
Township of Londonderry

MS₄ Program

Updated Pollutant Reduction Plan

2018 – 2023 MS₄ Permit

February 2019

ARRO Project No. 10999.12



ARRO Consulting, Inc.
1450 E. Boot Road, Building 100-B
West Chester, PA 19380
484-999-6150



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

July 19, 2018

Janice Hearne
Londonderry Township Chester County
103 Daleville Road
Cochranville, PA 19330

Re: Pollutant Reduction Plan (PRP) Review Comments
Londonderry Township MS4 UA
NPDES Permit No. PA1130053
Authorization ID No. 1200960
Londonderry Township, Chester County

Dear Ms. Hearne:

The Department of Environmental Protection (DEP) has received your individual permit application for NPDES permit coverage along with your PRP. DEP has reviewed the PRP and has the following comments and recommendations for improvement:

Individual Permit Application:

- Please check the appropriate box under the “Stormwater Management Program” section on page 7.

PRP:

- Please label the municipal roads that either are within the UA or discharge to the MS4 prior to hitting a surface water.
- Portions of Light Farm Dr. and Elm Creek Rd. have been excluded from the planning area (parsed). These roads appear to be municipal roads. If they are municipal roads, then the stormwater from these roads and any areas that discharge to those roads needs to be included in the planning area.
- Any areas outside of the UA that drain to the MS4 must be included in the planning area.
- Once the mapping revisions have been made, the loading calculations may need to be updated.
- For the existing BMPs that are being used to reduce the existing load, please provide an approximate date of installation. If a permit was required, please provide the permit number.
- On the spreadsheet titled, “Existing BMP Summary”, you identify OF-006 twice. Please correct and resubmit.
- BMPs 3 & 4 are outside of the UA. Normally, the Department would not allow these BMPs to be used to reduce the existing load. However, because they are treating storm water from the UA, we will make an exception in this case as long as the entire area that drains to these 2 BMPs is included in the planning area.

Ms. Janice Hearne

- 2 -

Please submit an updated plan that addresses these comments by no later than **September 21, 2018**. If your resubmission results in changes to the type or location of proposed BMPs, please note that you will be required to make those changes available to the public for review and comment prior to resubmission to DEP. In your resubmission, please include verification that the public participation process was completed.

If you have any questions, please contact me at 484.250.5183.

Sincerely,



Krista Brown
Environmental Protection Compliance Specialist
Clean Water Program

cc: Elizabeth Mahoney, Environmental Group Manager
Robert Haines, NPDES Permitting Section, Central Office
File



West Chester Office
1450 E. Boot Road
Suite 100-B
West Chester, PA 19380
T 484-999-6150

February 21, 2019

Pennsylvania Department of Environmental Protection
2 E Main St,
Norristown, PA 19401

Re: Pollutant Reduction Plan (PRP) Review Comments
Londonderry Township MS4 UA
NPDES Permit No. PAI130053
Authorization ID No. 1200960
Londonderry Township, Chester County

Dear Ms. Brown:

The following Pennsylvania Department of Environmental Protection (PA DEP) comments for Londonderry Township (Township) have been addressed and can be found in the corresponding attachments in the Updated Pollutant Reduction Plan document:

Application

- 1. Please Check the appropriate box under the “Stormwater Management Program” section on page 7.**

Please refer to page 7, the revised attached NOI form. The Township uses Countywide Act 167 for Stormwater Management.

PRP

- 2. Portions of Light Farm Dr. and Elm Creek Rd. have been excluded from the planning area (parsed). These roads appear to be municipal roads. If they are municipal roads, then the stormwater from these roads and any areas that discharge to those roads needs to be included in the planning area.**

Please refer to Attachment A for the updated mapping. Municipal and State roads are differentiated among other features on the map.

- 3. Any areas outside of the UA that drain to the MS4 must be included in the planning area.**

Please refer to Attachment A for updated mapping. An explanation for the parsed areas has been attached to the map in the notes section.

- 4. Once the mapping revisions have been made, the loading calculations may need to be updated.**

Please refer to Attachment A for updated mapping. Municipal roads were used for updated loading calculations.

- 5. For the existing BMPs that are being used to reduce the existing load, please provide an approximate date of installation. If a permit was required, please provide the permit number.**

Please refer to Attachment C section 1 for Existing BMP Summary. The approximate date of installation and permit number information is located within the table.

