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Engineering & Related Services

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SEPTEMBER 2017
LAST UPDATED MARCH 2018

NPDES STORMWATER DISCHARGES
FROM SMALL MS4s
POLLUTANT REDUCTION PLAN

EVANS CITY BOROUGH
BUTLER COUNTY, PENNSYLVANIA

HRG Project No. 003217.0437

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**POLLUTANT REDUCTION PLAN
EVANS CITY BOROUGH
BUTLER COUNTY, PENNSYLVANIA**

A. Public Participation

The Pollutant Reduction Plan (PRP) for Evans City Borough was made available to the public on August 1, 2017. A printed copy was available for public review at the Borough Building during regular business hours. The Borough also posted the PRP on the Borough website, www.evanscity.us (Appendix A).

A public notice was published by Evans City Borough in The Butler Eagle on July 31, 2017. (Appendix B). The notice contained a statement describing the PRP, where it may be reviewed by the public, and the length of time the municipality would provide for the receipt of comments.

The public did not make any comments on the PRP during the public review period. Evans City Borough encouraged public comments to be made via mail, email, and at a Public Meeting on August 7, 2017 (Appendix C).

B. Map

The map for the PRP is attached in Appendix D. All relevant information pertaining to the PRP is presented on the map. The map is in GIS format and contains data from the following sources: Butler County, EPCAMR, Evans City Borough, PA DEP, PAMAP, PennDOT, SPC, US Census, and USGS.

The drainage areas for the MS4 outfalls are shown on the map, but the drainage areas for the private and state storm sewer systems were not determined.

C. Pollutants of Concern

A breakdown of the MS4 outfalls, drainage areas, stream names, impairments, and subsequent sediment/nutrients loading designations are available in Appendix E. A summary of Appendix E is shown below in Table No. 1. Please see Appendix F, G, and H for more information regarding the relevant watersheds and streams for the permit.

The two pollutants of concern are sediment and nutrients. Sediment is the pollutant of concern for Breakneck Creek and nutrients are the pollutant of concern for Connoquenessing Creek. Evans City Borough's MS4 outfalls discharge to Breakneck Creek and Tribs 35024/35025/35026/35029/35030 to Breakneck Creek. None of Evans City Borough's MS4 outfalls discharge to Connoquenessing Creek (receives discharge from Breakneck Creek).

Table No. 1 Outfall Drainage Areas				
Stream Name	Impairments	Sediment/Nutrients Loading Designation	Number of MS4 Outfalls	Total Drainage Area (acres)
Connoquenessing Creek	Agriculture – Organic Enrichment/Low D.O.	Nutrients	-	-
Breakneck Creek	Upstream Impoundment – Siltation ; Source Unknown – Cause Unknown	Sediment	11	61.580
Breakneck Creek	Urban Runoff / Storm Sewers – Siltation ; Source Unknown – Cause Unknown	Sediment	3	65.990
Trib 35024 to Breakneck Creek	None	Sediment	1	12.704
Trib 35025 to Breakneck Creek	None	Sediment	1	2.739
Trib 35026 to Breakneck Creek	None	Sediment	9	50.368
Trib 35029 to Breakneck Creek	None	Sediment	3	10.580
Trib 35030 to Breakneck Creek	None	Sediment	6	52.737

D. Determining Existing Loading for Pollutants of Concern

The existing loading estimate was determined in July 2017 based on the available data at the time. DEP's simplified method was used to calculate the existing loading rate.

The planning area is defined as the drainage areas of the MS4 outfalls, minus the portion of the drainage areas that intersect with the state right-of-ways, and also subtracting the portion of the drainage areas that are outside of Evans City Borough (as shown in Appendix D). The ROW widths were determined via GIS parcel data and the ROW lengths were determined by measuring the length of the state roadways that intersect the MS4 drainage areas. The planning area for Evans City Borough totals 223.75 acres.

Table No. 2 State ROWs that Intersect MS4 Drainage Areas				
Name	SR Number	Length (ft)	Width (ft)	Area (acres)
Franklin Street	528	1945	60	2.68
Main Street	68	2632	75	4.53
		922	50	1.06
Washington Street	3015	3239	50	3.72

Table No. 3	
Planning Area Summary	
Total MS4 Drainage Area (acres)	256.70
State ROWs that Intersect MS4 Drainage Areas (acres)	11.99
Drainage Areas Outside of Municipality (acres)	20.97
Total Planning Area (acres)	223.75
Planning Area Inside Urbanized Area (acres)	223.75
Planning Area Outside Urbanized Area (acres)	0

Only the existing loading rate for sediment was analyzed for Evans City Borough. The loading rate for nutrients was assumed because, as stated in the PRP instructions, “PRPs may use a presumptive approach in which it is assumed that a 10% sediment reduction will also accomplish a 5% TP reduction.” The total existing sediment loading rate for Evans City Borough is approximately 150,855 lbs/year (see Appendix I and J for loading rates and land cover estimates).

Table No. 4				
Existing Loading Rate				
Category	Land Cover	Existing Sediment Loading Rate (lbs/acre/yr)	Area (acres)	Existing Sediment Loading Rate (lbs/year)
Inside Urbanized Area	26% Impervious Developed	1,839	58.18	106,984
Inside Urbanized Area	74% Pervious Developed	264.96	165.58	43,871
Outside Urbanized Area	Undeveloped	234.6	0	0

E. Select BMPs to Achieve the Minimum Required Reductions in Pollutant Loading

The minimum required reduction in pollutant loading for Evans City Borough is 10% of the existing sediment loading rate for the municipality. Therefore, the reduction required is 10% of 150,855 lbs/year (15,086 lbs/year).

Two Best Management Practices (BMPs) are proposed to achieve the minimum required reduction in pollutant loading: Street Sweeping and Vegetated Open Channels (C/D Soils) (see Appendix K for BMP effectiveness values and descriptions).

Street Sweeping is proposed as a BMP and will require street sweeping of all municipal roadways 25 times/year. The sediment loading reduction for street sweeping was calculated by multiplying the BMP effectiveness value by the impervious sediment loading rate and by the assumed impervious area of the municipal roadways. The area of the municipal roadways was determined by multiplying the municipal road mileage listed on the PennDOT Type 5 Map (Appendix L) by the 1.0 impervious acre/curb-mile assumption via the Expert Panel Report for Street and Storm Drain Cleaning Practices. Although some of the municipal roadways for Evans City Borough are located outside of the PRP planning area, all of the roadways are located inside of the urbanized area and within the HUC-12 watershed for Breakneck Creek.

Table No. 5 Street Sweeping					
Total Length of Municipal Roadways (miles)	Total Curb Miles of Municipal Roadways (miles)	Area of Municipal Roadways (acres)	Sediment Loading Rate (lbs/ac/year)	BMP Effectiveness Value	Sediment Loading Reduction (lbs/year)
6.45	12.9	12.9	1,839	9%	2,135

Vegetated Open Channels (C/D Soils) are proposed as a BMP and will require the retrofitting of select roadside ditches that discharge to Breakneck Creek. The roadside ditches selected to be retrofitted to vegetated open channels will require grading/widening, rototilling of the soil, an erosion control liner (most likely straw net), and seeding. Additional cross pipes under driveways are considered incidental to the BMP. C/D soils are assumed due to the proximity of the channels to roadway runoff. The sediment loading reduction for vegetated open channels was calculated by multiplying the BMP effectiveness value by the distribution of impervious/pervious developed sediment loading rate (per the simplified method) and by the drainage area of the proposed channels.

Table No. 6 Vegetated Open Channels (C/D Soils)					
Drainage Area (acres)	26% Impervious Developed (lbs/year)	74% Pervious Developed (lbs/year)	Sediment Loading Rate (lbs/year)	BMP Effectiveness Value	Sediment Loading Reduction (lbs/year)
42.20	20,179	8,275	28,454	50%	14,227

In total, the proposed BMPs will reduce Evans City Borough's sediment loading by 16,362 lbs/year (10.8%).

Table No. 7 Pollutant Loading Reduction Summary	
Existing Sediment Loading (lbs/year)	150,855
Minimum Required Reduction (lbs/year)	15,086
Street Sweeping (lbs/year)	2,135
Vegetated Open Channels (C/D Soils) (lbs/year)	14,227
Total Reduction (lbs/year)	16,362
Difference Between Proposed and Required Reduction (lbs/year)	1,276

The proposed BMP implementation schedule is a year by year estimate as to when the proposed BMPs will be implemented. For the most part, the first few years will require planning and analysis and the latter years will require the physical implementation of the BMPs.

Table No. 8		
BMP Implementation Schedule		
Year	Street Sweeping	Vegetated Open Channels (C/D Soils)
2018	Begin draft plan of BMP implementation	Begin draft plan of BMP implementation
2019	Finalize plan of BMP implementation and determine material/bidding/construction needs	Finalize plan of BMP implementation and determine material /bidding/construction needs
2020	Obtain materials, equipment, construction contracts – begin street sweeping pilot program	Obtain materials, equipment, construction contracts – possibly start vegetated channels
2021	Begin full program street sweeping activities	Begin grading of vegetated open channels
2022	Adjust O&M needs and ensure proper loading reductions are occurring	Adjust O&M needs and ensure proper loading reductions are occurring
2023	Street sweeping program fully implemented	Vegetated open channels implemented

F. Identify Funding Mechanisms

Several funding opportunities are available for the proposed BMPs (see below). The estimated initial cost and estimated yearly O&M cost of the proposed BMPs were determined by information provided in the Pennsylvania Stormwater Best Management Practices Manual. Please see Appendix M for a breakdown of the cost estimates and Appendix N for more information regarding potential funding sources.

Table No. 9			
Funding Opportunities			
BMP	Estimated Initial Cost	Estimated Yearly O&M Cost	Potential Funding Source
Street Sweeping	\$150,000	\$4,875	Stormwater Fee BMP Construction – PENNVEST Growing Greener Grants
Vegetated Open Channels (C/D Soils)	\$36,450	\$6,075	

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

All of the proposed BMPs will require operation and maintenance schedules in order for the BMPs to produce the expected pollutant reductions. The parties responsible for ongoing O&M, the activities involved with O&M for each BMP, and the frequency at which O&M activities will occur are listed below. Please see Appendix O and the Pennsylvania Stormwater BMP Manual for more information regarding O&M activity and frequency for each BMP.

Table No. 10 Operation and Maintenance of BMPs		
BMP	Responsible Party	O&M Activity and Frequency
Street Sweeping	Evans City Borough DPW Staff	See Appendix O and Pennsylvania Stormwater BMP Manual Section 5.9.1
Vegetated Open Channels (C/D Soils)		See Appendix O and Pennsylvania Stormwater BMP Manual Section 6.4.8

APPENDIX A
PRP FOR PUBLIC REVIEW

*Evans City -
Pennsylvania*
(/)

HOME (/)

MUNICIPAL (/MUNICIPAL.HTML)

COMMUNITY (/COMMUNITY.HTML)

FUN & SHOPPING (/FUN--SHOPPING.HTML)

MORE...

EVANS CITY GOVERNANCE

Mayor: Dean Zinkhann (D), term 2017

2014 Evans City Borough Council:

Lee Dyer (R), President, term 2019

Kim Armstrong (R), term 2019

Faye Parenti (D), term 2017

Paul Foster (R), term 2017

Karl Kennedy (R), term 2017

John McKinney (R), term 2017

David Spithaler (D), term 2017

The Council holds public meetings the first Monday of every month in the Evans City Borough Bldg at 204B S. Jackson St.

2017 Council Meeting Minutes

January 01.03.17_council.pdf

(/uploads/3/4/4/4/34442378/01.03.17_council.pdf)

February 02.06.17_council.pdf

(/uploads/3/4/4/4/34442378/02.06.17_council.pdf)

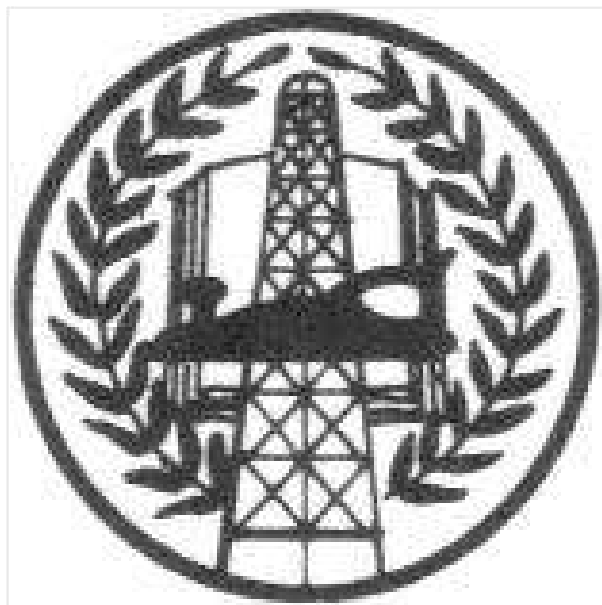
March 03.06.17_council.pdf

(/uploads/3/4/4/4/34442378/03.06.17_council.pdf)

April 04.03.17_council.pdf

(/uploads/3/4/4/4/34442378/04.03.17_council.pdf)

May 05.01.17_council.pdf



Borough Code Book

Community members can have access to the Borough Code Book on-line (<http://www.ecode360.com/EV1425>) here.

