Borough of New Holland

MS4 Program

Pollutant Reduction Plan (PRP)

For

Mill Creek (Appendix E), Conestoga River (Appendix E), &

Chesapeake Bay (Appendix D)

2018 – 2023 MS4 Permit

June 2017

ARRO Project No. 10030.00

ARRO Consulting, Inc.
108 West Airport Road
Lititz, PA 17543
717-569-7021

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1. INTRODUCTION

New Holland Borough, Lancaster County was classified as an urbanized area per the 2010 U.S. Census. The Pennsylvania Department of Environmental Protection (PA DEP) has notified the Borough that they are required to renew the National Pollutant Discharge Elimination System (NPDES) Small Municipal Separate Storm Sewer Systems (MS4) permit. The requirements for New Holland Borough 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
Lancaster County						
NEW HOLLAND BORO	PAG133611	No		Mill Creek	Appendix B-Pathogens (5), Appendix E-Nutrients, Siltation (5)	
				Conestoga River	Appendix E-Nutrients, Siltation (5)	
				Chesapeake Bay Nutrients/Sediment	Appendix D-Nutrients, Siltation (4a)	

PADEP has published pollutant Aggregation suggestions for the MS4 municipal requirements table; per the aggregation instructions, the aggregate total required reduction may be analyzed and BMP's may be implemented in the identified watersheds, tributary to the same HUC 12 watershed. The aggregated requirements for New Holland Borough are:

MS4 Name	NPDES ID	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Lancaster County				
NEW HOLLAND BORO	PAG133611	Muddy Run-Mill Creek	Mill Creek	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation, Suspended Solids
		Middle Conestoga River, Muddy Run-Mill Creek, Upper Conestoga River	Chesapeake Bay Nutrients\Sediment, Conestoga River, Mill Creek, Unnamed Tributaries to Conestoga River	Appendix D-Siltation/Nutrients, Appendix E-Nutrients, Siltation

This combined Pollutant Reduction Plan (PRP) has been developed to satisfy the aggregated requirements of: 1) Chesapeake Bay Pollutant Reduction Plan (CBPRP) requirements; 2) PRP for Conestoga River; and 3) PRP for Mill Creek. All of the storm sewer sheds identified in this plan are tributary to the Chesapeake Bay.

2. POLLUTANT REDUCTION PLAN (PRP)

A. Public Participation

New Holland Borough encouraged a plan that included public participation and buy in. The Borough publicly advertised notice of public review, 30 day comment period and public meeting in the legal section of the local paper on August 2, 2017; a copy of the advertisement is located in Appendix A.

The Borough posted a copy of the complete draft Pollutant Reduction Plan on the Borough Website prior to the public notice. A hard copy was also made available at the Borough office during normal business hours.

The Borough received written comment from August 7, 2017 to September 6, 2017; a copy of all written comments is provided in Appendix B. A public meeting was held on September 5, 2017 at 7:00 PM; a summary of comments received is provided in Appendix C.

The Borough would like to acknowledge the valuable input received from the public and Borough Staff in the development of the PRP. The Borough's record of consideration for all timely comments received is provided in Appendix D. This PRP reflects careful planning of New Holland with respect to the impaired waters of the commonwealth, local flooding, erosion problems, and the financial impact to the residents.

B. Map

In accordance with PA DEP guidelines for development of the PRP, New Holland Borough has completed mapping of the regulated MS4 Storm Sewer Sheds; the required mapping is provided in Appendix E. Mapping of the Borough was broken out into a series of mapping, consistent with the design process for the development of the PRP. This methodology also provides for clarity of the data being presented. The mapping includes the following:

- New Holland Borough MS4 Conveyance System – includes collection and conveyance to the regulated outfalls, identifies outfall, outfall location with latitude and longitude, and waters of the commonwealth and Chapter 93 designation.
- New Holland Borough Attaining/Non-Attaining Streams – defines streams attainment status and associated impairment.
- New Holland Borough MS3 Drainage Area Land Use – defines land use based upon zoning to assist in determination of land use contribution to local impairments.
- New Holland Borough MS3 Drainage Area Analysis – provides topographic map utilized in determining storm sewer shed to outfalls.
- New Holland Borough MS3 Drainage Area Impervious/Pervious Analysis – provides aerial mapping utilizing Geographic Information System (GIS) data to identify the drainage area and amount of impervious area within each storm sewer shed.
- New Holland Borough MS3 Drainage Area Runoff Rate and Volume Analysis – provides rate and volume of runoff per storm sewer shed to identify potential local flooding issues.
- New Holland Borough Municipal Storm Sewer Shed – provides a comparison of the 2010 Census Urbanized Area boundary to define regulated MS4 outfalls and the portion of the storm sewer sheds that the Borough is responsible for.
- New Holland Borough Existing BMP Structures – identifies existing Best Management Practices accounted for in the reduction of the base pollutant loading.
- New Holland Borough Geology – in combination with NRCS soils data, geology is evaluated for the suitability for potential BMP implementation.
- New Holland Borough Potential BMP Structures – provides identification of potential BMPs identified by the Borough that were evaluated.

