3800-FM-BPNPSM0491 Rev. 4/2014
MS4 Annual/Progress Report

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) ANNUAL/PROGRESS REPORT

For the Reporting Period: May 1, 2015 to May 1, 2017

☐ Annual Report ☒ Progress Report
☐ New Permittee ☒ Renewal Permittee

Due Date: June 29, 2017

GENERAL INFORMATION			
Permittee Name:	**CHARLESTOWN TOWNSHIP**	NPDES Permit No.:	PAI-130507
Mailing Address:	**PO Box 507**	Effective Date:	**May 1, 2015**
City, State, Zip:	**Devault, PA 19432**	Expiration Date:	**April 30, 2019**
MS4 Contact Person:	**Linda M Csete/Janice C Bird**	Renewal Due Date:	**October 30, 2018**
Title:	**Township Manager/Assistant Secretary**	Admin. Extended?	☐ Yes ☒ No
Phone:	**610-240-0328**	Municipality:	**Charlestown Twp**
Email:	**admin1@charlestown.pa.us**	County:	**Chester**
Co-Permittees (if applicable): **NA**			

WATER QUALITY INFORMATION

Are there any discharges to waters within the Chesapeake Bay Watershed? ☐ Yes ☒ No

Identify all surface waters that receive stormwater discharges from storm sewers within the MS4 urbanized area and provide the requested information (see instructions).

Receiving Water Name	Ch. 93 Class.	Impaired?	Cause(s)	TMDL?	WLA?
Valley Creek (Schuylkill)	EV	YES	PCB, AQUATIC LIFE URBAN RUNOFF- FLOW VARIABILITY, SILTATION, HABITAT MODIFICATION	YES, PCB	YES
Pickering Creek	HQ-TSF	YES	CAUSE UNKNOWN	NO	NO
French Creek	TSF	YES	PATHOGENS - SOURCE UNKNOWN	NO	NO
Valley Creek (Brandywine)	CWF	YES	AQUATIC LIFE - URBAN RUNOFF- FLOW VARIABILITY & SILTATION	YES	YES*
Pigeon Run	HQ-TSF	YES	PATHOGENS - SOURCE UNKNOWN	NO	NO
Pine Creek	HQ	YES	AQUATIC LIFE - URBAN RUNOFF	NO	NO

Identify any Wasteload Allocations (WLAs) identified in TMDLs for the MS4, if applicable. Identify the pollutant(s) and mass load(s)):

The WLA for PCB's in Valley Creek (Schuylkill) is 0. Charlestown Township was not given a Wasteload Allocation in the Christina River Study For Valley Creek (Brandywine)

GENERAL MINIMUM CONTROL MEASURE (MCM) INFORMATION

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

Provide current contact name and phone number information for the required MCMs (if same as page 1, leave blank):

MCM	Contact Name	Phone
#1 Public Education and Outreach on Storm Water Impacts	Linda Csete	610-240-0326
#2 Public Involvement/Participation	Linda Csete	610-240-0326
#3 Illicit Discharge Detection and Elimination (IDD&E)	Daniel Wright	610-840-9100
#4 Construction Site Storm Water Runoff Control	Daniel Wright	610-840-9100
#5 Post-Construction Storm Water Management in New Development and Redevelopment	Daniel Wright	610-840-9100
#6 Pollution Prevention / Good Housekeeping	Jim Thompson	610-656-9315

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

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

Measurable Goal: *For new permittees a Public Education and Outreach Program (PEOP) shall be developed and implemented during the first year of permit coverage and shall be re-evaluated each permit year thereafter and revised as needed. For renewal permittees, the existing PEOP shall be reviewed and revised as necessary. The permittee's PEOP shall be designed to achieve measurable improvements in the target audience's understanding of the causes and impacts of stormwater pollution and the steps they can take to prevent it.*

1. For new permittees only, attach the written PEOP or a summary thereof to the first report submitted to DEP.
2. If you are not a new permittee, did you complete and submit your written PEOP to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **6/7/2005**
3. Date of last evaluation of or revision to the PEOP: **1/27/2005**
4. What were the plans and goals for public education and outreach for the reporting period?

   Utilized Materials provided in CRC Watersheds MS4 Joint Education and Outreach Plan
   Researched articles on line for additional content.
5. Did the MS4 achieve its goal(s) for the PEOP during the reporting period? ☒ Yes ☐ No

   Explain the rationale for your answer:

   Expanded resources on website and updated links, direct mailings to contractors and other applicants, information packet to new residents, quarterly newsletters contained information mailed to all residents and businesses. Website was enhanced this year to update formatting and improve ease of use for multiple handheld devices. Separate stormwater management section of website was expanded and updated with over 25 posts. Ten links are provided on stormwater management.
6. Identify specific plans and goals for public education and outreach for the upcoming year:

   CRC Watersheds will no longer provide material. We will expand our research activities and coordinate with other muncipalities to share resources.

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

Measurable Goal: *For new permittees, the lists shall be developed within the first year of coverage under the permit and reviewed and updated as necessary every year thereafter. For renewal permittees, the lists shall continue to be reviewed and updated annually.*

1. For new permittees only, attach your target audience list(s) to the first report submitted to DEP.

2. If you are not a new permittee, did you complete and submit your target audience list to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **See Exhibit A of this report.**

3. Date of last review or revision to target audience list(s): **3/15/17**

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

Measurable Goal: *For new permittees, stormwater educational and informational items shall be produced and published in print and/or on the Internet within the first year of permit coverage. In subsequent years (and for renewal permittees), the list of items published and the content in these items shall be reviewed, updated, and maintained annually. Your publications shall contain stormwater educational information that addresses one or more of the 6 MCMs.*

1. For new permittees only, attach your published stormwater educational or informational materials to the first report submitted to DEP.

2. If you are not a new permittee, did you complete and submit your published stormwater educational or informational materials to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **1/29/15**

3. Do you have a municipal newsletter? ☒ Yes ☐ No
   If Yes, how often was it published during the reporting period and what MS4-related material did it contain?
   4 times, contained Citizen water quality hotline, citizen awareness to report water pollution, earth day event, hazardous waste event schedule, community shredding event, Devault Area Gateway Improvements, Organic Community Gardening at Brightside Farm and 7 other articles.

4. Do you have a municipal website? ☒ Yes ☐ No (URL: **http://www.charlestown.pa.us/**)
   If Yes, what MS4-related material does it contain?
   http://www.charlestown.pa.us/stormwater.asp
   Contains a summary of the Township's MS-4 requirements, 10 Stormwater Education Links, Act 167 link, Over 25 posts including: the right tree in the right place, tips for streamside landowners, put rainwater to work for you, fertilize your lawn the easy way, caring for your wetlands, and 20 others.

5. Describe any other method(s) used during the reporting period to provide information on stormwater to the public:
   Handouts are made available at the township office, at meetings, elections, other public functions. A section is provided in the new Annual Report which was first published in 2015.

6. Date of most recent review and/or update to published stormwater educational materials: **4/15/15**

7. Identify specific plans for the publication of stormwater materials for the upcoming year:
   Now that CRC Watersheds is no longer providing a Joint MS4 Education and Outreach Municipal Program, we will do our own research for suitable information and partner with neighboring muncipalities through our professional associations including the Chester County Managers' Consortium and Chester County Secretaries in Loal Government group.

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

Measurable Goal: *All permittees shall select and utilize at least two distribution methods in each permit year. These are in addition to the newsletter and website provisions of BMP #3.*

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

New residents received an information packet including information on stormwater management, septic system facts, household hazardous waste collection, yard waste collection, montlhy stormwater planner. Brochures and flyers are made available in permit packets, the township lobby and as handouts at township meetings. Sent letters to restuarants and food service establishments on good housekeeping. Website offers subscription service to receive e-mail updates. Township Mailing List is continually updated to reach target audience.