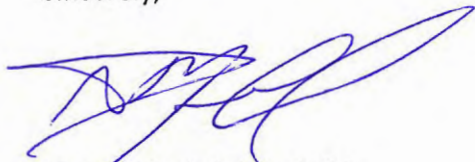
- 6. On the spreadsheet titled, "Existing BMP Summary", you identify OF-006 twice. Please correct and resubmit.**

Please refer to Attachment A for updated mapping and Attachment G section 1 for Existing BMP Summary. OF-006 is identified twice since there are two BMPs within that drainage area.

- 7. BMPs 3 & 4 are outside of the UA. Normally, the Department would not allow these BMPs to be used to reduce the existing load. However, because they are treating stormwater from the UA, we will make an exception in this case as long as the entire area that drains to these 2 BMPs is included in the planning area.**

Please see Attachment A for updated mapping.

Sincerely,



Nate J. Merkel, L.O, GISP
Director of GIS Services and Office Manager

NJM: NRS



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
INDIVIDUAL PERMIT TO DISCHARGE STORMWATER FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
CHECKLIST**

APPLICANT'S ✓ CHECKLIST

Applicant Name	Londonderry Township
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Check the following list to make sure you have included all the required information. Place a checkmark in the box provided for all items completed and/or provided. Failure to provide all of the requested information will delay the processing of the application.

ENCLOSE THIS CHECKLIST WITH YOUR COMPLETED APPLICATION.

	REQUIREMENTS FOR ALL DISCHARGES	Check ✓ If Included	DEP Use Only
1.	One original and two copies of the completed application (3800-PM-BCW0200b).	<input checked="" type="checkbox"/>	
2.	Application fee (\$2,500 for renewal, \$5,000 for new).	<input checked="" type="checkbox"/>	
3.	One original and two copies of the completed Waiver Application (3800-PM-BCW0100e), if applicable.	<input type="checkbox"/>	
4.	Stormwater map(s) (existing permittees) or topographic map(s) (MS4s with previous waivers and new applicants).	<input checked="" type="checkbox"/>	
5.	Memorandum of Understanding (MOU) or other written agreement with parties that will implement one or more BMPs, if applicable.	<input type="checkbox"/>	
6.	Chesapeake Bay Pollutant Reduction Plan (PRP), if applicable. (In addition, submit an electronic version or hard copy to DEP's Bureau of Clean Water).	<input checked="" type="checkbox"/>	
7.	PRP for Impaired Waters, if applicable. (In addition, submit an electronic version or hard copy to DEP's Bureau of Clean Water).	<input checked="" type="checkbox"/>	
8.	TMDL Plan, if applicable. (In addition, submit an electronic version or hard copy to DEP's Bureau of Clean Water).	<input type="checkbox"/>	
9.	Stormwater Management Ordinance (municipal applicants seeking renewed coverage only).	<input type="checkbox"/>	
10.	Stormwater Management Ordinance Checklist (3800-PM-BCW0100g), if applicable.	<input type="checkbox"/>	
11.	Standard Operating Procedure(s) (non-municipal applicants seeking renewed coverage only).	<input type="checkbox"/>	
12.	Complete application packages for each co-applicant (joint applications only).	<input type="checkbox"/>	



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
INDIVIDUAL PERMIT TO DISCHARGE STORMWATER FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
APPLICATION**

Before completing this form, read the step-by-step instructions provided in this application package.

Related ID#s (If Known)		DEP USE ONLY	
Client ID#	64097	APS ID#	Date Received
Site ID#		Auth ID#	
Facility ID#		PA	PDG?

GENERAL INFORMATION

Type of Permit: New Permit Renewal of Permit Permit No.: PA_____

Is a waiver of coverage being requested and is a waiver application attached to this application? Yes No

Is individual permit coverage requested for more than one MS4 applicant? Yes No

If Yes, submit this application for each co-applicant and complete the information below (see instructions):

Joint Client Name: _____ Joint Client Phone: _____

Joint Client Address: _____ Joint Client Contact: _____

Joint Client City, State, Zip: _____

MS4 CLIENT/OPERATOR INFORMATION

DEP Client ID#	Client Type/Code		
64097	MUNI		
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#	
Londonderry Township			
Mailing Address Line 1	Mailing Address Line 2		
103 Daleville Road			
Address Last Line – City	State	ZIP+4	Country
Cochranville	PA	19330-1117	Chester
Client Contact Last Name	First Name	MI	Suffix
Hearne	Janice	H	
Client Contact Title	Phone	Ext	
Secretary	610-869-2138		
Email Address	FAX		
Londonderrytownship@zoominternet.com	610-869-5525		

