11. Document the incident and corrective actions.

Chemical spills shall not be washed down drains or diluted with water as a substitute for proper cleanup.

7. Pool Water Discharge Management

7.1 Prohibition on MS4 Discharge

All pool water discharges to the MS4 are prohibited, including dechlorinated swimming pool water.

Pool water shall not be discharged:

- Directly into catch basins or stormwater inlets.
- Into trench drains connected to the MS4.
- Into storm sewer pipes.
- Onto pavement where runoff can reach the MS4.
- Into swales or drainage channels conveying water to the MS4.
- Through unauthorized floor drains.
- Directly to surface waters through an MS4 connection.
- Through any other conveyance that results in discharge to the MS4.

This prohibition applies regardless of whether the pool water has been dechlorinated.

7.2 Approved Alternatives

Before a pool discharge, the Facility Supervisor shall identify and document an approved alternative.

Potential alternatives may include:

- Discharge to the sanitary sewer with prior sewer authority approval.
- Controlled onsite infiltration where permitted, feasible, and designed to prevent runoff to streams, wetlands, storm sewers, or neighboring properties.
- Collection and offsite disposal.
- Another method approved by the applicable regulatory authority.

The use of any alternative shall be subject to the applicable volume, flow-rate, water-quality, treatment, and location requirements.

No pool discharge shall begin until the proposed discharge or disposal method has been verified.

7.3 Pool Draining Procedure

Before draining the pool:

1. Notify the Facility Supervisor.
2. Identify the discharge or disposal method.
3. Confirm all required approvals.
4. Verify that the proposed method will not discharge to the MS4.
5. Confirm the location and capacity of the receiving area or system.
6. Determine whether dechlorination or other treatment is required.
7. Evaluate the potential for erosion, ponding, flooding, and runoff.
8. Inspect the discharge pathway.
9. Establish a controlled flow rate.
10. Monitor the discharge throughout the operation.
11. Stop the discharge if water reaches an unauthorized location.
12. Document the date, volume, location, method, and responsible personnel.

7.4 Onsite Infiltration

Where onsite infiltration is used as an approved method, personnel shall:

- Confirm that the area is suitable for infiltration.
- Avoid areas with steep slopes, unstable soils, or inadequate capacity.
- Maintain adequate separation from buildings, foundations, septic systems, and property boundaries.
- Prevent runoff from leaving the property.

- Prevent discharge to stormwater inlets, streams, wetlands, and drainage channels.
- Control the discharge rate to prevent erosion or surface flow.
- Monitor the area during the discharge.
- Stop the operation if runoff develops.
- Document the method and observed conditions.

The Facility Supervisor shall consult the Municipal Engineer when site conditions or discharge volume create uncertainty regarding infiltration suitability.

7.5 Sanitary Sewer Discharge

Discharge to the sanitary sewer may only occur when:

- The sewer authority has confirmed that the discharge is acceptable.
- Required approval has been obtained.
- The discharge rate and volume are within approved limits.
- The discharge does not interfere with sewer operations or treatment.
- Applicable pretreatment requirements are satisfied.
- The discharge connection has been verified.

Personnel shall not assume that a sanitary sewer connection is available or authorized.

7.6 Pool Overflow and Splash-Out

Routine overflow and splash-out shall be managed to prevent uncontrolled flow toward stormwater infrastructure or neighboring properties.

The Municipality shall inspect the facility's drainage configuration and identify any connections that could convey pool water to the MS4. Improper or unknown connections shall be reported and investigated.

8. Filter Backwashing and Filter Cleaning

8.1 General Requirements

Filter backwash and filter-cleaning water shall not be discharged to the MS4.

Before conducting filter maintenance, personnel shall identify an approved discharge, collection, or disposal method.

The Facility Supervisor shall evaluate:

- Discharge location.
- Water volume.
- Flow rate.

- Sediment content.
- Chlorine or bromine content.
- Cleaning chemicals.
- Potential sanitary sewer restrictions.
- Potential for discharge to the MS4.

8.2 Backwash Procedures

Personnel shall:

1. Follow the filter manufacturer's instructions.
2. Confirm the approved discharge or collection method.
3. Inspect hoses, valves, and fittings.
4. Prevent backwash water from reaching stormwater inlets.
5. Control flow to prevent erosion and flooding.
6. Monitor the discharge throughout the operation.
7. Stop the activity if water reaches an unauthorized drainage system.
8. Properly manage accumulated sediment.
9. Document unusual conditions and corrective actions.

8.3 Filter Cleaning Chemicals

When cleaning filters with acids, detergents, or other chemicals:

- Review the applicable SDS.
- Use required PPE.
- Follow manufacturer instructions.
- Prevent chemical-containing water from entering the MS4.
- Confirm the approved disposal or discharge method before starting.
- Do not mix incompatible chemicals.
- Collect and manage waste materials properly.

8.4 Filter Media and Sediment

Filter media and accumulated sediment shall be:

- Collected in a controlled manner.
- Prevented from entering stormwater structures.
- Stored in a designated location.
- Protected from precipitation and runoff.
- Disposed of in accordance with applicable requirements.

Filter sediment shall not be washed into stormwater inlets or drainage channels.

9. Pool-Deck and Paved-Surface Cleaning

9.1 General Requirements

Pool-deck cleaning shall minimize the generation and discharge of contaminated wash water.

The preferred cleaning sequence is:

1. Remove trash and debris.
2. Dry sweep or vacuum.
3. Perform spot cleaning.
4. Use the minimum necessary amount of water.
5. Use detergents only when needed and appropriate.
6. Prevent wash water from entering the MS4.
7. Collect or properly manage wastewater.

9.2 Cleaning Procedures

Before cleaning:

- Inspect the area for spills and debris.
- Identify nearby stormwater inlets.
- Determine whether drains are connected to the MS4.
- Protect or isolate stormwater inlets as necessary.
- Remove loose material using dry methods.
- Confirm the cleaning method is appropriate.

During cleaning:

- Use water efficiently.
- Prevent wash water from flowing to the MS4.
- Avoid excessive detergent use.
- Monitor flow paths.
- Stop work if contaminated water leaves the controlled cleaning area.
- Collect solids and debris.

After cleaning:

- Remove sediment and debris.
- Inspect nearby stormwater inlets.
- Confirm that no chemical residue remains.
- Verify that wash water was managed appropriately.
- Document deficiencies and corrective actions.

9.3 Detergents and Disinfectants

Cleaning products shall be selected and used in accordance with:

- Manufacturer instructions.
- Applicable health and safety requirements.
- Sewer authority requirements.
- Discharge restrictions.
- Municipal stormwater procedures.

Detergents, disinfectants, acids, and other cleaning agents shall not be discharged to the MS4.

10. Drainage System and Stormwater Inlet Protection

10.1 Drainage Connection Verification

The Facility Supervisor shall identify and document the drainage connections serving:

- Pool decks.
- Mechanical rooms.
- Filter rooms.
- Chemical storage areas.
- Bathhouse floors.
- Trench drains.
- Exterior paved areas.

Where the connection type is unknown, personnel shall not discharge pool water, filter backwash, or cleaning wastewater through the drainage feature until the connection is verified.

10.2 Stormwater Inlet Protection

Stormwater inlets shall be protected during:

- Chemical handling.
- Filter maintenance.
- Pool-deck cleaning.
- Equipment maintenance.
- Landscaping.
- Waste handling.
- Pool draining or other water-management activities.

Inlet protection shall not cause flooding, create unsafe conditions, or redirect contaminated water to another unauthorized location.

10.3 Inspection

Stormwater inlets, catch basins, trench drains, and drainage structures shall be inspected for:

- Trash and debris.
- Sediment.
- Chemical residue.
- Unusual odors.
- Discoloration.
- Foaming.
- Oil sheen.
- Structural damage.
- Blockages.
- Unusual or unauthorized discharges.

10.4 Cleaning

Drainage structures shall be cleaned when inspection indicates that cleaning is necessary.

Cleaning shall:

- Prevent removed material from reentering the drainage system.
- Use appropriate collection equipment.
- Properly manage sediment and debris.
- Avoid washing accumulated material downstream.
- Document the date, location, and work performed.

11. Pool Equipment and Mechanical Maintenance

Pool pumps, filters, heaters, chemical feed systems, and related equipment shall be maintained to prevent leaks and uncontrolled discharges.

Personnel shall:

- Inspect equipment for leaks and damage.
- Maintain hoses, valves, fittings, and connections.
- Repair leaking equipment promptly.
- Keep lubricants and maintenance chemicals contained.
- Prevent oils and fluids from entering drains.
- Collect used filters, absorbents, and maintenance waste.
- Follow manufacturer requirements.
- Document significant repairs and recurring failures.

Maintenance involving fuels, oils, or chemicals shall be performed in a designated area with appropriate spill controls.

12. Restroom, Bathhouse, and Facility Maintenance

Facility maintenance shall prevent cleaning products and wastewater from entering the MS4.

Personnel shall:

- Use cleaning products according to label instructions.
- Avoid excessive water use.
- Prevent cleaning water from entering exterior stormwater inlets.
- Store cleaning chemicals in designated protected locations.
- Maintain plumbing fixtures and floor drains.
- Report suspected cross-connections.
- Route sanitary wastewater through approved plumbing systems.
- Avoid disposing of chemicals, oils, or other pollutants through sinks, toilets, or floor drains unless specifically authorized.

The Municipality shall verify that floor drains and other plumbing connections are properly connected and functioning.

13. Waste, Trash, and Recycling Management

13.1 General Requirements

Trash and recycling containers shall be:

- Covered or closed when practicable.
- Located away from stormwater inlets.
- Maintained in good condition.
- Inspected for leakage.
- Emptied regularly.
- Protected from precipitation when necessary.

13.2 Waste Handling

Personnel shall:

- Collect pool-deck debris routinely.
- Remove broken equipment and scrap materials.
- Properly manage used chemical containers.
- Separate chemical-contaminated waste when required.
- Prevent liquid waste from leaking onto pavement.

- Dispose of waste through approved facilities or contractors.

Waste shall not be placed in drainage swales, landscaped areas, stormwater inlets, or other unauthorized locations.

14. Grounds and Landscape Maintenance

Landscaped areas surrounding the pool shall be maintained to reduce sediment and pollutant transport.

Personnel shall:

- Maintain vegetated areas to minimize bare soil.
- Keep grass clippings and leaves away from stormwater inlets.
- Collect excess fertilizer and soil amendments.
- Store mulch, soil, and landscaping materials away from drainage structures.
- Follow applicable fertilizer and pesticide requirements.
- Prevent overapplication of chemicals.
- Repair erosion and bare areas.
- Prevent irrigation from causing erosion or transporting pollutants.

Landscaping materials shall not be stockpiled where runoff can transport them into the MS4.

15. Vehicle and Equipment Access

Where municipal vehicles, maintenance carts, or equipment operate at the pool facility:

- Inspect vehicles and equipment for leaks.
- Perform maintenance in designated areas.
- Follow the municipal fueling and spill-prevention SOP.
- Follow the applicable municipal vehicle-washing procedures.
- Avoid parking over stormwater inlets where practicable.
- Report spills immediately.
- Store equipment to prevent contact with stormwater.
- Keep oils, fuels, and maintenance chemicals properly contained.

Vehicle washing shall not result in contaminated wash water entering the MS4.

16. Routine Inspection Program

16.1 Inspection Frequency

The Facility Supervisor shall establish an inspection schedule based on facility use, chemical storage, maintenance operations, and environmental risk.

Inspection Activity	Recommended Frequency
Chemical storage	Weekly during operating season and after deliveries
Pool equipment and chemical feed systems	Weekly or per manufacturer requirements
Pool deck and paved areas	Weekly and as needed
Stormwater inlets and drainage structures	Monthly during operating season and after major storms
Trash and waste storage	Weekly
Spill-response supplies	Monthly and after use
Pool discharge controls	Before each planned discharge
Full facility stormwater inspection	At least quarterly during operating season
Drainage connection review	Initially and when facility plumbing is modified
SOP review	Annually

The Municipality may increase inspection frequency where recurring deficiencies, spills, or discharge concerns are identified.

16.2 Inspection Priorities

Inspections shall prioritize:

- Chemical storage areas.
- Pool discharge and maintenance areas.
- Filter backwash locations.
- Stormwater inlets.
- Areas with staining or sediment.
- Chemical feed systems.
- Waste storage areas.
- Areas near streams, wetlands, or receiving waters.
- Locations with previous spills or corrective actions.
- Unknown or unverified drainage connections.

17. Corrective Action Procedures

Deficiencies shall be corrected as soon as practicable based on the severity and potential environmental impact.

Condition	Required Corrective Action
Pool water discharged to MS4	Stop discharge, contain or redirect flow if safe, notify Facility Supervisor and MS4 Coordinator, document incident, and investigate
Dechlorinated pool water proposed for MS4 discharge	Reject proposed discharge and identify an approved alternative
Unknown floor-drain connection	Suspend discharge-related activity until connection is verified
Filter backwash entering stormwater system	Stop operation, contain discharge if practicable, inspect affected drainage system, and document corrective action
Chemical spill	Initiate spill response, protect drainage, collect waste, and document incident
Leaking chemical container	Isolate container, contain leak, and replace or repair storage system
Blocked stormwater inlet	Remove debris and inspect for downstream impacts
Damaged chemical storage area	Repair containment or relocate materials
Leaking pump, hose, or valve	Stop operation if necessary and repair or replace component
Contaminated wash water	Stop cleaning, contain water, and determine an approved management method
Unauthorized pool discharge connection	Report, investigate, and coordinate corrective action
Pool draining without authorization	Stop work until an approved method is confirmed
Excessive sediment in drainage system	Remove sediment and identify the source

Corrective-action documentation shall include the date, issue, responsible person, action taken, and completion status.

15. Training Requirements

Personnel performing pool operations or maintenance shall receive training appropriate to their duties.

Training shall include:

- Stormwater pollution prevention.
- Pool water discharge restrictions.
- Chemical storage and handling.
- Safety Data Sheets.
- Chemical incompatibilities.
- Spill prevention and response.
- Filter backwash management.
- Pool-deck cleaning.
- Stormwater inlet protection.
- Waste handling.
- Recognition of potential illicit discharges.
- PPE requirements.
- Reporting and documentation.

Training shall be provided:

- At the beginning of each operating season.
- To new employees before performing covered work.
- When procedures or chemicals change.
- Following significant spills or repeated deficiencies.
- When otherwise required by the Facility Supervisor.

Training records shall include the date, subject, instructor, and attendees.

16. Recordkeeping Requirements

The Municipality shall maintain records associated with this SOP, including:

- Facility inspection forms.
- Chemical inventories.
- SDS documentation.
- Pool discharge evaluations and approvals.
- Sanitary sewer approvals, when applicable.
- Onsite infiltration evaluations, when applicable.
- Water-quality testing or treatment records.
- Filter backwash records.
- Spill and incident reports.
- Corrective-action documentation.

- Maintenance and repair records.
- Training attendance records.
- Contractor documentation.
- Photographs of significant deficiencies or corrective actions.
- Documentation of drainage connection verification.

Records shall be retained in accordance with the Municipality's MS4 recordkeeping procedures and applicable permit requirements. A recordkeeping table is included at the end of the SOP.

Community Pool Facility Inspection Form

Municipality: _____

Facility: _____

Inspection Date: _____

Inspector: _____

Weather Conditions: _____

Inspection Item	Acceptable Deficiency N/A			Comments / Corrective Action
Chemical containers properly labeled	☐	☐	☐	
Chemical containers free of leaks	☐	☐	☐	
Chemicals stored under cover	☐	☐	☐	
Incompatible chemicals separated	☐	☐	☐	
Spill-response supplies available	☐	☐	☐	
Pool equipment free of leaks	☐	☐	☐	
Filter/backwash area maintained	☐	☐	☐	
Approved pool discharge method verified	☐	☐	☐	
No pool water discharge to MS4	☐	☐	☐	
Pool deck free of excessive debris	☐	☐	☐	
Stormwater inlets free of debris	☐	☐	☐	
No visible chemical residue	☐	☐	☐	
No unusual odors, color, or sheen	☐	☐	☐	
Trash and recycling properly managed	☐	☐	☐	
Cleaning products properly stored	☐	☐	☐	
Landscaping materials properly stored	☐	☐	☐	
No evidence of illicit discharge	☐	☐	☐	
Drainage connections verified	☐	☐	☐	
Prior corrective actions completed	☐	☐	☐	

SOP: Stormwater Management Facility Inspection, Operation & Maintenance

This SOP will cover the routine inspection, maintenance, pollution prevention, and documentation of municipal and municipally maintained stormwater management facilities, including:

- Detention and retention basins
- Infiltration basins and infiltration beds
- Underground storage and infiltration chambers
- Inlet filter bags and catch-basin inserts
- Inlets, outlet structures, risers, control structures, and emergency spillways
- Level spreaders, vegetated swales, riprap aprons, and related stormwater BMPs

The procedure is structured for MS4 MCM #6 Good Housekeeping and Pollution Prevention, while recognizing that facility-specific operation and maintenance requirements may also arise from approved land development plans, stormwater agreements, permits, easements, and manufacturer instructions.

1. Purpose

The purpose of this Standard Operating Procedure (SOP) is to establish consistent procedures for the inspection, operation, maintenance, repair reporting, and documentation of stormwater management facilities owned, operated, maintained, or otherwise assigned to Souderton Borough.

Proper maintenance helps ensure that stormwater management facilities:

- Continue to function as designed.
- Safely convey, detain, infiltrate, filter, and release stormwater.
- Protect public safety and adjacent properties.
- Reduce sediment, trash, nutrients, pollutants, and other contaminants entering the MS4 and receiving waters.
- Maintain compliance with applicable approved stormwater management plans, easements, operation and maintenance agreements, permits, and municipal requirements.

Pennsylvania DEP identifies its Stormwater Best Management Practices Manual as a resource for MS4 post-construction stormwater management and BMP operation and maintenance. The Borough should use the facility's approved design documents and applicable maintenance requirements in conjunction with this SOP.

2. Scope

This SOP applies to Borough employees, Public Works personnel, contractors, and other authorized individuals performing inspection or maintenance activities on stormwater management facilities.

2.1 Facilities Covered

The SOP includes, where applicable:

1. Detention basins

- Dry detention basins
- Extended detention basins
- Wet ponds or retention basins
- Basin forebays and sediment storage areas

2. Infiltration facilities

- Infiltration basins
- Infiltration beds
- Infiltration trenches
- Bioretention and rain garden facilities
- Subsurface infiltration systems

3. Underground systems

- Underground storage chambers
- Underground detention systems
- Underground infiltration chambers
- Stone-filled infiltration beds
- Vaults, tanks, pipes, and proprietary storage systems

4. Inlets and pretreatment devices

- Catch basins and inlets
- Inlet filter bags
- Catch-basin inserts
- Hydrodynamic separators
- Sump structures
- Forebays and sediment traps

5. Conveyance and discharge features

- Outlet structures and risers
- Flow-control orifices and weirs
- Emergency spillways
- Level spreaders
- Riprap aprons
- Vegetated swales
- Outfall structures
- Drainage channels and pipes

6. Associated components

- Access manholes and cleanouts
- Fences, gates, and safety features
- Inspection ports
- Underdrains
- Observation wells
- Access roads and maintenance easements
- Signage and facility identification markers

2.2 Applicability Limitation

This SOP establishes general municipal maintenance procedures. It does not replace:

- An approved stormwater management plan.
- An approved operation and maintenance agreement.
- A recorded maintenance easement.
- Manufacturer-specific maintenance instructions.
- Engineer-directed repairs.
- Confined-space entry procedures.
- Applicable permit requirements.
- Emergency response procedures.

Where requirements conflict, employees shall notify the Public Works supervisor or MS4 Program Coordinator before proceeding.

3. Regulatory and Technical References

The Borough shall maintain current copies or accessible links to applicable documents, including:

- Pennsylvania DEP Stormwater Best Management Practices Manual.
- Applicable Pennsylvania MS4 permit and associated instructions.
- Approved stormwater management plans and record drawings.

- Recorded stormwater management operation and maintenance agreements.
- Applicable Borough stormwater management ordinance.
- Applicable Pennsylvania Clean Streams Law and implementing regulations.
- Manufacturer operation and maintenance manuals.
- Applicable Occupational Safety and Health Administration (OSHA) requirements.
- Borough emergency response and spill response procedures.

Pennsylvania's BMP Manual includes guidance for infiltration basins, subsurface infiltration systems, detention facilities, outlet structures, and related BMP components. DEP's current resources also identify the Post-Construction Stormwater Management program and associated training materials as references for MS4 operators.

For underground BMP installation and record documentation, Pennsylvania's Chapter 102 requirements include provisions concerning licensed professional oversight of critical stages and retention of record drawings for the approved PCSM plan.

4. Definitions

Term	Definition
BMP / SCM	Best Management Practice or Stormwater Control Measure used to manage stormwater runoff.
Detention basin	A facility designed to temporarily store stormwater and release it at a controlled rate.
Retention basin	A basin designed to maintain a permanent pool of water.
Infiltration basin	A surface facility designed to temporarily store runoff and allow it to infiltrate into the underlying soil.
Infiltration bed	A subsurface facility that temporarily stores runoff in aggregate or other approved storage media for infiltration.
Underground chamber system	A subsurface structure used for stormwater storage, detention, infiltration, or a combination of functions.
Inlet filter bag	A removable filter or sediment collection device installed in or below an inlet to capture debris and sediment.
Forebay	An upstream sediment collection area intended to capture sediment before runoff enters the primary BMP.
Outlet structure	A structure that controls or conveys discharge from a stormwater facility.
Emergency spillway	A stabilized overflow feature designed to safely convey flows exceeding the primary outlet capacity.
Observation well	A monitoring structure used to observe water levels or infiltration performance in a subsurface facility.
Corrective action	Maintenance, repair, cleaning, replacement, stabilization, or other action taken to address a deficiency.

Critical deficiency	A condition that presents an immediate safety risk, threatens facility failure, causes uncontrolled discharge, or substantially compromises the facility's function.
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5. Responsibilities

5.1 Borough Council / Borough Management

Where applicable, Borough management shall:

- Approve municipal policies and funding for stormwater facility maintenance.
- Support implementation of the MS4 program.
- Authorize major repairs, rehabilitation, or contracted services.
- Review significant deficiencies and unresolved maintenance needs.
- Maintain all records of Operations and Maintenance Plans and agreements

5.2 Public Works Supervisor

The Public Works Supervisor shall:

- Coordinate routine inspections and maintenance.
- Assign qualified employees and contractors.
- Verify that personnel have appropriate equipment and training.
- Review inspection forms and maintenance records.
- Prioritize corrective actions.
- Notify the MS4 Program Coordinator of significant issues.
- Ensure that maintenance activities are performed safely.

5.3 MS4 Program Coordinator / Borough Engineer

The MS4 Program Coordinator or designated Borough Engineer shall:

- Maintain the stormwater facility inventory and inspection program.
- Review deficiencies requiring engineering evaluation.
- Coordinate with property owners, developers, contractors, or facility owners when appropriate.
- Determine whether an observation may require MCM #3 illicit discharge investigation.
- Maintain documentation supporting MS4 program implementation.
- Evaluate whether repairs require plan review, permits, or professional design.

5.4 Public Works Employees

Employees shall:

- Perform assigned inspections and maintenance.
- Follow this SOP and facility-specific instructions.
- Use required PPE and safety procedures.
- Avoid damaging infiltration surfaces, outlet structures, pipes, or control devices.
- Report deficiencies promptly.
- Complete inspection and maintenance records accurately.

5.5 Contractors

Contractors shall:

- Follow Borough instructions and approved work plans.
- Use appropriate safety controls.
- Prevent sediment, concrete washout, chemicals, and other pollutants from entering the MS4.
- Provide documentation of work performed, materials removed, and deficiencies identified.
- Notify the Borough of unexpected conditions.

6. Stormwater Facility Inventory

The Borough should maintain a facility inventory in a GIS, spreadsheet, asset management system, or other approved format.

6.1 Minimum Inventory Information

Each facility should have a unique identification number and, where available, include:

- Facility ID.
- Facility type.
- Street address or location.
- GIS coordinates.
- Parcel identification number.
- Ownership and maintenance responsibility.
- Easement or access information.
- Drainage area served.
- Receiving outfall or discharge location.
- Approved plan and record drawing references.
- Operation and maintenance agreement reference.
- Manufacturer information, if applicable.
- Inspection frequency.

- Last inspection date.
- Outstanding corrective actions.
- Photographs.
- Priority classification.

6.2 Facility Priority Classification

The Borough may classify facilities as follows:

Priority	Description
High	Facility serving a large drainage area, protecting downstream property, containing an emergency spillway, having a known deficiency, or presenting public safety concerns.
Moderate	Facility with routine maintenance needs, sediment accumulation, vegetation management, or limited access concerns.
Low	Facility with stable conditions, low observed risk, and no outstanding deficiencies.

Priority classifications shall be reviewed when facility conditions change.

7. Inspection Frequency

The following frequencies are recommended starting points and shall be adjusted based on approved plans, maintenance agreements, facility design, risk, observed conditions, and Borough resources.

Facility / Component	Minimum Recommended Frequency
General facility inspection	At least annually
High-priority facilities	Semiannually or as determined by the Borough
Detention basin and outlet structure	At least annually and after significant storm events
Infiltration basin surface	At least annually and after significant storm events
Infiltration inlets / pretreatment	At least semiannually and after significant storm events
Inlet filter bags / inserts	Monthly during periods of frequent use or as needed based on loading
Catch basins and inlet structures	At least annually and after significant storm events
Underground chamber access structures	At least annually, without entering confined spaces
Observation wells / cleanouts	At least annually or according to the approved O&M plan
Emergency spillways	At least annually and after major runoff events
Vegetation and erosion conditions	During routine inspections and as needed

Facility following complaint or reported failure

As soon as practicable

Important: An approved O&M agreement or facility-specific maintenance plan may require more frequent inspections or specific inspection triggers. The stricter applicable requirement shall govern.

8. General Inspection Procedures

8.1 Preparation

Before beginning an inspection:

1. Review the facility's prior inspection reports.
2. Review open corrective actions and work orders.
3. Obtain the facility map, record drawing, or inspection checklist when available.
4. Check weather and recent precipitation.
5. Identify traffic, steep slopes, water, unstable ground, or other hazards.
6. Gather required PPE, tools, forms, camera, and safety equipment.
7. Confirm whether the inspection requires coordination with a contractor, property owner, or Borough Engineer.

8.2 General Inspection Items

Inspect and document:

- Facility access and security.
- Fencing, gates, and signage.
- Evidence of dumping or unauthorized activity.
- Inlet and outlet conditions.
- Sediment accumulation.
- Trash and debris.
- Erosion and scour.
- Standing water or unusual wet areas.
- Vegetation health and excessive growth.
- Animal burrows or embankment damage.
- Structural cracking, settlement, or displacement.
- Blocked pipes, grates, trash racks, or orifices.
- Evidence of unauthorized discharges.
- Safety hazards.
- Conditions requiring engineering evaluation.

8.3 Inspection Documentation

Each inspection record should include:

- Date and time.
- Inspector name.
- Weather and recent precipitation.
- Facility identification number.
- Observed conditions.
- Photographs.
- Maintenance performed, if any.
- Corrective action recommendations.
- Priority level.
- Supervisor notification, if required.

9. Detention and Retention Basin Procedures

9.1 Basin Inspection

Inspect the following components:

- Basin floor.
- Side slopes.
- Embankments.
- Inflow points.
- Forebay or sediment storage areas.
- Outlet structure.
- Riser and trash rack.
- Primary outlet pipe.
- Emergency spillway.
- Riprap or other outlet protection.
- Permanent pool, if applicable.
- Fencing, signage, and access.
- Evidence of erosion, burrowing, settlement, or seepage.

9.2 Vegetation

Maintain vegetation in accordance with the approved plan and facility design.

- Maintain grassed areas at a safe and manageable height.
- Remove invasive or nuisance vegetation when it interferes with facility function.
- Repair bare or eroded areas promptly.
- Avoid mowing practices that destabilize slopes.
- Do not remove vegetation from an embankment if removal could cause erosion or instability.

- Do not plant deep-rooted trees or shrubs on embankments or near structures unless specifically approved.
- Maintain emergency spillways and flow paths free of obstructions.

9.3 Sediment and Debris

Inspect forebays, inlets, basin bottoms, and sediment collection areas.

Remove sediment when:

- Accumulation reduces the required storage or pretreatment capacity.
- Sediment interferes with inflow or outlet function.
- Sediment is migrating into downstream components.
- The approved maintenance plan specifies a removal threshold.
- The Borough Engineer or qualified professional determines removal is necessary.

Sediment shall be:

- Removed using appropriate equipment.
- Managed on a stable surface.
- Prevented from entering the MS4 or receiving waters.
- Evaluated for potential contamination when warranted.
- Disposed of or reused in accordance with applicable requirements.

Do not remove sediment from a wet basin or water-filled structure without evaluating safety, environmental, and disposal considerations.

9.4 Outlet Structures and Risers

Inspect:

- Trash racks.
- Grates and access covers.
- Orifices and weirs.
- Valves and control mechanisms.
- Concrete and masonry.
- Pipe connections.
- Evidence of blockage.
- Erosion around the outlet.
- Unauthorized modifications.

Do not enlarge, plug, remove, or modify an orifice, weir, riser, pipe, or other flow-control feature without authorization and appropriate engineering review.

9.5 Emergency Spillways

Inspect emergency spillways for:

- Erosion or headcutting.
- Debris and vegetation blockage.
- Animal burrows.
- Settlement or low areas.
- Damaged lining or riprap.
- Evidence of overtopping.
- Obstructions that could redirect flow toward adjacent property.

Any evidence of embankment instability, significant erosion, or spillway failure shall be reported immediately to the Public Works Supervisor and MS4 Program Coordinator.

10. Infiltration Basin and Infiltration Facility Procedures

10.1 Operating Principle

Infiltration facilities depend on the ability of stormwater to enter the soil or approved infiltration media. Compaction, sediment clogging, excessive organic accumulation, and uncontrolled construction runoff can significantly reduce performance.

Pennsylvania BMP guidance emphasizes protecting infiltration surfaces from compaction, maintaining vegetation, inspecting upstream inlets, and confirming that ponded water drains within the applicable design timeframe.

10.2 Inspection Items

Inspect:

- Basin floor or infiltration surface.
- Inflow distribution.
- Sediment accumulation.
- Ponding and drawdown.
- Vegetation and bare areas.
- Soil crusting or surface sealing.
- Erosion and concentrated flow.
- Underdrain outlets, if provided.
- Observation wells.
- Overflow and emergency drainage features.
- Evidence of vehicle traffic or compaction.

10.3 Infiltration Surface Protection

The following activities are prohibited unless specifically authorized:

- Parking vehicles or heavy equipment on the infiltration surface.
- Storing soil, salt, mulch, aggregate, or construction materials in the infiltration area.
- Placing fill or importing soil without an approved plan.
- Conducting uncontrolled maintenance that compacts the soil.
- Directing sediment-laden runoff into the facility.
- Using the facility as a staging area.

10.4 Ponding and Drawdown

Record:

- Date and time of rainfall or inspection.
- Approximate water depth, if observable.
- Time elapsed since the last rainfall.
- Whether water remains ponded.
- Evidence of clogging or reduced infiltration.
- Any underdrain or overflow activity.

If standing water persists beyond the facility's approved design or maintenance criteria, notify the MS4 Program Coordinator or Borough Engineer. Do not automatically excavate, scarify, or replace the infiltration surface without an approved corrective action plan.

10.5 Infiltration Basin Repairs

Potential corrective actions may include:

- Removing accumulated sediment.
- Repairing eroded inflow areas.
- Restoring vegetation.
- Removing invasive vegetation.
- Addressing upstream sediment sources.
- Restoring approved soil or engineered media.
- Repairing underdrain or overflow components.
- Performing professional evaluation of infiltration performance.

Repairs affecting the design elevation, storage volume, infiltration area, overflow, or structural components shall receive appropriate technical review before implementation.

11. Underground Storage and Infiltration Chambers

11.1 General Requirements

Underground stormwater facilities may be difficult to inspect because critical components are not visible from the surface. The Borough shall maintain available record drawings, access locations, inspection port information, and manufacturer instructions.

Pennsylvania's Chapter 102 provisions recognize underground treatment or storage BMP installation as a potential critical stage requiring licensed professional oversight and require record drawings to be retained as part of the approved PCSM plan.

11.2 Surface Inspection

Inspect:

- Access covers and frames.
- Manholes and observation ports.
- Inlet and outlet structures.
- Cleanouts.
- Surface settlement.
- Sinkholes or depressions.
- Standing water.
- Erosion around access points.
- Unauthorized dumping.
- Signs of vehicle loading beyond the design.
- Surface drainage that bypasses the intended system.

11.3 Access and Confined Space Safety

Employees shall not enter underground chambers, tanks, vaults, or manholes unless the Borough has an approved confined-space entry program and all required procedures, training, atmospheric testing, rescue planning, and equipment are in place.

Routine inspection should be performed from the surface using:

- Visual observation.
- Approved inspection ports.
- Cameras or remote inspection equipment.
- Manufacturer-approved access procedures.
- Qualified contractors when needed.

Opening a cover does not automatically authorize entry.

11.4 Underground System Maintenance

Maintenance may include:

- Cleaning upstream catch basins.
- Removing sediment from pretreatment structures.
- Cleaning inlet pipes or access points.
- Inspecting outlet structures.
- Flushing or vacuuming components when permitted by the design and manufacturer.
- Repairing damaged access covers.
- Addressing sediment sources upstream.

Do not flush sediment, trash, or contaminated material through an underground infiltration or detention system into the MS4.

For proprietary chamber systems, follow the manufacturer's maintenance requirements and obtain technical guidance when the system's internal condition cannot be verified.

12. Inlet Filter Bags and Catch-Basin Inserts

12.1 Purpose

Inlet filter bags, catch-basin inserts, and similar devices are used to capture sediment, trash, and other debris before it enters the stormwater conveyance system.

These devices are not maintenance-free and can become ineffective or cause localized flooding when overloaded or improperly installed.

12.2 Inspection Items

Inspect:

- Filter bag or insert condition.
- Accumulated sediment and debris.
- Proper placement and attachment.
- Bypass or overflow conditions.
- Tears, holes, or deterioration.
- Inlet grate seating.
- Access for safe removal.
- Evidence of clogging or flooding.
- Whether the device is appropriate for the inlet and expected flow.

12.3 Cleaning and Replacement

- Follow the manufacturer's instructions.
- Remove accumulated sediment and debris before the device becomes overloaded.
- Replace damaged or deteriorated filter bags.
- Secure the device so it cannot become dislodged during runoff.
- Avoid dropping collected sediment into the inlet.
- Place removed material in an approved container or staging area.
- Prevent sediment from being washed back into the inlet during removal.
- Record cleaning, replacement, and disposal.

12.4 Inlet Bag Limitations

Inlet bags shall not be used as a substitute for:

- Stabilizing an active erosion source.
- Controlling sediment at a construction site.
- Cleaning an overloaded catch basin.
- Repairing a damaged inlet.
- Addressing an illicit discharge.
- Maintaining the entire upstream drainage area.

Where repeated loading occurs, investigate the source and consider upstream corrective actions.

13. Outlet Structures, Flow Controls, and Outfalls

13.1 Components to Inspect

- Outlet pipes.
- Orifices.
- Weirs.
- Riser structures.
- Trash racks.
- Anti-seep collars or other structural components, where visible.
- Riprap and outlet protection.
- Headwalls and endwalls.
- Energy dissipation features.
- Erosion at the discharge point.
- Outfall stability.
- Unusual dry-weather flow.

13.2 Flow-Control Components

Only authorized personnel may perform work on flow-control components.

The Borough shall not:

- Change the size of an orifice.
- Remove a weir.
- Plug an outlet.
- Remove a trash rack.
- Alter a riser elevation.
- Modify an outlet pipe.
- Add an unapproved bypass.
- Change a control structure without appropriate authorization and technical review.

13.3 Outfall Inspection

Document:

- Presence or absence of flow.
- Weather and recent rainfall.
- Color and clarity.
- Odor.
- Floating materials.
- Oil sheen.
- Deposits or staining.
- Erosion and scour.
- Vegetation impacts.
- Evidence of sanitary sewage, wash water, or other suspicious discharges.

Potential illicit discharges shall be handled according to the Borough's MCM #3 Illicit Discharge Detection and Elimination procedures.

14. Vegetation, Erosion, and Site Stabilization

14.1 Vegetation

Maintain vegetation consistent with the approved facility design.

- Mow where appropriate and safe.
- Remove invasive vegetation when necessary.
- Maintain access to inspection points.
- Avoid damage to embankments and outlet structures.
- Prevent woody growth from compromising structures.
- Restore bare areas promptly.

14.2 Erosion

Inspect for:

- Rills and gullies.
- Exposed soil.
- Scour at inflow and outflow points.
- Eroded side slopes.
- Exposed aggregate or engineered media.
- Sediment deposits downstream.
- Flow bypassing designed conveyance routes.

Temporary measures may be used to prevent worsening conditions, but permanent repairs should be designed or approved as appropriate.

14.3 Erosion Corrective Actions

Potential actions include:

- Stabilizing bare soil.
- Repairing or replacing riprap.
- Restoring approved vegetation.
- Repairing inflow or outflow protection.
- Correcting concentrated flow.
- Addressing upstream drainage or sediment sources.
- Requesting a professional evaluation for embankment or structural instability.