MCM #2 – PUBLIC INVOLVEMENT/PARTICIPATION

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

Measurable Goal: *A new permittee's PIPP shall be developed and implemented during the first year of coverage under this General Permit. All permittees shall re-evaluate the PIPP each permit year and revise as needed. Your PIPP shall include, but not be limited to:*

a. *Opportunities for the public to participate in the decision-making processes associated with the development, implementation, and update of programs and activities related to this General Permit.*
b. *Methods of routine communication to groups such as watershed associations, environmental advisory committees, and other environmental organizations that operate within proximity to the permittee's regulated small MS4s or their receiving waters.*
c. *Making your periodic reports available to the public on your website, at your municipal offices, or by US Mail upon request.*

1. For new permittees only, attach your written PIPP or a summary thereof to the first report submitted to DEP.
2. If you are not a new permittee, did you complete and submit your written PIPP or summary to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date:
3. Date of last review and/or update to the PIPP:
4. Explain how your PIPP addresses items a, b and c of the Measurable Goal:
   a. Township Engineer presented the annual report in May 2016 and May 2017 and comments/discussion was solilcited from those present. Newsletter articles invite feedback and comments, reports of pollution.
   b. Manager attends meetings and programs offered by CRC Watersheds and other programs as they become available.
   c. Minutes are made available on the township website, open space inspection reports are sent to the homeowners associations of the developments where inspections take place. Inspector discusses improvements with the property owners/HOAs.

BMP #2: Prior to adoption of any ordinance (municipal permittees) or SOP (non-municipal permittees) required by the permit, provide adequate public notice and opportunities for public review, input, and feedback.

Measurable Goal: *Advertise any proposed MS4 Stormwater Management Ordinance or SOP, provide opportunities for public comment, evaluate any public input and feedback, and document the comments received and the municipality's response.*

1. Was an MS4-related ordinance or SOP developed during the reporting period? ☐ Yes ☒ No
2. If Yes, describe how you advertised the draft ordinance and how you provided opportunities for public review, input and feedback:
3. If an ordinance or SOP was enacted/developed or amended during the reporting period, provide the following information:

Ordinance No. / SOP Name	Date of Public Notice	Date of Public Hearing	Date Enacted

BMP #3: Regularly solicit public involvement and participation from the target audience groups. This should include an effort to solicit public reporting of suspected illicit discharges. Assist the public in their efforts to help implement your SWMP. Conduct public meetings to discuss the on-going implementation of your SWMP.

***Measurable Goals**: Conduct at least one public meeting per year to solicit public involvement and participation from target audience groups. The public should be given reasonable notice through the usual outlets a reasonable period in advance of each meeting. During the meetings, you should present a summary of your progress, activities, and accomplishments with implementation of your SWMP, and you should provide opportunities for the public to provide feedback and input. Your presentation can be made at specific MS4 meetings or during any other public meeting. Under this MCM, you should document and report instances of cooperation and participation in your activities; presentations you made to local watershed organizations and conservation organizations; and similar instances of participation or coordination with organizations in your community. You also should document and report activities in which members of the public assisted or participated in your meetings and in the implementation of your SWMP, including education activities or organized implementation efforts such as cleanups, monitoring, storm drain stenciling, or others.*

1. Date of the public meeting(s): **5/2/16, 5/1/17**
2. How were meeting(s) advertised to the public? **Township Website**
3. Indicate where the meeting(s) were held and the number of attendees:
   Great Valley Middle School, 12 members of the public in 2016, 17 in 2017.
4. What types of MS4-related activities did you solicit public involvement and participation for?
   open space inspections, earth day & streamside clean up event April 16, 2016 and April 22, 2017, trail cleanups. Held presentation on Riparian Buffer Ordinances on May 1, 2017.
5. What MS4-related activities did the public participate in?
   Earth Day road side clean up event, tree planting at Charlestown Park, trail cleanups. Over 100 people participate in the Organic Garden program at Brightside Farm. Fido stations at Charlestown Park used approximately 4,000 bags in this reporting period.

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

BMP #1: You shall develop and implement a written program for the detection, elimination, and prevention of illicit discharges into your regulated MS4s. Your program shall include dry weather field screening of outfalls for non-stormwater flows, and sampling of dry weather discharges for selected chemical and biological parameters. Test results shall be used as indicators of possible discharge sources.

***Measurable Goal**: For new permittees, the IDD&E program shall be developed during the first year of coverage under this General Permit and shall be implemented and evaluated each year thereafter. For renewal permittees, the existing IDD&E program shall continue to be implemented and evaluated annually. Records shall be kept of all outfall inspections, flows observed, results of field screening and testing, and other follow-up investigation and corrective action work performed under this program.*

1. For new permittees only, attach your written IDD&E program to the first report.
2. If you are not a new permittee, did you complete and submit your written IDD&E program to DEP? ☐ Yes ☐ No
   If Yes, provide the latest submission date: **2014**
3. Date of last review and/or update to IDD&E program: **5/10/2015**

BMP #2: Develop and maintain a map of your regulated small MS4. The map must also show the location of all outfalls and the locations and names of all surface waters of the Commonwealth (e.g., creek, stream, pond, lake, basin, swale, channel) that receive discharges from those outfalls.

***Measurable Goals**: For new permittees, develop the map(s) of your regulated small municipal separate storm sewer systems and the information on all outfalls from your regulated small MS4 by the end of the fourth (4th) year of permit coverage. For renewal permittees, the existing map(s) of your regulated small MS4 shall be updated and maintained as necessary during each year of coverage under the permit.*

1. Have you completed a map(s) of all outfalls and receiving waters of your storm sewer system? ☒ Yes ☐ No

2. For new permittees only, attach the completed map to the 4th year Annual Report.

3. Date of last update or revision to map(s): **5-5-17**

4. Total number of discharge points in your storm sewer system that:
   Discharge directly to surface waters (outfalls): **46**
   Discharge to storm sewers owned by others: **2**

5. Total number of outfalls that are mapped at this time: **48**

BMP #3: In conjunction with the map(s) created under BMP #2 (either on the same map or on a different map), new permittees shall show, and renewal permittees shall update, the entire storm sewer collection system, including roads, inlets, piping, swales, catch basins, channels, basins, and any other features of the permittee's storm sewer system including municipal boundaries and/or watershed boundaries.

***Measurable Goals**: For new permittees, develop the map(s) by the end of the fourth (4th) year of coverage under the permit and update and maintain the map(s) as necessary each year of permit coverage thereafter. For renewal permittees, update and maintain the map(s) as necessary during each year of permit coverage.*

1. Have you completed a map(s) that includes roads, inlets, piping, swales, catch basins, channels, basins, municipal boundaries and watershed boundaries? ☒ Yes ☐ No

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

3. For new permittees only, attach the completed map to the 4th year Annual Report.

4. If you are not a new permittee, did you complete and submit your map to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **6-29-2015**

5. Date of last update or revision to map: **5-10-2015**

BMP #4: Following the IDD&E program created pursuant to BMP #1, the permittee shall conduct outfall field screening, identify the source of any illicit discharges, and remove or correct any illicit discharges using procedures developed under BMP #1.