Borough Notices/Ordinance

- Act 44 Disclosure form for Entities Providing Professional Services to the Evans City Borough's Pension System
(/uploads/3/4/4/4/34442378/act_44_disclosure_2015.pdf)

(/uploads/3/4/4/4/34442378/05.01.17_council.pdf)

June 06.05.17_council.pdf

(/uploads/3/4/4/4/34442378/06.05.17_council.pdf)

July

August

September

October

November

December

2016 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2016_complete_ec_council_mins.pdf)

2015 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2015_jan_dec_council_minutes.pdf)

2014 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2014_council_mtg_minutes_jan_dec.pdf)

2013 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2013_council_meeting_minutes.pdf)

2012 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/boro_council_2012_all_minutes.pdf)

2011 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/council_minutes_2011.pdf)

2010 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2010_council_mtg_minutes.pdf)

2009 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2009_council_mtg_minutes.pdf)

(/uploads/3/4/4/4/34442378/2015_jan_dec_council_minutes.pdf) 2008 Council Meeting Minutes

(/uploads/3/4/4/4/34442378/2013_council_meeting_minutes.pdf)

- Burning Ordinance

(/uploads/3/4/4/4/34442378/burning_ordinance.pdf)

- Dog Ordinance

(/uploads/3/4/4/4/34442378/control_of_dogs_ordinance.p

- Snow Removal Ordinance

(/uploads/3/4/4/4/34442378/snow_removal_ordinance.pd

- Snow Event Definition

(/uploads/3/4/4/4/34442378/snow_event_definition.pdf)

- **MS4 Pollutant Reduction Plan**

ms4_pollutant_reduction_plan_-_draft.pdf

(/uploads/3/4/4/4/34442378/ms4_pollutant_reduction_plk
_draft.pdf)

MUNICIPAL SERVICES

Evans City Borough Office

204 B South Jackson Street

Evans City, PA 16033

Contact: Nadine Grabe

Office Hours:

Monday, Closed

Tuesday, Wednesday & Friday 9:00am-3:00pm

Thursday 12:00pm-3:00pm

Phone: (724) 538-8320 ext. 221

Fax: (724) 538-9760

ecboro@zoominternet.net

Code Enforcement Officer: Rich Mannas

Evans City Water & Sewer Authority

Ed Tanski, Chairman

The Evans City Water & Sewer Authority is an independent agency responsible for the operation of the Water and Sewer Plants, the infrastructure, and current and pending projects both within and outside of the Borough. The Authority sets uniform rates to assure adequate, safe and reasonable service. The Authority meets on the last Wednesday of every month at the Borough building.

Contact: Laura Kamienski

Office Location: 216 Wahl Avenue

Office Hours:

M & T 8:00 a.m. - 4:00 p.m.

W 12:00 p.m. - 4:00 p.m.

Th & F 8:00 a.m. - 4:00 p.m.

Phone: (724) 432-3428

Evans City/Seven Fields Regional Police Department*Joseph McCombs, Police Chief*

204-B South Jackson Street, Evans City, PA 16033

Phone: (724) 538-8055

Emergency: 911

www.ecsfregionalpd.org (<http://www.ecsfregionalpd.org>)**Evans City Area Volunteer Fire Department**

ECVFD the residents of Evans City Borough and Forward Township for Fire, Rescue and QRS. The ECVFD includes 30 active members who respond to an average of 170 calls per year. The Department was founded in 1896 as the John A. Irwin Fire Company, named after the original benefactor. For information about members, events and incidents, see the ECVFD website (<http://www.ecvfd20.com/>).

Evans City Public Works Department

Responsibilities: the streets, sewer and water system in the Borough.

The Public Works team members are:

Norm Nelson, Jack Beers, Mark Nasky

For information, questions, or concerns please call (724) 538-5266 and leave a message with the following information:

- Your Name
- Address
- Contact number where you can be reached
- Problem or concern you need to have addressed

Your call will be returned as soon as possible.



Berkheimer Tax Collection

www.hab-inc.com (<http://www.hab-inc.com/>)

Wilda Clawson, Real Estate Tax Collector

141 Evans Street

Evans City, PA 16033

724.538.3772 (tel:724.538.3772)

Tax Certifications should be sent to Wilda's attention and the cost is \$20.00 per parcel.

Archived Evans City Borough Announcements can be found here.

(<https://docs.google.com/document/d/1N3RDGzxdCqkOy9MqNns7tBPQn55S-IQr93hadAJtx4Q/edit?usp=sharing>)

Questions or concerns should be emailed to:

ecwsa@ecwsa.net (<mailto:ecwsa@ecwsa.net>)Link to ECWSA Newsletter here (<http://ecwsanews.blogspot.com/>)**Evans City Park Authority**

The Authority is a self-supporting government run entity created by the Evans City Council to oversee the building and operations of the park and pool. The Park Authority does not have a stable revenue base or receive any tax money to rely upon to maintain and update programs or amenities. Support comes from revenue and fundraising.

The Authority meets every third Monday of the month either at the Park or the Borough Bldg (depending on weather). For more info about the park events and activities see www.edcopark.com (<http://www.edcopark.com/>)

QUESTIONS? COMMENTS?

LET US KNOW....

Name *

First

Last

Email *

Question/Comment *

SUBMIT

Web Hosting (<http://www.ipage.com/>) by iPage

APPENDIX B
PUBLIC NOTICE FOR PRP REVIEW

Proof of Publication of Notice in Butler Eagle

Under Act No. 587, Approved May 16, 1929

State of Pennsylvania,
County of Butler.

Julie A. Wilczynski Of the Eagle Printing Company, Inc., of the County and State aforesaid, being duly sworn, deposes and says that the BUTLER EAGLE, a newspaper of general circulation published at 114 West Diamond Street, City of Butler, County and State aforesaid, was established 1869, since which date the BUTLER EAGLE has been regularly issued in said County, and that the printed notice or publication attached hereto is exactly the same as was printed and published in the regular editions and issues of the said BUTLER EAGLE on the following dates, viz.

_____ and the

31st Day of July A.D. 2017

Affiant further deposes that the Ad Taker is duly authorized by the EAGLE PRINTING COMPANY, a corporation, publisher of said BUTLER EAGLE, a newspaper of general circulation, to verify the foregoing statement under oath, and Affiant is not interested in the subject matter of the aforesaid notice or advertisement, and that all allegations in the foregoing statement as to time, place and character of publication are true.

[Signature]
Butler Eagle

Copy of Notice or Publication

PUBLIC NOTICE AND NOTICE OF PUBLIC HEARING
Evans City Borough has prepared a Draft Pollutant Reduction Plan (PRP) under the requirements of the Borough's Municipal Separate Storm Sewer System (MS4) Permit. The purpose of the PRP is to implement Best Management Practices to reduce the discharge of sediment and phosphorous into Breakneck Creek and its tributaries by March 2023. The Draft PRP will be available for public review beginning August 1st at the Borough Office at 204B South Jackson Street, Evans City, PA 16033, Tuesday, Wednesday and Friday from 9:00 AM to 3:00 PM and Thursday from 12:00 PM to 3:00 PM. It is also available on the Borough website, www.evanscity.us. A Public Meeting concerning the PRP will be held at 5:55 PM on August 7, 2017 at the Borough Office. The Township will accept written comments regarding the PRP until 3:00 PM on August 31, 2017.

EVANS CITY BOROUGH
Sean M. Gallagher,
Solicitor
MURRIN, TAYLOR &
GALLAGHER
110 East Diamond Street
Butler, PA 16001

The EAGLE PRINT
receipt of the afore

Publisher's Receipt for Advertising Costs

_____ publisher of the BUTLER EAGLE, a newspaper of general circulation, hereby acknowledge that the same have been duly paid.

EAGLE PRINTING CO., a Corporation, Publisher
Of BUTLER EAGLE, a Newspaper of General Circulation.

Sworn to and subscribed before me this 31st
Day of July 2017

Jessica Smith
Notary Public

My Commission Expires:
COMMONWEALTH OF PENNSYLVANIA

NOTARIAL SEAL
Jessica Smith, Notary Public
Butler Twp., Butler County
My Commission Expires March 25, 2020
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Statement of Advertising Costs

Evans City Borough

204 B South Jackson Street

Evans City, PA 16033

TO BUTLER EAGLE, Dr.

For publishing the notice or publication attached
Hereto on the above stated dates \$ 100.00

Probating same \$ 2.00

Total \$ 102.00

By _____

5-DAY FORECAST

TODAY THURSDAY

FRIDAY



AccuWeather.com

SATURDAY

SUNDAY

WEATHER

ly sunny and nice

Clouds and sun

Mostly cloudy with a thunderstorm

Sun and clouds with a shower

Mostly cloudy, a shower possible

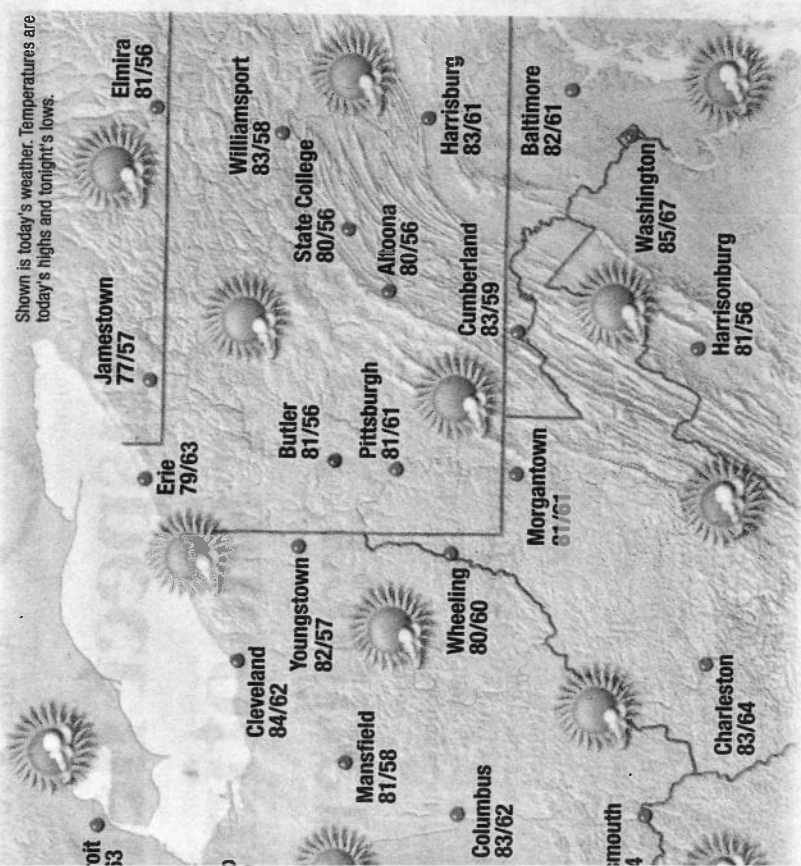
° | 56°

81° | 63°

78° | 63°

81° | 61°

79° | 59°



ANAC

unity Airport through 5 p.m. yesterday.

TEMPERATURES

73° Last year's high 87°
55° Last year's low 59°
82° Record high 95° 2001
58° Record low 43° 1989

PRECIPITATION

15 p.m. 0.00" Year to date 32.68"
date 2.05" Last y-t-d 21.66"
n-t-d 0.99" Normal y-t-d 25.55"

ERIE

n the west-southwest at 4-8 knots
as less than a foot. Visibility generally

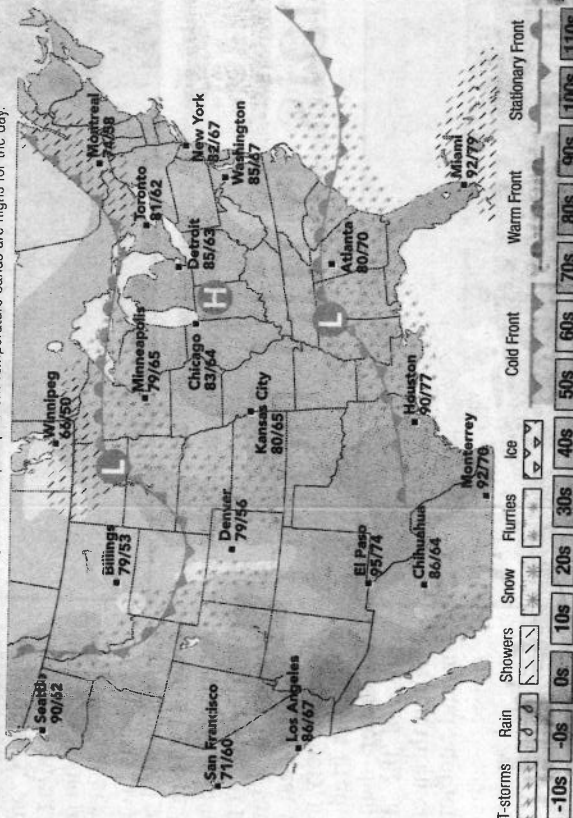
GHENY RIVER STAGES

FLOOD 7 A.M. FORECAST
STAGE YESTERDAY LEVEL
17 feet 3.35 feet 3.10 feet
20 feet 2.58 feet 2.30 feet
21 feet 10.39 feet 10.30 feet

casts and graphics provided by
AccuWeather, Inc. ©2017

TODAY'S NATIONAL WEATHER

Shown are noon positions of weather systems and precipitation. Temperature bands are highs for the day.



LOTTERY

PENNSYLVANIA TUESDAY

Pick 2: 3-5; Pick 3: 7-5-1; Pick 4: 5-4-9-2; Pick 5: 7 Wild 5; Treasure Hunt: 02-11-19-22-25; Night: 9-5; Pick 3: 6-3-5; Pick 4 Numbers: 2-2-0-3; Pick 5 Numbers: 01-04-16-25-29; Rolling Cash 5: 01-04-16-25-29

tion: www.palottery.state.pa.us.