14. Stormwater Facility Pollution Prevention

During maintenance activities, employees shall:

- Keep fuels, oils, chemicals, and waste away from inlets and drainage paths.
- Use appropriate spill prevention and containment.
- Prevent concrete washout from entering stormwater facilities.
- Keep sediment and debris from entering infiltration areas.
- Avoid washing equipment where wash water can reach the MS4.
- Store removed sediment and debris properly.
- Use dry cleanup methods whenever practical.
- Protect downstream inlets during maintenance work.
- Report unauthorized discharges, spills, and dumping.

Souderton Borough's public stormwater information identifies concerns such as spills, illegal dumping, dry-weather flows, and sediment leaving construction sites as reportable stormwater-related issues. These reporting categories should be incorporated into employee training and inspection escalation procedures.

15. Safety Requirements

15.1 General Safety

Employees shall use appropriate PPE, including as applicable:

- High-visibility clothing.
- Work gloves.
- Safety boots.
- Eye protection.
- Hearing protection.
- Hard hats.
- Respiratory protection where required by a written program.
- Fall protection where applicable.

15.2 Traffic and Public Protection

When work occurs in or near a roadway:

- Use appropriate traffic control.
- Establish a safe work zone.
- Keep equipment and removed material out of travel lanes.
- Use warning devices and spotters as needed.
- Do not leave open structures unattended.

15.3 Water and Slopes

Exercise caution near:

- Standing water.
- Steep basin slopes.
- Unstable embankments.
- Deep sediment.
- Fast-moving water.
- Icy surfaces.
- Eroded channels.
- Soft or saturated ground.

15.4 Confined Spaces

Do not enter:

- Manholes.
- Underground chambers.
- Vaults.

- Tanks.
- Deep catch basins.
- Other potentially hazardous enclosed spaces.

unless the Borough's approved confined-space procedures are followed.

16. Corrective Action Classification

Classification	Example	Required Response
Routine	Minor litter, light sediment, vegetation trimming, replaceable filter bag	Schedule routine maintenance and document completion
Moderate	Repeated clogging, localized erosion, damaged grate, reduced access	Create work order and establish corrective action deadline
Major	Significant sediment loss of capacity, failed outlet protection, persistent ponding, damaged structure	Notify supervisor/MS4 coordinator; evaluate need for engineering assistance
Critical / Emergency	Embankment instability, uncontrolled discharge, major structural failure, immediate public safety hazard	Protect public, restrict access if needed, notify Borough management and qualified professionals immediately

The classification should be adjusted based on facility location, downstream risk, weather conditions, and potential consequences.

17. Emergency and Spill Response

When an emergency condition or spill is observed:

1. Protect people first.
2. Stop the source if safe and authorized.
3. Prevent material from entering nearby inlets or drainage channels.
4. Use appropriate containment and absorbent materials.
5. Notify the Public Works Supervisor.
6. Notify the MS4 Program Coordinator when the event may affect the MS4 or receiving waters.
7. Contact emergency services when warranted.
8. Collect contaminated cleanup material for proper management.
9. Photograph and document the condition.
10. Complete the appropriate incident report.
11. Evaluate whether follow-up investigation, sampling, or repair is required.

Employees shall not attempt chemical neutralization or hazardous material cleanup beyond their training and authorization.

18. Maintenance and Inspection Records

The Borough shall retain records in accordance with its MS4 recordkeeping procedures and applicable requirements.

18.1 Required Records

- Facility inventory.
- Inspection forms.
- Maintenance logs.
- Work orders.
- Photographs.
- Sediment and debris disposal records.
- Filter bag replacement records.
- Contractor reports.
- Repair documentation.
- Engineering evaluations.
- Spill and incident reports.
- Training records.
- Facility-specific O&M plans and agreements.

19. Training Requirements

Personnel responsible for stormwater facility inspection or maintenance shall receive training appropriate to their duties.

Training topics should include:

- Purpose of the Borough's MS4 program.
- MCM #6 pollution prevention and good housekeeping.
- Facility-specific components and functions.
- Safe inspection procedures.
- Inlet and catch-basin cleaning.
- Infiltration facility protection.
- Underground facility access limitations.
- Filter bag and insert maintenance.
- Sediment and debris handling.
- Spill prevention and response.
- Illicit discharge recognition.
- Documentation and reporting.

Training shall be documented with:

- Date.
- Training topic.
- Instructor.
- Attendees.
- Duration.
- Training materials used.
- Employee signatures or electronic attendance confirmation.

20. Stormwater Facility Inspection Forms

Souderton Borough – Stormwater Facility Inspection

Field	Entry
Facility ID	
Facility Type	
Location	
Date / Time	
Inspector	
Weather	
Recent Rainfall	
Previous Inspection Date	
Facility Owner / Responsible Party	

Inspection Checklist

Access and safety conditions
Fencing, gates, and signage
Inlets and inlet protection
Sediment and debris accumulation
Basin floor / infiltration surface
Vegetation and bare areas
Side slopes and embankments
Outlet structure / riser / control device
Trash rack / grate / orifice
Emergency spillway
Riprap and outfall protection
Erosion, scour, or settlement
Standing water / drawdown
Underground access ports / cleanouts
Evidence of dumping or illicit discharge
Overall facility function

Inspection Forms for each stormwater BMP is included at the end of this SOP. Additionally, an inventory of Borough owned pre-2003 stormwater facilities has been established to track inspections and maintenance requirements.

Observations and Corrective Actions

Item	Notes
Observed deficiency	
Recommended action	
Priority	Routine / Moderate / Major / Critical
Responsible party	
Work order number	
Due date	
Completion date	
Follow-up inspection required? Yes / No	
Photographs attached? Yes / No	

Borough Owned BMP Inventory (Updated 2026) Ongoing - Pre 2003												
No.	*BMP No	*BMP Name	Drainage area (ac)	*Entity Responsible for O&M	*Latitude	*Longitude	*Date Installed	O&M Requirements	NPDES Permit No	Date of Last Inspection	*Satisfactory?	Maintenance Required
1	1	Detention Basin	TBD	Souderton Borough			Pre-2003	Refer to BMP Manual	TBD		TBD	
2	2	Detention Basin	TBD	Souderton Borough			Pre-2003	Refer to BMP Manual	TBD		TBD	

MCM # 5 Post Construction BMP Inventory (Updated 2026) Ongoing												
No.	*BMP No	*BMP Name	Drainage area (ac)	*Entity Responsible for O&M	*Latitude	*Longitude	*Date Installed	O&M Requirements	NPDES Permit No	Date of Last Inspection	*Satisfactory?	Maintenance Required
1	4	Underground Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
2	5A	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
3	5B	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
4	5C	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
5	5D	Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
6	6	Dry Extended Detention Basin	TBD	TBD; Private			2011	See PCSM Plan	TBD		TBD	
7	7	Raingarden	0.52	Souderton Borough			2011	See PCSM Plan	TBD		TBD	
8	8(A-E)	Raingarden	10.31	Reliance Crossing			2016	See PCSM Plan	TBD		TBD	
9	9A	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
10	9B	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
11	10A	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
12	10B	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
13	10C	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
14	10D	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
15	10E	Dry Extended Detention Basin	TBD	TBD; Private			TBD	See PCSM Plan	TBD		TBD	
16	11A	Raingarden	1.24	Souderton Borough			2023	See PCSM Plan	TBD		TBD	
17	11B	Raingarden	3.43	Souderton Borough			2023	See PCSM Plan	TBD		TBD	
18	11C	Tree Planting	N/A	Souderton Borough			2023	See PCSM Plan	TBD		TBD	

POST CONSTRUCTION STORMWATER MANAGEMENT INSPECTION REPORT

Summary Page and Individual Inspection Sheets

1. Summary

Post Construction Storm Water Management (PCSM) Best Management Practices (BMPs) Overview

BMP Type	Use Worksheet Pages	# Indicated on Plans	Are all indicated BMPs present on site and do they appear to be functioning on visual inspection? (Comments)
A. Bioretention / Rain Garden	3-4	_____	_____
B. Dry Extended Detention Basin	5-6	_____	_____
C. Wet Pond/Retention Basin	7-8	_____	_____
D. Infiltration Basin	9-10	_____	_____
E. Infiltration Bed/Trench +/- Permeable Pavement	11-12	_____	_____
F. Vegetated Swale	13	_____	_____
G. Vegetated Filter Strip	14	_____	_____
H. Runoff Capture and Reuse	15	_____	_____
I. Constructed Wetland	16-17	_____	_____
J. Vegetated Roof	18	_____	_____
K. Restoration and Non-Structural BMPs	19	_____	_____
L. Other: _____	20	_____	_____

Visual Inspection Results: Overall Site Performance (% function)

- Combination of how well BMPs on site appear to be performing and maintained at the time of inspection.

After inspection, appears to have excellent function and no general problems with performance		BMPs appear to be functioning well, with only minor/few performance problems		BMPs appear to be functioning adequately, with only moderate problems with performance noted		BMPs appear to be under functioning for site conditions and/or major problems with performance are noted		Poor BMP function, severe performance problems and/or multiple failures	
100% ☐	90% ☐	80% ☐	70% ☐	60% ☐	50% ☐	40% ☐	30% ☐	20% ☐	10% ☐

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A. Bioretention/Rain Garden _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws compared to plan, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet	
Inflow Type	☐ Open channel ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Riprap apron ☐ Other _____
Inflow conditions	Inlet Erosion ☐ None ☐ Mild ☐ Moderate ☐ Severe Inlet clogging ☐ None ☐ Mild ☐ Moderate ☐ Severe Structural problems ☐ None ☐ Mild ☐ Moderate ☐ Severe
Comments: _____ _____ _____	

Positive overflow / Outlet Characteristics	
Outlet Structures (Check all that apply)	☐ N/A (infiltration with no outlet) ☐ Riser ☐ Weir ☐ Inlet ☐ Emergency Spillway ☐ Channel ☐ Underdrain ☐ Other: _____
Outlet Features <i>Check all that apply</i>	☐ N/A ☐ Trash Rack ☐ Perforated Pipe ☐ Riser Dome ☐ Riprap apron ☐ Other: _____
Outlet Structure Conditions	Erosion at outlet ☐ None ☐ Mild ☐ Moderate ☐ Severe Outlet Clogging ☐ None ☐ Mild ☐ Moderate ☐ Severe Structural problems ☐ None ☐ Mild ☐ Moderate ☐ Severe Signs of leakage ☐ None ☐ Mild ☐ Moderate ☐ Severe
Outfall Discharges to:	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other _____
Outfall Conditions (outside BMP)	Erosion ☐ None ☐ Mild ☐ Moderate ☐ Severe Trash ☐ None ☐ Mild ☐ Moderate ☐ Severe Sedimentation ☐ None ☐ Mild ☐ Moderate ☐ Severe Other: _____ ☐ None ☐ Mild ☐ Moderate ☐ Severe
Comments: _____ _____ _____	

Bioretention Area		
Pretreatment	Type	☐ N/A ☐ Forebay ☐ Vegetated channel ☐ Riprap channel ☐ Vegetated filter strip ☐ Other _____
	Function	Sediment buildup ☐ None ☐ Mild ☐ Moderate ☐ Severe Pretreatment bypass ☐ None ☐ Mild ☐ Moderate ☐ Severe Sediment flow from pretreatment to BMP ☐ None ☐ Mild ☐ Moderate ☐ Severe
Media	Type (optional)	☐ Clay ☐ Loam ☐ Sand ☐ Soil Mix ☐ Gravel ☐ Organic Material Based on: ☐ Plans ☐ Probe/testing Matches approved: ☐ If not list approved type: _____
	Mulch	☐ Uniform Cover ☐ Minor bare areas ☐ Moderate bare areas ☐ Severe bare areas ☐ No Mulch ☐ Excessive Mulch
	Sediment	☐ No Deposition ☐ Minor (>50% clean out depth) ☐ Moderate (50-75% clean out depth) ☐ Severe deposition (> 75% clean out depth) or clogging
Vegetation	Type (check all that apply)	☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive
	Plant cover	☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%
	Plant health	☐ Healthy/Established ☐ Slightly stressed ☐ Stressed ☐ Dead
	Bank erosion	☐ None ☐ Minor (<5% of bank affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected)
	Side slopes	☐ 3:1 ☐ 2:1 ☐ Steeper than 2:1 ☐ Risk of side slope failure
Structure	Bank structure	☐ No visual structural damage ☐ Minor (bank slump, channel erosion) ☐ Moderate (risk of failure) ☐ Bank Failure
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe	
Water Quality	Depth of standing water at time of inspection: _____ in	
	Standing water (>72 hours after rain event)?	☐ Yes ☐ No
	Algae present?	☐ Yes ☐ No
	Turbid?	☐ Yes ☐ No
	Evidence of pollution? (odor, sheen, etc.)	☐ Yes ☐ No
	Evidence of mosquitos?	☐ Yes ☐ No
Comments: _____ _____ _____ _____		

B. Dry Detention Basin _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws compared to plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet							
Inflow is not submerged at normal pool depth ☐ Yes ☐ No							
Inflow Type	☐ Open channel ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Riprap apron ☐ Other _____						
Inflow conditions	<table border="0"> <tr> <td>Inlet Erosion</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Inlet clogging</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Inlet Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe	Inlet clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe	Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe
Inlet Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Inlet clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Comments: _____ _____ _____							

Outlet									
Multistage outlet structure present (low flow outlet, primary outlet, and emergency overflow)? ☐ Yes ☐ No									
Energy dissipaters present at end of primary outlet? ☐ Yes ☐ No									
Outlet structures (check all that apply)	☐ Emergency spillway ☐ Riser ☐ Weir ☐ Inlet ☐ Channel ☐ Underdrain ☐ Other: _____								
Outlet Features (check all that apply)	☐ N/A ☐ Trash Rack (should be present for primary and low flow outlets) ☐ Anti-vortex device ☐ Perforated Pipe ☐ Riser Dome ☐ Riprap apron								
Outlet Structure Conditions	<table border="0"> <tr> <td>Erosion at outlet</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Outlet Clogging</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Signs of leakage</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Erosion at outlet	☐ None ☐ Mild ☐ Moderate ☐ Severe	Outlet Clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe	Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe	Signs of leakage	☐ None ☐ Mild ☐ Moderate ☐ Severe
Erosion at outlet	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Outlet Clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Signs of leakage	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Outfall Discharge	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other _____								
Outfall Conditions (outside BMP)	<table border="0"> <tr> <td>Erosion</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Trash</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Sedimentation</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Other: _____</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe	Trash	☐ None ☐ Mild ☐ Moderate ☐ Severe	Sedimentation	☐ None ☐ Mild ☐ Moderate ☐ Severe	Other: _____	☐ None ☐ Mild ☐ Moderate ☐ Severe
Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Trash	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Sedimentation	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Other: _____	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Comments: _____ _____ _____									

Basin	
Pretreatment	Type ☐ N/A ☐ Forebay ☐ Vegetated channel ☐ Riprap channel ☐ Vegetated filter strip ☐ Other _____ Function Sediment buildup ☐ None ☐ Mild ☐ Moderate ☐ Severe Pretreatment bypass ☐ None ☐ Mild ☐ Moderate ☐ Severe Sediment flow from pretreatment to BMP ☐ None ☐ Mild ☐ Moderate ☐ Severe
Vegetation	Type (check all that apply) ☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____%Trees ____%Shrubs ____%Herbaceous ____%Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive Plant cover ☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70% Woody Vegetation is not planted or established on embankments or within 25 feet of the emergency overflow spillway ☐ Yes ☐ No
Structure	Basin is at least 10 ft. wide ☐ Yes ☐ No Basin has min 2:1 L:W ratio or has baffles to lengthen flow path ☐ Yes ☐ No Embankments are less than 15 ft high with slopes no steeper than 3:1 ☐ Yes ☐ No Bank erosion ☐ None ☐ Minor (<5% of bank affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected) Bank structure ☐ No structural damage ☐ Minor (bank slump, channel erosion) ☐ Moderate (risk of failure) ☐ Bank Failure
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe
Sediment	☐ No Deposition ☐ Minor deposition ☐ Moderate deposition ☐ Severe deposition/clogging
Water Quality	Ponding depth _____ in Algae present? ☐ Yes ☐ No Turbid? ☐ Yes ☐ No Evidence of pollution? (odor, sheen, etc.) ☐ Yes ☐ No Evidence of mosquitos? ☐ Yes ☐ No
Comments:	_____ _____ _____

C. Wet Pond _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet							
Inflow Type	☐ Open channel ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Riprap apron ☐ Other _____						
Inflow conditions	<table border="0"> <tr> <td>Inlet Erosion</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Inlet clogging</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Inlet Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe	Inlet clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe	Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe
Inlet Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Inlet clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe						
Comments: _____ _____ _____							

Outlet									
Outlet structures (check all that apply)	☐ Emergency spillway ☐ Pipe ☐ Riser ☐ Weir ☐ Inlet ☐ Channel ☐ Underdrain ☐ Other: _____								
Outlet Features (check all that apply)	☐ N/A ☐ Trash Rack ☐ Anti-vortex device ☐ Perforated Pipe ☐ Riser Dome ☐ Riprap apron								
Outlet Structure Conditions	<table border="0"> <tr> <td>Erosion at outlet</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Outlet Clogging</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Signs of leakage</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Erosion at outlet	☐ None ☐ Mild ☐ Moderate ☐ Severe	Outlet Clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe	Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe	Signs of leakage	☐ None ☐ Mild ☐ Moderate ☐ Severe
Erosion at outlet	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Outlet Clogging	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Structural problems	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Signs of leakage	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Is Outlet located in "Open Water" area of Constructed Wetland? ☐ Yes ☐ No									
Outfall Discharge	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other _____								
Outfall Conditions (outside BMP)	<table border="0"> <tr> <td>Erosion</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Trash</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Sedimentation</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> <tr> <td>Other: _____</td> <td>☐ None ☐ Mild ☐ Moderate ☐ Severe</td> </tr> </table>	Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe	Trash	☐ None ☐ Mild ☐ Moderate ☐ Severe	Sedimentation	☐ None ☐ Mild ☐ Moderate ☐ Severe	Other: _____	☐ None ☐ Mild ☐ Moderate ☐ Severe
Erosion	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Trash	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Sedimentation	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Other: _____	☐ None ☐ Mild ☐ Moderate ☐ Severe								
Comments: _____ _____ _____									

Basin	
Pretreatment	Type ☐ N/A ☐ Forebay ☐ Vegetated channel ☐ Riprap channel ☐ Vegetated filter strip ☐ Other _____ Function Sediment buildup ☐ None ☐ Mild ☐ Moderate ☐ Severe Pretreatment bypass ☐ None ☐ Mild ☐ Moderate ☐ Severe Sediment flow from pretreatment to BMP ☐ None ☐ Mild ☐ Moderate ☐ Severe
Vegetation	Type (check all that apply) ☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____%Trees ____%Shrubs ____%Herbaceous ____%Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive Plant cover ☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70% Woody Vegetation is not planted or established on embankments or within 25 feet of the emergency overflow spillway ☐ Yes ☐ No
Structure	Basin is at least 10 ft. wide ☐ Yes ☐ No Basin has min 2:1 L:W ratio or has baffles to lengthen flow path ☐ Yes ☐ No Embankments are less than 15 ft high with slopes no steeper than 3:1 ☐ Yes ☐ No Bank erosion ☐ None ☐ Minor (<5% of bank affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected) Bank structure ☐ No structural damage ☐ Minor (bank slump, channel erosion) ☐ Moderate (risk of failure) ☐ Bank Failure
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe
Sediment	☐ No Deposition ☐ Minor deposition ☐ Moderate deposition ☐ Severe deposition/clogging
Water Quality	Ponding depth _____ in Algae present? ☐ Yes ☐ No Turbid? ☐ Yes ☐ No Evidence of pollution? (odor, sheen, etc) ☐ Yes ☐ No Evidence of mosquitos? ☐ Yes ☐ No
Comments:	_____ _____ _____ _____

D. Infiltration Basin _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet																
Inflow Type	☐ Open channel ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Riprap apron ☐ Other _____															
Inflow conditions	<table border="0"> <tr> <td>Inlet Erosion</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Inlet clogging</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Inlet Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe	Inlet clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe	Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe
Inlet Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe												
Inlet clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe												
Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe												
Comments: _____ _____ _____																

Positive overflow / Outlet Characteristics																					
Primary overflow structure <i>Check all that apply</i>	☐ N/A (infiltration with no outlet) ☐ Riser ☐ Weir ☐ Inlet ☐ Emergency Spillway ☐ Channel ☐ Underdrain ☐ Other: _____																				
Outlet Features <i>Check all that apply</i>	☐ N/A ☐ Trash Rack ☐ Perforated Pipe ☐ Riser Dome ☐ Riprap apron ☐ Other: _____																				
Outlet Conditions	<table border="0"> <tr> <td>Erosion at outlet</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Outlet Clogging</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Signs of leakage</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Erosion at outlet	☐ None	☐ Mild	☐ Moderate	☐ Severe	Outlet Clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe	Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe	Signs of leakage	☐ None	☐ Mild	☐ Moderate	☐ Severe
Erosion at outlet	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Outlet Clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Signs of leakage	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Outfall Discharges to:	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other _____																				
Outfall Conditions (outside BMP)	<table border="0"> <tr> <td>Erosion</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Trash</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Sedimentation</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Other: _____</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe	Trash	☐ None	☐ Mild	☐ Moderate	☐ Severe	Sedimentation	☐ None	☐ Mild	☐ Moderate	☐ Severe	Other: _____	☐ None	☐ Mild	☐ Moderate	☐ Severe
Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Trash	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Sedimentation	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Other: _____	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Comments: _____ _____ _____																					

Basin		
Pretreatment	Type	☐ N/A ☐ Forebay ☐ Vegetated channel ☐ Riprap channel ☐ Vegetated filter strip ☐ Other _____
	Function	Sediment buildup ☐ None ☐ Mild ☐ Moderate ☐ Severe Pretreatment bypass ☐ None ☐ Mild ☐ Moderate ☐ Severe Sediment flow from pretreatment to BMP ☐ None ☐ Mild ☐ Moderate ☐ Severe
	Media	Type (optional) ☐ Clay ☐ Loam ☐ Sand ☐ Soil Mix ☐ Gravel ☐ Organic Material Based on: ☐ Plans ☐ Probe/testing
	Mulch	☐ Uniform Cover ☐ Minor bare areas ☐ Moderate bare areas ☐ Severe bare areas ☐ No Mulch ☐ Excessive Mulch
	Sediment	☐ No Deposition ☐ Minor (>50% clean out depth) ☐ Moderate (50-75% clean out depth) ☐ Severe deposition (> 75% clean out depth) or clogging
	Vegetation	Type (check all that apply) ☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive
Structure	Plant cover	☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%
	Plant health	☐ Healthy/Established ☐ Slightly stressed ☐ Stressed ☐ Dead
	Is basin bottom level (or <1% slope)?	☐ Yes ☐ No
	Bank erosion	☐ None ☐ Minor (<5% of bank affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected)
	Side slopes	☐ 3:1 or shallower ☐ Steeper than 3:1 ☐ Risk of side slope failure
	Bank structure	☐ No structural damage ☐ Minor (bank slump, channel erosion) ☐ Moderate (risk of failure) ☐ Bank Failure
	Top of berm is at least 2 feet wide	☐ Yes ☐ No
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe	
Water Quality	Depth of standing water at time of inspection: _____ in Standing water (>72 hours after rain event) ☐ Yes ☐ No Algae present? ☐ Yes ☐ No Turbid? ☐ Yes ☐ No Evidence of pollution? (odor, sheen, etc.) ☐ Yes ☐ No Evidence of mosquitos? ☐ Yes ☐ No	
Comments: _____ _____ _____ _____		

E. Infiltration Bed/Trench _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet	
Inflow Type	☐ Roof leader ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Catch Basin ☐ Other _____
Inflow conditions	Inlet Erosion ☐ None ☐ Mild ☐ Moderate ☐ Severe Inlet clogging ☐ None ☐ Mild ☐ Moderate ☐ Severe Structural problems ☐ None ☐ Mild ☐ Moderate ☐ Severe
Pretreatment	☐ Vegetative filter ☐ Vegetated swale ☐ Sediment trap ☐ Water quality insert ☐ Other _____
Comments: _____ _____ _____	

Infiltration Bed			
Is an overflow outlet present?		☐ Yes ☐ No	
Is an observation port/pit/or sump present?		☐ Yes ☐ No If yes, is standing water present? ☐ Yes ☐ No Depth? _____	
Is surface grading < 5% slope?		☐ Yes ☐ No	
Overlying surface:		Is standing water present? ☐ Yes ☐ No Are adjacent earthen/vegetated areas adequately stabilized? ☐ Yes ☐ No Surface sediment ☐ None ☐ Mild ☐ Moderate ☐ Severe Surface contamination ☐ None ☐ Mild ☐ Moderate ☐ Severe ☐ Vegetated ☐ Permeable Pavement ☐ Non-Permeable Pavement ☐ Other _____	
Vegetated	Type (check all that apply)	☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive	
	Plant cover	☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%	
	Plant health	☐ Healthy/Established ☐ Slightly stressed ☐ Stressed ☐ Dead	
Permeable Pavement	Type	☐ Permeable Asphalt ☐ Permeable concrete ☐ Permeable pavers ☐ Grass or Gravel Filled Grids	
	Structural Problems	☐ None ☐ Mild ☐ Moderate ☐ Severe	
		Vacuumed Biannually? ☐ Yes ☐ No	
		Backup drainage present? ☐ Inlet w/ WQ device ☐ Unpaved aggregate edge ☐ No	
Comments: _____ _____ _____			

F. Vegetated Swale _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws base on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Swale	
Vegetation	Type (check all that apply) ☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf ☐ Matches plan ☐ Native Species ☐ Non-Native species ☐ Wetland Species ☐ Invasive Plant cover ☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%
Structure	Bottom width of 2 - 8ft ? ☐ Yes ☐ No Longitudinal slope of 1-6% ? ☐ Yes ☐ No Side slopes 3:1 or shallower? ☐ Yes ☐ No Are check dams structurally intact and functional? (if applicable) ☐ Yes ☐ No Erosion ☐ None ☐ Minor (<5% of bank affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected) Structure ☐ No structural damage ☐ Minor (bank slump, channel erosion) ☐ Moderate (risk of failure) ☐ Bank Failure
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe
Sediment	☐ No Deposition ☐ Minor deposition ☐ Moderate deposition ☐ Severe deposition/clogging
Water Quality	Is standing water present? ☐ Yes ☐ No Algae present? ☐ Yes ☐ No Turbid? ☐ Yes ☐ No Evidence of pollution? (odor, sheen, etc.) ☐ Yes ☐ No Evidence of mosquitos? ☐ Yes ☐ No
Comments: _____ _____ _____ _____	

G. Vegetated Filter Strip _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Filter Strip	
Inflow	Is the intended runoff able to enter the filter strip? ☐ Yes ☐ No
	Inlet Erosion: ☐ None ☐ Mild ☐ Moderate ☐ Severe
Vegetation	Type (<i>check all that apply</i>) ☐ Trees ☐ Shrubs ☐ Grasses/Perennials ☐ Managed turf _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf ☐ Matches plan
	Plant cover ☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare Soil ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%
Structure	Do Surface dimensions meet design specifications? ☐ Yes ☐ Within 5% of specifications ☐ Within 15% of specifications ☐ Greater than 15% departure from specifications
	Are flows effectively distributed over the width of filter? ☐ Yes ☐ No, channel formation evident
	Erosion present? ☐ None ☐ Minor ☐ Moderate ☐ Severe
	Is the level spreader (<i>if applicable</i>) structurally intact and functional? ☐ Yes ☐ No
Trash	☐ None ☐ Minor/scattered ☐ Moderate and/or blocking inlet/outlet ☐ Severe
Sediment	☐ No Deposition ☐ Minor deposition ☐ Moderate deposition ☐ Severe deposition/clogging
Comments: _____ _____ _____ _____	

H. Runoff Capture and Reuse _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Capture	
Does the catchment area match the plans? ☐ Yes ☐ No	
Is flow from the catchment area to the storage device unimpeded (sediment/debris)? ☐ Yes ☐ No	
Storage	
Type of storage	☐ Cistern ☐ Rain barrel ☐ Vertical Storage ☐ Underground ☐ Other: _____
Storage volume: _____ gal	
Is the storage unit structurally sound and watertight? ☐ Yes ☐ No	
Sediment/debris in storage tank/sump? ☐ None ☐ Mild ☐ Moderate ☐ Severe	
Is a bypass or overflow present for large storm events? ☐ Yes ☐ No	
For buried storage, is an observation riser present? ☐ Yes ☐ No ☐ N/A	
Reuse	
What is the intended use of the stored water? _____	
Are pipes/storage units clearly marked "Caution: Reclaimed water, Do not Drink"? ☐ Yes ☐ No	
Is there a drawdown device to provide release of stored water between storm events? ☐ Yes ☐ No	
Comments: _____ _____ _____	

I. Constructed Wetland _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant design flaws resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Inlet																										
Inflow Type	☐ Open channel ☐ Sheet Flow ☐ Closed Pipe ☐ Curb cut ☐ Riprap apron ☐ Other: _____																									
Inflow conditions	<table border="0"> <tr> <td>Inlet Erosion</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Inlet clogging</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Inlet Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe	Inlet clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe	Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe										
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Inlet clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe																						
Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe																						
Forebay	<table border="0"> <tr> <td>Present at all major inflow points?</td> <td>☐ Yes ☐ No</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Marker present to indicate sediment depth?</td> <td>☐ Yes ☐ No</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sediment buildup</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Pretreatment bypass</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Sediment flow from pretreatment to BMP</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Present at all major inflow points?	☐ Yes ☐ No				Marker present to indicate sediment depth?	☐ Yes ☐ No				Sediment buildup	☐ None	☐ Mild	☐ Moderate	☐ Severe	Pretreatment bypass	☐ None	☐ Mild	☐ Moderate	☐ Severe	Sediment flow from pretreatment to BMP	☐ None	☐ Mild	☐ Moderate	☐ Severe
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Sediment flow from pretreatment to BMP	☐ None	☐ Mild	☐ Moderate	☐ Severe																						
Comments: _____ _____ _____																										

Outlet																					
Outlet structures (check all that apply)	☐ Emergency spillway ☐ Pipe ☐ Riser ☐ Weir ☐ Inlet ☐ Channel ☐ Underdrain ☐ Other: _____																				
Are outlet orifices at least 2.5 inches in diameter and protected from clogging? ☐ Yes ☐ No																					
Outlet Structure Conditions	<table border="0"> <tr> <td>Erosion at outlet</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Outlet Clogging</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Structural problems</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Signs of leakage</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Erosion at outlet	☐ None	☐ Mild	☐ Moderate	☐ Severe	Outlet Clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe	Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe	Signs of leakage	☐ None	☐ Mild	☐ Moderate	☐ Severe
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Outlet Clogging	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Structural problems	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Signs of leakage	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Is Outlet located in "Open Water" area of CW? ☐ Yes ☐ No																					
Outfall Discharge	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other: _____																				
Outfall Conditions (outside BMP)	<table border="0"> <tr> <td>Erosion</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Trash</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Sedimentation</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> <tr> <td>Other: _____</td> <td>☐ None</td> <td>☐ Mild</td> <td>☐ Moderate</td> <td>☐ Severe</td> </tr> </table>	Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe	Trash	☐ None	☐ Mild	☐ Moderate	☐ Severe	Sedimentation	☐ None	☐ Mild	☐ Moderate	☐ Severe	Other: _____	☐ None	☐ Mild	☐ Moderate	☐ Severe
Erosion	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Trash	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Sedimentation	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Other: _____	☐ None	☐ Mild	☐ Moderate	☐ Severe																	
Comments: _____ _____ _____																					

J. Vegetated Roof _____

BMP Overview	Comments
☐ BMP could not be located for inspection	
☐ BMP appears to have been removed from site	
☐ BMP appears to have been modified resulting in reduced effectiveness	
☐ Access to BMP is obstructed or unsafe	
☐ BMP appears to have significant implementation flaws based on plans, resulting in reduced effectiveness	
☐ Drainage area issues (trash, debris, erosion, water not draining to BMP as intended, etc.)	
☐ BMP size/storage volume does not match plans	
☐ BMP appears to be visually OK	

Roof	
Inflow (If receiving runoff from other impervious surfaces)	Inlet Erosion ☐ None ☐ Mild ☐ Moderate ☐ Severe Inlet clogging ☐ None ☐ Mild ☐ Moderate ☐ Severe Structural problems ☐ None ☐ Mild ☐ Moderate ☐ Severe
Vegetation	Plant Cover ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70% Plant health ☐ Healthy/Established ☐ Slightly stressed ☐ Stressed ☐ Dead Composition _____ %Trees _____ %Shrubs _____ %Herbaceous _____ %Turf Do plant species match those indicated on plans? ☐ Yes ☐ No Are invasive plant species present? ☐ Yes ☐ No Is excessive plant debris present? ☐ Yes ☐ No
Structure	Is there evidence that the waterproof membrane is leaking or damaged? ☐ Yes ☐ No Is there evidence that the root barrier is perforated? ☐ Yes ☐ No Substrate erosion: ☐ None ☐ Minor (<5% affected) ☐ Moderate (<15% affected) ☐ Severe (>25% affected)
Outlet Type	☐ Riser ☐ Edge drain ☐ Scupper ☐ Gutter ☐ Other: _____
Outlet Conditions	Erosion at outlet ☐ None ☐ Mild ☐ Moderate ☐ Severe Outlet Clogging ☐ None ☐ Mild ☐ Moderate ☐ Severe Structural problems ☐ None ☐ Mild ☐ Moderate ☐ Severe
Outfall Discharges to:	☐ Surface water _____ ☐ BMP _____ ☐ Storm Sewer _____ ☐ Other _____
Outfall Conditions (outside BMP)	Erosion ☐ None ☐ Mild ☐ Moderate ☐ Severe Trash ☐ None ☐ Mild ☐ Moderate ☐ Severe Sedimentation ☐ None ☐ Mild ☐ Moderate ☐ Severe Other: _____ ☐ None ☐ Mild ☐ Moderate ☐ Severe
Comments: _____ _____ _____	

K. Restoration and Non-structural BMPs _____**Protect Special Value Resources**Do areas indicated as protected on the PCSM plan remain undeveloped? ☐ Yes ☐ NoComments: _____

_____**Concentrate use/Reduce Impervious Cover**Does the footprint of the developed area match what was indicated in the PCSM plans? ☐ Yes ☐ NoComments: _____

_____**Rooftop Disconnection**Are all roof leader indicated on the PCSM plan disconnected? ☐ Yes ☐ NoErosion at downspout disconnect? ☐ None ☐ Mild ☐ Moderate ☐ SevereComments: _____

_____**Landscape Restoration**Are all areas of restoration and plantings indicated on the PCSM present at site? ☐ Yes ☐ NoPlant cover ☐ Uniform Plant Cover (>70%) ☐ Plant cover not uniform or below 70%☐ %Trees ☐ %Shrubs ☐ %Herbaceous ☐ %Turf☐ Matches plan☐ No Mowing ☐ Periphery Mowed ☐ Mowed turf ☐ Large Areas of Bare SoilPlant health: ☐ Healthy/Established ☐ Slightly stressed ☐ Stressed ☐ DeadComments: _____

_____**Street Sweeping**Are street sweeping records available? ☐ Yes ☐ No

If yes, frequency of sweeping performed? _____

Sediment on street/inlets ☐ None ☐ Mild ☐ Moderate ☐ SevereComments: _____

_____**Amended Soils** ☐ Yes ☐ NoWere amended soils used according to plan details? ☐ Yes ☐ NoIf so, have they been reduced or removed after? ☐ Yes ☐ NoIf no, comments: _____

Other BMPs / Additional Comments



MCM #6 Employee Training Log

[illegible]

PRP/TMDL
SUBMITTED TO DEP MARCH 2026
FOR APPROVAL

Combined Total Maximum Daily Load and Pollutant Reduction Plan for Indian Creek and Skippack Creek Watershed

For

Souderton Borough MS4 Permit Program

Souderton Borough, Montgomery County, PA

G&A File No. 2309027

Date January 31, 2026

Prepared For:

Souderton Borough

Prepared By:

Gilmore & Associates, Inc.
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APPENDIX A: PUBLIC AD

APPENDIX B: MS4 MAPS

APPENDIX C1: BASELINE POLLUTANT LOADING CALCULATIONS (INDIAN CREEK)

APPENDIX C2: BASELINE POLLUTANT LOADING CALCULATIONS (SKIPPACKCREEK)

APPENDIX C3: EXISTING BMPS TO REDUCE POLLUTANT LOADING

APPENDIX C4: LAND USE LOADING RATES CROSS-REFERENCE WIKIWATERSHED VS. APPROVED TMDL)

APPENDIX D: PROPOSED BMPS TO REDUCE POLLUTANT LOADING

EXECUTIVE SUMMARY

This report presents the combined Pollutant Reduction Plan (PRP) and Total Maximum Daily Load (TMDL) implementation strategy for Souderton Borough, prepared in accordance with the Pennsylvania Municipal Separate Storm Sewer System (MS4) Permit requirements. Souderton Borough is a regulated small MS4 whose stormwater discharges drain to impaired segments of Skippack Creek and Indian Creek, both of which are subject to approved TMDLs for sediment and nutrients, respectively. As required under the MS4 permit, the Borough has evaluated its contribution to these impairments and developed a plan to achieve measurable progress toward pollutant load reductions necessary to support attainment of water quality standards.