For all permittees, outfall inspections need to be prioritized according to the perceived chance of illicit discharges within the outfall's contributing drainage area. Observations of each outfall shall be recorded each time an outfall is screened, regardless of the presence of dry weather flow. Proper quality assurance and quality control procedures shall be followed when collecting, transporting or analyzing water samples. All outfall inspection information shall be recorded on the Outfall Reconnaissance Inventory/Sample Collection field sheet excerpted from the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (CWP, October 2004). Adequate written documentation shall be maintained to justify a determination that an outfall flow is not illicit. If an outfall flow is illicit, the actions taken to identify and eliminate the illicit flow also shall be documented.

The results of outfall inspections and actions taken to remove or correct illicit discharges shall be summarized in periodic reports.

1. For new permittees only, were at least 40% of all outfalls screened during dry weather? ☐ Yes ☐ No

   If Yes for #1, indicate the number screened and the percent of all outfalls it represents. If No for #1, indicate reason(s) why this was not completed:

   Are you on pace to screen all outfalls twice during the permit term? ☐ Yes ☐ No

2. For renewal permittees, indicate the percent of outfalls screened during the reporting period: **95%**

   Are you on pace to screen all outfalls once during the permit term? ☒ Yes ☐ No

3. For all permittees, indicate the percent of outfalls screened that revealed dry weather flows: **18%**

4. Did any dry weather flows reveal color, turbidity, sheen, odor, floating or submerged solids? ☐ Yes ☒ No

5. If Yes for #4, attach all sample results to this report with a map identifying the sample location. Explain the corrective action(s) taken in the attachment.

6. Do you use the "Outfall Reconnaissance Inventory / Sample Collection Field Sheet" provided in the permit?

   ☒ Yes ☐ No

   If No, attach a copy of your monitoring form.

BMP #5: Enact a stormwater management ordinance (municipal entities) or develop an SOP (non-municipal entities) to implement and enforce a stormwater management program that includes prohibition of non-stormwater discharges to the regulated small MS4.

***Measurable Goal**: Within the first year of coverage under the permit, new permittees shall enact and implement an ordinance from an Act 167 Plan approved by the Department in 2005 or later, the MS4 Stormwater Management Ordinance; or an ordinance that satisfies all applicable requirements in a completed and signed MS4 Stormwater Management Ordinance Checklist. (For non-municipal permittees, new permittees shall develop and implement a Standard Operating Procedure (SOP) within the first year of coverage).*

Renewal permittees must continue to maintain, update, implement, and enforce a Stormwater Management Ordinance that satisfies all applicable requirements. (For non-municipal permittees, the SOP satisfies this requirement. If no existing SOP exists, it should be developed during the first year of coverage).

***Measurable Goal**: New permittees shall submit a letter signed by a municipal official, municipal engineer, or the municipal solicitor as an attachment to their first year report certifying the enactment of an ordinance that meets all applicable requirements of this permit. Renewal permittees shall update their existing ordinance, if necessary, and submit documentation of completion to the Department. (For non-municipal permittees, submit the SOP to the first report).*

1. Do you have an ordinance (municipal) or SOP or other mechanism (non-municipal) that prohibits non-stormwater discharges? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: **10-30-14**

2. For new permittees only, attach an ordinance (or SOP) and letter from an official, engineer or solicitor that prohibits non-stormwater discharges to the first report submitted to DEP.

3. If you are not a new permittee, did you complete and submit your ordinance (or SOP) and letter from an official, engineer or solicitor that prohibits non-stormwater discharges to DEP? ☒ Yes ☐ No

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

   If Yes, describe what enforcement actions were taken for each violation:

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

***Measurable Goals**: During each year of permit coverage, appropriate educational information concerning illicit discharges shall be distributed to the target audiences using methods outlined under MCM #1. If not already established, set up and promote a stormwater pollution reporting mechanism (e.g., a complaint line with message recording) by the end of the first year of permit coverage for the public to use to notify you of illicit discharges, illegal dumping or outfall pollution. Respond to all complaints in a timely and appropriate manner. Document all responses, include the action taken, the time required to take the action, whether the complaint was resolved successfully.*

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

   If Yes, what was distributed? **See MCM 1 above.**

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

   ☒ Yes ☐ No

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

MCM #4 – CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

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

☒ Yes ☐ No **(If No, complete all remaining questions for this MCM; if Yes, skip to MCM #5)**.

BMP #1: Develop your program consisting of all procedures necessary to comply with the requirements of this MCM. Your program shall provide for construction stormwater permitting, construction inspection, and enforcement of installation and maintenance of the necessary E&S control measures. Your program shall describe clearly how your program will be coordinated with DEP's NPDES Construction Stormwater Permitting program.

***Measurable Goals**: For new permittees, the written program for this MCM shall be developed during the first year of permit coverage; nevertheless, you are responsible for implementation of this MCM during entire term of this permit, including the time you are developing your program.*

For all permittees, your program shall be reviewed and updated during each year of permit coverage. The purpose of the written program is to establish clear roles and responsibilities for the implementation of the MCM #4 requirements. An agreement between the permittee, the CCD, and any other resources to be used by the permittee that clearly defines roles for each entity is recommended. If an agreement is made, you shall place and keep a written copy in your file, consistent with the Retention of Records requirements in this Permit. Please note that in accordance with Section A.2.h in Part A of the Authorization to Discharge, as the permittee you are responsible to ensure that implementation of all requirements under this Permit are fulfilled.

1. For new permittees only, attach the written stormwater associated with construction activities program to the first report submitted to DEP.

2. If you are not a new permittee, did you complete and submit your written stormwater associated with construction activities program to DEP? ☐ Yes ☐ No

   If Yes, provide the latest submission date:

3. Date of last update or revision to the stormwater associated with construction activities program:

BMP #2: The permittee shall enact, implement, and enforce an ordinance to require the implementation of erosion and sediment control BMPs, as well as sanctions to ensure compliance.

***Measurable Goal**: Within the first year of coverage under the permit, new permittees shall enact and implement an ordinance that meets all applicable requirements of this permit. (Non-municipal permittees shall develop and implement an SOP).*

***Measurable Goal**: Permittees shall submit a letter signed by a municipal official, municipal engineer or the municipal solicitor as an attachment to their first periodic report certifying the enactment and implementation of a stormwater management ordinance that meets all requirements of this permit.*

1. For new permittees only, attach an ordinance (or SOP) and letter from an official, engineer or solicitor that addresses stormwater associated with construction activities to the first report submitted to DEP.

2. If you are not a new permittee, did you complete and submit your ordinance (or SOP) and letter from an official, engineer or solicitor that addresses stormwater associated with construction activities to DEP? ☐ Yes ☐ No

   If Yes, provide the latest submission date:

BMP #3: Develop and implement requirements for construction site operators to control waste at the construction site that may cause adverse impacts to water quality. While sediment is the most common pollutant of concern for MCM #4, there are other types of pollutants that also can be a concern and the intent of this BMP is to address these other types of pollutants, such as, but not limited to, discarded building materials, washout from concrete trucks, chemicals, litter, and sanitary waste.

***Measurable Goal**: New permittees shall establish requirements to address this BMP by the end of the first year of permit coverage. Renewal permittees shall continue to implement existing requirements and update as necessary. This could be implemented by written municipal ordinance/code provisions, by standard notes on the site plans, by any other written format that accomplishes the objectives of this BMP, or by any combination of these measures. The goal of this BMP shall be communicated to construction site operators during pre-construction meetings. This BMP shall be implemented during each year of the MS4 permit. Permittees must prepare and maintain records of site inspections, including dates and results and you must maintain these records in accordance with the Retention of Records requirements in this Permit.*

1. Identify the mechanism(s) in place to regulate construction site operators and wastes produced at construction sites:

2. During the reporting period what has been the results of implementing the mechanism(s) described above?

BMP #4: Develop and implement procedures for the receipt and consideration of public inquiries, concerns, and information submitted by the public (to the permittee) regarding local construction activities. The permittee shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing.