MS4 SITE INFORMATION

DEP Site ID#	Site Name			
	Londonderry Township MS4			
Urbanized Area (UA) Name(s)	UA Area (specify acres or mi ²)			
Philadelphia, PA--NJ--DE--MD	131.6 Acres			
County Name	Municipality Name	City	Boro	Twp State
Chester	Londonderry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> PA
County Name	Municipality Name	City	Boro	Twp State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Location Address Line 1	Site Location Address Line 2			

STORMWATER MANAGEMENT PROGRAM

Check here if the applicant is relying and will continue to rely on Pennsylvania's Chapter 102 program for erosion and sediment control (E&S) and post-construction stormwater management requirements. (If checked, there is no need to complete the information in the table below for MCM #4, BMPs #4 – #8, and MCM #5, BMPs #4 – #6).

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#1 – Public Education and Outreach	1	Develop, implement and maintain a written Public Education and Outreach Program.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Develop and maintain lists of target audience groups that are present within the areas served by the permittee's regulated small MS4.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	3	The permittee shall annually publish at least one issue of a newsletter, a pamphlet, a flyer, or a website that includes general stormwater educational information, a general description of the permittee's SWMP, and/or information about the permittee's stormwater management activities.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	4	Distribute stormwater educational materials and/or information to the target audiences using two methods annually.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
#2 – Public Participation and Involvement	1	Develop, implement and maintain a written Public Involvement and Participation Program (PIPP).	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Provide adequate public notice and opportunities for public review, input, and feedback prior to adoption of any ordinance, SOP or plan required by the General Permit.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	3	Regularly solicit public involvement and participation from the target audience groups using available distribution and outreach methods.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
#3 – Illicit Discharge Detection and Elimination	1	Develop and implement a written program for the detection, elimination, and prevention of illicit discharges into the regulated MS4.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Develop and maintain a map of the regulated small MS4's outfalls and surface waters.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	3	In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), new permittees shall show, and existing permittees shall update, the entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, and any other features of the permittee's storm sewer system including municipal boundaries and/or watershed boundaries.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#3 – Illicit Discharge Detection and Elimination (continued)	4	The permittee shall conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	5	Enact a Stormwater Management Ordinance (municipal permittees) or SOP (non-municipal permittees) to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	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.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
#4 – Construction Site Stormwater Runoff Control	1	If an NPDES permit is required for earth disturbance activities, do not issue a building permit or approval until confirmation that a valid NPDES permit is obtained.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Notify DEP or CCD within 5 days of the receipt of an application for a permit involving an earth disturbance activity consisting of one acre or more.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	3	Enact, implement, and enforce an ordinance to require the implementation of erosion and sediment control BMPs, as well as sanctions to ensure compliance.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	4	Review Erosion and Sediment (E&S) control plans to ensure that such plans adequately consider water quality impacts and meet regulatory requirements.				<input type="checkbox"/>
	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 General Permit.				<input type="checkbox"/>
	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.				<input type="checkbox"/>
	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.				<input type="checkbox"/>

Minimum Control Measure (MCM)	BMP #	BMP Summary	Responsible Party	Contact Name	Contact Phone No.	MOU or Agreement?
#4 – Construction Site Stormwater Runoff Control (continued)	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. The permittee shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing.				<input type="checkbox"/>
#5, Post-Construction Stormwater Management in New Development and Redevelopment	1	Enact, implement, and enforce an ordinance or other regulatory mechanism to address post-construction stormwater runoff from new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new development and redevelopment.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	3	Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all development or redevelopment projects that disturb greater than or equal to one acre.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	4	Review PCSM Plans and require the implementation 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, and implement a tracking system for qualifying projects and associated PCSM BMPs.				<input type="checkbox"/>
	5	Inspect all qualifying development or redevelopment projects to ensure proper installation of the approved structural PCSM BMPs.				<input type="checkbox"/>
	6	Develop a written program that describes how the permittee shall implement and enforce all required components of this MCM.				<input type="checkbox"/>
#6 – Pollution Prevention / Good Housekeeping	1	Identify and document all operations that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	2	Develop, implement and maintain a written O&M program for all operations that could contribute to the discharge of pollutants from the regulated small MS4.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>
	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.	Township	Janice Hearne	610-869-2138	<input type="checkbox"/>

STORMWATER MANAGEMENT PROGRAM

MOU or Agreement. Attach any Memorandum of Understanding (MOU) or other written agreement that describes the BMP(s) identified above as being the responsibility of another party or a shared responsibility with another party.