The Skippack Creek watershed is impaired by excessive sediment loading, with impacts to aquatic life attributed largely to stormwater runoff and streambank erosion. Under the approved 2005 Skippack Creek TMDL, Souderton Borough is assigned an 18 percent sediment reduction target relative to its wasteload allocation. Indian Creek is impaired by nutrient over-enrichment, primarily phosphorus, and is regulated under a 2008 nutrient TMDL that assigns Souderton Borough a 13 percent phosphorus reduction requirement. In addition to TMDL obligations, the Borough is subject to PRP requirements under Appendix E of the MS4 permit for sediment reductions.

To support a combined PRP/TMDL approach, Souderton Borough recalculated its existing pollutant loading using the WikiWatershed Model My Watershed tool. This modeling effort delineated MS4 planned and parsed areas, applied land use-based loading rates, and accounted for existing best management practices (BMPs) to reduce pollutant loading. The resulting adjusted existing sediment load for the Borough totals approximately 852,305 pounds per year across both watersheds. Consistent with MS4 permit provisions, both short-term and long-term reduction goals were established. Short-term goals require a minimum 10 percent reduction in adjusted sediment loading within the current permit term, while long-term goals align with the applicable TMDL wasteload allocations for sediment and nutrients.

To meet these requirements, Souderton Borough has identified a suite of 18 proposed BMP projects consisting of both structural and non-structural measures. These projects include one stream restoration project, ten rain gardens, three tree planting initiatives totaling more than 478 trees, one advanced hydrodynamic separator, one stormwater basin retrofit, one vegetated swale, and one pervious pavement installation. Collectively, the proposed BMPs are estimated to achieve approximately 123,000 pounds per year of sediment reduction, exceeding the Borough's minimum short-term reduction requirement and providing progress toward long-term TMDL compliance. Notably, the proposed stream restoration project alone has the capacity to satisfy the Borough's total required sediment reduction, providing flexibility and redundancy in implementation.

PERMIT DEFINITIONS

Attaining Use: Achieving and maintaining water bodies that meet specific, pre-defined standards for their intended use, such as supporting aquatic life, recreational activities, or public water supply.

Baseline Load: Pollutant load discharged by an MS4 as reported in the TMDL.

Best Management Practices (BMPs): A schedule of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce pollutant loading to surface waters of this Commonwealth. The term includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The term includes activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this Commonwealth before, during, and after earth disturbance activities. (25 Pa. Code §92a.2)

Clean Water Act (CWA): The Federal Water Pollution Control Act, as amended, 33 U.S.C.A §§1251-1387.

Cleaning Agent: Any product, substance or chemical other than water that is used to clean the exterior surface of vehicles.

Designated Uses: Uses specified in 25 Pa. Code §§93.4(a) and 93.9a-93.9z for each water body or segment whether or not they are being attained. (25 Pa Code §93.1)

Dry Weather: A condition in which there are no precipitation, snowmelt, drainage or other events producing a stormwater discharge for more than 48 consecutive hours.

Existing Load: The pollutant load that the MS4 estimates is draining to impaired waters from the Planning Area at the time of TMDL Plan submission. The existing load will be the same as the baseline load (regardless of whether or not the baseline load is revised) unless the MS4 accounts for reduction from structural BMPs installed between the date of TMDL approval and TMDL plan submission.

Existing permittee: Any entity that has been designated as a regulated small MS4 and has previously obtained permit coverage under the PAG-13 permit or obtained an Individual NPDES MS4 Permit.

Existing Uses: Uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards. (25 Pa. Code §93.1)

Hydrologic Unit Code: Watersheds delineated by United States Geologic Survey (USGS) using a nationwide system based on surface hydrologic features. This system divides the county into 22 regions (2-digit), subregions -digit), 405 basins (6-digit), 2400 subbasins (8-digits), 19,000 watersheds (10-digit), and 105,000 subwatersheds (12-digit)

Illicit Connection: A physical connection to a municipal separate storm sewer system that can convey illicit discharges into the system and/or is not authorized or permitted by the permittee.

Illicit Discharge: Any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except non-stormwater discharges as described in the “Discharges Authorized by this Permit”

section of this Permit. Examples of illicit discharges including dumping of motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, animal wastes, or unauthorized discharges of sewage, industrial waste, restaurant wastes, or any other non-stormwater waste into a municipal separate storm sewer system. Illicit discharges can be accidental or intentional.

Impaired Waters: Surface waters that fail to attain one or more of its designated uses under 25 Pa. Code Chapter 93 and as listed in Categories 4 and 5 of Pennsylvania’s Integrated Water Quality Monitoring and Assessment Report.

Integrated Water Quality Monitoring and Assessment Report: The Report published every other year by DEP to report on the conditions of Pennsylvania’s surface waters to satisfy sections 305(b) and 303(d) of the CWA.

Intermittent Stream: A body of water flowing in a channel or bed composed primarily of substrates associated with flowing water, which, during periods of the year, is below the local water table and obtains its flow from both surface runoff and groundwater discharges. (25 Pa. Code §92a.2)

Load Allocation: The portion of a surface water’s loading capacity that is assigned or allocated to existing and future nonpoint sources and natural quality (25 Pa. Codes §96.1)

Low Impact Development (LID): Site design approaches and small-scale stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater. LID can be applied to new development, urban retrofits, and revitalization projects. LID utilizes design techniques that infiltrate, filter, evaporate, and store runoff close to its source. Rather than rely of costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of small cost-effective landscape features located on site.

MS4 Requirements Table: A compilation of information regarding Pennsylvania’s MS4s, surface waters that receive stormwater discharges from MS4s, surface water impairments and TMDLs that is posted to DEP’s website, www.dep.pa.gov/MS4. The MS4 Requirements Table has been assembled by DEP to assist MS4 permittees in determining applicable requirements for the development of plans and implementation of BMPs.

Municipal Separate Storm Sewer: A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters; (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (IV) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. (25 Pa. Code §92a.32(a) and 40 CFR §122.26(b)(8))

Municipal Separate Storm Sewer System (MS4): All separate storm sewers that are defined as “large” or “medium” or “small” municipal separate storm sewer systems pursuant to 40 CFR §§122.26(b)(4), (b)(7), and (b)(16), respectively, or designated under 40 CFR § 122.26(a)(1)(v). (25 Pa Code §92a.32(a) and 40 CFR §122.26(b)(18))

Municipality: A town, city, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code §92a.2)

New Permittee: Any entity that has been designated as a regulated small MS4 and has not previously obtained permit coverage under the Pag-13 General Permit or obtained an Individual NPDES MS4 Permit.

Non-Municipal Permittee: A regulated small MS4 that is not a municipality, e.g., military bases, large hospital or prison complexes, and highways and other thoroughfares.

Non-Structural BMPs: Actions that involve management and source controls such as: (1) policies and ordinances that provide requirements and standards to direct growth to identified areas, promote redevelopment, protect areas such as wetlands and riparian areas, maintain and/or increase open space, provide buffers along water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; (2) education programs for developers and the public about minimizing water quality impacts; (3) measures such as minimizing the percentage of impervious area after development, use of measures to minimize directly connected impervious areas, street sweeping, and source control measures such as good housekeeping, maintenance, and spill prevention; and other BMPs as referenced in Chapter 5 of the Pennsylvania Stormwater BMP Manual (363-0300-002)

Nutrients: Elements essential for plant growth. Nitrogen (TN) and Phosphorus (TP) are the limiting nutrients in most aquatic environments.

Observation Point: A location upstream of an outfall where a permittee must conduct dry weather screening if the permittee determines that screening at an outfall is infeasible, and the point at which stormwater discharges to storm sewers owned or operated by an adjoining municipality where dry weather screening must be conducted.

Ordinance: A law enacted by the government of a municipality.

Outfall: A point source as defined by 40 CFR §122.2 at the point where a municipal separate storm sewer discharges to surface waters and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other surface waters and are used to convey surface waters. (25 Pa. Code §92a.32(a) and 40 CFR §122.26(b)(9))

Owner or Operator: Owner or operator of any “facility” or “activity” subject to regulation under the NPDES program. (25 Pa. Code §92a.3(b)(1) and 40 CFR §122.2)

Permittee: Owner or operator of a regulated small MS4 authorized to discharge under the terms of this permit.

Parsed Area: Land area removed from the Planned Area in order to calculate the actual or target pollutant loads applicable to an MS4 (i.e land associated with non-municipal stormwater NPDES permit coverage that exist within the urbanized area of a municipality, land area associated with PennDOT roadways, lands associated with production area of a concentrated animal feeding operation covered by NPDES permit, land areas in which stormwater runoff does not enter the MS4.

Planned Area: All of the storm sewersheds that an MS4 must calculate existing loads and plan reductions for.

Point Source: A discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock Concentrated Aquatic Animal Production Facility (CAAP), Concentrated Animal Feeding Operation (CAFO), landfill leachate collection system or vessel or other floating craft from which pollutants are or may be discharged. (25 Pa. Code §92a.2)

Qualifying Development or Redevelopment Project: An earth disturbance activity that requires an NPDES permit for stormwater discharges associated with construction activity per 25 Pa. Code Chapter 102.

Regulated Small MS4: Any small MS4 that is covered by the federal Phase II stormwater program, either through automatic nationwide designation under 40 CFR §122.32(a)(1) (via the Urbanized Area criteria) or by designation on a case by case basis by DEP pursuant to 40 CFR §122.32(a)(2). “Regulated small MS4s” are a subset of “small MS4s” as defined in this section.

Riparian Forest Buffer: An area of permanent vegetation consisting of native trees, shrubs, forbs, and grasses along surface water that is maintained in a natural state or sustainably managed to protect and enhance water quality, stabilize stream channels and banks, and buffer land use activities from surface waters.

Small Municipal Separate Storm Sewer System (Small MS4): An MS4, as defined in this section, that is not a large or medium MS4 pursuant to 40 CFR §§122.26(b)(4) and 122.26(b)(7). The term small MS4 includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings. (25 Pa. Code §92a.32(a) and 40 CFR §122.26(b)(16))

Standard Operating Procedure (SOP): A policy or set of procedures that are enacted by a non-municipal permittee to implement a stormwater management program.

Storm Sewershed: Land area that drains to an individual MS4 Outfall from within the jurisdiction of the MS4 permittee. The term “combined storm sewershed” means the drainage area of all MS4 outfalls that discharge to a specific surface water or to waters within the Chesapeake Bay watershed.

Stormwater: Runoff from precipitation, snow melt runoff and surface runoff and drainage. “Stormwater” has the same meaning as “storm water”. (25 Pa. Code §92a.2)

Structural BMPs: Stormwater storage and management practices including but not limited to, wet ponds and extended detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; infiltration practices such as infiltration basins and infiltration trenches; and other BMPs as referenced in Chapter 6 of the Pennsylvania Stormwater BMP Manual (363-0300-002).

Surface Waters: Perennial and intermittent streams, rivers, lakes, reservoirs, ponds, wetlands, springs, natural seeps and estuaries, excluding water at facilities approved for wastewater treatment such as wastewater treatment impoundments, cooling water ponds and constructed wetlands as part of a wastewater treatment process. (25 Pa. Code §92a.2)

Total Maximum Daily Load (TMDL): Sum of individual waste load allocations (WLA) for point sources, load allocations (LA) for nonpoint sources and natural quality and a margin of safety (MOS) expressed in terms of mass per time, toxicity, or other appropriate measures. (25 Pa. Code §96.1). *A TMDL identifies the maximum amount of a pollutant that a water body can receive while still meeting water quality standards.*

$$TMDL = \Sigma WLA + \Sigma LA + \Sigma MOS$$

Urbanized Area (UA): Land area comprising one or more places (central place(s) and the adjacent densely settled surrounding area (urban fringe) that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile, as defined by the United State Bureau of the Census and as determined by the latest available decennial census. The UA outlines the extent of automatically regulated areas.

Wasteload Allocation (WLA): The portion of a surface water's loading capacity that is allocated to existing and future point source discharges. (25 Pa. Code §96.1)

Water Quality Criteria: Numeric concentrations, levels or surface water conditions that need to be maintained or attained to protect existing and designated uses. (25 Pa. Code §93.1)

Water Quality Standards: The combination of water uses to be protected and the water quality criteria necessary to protect those uses. (25 Pa. Code §92a.2)

INTRODUCTION

As a regulated MS4 permittee located within TMDL watersheds, Souderton Borough is required to evaluate its contribution to the identified impairments and implement measures that achieve reasonable progress toward the pollutant load reductions necessary to support attainment of water quality standards.

This combined PRP/TMDL report documents the regulatory applicability, pollutants of concern, and methodologies used to characterize existing pollutant loading conditions within the Borough's MS4 planned area. The report further identifies the required pollutant load reductions assigned to the Borough based on approved TMDL allocations and describes the process used to evaluate, select, and prioritize structural and non-structural best management practices (BMPs) capable of addressing those pollutants. BMP selection considers site feasibility, pollutant removal effectiveness, and opportunities to integrate stormwater improvements with existing municipal infrastructure and programs.

Consistent with MS4 permit requirements, this report is intended to serve as a planning and implementation tool, rather than a demonstration of immediate TMDL attainment. Pollutant reduction targets represent short-term and long-term goals to be achieved over multiple permit terms, and progress will be documented through phased BMP implementation and annual reporting. The PRP/TMDL may be updated over time to reflect new data, completed projects, or refinements to pollutant loading estimates, ensuring continued alignment with watershed conditions and regulatory expectations.

SKIPPACK CREEK WATERSHED

Skippack Creek is a 15.2 mile stream located in Montgomery County, Pa. that begins in Souderton Borough and flows generally southwest where it meets the Perkiomen Creek within the Perkiomen Creek Watershed. Major tributaries in the stream's 56-square mile basin include the West Branch of Skippack Creek, Towamencin Creek and Zacharias Creek and includes urbanized areas from 12 municipalities. The entire Skippack Creek watershed is classified as trout stocked fishery (TSF) according to the Pennsylvania Chapter 93 water quality standards. Approximately 84% of Souderton's land area or 597.9 acres drains towards the Skippack Creek Watershed with the majority of land uses within the low to high intensity development.

INDIAN CREEK WATERSHED

The Indian Creek watershed is part of the overall HUC-12 East Branch Perkiomen Creek Watershed and drains approximately seven square miles in Montgomery County, Pa and includes urbanized area from 8 municipalities. The designated use for Indian Creek is TSF. The main stem of Indian Creek flows southwesterly prior to its' confluence with East Branch

Perkiomen Creek. Approximately 16% of Souderton Borough's land area or 115.54 acres drains towards the Indian Creek watershed with the major land uses comprising 45% as low intensity development, 26% as open space, 19.2% as medium intensity development, 6.7% as high intensity development.

A. PUBLIC PARTICIPATION

Public participation is a key component of the PRP/TMDL development process and ensures that community stakeholders are informed and engaged in the Borough's stormwater management efforts. Souderton Borough will provide opportunities for public review and comment on the proposed TMDL/PRP, consistent with the MS4 permit and TMDL guidance. This includes posting the draft PRP on the Borough website and holding a public meeting/workshops to discuss proposed BMP projects, pollutant reduction goals, and implementation timelines. Input received from the public will be considered in finalizing the PRP to promote transparency, foster community support, and enhance the effectiveness of BMP implementation. Documentation of public participation activities and responses to comments are included in [Appendix A](#) of this report and will be maintained as part of the Borough's compliance record.

Update 3/12/26: No public comment was received.

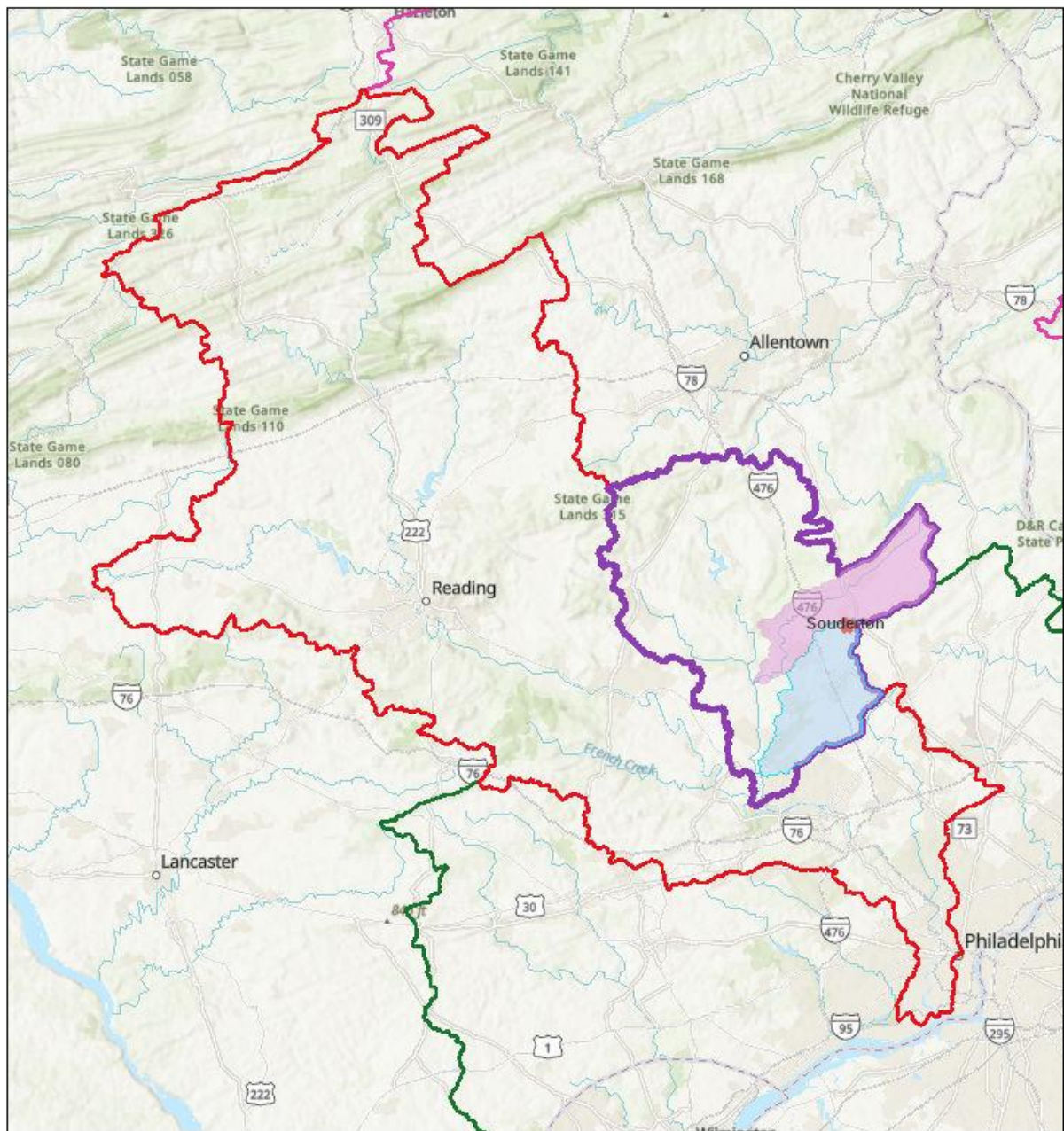
B. MAPPING

Accurate and detailed mapping is an essential component of the TMDL/PRP plan and supports effective planning, implementation, and tracking of BMPs within Souderton Borough. The TMDL/PRP includes mapping of the municipal storm sewer system, subwatershed and individual sewershed boundaries, outfalls, existing and proposed BMP locations, planned areas contributing to pollutant loading within the Skippack Creek and Indian Creek watersheds and parsed areas which the MS4 is not responsible to manage.

Geographic information system (GIS) mapping enables identification of priority areas for BMP implementation, facilitates calculation of existing and projected pollutant loads, and supports monitoring of progress toward TMDL/PRP reduction targets. All maps are prepared at a scale and resolution sufficient to allow clear identification of drainage areas, structural and non-structural BMPs, and connectivity to receiving waters. Outfall Maps can be found in [Appendix B](#) of this report.

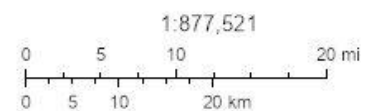
Mapping data will be maintained and updated over time to reflect completed BMP projects, changes in land use, and any refinements to drainage delineations, consistent with Appendix E and Appendix F requirements of the MS4 permit. Figure 1 and 2 demonstrate an overview of Souderton Borough's geographic setting within the larger watershed boundaries context.

Watershed Boundary (HUC8-HUC12)



12/4/2025

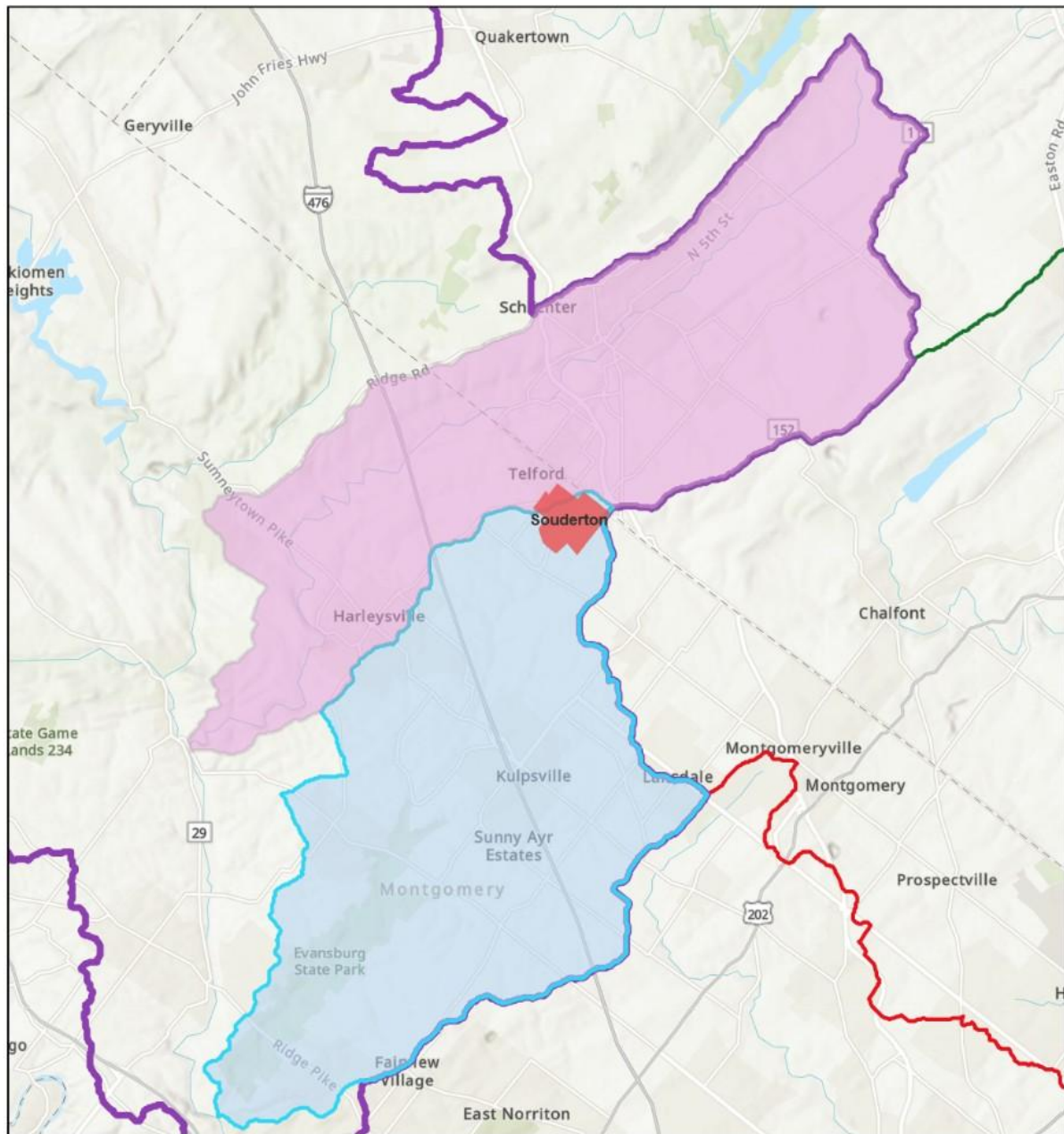
- Bucks County Municipal Boundary
- Souderton
- Watershed Boundary Dataset HUC 12s
- Skipack Creek (HUC-12)
- East Branch Perkiomen Creek (HUC-12)
- Perkiomen Creek Watershed (HUC-10)
- Schuylkill Subbasin (HUC-8)
- Lower Delaware (HUC-6)
- Delaware-Mid Atlantic Coastal (HUC-4)
- Mid Atlantic Region (HUC-2)
- World_Hillshade



Esri, CGIAR, USGS. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 1: Hydrologic Unit Code Watershed Boundary Map (HUC-8-HUC-12)

Watershed Boundary (HUC-12)



12/4/2025

- | | |
|-------------------------------------|---------------------------------------|
| Bucks County Municipal Boundary | Schuylkill Subbasin (HUC-8) |
| Souderton | Lower Delaware (HUC-6) |
| Watershed Boundary Dataset HUC 12s | Delaware-Mid Atlantic Coastal (HUC-4) |
| Skippack Creek (HUC-12) | Mid Atlantic Region (HUC-2) |
| East Branch Perkimen Creek (HUC-12) | World_Hillshade |
| Perkimen Creek Watershed (HUC-10) | |

1:219,380

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

Esri, NASA, NGA, USGS, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community

Figure 2: Hydrologic Unit Code Watershed Boundary Map (HUC-12)

C. POLLUTANTS OF CONCERNS

C.1 MUNICIPAL MS4 REQUIREMENTS

The DEP municipal requirements table demonstrated below in Table 4 identifies the pollutants of concern applicable to Souderton Borough and specifies the corresponding permit appendices that establish required control measures. The table functions as a regulatory cross-reference, clarifying which MS4 permit requirements apply based on the presence of regulated pollutants and approved TMDLs within the watershed.

MS4 Name	NPDES ID	Individual Permit Required	Reason	Impaired Downstream Water of TMDL Name	Requirement(s)
Souderton Borough	PAG130132	Yes	TMDL Plan	Skippack Creek Watershed TMDL	TMDL Plan – Siltation (4a)
				Indian Creek	Appendix E – Siltation (4a)
				West Branch Neshaminy Creek	Appendix E – Siltation (4a), Excessive Algal Growth, Organic Enrichment/Low DO
				Skippack Creek	Appendix E- Excessive Algal Growth, Nutrients
				Indian Creek TMDL	TMDL Plan- Nutrients

Table 1: Souderton Borough MS4 Requirements Table

Souderton Borough’s planned area drains towards Skippack Creek and Indian Creek. Upon topographic investigation it was established no planned area within the Borough drains towards West Branch Neshaminy Creek, therefore no requirements are necessary for this watershed.

Table 1 identifies TMDL and Appendix E requirements for the Indian Creek and Skippack Creek. The approved TMDLs are discussed further in Sections C and D of this report. The Borough intends to combine these two requirements to satisfy their pollutant reduction goals in order for these watersheds to attain their designated use of Trout Stocked Fishery (TSF).

C.2 REFERENCE TMDL ASSESSMENTS – SKIPPACK CREEK WATERSHED

The Skippack Creek TMDL entitled “*U.S. Environmental Protection Agency, Region 3, Total Maximum Daily Load for Skippack Creek, Montgomery County, Pennsylvania*” was established April 8, 2005. On October 1, 2007 EPA withdrew the nutrient TMDL since the published nutrient target endpoints were not sufficient to attain and maintain the existing water quality standards and uses for the watershed. It was determined that nitrogen controls as well as phosphorus controls may be needed to reduce excessive algal growth.

Skippack Creek is listed as impaired according to Pennsylvania’s Integrated Water Quality Monitoring and Assessment Report. The Pennsylvania Department of Environmental Protection (PaDEP) and EPA attribute the impairment primarily due to *excessive sediment loading*, especially streambank erosion caused by small residential stormwater runoff and *nutrient over-enrichment*, which causes low dissolved oxygen and excess periphyton/algal growth. EPA, therefore, established this TMDL to reduce loads consistent with an unimpaired watershed.

C.2.A SEDIMENT IMPAIRMENT

Pennsylvania does not have a numeric sediment water-quality criterion, so the TMDL relies on biological indicators to determine impairment. The state uses Pennsylvania’s Aquatic Life Use Biological Assessment Protocols which measures benthic macroinvertebrate community structure, diversity, pollution tolerance, and habitat quality. Streams with biological scores below threshold values when compared to attaining reference streams are considered impaired.

C.2.A.1 TMDL CALCULATION METHODOLOGY

A “Reference watershed approach” was utilized to develop the sediment TMDL which compares two watersheds, one attaining its uses and one that is impaired based upon biological assessments. The objective is to reduce the loading rate of pollutants in the impaired stream segment to a level equivalent to the loading rate in the non-impaired, reference segment.

The reference watershed chosen was East Branch Perkiomen Creek which had similar size, geology, and land use and was attaining its use at the time of TMDL development. Land use is based on 1998 data provided by PADEP and Penn State University. Table 2 below highlights the existing average unit loading rate (lb/ac/yr) of Skippack Creek Watershed versus the allowable/attaining average unit loading rate (lb/ac/yr) of the East Branch Perkiomen Creek Watershed. The allowable sediment loading of **39,320,019 lbs/yr** is the TMDL that must be achieved for the **entire watershed** to attain its designated use.

<u>Skippack Creek Watershed</u>	<u>Area (ac)</u>	<u>Average Unit Loading Rate (lb/ac/yr)</u>	<u>Sediment Loading (lb/yr)</u>
Existing	35,368.2	1220.98	43,183,799
Allowable	35,368.2	1111.73	39,320,019

Table 2: Existing and Allowable Sediment Loading for Skippack Creek Watershed based upon Table 18 within the original 2005 TMDL Report

C.2.A.2 SKIPPACK CREEK WASTELOAD ALLOCATION

The **allowable** sediment loading (TMDL) was then separated into three required components and is the sum of: Wasteload Allocations (WLA), Load Allocation (LA), and a Margin of Safety (MOS). For the purposes of the approved TMDL, all MS4s were considered point sources and placed under the WLA.

$$TMDL = \Sigma WLA + \Sigma LA + \Sigma MOS$$

<u>TMDL</u>	<u>ΣWLA</u>	<u>ΣLA</u>	<u>ΣMOS</u>
39,320,019	35,388,017	0	3,932,002

Table 3: Allowable Sediment Loading (TMDL) with Wasteload Allocation (WLA) based upon Table 18 within the original 2005 TMDL Report

C.2.A.3 SOUDERTON BOROUGH WASTELOAD ALLOCATION

There are 12 municipalities within the Skippack Creek watershed and each have a portion of the WLA or allocated sediment load mentioned above that must be met in order for the watershed to attain its designated use. Table 4 below identifies each municipality with their corresponding existing sediment loading, allocated sediment load (WLA), and the required sediment reduction.

Component Source	Existing Sediment Load (lbs/yr)	Allocated Sediment Load (lbs/yr)	Required Reduction (%)	Required Sediment Reduction (lbs/yr)
WLAs	43,183,799	35,388,017	18%	7,795,782
Franconia	3,329,329	2,728,310	18%	601,019
Hatfield	2,126,160	1,742,235	18%	383,925
Hilltown	161,247	132,123	18%	29,124
Lansdale	2,299,779	1,884,401	18%	415,378
Lower Salford	4,467,807	3,661,337	18%	806,470
Providence	2,067,511	1,694,657	18%	372,854
Skippack	2,735,864	2,242,531	18%	493,333
Souderton	2,551,834	2,090,933	18%	460,901
Telford	9,632	7,892	18%	1,740
Towamencin	13,545,558	11,099,513	18%	2,446,045
Upper Gwynedd	5,325,888	4,364,075	18%	961,813
Worcester	4,563,192	3,740,010	18%	823,182

Table 4: Wasteload Allocation for all MS4 municipalities in Skippack Watershed based upon Table 21 in original TMDL

According to the TMDL, Souderton Borough must reduce its' existing load by 18%, i.e. 460,901 lbs/yr to meet water quality standards. Souderton Borough intends to recalculate the existing sediment load through a new modeling effort and is discussed in [Section D](#) of this report.

C.3 REFERENCE TMDL ASSESSMENTS – INDIAN CREEK WATERSHED

The Indian Creek TMDL entitled “*Nutrient and Sediment TMDLs for the Indian Creek Watershed, Pennsylvania: Established by the U.S. Environmental Protection Agency*” was established on June 30, 2008. On March 21, 2014 EPA withdrew the sediment TMDL since a *hybrid* reference watershed approach was used to derive the loading rates which deviated from the commonly accepted “Reference Watershed” approach as mentioned in [Section C.2.A.1](#). Additionally, an errata was published on May 19, 2015 for the *Nutrient* Total Maximum Daily Load (TMDL) for the Indian Creek Watershed, Pennsylvania to make clarifications to the listed tables found in the original TMDL.

Several segments within the watershed have been listed on Pennsylvania’s 303(d) list of impaired waters for not meeting aquatic life uses and for impairments due to siltation and nutrients. EPA and PaDEP attribute these causes to municipal point sources, agriculture, and urban and residential stormwater runoff. Data collected at the time of TMDL

development show severe swings in dissolved oxygen (DO), oxygen saturation levels, and pH levels. The elevated phosphorus and nitrogen levels are likely contributing to the thick algal mats which blanket the stream bed at various locations.

C.3.A NUTRIENT IMPAIRMENT

Indian Creek is impaired due to excess nutrient loading, primarily phosphorus, which has led to eutrophication-related impacts on aquatic life. The impairment is most critical during the April through October growing season, when higher temperatures and increased sunlight amplify biological productivity and oxygen demand. To address these conditions, the nutrient TMDL establishes a seasonal total phosphorus target designed to reduce algal growth, improve dissolved oxygen levels, and restore aquatic life uses.

C.3.A.1 TMDL CALCULATION METHODOLOGY

Because Pennsylvania's water quality standards for nutrients are narrative (i.e., they describe conditions that should be "free from" excessive nutrients rather than numeric criteria), the TMDL process first required development of a numeric nutrient endpoint that could be used as a basis for calculating reductions.

For Indian Creek, the EPA adopted a total phosphorus endpoint of **40 µg/L** based on a regional nutrient endpoint analysis conducted for the Northern Piedmont Ecoregion of Pennsylvania. This analysis incorporated multiple lines of evidence — including reference watershed conditions, biological response relationships, and stressor-response approaches — to derive an environmentally meaningful target concentration that corresponded with attainment of water quality goals.

Once the nutrient endpoint was established, the TMDL calculation followed the standard mass-balance framework used in TMDLs: Existing annual loads of total phosphorus were estimated using available monitoring data and watershed modeling. An allowable load consistent with the 40 µg/L phosphorus endpoint was defined as the target condition that, when multiplied by representative stream flow, would support attainment of water quality standards. The required load reduction was determined by comparing existing loads to the allowable load and expressing the difference as a reduction target.

These elements were then allocated among point sources (wasteload allocations) and nonpoint sources/load allocations, with an implicit margin of safety included to account for uncertainty. This methodology ensured the nutrient TMDL was grounded in both biological relevance (via the endpoint) and mass balance principles, allowing the TMDL

to function as a pollutant budget that sets the total allowable phosphorus load and required reductions within Indian Creek.

Table 5 below represents the existing phosphorus load and WLA for Souderton based upon Tables 5-7 and ES-5 of the approved TMDL. According to the TMDL, Souderton Borough must reduce its existing load by 13%.

<i>Facility</i>	<i>Existing Load (lb/yr)</i>	<i>TMDL WLA (lb/yr)</i>	<i>Maximum Daily Load (lb/day)</i>	<i>% Reduction</i>
<i>Souderton</i>	49.40	42.83	0.263	13%

Table 5: Existing, TMDL, and Maximum Daily Total Phosphorus WLAs for Souderton Borough based upon approved TMDL

D. EXISTING POLLUTANT LOADING

Since Souderton Borough intends to combine their TMDL/PRP requirements, a new modelling effort must be utilized to recalculate the existing pollutant loading. Wikiwatershed's Model My Watershed was implemented to estimate Souderton's existing pollutant loading for Indian Creek and Skippack Creek.

D.1 WIKIWATERSHED MODEL MY WATERSHED

WikiWatershed's Model My Watershed is an online watershed planning tool developed by the Stroud Water Research Center and is widely used to support MS4 planning and Pollutant Reduction Plan development. The model estimates average annual pollutant loading, including sediment, by applying land use-based loading rates derived from peer-reviewed literature and national datasets to spatially defined drainage areas. Model My Watershed allows users to delineate MS4-regulated areas and evaluate planned-area land uses, making it well suited for estimating existing sediment loading from developed land uses subject to municipal stormwater control.

D.2 CALCULATION METHODOLOGY

The following steps were undertaken to recalculate the existing loading:

1. Storm Sewershed Delineation

Planned and Parsed areas to Indian Creek and Skippack Creek were delineated into sewersheds within Souderton Borough utilizing Civil 3D software. These drainage areas were then exported to Wikiwatershed for analysis.