***Measurable Goal**: Permittees shall establish and implement a tracking system to keep a record of any submitted public information as well as your response, actions, and results. This BMP shall be implemented during each year of coverage under this General Permit and information should be submitted with the each periodic report.*

Describe the tracking system established for documenting public information concerning local construction activities and describe responses taken during the reporting period:

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

Are you relying on PA's statewide program for MCM #5 BMPs #1 - #3? ☒ Yes ☐ No

(**If No, complete all remaining questions for this MCM; if Yes, skip to BMP #4**)

BMP #1: Develop a written procedure that describes how the permittee shall address all required components of this MCM. Guidance can be found in the Pennsylvania Stormwater Best Management Practices Manual.

***Measurable Goal**: The written procedure shall be developed by the end of the first year of permit coverage and be reviewed and updated every permit year thereafter, as needed. The intent of BMP #1 is for the permittee to describe how the listed tasks will be accomplished.*

1. For new permittees only, attach your written procedure for post-construction management to the first report.

2. If you are not a new permittee, did you complete and submit your written procedure for post-construction management to DEP? ☐ Yes ☐ No

If Yes, provide the latest submission date:

3. Date of last review or update of post-construction management procedure:

BMP #2: Require the implementation of a combination of structural and/or non-structural BMPs that are appropriate to the local community, that minimize water quality impacts, and that are designed to maintain pre-development runoff conditions. This requirement can be met by ensuring that the selected BMPs comply with the municipal Stormwater Management Ordinance that meets the requirements of the permit.

***Measurable Goal**: All qualifying development or redevelopment projects shall be reviewed to ensure that their post-construction stormwater management plans and selected BMPs conform to the applicable requirements. A tracking system (e.g., database, spreadsheet, or written list) shall be maintained to record qualifying projects and their associated BMPs. In your records, you shall note if there are no qualifying projects in a calendar year.*

1. Number of development or redevelopment projects in urbanized area during reporting period:

2. Describe the tracking system in place:

3. Describe the structural and/or non-structural BMPs that were required for these projects:

BMP #3: Ensure that controls are installed that shall prevent or minimize water quality impacts.

***Measurable Goal**: All qualifying development or redevelopment projects shall be inspected during the construction phase to ensure proper installation of the approved structural PCSM BMPs. A tracking system (e.g., database, spreadsheet, or written list) shall be implemented to track the inspections conducted and to track the results of the inspections (e.g., BMPs were, or were not, installed properly). Permittees not relying on DEP's statewide QLP to satisfy requirements under this BMP shall summarize construction inspections and results in periodic reports. See BMP #6 for requirements related to post-construction inspection and tracking of PCSM BMPs to ensure that the operation and maintenance plan is being implemented.*

If there were development or redevelopment projects during the reporting period, attach documentation of inspections of PCSM BMPs to this report.

BMP #4: The permittee shall enact, implement, and enforce an ordinance (municipal) or SOP or other regulatory mechanism (non-municipal) to address post-construction stormwater runoff from new development and redevelopment projects, as well as sanctions and penalties associated with non-compliance, to the extent allowable under State or local law.

***Measurable Goal**: Within the first year of coverage under this permit, new permittees shall enact and implement a stormwater management ordinance (municipal) or SOP (non-municipal) that meets the requirements of this General Permit.*

***Measurable Goal**: All permittees shall submit a letter signed by a municipal official, municipal engineer or the municipal solicitor as an attachment to their first periodic report certifying the enactment of a stormwater management ordinance that meets the requirements of this General Permit.*

1. Do you have an ordinance (or SOP) to address post-construction stormwater runoff from new and redevelopment projects and does it include sanctions? ☒ Yes ☐ No

   If Yes, indicate the date of the ordinance or SOP: **Last Updated 10-30-2014**

   For new permittees only, attach a copy of the ordinance or SOP.

2. If you are not a new permittee, has the ordinance (or SOP) been submitted to DEP with a letter from an official, engineer or solicitor that certifies the enactment of an ordinance or SOP for PCSM activities? ☒ Yes ☐ No

3. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☒ Yes ☐ No

BMP #5: Develop and implement measures to encourage and expand the use of Low Impact Development (LID) in new and redevelopment. Measures also should be included to encourage retrofitting LID into existing development. DEP's Pennsylvania Stormwater Best Management Practices Manual provides guidance on implementing LID practices.

***Measurable Goal**: In your inventory of development and redevelopment projects authorized for construction since March 10, 2003, that discharge stormwater to your regulated MS4s, indicate which projects incorporated LID practices and for each project list and track the BMPs that were used.*

***Measurable Goal**: Enact ordinances consistent with LID practices and repeal sections of ordinances that conflict with LID practices. Progress with enacting and updating your ordinances to enable the use of LID practices shall be summarized in the periodic reports.*

1. Identify ordinances enacted or updated during the reporting period to ensure consistency with LID practices:

   Ordinances Last Updated 10-30-14

BMP 6: Ensure adequate operation and maintenance of all post-construction stormwater management BMPs installed at all qualifying development or redevelopment projects (including those owned or operated by the permittee).

***Measurable Goal**: Within the first year of coverage under this permit, new permittees shall develop and implement a written inspection program to ensure that stormwater BMPs are properly operated and maintained. The program shall include sanctions and penalties for non-compliance. All permittees shall review and update the inspection program annually and shall continue to implement this BMP.*

***Measurable Goal**: An inventory of PCSM BMPs shall be developed by permittees and shall be continually updated during the term of coverage under the permit as development projects are reviewed, approved, and constructed. This inventory shall include all PCSM BMPs installed since March 10, 2003 that discharge directly or indirectly to your regulated small MS4s. The inventory also should include PCSM BMPs discharging to the regulated small MS4 system that may cause or contribute to violation of water quality standard. The inventory shall include:*

- *all PCSM BMPs that were installed to meet requirements in NPDES Permits for Stormwater Discharges Associated with Construction Activities approved since March 10, 2003;*
- *the exact location of the PCSM BMP (e.g., street address);*
- *information (e.g., name, address, phone number(s)) for BMP owner and entity responsible for BMP Operation and Maintenance (O&M), if different from BMP owner;*
- *the type of BMP and the year it was installed;*
- *maintenance required for the BMP type according to the Pennsylvania Stormwater BMP Manual or other manuals and resources;*
- *the actual inspection/maintenance activities for each BMP;*
- *an assessment by the permittee if proper operation and maintenance occurred during the year and if not, what actions the permittee has taken, or shall take, to address compliance with O&M requirements.*

1. For new permittees only, attach the written inspection program to ensure that stormwater BMPs are properly operated and maintained.

2. If you are not a new permittee, did you complete and submit your written inspection program to ensure that stormwater BMPs are properly operated and maintained to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **2006**

3. How do you ensure that stormwater BMPs are properly operated and maintained? Explain if you rely on means other than municipal inspections to ensure adequate O&M (consistent with your stormwater ordinance).
   All new projects must enact the Township's Operation and Maintenance Agreement which requires annual inspections by a qualified professional.