Daily 3: 4-8-8; Daily 4: 6-9-9-6; Cash 25: 01-04-10-11-13-19

OHIO TUESDAY

Day: Pick 3 Numbers: 5-3-9; Pick 4 Numbers: 7-8-9-5; Pick 5 Numbers: 0-9-2-2-6; Night: Pick 3 Numbers: 3-9-0; Pick 4 Numbers: 4-3-3-7; Pick 5 Numbers: 8-7-4-0-3; Rolling Cash 5: 01-04-16-25-29

WEST VIRGINIA TUESDAY

Daily 3: 4-8-8; Daily 4: 6-9-9-6; Cash 25: 01-04-10-11-13-19

Stormwater plan required by state DEP

EC Council holds hearing

By Paula Grubbs
Eagle Staff Writer

EVANS CITY — The state Department of Environmental Protection is requiring the borough to create a plan to handle stormwater, and the council is wondering how to pay for it.

Robert Arnold, an engineer from HRG, explained to the council during a public hearing on Monday night that the DEP has required the borough to create a pollutant reduction plan for the sediment and phosphates that end up in the Breakneck and Connoqueness creeks.

He said the borough has until early September to come up with a plan to reduce sediment by 10 percent. The DEP then has six months to review the plan and make comments.

If the plan is accepted and a stormwater permit issued by DEP, the borough will have until 2023 to reduce the sediments and phosphorus by 10 percent.

The permit, which would be issued in March, would remain in effect for five years, Arnold said.

The plan describes the borough, its paved areas, the current stormwater situation and other factors, and details how the sediment and phosphates will be removed.

Council President Lee Dyer expressed frustration that the DEP is requiring the stormwater action without providing funds to complete the project.

He said the borough must pay \$18,000 to get the plan off the ground, and costs to reduce sediment will be an added financial burden for the cash-strapped borough.

"We'll be looking at the budget to see how to fund this," Dyer said.

Ways to manage the sediment and phosphates

If the plan is accepted and a stormwater permit issued by DEP, the borough will have until 2023 to reduce the sediments and phosphorus by 10 percent.

produced in stormwater runoff, Arnold said, include significantly increasing street sweeping and placing roadside swales where feasible.

"Those are the two best management practices we have," Arnold said.

He said other methods in the plan will include public participation events like a community cleanup day or a scouting group cleanup project, monitoring the washing of borough vehicles, and finding the source of sediment flow.

"If it's on private property, you identify that private property," Arnold said.

Borough solicitor Sean Gallagher said the existing stormwater management plan will be replaced with one that is more stringent and that will be more strictly enforced.

Arnold advised the borough to have public works employees document and photograph every action that would impact stormwater runoff.

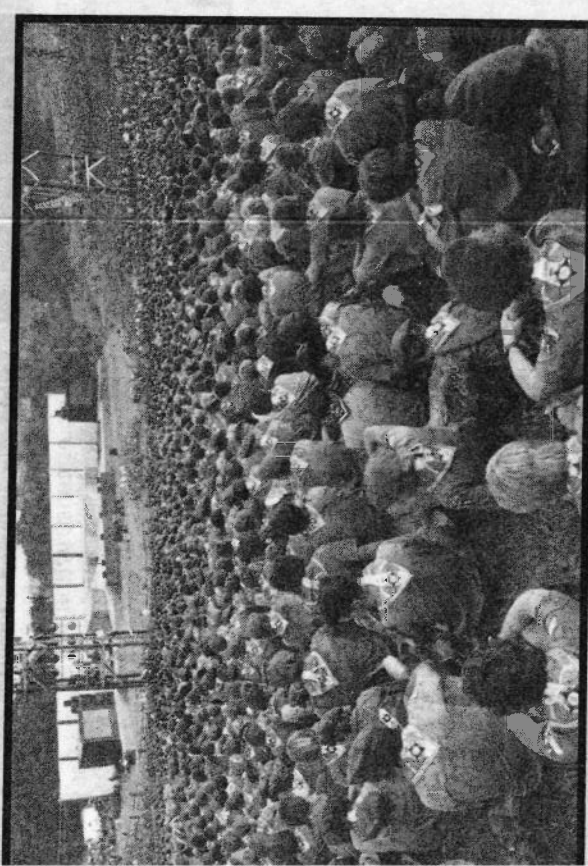
Dyer remained concerned about the funding for the project.

"This is going to have a significant, far-reaching impact on this borough," he said.

Gallagher said there are low-interest loans available through the state to help municipalities carry out the stormwater plans.

The plans can be reviewed at the borough building. Written public comment from residents will be accepted until Aug. 30.

IE CAPSULE



NG AHEAD — Boy Scouts at turing Butler County residents. Among the thousands of spectators who filled

PEOPLE

lions and millions that I know I'm one of — to stay alive every day," she said in the video.

O'Connor lamented what she described as a lack of support from loved ones, saying that "strangers on Facebook" are kinder to her than her own family. She asked her adult children and their fathers to make an effort to bring her home to Ireland.

South Hackensack Police Capt. Robert Kaiser said Tuesday that officers conducted a welfare check, but O'Connor wasn't in her room at the time. He said she is no longer staying there and police don't know where she is currently living.

The singer topped charts across the globe in 1990 with her cover of Prince's ballad



Sinead O'Connor

SOUTH HACKENSACK, N.J. — Sinead O'Connor emotionally pleaded for help from her family and opened up about her mental illness in a rambling Facebook video posted from a New Jersey motel she had been living in.

The video is the latest public glimpse of the singer's ongoing struggle with mental health problems.

The 50-year-old Irish singer says in the video posted Thursday that she was staying alive for the sake of others.

on "Saturday Night Live."

NEW YORK — "The Dukes of Hazzard" star Tom Wopat says he'll be taking time to address his ongoing struggle with substance abuse following his arrest in Massachusetts on indecent assault and battery charges.



Tom Wopat

Wopat pleaded not guilty Thursday to grabbing the buttocks of a female member of a local production of "42nd Street" he was supposed to star in. Police said they found what they suspect to be co-

APPENDIX C
PUBLIC COMMENTS ON PRP

1 IN THE BOROUGH OF EVANS CITY
2 EVANS CITY, PENNSYLVANIA

3 - - -
4 PUBLIC HEARING

5 IN RE: MS4 Pollutant Reduction

6 - - -
7 TRANSCRIPT OF PROCEEDINGS

8 - - -
9
10 Monday, August 7, 2017
11 6:00 p.m.

12 Evans City Borough Office
13 204 South Jackson Street, Suite B
14 Evans City, PA 16033

15 Present:

16 Borough Council
17 Lee Dyer
18 David Spithaler
19 Karl Kennedy
20 Faye Parenti
21 John McKinney
22 Kim Armstrong
23 Paul Foster

24 Michael D. Gallagher, Esq., Solicitor
25 Sean M. Gallagher, Esq., Solicitor
Norman Nelson, Public Works Director
Nadine Grabe, Secretary
Robert Arnold, Borough Engineer

ORIGINAL

FERRARI COURT REPORTING (724) 283-9228

P R O C E E D I N G S

- - -

MR. DYER: Thank you, everyone, for being here this evening. I think we are going to go ahead and start the hearing. We'll go ahead with your comments and that, if you would please. Then, we will get to public speaking shortly.

This has to do with MS4, which is the storm water management program and the requirement that we have in order to comply with those new rules that were mandated by the state and unfunded.

MR. ARNOLD: Good evening, everybody. Why we're here tonight is that a public meeting is required as part of the application process for your MS4 permit. The public meeting is to obtain any comments, if any.

MR. SEAN GALLAGHER: Rob, if I can interrupt you for a second, if I can get you sworn in. The first part of the evening is a public hearing for the informational purposes and for public comment for MS4. Anybody who wishes to speak during this first part, we are going to have you sworn in. If you have any comments or you think you are going to have any comments on the MS4, go ahead and stand up now. We'll get everybody sworn in at

1 once.

2 (The witness was sworn.)

3 THE COURT REPORTER: Can you state your
4 name for me please?

5 MR. ARNOLD: Robert Arnold.

6 MR. SEAN GALLAGHER: State your address.

7 MR. ARNOLD: Business address, I'm with
8 Herbert, Roland & Grubic. We are the Borough
9 Engineer. The address is 400 West Kensinger Drive
10 in Cranberry Township.

11 MR. SEAN GALLAGHER: Thank you, Rob.

12 MR. ARNOLD: Remember, when we were here
13 last time, we talked about the need to develop a
14 pollutant reduction plan. It has to be submitted
15 along with the application for your MS4 permit,
16 which is due in September. Part of the requirements
17 of that is tonight's public hearing as well as a
18 30-day period during which the public can comment on
19 the plan.

20 The reason you have to do this is DEP has
21 determined that, one, you are part of an urbanized
22 area that stretches up from Jackson Township up
23 through the county and two, that Breakneck Creek and
24 Connoquenessing Creek have been declared impaired by
25 sediment and phosphorous. So what part of your

1 requirements of your MS4 permit will be is to
2 develop procedures and best management practices to
3 reduce the sediment and associated phosphorous by
4 ten percent by 2023.

5 A little bit of the process, the
6 application goes in for your MS4 permit in
7 September. DEP has six months to review it and
8 comment on it and if any changes are necessary.
9 Their current plan is to issue the permits in March
10 of 2018, and the permits are good for five years.
11 So it would last until March of 2023. That's why
12 the end date of any practices is 2023.

13 Now, I will say also that, if you
14 remember, we did attempt to or we actually submitted
15 for an advanced decision as to whether or not the
16 Borough could qualify for a waiver from the MS4
17 permit requirements, and the DEP said no. We are
18 going to include in the application package the
19 waiver application. It's a one-page form. It
20 doesn't really take any additional work, just in
21 case they would review that based on population and
22 any other information we can provide, but I have to
23 tell you that I'm not confident of that.

24 Since they gave you that no answer on
25 your advance request for waiver, this plan had to be

1 prepared to be submitted with the application. This
2 is a planning-level document, which means other than
3 some of the calculations and working with Norm and
4 his staff to determine the paved areas of the
5 Borough, if you will, no hard engineering has gone
6 into it yet, concepts that are approvable and
7 acceptable to DEP for best practices that the
8 Borough may use over the next five years to achieve
9 the sediment reduction. I will go into as much or
10 little detail as you like.

11 Currently, the copy of this plan is
12 available here at the Borough, and we will certainly
13 get you more as well as on the Borough website.
14 Essentially, what this has is a description of the
15 Borough, a description of how much impervious area
16 is in the Borough, a description of how much of the
17 area is draining to your storm water outfalls and
18 using the DEP accepted methodologies, estimating how
19 much sediment actually comes off the Borough
20 streets, parking lots, roofs and gets into the
21 streams. From that a calculation was made that we
22 would have to reduce that by ten percent by 2023,
23 and there are a number of methods that DEP suggested
24 you use.

25 The two that ended up working well here

1 in the Borough are increased street sweeping, which
2 I know we talked about last time, and the
3 development of roadside swales, which improved
4 roadside ditches. They give you a lot of credit for
5 that. They can't be just dug ditches. They'll have
6 to be grass. Maybe some of them will have to be
7 lined with some geotechnical material. That we can
8 develop over that five years. That does not have to
9 be answered now, but the concept of using roadside
10 swales to help catch some of the sediment that comes
11 off the roadways is a one good one and one that DEP
12 likes.

13 So those are the two best management
14 practices that we have proposed in this plan right
15 now. How those balance out over the next five
16 years, we talked about how we determine how much
17 actual reductions we can get. We can collect
18 materials and take samples and estimate weights and
19 such. That can all happen over the five-year
20 period. That does not have to happen now. What we
21 have to have happen now is a plan using the methods
22 that are approved by DEP to submit with your
23 application in September.

24 How much more detail would you like, Lee?

25 MR. DYER: I think you're pretty close

1 there.

2 MR. ARNOLD: I think we talked last week
3 to give you a heads-up on if you're not granted a
4 waiver, the types of activities along with this,
5 along with these plans that you can anticipate over
6 the next five years. In the permit requirements,
7 there are six what they call minimum control
8 measures that you have to work towards. Again, they
9 don't have to be done right away. You have a
10 five-year period to achieve these.

11 Two of them deal with public education
12 and participation. The public education can be
13 things like getting articles on the Borough website,
14 putting things in the Borough newsletter. You
15 probably should have some kind of storm water
16 presentations at at least one of your meetings.

17 So it's not hard to achieve but things
18 you have to pay attention to. Public participation
19 can be things like getting volunteers, scout groups,
20 church groups to stencil your inlets, help clean out
21 the swales, have a cleanup day, things like that.

22 The next two control measures dealing
23 with actually looking at your outfalls and making
24 sure frankly nothing bad is getting into them. So
25 that will be taking a picture of each one,

1 documenting each one, seeing if any flow is coming
2 out of them during dry weather because that's not
3 suppose to be happening. If that is happening,
4 trying to find the source of that flow because those
5 two minimum control measures are actually elicit
6 discharge detection and elimination. If you find a
7 discharge is coming out of the storm system that
8 aren't suppose to be there, that is the Borough's
9 responsibility to try to track those down and
10 eliminate them. They may be coming from private
11 property. You identify that private property owner
12 and work with them to achieve those goals.

13 And the last two measures deal a lot with
14 developments that potentially occur within the
15 Borough and the storm water management requirements
16 that they will have to achieve as well as in-house,
17 housekeeping for Borough staff, public works staff,
18 watching where your truck washing goes and things
19 like that.