Stormwater Management Ordinance. For municipal applicants that are renewing permit coverage, complete the information below and attach the applicant's Stormwater Management Ordinance to the NOI. The box for "Yes" must be checked for one of the three options below. Applicants that lack the authority to enact ordinances and are renewing permit coverage must attach their stormwater management SOP(s).

1.	Has a Stormwater Management Ordinance been enacted that is consistent with either the 2013 or 2022 DEP Model Ordinances?	<input type="checkbox"/> Yes	Date:		<input type="checkbox"/> No
2.	Has a Stormwater Management Ordinance been enacted that is consistent with an Act 167 Plan approved by DEP in 2005 or later?	<input checked="" type="checkbox"/> Yes	Date: March 27, 2013		<input type="checkbox"/> No
3.	Has a Stormwater Management Ordinance been enacted that meets the requirements of the Stormwater Management Ordinance Checklist (for either 2013 or 2022)? If Yes, attach Checklist (3800-PM-BCW0100g).	<input type="checkbox"/> Yes	Date:		<input type="checkbox"/> No

COMPLIANCE HISTORY

Existing Permits – Identify all existing environmental permits issued by DEP or EPA to the applicant in the past five years.

Type of Permit	Permit No.	Date Issued	Issued By
Act 537 Base Plan App Update Revision, Spcl Study	732164A	6/24/2014	PA DEP

Was/Is the facility owner or operator in violation of any DEP regulation, permit, order or schedule of compliance at this or any other facility? Yes No

If "Yes," list each permit, order or schedule of compliance and provide current compliance status. Use additional sheets to provide information on all permits.

Permit Program: - Permit No.: -

Brief Description of Non-Compliance:

-	
Steps Taken to Achieve Compliance	Date(s) Compliance Achieved
-	-

Current Compliance Status: In Compliance In Non-Compliance

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa. C.S.A. Section 4904 (relating to unsworn falsification to authorities) that this document and all attachments were 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.

Name (type or print legibly)

Official Title

Signature

Date Signed

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ATTACHMENTS

ATTACHMENT A– UPDATED MAPPING

ATTACHMENT B– UPDATED EXISTING LOADING FOR POLLUTANTS OF CONCERN

ATTACHMENT C– UPDATED EXISTING BMP POLLUTANT REDUCTIONS

ATTACHMENT D– UPDATED SELECTED BMP POLLUTANT LOADING REDUCTION

1. Response to Deficiency Notice

The following narrative was written in response to the Pennsylvania Department of Environmental Protection's (PA DEP) deficiency notice. The notice requires several changes to the existing Pollutant Reduction Plan (PRP) that was submitted in September of 2017.

Londonderry Township, Chester County was classified as an urbanized area per the 2010 U.S. Census. The Pennsylvania Department of Environmental Protection (PA DEP) has notified the Township that they are required to renew the National Pollutant Discharge Elimination System (NPDES) Small Municipal Separate Storm Sewer Systems (MS4) permit. The requirements for Londonderry Township are defined by the PA DEP MS4 requirements as:

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Chester County						
LONDONDERRY TWP		No		East Branch Big Elk Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
				Chesapeake Bay	Appendix D - Nutrients, Siltation (4a)	
				Nutrients/Sediment		

This combined PRP has been developed to satisfy the requirements, as put forward by the PA DEP, of: 1) Chesapeake Bay Pollutant Reduction Plan (CBPRP); and 2) PRP for the East Branch Big Elk Creek. All of the storm sewer sheds identified in this plan are tributary to the Chesapeake Bay.

A. Public Participation

Londonderry Township's response to PA DEP's deficiency notice requires the public participation. PA DEP requested that changes to the type or location of proposed BMPs are required to be available to the public for review and comment prior to resubmission. No new BMPs were selected for the updated PRP.

B. Map

An updated MS4 map, with stormwater structures, differentiating between municipal and state roads, Best Management Practices (BMPs), explanation for parsed areas, updated MS3 drainage areas for loading calculations, new proposed BMPs (if applicable) to the new loading rate, and supporting information was submitted to PA DEP as a response to the deficiency notice.