4. Date that inspection program was last reviewed or updated: **4/30/2015**

5. Total number of sites with PCSM BMPs installed as of the date of this report: **31 Sites in Twp, not all drain to MS4**

6. Total number of sites inspected during this reporting period: **NA**

7. Number of sites found to have PCSM BMP deficiencies: **NA**

8. Number of enforcement actions taken during this reporting period: **0**

MCM #6 – POLLUTION PREVENTION / GOOD HOUSEKEEPING

BMP #1: Identify and document all facilities and activities that are owned or operated by the permittee and have the potential for generating stormwater runoff to the regulated small MS4. This includes activities conducted by contractors for the permittee. Activities may include the following: street sweeping; snow removal/deicing; inlet/outfall cleaning; lawn/grounds care; general storm sewer system inspections and maintenance/repairs; park and open space maintenance; municipal building maintenance; new construction and land disturbances; right-of-way maintenance; vehicle operation, fueling, washing and maintenance; and material transfer operations, including leaf/yard debris pickup and disposal procedures. Facilities can include streets; roads; highways; parking lots and other large paved surfaces; maintenance and storage yards; waste transfer stations; parks; fleet or maintenance shops; wastewater treatment plants; stormwater conveyances (open and closed pipe); riparian buffers; and stormwater storage or treatment units (e.g., basins, infiltration/filtering structures, constructed wetlands, etc.).

***Measurable Goal**: By the end of the first year of permit coverage, new permittees shall identify and document all types of municipal operations, facilities and activities and land uses that may contribute to stormwater runoff within areas of municipal operations that discharge to the regulated small MS4. Renewal permittees should have completed this list during the previous permit term. For all permittees, this information shall be reviewed and updated each year of permit coverage, as needed. Part of this effort shall include maintaining a basic inventory of various municipal operations and facilities.*

1. Have you identified all facilities and activities owned and operated by the permitee that have the potential to generate stormwater runoff into the MS4? ☒ Yes ☐ No
2. When was the inventory last reviewed? **4/30/17**
3. When was it last updated? **4/30/17**
4. How many new facilities and/or activities were added to this inventory during this reporting period? **2**

BMP #2: Develop, implement and maintain a written operation and maintenance (O&M) program for all municipal operations and facilities that could contribute to the discharge of pollutants from the regulated small MS4s, as identified under BMP #1. This program (or programs) shall address municipally owned stormwater collection or conveyance systems, but could include other areas (as identified under BMP #1). The O&M program(s) should stress pollution prevention and good housekeeping measures, contain site-specific information, and address the following areas:

- **Management practices, policies, procedures, etc. shall be developed and implemented to reduce or prevent the discharge of pollutants to your regulated small MS4s. You should consider eliminating maintenance-area discharges from floor drains and other drains if they have the potential to discharge to storm sewers.**
- **Maintenance activities, maintenance schedules, and inspection procedures to reduce the potential for pollutants to reach your regulated small MS4s. You also should review your procedures for maintaining your stormwater BMPs.**
- **Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt / sand (anti-skid) storage locations and snow disposal areas.**
- **Procedures for the proper disposal of waste removed from your regulated small MS4s and your municipal operations, including dredge spoil, accumulated sediments, trash, household hazardous waste, used motor oil, and other debris.**

***Measurable Goal**: During the first year of permit coverage, new permittees shall develop and implement a written O&M program that complies with BMPs #1 and #2. Renewal permittees shall continue to implement their existing program. All permittees shall review the O&M program annually, edit as necessary, and continue to implement during every year of permit coverage.*

1. For new permittees only, attach the written O&M program to the first Annual Report.
2. If you are not a new permittee, did you complete and submit your written O&M program to DEP? ☒ Yes ☐ No

   If Yes, provide the latest submission date: **2006**
3. Date of last review or update to O&M program: **2006**

BMP #3: Develop and implement an employee training program that addresses appropriate topics to further the goal of preventing or reducing the discharge of pollutants from municipal operations to your regulated small MS4s. The program may be developed and implemented using guidance and training materials that are available from federal, state or local agencies, or other organizations. Any municipal employee or contractor shall receive training. This could include public works staff, building / zoning / code enforcement staff, engineering staff (on-site and contracted), administrative staff, elected officials, police and fire responders, volunteers, and contracted personnel. Training topics should include operation, inspection, maintenance and repair activities associated with any of the municipal operations / facilities identified under BMP #1. Training should cover all relevant parts of the permittee's overall stormwater management program that could affect municipal operations, such as illicit discharge detection and elimination, construction sites, and ordinance requirements.

***Measurable Goal**: During the first year of permit coverage, new permittees shall develop and implement a training program that identifies the training topics that will be covered, and what training methods and materials will be used. Renewal permittees shall continue to operate under their existing program. All permittees shall review the training program annually, edit it as necessary, and continue to implement it during every year of permit coverage.*

***Measurable Goal**: Your employee training shall occur at least annually (i.e., during each permit coverage year) and shall be fully documented in writing and reported in your periodic reports. Documentation shall include the date(s) of the training, the names of attendees, the topics covered, and the training presenter(s).*

1. For new permittees only, attach the written training program to the first Annual Report.
2. If you are not a new permittee, did you complete and submit your written training program to DEP? ☒ Yes ☐ No
   If Yes, provide the latest submission date: **2006**
3. Date of last review or update to training program: **5-22-06**
4. Identify the date(s) of employee training, the names of attendees, the topics covered, and the training presenters:
   NA, Township has only one part time roadmaster

BEST MANAGEMENT PRACTICES (BMPs)

Provide an assessment of the appropriateness of the BMPs implemented to date, and identify any steps that will be taken to address deficiencies in the BMPs or make changes to BMPs or other aspects of the SWMP developed by the permittee.

NA

MS4 TMDL Plan	Chesapeake Bay Pollutant Reduction Plan (CBPRP)
Is the permittee required to develop an MS4 TMDL Plan? ☐ Yes ☒ No	Is the permittee required to develop a CBPRP? ☐ Yes ☒ No
What is the status of the TMDL Design Details (if applicable)? ☐ Under Development (Due Date:) ☐ Submitted to DEP (Submission Date:) ☐ Approved by DEP (Approval Date:)	What is the status of the CBPRP (if applicable)? ☐ Under Development (Due Date:) ☐ Submitted to DEP (Submission Date:) ☐ Approved by DEP (Approval Date:)

For permittees with DEP-approved MS4 TMDL Plans and/or CBPRPs, describe progress with implementing BMPs and other activities identified in those plans:

NA

For permittees with DEP-approved MS4 TMDL Plans and/or CBPRPs, complete the section below. Identify the required pollutant reductions (for those with MS4 TMDL Plans) or pollutant reductions committed to by the permittee (for those with CBPRPs) and the cumulative reductions achieved through implementing the BMPs, as of the end of the reporting period:

NA

BMP INVENTORY

List all new structural BMPs installed and ongoing non-structural BMPs implemented in the urbanized area during the reporting period that are being used toward achieving load reductions in the permittee's MS4 TMDL Plan and/or CBPRP. Provide a name or description for each BMP, the area, in square feet (sf) that drains to each BMP (drainage area (DA)) (if applicable), the location of the BMP (latitude and longitude), the name of the water body that receives discharges from the BMP (if applicable), the date the BMP was installed or implemented, and whether the BMP was completed pursuant to an NPDES permit for stormwater associated with construction activities or other NPDES permit (check box if done under an NPDES permit).

BMP Name / Description	DA (sf)	Latitude	Longitude	Receiving Waters	Date Installed or Implemented	NPDES Permit?
NA		° ' "	° ' "			☐
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OTHER REQUIRED REPORT ELEMENTS

Identify the progress towards achieving the statutory requirements of reducing the discharge of pollutants to the Maximum Extent Practicable (MEP) and complying with water quality standards.