20 So there are activities that you will
21 have to start implementing, and as I impressed or
22 tried to impress upon Lee last week, the best thing
23 you can do is document the heck out of everything,
24 whether it's an electric file. DEP loves binders.
25 Talk about killing trees. As you look at your

1 outfalls, take pictures. There are sample forms you
2 can use. We can help you with that, if you would
3 like us to. When you take a look at your outfalls,
4 document what's happening. What's the size of the
5 pipe? Is there anything coming out of it? Any
6 public activities, take pictures, make sure the
7 picture is on the website and in your newsletter and
8 such, maybe a little bit of additional training for
9 public works staff in terms of just paying attention
10 to what you put down a drain.

11 So other than the sediment reduction
12 activities, yes, there are things that you are going
13 to have to do that you didn't have to do before or
14 were doing before but you didn't have to document in
15 this manner. A lot of it is going to be the extra
16 documentation. So a lot of it does not have to be
17 onerous, but you're going to have to pay attention
18 to it. Any questions?

19 MR. FOSTER: One of the issues that
20 seems to come up at many Borough council meetings
21 from residents is flooding in their yards. We are
22 talking about doing these ditches to collect
23 sediment essentially. So you're slowing down the
24 water. Is that going to create more risk of that
25 kind of thing, if somebody comes in and says my yard

1 is flooding because of this ditch you just put in?

2 MR. ARNOLD: Well, I'm not going to be
3 able to give you a complete answer on that tonight,
4 but when we would be looking to establish the swales
5 and ditches, we would certainly be looking at the
6 properties around them and how they should be sized
7 and where they should flow to and whether there are
8 driveway culverts that need to be maintained and
9 things like that. So we certainly wouldn't do
10 anything to exacerbate any existing problems.

11 MR. FOSTER: Because it is one of the
12 big issues that just seems to keep coming back in
13 this place, this place and this place.

14 MR. ARNOLD: I mean, if there are
15 drainage issues in a neighborhood, it may be beyond
16 what's happening here.

17 MR. DYER: I think it's interesting, a
18 couple of things. Number one, this could be as
19 stringent as you can't wash your car in a driveway
20 using certain chemicals. It could be that
21 stringent.

22 Also, the Borough is going to have to
23 increase its street sweeping dramatically, probably
24 north of 26 times a year.

25 MR. ARNOLD: Yes.

1 MR. DYER: That's about \$500 at a time
2 every time we do that. We now have invested \$5,000,
3 plus \$18,000 to get this effort off the ground. All
4 of that was unbudgeted, unfunded. So we will be
5 looking into the budget to see the things we can do
6 to make those payments.

7 Once again, the concerning thing to me is
8 that the Borough becomes the police department in
9 terms of who is breaking the rules. DEP does not
10 come in and look. HRG might give us some advice,
11 but it is our responsibility to locate problems and
12 solve them, either through face to face
13 conversations and/or legally, if necessary. That's
14 very different for us.

15 MR. FOSTER: Does it ever go up to
16 another authority?

17 MR. ARNOLD: In terms of who is
18 responsible?

19 MR. FOSTER: Yes.

20 MR. ARNOLD: No. I can tell you that
21 you are not responsible for anything coming off
22 state roads. Actually, if you go through the
23 documentation, we actually get to deduct that area,
24 but once again, if you see something in the drainage
25 system that can be traceable to a private property

1 or a public property, you're going to have to deal
2 with it in some manner, whether it's dealing with
3 that private property owner or correcting a problem,
4 maybe the Borough.

5 MR. FOSTER: Is there a direct order --
6 like, we have a resident in town that has a lot of
7 sediment on her driveway. She refuses to put pipe
8 underneath that driveway. Does that occur? Is that
9 -- can you enforce that some way?

10 MR. ARNOLD: Part of this will be
11 upgrading your storm water management ordinance as
12 part of your code. So you can address something
13 like that.

14 MR. SEAN GALLAGHER: Rob is correct.
15 One of the things that the DEP wants to see done
16 over the course of the first year once the permit is
17 granted is implementing a storm water management
18 ordinance. That includes prohibition about what can
19 be put into the system as well as best management
20 practices and other things that typically the County
21 Conservation District was responsible for in the
22 past, but we are hearing that the County
23 Conservation District is scaling back its activities
24 and passing enforcement of one acre to five-acre
25 disturbances to the local municipalities, which is a

1 large change from the way that things have been done
2 here in Butler County in the past. So it's going to
3 require a lot more enforcement on the Borough than
4 what has existed prior.

5 MR. McKINNEY: We talked about them
6 swales. Are we actually going to put small swales
7 throughout the district here?

8 MR. DYER: Where it's feasible is what
9 we talked about.

10 MR. ARNOLD: You already have a number.
11 Norm has already come down, working with our
12 engineer to update the maps a little bit, so where
13 it's feasible because you got a lot of bang for that
14 buck with DEP.

15 MR. McKINNEY: Not only that but we
16 talked about this before. I know of two places,
17 where they wash their vehicles and leave it running
18 in the crick. You're going to make them go in a
19 pond?

20 MR. NELSON: It doesn't matter.
21 Everybody washes their car on the street.

22 MR. McKINNEY: No, no, this ain't a car.

23 MR. DYER: If it's washed anywhere
24 within this Borough, it ends up in that creek.
25 That's why we have such stringent rules since we do

1 have the creek going through town.

2 MR. ARNOLD: That's part of the public
3 education effort too. It's going to be admittedly
4 very difficult to actively enforce some of these
5 things, but hopefully, with the public education,
6 it's just a realization that something that people
7 may have done for years is not necessarily the right
8 thing to do.

9 MR. McKINNEY: I agree. We're going to
10 have to do a lot of changing.

11 MR. DYER: The debris in the storm
12 systems is a big issue. The good news is we've
13 already cleaned out our stream. We had a serious
14 effort to get that done. That was beneficial to us.
15 We are going to have to just seriously think about
16 some other things as well.

17 MR. McKINNEY: We are going to have go
18 back and clean the stream back out again.

19 MR. DYER: I beg your pardon?

20 MR. McKINNEY: We are going to have go
21 back and clean the stream out back here and down
22 below.

23 MR. DYER: I'm not so sure we won't have
24 to do that anyway, John. I'm telling you this has
25 significant, far-reaching financial impact on this

1 Borough, significant.

2 MR. McKINNEY: The only reason I'm
3 saying is because I know that the railroad did some
4 more work. Trees are in the crick, and it's left up
5 to us to clean.

6 MR. DYER: Are you saying they cleaned
7 those and dumped in the creek?

8 MR. McKINNEY: Let's just say they cut
9 trees, and they rolled into the crick.

10 MR. DYER: I got you. Would you point
11 that out to me?

12 MR. McKINNEY: Sure. I'll tell you
13 exactly where.

14 MR. DYER: All right. I guess since
15 this is public session, are we ready for public
16 comment? Do you have anything else?

17 MR. ARNOLD: No, unless you have any
18 questions.

19 MS. ARMSTRONG: Thank you, Rob.

20 MR. ARNOLD: Once again, it can be
21 boring, but there is plenty of information, if you
22 work your way through the DEP website. If you want
23 to find out some frequently asked questions
24 documents on there and other items, that might be
25 not bad to review, if you have a chance.

1 MR. McKINNEY: Rob, can you get me a
2 copy of that so that I can go through it?

3 MR. ARNOLD: The plan?

4 MR. McKINNEY: Yes.

5 MR. ARNOLD: Absolutely.

6 MR. McKINNEY: We're going to have to do
7 a lot of changes.

8 MR. SEAN GALLAGHER: At this point, if
9 there is public comment to be heard regarding the
10 storm water system, you are free to do so.
11 Otherwise, written comments will be accepted by the
12 Borough until August 31st. They must be submitted
13 in writing, and all you have to do is just submit
14 them to Nadine. She will be putting together a list
15 for us to compile, as we go through, but at this
16 point anybody who wishes to comment from the public?

17 (No response.)

18 MR. SEAN GALLAGHER: At this point I'd
19 recommend that you close the hearing and resume with
20 your regular meeting.

21 MR. DYER: Motion to close the hearing?

22 MR. McKINNEY: I make the motion.

23 MS. ARMSTRONG: Second.

24 MR. DYER: Any discussion?

25 (No response.)

1 MR. DYER: All in favor, say aye. Aye.

2 MR. SPITHALER: Aye.

3 MR. KENNEDY: Aye.

4 MS. PARENTI: Aye.

5 MS. ARMSTRONG: Aye.

6 MR. McKINNEY: Aye.

7 MR. FOSTER: Aye.

8 MR. DYER: Opposed?

9 (No response.)

10 MR. DYER: Carried. Thank you.

11 MR. SEAN GALLAGHER: At this point
12 that's all for the hearing.

13 (At 6:20 p.m. the hearing was
14 concluded.)

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1 COMMONWEALTH OF PENNSYLVANIA)
2 COUNTY OF BUTLER) SS
3)
4)

5 CERTIFICATE
6

7 I, Kelly L. Ferrari, a Court Reporter and
8 Notary Public in and for the Commonwealth of
9 Pennsylvania, do hereby certify the within
10 proceedings to be fully and accurately transcribed
11 by me to the best of my knowledge and belief.
12

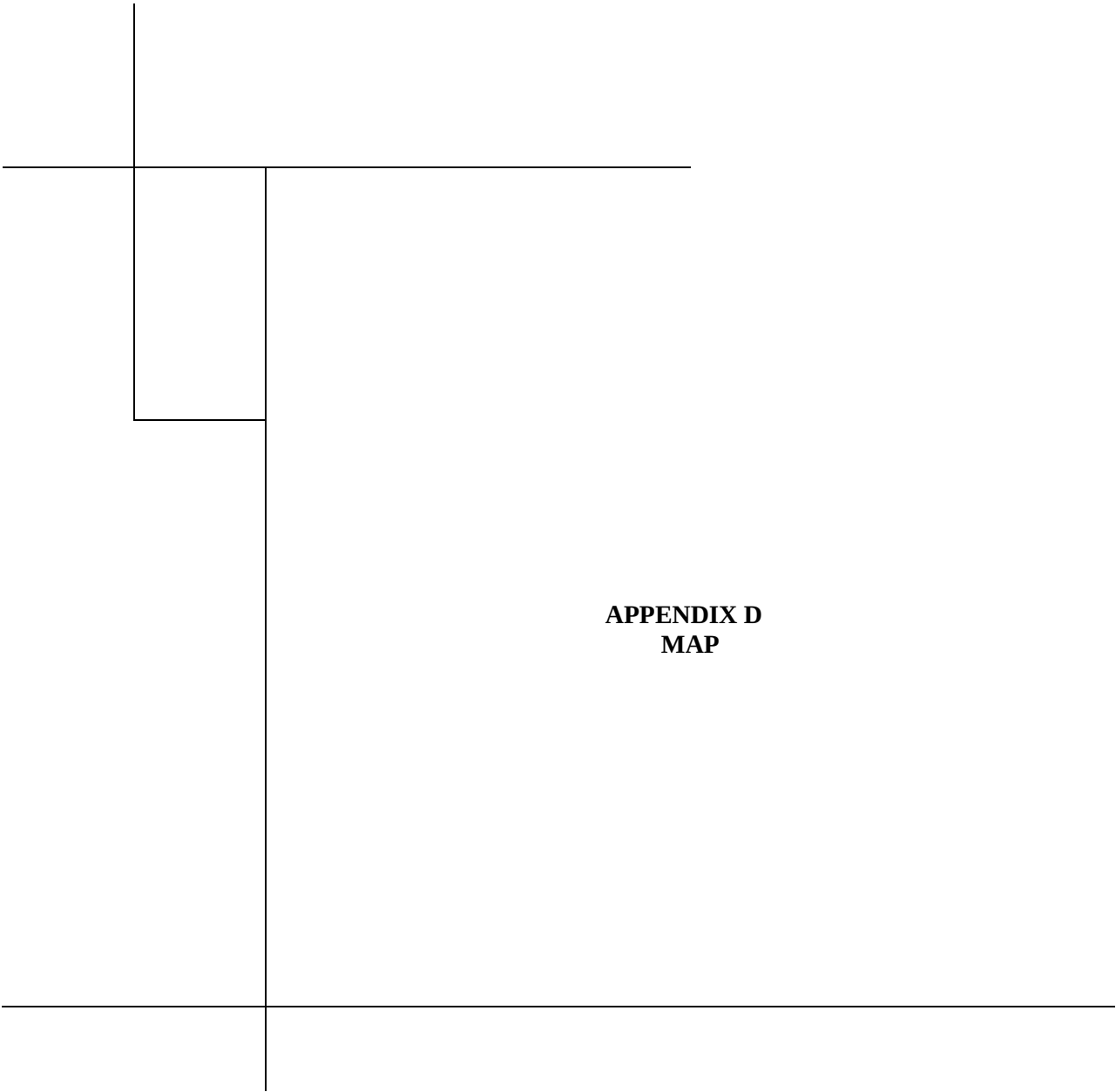
13 I hereunto set my hand and seal this
14 5th day of September, 2017.
15

16 FERRARI COURT REPORTING
17

18 
19
20 Kelly L. Ferrari, Court Reporter
21 Notary Public
22

23 COMMONWEALTH OF PENNSYLVANIA
24 NOTARIAL SEAL
25 Kelly L. Ferrari, Notary Public
Center Twp., Butler County
My Commission Expires Jan. 11, 2021

FERRARI COURT REPORTING (724) 283-9228



MS4 Map
Evans City Borough
Butler County, Pennsylvania

- Inlet
- Observation Point
- Outfall
- State Drainage Feature
- Pipe
- Cross Pipe
- Swale
- Vegetated Channel
- Vegetated Channel Drainage Area
- Storm Sewer Shed
- 10' Contour
- Local Road
- State Road
- Railroad
- Upstream Impoundment - Siltation
- Impaired Stream
- Urban Runoff/Storm Sewers - Siltation
- Impaired Stream
- Municipal Boundary
- PRP Planning Area
- Urban Area (2010)
- Watershed
- Land Use**
- Agricultural
- Barren Land
- Forest
- Rangeland
- Urban Built-Up
- Water