2. Land Use Identification

Land Uses within each delineated sewershed were identified through the model (e.g. Open Space, Low-intensity developed, Medium-intensity developed, etc.). Model-specific

sediment loading rates were assigned to each land use category. These loading rates represent average annual sediment yields under conditions existing at the time of the original TMDL approval.

3. Baseline Sediment Loading Calculation and Summation

A presumptive approach was utilized when calculating the existing loading which states “a load reduction of 10% for sediment may be used as the objective in lieu of a 5% reduction in nutrients”. Therefore, the area of each land use category was then multiplied by its applicable sediment loading rate. The resulting sediment loads were summed across all land uses to generate a total baseline sediment loading for each sewershed and for the Borough overall. Detailed baseline loading calculations for Indian Creek and Skippack Creek can be found in [Appendix C1](#) and [C2](#), respectively. Table 6 below is a summary of the total baseline sediment loading for Indian Creek and Skippack Creek. It is noted that the sediment loading attributed from parsed areas was not included in the baseline loading.

<u>Subwatershed</u>	<u>Drainage Area (ac)</u>	<u>Planned Area (ac)</u>	<u>Parsed Area (ac)</u>	<u>Baseline Sediment Loading (lb/yr)</u>	<u>Coverage</u>
<i>Indian Creek</i>	115.54	96.41	19.13	131,755.26	16%
<i>Skippack Creek</i>	597.9	520.27	77.64	736,678.97	84%
Total	713.44	616.68	96.77	868,434.23	100%

Table 6: Indian Creek and Skippack Creek Baseline Sediment Loading Summary for Souderton Borough

4. Adjust Baseline Loading for Existing BMPs

The baseline sediment loading was then reduced to account for BMPs installed prior to the approved TMDL (2005) for Skippack Creek and BMPs installed after the approved TMDL (2008) for Indian Creek and prior to PRP development. Since the Indian Creek TMDL removed the sediment component, only the PRP requirement remains for sediment, therefore Souderton may use all BMPS prior to the date of load calculation (i.e. this PRP/TMDL) to reduce its existing pollutant loading. Detailed loading calculations of these existing BMPs are located in [Appendix C-3](#) of this report. Table 7 below demonstrates the reduced loading from existing BMPs and the Adjusted (i.e Existing) Sediment Loading.

<u>Subwatershed</u>	<u>Planned Area (ac)</u>	<u>Baseline Sediment Loading (lbs/yr)</u>	<u>Existing BMPs to Reduce Loading (lbs/yr)</u>	<u>Adjusted Sediment Loading (lbs/yr)</u>
<i>Indian Creek</i>	96.41	131,755	13,370	118,385
<i>Skippack Creek</i>	520.27	736,678.97	2,758	733,920
<i>Total</i>	616.68	868,434.23	16,128	852,305

Table 7: Indian Creek and Skippack Creek Adjusted Sediment Loading for Souderton Borough

5. Calculate Short-Term and Long-Term Pollutant Reduction Goals

There are two objectives for a combined PRP/TMDL plan and Souderton Borough must achieve at least one of these goals within the five year permit term (2024-2029).

- Long Term Pollutant Reduction Goals: Plan for the reduction of pollutant loads to achieve the WLA(s) in the TMDL.
 - Skippack Creek: 18% WLA of Sediment
 - Indian Creek: 13% WLA of Nutrients
- Short Term Reduction Goals: 10% Reduction of the Adjusted Sediment Loading.

Below are summary tables 8 and 9 for Indian Creek and Skippack Creek which highlights the TMDL requirements (Appendix F) and PRP requirements (Appendix E) with the recalculated pollutant loadings and reduction goals. Souderton Borough must effectively reduce **11,838 lbs/yr and 73,392 lbs/yr** of sediment within the Indian Creek and Skippack Creek, respectively, to achieve their short term reduction goals. Additionally, a reduction of **132,106 lbs/yr** of sediment is required to achieve their long-term reduction goals.

	<i>Indian Creek</i>				
	<i>Appendix F: TMDL Requirements (2008)</i>			<i>Appendix E: PRP Requirements</i>	
	<i>WLA</i>	<i>Nutrients¹</i>	<i>Sediment</i>	<i>Nutrients¹</i>	<i>Sediment</i>
Baseline Loading (lbs/yr)	---	52.2	N/A	N/A	131,755
BMPs to Reduce Loading (lbs/yr)	---	---	N/A	N/A	13,370
Adjusted Loading (lbs/yr)	---	52.2	N/A	N/A	118,385
Short Term Reduction Goals (lbs/yr)	---	5.22	N/A	N/A	11,838
Long Term Reduction Goals (lbs/yr)(TMDL only)	13%	6.786	N/A	N/A	N/A

1: A presumptive approach was utilized which states a load reduction of at least 10% for sediment may be used as the objective in lieu of a 5% reduction in nutrients.

Table 8: Indian Creek Numeric Pollutant Loading and Required Reduction Goals

	<i>Skippack Creek</i>				
	<i>Appendix F: TMDL Requirements (2005)</i>			<i>Appendix E: PRP Requirements</i>	
	<i>WLA</i>	<i>Nutrients¹</i>	<i>Sediment</i>	<i>Nutrients¹</i>	<i>Sediment</i>
Baseline Loading (lbs/yr)	---	N/A	736,678	N/A	736,678
BMPs to Reduce Loading (lbs/yr)	---	N/A	2,758	N/A	2,758
Adjusted Loading (lbs/yr)	---	N/A	733,920	N/A	733,920
Short Term Reduction Goals (lbs/yr)	---	N/A	73,392	N/A	73,392
Long Term Reduction Goals (lbs/yr)(TMDL only)	18%	N/A	132,106	N/A	N/A

1: A presumptive approach was utilized which states a load reduction of at least 10% for sediment may be used as the objective in lieu of a 5% reduction in nutrients.

Table 9: Skippack Creek Numeric Pollutant Loading and Required Reduction Goals

Because both the Skippack Creek and Indian Creek watersheds ultimately drain to the Perkiomen Creek, *DEP agreed that pollutant loads generated within Souderton Borough were evaluated on a cumulative basis for planning and implementation purposes.* Loads associated with each watershed were calculated independently to maintain alignment with the applicable TMDLs as shown in Table 8 and Table 9 above, then summed to represent the Borough's total MS4 pollutant contribution to downstream receiving waters. This aggregated load provides a comprehensive accounting of Souderton Borough's stormwater-related pollutant contributions and supports prioritization of BMP implementation across municipal drainage areas while maintaining consistency with individual watershed TMDL requirements. Table 10 demonstrates the cumulative existing pollutant loadings and required reductions.

<i>Subwatershed</i>	<i>Planned Area (ac)</i>	<i>Adjusted/Existing Sediment Loading (lb/yr)</i>	<i>Short-Term Reduction Goals (10% Reduction)</i>	<i>Long-Term Reduction Goals</i>
<i>Indian Creek</i>	96.41	118,385	11,838	N/A
<i>Skippack Creek</i>	520.27	733,920	73,392	132,106
<i>Total</i>	616.68	852,305	85,230	132,106

Table 10: Summation of Existing Sediment Loading and Required Reduction Goals

D.3 TMDL VS. WIKIWATERSHED RESULTS

It is noted that Souderton Borough's existing sediment pollutant loading of 2,551,834 lbs/yr identified in the approved TMDL and referenced in Table 4 in [Section C.2.A.3](#) does not numerically correspond to the baseline sediment loading of 736,678 lbs/yr calculated for Skippack Creek utilizing Model My Watershed.

Model My Watershed applies generalized land use–based sediment loading rates that implicitly incorporate average contributions from upland erosion and streambank processes, whereas the approved TMDL explicitly models streambank erosion as a distinct source through watershed-scale routing. A cross-reference of land use categories and associated loading rates between the TMDL and Model My Watershed ([See Appendix C-4](#)) indicates that when identical land cover distributions are applied consistently across the Skippack Creek watershed, the resulting sediment load differential is approximately seven percent as demonstrated in Table 11 below.

	<i>Existing Sediment Loading (lbs/yr)</i>		
<i>Watershed Scale</i>	<i>TMDL</i>	<i>Wikiwatershed</i>	<i>Δ Differential</i>
<i>Indian Creek</i>	N/A*	39,542,082.76	N/A
<i>Skippack Creek</i>	43,183,799	40,267,416.34	7%

*Sediment TMDL was
withdrawn in 2014

Table 11: Differences between TMDL and Wikiwatershed Sediment Loading for Indian Creek and Skippack Creek.

This comparison confirms that Model My Watershed reproduces the TMDL's land-based sediment loading methodology at the watershed scale, and that remaining differences are attributable to differences in spatial aggregation and explicit versus implicit treatment of streambank erosion.

E. SELECT BMPs TO ACHIEVE MINIMUM REQUIRED REDUCTIONS IN POLLUTANT LOADING

To achieve the minimum required reductions in pollutant loading established in [Section D](#) of this report, Souderton Borough has identified a suite of **18 proposed best management practice (BMP) projects** that collectively address the pollutants of concern within the Skippack Creek and Indian Creek watersheds. The proposed BMPs include a balanced combination of structural and non-structural measures, selected based on pollutant reduction effectiveness, feasibility within a developed municipal setting, and consistency with MS4 permit requirements.

The proposed projects consist of one stream restoration project, ten rain gardens, three tree planting initiatives totaling more than 478 trees throughout the Borough, one advanced hydrodynamic separator, one stormwater basin retrofit, one vegetated swale, and one pervious pavement installation. These BMPs are designed to reduce sediment loading through a combination of runoff volume reduction, pollutant capture, and stabilization of erosive conditions within the drainage network.

*Among the proposed projects, the stream restoration project represents a significant pollutant reduction opportunity. Based on established pollutant reduction methodologies, this project alone has the capacity to satisfy the Borough's total required reduction of **85,230 pounds**, providing a substantial margin of compliance with the minimum TMDL reduction target. The remaining BMPs provide additional reductions, redundancy, and flexibility, and support long-term reduction goals.*

Collectively, the proposed BMPs provide a robust and implementable strategy for achieving required pollutant load reductions while allowing for phased implementation over multiple permit terms. Pollutant reductions will be documented as projects are implemented, and the TMDL/PRP may be updated as necessary to reflect completed BMPs, refined load estimates, or additional implementation opportunities, consistent with Appendix E and F MS4 permit requirements. Table 12 demonstrates the proposed BMPs Souderton has planned to implement to achieve load reductions. Detailed BMP calculations and exhibits are located in [Appendix D](#) and shown on the MS4 Outfall Map located in [Appendix B](#).

Proposed BMP Summary Table					
Proposed BMP	BMP Type	TSS Removal Efficiency (%) ¹	Treated Drainage Area (ac)	Load Reduction (lbs/yr) ²	Funding
A	BMP 6.4.5 Rain Garden / Bioretention	55	1.06	586.66	General Funds/Grants
B	BMP 6.4.5 Rain Garden / Bioretention	55	2.52	3256.89	General Funds/Grants
C	BMP 6.7.2 Landscape Restoration	20	3.02	265.25	General Funds/Grants
D	BMP 6.4.5 Rain Garden / Bioretention	55	0.49	438.20	General Funds/Grants
E	BMP 6.4.5 Rain Garden / Bioretention	55	0.53	318.84	General Funds/Grants
F1 and F2	BMP 6.4.5 Rain Garden / Bioretention	55	0.46	546.02	General Funds/Grants
G	BMP 6.7.2 Landscape Restoration	20	7.52	718.61	General Funds/Grants
H	BMP 6.6.4 Water Quality Inserts	10	7.65	881.98	General Funds/Grants
I	BMP 6.4.5 Rain Garden / Bioretention	55	0.92	1092	General Funds/Grants
J	BMP 6.6.3 Dry Extended Detention Basin	60	8.7	8,914	General Funds/Grants
K	BMP 6.4.8 Vegetated Swale	50	5.06	3244.64	General Funds/Grants
L	BMP 6.7.2 Landscape Restoration	20	See BMP Calculation	105.37	General Funds/Grants
M	BMP 6.4.5 Rain Garden / Bioretention	55	1.73	1319.63	General Funds/Grants
N	BMP 6.4.1 Perious Pavement with Infiltration Bed	55	0.81	584.13	General Funds/Grants
O	BMP 6.4.5 Rain Garden / Bioretention	55	16.24	12467.60	General Funds/Grants
P	BMP 6.4.5 Rain Garden / Bioretention	55	0.38	403.62	General Funds/Grants
Q	BMP 6.4.5 Rain Garden / Bioretention	55	1.77	1551.34	General Funds/Grants
R	Stream Restoration	N/A	N/A	86,250.00	General Funds/Grants
Total Sediment Reduction (lbs/yr)				122,945	

Table 12: Proposed BMP Summary Table to Achieve Pollutant Reduction Requirements

F. IDENTIFY FUNDING MECHANISMS

Implementation and long-term operation of the proposed BMP projects will be supported through a combination of municipal funding, grant opportunities, and potential partner contributions. Souderton Borough will allocate capital and operational funds from its stormwater management program budget, and will pursue available state and federal grant programs where feasible to supplement local resources. Additional partnerships with community groups, local businesses, or watershed organizations may be leveraged to support planting initiatives, maintenance, and public education efforts.

G. IDENTIFY RESPONSIBLE PARTIES FOR OPERATION AND MAINTENANCE OF BMPs

Responsibility for operations and maintenance (O&M) of the BMPs will be clearly assigned to the Borough or designated partners to ensure continued functionality and pollutant reduction performance. Structural BMPs, including the stream restoration project, stormwater basin retrofit, vegetated swales, pervious pavement, and advanced hydrodynamic separator, will be maintained according to manufacturer recommendations, design specifications, and permit requirements, with regular inspections and corrective maintenance as needed. Non-structural BMPs, such as rain gardens and tree planting initiatives, will be incorporated into the Borough's landscape and grounds maintenance programs, with monitoring and upkeep scheduled to sustain plant health and infiltration capacity. Documentation of O&M activities will be maintained to demonstrate long-term compliance with TMDL/PRP pollutant reduction goals and to support annual MS4 reporting requirements.

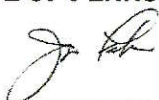
APPENDIX A: PUBLIC AD

PHILADELPHIA GROUP

AFFIDAVIT OF PUBLICATION

390 Eagleview Boulevard • Exton, PA 19341

SOUDERTON BOROUGH
31 W. SUMMIT STREET
SOUDERTON, PA 18964
Attention:

**STATE OF PENNSYLVANIA,**

The undersigned _____, being duly sworn the he/she is the principal clerk of Souderton Independent, Montgomery News Digital, published in Montgomery County for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

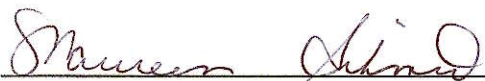
SOUDERTON BOROUGH**Published in the following edition(s):**

Souderton Independent, Montgomery News Digital
02/01/26

NOTICE

NOTICE OF PUBLIC COMMENT PERIOD AND PUBLIC MEETING for the Souderton Borough Pollutant Reduction Plan (PRP) and Total Maximum Daily Load (TMDL) Plan for Indian Creek and Skip-pack Creek. The PRP/TMDL outlines the measures the Borough intends to implement to reduce certain pollutants discharged from the Borough's municipal separate storm sewer system (MS4) within the watershed. The Plan includes calculations for existing pollutant loading, the minimum reduction required, and a selection of Best Management Practices (BMPs) intended to achieve the minimum required reduction. The Borough is soliciting written comments on the Plan. Interested persons may submit written comments during the 30-day period of January 31st through March 2nd, 2026. The PRP/TMDL may be reviewed at Souderton Borough, 31 West Summit Street, Souderton Pa 18964 weekdays from 8:30 AM to 3:30 PM. Written and verbal questions and comments will be accepted at a public meeting on February 2, 2026 (7:00 PM) at Souderton Borough Administrative Office. Comments must be submitted in writing to the address above (Attn: Borough Manager) or by email at sjarett@soudertonborough.org and must include originators name and address. Comments submitted by fax will not be accepted. Borough Manager Souderton Borough SI - Feb 1 -1a

Sworn to the subscribed before me this 2/2/26.



Notary Public, State of Pennsylvania
Acting in County of Montgomery

Commonwealth of Pennsylvania - Notary Seal
Maureen Schmid, Notary Public
Montgomery County
My Commission Expires March 31, 2029
Commission Number 1248132

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APPENDIX B: MS4 MAPS

MS4 PERMIT PROGRAM

FOR

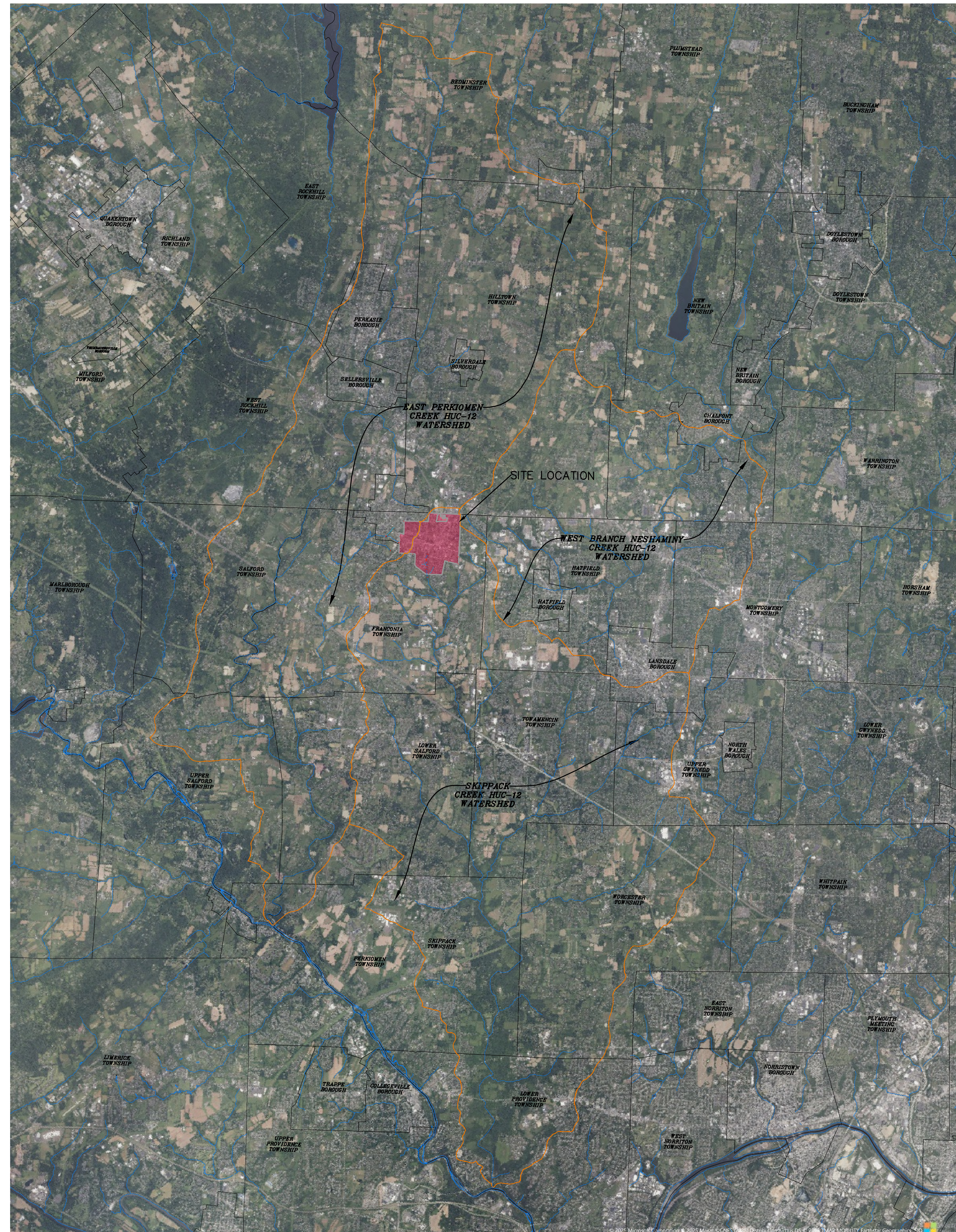
SOUDERTON BOROUGH

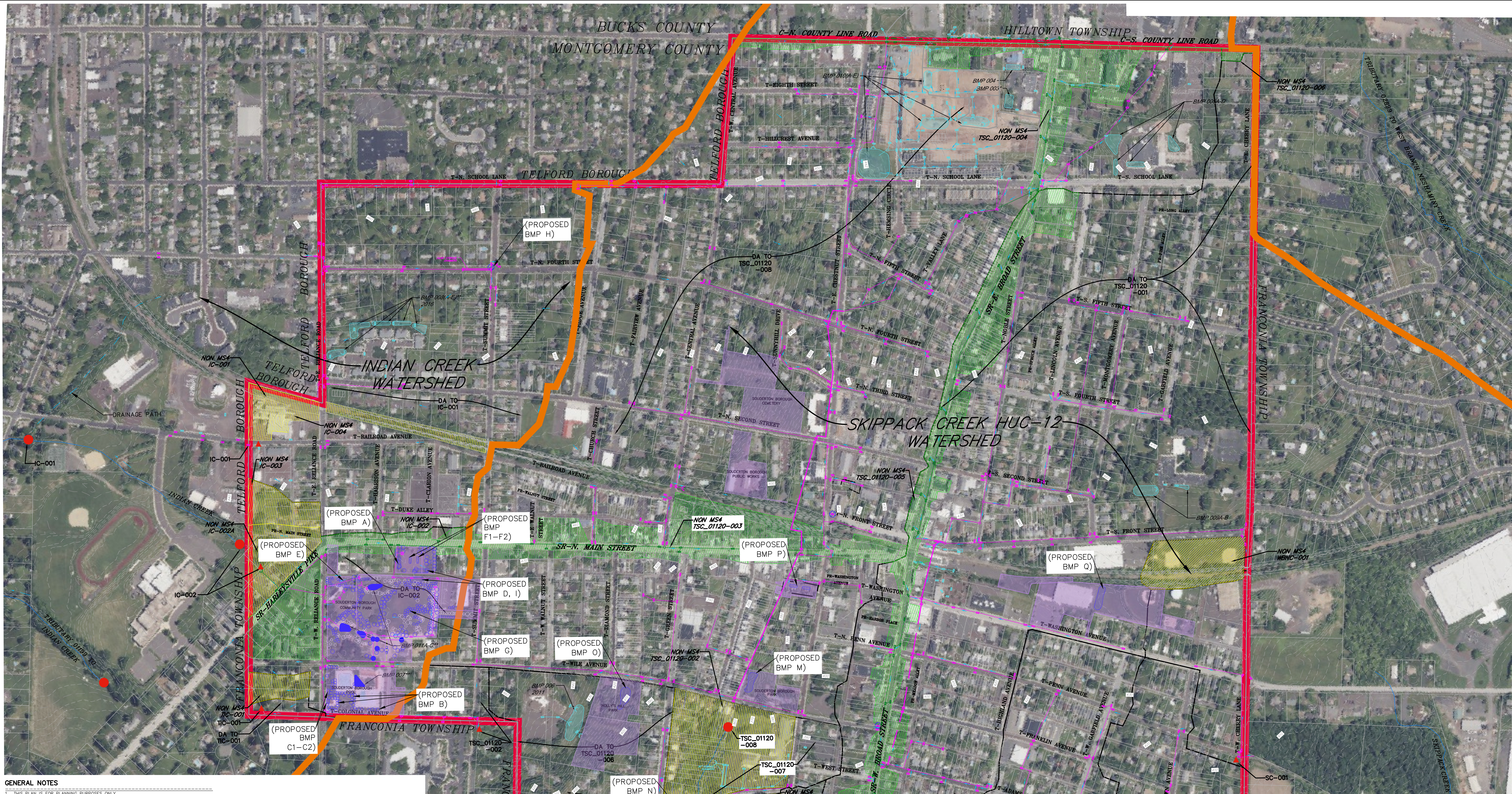
OUTFALL AND LAND USE MAPS

SOUDERTON BOROUGH, MONTGOMERY COUNTY, PENNSYLVANIA

GENERAL NOTES

2. THIS PLAN IS FOR PLANNING PURPOSES. DRAINS TO DOWNSTREAM WATERSHEDS WHICH HAVE BEEN IDENTIFIED ON THE USA REQUIREMENTS TABLE WITH APPENDIX E AND TMDL REQUIREMENTS. THEREFORE, THE BOROUGH MUST DEVELOP A POLLUTANT REDUCTION PLAN AND A TMDL FOR EACH OF THESE WATERSHEDS.
3. SOUTHBOROUGH INTENDS TO TAKE A PRESUMPTIVE APPROACH UNDER THE COMBINED TMDL/PRP PLAN TO REDUCE 10% SEDIMENT TO EACH OF THE PLANNED REDUCTION PERCENTAGES.
4. LONG TERM REDUCTION WILL BE ESTABLISHED IN FUTURE PERMIT CYCLES.
5. SOUTHBOROUGH IS APPROXIMATELY 720 ACRES AND DRAINS TOWARDS THE INDIAN CREEK WATERSHED AND SKIPPACK CREEK WATERSHED.
6. THE BEST BRANCH NESHEAM/KEY CREEK HUC-12 REQUIREMENT AS NOTED IN "PA DEPS" POLLUTANT ADJUSTMENT SUGGESTIONS FOR USA 2008-2010 IS 10% SEDIMENT REDUCTION PER YEAR.
7. THIS PLAN IS TO BE USED IN CONJUNCTION WITH THE COMBINED PRP/TMDL REPORT PREPARED BY GILMORE AND ASSOCIATES DATED 2011 (NCLC 2011).
8. LAND USE SHOWN ON MAPS ARE FOR GRAPHICAL PURPOSES ONLY BASED UPON NATIONAL LAND USE COVER DATABASE DATED 2011 (NCLC 2011).
- INDIAN CREEK WATERSHED**
9. EPA ESTABLISHED A TMDL FOR INDIAN CREEK WATERSHED IN 2008 TO ADDRESS SEDIMENTS MPAINED AS A RESULT OF EXCESS SILTATION AND NUTRIENTS SINCE ESTABLISHMENT OF ORIGINAL TMDL. THE SILTATION REQUIREMENT HAS BEEN ELIMINATED. IN 2010 AN ERRATA FOR THE TMDL WAS PUBLISHED CLARIFYING NUTRIENT REDUCTION.
- 10.2.1. TMDL FOR ALGAL GROWTH, NUTRIENTS, ORGANO ENRICHMENT/LOW O₂, SILTATION
- 10.2.2. PLAN FOR NUTRIENTS AND SILTATION
- SKIPPACK CREEK WATERSHED**
11. EPA ESTABLISHED A TMDL FOR SKIPPACK WATERSHED IN 2005 TO ADDRESS SEDIMENTS IMPAIRED AS A RESULT OF EXCESS SILTATION.
- 12.2.1. TMDL FOR ALGAL GROWTH, NUTRIENTS, ORGANO ENRICHMENT/LOW O₂, SILTATION
- 12.2.2. PLAN FOR NUTRIENTS AND SILTATION
13. SOUTHBOROUGH INTENDS TO RECALCULATE THE BASELINE LOADING THROUGH WATERSHEDS REMODELING UTILIZING THE SEDIMENT LOADING RATE (LBS/AC/YEAR) ASSOCIATED WITH THE APPLICABLE LAND USE COVER FROM DATE OF APPROVED TMDL (2008-INDIAN CREEK WATERSHED AND THE 2005-SKIPPACK WATERSHED). THE RECALCULATED LOADING RATE WILL BE USED FOR CALCULATIONS. 20% LAND COVER VALUES WERE USED FOR THE 2008-INDIAN CREEK WATERSHED, THEN THE NEAREST 1% WILL BE USED. FOR CALCULATIONS, 20% LAND COVER VALUES WERE USED FOR THE 2005-SKIPPACK WATERSHED.
14. SOUTHBOROUGH INTENDS TO COMBINE THEIR PLANNING OBLIGATIONS FOR INDIAN CREEK AND SKIPPACK CREEK AS PERMITTED BY DEP. DEP. APPROVED BUMPS PROPOSED IN SKIPPACK CREEK WILL ADDRESS THE POLLUTANT REDUCTION REQUIREMENT FOR INDIAN CREEK AND VICE VERSA.





GENERAL NOTES

- THIS PLAN IS FOR PLANNING PURPOSES ONLY.
- THE MS4 PERMIT, SOUDERTON BOROUGH, DRAINS TO DOWNSTREAM WATERS WHICH HAVE BEEN IDENTIFIED ON THE MS4 REQUIREMENTS TABLE WITH APPENDIX E AND TMDL REQUIREMENTS. THEREFORE, THE BOROUGH MUST DEVELOP A POLLUTANT REDUCTION PLAN AND A TMDL PLAN TO SATISFY THESE REQUIREMENTS.
- SOUDERTON BOROUGH INTENDS TO TAKE A PRESUMPTIVE APPROACH UNDER THE COMBINED TMDL/PRP PLAN TO REDUCE 10% SEDIMENT TO REACH THE SHORT TERM REDUCTION OF THIS PERMIT CYCLE.
- LONG TERM REDUCTIONS WILL BE ESTABLISHED IN FUTURE PERMIT CYCLES.
- SOUDERTON BOROUGH IS APPROXIMATELY 720 ACRES AND DRAINS TOWARDS THE INDIAN CREEK WATERSHED AND SKIPPACK CREEK WATERSHED.
- THE WEST BRANCH NESHAMINY CREEK HUC-12 REQUIREMENT AS NOTED IN TPA DEPT'S POLLUTANT ADOPTION SUGGESTIONS FOR MS4 REQUIREMENTS TABLE IS NO LONGER APPLICABLE FOR SOUDERTON BOROUGH SINCE NO PLANNED AREA DRAINS TO THIS BASIN.
- THIS PLAN TO BE USED IN CONJUNCTION WITH THE COMBINED PRP/TMDL REPORT PREPARED BY GILMORE AND ASSOCIATES DATED JANUARY 2011.
- LAND USE SHOWN ON MAPS ARE FOR GRAPHICAL PURPOSES ONLY BASED UPON NATIONAL LAND USE COVER DATABASE DATED 2011 (NLCD 2011).

INDIAN CREEK WATERSHED

9. EPA ESTABLISHED A TMDL FOR INDIAN CREEK WATERSHED IN 2008 TO ADDRESS SEGMENTS IMPAIRED AS A RESULT OF EXCESS SILTATION AND NUTRIENTS. SINCE ESTABLISHMENT OF ORIGINAL TMDL, THE SILTATION REQUIREMENT HAS BEEN ELIMINATED. IN 2015 AN ERRATA FOR THE TMDL WAS PUBLISHED CLARIFYING NUTRIENT REDUCTION.
10. MS4 REQUIREMENTS
- 10.1. APPENDIX E FOR ALGAL GROWTH, NUTRIENTS, ORGANIC ENRICHMENT/LOW D.O., SILTATION
- 10.2. TMDL PLAN FOR NUTRIENTS

SKIPPACK CREEK WATERSHED

11. EPA ESTABLISHED A TMDL FOR SKIPPACK WATERSHED IN 2005 TO ADDRESS SEGMENTS IMPAIRED AS A RESULT OF EXCESS SILTATION AND NUTRIENTS.
12. MS4 REQUIREMENTS
- 12.1. APPENDIX E FOR ALGAL GROWTH, NUTRIENTS, ORGANIC ENRICHMENT/LOW D.O., SILTATION
- 12.2. TMDL PLAN FOR NUTRIENTS AND SILTATION

13. SOUDERTON BOROUGH INTENDS TO RECALCULATE THE BASELINE LOADING THROUGH WATERSHED REMODELING UTILIZING THE SEDIMENT LOADING RATE (LBS/AC/YEAR) ASSOCIATED WITH THE APPLICABLE LAND USE COVER FROM DATE OF APPROVED TMDL (2008-INDIAN CREEK, 2005-SKIPPACK). THE RECALCULATED LOADINGS ARE PROVIDED IN THE COMBINED PRP/TMDL REPORT. IF THE NLCD IS NOT AVAILABLE FOR THE REQUIRED APPROVED TMDL YEARS, THEN THE NEAREST YEAR WILL BE USED. FOR CALCULATIONS, 2006 LAND COVER VALUES WERE UTILIZED.

14. SOUDERTON BOROUGH INTENDS TO COMBINE THEIR PLANNING OBLIGATIONS FOR INDIAN CREEK AND SKIPPACK CREEK AS PERMITTED BY DEP. THEREFORE BMPs PROPOSED IN SKIPPACK CREEK WILL ADDRESS THE POLLUTANT REDUCTION REQUIREMENT FOR INDIAN CREEK AND VICE VERSA.