NA

Provide a summary of stormwater activities planned during the next reporting cycle (not identified previously in this report):

NA

Provide a summary of notices, intergovernmental agreements and other relevant documents if the permittee is relying on another governmental entity to satisfy any of its permit obligations

NA

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

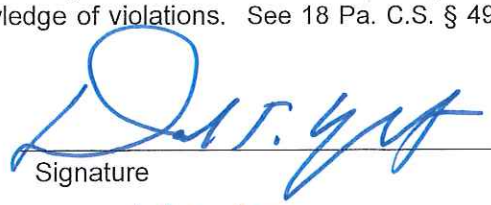
Township Engineer	
Name of Responsible Official	Signature
(610) 840-9167	6/19/17
Telephone No.	Date

EXHIBIT A

May 1, 2015 - May 1, 2017
CRC Joint MS4 Education and Outreach Municipal Program:
Year 13-14 Information for Annual Report
MCMs #1, #2 and # 6

MCM #1 A – Update Target Audience Information

- Expanded the resources for stormwater education on the Township Website www.charlestown.pa.us, now in its 11th year of development.
- Website offers subscription service to receive e-mail updates
- Updated the Township Mailing List to reach Target Audience
- Update monthly mailing list of new residents

MCM #1 B

Direct Mailing

- All building permit application packets and land development application packets include stormwater and construction industry BMP brochures.
- New residents receive a packet of information that includes:

  Stormwater Management for Small Projects – What a Homeowner Needs to Know
  the flyer "Don't Let Storm Water Run Off with Your Money and Our Community!"
  Info on the Household Hazardous Waste Program
  Car Washes & Your Stream
  Cars for Cleaner Creeks
  Green Guide to Clean Water for residents
  Citizen Water Quality Hotlines

- Residents received four newsletters each year that contain stormwater information.

Website Updates:

The Township Website has a separate page for the Stormwater Management, which explains the MS4 program and includes the following.

Numerous Website links include:

- US EPA Stormwater Program Overview
- DEP Southeast Regional Office

- Streamside Forests for Wildlife

Targeted Residential Outreach

- All New Residents receive an information packet including information on stormwater management, septic system facts, household hazardous waste collection, monthly stormwater planner

- Brochures & Flyers are made available in Permit packets, the Township Lobby and as handouts at Township meetings as appropriate, including the following:

    - Approval to Build is Only the Beginning
    - Pool Water Discharge
    - Updated Water Quality Hotlines

Targeted Commercial Outreach

- Good Housekeeping for Restaurants and Food Service Establishments

Newsletter Articles

- Community Shredding Event 2016
- 2016 Household Hazardous Waste Events Schedule
- Earth Day Event Scheduled for April 16, 2016
- Devault Area Gateway Improvements
- 2017 Household Hazardous Waste Events Schedule
- The Right Tree in the Right Place
- Adopt & Beautify Program in Devault
- Free Tree!
- Clean Your Corner
- Alternatives to Salt for Treating Icy Sidewalks & Driveways
- Eart Day Event Scheduled for April 22, 2017
- Devault Basin Landscaping
  Organic Community Gardening at Brightside Farm Park

Public Participation

1. Earth Day Roadside & Streamside Cleanup April 16, 2016 – approximately 75 residents participated, collecting over 300 bags of trash and discarded larger items from the roadsides and stream banks including 12 tires, a keg, and a large screen TV.

2. Earth Day Roadside & Streamside Cleanup April 22, 2017 – approximately 100 residents participating, collecting two pick up truchs work of trash and discarded larger items.

3. Presentation-Riparian Buffer Ordinances - Mr. Theurkauf of Theurkauf & Associates and Vicki Laubach with Green Valleys Watershed Association presented information on:

    - helping farmers preserve buffers without losing land
    - chemical and biological thresholds

12/16/16 clean inlets – Bodine Road
1/19/17 inlet repair on Crestview, Raven Hill and Buckwalter Roads, Sawgrass Lane
1/26/17 –
1/27/17 Repair inlets Wyndham Lane
3/9/17 Repair berm & curbs on Maryhill, Ravenhill, Rees and Howell Roads

Inlet & Culvert Repairs

10/8 –
10/9/15 Inlet Repairs – Somerset Development
10/12 –
10/22/15 Inlet Repairs at Crown Oak and Wyndham Drives
9/3/15 Repairs to soil & erosion controls on shoulders – Wells Road
12/14 –
12/16/15 Remove and rebuild new inlets on Crown Oak and Wyndham
3/10/16 top soil &seed shoulders of Wells, Yellow Springs for soil erosion control
3/16/16 top soil & seed and blanket shoulders of Wells, Blackberry areas
5/3/16 Excavate pipe end and swale, raise pipe to remove water from inlet on Township Line Road
5/13/16 Repair cross pipe on Academic Way, add soil and seed
10/18/16 –
10/25/16 Repair damaged curb on Spring Meadow Lane
11/1/16 – 12/8/16 inlet repair and concrete curb replacement in Whitehorse @ Charlestown Development
1/12/17 –
1/20/17 inlet repairs at Whitehorse @ Charlestown development

Special Projects

9/3/15 tree removal from Wells Road
6/13/16 Install 6' pipe around Charlestown Mill to raceway

Snow Removal

12/3/15 stockpile salt
12/4/15 mix salt & anti-skid
12/7/15 mix salt & anti-skid
12/17/16 Snow & Ice removal
1/6/17 Snow & Ice removal
1/7/17 Snow & Ice removal
2/9/17 Snow & Ice removal
2/10/17 Snow & Ice removal
3/10/17 Snow & Ice removal
4/14/17 Snow & Ice removal
4/15/17 Snow & Ice removal
4/16/17 Snow & Ice removal

Linda Csete

From: "CRC Watersheds Association" <info@crcwatersheds.org>
Date: Tuesday, February 28, 2017 3:13 PM
To: <admin1@charlestown.pa.us>
Subject: Update on MS4 Program

crc Watersheds Association
Chester • Ridley • Crum

As many of you know, CRC has been in the process of revising our program focus to align with the needs of our community and our municipal partners based on our available resources and Board passions. We are known for our "get your hands dirty" programs that highlight stream cleanups and tree plantings - and that will not change. The demand for these programs is stronger than ever. However, the demand for our educational support to our municipal partners related to their MS4 permits has waned in recent years as much of the information that has been provided can be recycled and reused without compromising the integrity of individual programs.

CRC is therefore looking to support our municipal partners in their efforts to develop and implement Pollution Reduction Plans (PRPs) under the new requirements of the General Stormwater Permit being authorized by Pennsylvania DEP. We will still provide information to our municipal sponsors related to our Annual CRC Streams Cleanup, listing amounts of trash removed and number of volunteers contributing to the effort at each locale. However, we intend to expand our tree planting (and maintenance) programs to support sediment reduction efforts incorporated in individual PRPs. To this point, **CRC will work with municipalities and other organizations to plan and implement local and regional tree planting programs, leveraging local, state, and private funds for the benefit of the Chester, Ridley and Crum Creek waterways and riparian corridors through the reduction of sediment loads and streambank erosion.**

CRC's efforts to expand our tree planting program which is intended to augment local stormwater PRPs is in its infancy. However, we will be reaching out to each of you as a past collaborator to determine how we can best support and enhance your local planning and implementation programs related to the new permit requirements.

Thank you for your support and patience. We look forward to talking with each of you in the coming months.