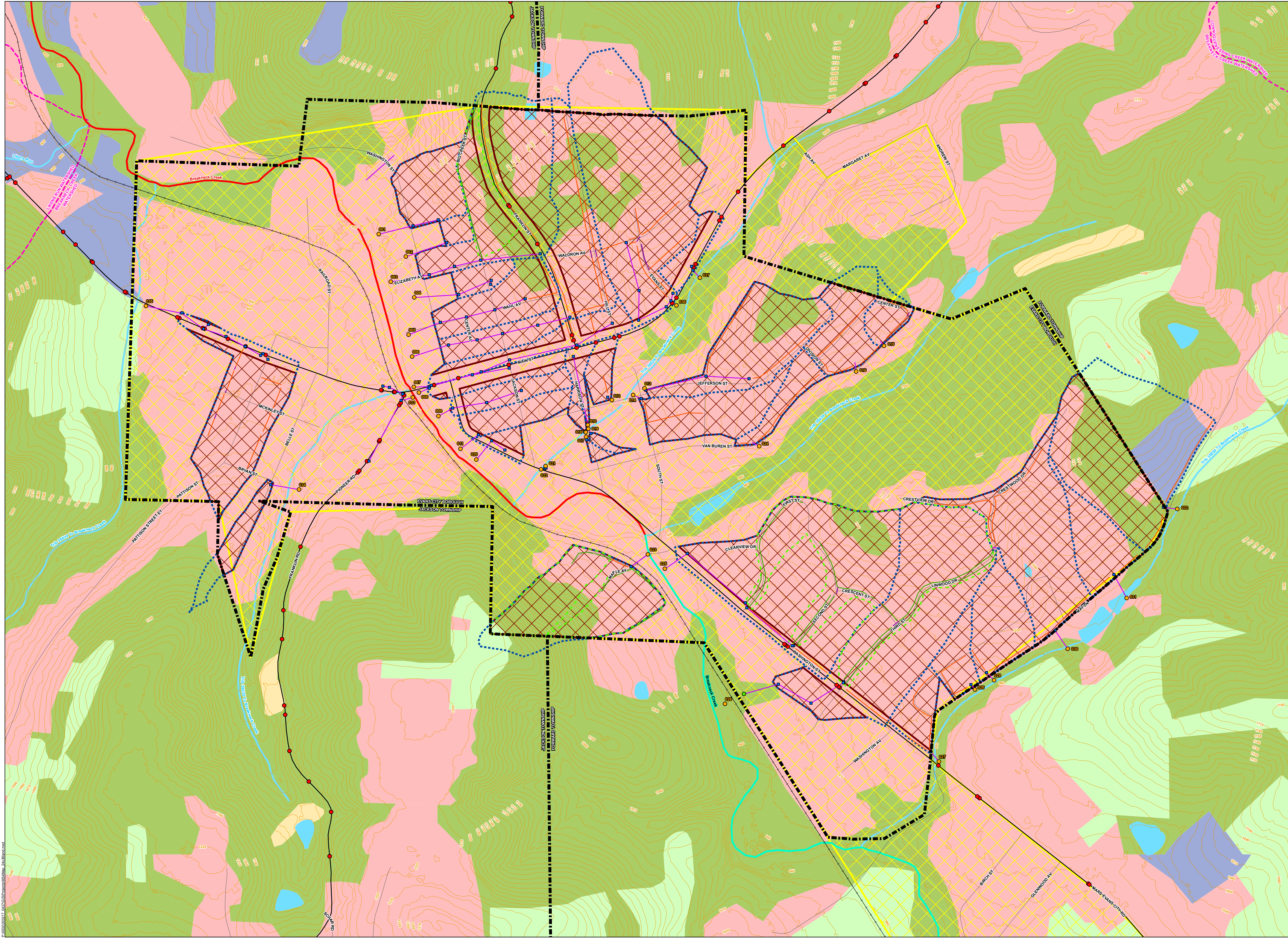
300 0 300
Feet

Mapping derived from data provided by Butler County, EPCAMR, PA DEP, PAMAP, PennDOT, SPC, US Census, and USGS.

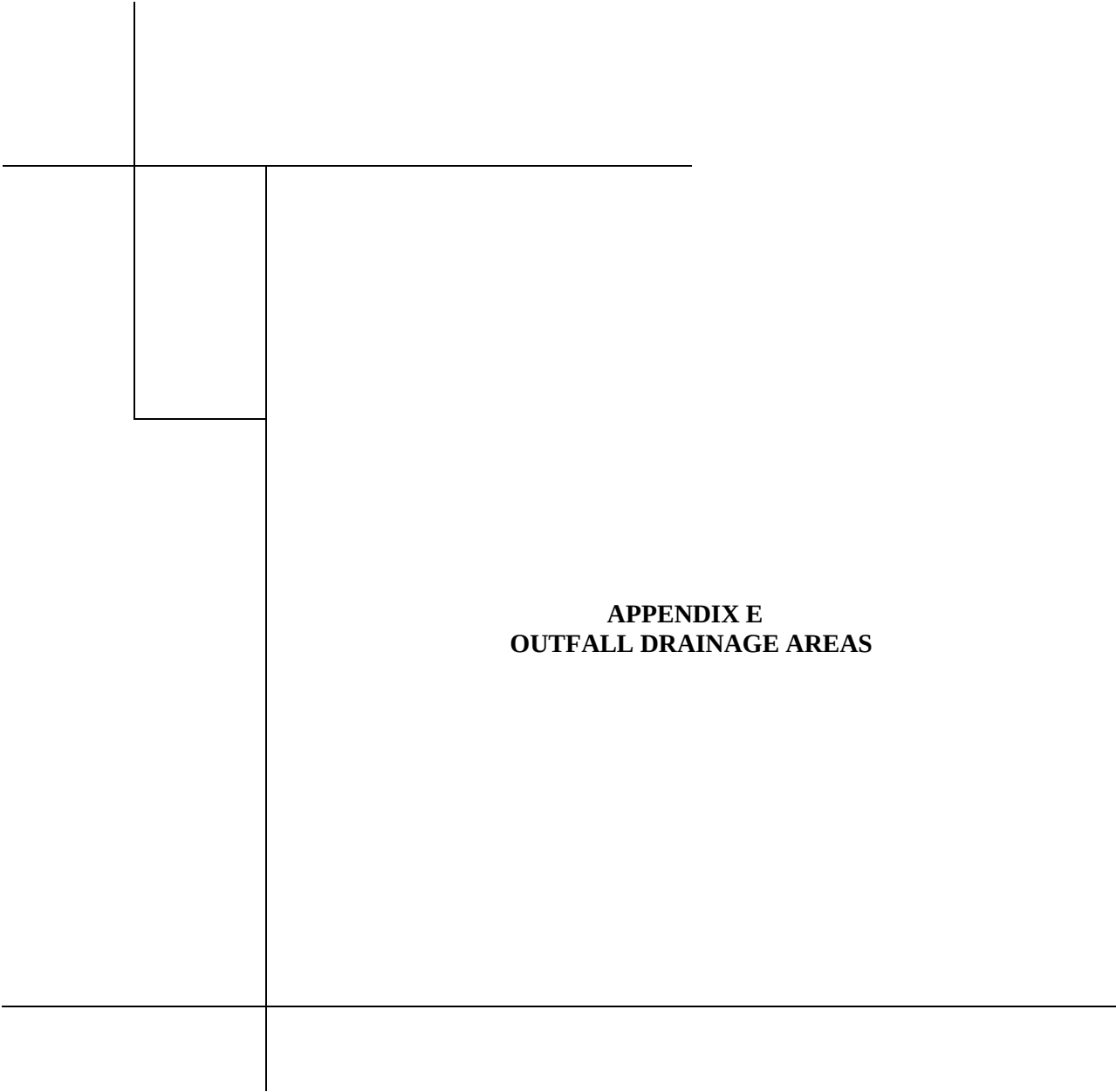
3/6/2018	PM-DDS	GIS-HMG	QA: BLS	R003217.0437
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HRG
Herbert, Rowland & Grubb, Inc.
Engineering & Related Services
An Employee-Owned Company

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724.779.4711 [fax]
www.hrg-inc.com



P:\030203217_0437\GIS\Drawings\Map\Map_0437.mxd



Outfall Drainage Areas

Stream Name			Breakneck Creek		
Impairments			Upstream Impoundment – Siltation ; Source Unknown – Cause Unknown		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			11		
Total Drainage Area			61.580 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
001	5.30	005	6.38	009	3.04
002	0.94	006	13.07	011	3.15
003	18.92	007	5.03	020	1.19
004	1.73	008	2.83		

Stream Name			Breakneck Creek		
Impairments			Urban Runoff / Storm Sewers – Siltation ; Source Unknown – Cause Unknown		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			3		
Total Drainage Area			65.990 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
023	13.74	025	27.60	026	24.66

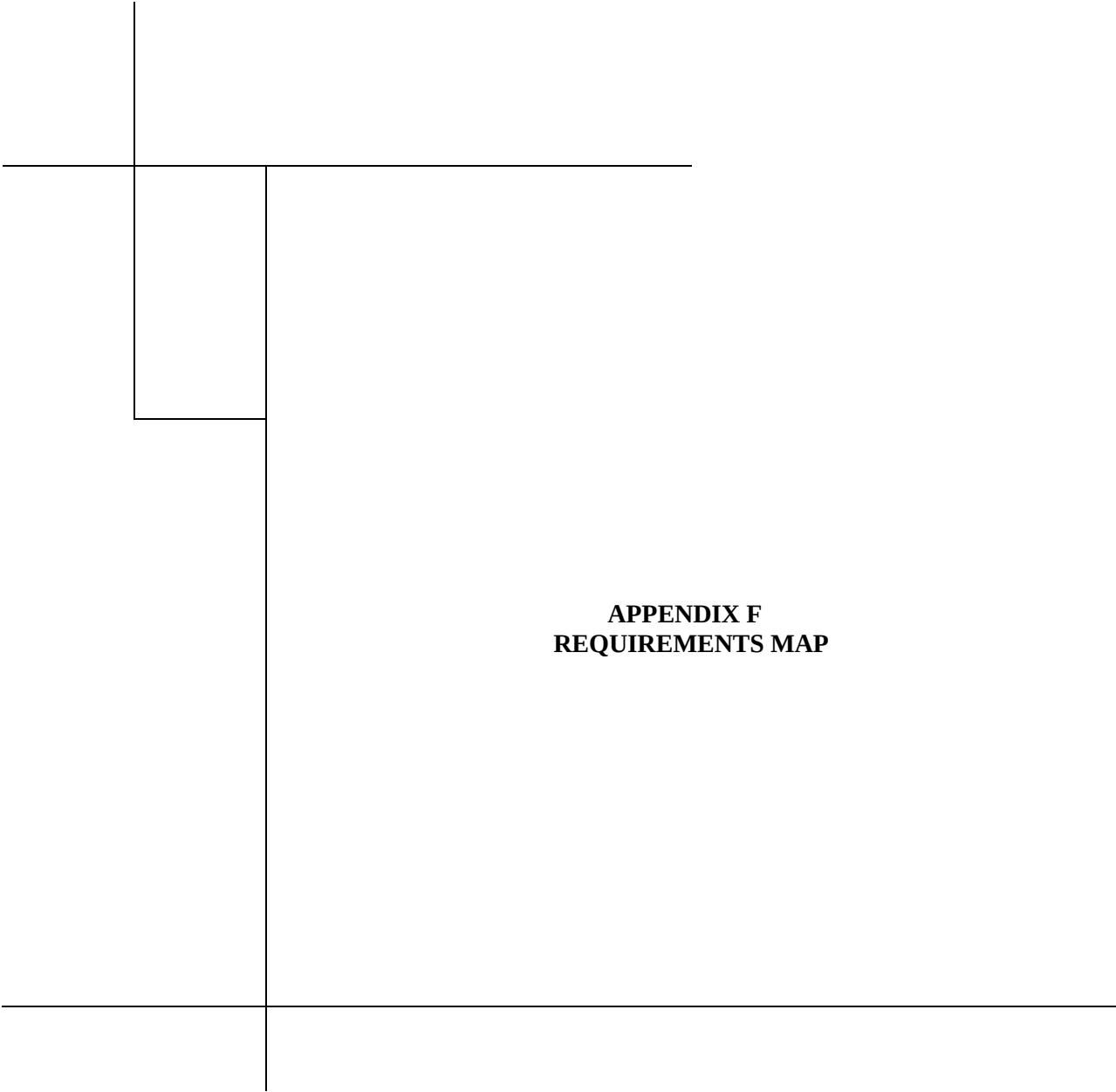
Stream Name			Trib 35024 to Breakneck Creek		
Impairments			None		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			1		
Total Drainage Area			12.704 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
035	12.70				

Stream Name			Trib 35025 to Breakneck Creek		
Impairments			None		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			1		
Total Drainage Area			2.739 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
034	2.74				

Stream Name			Trib 35026 to Breakneck Creek		
Impairments			None		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			9		
Total Drainage Area			50.368 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
010	1.39	014	10.97	019	0.42
012	1.68	017	0.32	036	26.70
013	6.49	018	0.39	037	2.00

Stream Name			Trib 35029 to Breakneck Creek		
Impairments			None		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			3		
Total Drainage Area			10.580 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
015	2.04	016	5.85	024	2.69

Stream Name			Trib 35030 to Breakneck Creek		
Impairments			None		
Sediment/Nutrients Loading Designation			Sediment		
Number of MS4 Outfalls			9		
Total Drainage Area			52.737 acres		
Structure ID	Area (acres)	Structure ID	Area (acres)	Structure ID	Area (acres)
027	2.69	029	5.91	031	4.69
028	2.62	030	14.47	032	22.36



APPENDIX F
REQUIREMENTS MAP

MS4 Requirements

BACKGROUND

Municipalities and other entities such as universities and prisons that meet certain standards must obtain NPDES permit coverage for discharges of stormwater from their municipal separate storm sewer systems (MS4s).