MS4 LEGEND

	SURFACE WATERS		STATE OWNED STORMPIPE
	DRAINAGE PATH		PRIVATELY OWNED INLET
	MUNICIPAL BOUNDARY		BOROUGH OWNED INLET
	OVERALL HUC-12 DRAINAGE BOUNDARY		STATE OWNED INLET
	MS4 OUTFALL SEWERAGE BOUNDARY		FLOW ARROW
	PRIVATELY OWNED STORMPIPE		MS4 OUTFALL
	BOROUGH OWNED STORMPIPE		OBSERVATION POINT
	BOROUGH OWNED PROPERTY		

PARSING LEGEND

	STATE ROAD, STATE RIGHT OF WAYS AREAS DRAINING TO STATE ROAD
	PRIVATE PROPERTY DRAINAGE TO SURFACE WATER

BMP LEGEND

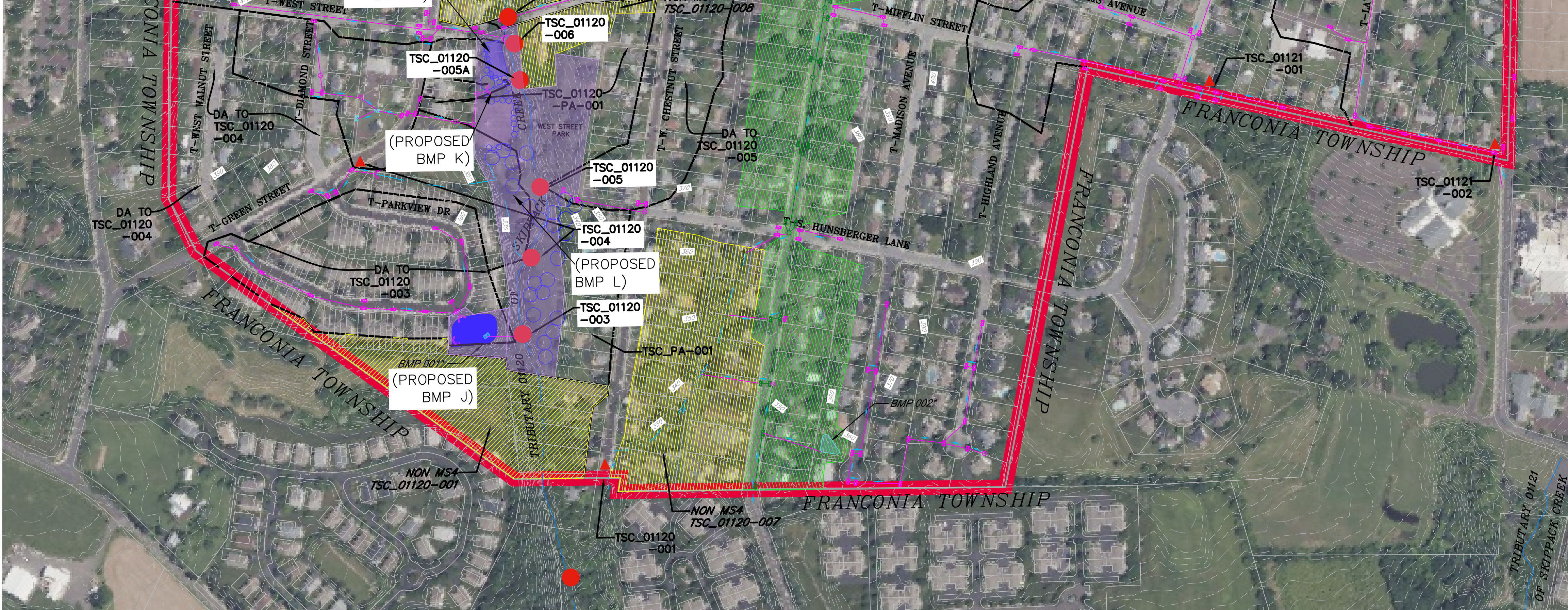
	BOROUGH OWNED BMP
	PRIVATELY OWNED BMP
	BMP INSTALLED PRIOR TO TMDL APPROVAL USED TO REDUCE EXISTING LOADING
	BMP INSTALLED PRIOR TO PRP IMPLEMENTATION USED TO REDUCE EXISTING LOADING
	POST CONSTRUCTION CH. 102 BMPs INSTALLED AFTER 2003

MS4 OUTFALL DESIGNATION

SC-001	MS4 OUTFALL TO SKIPPACK CREEK
MS4-01120-XXXX	MS4 OUTFALL TO TRIBUTARY 01120 TO SKIPPACK CREEK
TSC-01121-XXXX	MS4 OUTFALL TO TRIBUTARY 01121 TO SKIPPACK CREEK
TSC-PA-XXXX	PLANNED AREA TO TRIBUTARY TO SKIPPACK CREEK
IC-XXXX	MS4 OUTFALL TO INDIAN CREEK
TC-XXXX	MS4 OUTFALL TO TRIBUTARY 01199 TO INDIAN CREEK

NON-MS4 DESIGNATION

NON-MS4 IC-XXXX	PARSED DRAINAGE AREA TO INDIAN CREEK
NON-MS4 TC-XXXX	PARSED DRAINAGE AREA TO TRIBUTARY TO INDIAN CREEK
NON-MS4 WBNC-XXXX	PARSED DRAINAGE AREA TO TRIBUTARY TO WEST BRANCH TO NESHAMINY CREEK
NON-MS4 TSC-01120-XXXX	PARSED DRAINAGE AREA TO TRIBUTARY 01120 TO SKIPPACK CREEK



SOUDERTON BOROUGH MS4 OUTFALL MAP
1 INCH = 225 FEET

APPENDIX C1: BASELINE POLLUTANT LOADING CALCULATIONS (INDIAN CREEK)

Indian Creek Sewershed										
IC-001 w/ Parsed Area Non-MS4-IC-001 and Non-MS4-IC-004										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr) **</i>	<i>Sediment Loading Rate (lbs/ac/yr) **</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	83,709.97	20.69	1652.92	0.41	20.28	0.35	984.40	7.10	19963.67	26.0%
<i>Developed, Low Intensity</i>	147,411.49	36.43	4614.01	1.14	35.29	0.41	1093.78	14.47	38599.50	46.0%
<i>Developed, Medium Intensity</i>	59,485.44	14.70	5700.22	1.41	13.29	0.90	2158.19	11.96	28682.35	19.0%
<i>Developed, High Intensity</i>	23,597.26	5.83	4675.03	1.16	4.67	1.24	3107.29	5.79	14511.04	7.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	6,280.43	1.55	0.00	0.00	1.55	0.26	683.61	0.40	1059.60	2.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	0.96	751.71	0.00	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	320,484.58	79.20	16,642.18	4.12	75.08			39.72	102,816.15	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
IC-002 w/ Non-MS4-IC-002										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	29177.73	7.21	7096.50	1.75	5.46	0.35	984.40	1.91	5374.83	26.0%
<i>Developed, Low Intensity</i>	44430.21	10.98	13376.93	3.31	7.67	0.41	1093.78	3.14	8389.29	39.0%
<i>Developed, Medium Intensity</i>	27383.33	6.77	10685.32	2.64	4.13	0.90	2158.19	3.72	8913.32	24.0%
<i>Developed, High Intensity</i>	4953.20	1.22	0.00	0.00	1.22	1.24	3107.29	1.51	3790.89	4.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	7644.81	1.89	0.00	0.00	1.89	0.96	751.71	1.81	1420.73	7.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	113,589.30	28.07	31,158.76	7.70	20.37			12.10	27,889.08	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
Non-MS4-IC-002A										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	3814.65	0.94	3814.65	0.94	0.00	0.35	984.40	0.00	0.00	25.3%
<i>Developed, Low Intensity</i>	8300.67	2.05	8300.67	2.05	0.00	0.41	1093.78	0.00	0.00	55.3%
<i>Developed, Medium Intensity</i>	2917.44	0.72	2917.44	0.72	0.00	0.90	2158.19	0.00	0.00	19.4%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	1.24	3107.29	0.00	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	0.96	751.71	0.00	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	15,032.76	3.71	15,032.76	3.71	0.00			0.00	0.00	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
Non-MS4-IC-003										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	1970.21	0.49	1970.21	0.49	0.00	0.35	984.40	0.00	0.00	23.0%
<i>Developed, Low Intensity</i>	3764.62	0.93	3764.62	0.93	0.00	0.41	1093.78	0.00	0.00	43.7%
<i>Developed, Medium Intensity</i>	0.00	0.00	0.00	0.00	0.00	0.90	2158.19	0.00	0.00	0.0%
<i>Developed, High Intensity</i>	2867.41	0.71	2867.41	0.71	0.00	1.24	3107.29	0.00	0.00	33.3%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	0.96	751.71	0.00	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	8,602.23	2.13	8,602.23	2.13	0.00			0.00	0.00	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
TIC-001										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	0.00	0.00	0.00	0.00	0.00	0.35	984.40	0.00	0.00	0.0%
<i>Developed, Low Intensity</i>	3,872.80	0.96	0.00	0.00	0.96	0.41	1093.78	0.39	1050.03	100.0%
<i>Developed, Medium Intensity</i>	0.00	0.00	0.00	0.00	0.00	0.90	2158.19	0.00	0.00	0.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	1.24	3107.29	0.00	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	0.96	751.71	0.00	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	3,872.80	0.96	0.00	0.00	0.96			0.39	1,050.03	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
Non-MS4-TIC-001										
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Phosphorus Loading Rate (lbs/ac/yr) **</i>	<i>Sediment Loading Rate (lbs/ac/yr) **</i>	<i>Phosphorus Loading (lbs/yr)</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	3872.80	0.96	3872.80	0.96	0.00	0.35	984.40	0.00	0.00	65.0%
<i>Developed, Low Intensity</i>	2,078.39	0.51	2078.39	0.51	0.00	0.41	1093.78	0.00	0.00	35.0%
<i>Developed, Medium Intensity</i>	0.00	0.00	0.00	0.00	0.00	0.90	2158.19	0.00	0.00	0.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	1.24	3107.29	0.00	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	0.96	751.71	0.00	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	5,951.19	1.47	5,951.19	1.47	0.00			0.00	0.00	100%

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

Indian Creek Sewershed										
Total Indian Creek										
Type	Drainage Area (m ²)	Drainage Area (ac.)	Parsed Area (m2)	Parsed Area (ac.)	Planned Area (ac.)	Phosphorus Loading Rate (lbs/ac/yr)**	Sediment Loading Rate (lbs/ac/yr)**	Phosphorus Loading (lbs/yr)	Sediment Loading (lbs/yr)	Coverage (%)
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	122545.36	30.29	18407.08	4.55	25.74	0.35	984.40	9.01	25338.51	26.2%
<i>Developed, Low Intensity</i>	209858.18	51.86	32134.63	7.94	43.92	0.41	1093.78	18.01	48038.82	44.9%
<i>Developed, Medium Intensity</i>	89786.21	22.19	19302.99	4.77	17.42	0.90	2158.19	15.68	37595.67	19.2%
<i>Developed, High Intensity</i>	31417.87	7.76	7542.44	1.87	5.89	1.24	3107.29	7.30	18301.94	6.7%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	0.27	682.41	0.00	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	0.26	683.61	0.00	0.00	0.0%
<i>Shrub/Scrub</i>	6280.43	1.55	0.00	0.00	1.55	0.26	683.61	0.40	1059.60	1.3%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	0.96	735.88	0.00	0.00	0.0%
<i>Pasture/Hay</i>	7644.81	1.89	0.00	0.00	1.89	0.96	751.71	1.81	1420.73	1.6%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2.86	1925.12	0.00	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	0.27	683.29	0.00	0.00	0.0%
Total	467,532.86	115.54	77,387.13	19.13	96.41			52.22	131,755.26	100%

*Approved TMDL Date - 2008; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for East Perkiomen Watershed

APPENDIX C2: BASELINE POLLUTANT LOADING CALCULATIONS (SKIPPACKCREEK)

Skiptack Creek Sewershed								
SC-001								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr) **</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	714.65	0.18	0.00	0.00	0.18	994.05	175.95	1.5%
<i>Developed, Low Intensity</i>	24,939.21	6.16	0.00	0.00	6.16	1104.50	6807.03	52.3%
<i>Developed, Medium Intensity</i>	14,172.74	3.50	0.00	0.00	3.50	1931.19	6763.03	29.7%
<i>Developed, High Intensity</i>	7,892.30	1.95	0.00	0.00	1.95	2656.64	5180.45	16.5%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	47,718.91	11.79	0.00	0.00	11.79		18,926.46	100%

Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-001 w/ Non-MS4-TSC-01120-005 and Non-MS4-TSC-01120-007								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	152,917.84	37.76	34729.39	8.58	29.18	994.05	29003.40	19.0%
<i>Developed, Low Intensity</i>	352,994.71	87.16	45495.86	11.23	75.93	1104.50	83863.58	44.0%
<i>Developed, Medium Intensity</i>	226,488.72	55.92	36523.79	9.02	46.90	1931.19	90578.60	28.0%
<i>Developed, High Intensity</i>	63,197.28	15.60	28819.48	7.12	8.48	2656.64	22538.93	8.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	12056.55021	2.98	0.00	0.00	2.98	789.86	2351.41	1.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	807,655.10	199.42	145,568.53	35.95	163.47		228,335.93	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
Non-MS4-TSC-01120-001								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr) **</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	12,865.14	3.18	12865.14	3.18	0.00	994.05	0.00	56.0%
<i>Developed, Low Intensity</i>	10,173.53	2.51	10173.53	2.51	0.00	1104.50	0.00	44.0%
<i>Developed, Medium Intensity</i>	0.00	0.00	0.00	0.00	0.00	1931.19	0.00	0.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	23,038.68	5.69	23,038.68	5.69	0.00		0.00	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-002								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	545.62	0.13	0.00	0.00	0.13	994.05	129.23	3.3%
<i>Developed, Low Intensity</i>	12,209.28	3.01	0.00	0.00	3.01	1104.50	3324.55	76.4%
<i>Developed, Medium Intensity</i>	3,237.23	0.80	0.00	0.00	0.80	1931.19	1544.95	20.3%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	15,992.12	3.94	0.00	0.00	3.94		4,998.72	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
Non-MS4-TSC-01120-002								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	9,617.73	2.37	9617.73	2.37	0.00	994.05	0.00	22.5%
<i>Developed, Low Intensity</i>	13,206.56	3.26	13206.56	3.26	0.00	1104.50	0.00	30.9%
<i>Developed, Medium Intensity</i>	10,514.94	2.60	10514.94	2.60	0.00	1931.19	0.00	24.7%
<i>Developed, High Intensity</i>	3337.29	0.82	3337.29	0.82	0.00	2656.64	0.00	7.8%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	6028.91	1.49	6028.91	1.49	0.00	789.86	0.00	14.1%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	42,705.45	10.54	42,705.45	10.54	0.00		0.00	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-004								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	17,227.41	4.25	0.00	0.00	4.25	994.05	4224.71	37.0%
<i>Developed, Low Intensity</i>	20,816.23	5.14	0.00	0.00	5.14	1104.50	5677.13	45.0%
<i>Developed, Medium Intensity</i>	8,255.35	2.04	0.00	0.00	2.04	1931.19	3939.63	18.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	791.15	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	791.15	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	791.15	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	791.15	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	46,298.99	11.43	0.00	0.00	11.43		13,841.47	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skippack Creek Sewershed								
TSC-01120-003								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	2,173.05	0.54	0.00	0.00	0.54	994.05	536.79	6.2%
<i>Developed, Low Intensity</i>	7,556.29	1.87	0.00	0.00	1.87	1104.50	2065.42	21.5%
<i>Developed, Medium Intensity</i>	25,500.40	6.30	0.00	0.00	6.30	1931.19	12166.50	72.3%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	35,229.74	8.71	0.00	0.00	8.71		14,768.70	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skippack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-005								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	6,645.56	1.64	0.00	0.00	1.64	994.05	1630.24	32.0%
<i>Developed, Low Intensity</i>	10,234.39	2.53	0.00	0.00	2.53	1104.50	2794.39	49.0%
<i>Developed, Medium Intensity</i>	3,953.94	0.98	0.00	0.00	0.98	1931.19	1892.57	19.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	20,833.88	5.15	0.00	0.00	5.15		6,317.19	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-005A								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	1,834.98	0.45	0.00	0.00	0.45	994.05	447.32	10.0%
<i>Developed, Low Intensity</i>	12,601.45	3.11	0.00	0.00	3.11	1104.50	3435.00	66.0%
<i>Developed, Medium Intensity</i>	4,526.60	1.12	0.00	0.00	1.12	1931.19	2162.93	24.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	18,963.03	4.68	0.00	0.00	4.68		6,045.25	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-006								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	25,121.76	6.20	0.00	0.00	6.20	994.05	6163.11	31.8%
<i>Developed, Low Intensity</i>	17,046.91	4.21	0.00	0.00	4.21	1104.50	4649.95	21.6%
<i>Developed, Medium Intensity</i>	18,841.32	4.65	0.00	0.00	4.65	1931.19	8980.03	23.9%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	17944.11	4.43	0.00	0.00	4.43	934.03	4137.75	22.7%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	78,954.10	19.49	0.00	0.00	19.49		23,930.84	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skippack Creek Sewershed								
TSC-01120-007								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	0.00	0.00	0.00	0.00	0.00	994.05	0.00	0.0%
<i>Developed, Low Intensity</i>	3,259.58	0.80	0.00	0.00	0.80	1104.50	883.60	24.0%
<i>Developed, Medium Intensity</i>	10,437.22	2.58	0.00	0.00	2.58	1931.19	4982.47	76.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	13,696.80	3.38	0.00	0.00	3.38		5,866.07	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skippack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-008 w/ Non-MS4-TSC-01120-003 and Non-MS4-TSC-01120-004								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	153757.0	38.0	5667.2	1.40	36.56	994.05	36342.47	14.7%
<i>Developed, Low Intensity</i>	410357.6	101.3	16857.6	4.16	97.16	1104.50	107313.22	39.4%
<i>Developed, Medium Intensity</i>	368189.0	90.9	50951.4	12.58	78.33	1931.19	151270.11	35.3%
<i>Developed, High Intensity</i>	89158.2	22.0	22663.6	5.60	16.41	2656.64	43595.46	8.5%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	9306.9	2.3	0.00	0.00	2.30	789.86	1816.68	0.9%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	11998.5	3.0	0.00	0.00	2.96	934.03	2764.73	1.1%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	1,042,767.23	257.46	96,139.74	23.74	233.72		343,102.67	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01120-PA-001 w/ NON MS4_TSC_01120-008								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	28413.09	7.02	0.00	0.00	7.02	994.05	6978.23	53.7%
<i>Developed, Low Intensity</i>	19441.03	4.80	3304.84	0.82	3.98	1104.50	4395.91	36.7%
<i>Developed, Medium Intensity</i>	5085.74	1.26	2407.64	0.59	0.67	1931.19	1293.90	9.6%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	52939.85	13.08	5712.48	1.41	11.67		12668.04	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01121-001								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	8221.54	2.03	0.00	0.00	2.03	994.05	2017.92	8.1%
<i>Developed, Low Intensity</i>	55773.47	13.77	0.00	0.00	13.77	1104.50	15208.97	55.2%
<i>Developed, Medium Intensity</i>	30651.70	7.57	0.00	0.00	7.57	1931.19	14619.11	30.3%
<i>Developed, High Intensity</i>	6427.13	1.59	0.00	0.00	1.59	2656.64	4224.06	6.4%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	101,073.85	24.96	0.00	0.00	24.96		36,070.05	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
TSC-01121-002								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	17858.29	4.41	0.00	0.00	4.41	994.05	4383.76	25.0%
<i>Developed, Low Intensity</i>	42082.86	10.39	0.00	0.00	10.39	1104.50	11475.76	58.0%
<i>Developed, Medium Intensity</i>	12475.05	3.08	0.00	0.00	3.08	1931.19	5948.07	17.0%
<i>Developed, High Intensity</i>	0.00	0.00	0.00	0.00	0.00	2656.64	0.00	0.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	72,416.20	17.88	0.00	0.00	17.88		21,807.58	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skiptack Creek Sewershed								
Non-MS4-TSC-01120-006								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/ac/yr)**</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
<i>Open Water</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Perennial Ice/Snow</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
<i>Developed, Open Space</i>	0.00	0.00	0.00	0.00	0.00	994.05	0.00	0.0%
<i>Developed, Low Intensity</i>	0.00	0.00	0.00	0.00	0.00	1104.50	0.00	0.0%
<i>Developed, Medium Intensity</i>	613.23	0.15	613.23	0.15	0.00	1931.19	0.00	50.0%
<i>Developed, High Intensity</i>	613.23	0.15	613.23	0.15	0.00	2656.64	0.00	50.0%
<i>Barren Land (Rock/Sand/Clay)</i>	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
<i>Deciduous Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Evergreen Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Mixed Forest</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Shrub/Scrub</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Grassland/Herbaceous</i>	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
<i>Pasture/Hay</i>	0.00	0.00	0.00	0.00	0.00	934.03	0.00	0.0%
<i>Cultivated Crops</i>	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
<i>Woody Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
<i>Emergent Herbaceous Wetlands</i>	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	1,226.46	0.30	1,226.46	0.30	0.00		0.00	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skiptack Creek Watershed

Skeppack Creek Sewersheds								
Total Skeppack Creek								
<i>Land Type</i>	<i>Drainage Area (m²)</i>	<i>Drainage Area (ac.)</i>	<i>Parsed Area (m2)</i>	<i>Parsed Area (ac.)</i>	<i>Planned Area (ac.)</i>	<i>Sediment Loading Rate (lbs/acre) **</i>	<i>Sediment Loading (lbs/yr)</i>	<i>Coverage (%)</i>
Open Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Perennial Ice/Snow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
Developed, Open Space	437913.62	108.11	62879.48	15.53	92.58	994.05	92033.13	18.1%
Developed, Low Intensity	1012693.14	250.04	89038.38	21.98	228.06	1104.50	251894.48	41.8%
Developed, Medium Intensity	742943.16	183.47	101010.98	24.94	158.53	1931.19	306141.89	30.7%
Developed, High Intensity	170625.43	42.13	55433.58	13.70	28.43	2656.64	75538.90	7.0%
Barren Land (Rock/Sand/Clay)	0.00	0.00	0.00	0.00	0.00	789.01	0.00	0.0%
Deciduous Forest	27392.39	6.77	6028.91	1.49	5.28	789.86	4168.09	1.1%
Evergreen Forest	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Mixed Forest	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Shrub/Scrub	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Grassland/Herbaceous	0.00	0.00	0.00	0.00	0.00	835.82	0.00	0.0%
Pasture/Hay	29942.65	7.39	0.00	0.00	7.39	934.03	6902.48	1.2%
Cultivated Crops	0.00	0.00	0.00	0.00	0.00	2230.54	0.00	0.0%
Woody Wetlands	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Emergent Herbaceous Wetlands	0.00	0.00	0.00	0.00	0.00	789.86	0.00	0.0%
Total	2421510.39	597.90	314391.34	77.64	520.27		736678.97	100%

*Approved TMDL Date - 2005; For calculation purposes, closest available land cover from NLCD taken from 2006

**Sediment Loading Rates taken from MMW Output Landcover Loading Rates for Skeppack Watershed

APPENDIX C3: EXISTING BMPs TO REDUCE POLLUTANT LOADING

C.	Existing BMPs to Reduce Pollutant Loading Summary Table									
BMP #	Watershed	BMP Type	BMP Location	Drainage Area Treated (acres)	Latitude	Longitude	Date Installed	O&M Responsible Party	Pollutant Reduction (lbs/yr) ³	
1	Skippack Creek	Detention Basin ¹	Parkview Drive	8.7			1995	Souderton Boro	1480.2	
2	Skippack Creek	Detention Basin ¹	Madison Avenue	8.24			1995	Souderton Boro	1108.5	
3	Skippack Creek	Detention Basin ¹	Broad Street (Behind Monroe Motors)	1.42			1995	W W Investment Company	169.1	
7	Indian Creek	Rain Garden ²	Souderton Borough Community Pool	0.52			2011	Souderton Boro	56.9	
8(A-E)	Indian Creek	Rain Gardens ²	Reliance Crossing	10.31			2016	Reliance Crossing	10125.4	
11A	Indian Creek	Rain Garden ²	Souderton Borough Community Park	1.24			2023	Souderton Boro	671.4	
11B	Indian Creek	Rain Garden ²	Souderton Borough Community Park	3.43			2023	Souderton Boro	2145.1	
11C	Indian Creek	Tree Plantings ²	Souderton Borough Community Park	N/A			2023	Souderton Boro	371.6	
								Total Skippack Creek	2757.8	lbs/yr
								Total Indian Creek	13370.4	lbs/yr

1: Baseline loads in older TMDLs typically did not account for load reductions from urban stormwater BMPs existing at the time of TMDL preparation. In such cases, MS4s may consider structural BMPs installed prior to the TMDL approval date in estimating existing loads. Load reductions associated with BMPs installed prior to TMDL approval date may be credited in full.

2: MS4s may claim credit for structural BMPs implemented prior to development of the PRP to reduce existing loading estimates.

3: See individual pollutant reduction calculations

Existing Sediment Pollutant Loading Reduction Calculations : BMP 001

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs/yr)</u>	
8.7	Skippack	TSC-01120-003	Open Space	994.05	6%	0.1	51.89	
			Low Intensity	1104.5	21%	0.1	201.79	
			Medium Intensity	1931.19	73%	0.1	1226.50	
					100%	Total	1480.2	lbs/yr
Sediment Pollutant Reduction (lbs)	=(Drainage Area) x (% land use) x (Land Use Loading Rate) x (BMP Effective Value)							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Sediment Pollutant Loading Reduction Calculations : BMP 002

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
8.24	Skippack	TSC-01120-001	Open Space	994.05	18%	0.1	150.88	
			Low Intensity	1104.5	50%	0.1	455.05	
			Medium Intensity	1931.19	32%	0.1	502.53	
					100%		1108.5	lbs/yr
Sediment Pollutant Reduction (lbs)	=(Drainage Area) x (% land use) x (Land Use Loading Rate) x (BMP Effective Value)							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Sediment Pollutant Loading Reduction Calculations : BMP 003

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
1.42	Skippack	TSC-01120-008	Open Space	994.05	29%	0.1	40.33	
			Low Intensity	1104.5	57%	0.1	89.62	
			Medium Intensity	1931.19	14%	0.1	39.19	
					100%		169.1	lbs/yr
Sediment Pollutant Reduction (lbs)	=(Drainage Area) x (% land use) x (Land Use Loading Rate) x (BMP Effective Value)							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Sediment Pollutant Loading Reduction Calculations : BMP 007

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
0.52	Indian	IC-002	Low Intensity	1093.78	100%	0.1	56.88	
					100%		56.9	lbs/yr
<i>Sediment Pollutant Reduction (lbs)</i>	$=(\text{Drainage Area}) \times (\% \text{ land use}) \times (\text{Land Use Loading Rate}) \times (\text{BMP Effective Value})$							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Pollutant Loading Calculations : BMP 008 (A-E)

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
10.31	Indian	IC-001	Open Space	984.402	55%	0.8	4429.10	
			Low Intensity	1093.78	27%	0.8	2460.16	
			Medium Intensity	2158.19	18%	0.8	3236.18	
					100%		10125.4	lbs/yr
Sediment Pollutant Reduction (lbs)	$=(\text{Drainage Area}) \times (\% \text{ land use}) \times (\text{Land Use Loading Rate}) \times (\text{BMP Effective Value})$							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Pollutant Loading Calculations : BMP 011A

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
1.24	Indian	IC-002	Open Space	984.402	100%	0.55	671.36	
					100%		671.4	lbs/yr
<i>Sediment Pollutant Reduction (lbs)</i>	<i>=(Drainage Area) x (% land use) x (Land Use Loading Rate) x (BMP Effective Value)</i>							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Pollutant Loading Calculations : BMP 011B

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Land Use Loading Rate (lb/ac/yr)¹</u>	<u>% Coverage</u>	<u>BMP Effectiveness Value²</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
3.43	Indian	IC-002	Open Space	984.402	63%	0.55	1160.67	
			Low Intensity	1093.78	19%	0.55	386.89	
			Medium Intensity	2158.19	13%	0.55	508.93	
			Hay/Pasture	751.71	6%	0.55	88.63	
					100%		2145.1	lbs/yr
Sediment Pollutant Reduction (lbs)	$=(\text{Drainage Area}) \times (\% \text{ land use}) \times (\text{Land Use Loading Rate}) \times (\text{BMP Effective Value})$							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

Existing Pollutant Loading Calculations : BMP 011C - Tree Planting Credits

<u>Drainage Area Treated (ac)</u>	<u>Watershed</u>	<u>Downstream MS4 Outfall</u>	<u>Land Use</u>	<u>Average Land Use Loading Rate (lb/ac/yr)¹</u>	<u>#of Trees</u>	<u>BMP Effectiveness Value</u>	<u>Sediment Pollutant Reduction (lbs)</u>	
N/A	Indian	IC-002	Open Space	984.402	149	0.2	371.61	
			Low Intensity	1093.78				
			Medium Intensity	2158.19				
			Hay/Pasture	751.71				
				1247.0205	1 tree=0.01 ac	0.01	371.6	lbs/yr
Sediment Pollutant Reduction (lbs)	$=(\text{Drainage Area}) \times (\% \text{ land use}) \times (\text{Land Use Loading Rate}) \times (\text{BMP Effective Value})$							

1: Based on Wikiwatershed modelling software

2: Based on DEP BMP Effectiveness Values Doc 3800-PM-BCW0100m, Last Revised 6/2018

APPENDIX C4: LAND USE LOADING RATES CROSS-REFERENCE
WIKIWATERSHED VS. APPROVED TMDL)

Skippack Creek Land Use Loading Rates Cross Reference								
MMW NLCD Land Cover	MMW Loading Rates	Table 16 TMDL	Table 16 TMDL			Model My Watershed (MMW)		
Land Use			Area (ac)	Unit Area Loading (lb/ac/yr)	Sediment Loading (lb/yr)	Area (ac)	Sediment Loading Rate (lb/ac/yr)	Sediment Loading (lb/yr)
Open Water	Open Water							
Perennial Ice/Snow	Bare Rock							
Developed, Open Space	Ld_Mixed*					2973.33	994.05	2955642.663
Developed, Low Intensity	Ld_Mixed	Lo_Int_Dev	7440.3	23.66	176033	11893.34	1104.5	13136189.61
Developed, Medium Intensity	Md_Mixed					2856.79	1931.19	5517004.28
Developed, High Intensity	Hd_Mixed	Hi_Int_Dev	1233.1	36.99	45609	906.17	2656.64	2407367.469
Barren Land (Rock/Sand/Clay)	Bare Rock					12.35	789.01	9744.2735
Deciduous Forest	Forest	Decid_For	3921.6	2.13	10002	1791.4	789.86	1414921.635
Evergreen Forest	Forest	Conif_For	2162.2	2.72	4601	1791.4	789.86	1414921.635
Mixed Forest	Forest	Mixed_For	1398.6	2.55	3801	1791.4	789.86	1414921.635
Shrub/Scrub	Forest					1791.4	789.86	1414921.635
Grassland/Herbaceous	Open Land					113.58	835.82	94932.4356
Pasture/Hay	Hay/Pasture	Hay/Past	3815.3	36.81	140426	8069.14	934.03	7536818.834
Cultivated Crops	Cropland	Cropland	13897.2	553.09	7686445	1197.53	2230.54	2671138.566
Woody Wetlands	Wetland					353.09	789.86	278891.6674
Emergent Herbaceous Wetlands	Wetland						789.86	0
		Unpaved Road	4.9	1224.72	6001			
		Transition	1495	1524.84	2279628			
		Streambank			32831254			
Total			35368.2		43183800	35540.75		40267416.34
$\Delta = \frac{\text{Sediment Loading}_{TMDL} - \text{Sediment Loading}_{MMW}}{\text{Sediment Loading}_{TMDL}} \times 100\%$							Δ= 7%	

*Ld.Mixed reduced by 10% for Open Space Land Cover

APPENDIX D: PROPOSED BMPs TO REDUCE POLLUTANT LOADING

Table E.1 Indian Creek PRP/TMDL BMP Summary Table																			
Proposed BMP	BMP Map #	BMP Description	BMP Location	Lat.	Long.	BMP Type	TSS Removal Efficiency (%) ¹	Treated Drainage Area (ac)	Load Reduction (lbs/yr) ²	Estimated Project Cost	Cost/lb Removed	Basin Area (sf)	Projected Time of Completion	Responsible Party	O&M Requirements	Project Phase	Project Description		
A	N/A	Rain Garden	Community Park (Parking Lot	40°18'53"	- 75°19'49"	BMP 6.4.5 Rain Garden / Bioretention	55	1.06	586.66	\$ 100,000.00	\$ 170.46	N/A	2026	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct one rain garden which will treat runoff through stormsewer disconnection.		
B	N/A	Community Pool Rain Gardens	Community Pool along Reliance Road	40°18'49"	- 75°19'60"	BMP 6.4.5 Rain Garden / Bioretention	55	2.52	3256.89	\$ 100,000.00	\$ 30.70	TBD	2028	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct two interconnected rain gardens which will treat runoff through stormsewer disconnection.		
C1 and C2	N/A	Tree Planting (60 Trees)	Community Pool	Varies	Varies	BMP 6.7.2 Landscape Restoration	20	3.02	265.25	\$ 1,500.00	\$ 5.65	N/A	2026	Souderton Borough	Refer to individual BMP O&M		The Borough intends to plant 60 trees around the existing Borough pool complex to provide shade canopy specifically at impervious areas		
D	N/A	Community Park Rain Garden	Community Park (Behind Municipal Office)	40°18'51"	- 75°19'49"	BMP 6.4.5 Rain Garden / Bioretention	55	0.49	438.20	\$ 100,000.00	\$ 228.20	TBD	2028	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct one rain garden which will treat runoff through stormsewer disconnection.		
E	N/A	Community Park Rain Garden	Community Park (Near Pavillion)	40°18'54"	- 75°19'53"	BMP 6.4.5 Rain Garden / Bioretention	55	0.53	318.84	\$ 100,000.00	\$ 313.64	TBD	2028	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct one rain garden which will treat runoff through stormsewer disconnection.		
F1 and F2	N/A	Community Park Parking Lot Rain Garden	Community Park Parking Lot	40°18'52"	- 75°19'48"	BMP 6.4.5 Rain Garden / Bioretention	55	0.46	546.02	\$ 150,000.00	\$ 274.71	TBD	2027	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct two rain gardens within reconstructed parking area.		
G	N/A	Tree Planting (365 Trees)	Community Park	Varies	Varies	BMP 6.7.2 Landscape Restoration	20	7.52	718.61	\$ 10,000.00	\$ 13.92	N/A	2026	Souderton Borough	Refer to individual BMP O&M		The Borough intends to plant 365 trees around the existing Borough community park to provide shade canopy throughout the area.		
H	N/A	Advanced Hydrodynamic Separator	North Fourth Street	40°19'04"	- 75°19'28"	BMP 6.6.4 Water Quality Inserts	10	7.65	881.98	\$ 50,000.00	\$ 56.69	N/A	2028	Souderton Borough	Refer to individual BMP O&M		The Borough intends to retrofit the existing storage pipe chambers to provide water quality of the upcoming tributary area through advanced filtration		
I	N/A	Community Park Rain Garden (Parking Lot)	Community Park (Parking Lot)	40°18'52"	- 75°19'48"	BMP 6.4.5 Rain Garden / Bioretention	55	0.92	1,092.04	\$ 100,000.00	\$ 91.57	TBD	2027	Souderton Borough	Refer to individual BMP O&M		The Borough intends to construct one rain garden which will treat runoff.		
						<i>Indian Creek Sediment Reduction Requirements Summary</i>													
						Baseline Sediment Loading (lbs/yr)		131,755	Total Load Reduction (All BMPs) (lbs/yr)									8,104.50	\$ 761,500.00
						Existing BMPs to Reduce Sediment Loading (lbs/yr) (Refer to Table D-1)		13,370											
						Adjusted Existing Sediment Loading (lbs/yr)		118,385											
						10% Sediment Reduction Requirement (lbs) (2018 PAG-03 General Permit Term 2024-2029)		11839											

1:Based on BMP Effectiveness Values 3800-PM-BCW0100m, Rev 06/2018

2:See Loading Reduction Calculations on individual BMP Summary Sheets

Table E.1 Skippack Creek PRP/TMDL BMP Summary Table																	
Proposed BMP	BMP Map #	BMP Description	BMP Location	Lat.	Long.	BMP Type	TSS Removal Efficiency (%) ¹	Treated Drainage Area (ac)	Load Reduction (lbs/yr) ²	Estimated Project Cost	Cost/lb Removed	Basin Area (sf)	Projected Time of Completion	Responsible Party	O&M Requirements	Project Phase	Funding
J	001	Parkview Drive Basin	Parkview Drive	40°18'21"	- 75°19'51"	BMP 6.6.3 Dry Extended Detention Basin	60	8.7	8,914	\$ 225,000.00	\$ 25.24	TBD	2027	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
K	N/A	West Street Park Vegetated Swale	West Street Park; Adjacent to Parking Lot	40°18'27"	- 75°19'44"	BMP 6.4.8 Vegetated Swale	50	5.06	3244.64	\$ 30,000.00	\$ 9.25	N/A	2028	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
L	N/A	Tree Planting	West Street Park	Varies	Varies	BMP 6.7.2 Landscape Restoration	20	See BMP Calculation	105.37	\$ 1,500.00	\$ 14.24	N/A	2026	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
M	N/A	Rain Garden	Chestnut Street Playground	40°18'33"	- 75°19'32"	BMP 6.4.5 Rain Garden / Bioretention	55	1.73	1319.63	\$ 150,000.00	\$ 113.67	TBD	2028	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
N	N/A	Pervious Pavement	West Street Park - Parking Lot	40°18'28"	- 75°19'43"	BMP 6.4.1 Perious Pavement with Infiltration Bed	55	0.81	584.13	\$ 250,000.00	\$ 427.99	N/A	2027	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
O	N/A	Rain Garden	Holly Hill Park	40°18'37"	- 75°19'41"	BMP 6.4.5 Rain Garden / Bioretention	55	16.24	12467.60	\$ 225,000.00	\$ 18.05	TBD	2029	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
P	N/A	Rain Garden	Chestnut Street Parking	40°18'36"	- 75°19'24"	BMP 6.4.5 Rain Garden / Bioretention	55	0.38	403.62	\$ 300,000.00	\$ 743.28	TBD	2026	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
Q	N/A	Rain Garden	Lawn Avenue Park	40°18'24"	- 75°19'05"	BMP 6.4.5 Rain Garden / Bioretention	55	1.77	1551.34	\$ 125,000.00	\$ 80.58	TBD	2026	Souderton Borough	Refer to individual BMP O&M		General Funds/Grants
R	N/A	Stream Restoration	174 Cowpath Road			Stream Restoration	N/A	N/A	86,250.00	\$ 337,500.00	\$ 3.91	N/A	2029	Souderton Borough	Refer to individual BMP O&M		
			<u>Skippack Creek Sediment Reduction Requirements Summary</u>							Total Estimated Project Cost							
			Baseline Sediment Loading (lbs/yr)			736,678	Total Load Reduction (All BMPs) (lbs/yr)		114,840.4	\$ 1,644,000.0							
			Existing BMPs to Reduce Sediment Loading (lbs/yr) (Refer to Table D-1)			2,758											
			Adjusted Sediment Loading (lbs/yr)			733,920											
			10% Sediment Reduction Requirement (lbs) (Permit Term 2024-2029)			73392											

1:Based on BMP Effectiveness Values 3800-PM-BCW0100m, Rev 06/2018

2:See Loading Reduction Calculations on individual BMP Summary Sheets

BMP # A

BMP Description: Community Park Rain Garden
 Location: Community Park (Parking Lot)
 Lat/Long: 40°18'53", -75°19'49"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden which will treat runoff through storm sewer disconnection.