C. Pollutants of Concern

Londonderry Township, in accordance with the PA DEP Municipal requirements table and the impaired waters mapping provided herein, is subject to Appendix D and Appendix E of the MS4 permit.

Appendix D – Chesapeake Bay

Appendix D is the requirement for development of a Chesapeake Bay Pollutant Reduction Plan (CBPRP). In accordance with the PRP guidelines, the goal of the CBPRP is for the following reductions:

- 3% reduction of Total Nitrogen (TN)
- 5% reduction of Total Phosphorous (TP)
- 10% reduction of Sediment (TSS)

Furthermore, the PA DEP PRP instructions state: “Permittees are encouraged to select appropriate BMPs to achieve the 10% sediment loading reduction objective, as it is expected that, overall within the Bay watershed, the TP (5%) and TN (3%) goals will be achieved when a 10% reduction in sediment is achieved.” The PRP has been prepared to meet the required 10% reduction of sediment.

Appendix E – East Branch Big Elk Creek

Appendix E is the requirement for development of a Pollutant Reduction Plan (PRP) for the identified impaired waterway. Londonderry Township is responsible for developing a PRP for the East Branch Big Elk Creek to address siltation. In accordance with the PRP guidelines, the goal of the PRP is for the following reductions:

- 3% reduction of Total Nitrogen (TN)
- 5% reduction of Total Phosphorous (TP)
- 10% reduction of Sediment (TSS)

Furthermore, the PA DEP PRP instructions state: “If the impairment is based on siltation only, a minimum 10% sediment reduction is required. If the impairment is based on nutrients only or other surrogates for nutrients (e.g., “Excessive Algal Growth” and “Organic Enrichment/Low D.O.”), a minimum 5% TP reduction is required. If the impaired is due to both siltation and nutrients, both sediment (10% reduction) and TP (5% reduction) must be addressed.” The PRP has been prepared to meet the required 10% reduction of sediment.

D. Existing Loading for Pollutants of Concern

Based upon the storm sewer shed delineation, the existing loading for TSS, TP and TN was calculated for each storm sewer shed. The storm sewer sheds tributaries to the Big Elk Creek also compose the Chesapeake Bay. Since Londonderry Township is subject to the requirements of Appendix E, the pollutant loading for the storm sewer sheds tributary to the East Branch Big Elk Creek were calculated separately. The total pollutant loading to the Chesapeake Bay is the sum of loads calculated for Appendix E. Pollutant loadings were calculated based upon PA DEP’s “Developed Land Loading Rates for PA Counties” (Attachment B of the PRP instructions) for Chester County; the calculated pollutant loadings are provided in Attachment B. The calculations are summarized below:

Appendix E- East Branch Big Elk Creek/Appendix D - Chesapeake Bay

Londonderry Township

Base Pollutant Loading (No Existing BMPs) Summary:

Drainage Area ID	Drainage Area (Ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Big Elk Creek	2.13	11.78	13.91	211.08	7.35	5,388.30
UNT to East Branch Big Elk Creek	11.40	94.82	106.23	1,577.26	50.79	34,714.37
				1,788.33	58.14	40,102.67
Required Reduction Percent				3%	5%	10%
Required Reduction - Chesapeake Bay PRP (Lbs/Year)				53.65	2.91	4,010.27

D.1. Existing BMP Load Reductions

Based upon the mapping (Attachment A), Londonderry Township identified existing BMPs that would reduce the existing pollutant loading. Attachment C provides a summary of the existing BMPs, along with the PA DEP permit number, and approximate date of installation. The percent of pollutant reductions for each BMP was determined based upon the recommendation reports of the Chesapeake Bay Expert Panel. The updated existing BMP loading with BMP calculations are provided in Attachment C. The existing loading for TSS, TP and TN was re-calculated for each storm sewer shed accounting for the pollutant load reduction from the existing BMPs. The design base pollutant loading and required pollutant reduction goal is summarized below:

Londonderry Township

Base Pollutant Loading With Existing BMPs Summary:

Drainage Area ID	Drainage Area (Ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Big Elk Creek	2.13	11.78	13.91	211.08	7.35	5,388.30
BMP Reductions				18.09	1.30	976.11
UNT to East Branch Big Elk Creek	11.40	94.82	106.23	1,577.26	50.79	34,714.37
BMP Reductions				18.93	1.27	901.36
Base Pollutant Loading With Existing BMPs				192.98	6.05	38,225.20
Required Reduction Percent				3%	5%	10%
Required Reduction (Lbs/Year)				5.79	0.30	3,822.52
Required Reduction (Tons/Year)				0.00	0.00	1.91