A municipal separate storm sewer is any conveyance or system of conveyances (including but not limited to streets, ditches, and pipes) that is: owned by a municipality or other public body (created under state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes; designed or used for collecting or conveying stormwater; not a combined sewer (i.e., not intended for both sewage and stormwater); AND not part of a publicly owned treatment works (POTW).

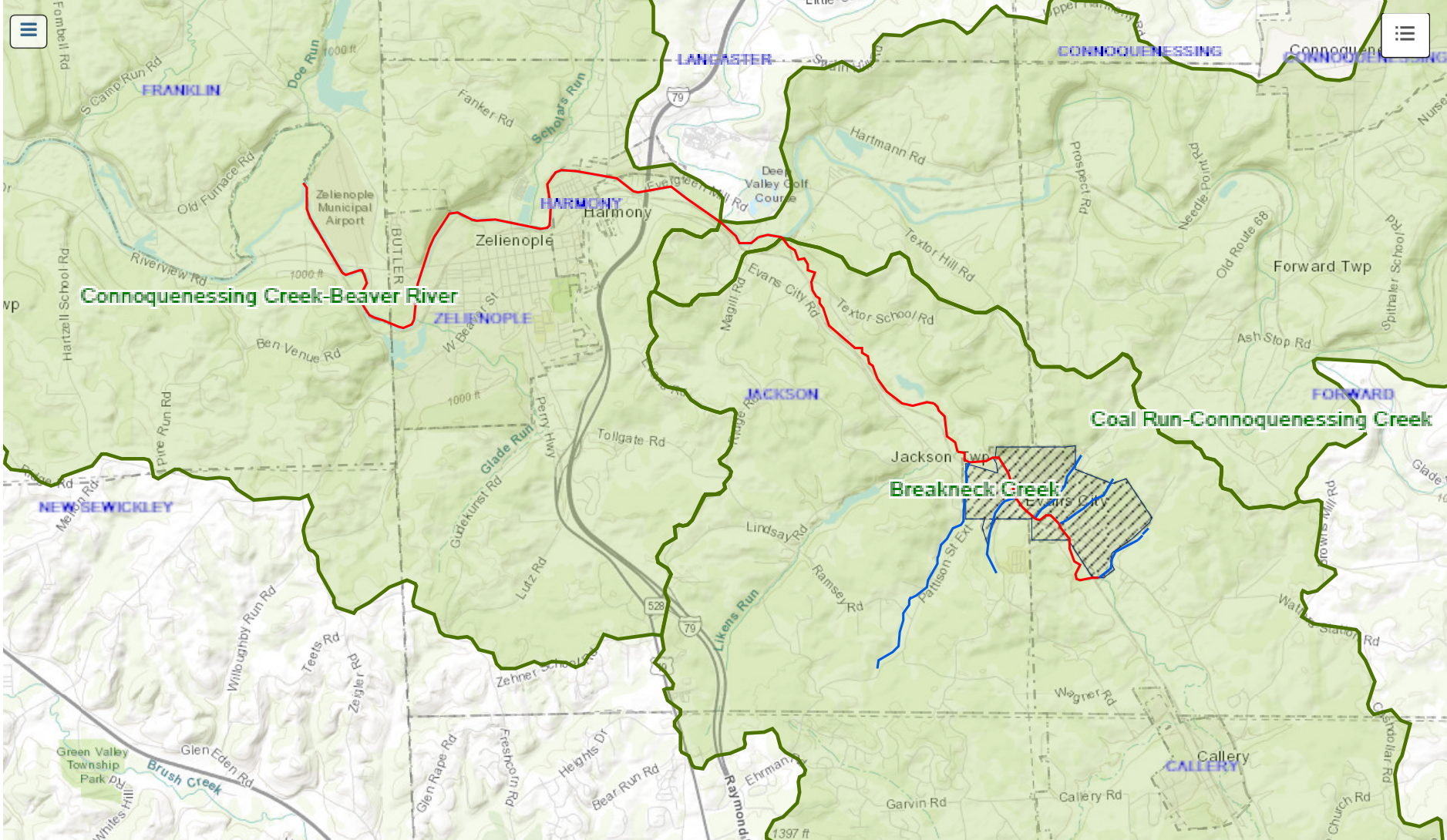
Additional information regarding permitting requirements can be found at the [Pennsylvania Municipal Stormwater Homepage](#).

Help is available by clicking the question mark  icon in the header.

Select a County

BUTLER

... ..



[illegible]

MS4 Name	NPDES ID	Individual Permit Required?	Reason	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)	Other Cause(s) of Impairment
Butler County						
ADAMS TWP	PAG138301	No		Kaufman Run	Appendix E-Siltation (5)	
				Connoquenessing Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O. (5)	
				Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)
BUFFALO TWP	PAI138304	Yes	SP, IP	Unnamed Tributaries to Buffalo Creek	Appendix E-Siltation (5)	
				Unnamed Tributaries to Little Buffalo Creek	Appendix E-Nutrients, Siltation (5)	Other Habitat Alterations (4c)
				Little Buffalo Creek		Cause Unknown (5)
				Buffalo Creek		Cause Unknown (5)
				Sarver Run		Cause Unknown (5)
				Little Bull Creek	Appendix E-Siltation (5)	
BUTLER CITY	PAG138329	No			No known water quality impairments at this time. Must comply with all other permit requirements.	
CALLERY BORO		No		Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
				Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)
CRANBERRY TWP	PAG138318	No		Unnamed Tributaries to Brush Creek	Appendix E-Nutrients (5)	
				Kaufman Run	Appendix E-Siltation (5)	
				Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
				Brush Creek	Appendix E-Organic Enrichment/Low D.O. (4a), Appendix B-Pathogens (5), Appendix E-Siltation (5)	Cause Unknown (5), Water/Flow Variability (4c)
				Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)
EVANS CITY BORO		No		Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
				Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)
FORWARD TWP		No		Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)
				Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O. (5)	
HARMONY BORO		No			No known water quality impairments at this time. Must comply with all other permit requirements.	
JACKSON TWP		No		Little Connoquenessing Creek	Appendix A-Metals (4a)	
				Glade Run		Cause Unknown (5)
				Connoquenessing Creek	Appendix B-Pathogens (5), Appendix E-Organic Enrichment/Low D.O. (5)	
				Breakneck Creek	Appendix E-Siltation (5)	Cause Unknown (5)

APPENDIX H
POLLUTANT AGGREGATION SUGGESTIONS

MS4 Name	Permit Number	HUC 12 Name	Impaired Downstream Waters or Applicable TMDL Name	Requirement(s)
Butler County				
ADAMS TWP	PAG138301	Breakneck Creek, Coal Run-Connoquenessing Creek, Connoquenessing Creek-Beaver River	Breakneck Creek, Connoquenessing Creek, Kaufman Run	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
BUFFALO TWP	PAI138304	Bull Creek	Little Bull Creek	Appendix E-Nutrients, Siltation
		Buffalo Creek-Allegheny River, Little Buffalo Creek	Unnamed Tributaries to Buffalo Creek, Unnamed Tributaries to Little Buffalo Creek	Appendix E-Nutrients, Siltation
CALLERY BORO		Breakneck Creek, Coal Run-Connoquenessing Creek	Breakneck Creek, Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O., Siltation
CRANBERRY TWP	PAG138318	Brush Creek	Brush Creek	Appendix B-Pathogens
		Breakneck Creek, Brush Creek, Coal Run-Connoquenessing Creek, Connoquenessing Creek-Beaver River	Breakneck Creek, Brush Creek, Connoquenessing Creek, Kaufman Run, Unnamed Tributaries to Brush Creek	Appendix E-Nutrients, Organic Enrichment/Low D.O., Siltation
EVANS CITY BORO		Breakneck Creek, Coal Run-Connoquenessing Creek, Connoquenessing Creek-Beaver River	Breakneck Creek, Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O., Siltation
FORWARD TWP		Breakneck Creek, Coal Run-Connoquenessing Creek, Connoquenessing Creek-Beaver River	Breakneck Creek, Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O., Siltation
HARMONY BORO		Connoquenessing Creek-Beaver River	Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O.
JACKSON TWP		Little Connoquenessing Creek-Connoquenessing Creek	Little Connoquenessing Creek	Appendix A-Metals
		Breakneck Creek, Coal Run-Connoquenessing Creek, Connoquenessing Creek-Beaver River	Breakneck Creek, Connoquenessing Creek	Appendix E-Organic Enrichment/Low D.O., Siltation
		Connoquenessing Creek-Beaver River	Connoquenessing Creek	Appendix B-Pathogens
MARS BORO	PAG138323	Breakneck Creek	Breakneck Creek	Appendix E-Siltation
MIDDLESEX TWP	PAG138328	Glade Creek	Glade Run	Appendix E-Nutrients, Siltation
SEVEN FIELDS BORO	PAG138325	Breakneck Creek	Breakneck Creek, Kaufman Run	Appendix E-Siltation
VALENCIA BORO	PAG138327	Breakneck Creek	Breakneck Creek	Appendix E-Siltation
WINFIELD TWP	PAI138302	Little Buffalo Creek	Little Buffalo Creek	Appendix E-Nutrients
ZELIENOPLE BORO		Connoquenessing Creek-Beaver River	Connoquenessing Creek	Appendix B-Pathogens, Appendix E-Organic Enrichment/Low D.O.

APPENDIX I
LOADING RATES FOR PA COUNTIES

ATTACHMENT B

DEVELOPED LAND LOADING RATES FOR PA COUNTIES^{1,2,3}

County	Category	Acres	TN lbs/acre/yr	TP lbs/acre/yr	TSS (Sediment) lbs/acre/yr
Adams	impervious developed	10,373.2	33.43	2.1	1,398.77
	pervious developed	44,028.6	22.99	0.8	207.67
Bedford	impervious developed	9,815.2	19.42	1.9	2,034.34
	pervious developed	19,425	17.97	0.68	301.22
Berks	impervious developed	1,292.4	36.81	2.26	1,925.79
	pervious developed	5,178.8	34.02	0.98	264.29
Blair	impervious developed	3,587.9	20.88	1.73	1,813.55
	pervious developed	9,177.5	18.9	0.62	267.34
Bradford	impervious developed	10,423	14.82	2.37	1,880.87
	pervious developed	23,709.7	13.05	0.85	272.25
Cambria	impervious developed	3,237.9	20.91	2.9	2,155.29
	pervious developed	8,455.4	19.86	1.12	325.3
Cameron	impervious developed	1,743.2	18.46	2.98	2,574.49
	pervious developed	1,334.5	19.41	1.21	379.36
Carbon	impervious developed	25.1	28.61	3.97	2,177.04
	pervious developed	54.2	30.37	2.04	323.36
Centre	impervious developed	7,828.2	19.21	2.32	1,771.63
	pervious developed	15,037.1	18.52	0.61	215.84
Chester	impervious developed	1,838.4	21.15	1.46	1,504.78
	pervious developed	10,439.8	14.09	0.36	185.12
Clearfield	impervious developed	9,638.5	17.54	2.78	1,902.9
	pervious developed	17,444.3	18.89	1.05	266.62
Clinton	impervious developed	7,238.5	18.02	2.80	1,856.91
	pervious developed	11,153.8	16.88	0.92	275.81
Columbia	impervious developed	7,343.1	21.21	3.08	1,929.18
	pervious developed	21,848.2	22.15	1.22	280.39
Cumberland	impervious developed	8,774.8	28.93	1.11	2,065.1
	pervious developed	26,908.6	23.29	0.34	306.95
Dauphin	impervious developed	3,482.4	28.59	1.07	1,999.14
	pervious developed	9,405.8	21.24	0.34	299.62
Elks	impervious developed	1,317.7	18.91	2.91	1,556.93
	pervious developed	1,250.1	19.32	1.19	239.85
Franklin	impervious developed	13,832.3	31.6	2.72	1,944.85
	pervious developed	49,908.6	24.37	0.76	308.31
Fulton	impervious developed	3,712.9	22.28	2.41	1,586.75
	pervious developed	4,462.3	18.75	0.91	236.54
Huntington	impervious developed	7,321.9	18.58	1.63	1,647.53
	pervious developed	11,375.4	17.8	0.61	260.15
Indiana	impervious developed	589	19.29	2.79	1,621.25
	pervious developed	972	20.1	1.16	220.68
Jefferson	impervious developed	21.4	18.07	2.76	1,369.63
	pervious developed	20.4	19.96	1.24	198.60
Juniata	impervious developed	3,770.2	22.58	1.69	1,903.96
	pervious developed	8,928.3	17.84	0.55	260.68
Lackawana	impervious developed	2,969.7	19.89	2.84	1,305.05
	pervious developed	7,783.9	17.51	0.76	132.98
Lancaster	impervious developed	4,918.7	38.53	1.55	1,480.43
	pervious developed	21,649.7	22.24	0.36	190.93
Lebanon	impervious developed	1,192.1	40.58	1.85	1,948.53
	pervious developed	5,150	27.11	0.4	269.81
Luzerne	impervious developed	5,857	20.43	3	1,648.22
	pervious developed	13,482.9	19.46	0.98	221.19
Lycoming	impervious developed	10,031.7	16.48	2.57	1,989.64
	pervious developed	19,995.5	16	0.84	277.38