- New Holland Borough Proposed BMP Structures – provides identification of the selected BMPs identified by the Borough for implementation.

C. Pollutants of Concern

New Holland Borough, 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: "Permitees 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 – Conestoga River and Mill Creek

Appendix E is the requirement for development of a Pollutant Reduction Plan (PRP) for the identified impaired waterway. New Holland Borough is responsible for developing a PRP for Conestoga River and Mill 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.

Aggregate Analysis

In accordance with the pollutant aggregation table, the Borough may evaluate the aggregate total of the watersheds tributary to the Chesapeake Bay, Conestoga River, and Mill Creek. In accordance with the PRP guidelines, the aggregated goal of the PRP is for the following reduction:

- 10% reduction of Sediment (TSS)

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. Since New Holland Borough is subject to the requirements of Appendix E, the pollutant loading for the storm sewer sheds tributary to Conestoga River and Mill 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 Lancaster County; the calculated pollutant loadings are provided in Appendix F. The calculations are summarized below:

Appendix E -Mill Creek

	Drainage Area (Ac)			PA DEP Land Loading		
Drainage Area ID	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
UNT to Mill Creek	234.79	166.80	401.58	12,755.96	423.97	379,434.70
Goff Creek	24.43	28.30	52.73	1,570.66	48.05	41,567.34
				14,326.61	**472.02**	**421,002.04**
Required Reduction Percent				3%	5%	10%
Required Reduction (Lbs/Year)				**429.80**	**23.60**	**42,100.20**

Appendix E - Conestoga River

	Drainage Area (Ac)			PA DEP Land Loading		
Drainage Area ID	Impervious	Pervious	Total	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
UNT to Conestoga River	143.87	215.86	359.73	10,343.90	300.70	254,198.69
				10,343.90	**300.70**	**254,198.69**
Required Reduction Percent				3%	5%	10%
Required Reduction (Lbs/Year)				**310.32**	**15.04**	**25,419.87**
TOTAL REQUIRED REDUCTION: Appendix D - Chesapeake Bay				**740.12**	**38.64**	**67,520.07**

D.1. Existing BMP Load Reductions

Based upon the mapping (see Attachment E), New Holland Borough identified existing BMPs that would reduce the existing pollutant loading. Attachment E provides a summary of the existing BMPs, along with ownership, operation and maintenance requirements. The percent of pollutant reductions for each BMP was determined based upon the recommendation reports of the Chesapeake Bay Expert Panel. The existing BMP pollutant load reduction calculations are provided in Attachment G. 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, see Attachment H. The design base pollutant loading and required pollutant reduction goal is summarized below:

Base Pollutant Loading (With Existing BMPs) Summary:

Appendix E -Mill Creek

	Drainage Area (Ac)			PA DEP Land Loading		
Drainage Area ID	**Impervious**	**Pervious**	**Total**	**TN (lbs/year)**	**TP (lbs/year)**	**TSS (lbs/year)**
UNT to Mill Creek	234.79	166.80	401.58	12,755.96	423.97	379,434.70
Existing BMP Load Reduction				21.72	1.45	1,300.39
Goff Creek	24.43	28.30	52.73	1,570.66	48.05	41,567.34
Existing BMP Load Reduction				0.00	0.00	0.00
				14,304.90	**470.57**	**419,701.65**
Required Reduction Percent				3%	5%	10%
Required Reduction (Lbs/Year)				**429.15**	**23.53**	**41,970.17**

Appendix E - Conestoga River

	Drainage Area (Ac)			PA DEP Land Loading		
Drainage Area ID	**Impervious**	**Pervious**	**Total**	**TN (lbs/year)**	**TP (lbs/year)**	**TSS (lbs/year)**
UNT to Conestoga River	143.87	215.86	359.73	10,343.90	300.70	254,198.69
Existing BMP Load Reduction				59.13	3.40	2,965.63
				10,284.76	**297.30**	**251,233.06**
Required Reduction Percent				3%	5%	10%
Required Reduction (Lbs/Year)				**308.54**	**14.87**	**25,123.31**

TOTAL REQUIRED REDUCTION:**	**737.69**	**38.39**	**67,093.47**

** Per PA DEP Pollutant Aggregation Table and Instructions, the aggregate total required reduction may be analyzed and BMPs may be implemented in the identified watersheds to meet the required 10% Sediment Reduction. Reduction in specific watershed is not required when identified in the same HUC 12 watershed.