E. Selected BMP's

Londonderry Township evaluated the following factors in selection of the BMPs to be implemented achieve the required pollutant load reduction. These factors included:

- Overall BMP cost
- Secured grant funding
- Availability of land to implement BMPs
- Local flooding and erosion problems
- Drainage areas associated with identified waterways
- Consistency with Economic Development initiatives

Based upon the potential BMP evaluation, Londonderry Township developed the proposed BMP to be implemented under the MS4 permit from 2018 – 2023. The proposed BMP is identified on the Londonderry Township: Stormwater Conveyance System Map. The proposed BMP pollutant reduction is summarized below and in Attachment D:

	Drainage Area ID	Proposed BMP ID	BMP Description	Pollutant Reduction		
				TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
UNT to East Branch Big Elk Creek						
	OF-001	BMP 001-BS1	Bioswale	237.43	8.42	6,291.45
				237.43	8.42	6,291.45
Required Reduction				5.79	0.3	3,822.52
Net Reduction				231.64	8.12	2468.93

F. Funding Mechanism

Londonderry Township, through the planning phase, evaluated the cost associated with the selected plan; the selected BMP implementation cost is summarized below:

Option 2:

	Drainage Area ID	Prop. BMP ID	BMP Description	Project Cost
UNT to East Branch Big Elk Creek				
	OF-001	BMP 001-BS1	Bioswale	\$92,651.13
				\$92,651.13

The required funding identified above will be funded through the Township’s Stormwater Budget, as established through the General Fund. The General Fund revenues are based upon the Township’s tax base, as regulated under the Township Code.

G. Responsible Parties for Operation and Maintenance (O&M) of BMPs

Londonderry Township will own and operate the BMP identified in the PRP. Specific requirements for the BMP are identified below:

BMP 001-BS1: Bioswale:

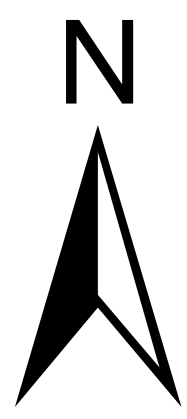
- Location: Along Baker Road on road right-of-way. Limits are from 165 Baker Road to OF001.
- Responsible Party: Londonderry Township
- O&M Activities: Monitor storm sewer discharge areas and swale banks for scouring and erosion, immediately stabilize any areas of erosion. Maintain vegetation in natural state, where appropriate. Remove any invasive species that may develop.

Frequency of
O&M Activities: Complete inspection of the restored corridor a minimum of once a year. Complete restoration and/or selective vegetation management as needed based upon inspections.

H. PRP Implementation Schedule

<u>Task</u>	<u>Implementation Date</u>
MS4 Permit Authorization	March 2018
BMP 001-BS1: Bioswale	November 2022
MS4 Permit Expiration	March 2023