County	Category	Acres	TN lbs/acre/yr	TP lbs/acre/yr	TSS (Sediment) lbs/acre/yr
McKean	impervious developed	38.7	20.93	3.21	1,843.27
	pervious developed	5.3	22.58	1.45	249.26
Mifflin	impervious developed	5,560.2	21.83	1.79	1,979.13
	pervious developed	16,405.5	21.13	0.71	296.07
Montour	impervious developed	5,560.2	21.83	1.79	1,979.13
	pervious developed	16,405.5	21.13	0.71	296.07
Northumberland	impervious developed	8,687.3	25.73	1.54	2,197.08
	pervious developed	25,168.3	24.63	0.54	367.84
Perry	impervious developed	5,041.1	26.77	1.32	2,314.7
	pervious developed	9,977	23.94	0.51	343.16
Potter	impervious developed	2,936.3	16.95	2.75	1,728.34
	pervious developed	2,699.3	17.11	1.09	265.2
Schuylkill	impervious developed	5,638.7	30.49	1.56	1,921.08
	pervious developed	14,797.2	29.41	0.57	264.04
Snyder	impervious developed	4,934.2	28.6	1.11	2,068.16
	pervious developed	14,718.1	24.35	0.4	301.5
Somerset	impervious developed	1,013.6	25.13	2.79	1,845.7
	pervious developed	851.2	25.71	1.14	293.42
Sullivan	impervious developed	3,031.7	19.08	2.85	2,013.9
	pervious developed	3,943.4	21.55	1.31	301.58
Susquehanna	impervious developed	7,042.1	19.29	2.86	1,405.73
	pervious developed	14,749.7	20.77	1.21	203.85
Tioga	impervious developed	7,966.9	12.37	2.09	1,767.75
	pervious developed	18,090.3	12.22	0.76	261.94
Union	impervious developed	4,382.6	22.98	2.04	2,393.55
	pervious developed	14,065.3	20.88	0.69	343.81
Wayne	impervious developed	320.5	18.69	2.89	1,002.58
	pervious developed	509	21.14	1.31	158.48
Wyoming	impervious developed	3,634.4	16.03	2.53	2,022.32
	pervious developed	10,792.9	13.75	0.7	238.26
York	impervious developed	10,330.7	29.69	1.18	1,614.15
	pervious developed	40,374.8	18.73	0.29	220.4
All Other Counties	impervious developed	-	23.06	2.28	1,839
	pervious developed	-	20.72	0.84	264.96

Notes:

- 1 These land loading rate values may be used to derive existing pollutant loading estimates under DEP's simplified method for PRP development. MS4s may choose to develop estimates using other scientifically sound methods.
- 2 Acres and land loading rate values for named counties in the Chesapeake Bay watershed are derived from CAST. (The column for Acres represents acres within the Chesapeake Bay watershed). For MS4s located outside of the Chesapeake Bay watershed, the land loading rates for "All Other Counties" may be used to develop PRPs under Appendix E; these values are average values across the Chesapeake Bay watershed.
- 3 For land area outside of the urbanized area, undeveloped land loading rates may be used where appropriate. When using the simplified method, DEP recommends the following loading rates (for any county) for undeveloped land:
 - TN – 10 lbs/acre/yr
 - TP – 0.33 lbs/acre/yr
 - TSS (Sediment) – 234.6 lbs/acre/yr

These values were derived by using the existing loads for each pollutant, according to the 2014 Chesapeake Bay Progress Run, and dividing by the number of acres for the unregulated stormwater subsector.

APPENDIX J
STATEWIDE MS4 LAND COVER ESTIMATES

Statewide MS4 Land Cover Estimates

County	Municipality	UA % Impervious	UA % Pervious	Outside of UA % Impervious	Outside of UA % Pervious	UA Acres
	TWP					
Northampton	EASTON CITY	47%	53%	42%	58%	2,673.0
Carbon	EAST PENN TWP	27%	73%	4%	96%	265.5
Cumberland	EAST PENNSBORO TWP	35%	65%	29%	71%	5,664.3
Lancaster	EAST PETERSBURG BORO	51%	49%	51%	49%	772.0
Chester	EAST PIKELAND TWP	23%	77%	20%	80%	4,553.3
Allegheny	EAST PITTSBURGH BORO	67%	33%	68%	32%	245.0
York	EAST PROSPECT BORO	27%	73%	27%	73%	210.4
Beaver	EAST ROCHESTER BORO	42%	58%	42%	58%	288.2
Bucks	EAST ROCKHILL TWP	16%	84%	8%	92%	1,987.0
Monroe	EAST STROUDSBURG BORO	46%	54%	47%	53%	1,826.6
Cambria	EAST TAYLOR TWP	20%	80%	8%	92%	1,129.8
Chester	EASTTOWN TWP	35%	65%	33%	67%	4,879.9
Beaver	EASTVALE BORO	45%	55%	38%	62%	69.1
Westmoreland	EAST VANDERGRIFT BORO	45%	55%	46%	54%	97.9
Chester	EAST VINCENT TWP	18%	82%	12%	88%	3,532.2
Washington	EAST WASHINGTON BORO	50%	50%	50%	50%	286.3
Chester	EAST WHITELAND TWP	37%	63%	37%	63%	6,995.7
Beaver	ECONOMY BORO	17%	83%	11%	89%	4,832.8
Delaware	EDDYSTONE BORO	68%	32%	55%	45%	637.8
Allegheny	EDGEWOOD BORO	47%	53%	47%	53%	372.0
Allegheny	EDGEWORTH BORO	27%	73%	27%	73%	1,056.3
Delaware	EDGMONT TWP	14%	86%	8%	92%	2,827.3
Luzerne	EDWARDSVILLE BORO	44%	56%	44%	56%	779.1
Washington	ELCO BORO	31%	69%	12%	88%	80.1
Allegheny	ELIZABETH BORO	46%	54%	45%	55%	259.0
Allegheny	ELIZABETH TWP	17%	83%	9%	91%	5,773.7
Lancaster	ELIZABETH TWP	18%	82%	7%	93%	1,494.2
Lancaster	ELIZABETHTOWN BORO	49%	51%	49%	51%	1,702.4
Chester	ELK TWP	17%	83%	6%	94%	560.1
Lawrence	ELLPORT BORO	38%	62%	38%	62%	322.4
Washington	ELLSWORTH BORO	24%	76%	24%	76%	469.6
Lawrence	ELLWOOD CITY BORO	47%	53%	44%	56%	1,339.2
Lehigh	EMMAUS BORO	48%	52%	48%	52%	1,841.7
Allegheny	EMSWORTH BORO	36%	64%	36%	64%	437.9
Lancaster	EPHRATA BORO	49%	51%	50%	50%	2,219.8
Lancaster	EPHRATA TWP	24%	76%	12%	88%	3,436.7
Erie	ERIE CITY	61%	39%	61%	39%	11,566.7
Allegheny	ETNA BORO	61%	39%	61%	39%	504.2
Butler	EVANS CITY BORO	26%	74%	25%	75%	506.4
Fayette	EVERSON BORO	30%	70%	28%	72%	119.6
Berks	EXETER TWP	29%	71%	16%	84%	7,339.1
Luzerne	EXETER BORO	33%	67%	19%	81%	1,592.1
Westmoreland	EXPORT BORO	19%	81%	19%	81%	258.5
Wyoming	FACTORYVILLE BORO	21%	79%	21%	79%	462.3
Fayette	FAIRCHANCE BORO	36%	64%	36%	64%	759.5
Lycoming	FAIRFIELD TWP	17%	83%	7%	93%	1,761.2

APPENDIX K
BMP EFFECTIVENESS VALUES

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
BMP EFFECTIVENESS VALUES**

This table of BMP effectiveness values (i.e., pollutant removal efficiencies) is intended for use by MS4s that are developing and implementing Pollutant Reduction Plans and TMDL Plans to comply with NPDES permit requirements. The values used in this table generally consider pollutant reductions from both overland flow and reduced downstream erosion, and are based primarily on average values within the Chesapeake Assessment Scenario Tool (CAST) (www.casttool.org). Design considerations, operation and maintenance, and construction sequences should be as outlined in the Pennsylvania Stormwater BMP Manual, Chesapeake Bay Program guidance, or other technical sources. The Department of Environmental Protection (DEP) will update the information contained in this table as new information becomes available. Interested parties may submit information to DEP for consideration in updating this table to DEP's MS4 resource account, RA-EPPAMS4@pa.gov. Where an MS4 proposes a BMP not identified in this document or in Chesapeake Bay Program expert panel reports, other technical resources may be consulted for BMP effectiveness values. Note – TN = Total Nitrogen and TP = Total Phosphorus.

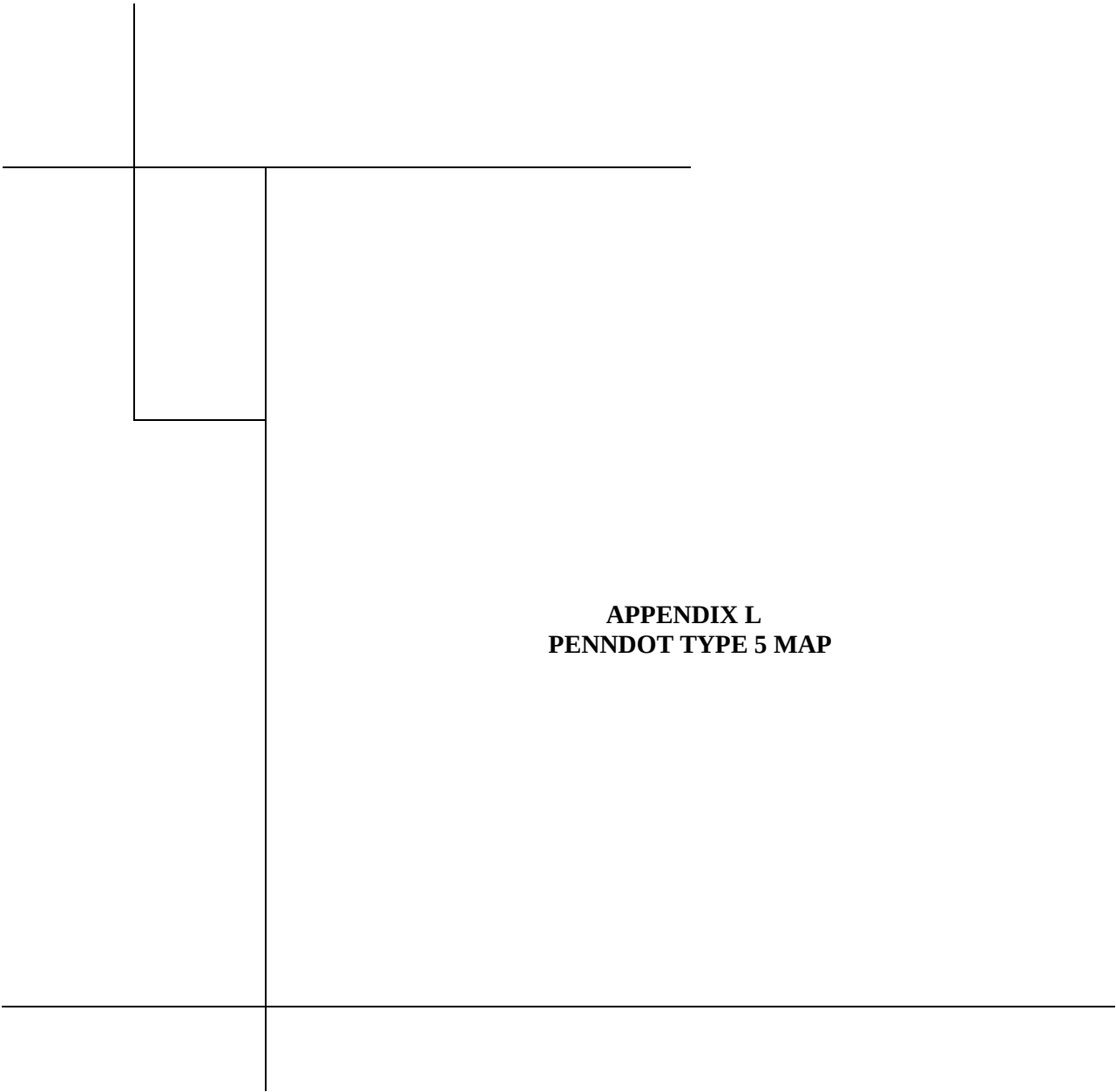
BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Wet Ponds and Wetlands	20%	45%	60%	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal.
Dry Detention Basins and Hydrodynamic Structures	5%	10%	10%	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools, and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff.
Dry Extended Detention Basins	20%	20%	60%	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Infiltration Practices w/ Sand, Veg.	85%	85%	95%	A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil. No underdrains are associated with infiltration basins and trenches, because by definition these systems provide complete infiltration. Design specifications require infiltration basins and trenches to be built in good soil, they are not constructed on poor soils, such as C and D soil types. Engineers are required to test the soil before approval to build is issued. To receive credit over the longer term, jurisdictions must conduct yearly inspections to determine if the basin or trench is still infiltrating runoff.
Filtering Practices	40%	60%	80%	Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter. These systems require yearly inspection and maintenance to receive pollutant reduction credit.
Filter Strip Runoff Reduction	20%	54%	56%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.4 design ratio of filter strip length to impervious flow length is recommended for runoff reduction urban filter strips.
Filter Strip Stormwater Treatment	0%	0%	22%	Urban filter strips are stable areas with vegetated cover on flat or gently sloping land. Runoff entering the filter strip must be in the form of sheet-flow and must enter at a non-erosive rate for the site-specific soil conditions. A 0.2 design ratio of filter strip length to impervious flow length is recommended for stormwater treatment urban filter strips.
Bioretention – Raingarden (C/D soils w/ underdrain)	25%	45%	55%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in C or D soil.
Bioretention / Raingarden (A/B soils w/ underdrain)	70%	75%	80%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has an underdrain and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Bioretention / Raingarden (A/B soils w/o underdrain)	80%	85%	90%	An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants. This BMP has no underdrain and is in A or B soil.
Vegetated Open Channels (C/D Soils)	10%	10%	50%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in C or D soil.
Vegetated Open Channels (A/B Soils)	45%	45%	70%	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils. This BMP has no underdrain and is in A or B soil.
Bioswale	70%	75%	80%	With a bioswale, the load is reduced because, unlike other open channel designs, there is now treatment through the soil. A bioswale is designed to function as a bioretention area.
Permeable Pavement w/o Sand or Veg. (C/D Soils w/ underdrain)	10%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in C or D soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/ underdrain)	45%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/o Sand or Veg. (A/B Soils w/o underdrain)	75%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, no sand or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (A/B Soils w/ underdrain)	50%	50%	70%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in A or B soil.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Permeable Pavement w/ Sand or Veg. (A/B Soils w/o underdrain)	80%	80%	85%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has no underdrain, has sand and/or vegetation and is in A or B soil.
Permeable Pavement w/ Sand or Veg. (C/D Soils w/ underdrain)	20%	20%	55%	Pavement or pavers that reduce runoff volume and treat water quality through both infiltration and filtration mechanisms. Water filters through open voids in the pavement surface to a washed gravel subsurface storage reservoir, where it is then slowly infiltrated into the underlying soils or exits via an underdrain. This BMP has an underdrain, has sand and/or vegetation and is in C or D soil.
Stream Restoration	0.075 lbs/ft/yr	0.068 lbs/ft/yr	44.88 lbs/ft/yr	An annual mass nutrient and sediment reduction credit for qualifying stream restoration practices that prevent channel or bank erosion that otherwise would be delivered downstream from an actively enlarging or incising urban stream. Applies to 0 to 3rd order streams that are not tidally influenced. If one of the protocols is cited and pounds are reported, then the mass reduction is received for the protocol.
Forest Buffers	25%	50%	50%	An area of trees at least 35 feet wide on one side of a stream, usually accompanied by trees, shrubs and other vegetation that is adjacent to a body of water. The riparian area is managed to maintain the integrity of stream channels and shorelines, to reduce the impacts of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals. (Note – the values represent pollutant load reductions from stormwater draining through buffers).
Tree Planting	10%	15%	20%	The BMP effectiveness values for tree planting are estimated by DEP. DEP estimates that 100 fully mature trees of mixed species (both deciduous and non-deciduous) provide pollutant load reductions for the equivalent of one acre (i.e., one mature tree = 0.01 acre). The BMP effectiveness values given are based on immature trees (seedlings or saplings); the effectiveness values are expected to increase as the trees mature. To determine the amount of pollutant load reduction that can be credited for tree planting efforts: 1) multiply the number of trees planted by 0.01; 2) multiply the acreage determined in step 1 by the pollutant loading rate for the land prior to planting the trees (in lbs/acre/year); and 3) multiply the result of step 2 by the BMP effectiveness values given.
Street Sweeping	3%	3%	9%	Street sweeping must be conducted 25 times annually. Only count those streets that have been swept at least 25 times in a year. The acres associated with all streets that have been swept at least 25 times in a year would be eligible for pollutant reductions consistent with the given BMP effectiveness values.