E. Selected BMP's

New Holland Borough developed a potential BMP concept plan to identify potential BMPs to be implemented, see Attachment E. The associated pollutant loading reductions for each BMP were calculated and are provided in Attachment I; a summary description of the potential BMPs evaluated is also provided in Attachment I. The percent of pollutant reductions for each BMP were determined based upon the recommendation reports of the Chesapeake Bay Expert Panel, PA DEP BMP Effectiveness Value table, and manufacture literature including independent laboratory testing (appropriate manufacture data is provided in Attachment J).

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

- Return-on-investment for dollar per pound of pollutant removed (See Appendix M)
- Overall BMP cost (see Appendix L)
- 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, New Holland Borough developed the proposed BMPs to be implemented under the MS4 permit from 2018 – 2023. The proposed BMPs are identified on Map 11: New Holland Borough Proposed BMP Structures. The proposed BMP pollutant reduction is summarized below and in attachment K:

Selected BMPs Option:

Option 1: Based upon PA DEP Pollutant Aggregation Table

	Drainage Area ID	Prop. BMP ID	BMP Description	Pollutant Reduction TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
UNT to Conestoga River						
	TOF-003	BMP TOF003-BS2	Bioswale	6,647.60	188.25	161,809.79
				6,647.60	**188.25**	**161,809.79**
Net Reduction:				5,909.91	149.86	94,716.32

F. Funding Mechanism

New Holland Borough, through the planning phase, evaluated the cost associated with the selected plan; the selected BMP implementation cost is summarized below:

Selected BMPs Option:

Option 1: Based upon PA DEP Pollutant Aggregation Table

	Drainage Area ID	Prop. BMP ID	BMP Description	Project Cost
UNT to Conestoga River				
	TOF-003	BMP TOF003-BS2	Bioswale	$76,271.91
				$76,271.91

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

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

New Holland Borough will own and operate the BMPs identified in the PRP. Specific requirements for each BMP are identified below:

BMP TOF003-BS2: Bioswale:

Location: North of 340 East Spruce Street.

Responsible Party: New Holland Borough

O&M Activities: Monitor storm sewer discharge areas and swale banks for scouring and erosion, immediately stabilized 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

Task	Implementation Date
MS4 Permit Authorization	March 2018
BMP TOF003-BS1: Bioswale	November 2022
MS4 Permit Expiration	March 2023

ATTACHMENT A

PUBLIC NOTICE

NOTICE OF PUBLIC COMMENT PERIOD AND PUBLIC MEETING FOR

NPDES STORMWATER DISCHARGE POLLUTANT REDUCTION PLAN

New Holland Borough is hereby giving notice of the 30-day public comment period for its National Pollutant Discharge Elimination (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) Pollutant Reduction Plan (PRP). The Plan proposes best management practices to satisfy the PRP requirements for the following impaired waterways: Mill Creek (Appendix E –Nutrients, Siltation); Conestoga River (Appendix E – Nutrients, Siltation); and Chesapeake Bay (Appendix D-Nutrients, Siltation).

The plans are available for public examination as noted below. The public is invited to review these documents and provide written comments to the individual listed below:

Pollutant Reduction Plan: New Holland Borough
436 E Main St
New Holland, PA 17557
Phone: (717)354-4567
Comments to: J. Richard Fulcher, Borough Manager

Visit times are Monday through Friday, between 8:00 am to 4:30 pm. or visit the Borough website at https://newhollandborough.org.

The minimum 30-day public comment period will begin August 7, 2017 and end September 6, 2017.

A public meeting for the Plan will be held on September 5, 2017 during the regularly scheduled Borough Council meeting. Borough Council meeting is held at 436 East Main Street, New Holland, PA 17557, beginning at 7:00 PM.

NEW HOLLAND BOROUGH

Please Publish: August 2, 2017

ATTACHMENT B

WRITTEN PUBLIC COMMENTS

WRITTEN COMMENTS TO BE INCORPERATED AT CLOSE OF PUBLIC COMMENT PERIOD

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PUBLIC MEETING COMMENTS

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RECORD OF CONSIDERATION OF ALL TIMELY COMMENTS RECEIVED

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Map 9: New Holland Borough Geology

Map 10: New Holland Borough Potential BMP Structures

Map 11: New Holland Borough Proposed BMP Structures