Estimated Project Cost:

\$100,000

Project Funding: General Funds/Grants

Treated Drainage Area:

1.06 acres

BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Open Space	984.40	80%
Developed, Low	1093.78	20%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (1.06 ac x 0.80 x 984.40 lb/ac/yr x 0.55) + (1.06 ac x 0.20 x 1093.78 lb/ac/yr x 0.55) = 586.66 lbs/yr

BMP # A

BMP Description: Community Park Rain Garden
Location: Community Park (Parking Lot)
Lat/Long: 40°18'53", -75°19'49"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

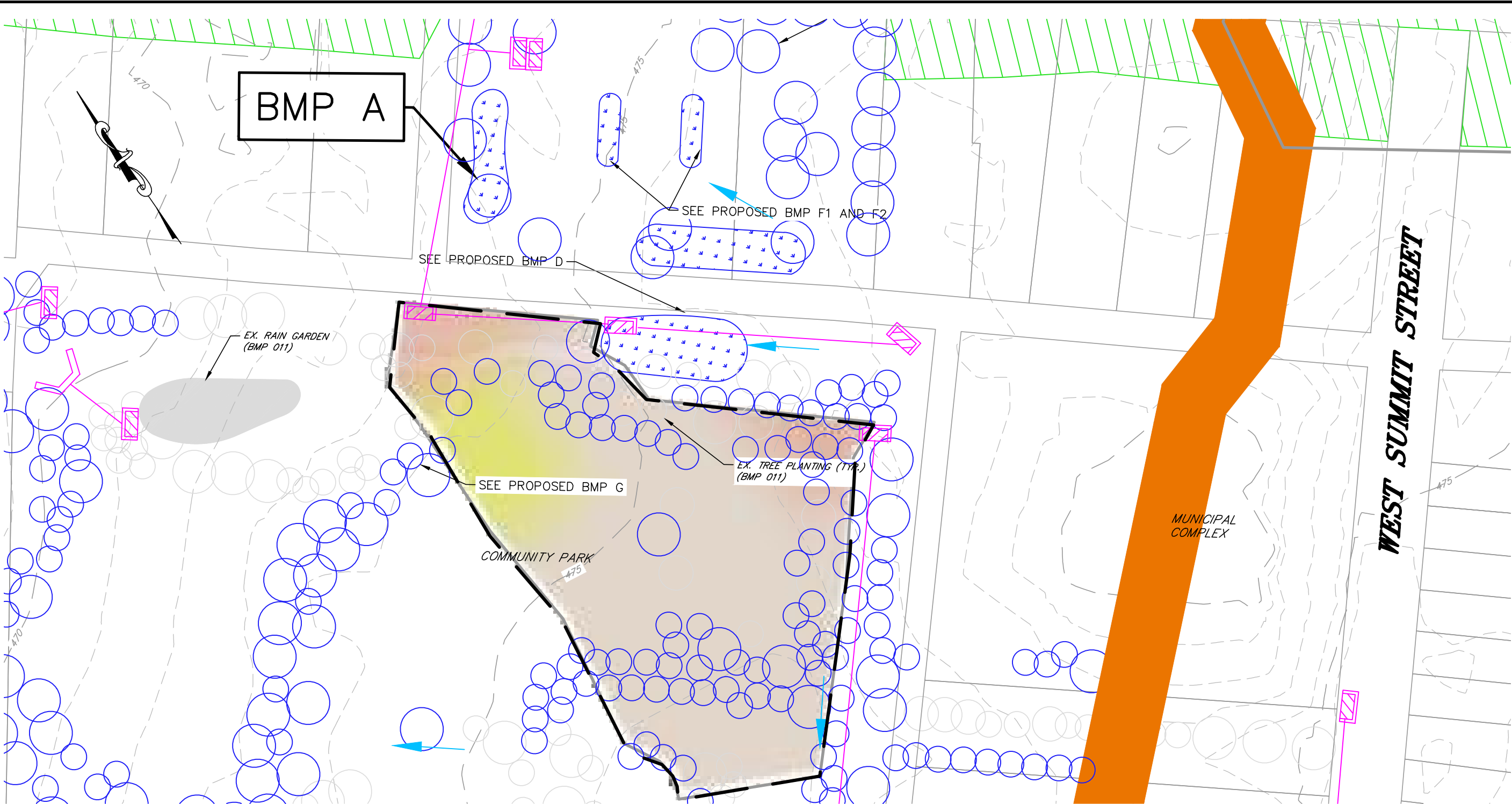
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

\\NB1.gilmore.local\server1\MUNICIPAL\2023\2309027-SB_Souderton MS4\permits\Souderton Borough SWMP\PRP_TMDL Plans and Report\DESIGN\CAD\Plans\proposed BMPs.dwg



LEGEND

- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

- PARSED AREA - PRIVATE PROPERTY DIRECTLY TO STREAM
- PARSED AREA - STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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DRAWN BY: CMK
SCALE: 1"=60'
60 0 60 120
IN FEET

SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP A

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.: 2309027

DATE: 03/31/2025

SCALE: 1"=60'

BMP # B

BMP Description: Tree Plantings (60 Trees)
 Location: Community Pool
 Lat/Long: Varies
 BMP type: Landscape Restoration

BMP Information

BMP 6.7.2: Landscape Restoration



Landscape Restoration is the general term used for actively sustainable landscaping practices that are implemented outside of riparian (or other specially protected) buffer areas. Landscape Restoration includes the restoration of forest (i.e. reforestation) and/or meadow and the conversion of turf to meadow. In a truly sustainable site design process, this BMP should be considered only after the areas of development that require landscaping and/or revegetation are minimized. The remaining areas that do require landscaping and/or revegetation should be driven by the selection and use of vegetation (i.e., native species) that does not require significant chemical maintenance by fertilizers, herbicides, and pesticides..

From PA BMP Manual

Project Description:

The Borough intends to plant 60 trees around the existing Borough pool complex to provide shade canopy specifically at impervious areas.

Estimated Project Cost:

\$1,500

Project Funding: General Funds/Grants

BMP Efficiency: 20%

Total Planting Area: 3.02 ac

Land Use Loading Rate/ % Area:

Developed, Low: 1093.78/29.2%

Developed, Medium: 2158.19/32.4%

Developed, High: 3107.29/38.4%

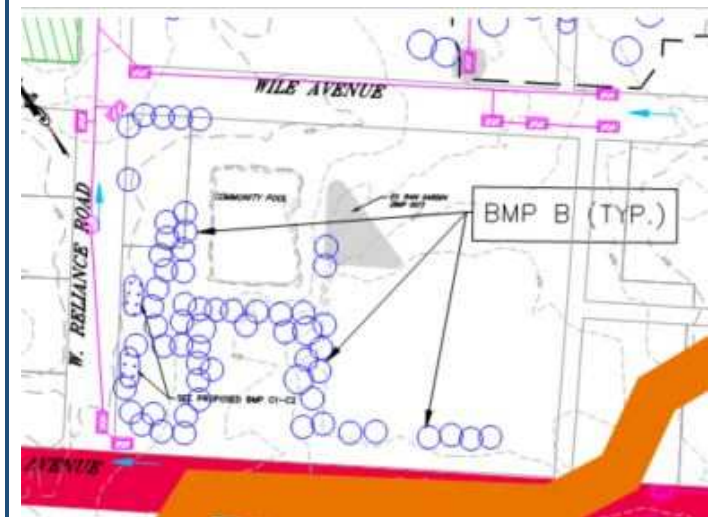
Average Sediment Loading Rate based upon Land Use NLCD 2006 in Planting Area:

= Sum (Planting Area (ac) x % area x land use loading rate) / Total Planting Area (ac)

=((3.02 ac x 0.292 x 1093.78) + (3.02 x 0.324 x 2158.19) + (3.02 x .384 x 3107.29)) / 3.02

=2210 lb/ac/yr

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

Step #1 : Multiply Number of Trees by 0.01.

60 trees x 0.01 = 0.60 ac

Step #2: Multiply the acreage found in Step 1 by Average Sediment Loading Rate (see above)

0.60 ac x 2210 lb/ac/yr = 1326.27 lb/yr

Step #3: Multiply Step 2 by BMP Effectiveness value: 1326.27 lb/yr X 0.20 = **265.25 lbs/yr**

BMP # B

BMP Description: Tree Planting (60 Trees)
Location: Community Pool
Lat/Long: Varies
BMP type: Landscape Restoration

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Initial watering and weekly watering during dry periods may be necessary during the first growing season
- Check perimeter fencing to avoid browse damage from deer

The diagram illustrates five types of stormwater management practices, each represented by a blue icon and a corresponding text label:

- WATER QUALITY INSERT:** Represented by a circle with diagonal lines.
- RAIN GARDEN AND VEGETATED SWALE:** Represented by an oval containing several small downward-pointing arrows.
- TREE PLANTING:** Represented by two overlapping circles.
- DRY EXTENDED DETENTION BASIN:** Represented by a horizontal oval.
- PERVIOUS PAVEMENT:** Represented by a solid square.

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60	0	60	120
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[illegible]

BMP B

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

DATE: 03/31/2025

SCALE:

BMP # C1-C2

BMP Description: Community Pool Rain Gardens
 Location: Community Pool along Reliance Road
 Lat/Long: 40°18'49", -75°19'60"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct two interconnected rain gardens and disconnect/divert runoff from an existing pipe conveyance on Reliance Road

Estimated Project Cost:

\$100,000

Project Funding: General Funds/Grants

Treated Drainage Area:

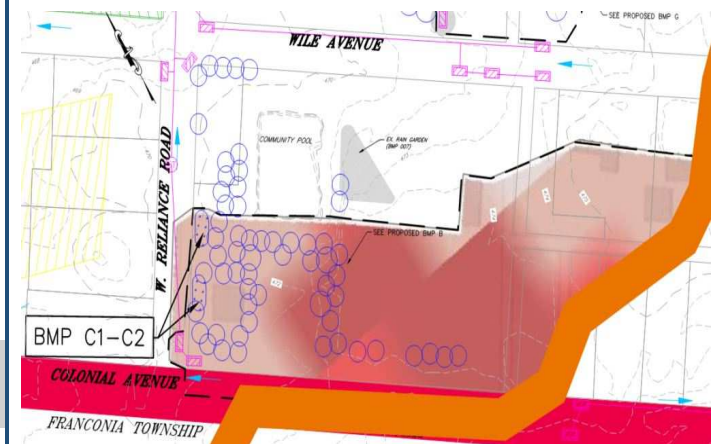
2.52 acres

BMP Efficiency: 55%

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Developed, Low	1093.78	23.1%
Developed, Med	2158.19	30.8%
Developed, High	3107.29	46.1%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (2.52 ac x 0.231 x 1093.78 lb/ac/yr x 0.55) + (2.52 ac x 0.308 x 2158.19 lb/ac/yr x 0.55) + (2.52 ac x 0.461 x 3107.29 lb/ac/yr x 0.55) = **3256.89 lbs/yr**

BMP # C1-C2

BMP Description: Community Pool Rain Gardens
Location: Community Pool along Reliance Road
Lat/Long: 40°18'49", -75°19'60"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

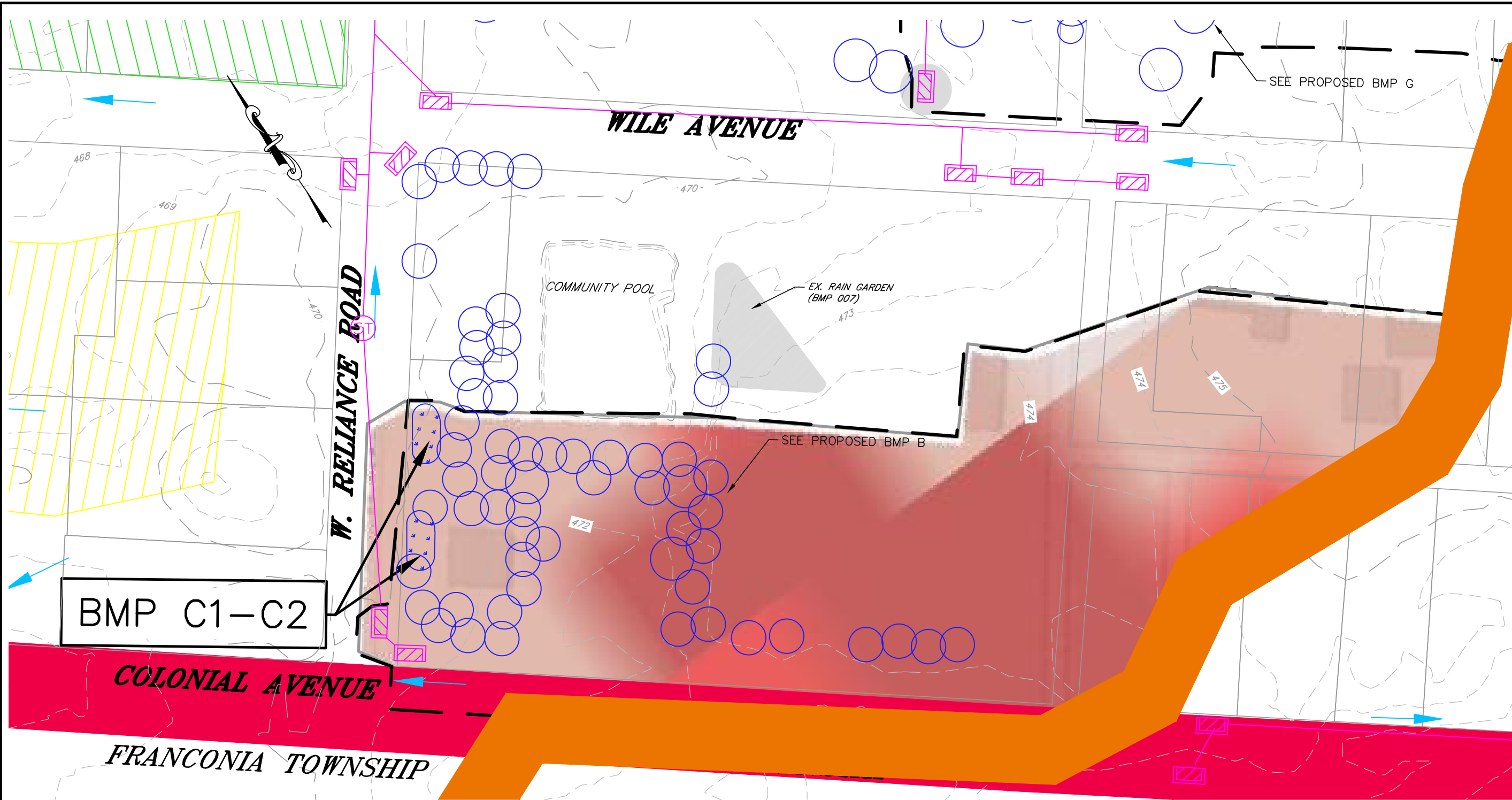
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

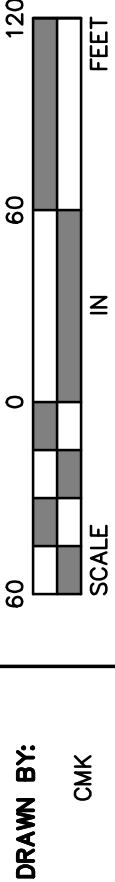
- | | | | |
|--|--------------------|--|-------------------|
| | SEWERSHED BOUNDARY | | DRAINAGE PATH |
| | BOROUGH INLET | | SURFACE WATER |
| | PRIVATE INLET | | MS4 OUTFALL |
| | STATE INLET | | OBSERVATION POINT |
| | FLOW ARROW | | |

- | | |
|--|--|
| | PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM |
| | PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD |

BMP TYPES

- | | |
|--|---------------------------------|
| | WATER QUALITY INSERT |
| | RAIN GARDEN AND VEGETATED SWALE |
| | TREE PLANTING |
| | DRY EXTENDED DETENTION BASIN |
| | PERVIOUS PAVEMENT |

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SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT
BMP C1 AND C2
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.: 2309027
DATE: 03/31/2025
SCALE: 1"=60'

BMP # D

BMP Description: Community Park Rain Garden
 Location: Community Park (Behind Municipal Office)
 Lat/Long: 40°18'51", -75°19'49"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden which will treat runoff through storm sewer disconnection.

Estimated Project Cost:

\$100,000

Project Funding: General Funds/Grants

Treated Drainage Area:

0.49 acres

BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Developed, Low	1093.78	50.0%
Developed, Med	2158.19	50.0%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.49 ac x 0.50 x 1093.78 lb/ac/yr x 0.55) + (0.49 ac x 0.50 x 2158.19 lb/ac/yr x 0.55) = **438.20 lbs/yr**

BMP # D

BMP Description: Community Park Rain Garden
Location: Community Park (Behind Municipal Office)
Lat/Long: 40°18'51", -75°19'49"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

The diagram illustrates five types of stormwater management practices, each represented by a distinct shape and color:

- WATER QUALITY INSERT:** Represented by a circle with diagonal hatching.
- RAIN GARDEN AND VEGETATED SWALE:** Represented by a rounded rectangle with small downward-pointing arrows inside.
- TREE PLANTING:** Represented by two overlapping circles.
- DRY EXTENDED DETENTION BASIN:** Represented by a solid blue rounded rectangle.
- PERVIOUS PAVEMENT:** Represented by a solid blue square.

SCALE:

BMP # E

BMP Description: Community Park Rain Garden
 Location: Community Park (Near Pavillion)
 Lat/Long: 40°18'54", -75°19'53"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

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From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden which will treat runoff through storm sewer disconnection.

Estimated Project Cost:

\$100,000

Project Funding: General Funds/Grants

Treated Drainage Area:

0.53 acres

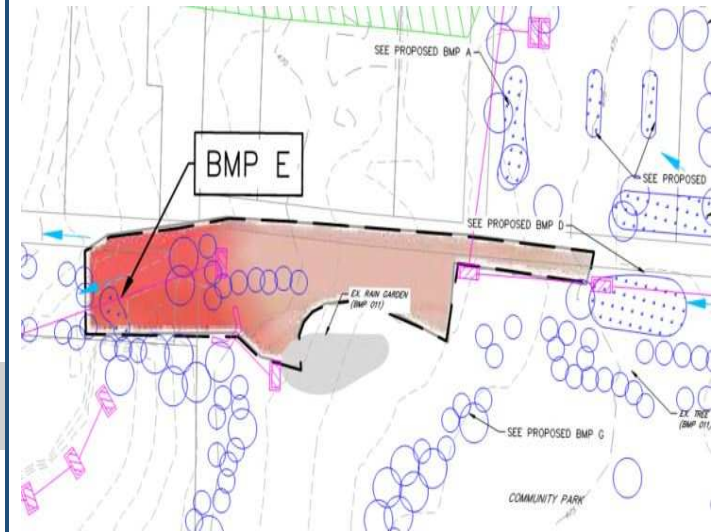
BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Developed, Low	1093.78	100.0%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.53 ac x 1 x 1093.78 lb/ac/yr x 0.55) = 318.84 lbs/yr

BMP # E

BMP Description: Community Park Rain Garden
Location: Community Park (Near Pavillion)
Lat/Long: 40°18'54", -75°19'53"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

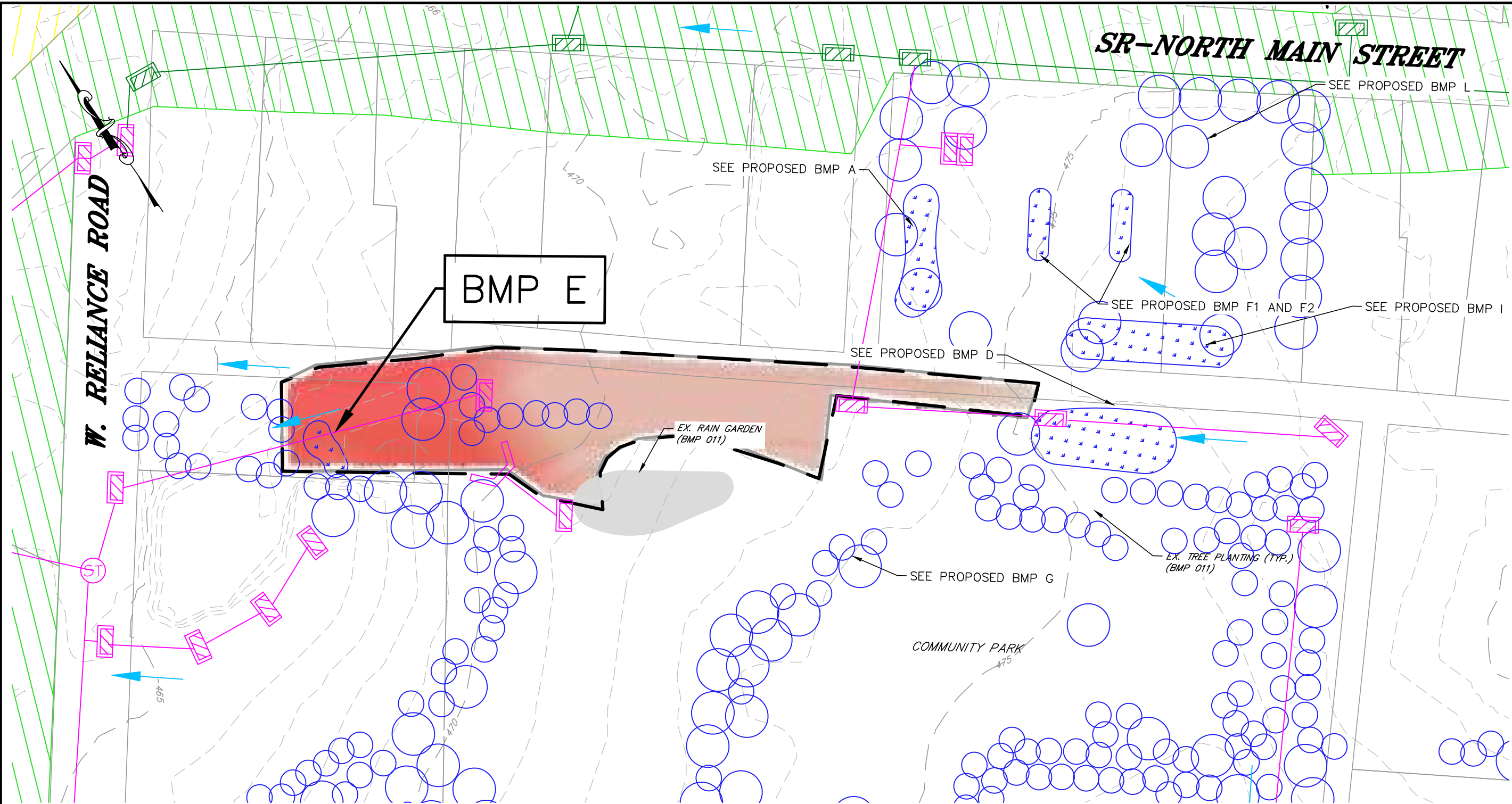
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

- | | | | |
|--|--------------------|--|-------------------|
| | SEWERSHED BOUNDARY | | DRAINAGE PATH |
| | BOROUGH INLET | | SURFACE WATER |
| | PRIVATE INLET | | MS4 OUTFALL |
| | STATE INLET | | OBSERVATION POINT |
| | FLOW ARROW | | |

- | | |
|--|--|
| | PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM |
| | PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD |

BMP TYPES

- | | |
|--|---------------------------------|
| | WATER QUALITY INSERT |
| | RAIN GARDEN AND VEGETATED SWALE |
| | TREE PLANTING |
| | DRY EXTENDED DETENTION BASIN |
| | PERVIOUS PAVEMENT |

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DRAWN BY:	CMK		
		SCALE	

SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP E

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:	2309027
DATE:	03/31/2025
SCALE:	1"=60'

BMP # F1 AND F2

BMP Description: Community Park Rain Garden
 Location: Community Park (Parking Lot)
 Lat/Long: 40°18'52", -75°19'48"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

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From PA BMP Manual

Project Description:

The Borough intends to construct two rain gardens within a parking lot reconstruction.

Estimated Project Cost:

\$150,000

Project Funding: General Funds/Grants

Treated Drainage Area:

0.46 acres

BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Developed, Med	2158.19	100.0%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.46 ac x 1 x 2158.19 lb/ac/yr x 0.55) = 546.02 lbs/yr

BMP # F1 AND F2

BMP Description: Community Park Rain Garden
Location: Community Park (Parking Lot)
Lat/Long: 40°18'52", -75°19'48"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

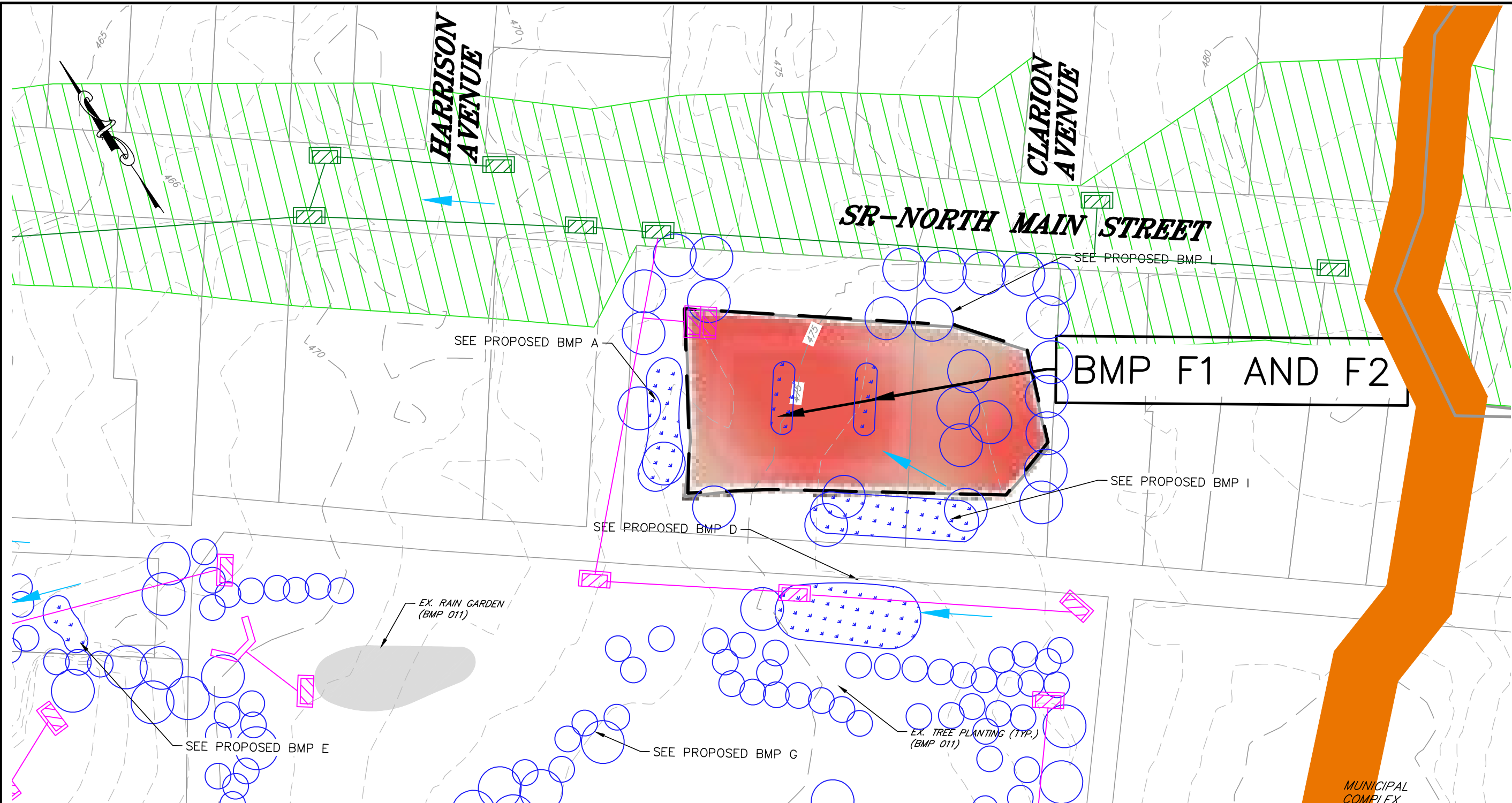
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

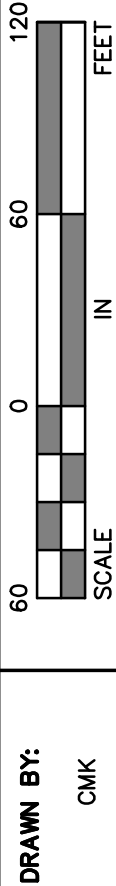
- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

- PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM
- PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT
BMPs F1 AND F2
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.: 2309827
DATE: 03/31/2025
SCALE: 1"=60'

BMP # G

BMP Description: Tree Plantings (365 Trees)
 Location: Community Park
 Lat/Long: Varies
 BMP type: Landscape Restoration

BMP Information

BMP 6.7.2: Landscape Restoration



Landscape Restoration is the general term used for actively sustainable landscaping practices that are implemented outside of riparian (or other specially protected) buffer areas. Landscape Restoration includes the restoration of forest (i.e. reforestation) and/or meadow and the conversion of turf to meadow. In a truly sustainable site design process, this BMP should be considered only after the areas of development that require landscaping and/or revegetation are minimized. The remaining areas that do require landscaping and/or revegetation should be driven by the selection and use of vegetation (i.e., native species) that does not require significant chemical maintenance by fertilizers, herbicides, and pesticides..

From PA BMP Manual

Project Description:

The Borough intends to plant 365 trees around the existing community park to provide shade canopy throughout the area.

Estimated Project Cost:

\$10,000

Project Funding: General Funds/Grants

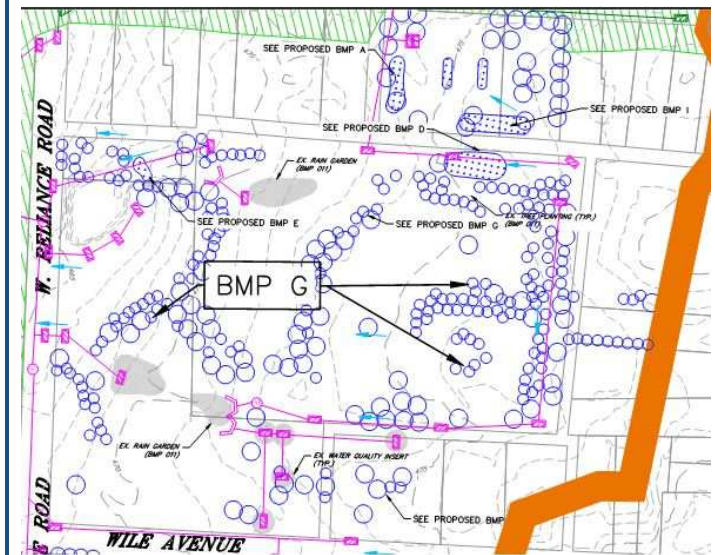
BMP Efficiency: 20%

Total Planting Area: 7.52 ac

Land Use Loading Rate/ % Area:

Open Space: 984.40 / 100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

Step #1 : Multiply Number of Trees by 0.01.

$$365 \text{ trees} \times 0.01 = 3.65 \text{ ac}$$

Step #2: Multiply the acreage found in Step 1 by Average Sediment Loading Rate (see above)

$$3.65 \text{ ac} \times 984.40 \text{ lb/ac/yr} = 3,593.06 \text{ lb/yr}$$

Step #3: Multiply Step 2 by BMP Effectiveness value: $3,593.06 \text{ lb/yr} \times 0.20 = 718.61 \text{ lbs/yr}$

BMP # G

BMP Description: Tree Planting (365 Trees)
Location: Community Park
Lat/Long: Varies
BMP type: Landscape Restoration

Operations & Maintenance Program

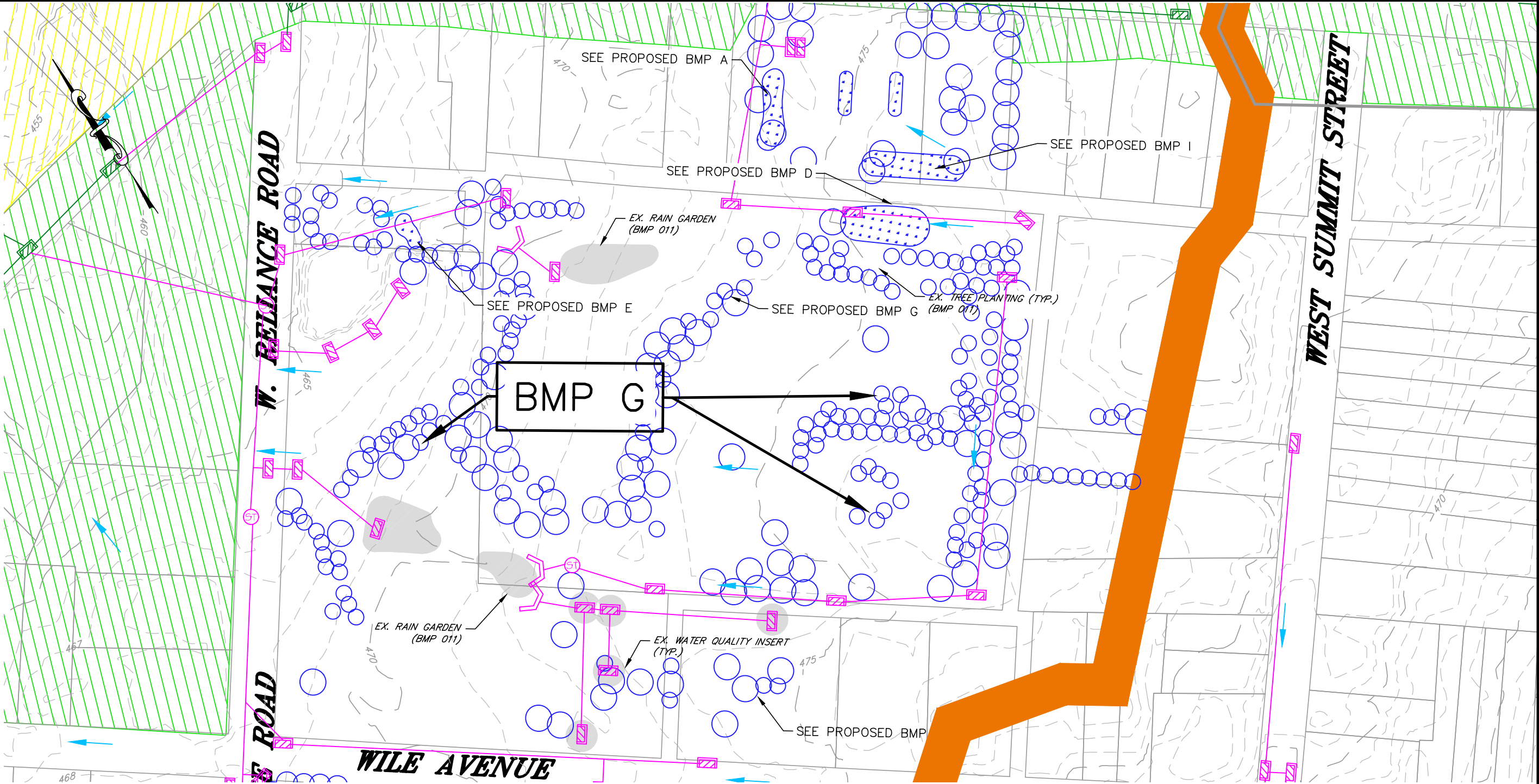
**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Initial watering and weekly watering during dry periods may be necessary during the first growing season
- Check perimeter fencing to avoid browse damage from deer

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LEGEND

- | | | | |
|--|--------------------|--|-------------------|
| | SEWERSHED BOUNDARY | | DRAINAGE PATH |
| | BOROUGH INLET | | SURFACE WATER |
| | PRIVATE INLET | | MS4 OUTFALL |
| | STATE INLET | | OBSERVATION POINT |
| | FLOW ARROW | | |

- | | |
|--|--|
| | PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM |
| | PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD |

BMP TYPES

- | | |
|--|---------------------------------|
| | WATER QUALITY INSERT |
| | RAIN GARDEN AND VEGETATED SWALE |
| | TREE PLANTING |
| | DRY EXTENDED DETENTION BASIN |
| | PERVIOUS PAVEMENT |

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CMK

SOUDERTON BOROUGH PRP/TMDL
BMP G – TREE PLANTING
PROPOSED BMPs
EXHIBITS
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:

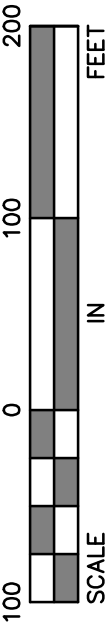
2309027

DATE:

03/31/2025

SCALE:

1"=100'

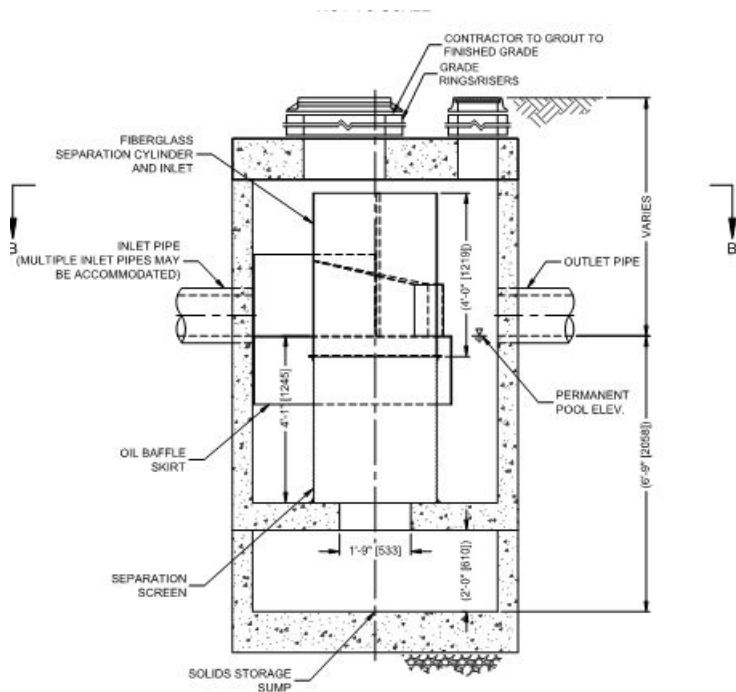


BMP # H

BMP Description: Advanced Hydrodynamic Separator
 Location: North Fourth Street
 Lat/Long: 40°19'04", -75°19'28"
 BMP type: Water Quality Device

BMP Information

BMP 6.6.4: Water Quality Filters & Hydrodynamic Devices



Project Description:

The Borough intends to install an advanced hydrodynamic separator at the referenced stormwater inlet to remove sediment, oil and grease, litter and debris

Estimated Project Cost:

\$50,000

Project Funding: General Funds/Grants

Treated Drainage Area:

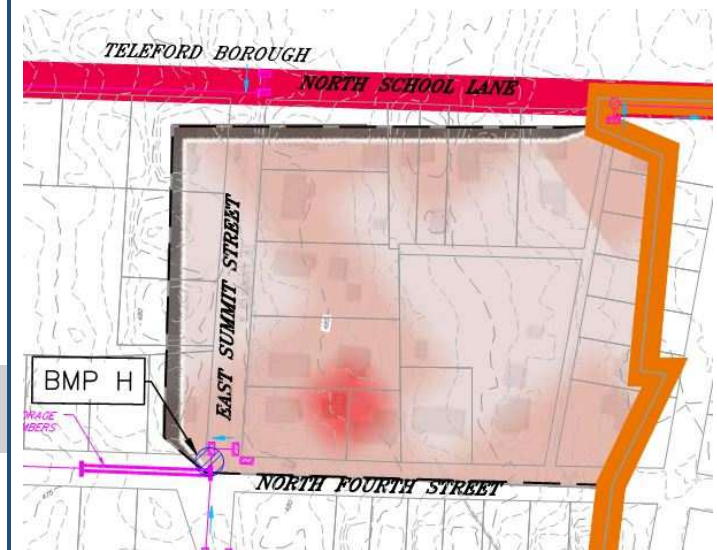
7.65 acres

BMP Efficiency: 10%

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Open Space	984.40	32.1%
Developed, Low	1093.78	59.0%
Developed, Medium	2158.19	8.98%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= 7.65 ac x 0.321 x 984.40 lb/ac/yr x 0.10 + (7.65 ac x 0.590 x 1093.78 lb/ac/yr x 0.10) + (7.65 ac x 0.089 x 2158.19 lb/ac/yr x 0.10) = **881.98 lbs/yr**

BMP # H

BMP Description: Advanced Hydrodynamic Device
Location: North Fourth Street
Lat/Long: 40°19'04", -75°19'28"
BMP type: Water Quality Device

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

As needed –

- Empty when over half full of sediment and trash

Greater than 1 inch storm –

- Inspect to ensure the insert is functioning properly, empty as necessary

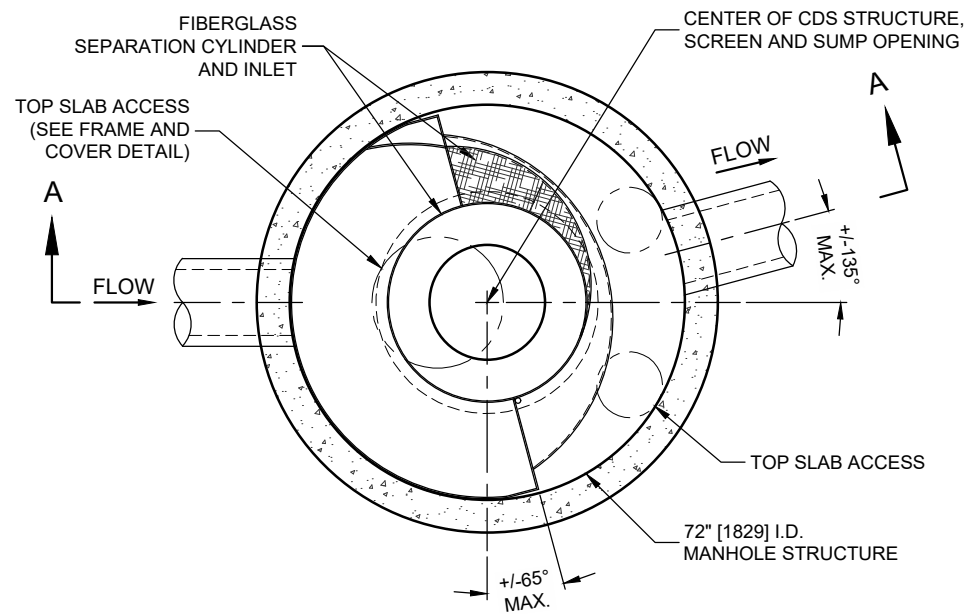
Biannually –

- Inspect and clean the inlet insert

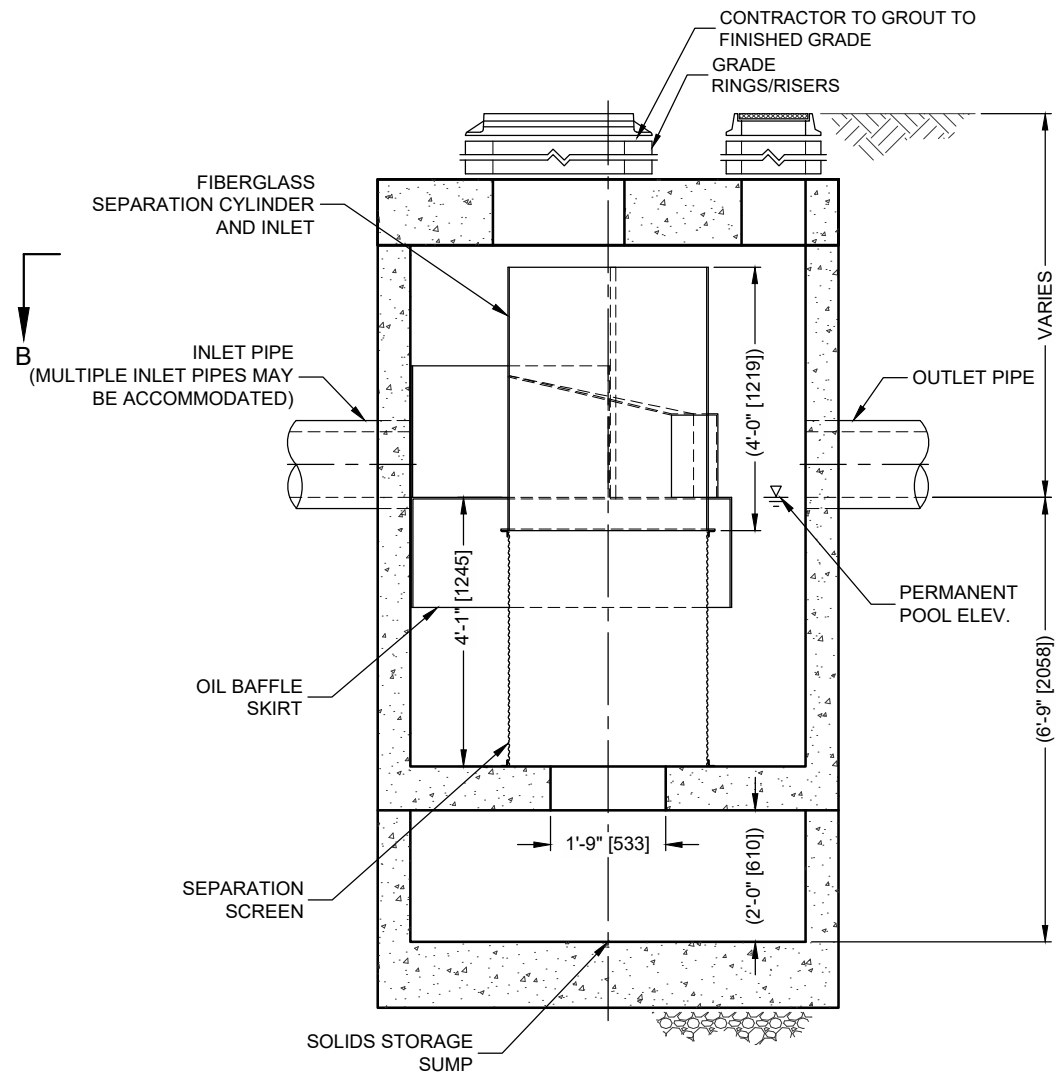
Winter months –

- Inspect more frequently due to increase of sand and salt applications

I:\COMMON\CAD\TREATMENT\22 CDS\40 STANDARD DRAWINGS\ONLINE (CDS-C)\PDF WITHOUT TREATMENT FLOWS\DWG\CDS3035-6-C-DTL.DWG 6/9/2021 4:16 PM



PLAN VIEW B-B
NOT TO SCALE



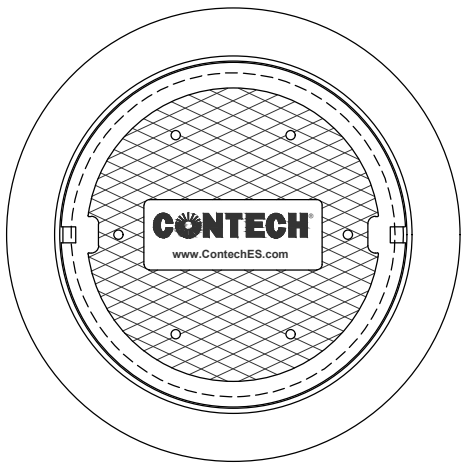
ELEVATION A-A
NOT TO SCALE



THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,788,848; 6,841,722; 6,511,505; 6,981,783. RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CDS3035-6-C DESIGN NOTES

CDS3035-6-C STANDARD CONFIGURATION IS SHOWN.



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

**SITE SPECIFIC
DATA REQUIREMENTS**

STRUCTURE ID				
WATER QUALITY FLOW RATE (CFS OR L/s)				*
PEAK FLOW RATE (CFS OR L/s)				*
RETURN PERIOD OF PEAK FLOW (YRS)				*
SCREEN APERTURE (2400 OR 4700)				*
PIPE DATA:	I.E.	MATERIAL	DIAMETER	
INLET PIPE 1	*	*	*	
INLET PIPE 2	*	*	*	
OUTLET PIPE	*	*	*	
RIM ELEVATION				*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT	
		*	*	
NOTES/SPECIAL REQUIREMENTS:				
* PER ENGINEER OF RECORD				

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO..
- IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS3035-6-C
ONLINE CDS
STANDARD DETAIL

BMP # I

BMP Description: Community Park Rain Garden
 Location: Community Park (Parking Lot)
 Lat/Long: 40°18'52", -75°19'48"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden which will treat runoff through storm sewer disconnection.

Estimated Project Cost:

\$100,000

Project Funding: General Funds/Grants

Treated Drainage Area:

0.92 acres

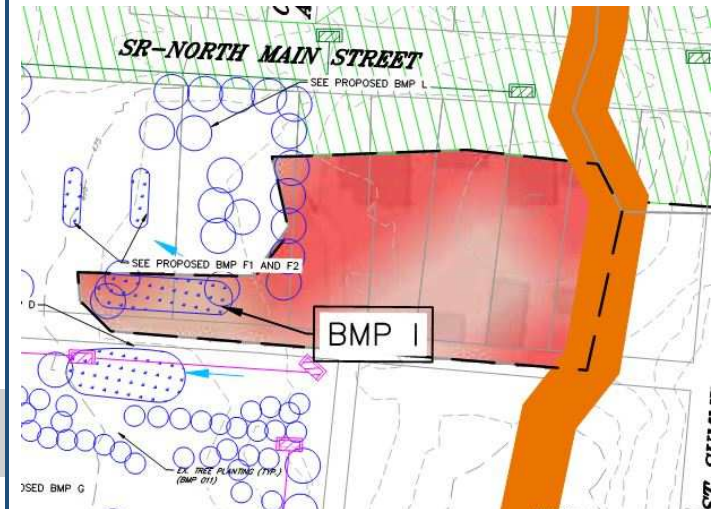
BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<u>Land Use</u>	<u>Loading Rate</u> <u>lb/ac/yr</u>	<u>% Coverage</u>
Developed, Med	2158.19	100.0%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.92 ac x 1 x 2158.19 lb/ac/yr x 0.55) = **1092.04 lbs/yr**

BMP # I

BMP Description: Community Park Rain Garden
Location: Community Park (Parking Lot)
Lat/Long: 40°18'52", -75°19'48"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

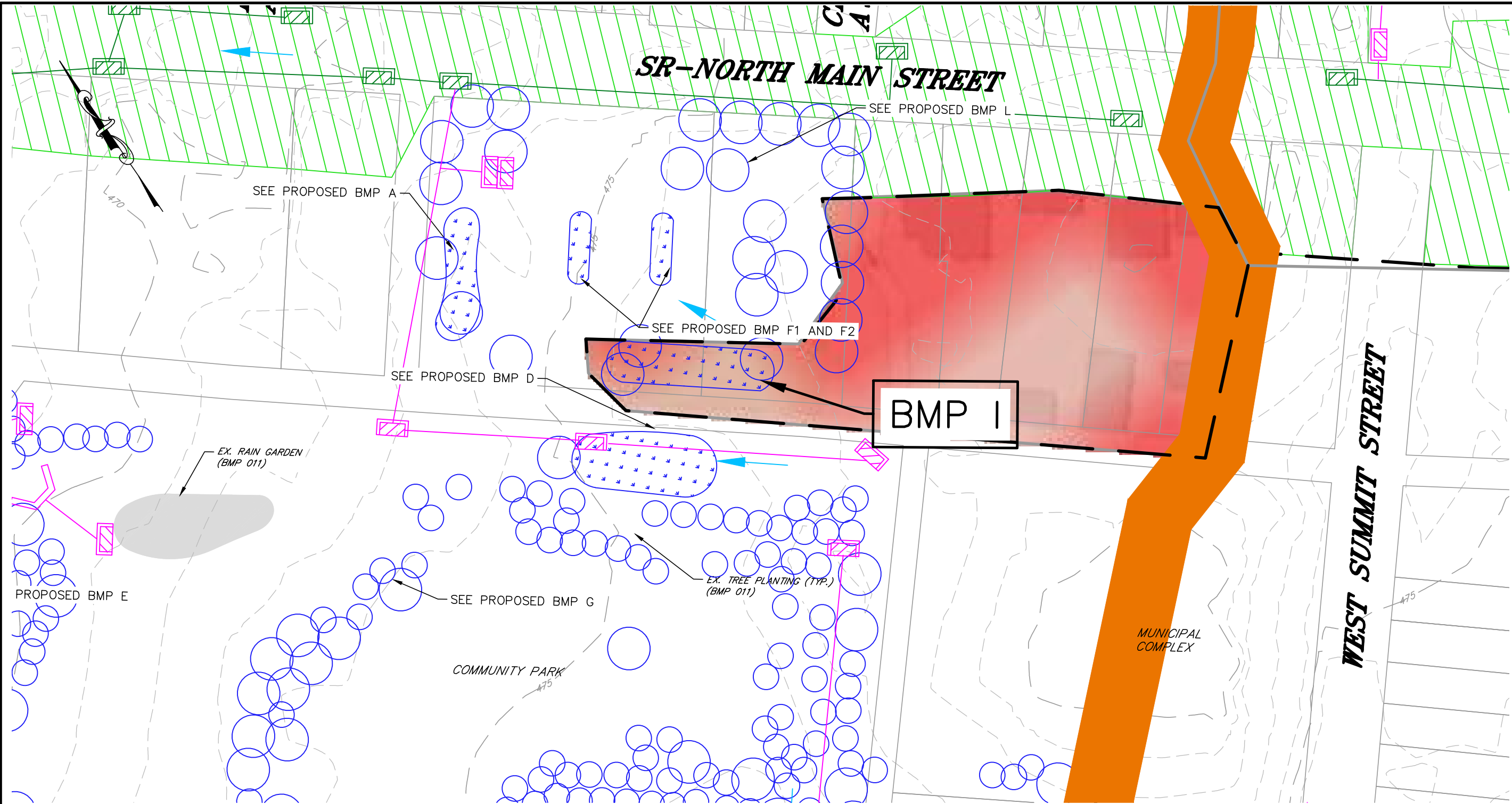
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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GILMORE & ASSOCIATES, INC. ENGINEERING & CONSULTING SERVICES 65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330	JOB NO.: 2309027	
	DATE: 03/31/2025	
	SCALE: 1"=60'	
PROPOSED BMPs EXHIBIT BMP I	SOUDERTON BOROUGH PRP/TMDL	
	SOUDERTON BOROUGH, MONTGOMERY COUNTY PENNSYLVANIA	
DRAWN BY: CMK		

BMP # J

BMP Description: Parkview Drive Basin Retrofit
 Location: Parkview Drive
 Lat/Long: 40°18'21", -75°19'51"
 BMP type: Dry Extended Detention Basin

BMP Information

BMP 6.6.3: Dry Extended Detention Basin



A dry extended detention basin is an earthen structure constructed either by impoundment of a natural depression or excavation of existing soil, that provides temporary storage of runoff and functions hydraulically to attenuate stormwater runoff peaks. The dry detention basin, as constructed in countless locations since the mid-1970's and representing the primary BMP measure until now, has served to control the peak rate of runoff, although some water quality benefit accrued by settlement of the larger particulate fraction of suspended solids. This extended version is intended to enhance this mechanism in order to maximize water quality benefits.

From PA BMP Manual

Project Description:

The Borough intends to retrofit the existing detention basin through removal of the low flow concrete channel, reconfiguration of the outlet structure to promote recharge and vegetation naturalization.

Year Constructed:

1995

Estimated Project Cost:

\$225,000*

Project Funding: General Funds/Grants

Treated Drainage Area:

8.7 acres

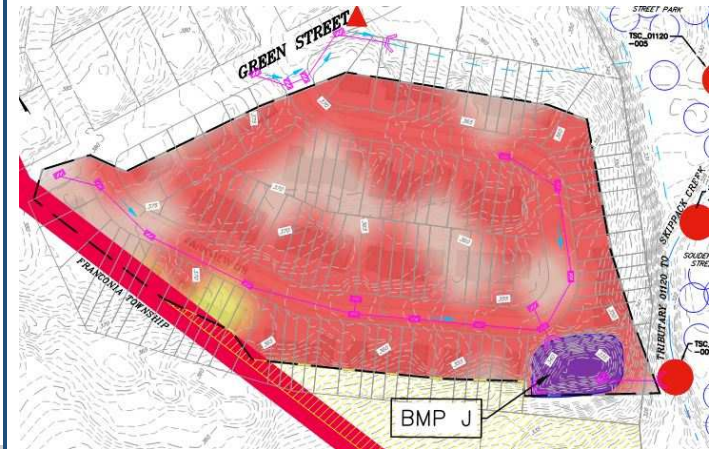
BMP Efficiency: 60%

Map #: 001

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Open Space	994.05	5.2%
Developed, Low	1104.5	21.1%
Developed, Medium	1931.19	73.7%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (8.70 ac x 0.052 x 994.05 lb/ac/yr x 0.60) + (8.70 ac x 0.211 x 1104.5 lb/ac/yr x 0.60)+ (8.7 ac x 0.737 x 1931.19 lb/ac/yr x 0.60) = **8914.12 lbs/yr**

BMP # J

BMP Description: Parkview Drive Basin Retrofit
Location: Parkview Drive
Lat/Long: 40°18'21", -75°19'51"
BMP type: Dry Extended Detention Basin

Existing BMP:

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

As needed –

- Mowing and/or trimming of vegetation should be performed to sustain the system, but all detritus should be removed from the basin.

Greater than 1 inch storm –

- All basin structures expected to receive and/or trap debris and sediment should be inspected for clogging and excessive debris and sediment accumulation

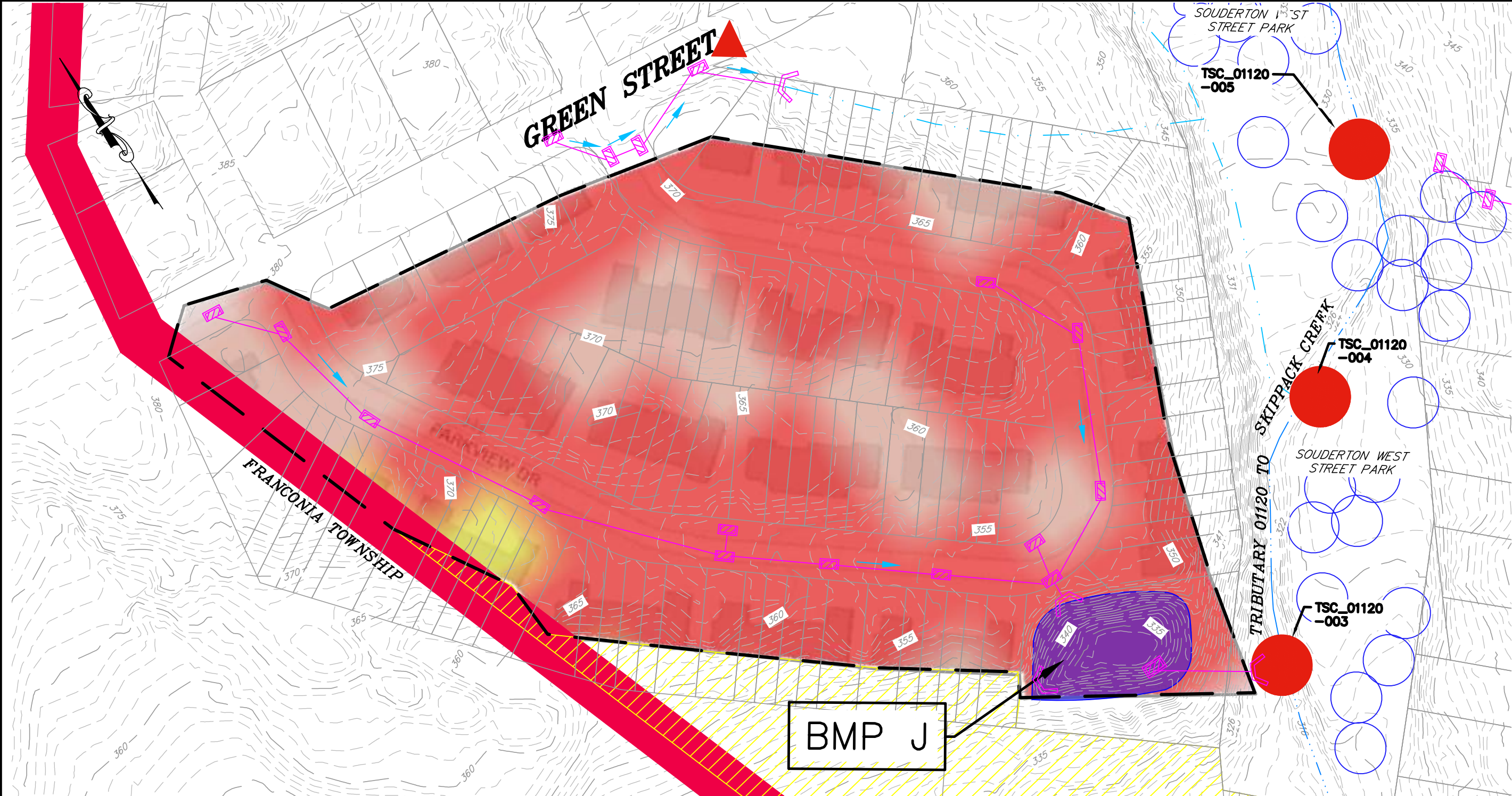
Quarterly –

- All basin structures expected to receive and/or trap debris and sediment should be inspected for clogging and excessive debris and sediment accumulation

Annually –

- Vegetated areas should be inspected annually for erosion, unwanted growth of exotic/invasive species and maintained at a minimum of 95%.

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LEGEND

- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

- PARSED AREA - PRIVATE PROPERTY DIRECTLY TO STREAM
- PARSED AREA - STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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100 0 100 200
SCALE IN FEET

SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP J

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.: 2309027
DATE: 03/31/2025
SCALE: 1"=100'

BMP # K

BMP Description: West Street Park Vegetated Swale
 Location: West Street Park
 Lat/Long: 40°18'27", -75°19'44"
 BMP type: Vegetated Swale

BMP Information

BMP 6.4.8: Vegetated Swale



A Vegetated Swale is a broad, shallow, trapezoidal or parabolic channel, densely planted with a variety of trees, shrubs, and/or grasses. It is designed to attenuate and in some cases infiltrate runoff volume from adjacent impervious surfaces, allowing some pollutants to settle out in the process. In steeper slope situations, check dams may be used to further enhance attenuation and infiltration opportunities.

From PA BMP Manual

Project Description:

The Borough intends to construct a vegetated swale at the downstream end of an existing endwall discharge to provide water quality prior to entering the stream

Estimated Project Cost:

\$30,000

Project Funding: General Funds/Grants

Treated Drainage Area:

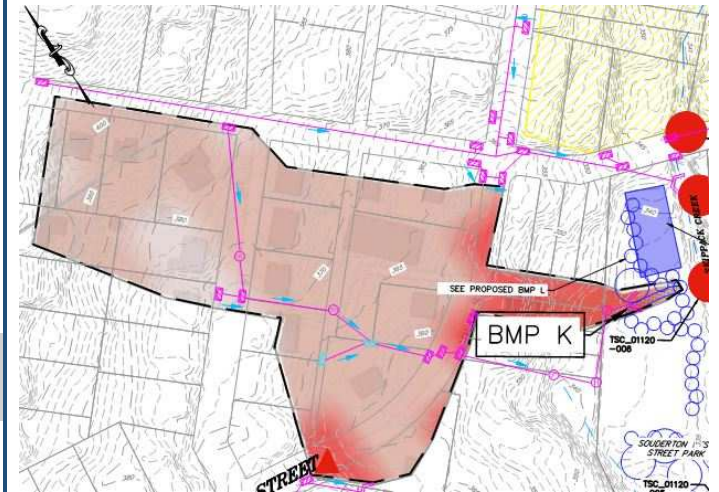
5.06 acres

BMP Efficiency: 50%

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Open Space	994.05	9.1%
Developed, Low	1104.5	68.2%
Developed, Medium	1931.19	22.7%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (5.06 ac x 0.091 x 994.05 lb/ac/yr x 0.50) + (5.06 ac x 0.682 x 1104.50 lb/ac/yr x 0.50)+ (5.06 ac x 0.227 x 1931.19 lb/ac/yr x 0.50) = **3244.64 lbs/yr**

BMP # K

BMP Description: West Street Park Vegetated Swale
Location: West Street Park
Lat/Long: 40°18'27", -75°19'44"
BMP type: Vegetated Swale

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

As needed –

- Plant alternative grass species in the even of unsuccessful establishment
- Reseed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming
- Rototill and replant swale if draw down time is more than 48 hours
- Inspect and correct check dams when signs of altered water flow (channelization, obstructions, erosion, etc.) are identified

Greater than 1 inch storm and Annually–

- Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation
- Inspect vegetation on side slopes for erosion and formation of rills or gullies, correct as needed
- Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade
- Mow and trim vegetation to ensure safety, aesthetics, proper swale operation, or to suppress weeds and invasive vegetation; dispose of cuttings in a local composting facility; mow only when swale is dry to avoid rutting
- Inspect for litter; remove prior to mowing
- Inspect for uniformity in cross section and longitudinal slope, correct as needed
- Inspect swale inlet and outlet for signs of erosion or blockage, correct as needed.

BMP # L

BMP Description: Tree Plantings (53 Trees)
 Location: West Street Park
 Lat/Long: Varies
 BMP type: Landscape Restoration

BMP Information

BMP 6.7.2: Landscape Restoration



Landscape Restoration is the general term used for actively sustainable landscaping practices that are implemented outside of riparian (or other specially protected) buffer areas. Landscape Restoration includes the restoration of forest (i.e. reforestation) and/or meadow and the conversion of turf to meadow. In a truly sustainable site design process, this BMP should be considered only after the areas of development that require landscaping and/or revegetation are minimized. The remaining areas that do require landscaping and/or revegetation should be driven by the selection and use of vegetation (i.e., native species) that does not require significant chemical maintenance by fertilizers, herbicides, and pesticides..

From PA BMP Manual

Project Description:

The Borough intends to plant 53 trees around the existing community park to provide shade canopy throughout the area.

Estimated Project Cost:

\$5,000

Project Funding: General Funds/Grants

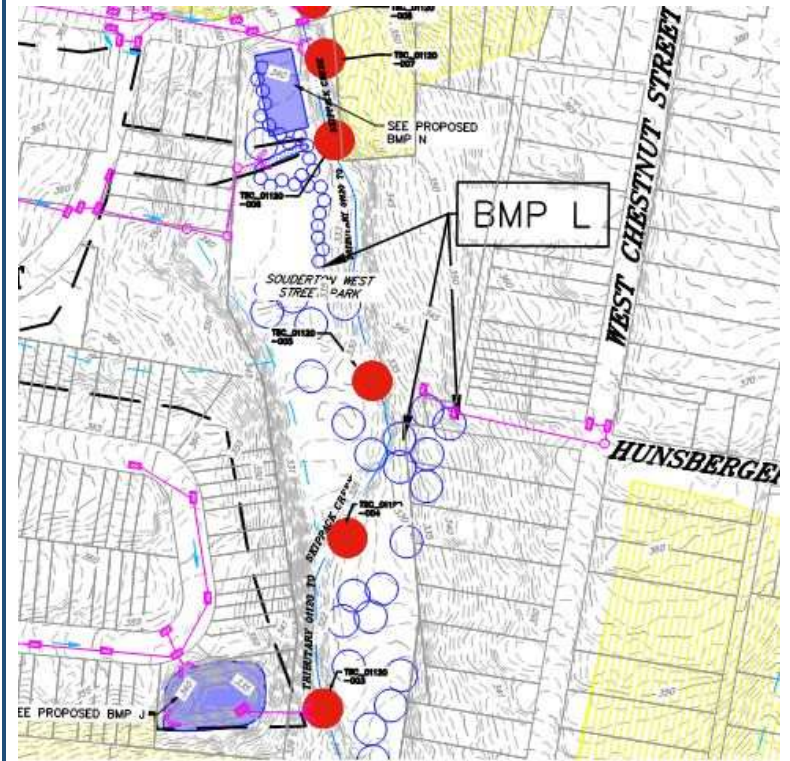
BMP Efficiency: 20%

Total Planting Area: 6.93 ac

Land Use Loading Rate/ % Area:

Open Space: 994.05 / 100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

Step #1 : Multiply Number of Trees by 0.01.

$$53 \text{ trees} \times 0.01 = 0.53 \text{ ac}$$

Step #2: Multiply the acreage found in Step 1 by Average Sediment Loading Rate (see above)

$$0.53 \text{ ac} \times 994.05 \text{ lb/ac/yr} = 526.85 \text{ lb/yr}$$

Step #3: Multiply Step 2 by BMP Effectiveness value: $526.85 \text{ lb/yr} \times 0.20 = 105.37 \text{ lbs/yr}$

BMP # L

BMP Description: Tree Planting (53 Trees)
Location: West Street Park
Lat/Long: Varies
BMP type: Landscape Restoration

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Initial watering and weekly watering during dry periods may be necessary during the first growing season
- Check perimeter fencing to avoid browse damage from deer

	SEWERSHED BOUNDARY		DRAINAGE PATH
	BOROUGH INLET		SURFACE WATER
	PRIVATE INLET		MS4 OUTFALL
	STATE INLET		OBSERVATION POINT
	FLOW ARROW		

WATER QUALITY INSERT

RAIN GARDEN AND VEGETATED SWALE

TREE PLANTING

DRY EXTENDED DETENTION BASIN

PERVIOUS PAVEMENT

DRAWN BY:

CMK

SCALE

IN

FEET

150 0 150 300

BMP L

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:

2309027

DATE: 03/31/2025

SCALE:
1"=150'

BMP # M

BMP Description: Chestnut Street Rain Garden
 Location: Chestnut Street Playground
 Lat/Long: 40°18'33", -75°19'32"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden within an existing lawn area that serves a playground which will treat overland runoff and runoff through storm sewer disconnection.

Estimated Project Cost:

\$150,000

Project Funding: General Funds/Grants

Treated Drainage Area:

1.73 acres

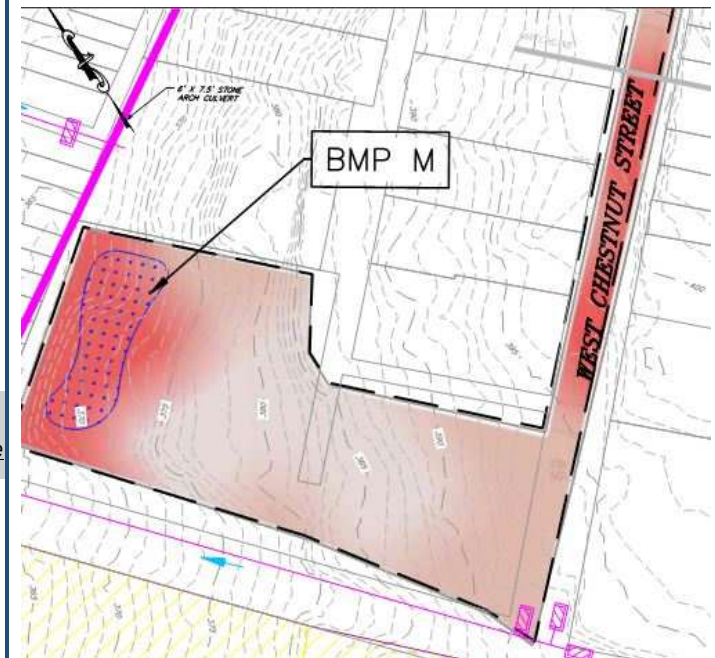
BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Open Space	994.05	25.0%
Developed, Low	1104.50	37.5%
Developed, Medium	1931.19	37.5%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= ((1.73 ac x 0.25 x 994.05 lb/ac/yr x 0.55) + (1.73 ac x 0.375 x 1104.5 lb/ac/yr x 0.55)+(1.73 ax x 0.375 x 1931.19 lb/ac/yr x 0.55) = **1319.63 lbs/yr**

BMP # M

BMP Description: Chestnut Street Rain Garden
Location: Chestnut Street Playground
Lat/Long: 40°18'33", -75°19'32"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

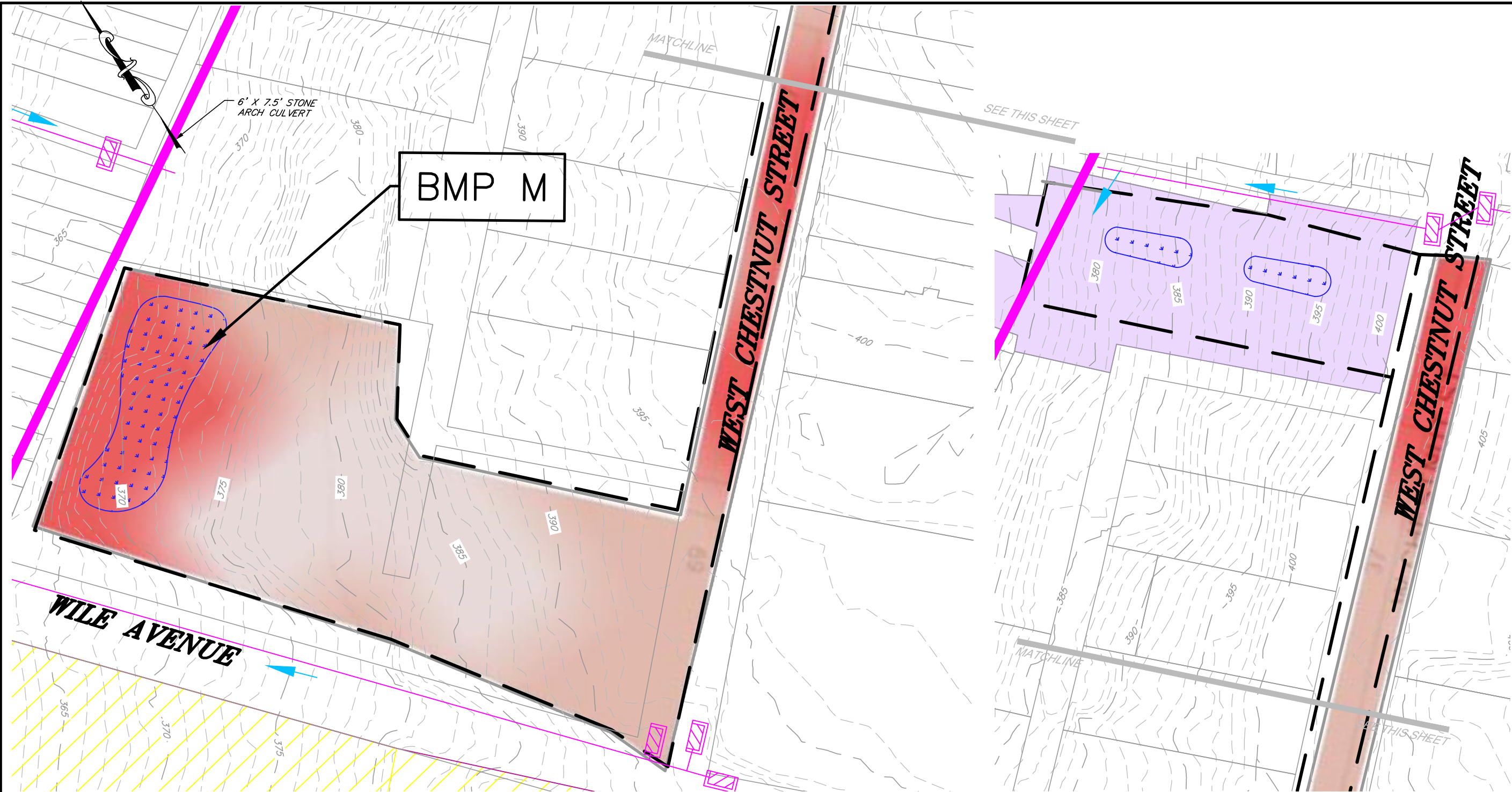
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

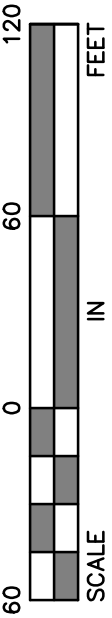
- PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM
- PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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DRAWN BY:
CMK



SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP M
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

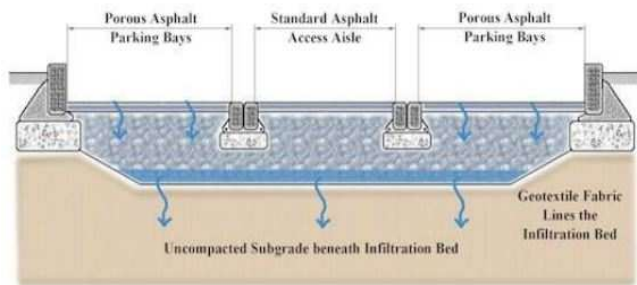
JOB NO.: 2309027
DATE: 03/31/2025
SCALE: 1"=60'

BMP # N

BMP Description: West Street Park Pervious Pavement
 Location: West Street Park
 Lat/Long: 40°18'28", -75°19'43"
 BMP type: Pervious Pavement

BMP Information

BMP 6.4.1: Pervious Pavement with Infiltration Bed



Description

A pervious pavement bed consists of a pervious surface course underlain by a stone bed of uniformly graded and clean-washed coarse aggregate, 1-1/2 to 2-1/2 inches in size, with a void space of at least 40%. The pervious pavement may consist of pervious asphalt, pervious concrete, or pervious pavement units. Stormwater drains through the surface, is temporarily held in the voids of the stone bed, and then slowly drains into the underlying, uncompacted soil mantle. The stone bed can be designed with an overflow control structure so that during large storm events peak rates are controlled, and at no time does the water level rise to the pavement level. A layer of geotextile filter fabric separates the aggregate from the underlying soil, preventing the migration of fines into the bed. The bed bottoms should be level and uncompacted. If new fill is required, it should consist of additional stone and not compacted soil.