BMP Name	BMP Effectiveness Values			BMP Description
	TN	TP	Sediment	
Storm Sewer System Solids Removal	0.0027 for sediment, 0.0111 for organic matter	0.0006 for sediment, 0.0012 for organic matter	1 – TN and TP concentrations	This BMP (also referred to as “Storm Drain Cleaning”) involves the collection or capture and proper disposal of solid material within the storm system to prevent discharge to surface waters. Examples include catch basins, stormwater inlet filter bags, end of pipe or outlet solids removal systems and related practices. Credit is authorized for this BMP only when proper maintenance practices are observed (i.e., inspection and removal of solids as recommended by the system manufacturer or other available guidelines). The entity using this BMP for pollutant removal credits must demonstrate that they have developed and are implementing a standard operating procedure for tracking the material removed from the sewer system. Locating such BMPs should consider the potential for backups onto roadways or other areas that can produce safety hazards. To determine pollutant reductions for this BMP, these steps must be taken: 1) Measure the weight of solid/organic material collected (lbs). Sum the total weight of material collected for an annual period. Note – do not include refuse, debris and floatables in the determination of total mass collected. 2) Convert the annual wet weight captured into annual dry weight (lbs) by using site-specific measurements (i.e., dry a sample of the wet material to find its weight) or by using default factors of 0.7 (material that is predominantly wet sediment) or 0.2 (material that is predominantly wet organic matter, e.g., leaf litter). 3) Multiply the annual dry weight of material collected by default or site-specific pollutant concentration factors. The default concentrations are shown in the BMP Effectiveness Values columns. Alternatively, the material may be sampled (at least annually) to determine site-specific pollutant concentrations. DEP will allow up to 50% of total pollutant reduction requirements to be met through this BMP. The drainage area treated by this BMP may be no greater than 0.5 acre unless it can be demonstrated that the specific system proposed is capable of treating stormwater from larger drainage areas. For planning purposes, the sediment removal efficiency specified by the manufacturer may be assumed, but no higher than 80%.

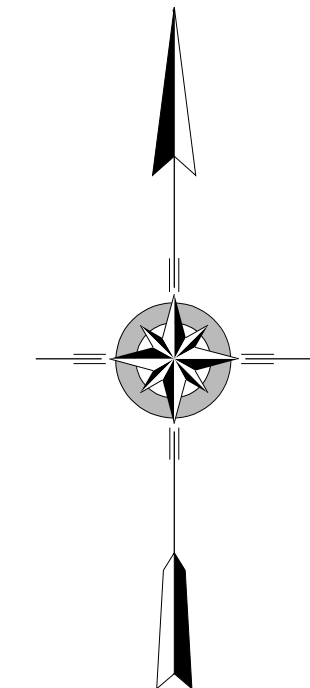


APPENDIX L
PENNDOT TYPE 5 MAP

POPULATION 2009
(2000 Census)

TOTAL MILES	
Borough Road System	6.45 *
State Highway System	2.41
Total	8.86

* Includes ACT 32 Turnback Mileage of .23



EVANS CITY BOROUGH

BUTLER COUNTY

PREPARED BY THE

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

BUREAU OF PLANNING AND RESEARCH
GEOGRAPHIC INFORMATION DIVISION

IN COOPERATION WITH THE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

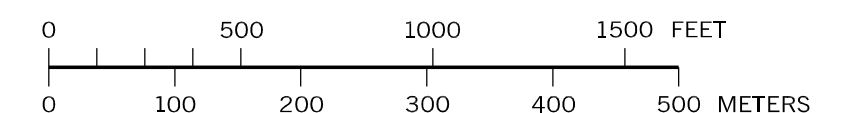
AND

MUNICIPAL SERVICES DISTRICT 10-0

MUNICIPAL CODE 10 407

REVISED PER FORM 990 DATED 11-21-05

SCALE



NOTE:
MUNICIPAL BUILDING MOVING
BY MID 2006 TO BESIDE LIBRARY

- LEGEND**
- LIMITED ACCESS HIGHWAY
 - STATE ROUTE AND NUMBER
 - STATE MAINTAINED BRIDGE ON BOROUGH STREET
 - BOROUGH STREET NAME AND SEGMENT LENGTH IN MILES
 - TURNBACK BOROUGH STREET
 - BOROUGH ALLEY
 - OTHER ROAD
 - RAILROAD
 - STATE BOUNDARY
 - COUNTY BOUNDARY
 - TOWNSHIP BOUNDARY
 - CITY BOUNDARY
 - BOROUGH BOUNDARY
 - MUNICIPAL BUILDING
 - SPLIT MILEAGE BETWEEN MUNICIPALITIES
 - SCHOOL, COLLEGE OR UNIVERSITY
 - POINT OF INTEREST

BELLE ST
BIG CREEK ST
BRYAN ST
CENTER AL
CENTER ST
CLEARVIEW DR
CRESCENT ST
CRESTVIEW DR
CRESTWOOD DR
DIVISION ST
DUNBAR AV
ELIZABETH AV
EVANS ST
FIRST ST
HARRISON ST
HILL ST
JACKSON ST
JEFFERSON ST
LINWOOD DR
MAPLE AV
MARGARET AV
MAY LA
MCKINLEY ST
PATTISON ST
RAILROAD ST
SECOND ST
SOUTH ST
THIRD ST
VAN BUREN ST
WAHL AV
WALDRON AV
WASHINGTON AV
WASHINGTON ST

APPENDIX M
BMP ESTIMATED COSTS

BMP Estimated Costs

Street Sweeping

Estimated Initial Cost and Estimated O&M Cost were determined by the number of miles of municipal roadways from the PennDOT Type 5 Map and by the values given in the Pennsylvania Stormwater BMP Manual Section 5.9.1 (assumed vacuum sweeper).

Estimated Initial Cost = \$150,000

Estimated O&M Cost = (\$15/curb-mile)(13 curb-miles)(25/year) = \$4,875/year

Vegetated Open Channels (C/D Soils)

Estimated Initial Cost and Estimated O&M Cost were determined by measuring the linear feet of vegetated channel and by the values given in the Pennsylvania Stormwater BMP Manual Section 6.4.8 (assumed less expensive grassed swale due to existing roadside ditches).

Estimated Initial Cost = (\$4.50/ft)(8,100 ft) = \$36,450

Estimated O&M Cost = (\$0.75/ft/year)(8,100 ft) = \$6,075/year

[illegible]

Funding Opportunities

The Borough will be investigating a number of funding opportunities and mechanisms to assist with the implementation of the activities required in this PRP. These will include, but not be limited, to the following:

Stormwater Fee

A stormwater utility/fee is charged to property owners on a monthly basis based on the amount of impervious surface on a property (rooftops, parking lots, driveways, etc.). Impervious areas do not allow rainfall to penetrate into the ground, but instead cause it to run off into streams and rivers. Implementing such a stormwater fee would help fund local stormwater management programs, which would control stormwater runoff through construction, operation, and maintenance of the stormwater system and the BMPs required to meet permit criteria. Currently, the Commonwealth of Pennsylvania does not allow Boroughs to implement this type of fee, although legislation is under consideration to provide the legal means to do so. The Borough will monitor the progress of this legislation and consider the development and implementation of a stormwater fee when appropriate.

BMP Construction – PENNVEST

The Pennsylvania Infrastructure Investment Authority (PENNVEST) provides construction and related funding/financing for Best Management Practices (BMPs) for the following categories:

- Urban Stormwater BMPs
- Agricultural BMPs
- Abandoned Mine Drainage BMPs
- Brownfields BMPs

Funding/financing terms vary depending on the affordability of the project to the applicant. The Borough will evaluate the BMPs and other projects that will be implemented under their MS4 Permit for applicability to the PennVEST programs.

Growing Greener Grants

Growing Greener is an investment of state funds to address Pennsylvania's critical environmental concerns. DEP is authorized to allocate these funds in grants for:

- Watershed restoration and protection
- Abandoned mine reclamation
- Abandoned oil and gas well plugging projects

The availability of funding varies with the allocations made by the Commonwealth. The Borough will evaluate the BMPs and other projects that will be implemented under their MS4 Permit for applicability to the grant programs.

APPENDIX O
BMP O&M ACTIVITY FREQUENCY

BMP O&M Activity and Frequency

Street Sweeping

- A. Street sweeping machinery should be operated and maintained per the manufacturers' requirements.
- B. Street signs for street sweeping and parking enforcement will need to be maintained during the street sweeping months.
- C. Material collected from street sweeping will need to be properly stored and/or disposed of at an appropriate facility.

Vegetated Open Channels (C/D Soils)

- A. Maintenance activities to be performed annually and within 48 hours after every major storm event (>1 inch rainfall depth):
 - a. Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when > 3 inches depth at any spot or covering vegetation).
 - b. Inspect vegetation on side slopes for erosion and formation of rills or gullies, correct as needed.
 - c. Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade.
 - d. 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.
 - e. Inspect for litter; remove prior to mowing.
 - f. Inspect for uniformity in cross-section and longitudinal slope, correct as needed.
 - g. Inspect swale inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed.
- B. Maintenance activities to be performed as needed:
 - a. Plant alternative grass species in the event of unsuccessful establishment.
 - b. Reseed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming.
 - c. Rototill and replant swale if draw down time is more than 48 hours.
 - d. Inspect and correct check dams when signs of altered water flow (channelization, obstructions, erosion, etc.) are identified.
 - e. Water during dry periods, fertilize, and apply pesticide only when absolutely necessary.
- C. Winter conditions also necessitate additional maintenance concerns, which include the following:
 - a. Inspect swale immediately after the spring melt, remove residuals (e.g. sand) and replace damaged vegetation without disturbing remaining vegetation.
 - b. If roadside or parking lot runoff is directed to the swale, mulching and/or soil aeration/manipulation may be required in the spring to restore soil structure and moisture capacity and to reduce the impacts of deicing agents.
 - c. Use nontoxic, organic deicing agents, applied either as blended, magnesium chloride-based liquid products or as pretreated salt.
 - d. Use salt-tolerant vegetation in swales.