Tracy Bouvette, CRC Board President

CRC Watersheds Assoc. | 610.359.1440 | info@crcwatersheds.org | www.crcwatersheds.org

Like us on Facebook

Chester Ridley Crum Watersheds Association, P.O. Box 227, Gradyville, PA 19039

ANNUAL MS-4 (MUNICIPAL SEPARATE STORM SEWER SYSTEM)

ENGINEER'S REPORT FOR 14TH YEAR

CHARLESTOWN TOWNSHIP

I am here to provide an overview of the MS4 (Municipal Separate Storm System Engineer's Report for the 13th year. As you know we received an NPDES (National Pollutant Discharge Elimination System) Permit in year 2003 and submitted a renewal for the Permit in 2012. The current version of the permit became effective on May 1, 2014 and expires on April 30, 2019. The current version contains modifications to the previous permit. These modifications consist of:

- Reports are to be submitted in the first, third, and fifth year instead of annually. The reporting periods are through May 1, 2015, May 1, 2017, and Jan 30, 2019 (part of the renewal of the permit).

  A new version of the forms has been created that require additional information on the six protocols included in the Permit.

The PA D.E.P. outlined six (6) protocols which were to be followed to meet its compliance:

The **DEP protocols** are:

MCM #1 – Public education and outreach on stormwater impacts

MCM #2 – Public involvement/participation

MCM #3 – Illicit discharge detection and elimination (IDD&E)

MCM #4 – Construction site stormwater runoff control

MCM #5 – Post-construction stormwater management in new development and re-development

MCM #6 – Pollution prevention/good housekeeping for municipal operations

We received comments from D.E.P. for Years 9 and 10 dated March 31, 2014 which suggests that we continue to improve how we implement their protocol but have not received any new comments since then.

Linda Csete continues to improve the education and public participation elements (MCM #1 and MCM #2) of the program. She is working with the Chester-Crum Creek (CRC) Watershed Association which assists the Township with the Public Education and Public Participation requirements. Some suggested comments offered by D.E.P. will be incorporated in the next year's report.

- **Illicit Discharge Detention and Elimination (IDD&E) (MCM #3)** is being implemented by the Township Engineer.

  PADEP has not provided us with a review of our Year 11 report. The most recent review performed by PADEP was of the Year 9 and 10 Reports that was issued in March 2014. We clarified with the submission of the Year 11 Annual Report a majority of the items in that review.

  Multiple waterways within the Township have been classified as "Approved Streams Integrated List Non Attain". This means that PADEP has performed a field analysis of the streams and found that the streams are not meeting their water classification in one of four areas: Aquatic Life, Fish Consumption, Recreational Use, or Potable Water Supply. Pigeon Run is impaired for pathogens; Pine Creek is impaired for causes unknown; Schuylkill River is impaired for PCB's; Valley Creek (Schuylkill) is impaired for PCB's, pathogens, siltation, water/flow variability, other habitat alterations; Valley Creek (Brandywine) is impaired for water/flow variability, siltation, and PCB's; Pickering Creek is impaired for water/flow variability; and French Creek is impaired for pathogens. The Township is responsible under the MS4 Program to update our MS4 Map to show which of the Township's outfalls drain to these streams. An updated copy of the MS4 Map will be submitted with the 2017 Report. We also need to ensure that new discharges from our MS4 system will not cause or contribute to the impairment of these streams. This is performed during our review process of all Subdivision and Land Development submissions and all Grading and Erosion and Sedimentation Control Permits. **We recommend these requirements be added to the Stormwater Management Ordinance to ensure any new development within the Township complies with these requirements.**

  The Township's updated MS4 Map now includes the location of roadside swales and curblines of all Township maintained roads. We have updated our mapping to remove all outfalls that are associated with PennDOT property and private property since the Township is only required to operate and maintain outfalls that are located on Township property or

have Township property draining to them. This has reduced the number of outfalls the Township is responsible for.

We continue to implement our Stormwater Management Ordinance which prohibits the discharge of non-stormwater into the Township storm sewer system. The Township's Stormwater Management Ordinance was previously revised to comply with the Chester County Act 167.

The Township has IDD&E education information available in their lobby for residents and contractors. DEP requested that the Township distribute IDD&E education information to make the target audiences aware of different types of illicit discharges and connections, how to avoid them, and what to do if they are observed.

- **Construction Site Stormwater Runoff Control (MCM #4)** Although plans are reviewed by the Township Engineer's office for compliance with the Township Ordinances, we are now allowed to rely on PADEP's review of the NPDES Permit for Construction Activities Permit for compliance with this item. All projects with greater than one acre of disturbance are required to obtain an NPDES Permit. This simplifies the annual reporting and record keeping of the Township with regard to the Township's MS4 Permit.

- **Post-construction Stormwater Management in New Development and Re-development (MCM #5)** is implemented during and after construction. We are now allowed to rely on PADEP's review of the NPDES Permit for Construction Activities Permit for compliance with most requirements of this item. However, we still need to enforce our compliant stormwater management ordinance, develop and implement measure to encourage Low Impact Development, and enforce operation and maintenance of Post Construction Stormwater Management BMP's.

  We have created an inventory data list for all projects which are completed to follow-up the Operations and Maintenance (O&M) responsibilities. This list will be updated as needed to keep it current. Since As-built Plans are required for all completed projects, we intend to utilize these plans to update the Township's inventory of stormwater management BMP's.

  The Stormwater Management Ordinance was previously updated to comply with the Chester County Act 167. The Ordinance requires additional during construction and post-construction responsibilities to be performed by the lot owners. These responsibilities will be enforced by the Township.

- **Pollution Prevention/Good Housekeeping for Municipal Operations (MCM #6)** is updated as necessary and follow-up is continued by our Roadmaster.

In October 2016, Randy Patry of our office attended an MS4 Workshop to learn about the upcoming new requirements that will be required for our next permit that will begin in 2019. We will need to submit the application package by the end of January 2019.

The new permit will require the delineation of the drainage area to each storm sewer system controlled by the Township within the urbanized area that is located within a watershed impaired for siltation or nutrient impairment. This will affect the southern portion of the Township that drains to both Valley Creeks since they are impaired for siltation.

We will then need to model the siltation loading for the areas modeled in the comment above and provide water quality BMP's that will reduce the amount of siltation by 10 percent.

Charlestown Township
Board of Supervisors Business Meeting
Minutes of May 1, 2017

The first business meeting for May was held May 1, 2017 at the Great Valley Middle School in the Choral Room, #154, 255 N. Phoenixville Pike, in Malvern, PA.

Present

Supervisors: Frank A. Piliero, Chairman, Charles A. Philips, Vice Chairman, Kevin R. Kuhn, Michael J. Rodgers, and Hugh D. Willig.

Consultants: Mark P. Thompson, Esq. and Daniel Wright, P.E.

Staff: Linda Csete, Manager, Jim Thompson, Public Works, Tim Hubbard, Fire Marshal, and Lisa Gardner, Recording Secretary.

Public: See attached list

Call to Order: 7:00 p.m.

Announcements

Mrs. Csete made three announcements.

The Board of Supervisors held an Executive Session on April 3, following the business meeting, and before tonight's May 1st meeting, to discuss legal matters.

The 12th Annual Earth Day Event on Saturday had a great turnout, with both individual residents and groups including the Planning Commission, Trout Unlimited, two scout troops, and the Great Valley Mountain Bike Team turning out to help clean up our roads, parks and stream sides.

PA State Representative Duane Milne's Annual Recycling and Shredding Event is taking place at Great Valley Penn State Campus this Saturday from 9 am to noon.

Citizens Forum

Lieutenant Donahue of the PA State Police introduced himself as the new commander of the Embreeville Barracks. He reported two recent unrelated burglaries, with most calls due to automobile accidents or false alarms.