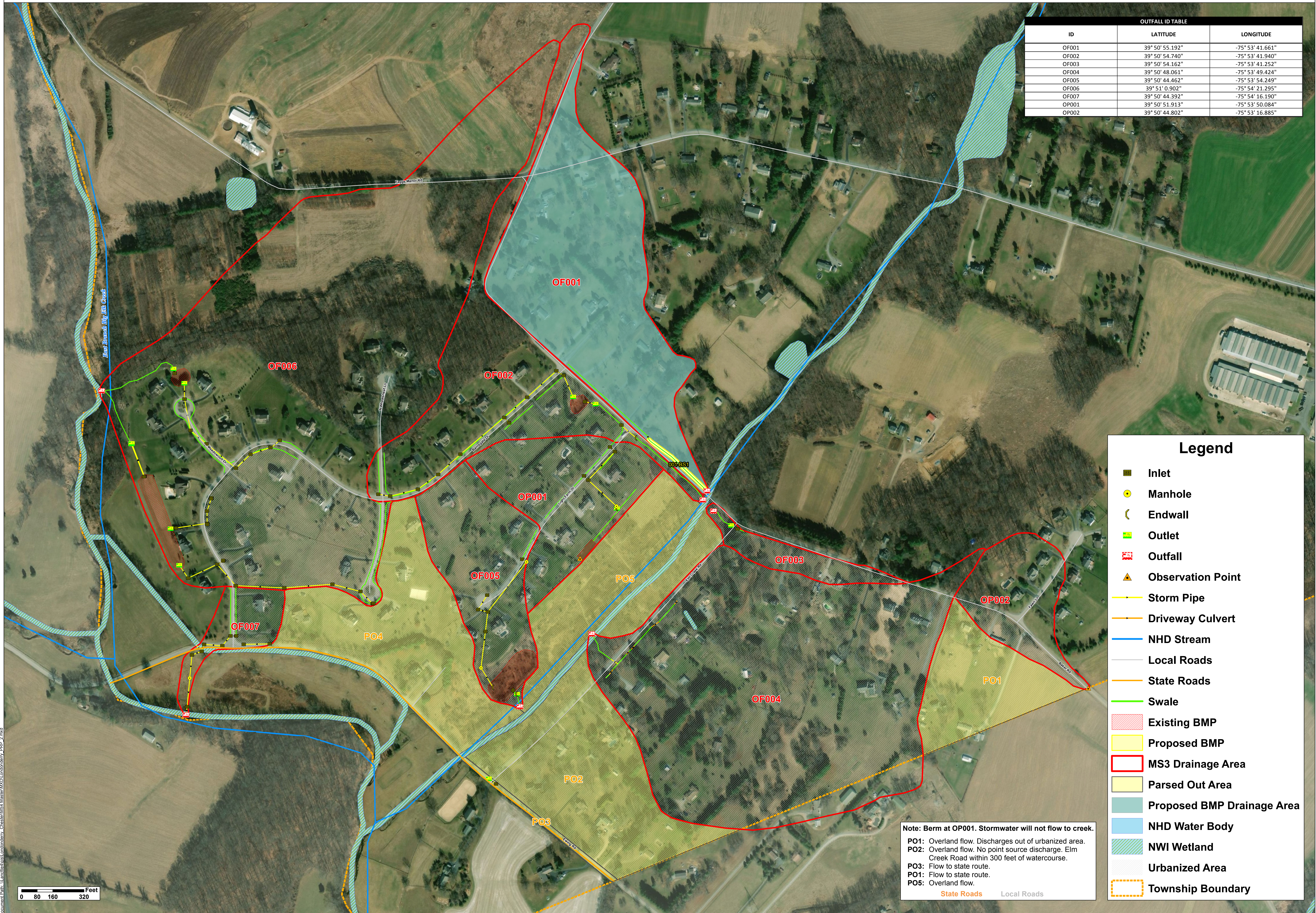
ATTACHMENT A
UPDATED MAPPING



Londonderry Township Stormwater Conveyance System



OUTFALL ID TABLE		
ID	LATITUDE	LONGITUDE
OF001	39° 50' 55.192"	-75° 53' 41.661"
OF002	39° 50' 54.740"	-75° 53' 41.940"
OF003	39° 50' 54.162"	-75° 53' 41.252"
OF004	39° 50' 48.061"	-75° 53' 49.424"
OF005	39° 50' 44.462"	-75° 53' 54.249"
OF006	39° 51' 0.902"	-75° 54' 21.295"
OF007	39° 50' 44.392"	-75° 54' 16.190"
OP001	39° 50' 51.913"	-75° 53' 50.084"
OP002	39° 50' 44.802"	-75° 53' 16.885"



Legend

- Inlet
- Manhole
- Endwall
- Outlet
- Outfall
- Observation Point
- Storm Pipe
- Driveway Culvert
- NHD Stream
- Local Roads
- State Roads
- Swale
- Existing BMP
- Proposed BMP
- MS3 Drainage Area
- Parsed Out Area
- Proposed BMP Drainage Area
- NHD Water Body
- NWI Wetland
- Urbanized Area
- Township Boundary

Note: Berm at OP001. Stormwater will not flow to creek.
PO1: Overland flow. Discharges out of urbanized area.
PO2: Overland flow. No point source discharge. Elm Creek Road within 300 feet of watercourse.
PO3: Flow to state route.
PO1: Flow to state route.
PO5: Overland flow.