From PA BMP Manual

Project Description:
 The Borough intends to remove and replace the existing asphalt parking area with pervious pavement.

Estimated Project Cost:
 \$250,000

Project Funding: General Funds/Grants

Treated Drainage Area:
 0.81 acres

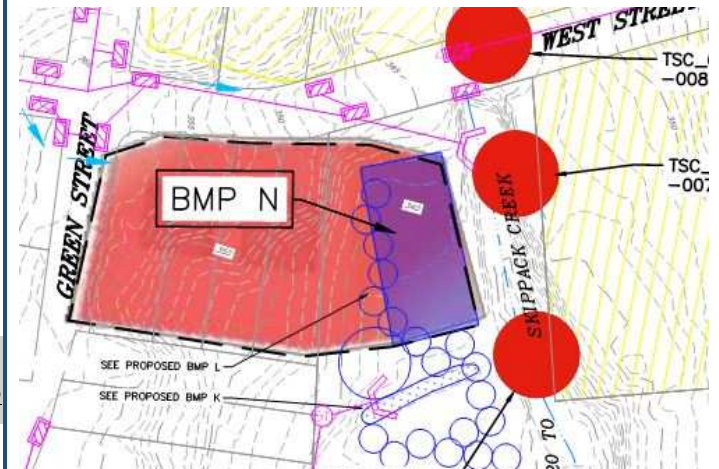
BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Developed, Low	1104.50	75.0%
Developed, Medium	1931.19	25.0%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.81 ac x .75 x 1104.50 lb/ac/yr x 0.55) + (0.81 ac x 0.25 x 1931.19 lb/ac/yr x 0.55) = **584.13 lbs/yr**

BMP # N

BMP Description: West Street Park Pervious Pavement
Location: West Street Park
Lat/Long: 40°18'28", -75°19'43"
BMP type: Pervious Pavement

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Construction –

- Do not allow construction staging, soil/mulch storage on pavement surfaces

As needed –

- Planted areas adjacent to pervious pavement should be well maintained to prevent soil washout onto pavement. If bare spots or erosion is observed, they should be replanted and stabilized at once.
- All trash and other litter that is observed should be removed.

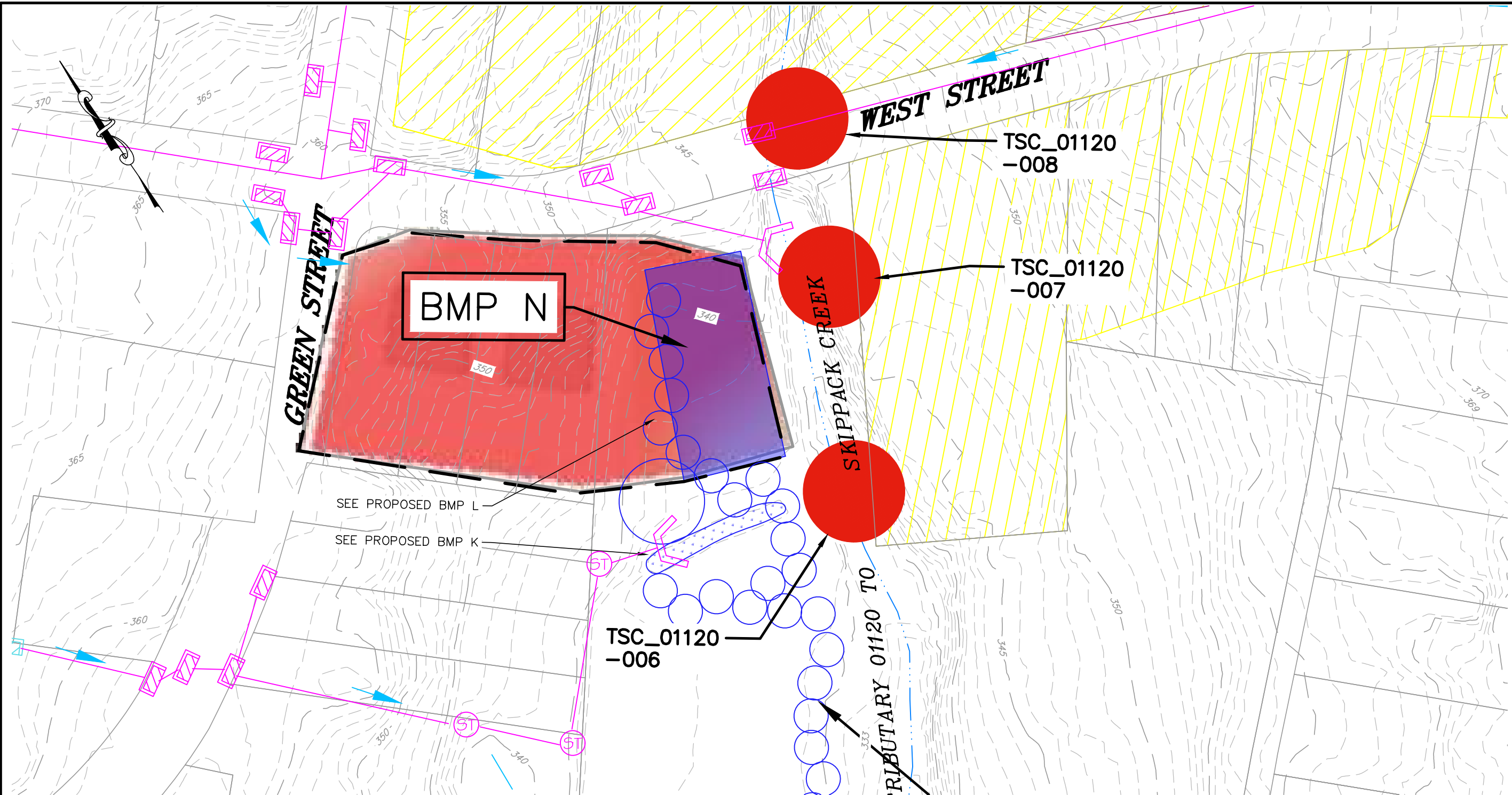
Biannually –

- Vacuum the pavement surface with a commercial cleaning unit. Pavement washing systems or compressed air units are not recommended
- All inlet structures within or draining to the infiltration beds should be cleaned.

Winter Maintenance –

- Abrasives such as sand or cinders should not be applied on or adjacent to pervious pavement
- Snow plowing is allowable, but the blade should be slightly higher than usual (about an inch)
- Salt is acceptable for use as a deicer on the pervious pavement, though nontoxic, organic deicers, applied either as blended, magnesium chloride-based liquid products or as pretreated salt, are preferable

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LEGEND

- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

- PARSED AREA - PRIVATE PROPERTY DIRECTLY TO STREAM
- PARSED AREA - STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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65 EAST BUTLER AVENUE, SUITE 100, NEW BRITAIN, PA 18901 • (215) 345-4330

DRAWN BY:

CMK

SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP N
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:

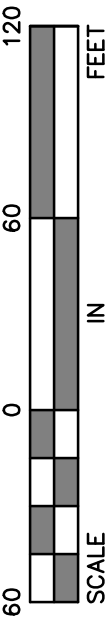
2309027

DATE:

03/31/2025

SCALE:

1"=60'



BMP # O

BMP Description: Holly Hill Park Rain Garden
 Location: Holly Hill Park
 Lat/Long: 40°18'37", -75°19'41"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

Bioretention can be integrated into a site with a high degree of flexibility and can balance nicely with other structural management systems, including porous asphalt parking lots, infiltration trenches, as well as non-structural stormwater BMPs described in Chapter 5.

The vegetation serves to filter (water quality) and transpire (water quantity) runoff, and the root systems can enhance infiltration. The plants take up pollutants; the soil medium filters out pollutants and allows storage and infiltration of stormwater runoff; and the bed provides additional volume control. Properly designed bioretention techniques mimic natural ecosystems through species diversity, density and distribution of vegetation, and the use of native species, resulting in a system that is resistant to insects, disease, pollution, and climatic stresses.

From PA BMP Manual

Project Description:

The Borough intends to construct one rain garden within an existing lawn area to treat runoff through storm sewer disconnection.

Estimated Project Cost:

\$225,000

Project Funding: General Funds/Grants

Treated Drainage Area:

16.24 acres

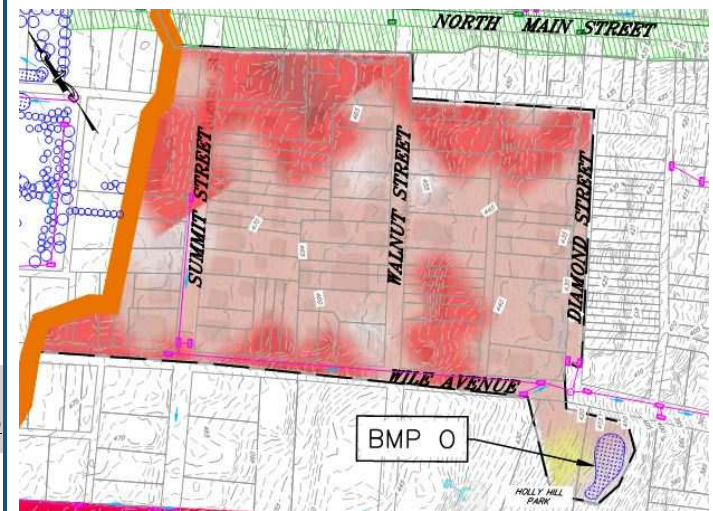
BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Open Space	994.05	11.0%
Developed, Low	1104.50	53.4%
Developed, Medium	1931.19	34.2%
Developed, High	2656.64	1.4%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= ((16.24 ac x 0.11 x 994.05 lb/ac/yr x 0.55) + (16.24 ac x 0.534 x 1104.5 lb/ac/yr x 0.55) + (16.24 ac x 0.342 x 1931.19 lb/ac/yr x 0.55) + (16.24 ac x 0.014 x 2656.64 lb/ac/yr x 0.55)) = **12,464.60 lbs/yr**

BMP # O

BMP Description: Holly Hill Park Rain Garden
Location: Holly Hill Park
Lat/Long: 40°18'37", -75°19'41"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

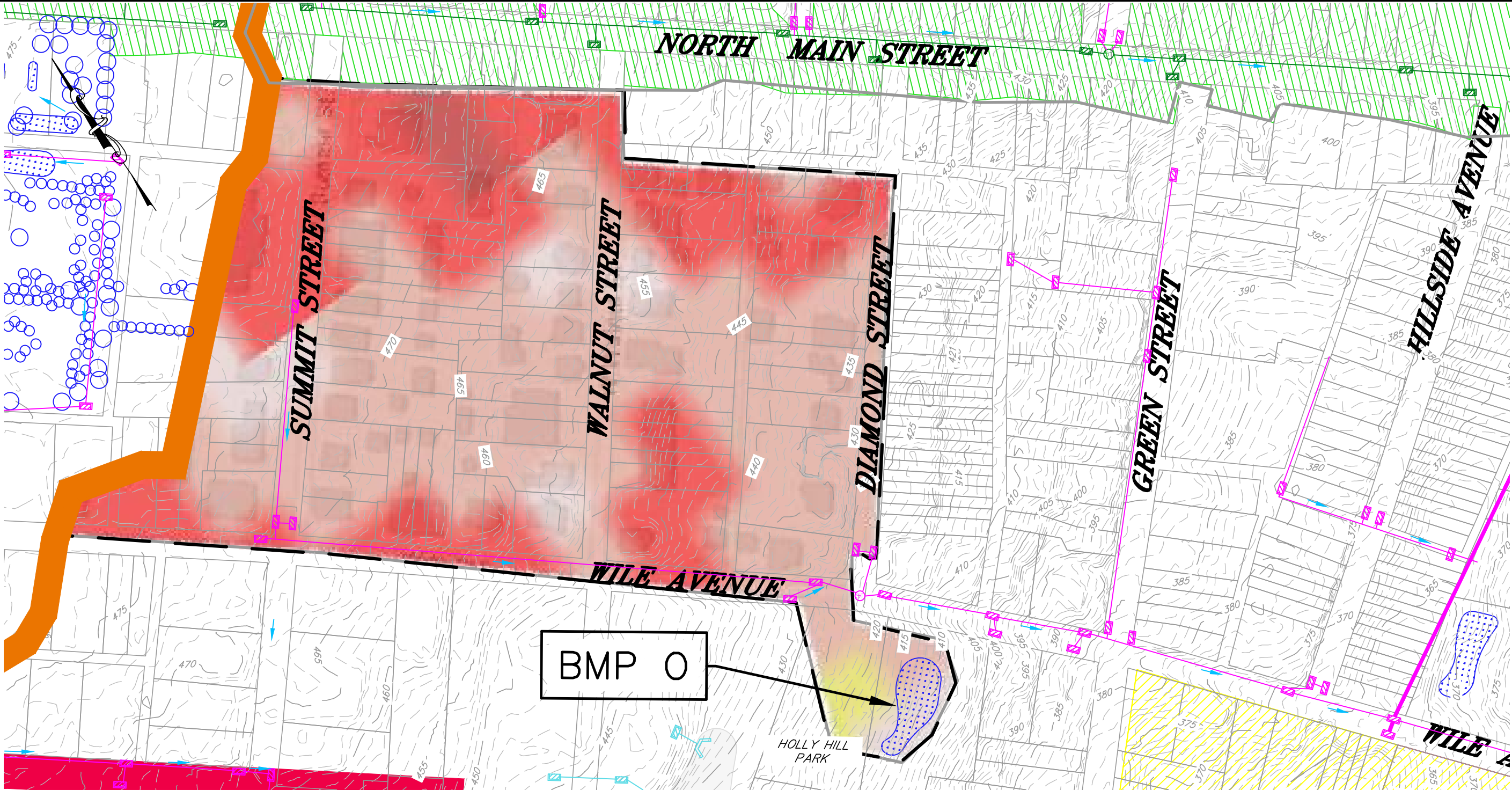
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

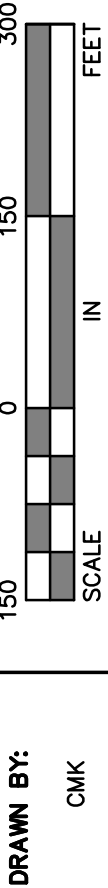
- | | | | |
|--|--------------------|--|-------------------|
| | SEWERSHED BOUNDARY | | DRAINAGE PATH |
| | BOROUGH INLET | | SURFACE WATER |
| | PRIVATE INLET | | MS4 OUTFALL |
| | STATE INLET | | OBSERVATION POINT |
| | FLOW ARROW | | |

- | | |
|--|--|
| | PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM |
| | PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD |

BMP TYPES

- | | |
|--|---------------------------------|
| | WATER QUALITY INSERT |
| | RAIN GARDEN AND VEGETATED SWALE |
| | TREE PLANTING |
| | DRY EXTENDED DETENTION BASIN |
| | PERVIOUS PAVEMENT |

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SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP 0

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:

2309027

DATE:

03/31/2025

SCALE:

1"=150'

BMP # P

BMP Description: Chestnut Street Rain Garden
 Location: Chestnut Street
 Lat/Long: 40°18'36", -75°19'24"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

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From PA BMP Manual

Project Description:

The Borough intends to incorporate pocket rain gardens into a proposed reconstructed paved parking lot.

Estimated Project Cost:

\$300,000

Project Funding: General Funds/Grants

Treated Drainage Area:

0.38 acres

BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

<i>Land Use</i>	<i>Loading Rate lb/ac/yr</i>	<i>% Coverage</i>
Developed, Medium	1931.19	100%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area)x(% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (0.38 ac x 1 x 1931.19 lb/ac/yr x 0.55) = **403.62 lbs/yr**

BMP # P

BMP Description: Chestnut Street Rain Garden
Location: Chestnut Street
Lat/Long: 40°18'36", -75°19'24"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

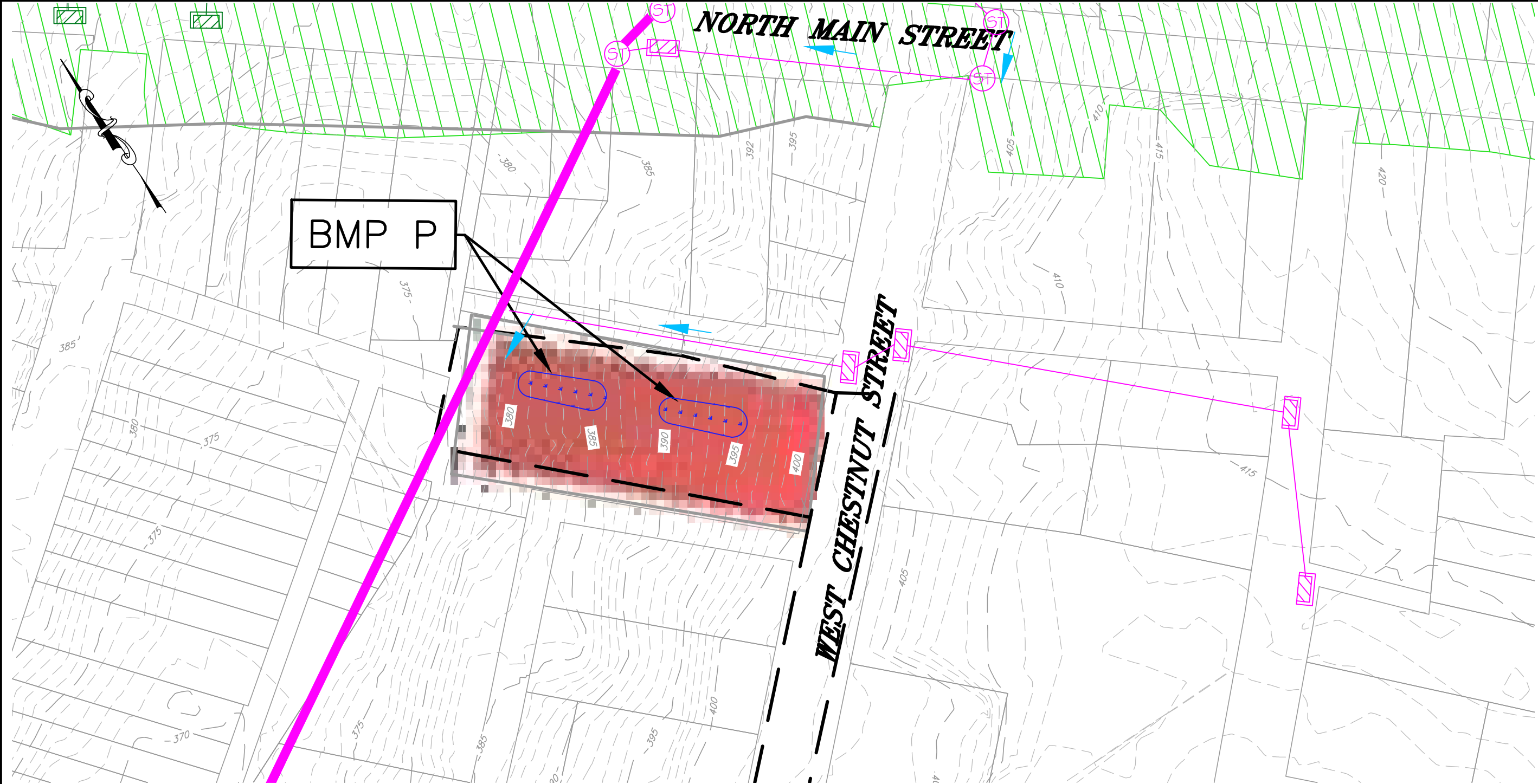
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

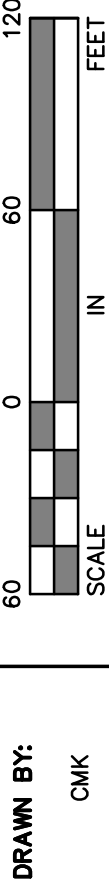
- SEWERSHED BOUNDARY
- BOROUGH INLET
- PRIVATE INLET
- STATE INLET
- FLOW ARROW
- DRAINAGE PATH
- SURFACE WATER
- MS4 OUTFALL
- OBSERVATION POINT

- PARSED AREA – PRIVATE PROPERTY
DIRECTLY TO STREAM
- PARSED AREA – STATE ROAD AND
AREAS DRAINING TOWARDS STATE ROAD

BMP TYPES

- WATER QUALITY INSERT
- RAIN GARDEN AND VEGETATED SWALE
- TREE PLANTING
- DRY EXTENDED DETENTION BASIN
- PERVIOUS PAVEMENT

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SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPs EXHIBIT

BMP P
SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.: 2309027

DATE: 03/31/2025

SCALE: 1"=60'

BMP # Q

BMP Description: Lawn Avenue Park Rain Garden
 Location: Lawn Avenue Park
 Lat/Long: 40°18'24", -75°19'05"
 BMP type: Rain Garden / Bioretention

BMP Information

BMP 6.4.5: Rain Garden/Bioretention

RECHARGE GARDEN / BIORETENTION BED



Bioretention is a method of treating stormwater by pooling water on the surface and allowing filtering and settling of suspended solids and sediment at the mulch layer, prior to entering the plant/soil/microbe complex media for infiltration and pollutant removal. Bioretention techniques are used to accomplish water quality improvement and water quantity reduction. Prince George's County, Maryland, and Alexandria, Virginia have used this BMP since 1992 with success in many urban and suburban settings.

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From PA BMP Manual

Project Description:

The Borough intends to construct a rain garden behind the baseball fields.

Estimated Project Cost:

\$125,000

Project Funding: General Funds/Grants

Treated Drainage Area:

1.77 acres

BMP Efficiency: 55%

Hydrologic Soil Group: D

Land Use NLCD 2006 in DA:

Land Use	Loading Rate lb/ac/yr	% Coverage
Open Space	994.05	25.0%
Developed, Low	1104.50	12.5%
Developed, Medium	1931.19	62.5%
Total		100%

LOCATION



*See BMP Exhibit Enlargement below for more detail

Load Reduction Calculations

Load Reduction (lbs/yr) =

= (Drainage Area) x (% land use) x (Land Use Loading Rates) x BMP Efficiency Rate

= (1.77 ac x 0.25 x 994.05 lb/ac/yr x 0.55) + (1.77 ac x 0.125 x 1104.50 lb/ac/yr x 0.55) + (1.77 ac x 0.625 x 1931.19 lb/ac/yr x 0.55) = **1551.34 lbs/yr**

BMP # Q

BMP Description: Lawn Avenue Park Rain Garden
Location: Lawn Avenue Park
Lat/Long: 40°18'24", -75°19'05"
BMP type: Rain Garden / Bioretention

Operations & Maintenance Program

**adapted from PA BMP Manual*

Responsible Party: Souderton Borough
Contact Number: 215-723-4371

During Establishment –

- Prune and weed vegetation, as needed

As needed –

- Respread mulch when erosion is evident

Greater than 1 inch storm –

- Inspect to ensure system is functioning properly, facility should drain within 72 hours

Biannually –

- Inspect for sediment buildup, erosion, vegetative conditions.
- Inspect tree and shrub health

Annually –

- Remove detritus
- Perennial plantings may be cut down at the end of the growing season

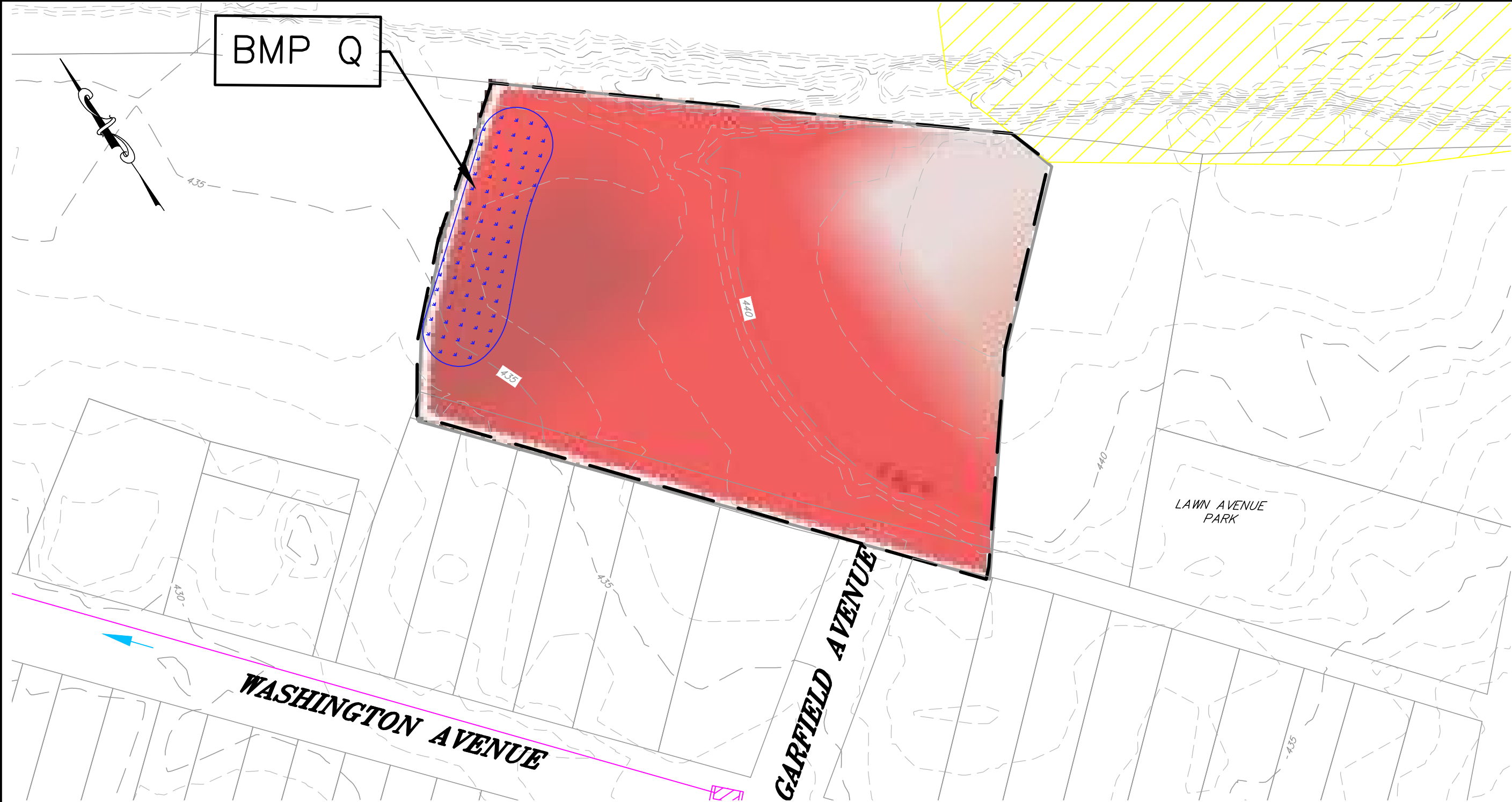
Drought Conditions –

- Water frequently

Every two to three years –

- Mulch replacement

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LEGEND

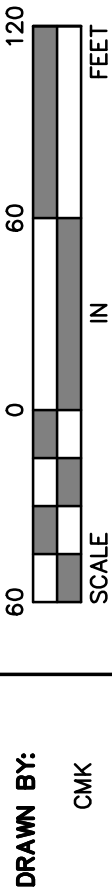
- | | | | |
|--|--------------------|--|-------------------|
| | SEWERSHED BOUNDARY | | DRAINAGE PATH |
| | BOROUGH INLET | | SURFACE WATER |
| | PRIVATE INLET | | MS4 OUTFALL |
| | STATE INLET | | OBSERVATION POINT |
| | FLOW ARROW | | |

- | | |
|--|--|
| | PARSED AREA – PRIVATE PROPERTY DIRECTLY TO STREAM |
| | PARSED AREA – STATE ROAD AND AREAS DRAINING TOWARDS STATE ROAD |

BMP TYPES

- | | |
|--|---------------------------------|
| | WATER QUALITY INSERT |
| | RAIN GARDEN AND VEGETATED SWALE |
| | TREE PLANTING |
| | DRY EXTENDED DETENTION BASIN |
| | PERVIOUS PAVEMENT |

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SOUDERTON BOROUGH PRP/TMDL
PROPOSED BMPS EXHIBIT

BMP Q

SOUDERTON BOROUGH, MONTGOMERY COUNTY
PENNSYLVANIA

JOB NO.:

2309027

DATE:

03/31/2025

SCALE:

1"=60'

BMP # R

BMP Description: Tributary 01119 to Skippack Creek Stream Restoration
Location: 174 Cowpath Road (Franconia Township)
Lat/Long: N/A
BMP type: Streambank Restoration

Project Description:

The Township intends to remediate eroded streambanks and related creek flow regime problems along several sections along the tributary to the Skippack Creek. Stabilization and enhancement efforts will be installed at several locations to prevent or mitigate future erosion and scour.

Estimated Project Cost:

\$315,000

Project Funding: General Funds/Grants

Restoration Length: 700 LF

Siting Criteria:

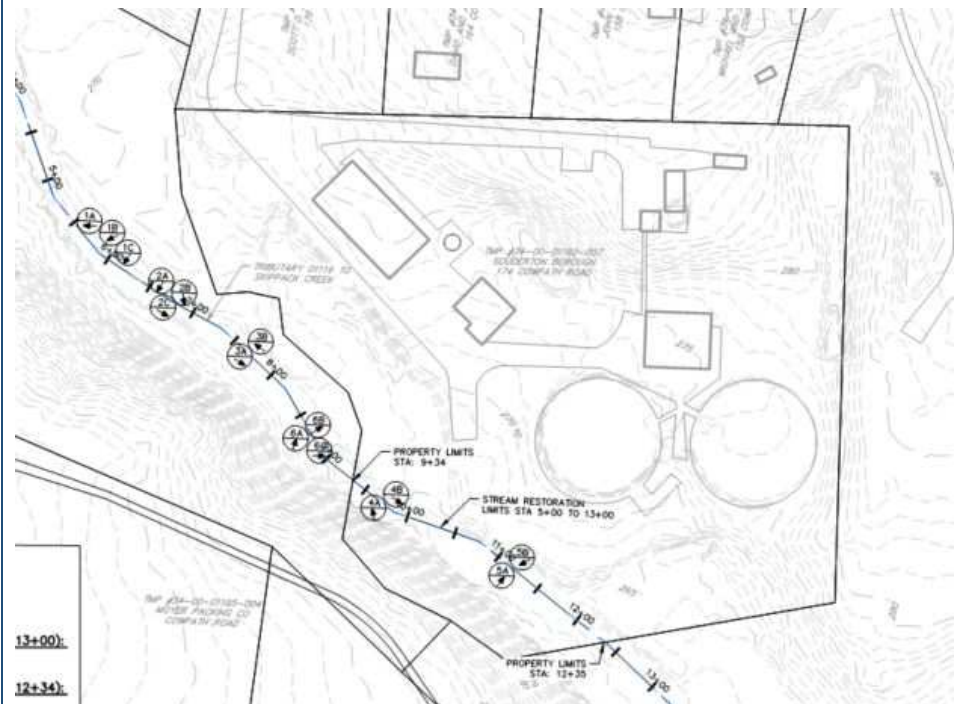
- 1st Order Stream
- Addresses approximately 700 LF of streambank
- Impervious upstream areas are treated sufficiently through implementation of stormwater management ordinance

Load Reduction Credit:

*Mapshed default rate: 115 lb/ft

750 LF x 115 lb/ft = **86,250 lbs**

LOCATION



*See BMP Exhibit Enlargement below for more detail

BMP # R

BMP Description: Tributary 01119 to Skippack Creek
Location: 174 Cowpath Road (Franconia Township)
Lat/Long: N/A
BMP type: Streambank Restoration

Operations & Maintenance Program

Responsible Party: Souderton Borough
Contact Number: 215-348-9915

As needed –

- Trash and debris removal, rodent removal and repairs of physical damage. Invasive and/or noxious species shall be removed immediately when noted, including but not limited to English Ivy, Japanese stilt grass, mulitflora rose, wineberry, cattails, phragmites, and poison ivy.

Quarterly –

Coir-fiber log toe protection: Inspected to ensure they remain anchored to slope and streambed. Jute matting shall be placed under the log prior to installation of new stakes and wires as needed to re-establish contact with bed/bank of the stream.

- If erosion or scour has occurred along slope behind the log, contact Doylestown Township for maintenance:

- 1) for small areas, additional logs shall be installed perpendicular to the stream flow to prevent further erosion in this area. If biolog is not available, erosion area may be filled with R-4 riprap and live stakes driven through the stone at 3ft on center to stabilize the stone.
- 2) If erosion or scour has occurred along the length of the biolog, it shall be filled with Class C well-graded stone. Class C stone shall consist of 1 part R-6 riprap + 2 parts R-5 riprap + 2 parts R-4 riprap.

Sloped banks with Jute Fabric and Vegetation

- A. 100% vegetative coverage by herbaceous species must be maintained throughout all areas of the slope. Any areas that become void of vegetation must be immediately corrected by replanting, reseeding or other adequate measures necessary to prevent erosion that may jeopardize the structural integrity of the facility.
- B. All vegetation throughout all areas of the facility must be mowed at a minimum of one time per year in the spring, and a maximum of three times per year. Minimum height of vegetation when mown shall be six (6") inches.
- C. Any erosion, slumping or other soil disturbances that are noted during routine maintenance shall be immediately repaired. Additional materials shall be added where necessary to return eroded areas to grade. All repaired areas shall be immediately re-vegetated with live stakes or other recommended herbaceous species.
 1. To re-vegetate with live stakes, harvest live cuttings from existing onsite plant material per following specification on 'Harvesting and Handling of Woody Cuttings.'
- D. Invasive or noxious species (see above) shall be removed immediately when observed. For persistent weed species, spot treat with a weed killer approved for use in wetland areas.

Geotextile soil wrap with brush layers

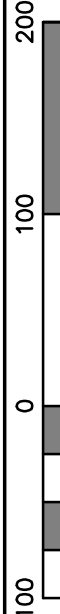
- A. There are minimal maintenance or inspection requirements for this type of installation. The embankment shall be inspected per the above noted schedule to insure structural stability and adequate growth of the brush layers.
- B. Invasive or noxious species (see above) shall be removed immediately when observed. For persistent weed species, spot treat with a weed killer approved for use in wetland areas.
- C. Any areas of soil wrap that become void of vegetation must be immediately corrected by installation of additional live stakes. Due to nature of the stabilization measure, it may be necessary to create a pilot hole by driving rebar into slope prior to installation of the live stake.
 - 1. To re-vegetate with live stakes, harvest live cuttings from existing onsite plant material per following specification on 'Harvesting and Handling of Woody Cuttings.'
- D. In the event that areas of the treated slope fail or erosion develops along or adjacent to the slope, Doylestown Township shall be contacted to address the problems beyond the scope of maintenance procedures.

Rock Diversions

- A. There are minimal maintenance or inspection requirements for this type of installation. The rock shall be inspected per the above noted schedule to insure structural stability.
- B. Keyway into embankment shall be inspected for erosion along edges of stone. Any areas of erosion shall be repaired/restored per Section 3 on Jute Matting with Vegetation.

Brush Mattress with Live Stakes

- A. There are minimal maintenance or inspection requirements for this type of installation. The brush mattress area shall be inspected per the above noted schedule to insure stability.
- B. If erosion has occurred along this area, contact Doylestown Township for inspection and/or repair.

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	PROPOSED BMPS EXHIBIT	
	<i>BMP R</i>	
	SOUDERTON BORO, MONTGOMERY COUNTY, PENNSYLVANIA	
SOUDERTON BOROUGH PRP/TMDL		
JOB NO.: 2309027		
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SCALE: 1"=100'		