State Roads Local Roads

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ATTACHMENT B

UPDATED EXISTING LOADING FOR POLLUTANTS OF CONCERN

Londonderry Township
 Pollutant Reduction Plan (PRP)
 ARRO No.: 10999.12
 Base Pollutant Loading (No Existing BMPs) Summary

Appendix E- East Branch Big Elk Creek/Appendix D - Chesapeak Bay

Londonderry Township
 Base Pollutant Loading (No Existing BMPs) Summary:

Drainage Area ID	Drainage Area (Ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Big Elk Creek	2.13	11.78	13.91	211.08	7.35	5,388.30
UNT to East Branch Big Elk Creek	11.40	94.82	106.23	1,577.26	50.79	34,714.37
				1,788.33	58.14	40,102.67
Required Reduction Percent				3%	5%	10%
Required Reduction - Appendix E/Chesapeak Bay PRP (Lbs/Year)				53.65	2.91	4,010.27

ATTACHMENT C

UPDATED EXISTING BMP POLLUTANT REDUCTIONS

1. Existing BMP Summary
2. East Branch Big Elk Creek Updated Loading

UPDATED EXISTING BMP POLLUTANT REDUCTIONS

Existing BMP Summary

Londonderry Township, Chester County
 10999.12
Existing BMP Summary

<u>BMP No.</u>	<u>MS3</u>	<u>Type</u>	<u>Watershed</u>	<u>Approximate Install Year</u>	<u>Permit Number</u>	<u>Total Area</u>						<u>Latitude</u>	<u>Longitude</u>
						<u>SqFt</u>	<u>Acres</u>	<u>Pervious SqFt</u>	<u>Impervious SqFt</u>	<u>% Pervious</u>	<u>% Impervious</u>		
1	OF-002	Dry Detention Basin	UNT to East Branch Big Elk Creek	2005	PAS10-G395	649,805.74	14.92	558,086.69	91,719.05	85.89	14.11	39.849927	-75.897212
2	OF-005	Dry Detention Basin	UNT to East Branch Big Elk Creek	2005	PAS10-G395	448,920.72	10.31	397,241.73	51,679.00	88.49	11.51	39.846123	-75.898496
3	OF-006	Dry Detention Basin	Big Elk Creek	2005	PAS10-G395	540,885.12	12.42	443,644.90	97,240.21	82.02	17.98	39.850414	-75.904462
4	OF-006	Dry Detention Basin	Big Elk Creek	2005	PAS10-G395	488,820.20	11.22	408,307.02	80,513.19	83.53	16.47	39.848412	-75.90487

UPDATED EXISTING BMP POLLUTANT REDUCTIONS

East Branch Big Elk Creek Updated Loading

Londonderry Township

Base Pollutant Loading With Existing BMPs Summary:

Drainage Area ID	Drainage Area (Ac)			PA DEP Land Loading		
	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Big Elk Creek	2.13	11.78	13.91	211.08	7.35	5,388.30
BMP Reductions				18.09	1.30	976.11
UNT to East Branch Big Elk Creek	11.40	94.82	106.23	1,577.26	50.79	34,714.37
BMP Reductions				18.93	1.27	901.36
Base Pollutant Loading With Existing BMPs				192.98	6.05	38,225.20

Required Reduction Percent

3%

5%

10%

Required Reduction (Lbs/Year)**5.79****0.30****3,822.52**

Required Reduction (Tons/Year)

0.00

0.00

1.91

ATTACHMENT D

UPDATED SELECTED BMP POLLUTANT LOADING REDUCTION

1. BMP Description
2. BMP Pollutant Loading Reduction

UPDATED SELECTED BMP POLLUTANT LOADING REDUCTION

BMP Description

UNT to East Branch Big Elk Creek – Appendix E

BMP 001-BS1: Bioswale

The analysis evaluated the modification of an existing swale into a bioswale, increasing the swales width and reducing flow depth and velocity. The BMP will be located along Baker Road on road right-of-way. Limits are from 165 Baker Road to OF001. Construction activities include: Re-grading; installing ballast and amended soils; bioswale plantings; and stabilization of existing storm outlets.

UPDATED SELECTED BMP POLLUTANT LOADING REDUCTION

BMP Pollutant Loading Reduction

**Londonderry Township, Chester County
 Pollutant Reduction Plan (PRP)
 ARRO No.: 10999.12**

	Drainage Area ID	Prop. BMP ID	BMP Description	Pollutant Reduction		
				TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
UNT to East Branch Big Elk Creek						
	OF-001	BMP 001-BS1	Bioswale	237.43	8.42	6,291.45
				237.43	8.42	6,291.45
Required Reduction (Lbs/Year)				5.79	0.30	3,822.52
Net Reduction:				231.64	8.12	2,468.93