Members from the Pickering Crossing Development were in attendance to obtain the Township's answers to 5 questions stemming from the neighboring Allan Myers Devault Asphalt Plant. Mr. Robertson and Mr. Wattamwar wished to discuss the following:

1. There has been no action since their initial questions in the spring of 2016.
2. There has been no action on the decibel readings, higher than the Zoning Ordinance allows, that have been reported to Mr. Wright.
3. There has been no Township response to the higher level of output, and therefore noise, that takes place when the plant goes into a high production cycle.

Reports

Mr. Kuhn had one request. He asked Mr. Hubbard to check on a brief beep from the Limerick siren that sounded instead of the usual longer siren.

Mr. Kuhn moved to accept the April 2017 reports #1-13 as submitted and Mr. Philips seconded. Mr. Piliero called for discussion, and there being none, called the vote. All were in favor.

Hearing

Andersen Conditional Use Application

Mr. Thompson opened the hearing; the proceedings were taken by Mr. Mark Hagerty, Court Reporter. The Andersens wish to obtain a Conditional Use at 23 Eastwick Drive. Mr. MacKay told the Board that the Andersens want to remove an existing driveway that only goes to their home, and construct a new driveway that serves the barn and home. The new driveway would be within 2 feet of high ground water elevation (Section 1104.2.B.1). This is the reason for the Conditional Use hearing. The Andersens also own an adjacent lot. It is a smaller parcel (2.23 acres) that is not developed and does not have a driveway access.

Mr. Thompson entered the following exhibits:

B1-Application #CU-17-01
B2-Public Notice
B-3 Proof of Publication

Proof of Notification to the surrounding neighbors within 250 feet in attendance was to be Exhibit B4, however Mr. Andersen did not have these required documents.

Therefore, the hearing was continued to June 5, 2017 at 7:00 p.m. at the Great Valley Middle School, 255 N. Phoenixville Pike, Malvern, PA, Room 154.

Old Business - none

New Business

Charlestown Day Update

Mrs. Csete announced that September 16th is the next Charlestown Day. Mrs. Schlichter will update Supervisors in June or July.

Appointment to Design Review Committee

Mr. Thompson verified that Mr. Comitta could not be the Planning Commission member for the HARB Committee. Mr. Willig and Mr. Kuhn both attempted to discuss the HARB's meeting time, being somewhat difficult to attend at a 4pm time slot. Mr. Philips said that the time of the meeting would not change.

Since Mr. Allen will no longer serve on the Design Review Committee, Mr. Richter, from the Planning Commission, volunteered to be the representative on the DRC. Mr. Kuhn moved to appoint

Discussion: Speed Humps for Benburb and Marian Roads

The Roadmaster discussed the possible need for Benburb Road speed humps. He has posted "Children at Play" signs and has exhausted ways for slowing or reducing traffic near the intersection of Charlestown and Coldstream Roads.

Mrs. Csete said that specific procedures must be followed if speed humps are constructed to ensure the roads are still eligible for state Liquid Fuel Funds. Mr. Rodgers suggested portable speed humps.

The Roadmaster's first step is to contact PennDOT and request that they lift the curb at the intersection of Charlestown and Coldstream Roads in front of the former Stables Bar. This may reduce the number of motorists using Benburb Road as a shortcut so speed humps would be unnecessary. Hopefully this will begin a dialogue to improve the conditions near Benburb, Coldstream, and Charlestown Roads.

Approve Updated Historical Resources Map

Mr. Philips said he and Mrs. Rosemary Philips worked with Mr. Comitta to provide 5 updates for the Historic Resources Map. It is an appendix to the Historic Resources Protection Ordinance and has to be approved by the Board when there are changes.

1. A pink dot has been added to the Legend, to signify Demolished Structures. Sites 9, 63, 68, and 70 have been converted from green to pink.
2. Previous site R-7, noting Historic Building Ruins, has been removed.
3. Site number 87A has been added in green, and site 87 has moved slightly to the north.
4. Site number 153 has been added in green, in Charlestown Village.
5. The lot enveloping sites 147 and 153 has been added.

Mr. Kuhn moved to approve the amended Historic Resources Map dated April 28, 2017, and Mr. Philips seconded. Mr. Piliero called for discussion and there being none, called the vote. All were in favor. Mr. Thompson will confirm whether a zoning ordinance amendment is needed since the map is an appendix to the historic resources protection ordinance.

Review Bid Specs for Charlestown Mill Lighting Fixtures

Mr. Philips referred to the Lighting Fixture Specs dated March 2017 provided by Interpretive Solutions to be used in preparing the bid package for the Mill lighting project.

Mr. Kuhn moved to accept the bid specs for use in preparing the bid package for the Charlestown Mill lighting project, and authorized advertising. Mr. Rodgers seconded. Mr. Piliero called for discussion, and there being none, called the vote. All were in favor.

Open Bids – 2017 Road Paving Project

The following bids were received by the Township Office for the 2017 Road Paving Project.

Charlestown Paving & Excavating Inc.	$197,423.80
Cedar Springs Construction Co.	$161,174.00
Innovative Construction Services, Inc.	$174,439.00

Lisa K. Gardner
Recording Secretary

CHARLESTOWN TOWNSHIP

MEETING OF Board of Supervisors

DATE May 1, 2017

ATTENDANCE: Please sign in legibly

Name:	Address or Company Name:	Phone #	Email:
Paul + Alexis McCarthy	524 Church Rd	6109335599	alexismccarthy@comcast.net
Fred + Diane Loss	554 Church Rd	6109358646	fredloss@comcast.net
Greg Nardi	3161 Blackberry Lane	610 709 7470	gregnardi77@gmail.com
Brett MacKay	Chester Valley Engr	610-644-4623 x 122	
PARITOSH WATTAMWAR	133 Shilling Ave	312-401-6953	paritosh.wattamwar@gmail.com
Jesse Rebenstar	124 Shilling Ave	484-883-4477	JesseRebenstar@me.com
Eric & Amanda Joos	26 Tiptonbrook Lane	610 935-5865	EJoos@Joosequipment.com Mandy Sueper@aol.com
Robert O'Connor Florianne Burns	558 Church Rd		
Robert Cottone	30 Eastwick Dr.		
Donald Andersen			
Fred Gwynn (sp?)			

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1788	
Today's date: 6/1/16		Time (Military): 12:36	
Investigators:		Form completed by: J. McNeil	
Temperature (°F): 85°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☑ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 48" & 18"	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☒ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 191	
Today's date: 6/1/16		Time (Military): 1300	
Investigators:		Form completed by: J. McNeil	
Temperature (°F): 85	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 18in	In Water: ☐ No ☑ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1908	
Today's date: 6/1/16		Time (Military): 13:05	
Investigators:		Form completed by: J. McNeil	
Temperature (°F): 85	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ **Closed Pipe**	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 54 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1878	
Today's date: 6/1/16		Time (Military): 13:20	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 86°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 24 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	187
Today's date:	6/1/16	Time (Military):	13:30
Investigators:	J. McNeil	Form completed by:	J. McNeil
Temperature (°F):	86°	Rainfall (in.): Last 24 hours:	0 Last 48 hours: 0
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 42 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1729	
Today's date: 6/1/16		Time (Military): 13:40	
Investigators: ~~[illegible]~~		Form completed by: J. Hastings	
Temperature (°F): 86	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	~~1743~~ 1743
Today's date: 6/1/16		Time (Military): 1350	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 86°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1763	
Today's date: 6/1/16		Time (Military): 14:00	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 86°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☒ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: 36"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☒ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1776 a.	
Today's date: 6/1/16		Time (Military): 14:00	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 87°	Rainfall (in.): Last 24 hours: ø	Last 48 hours: ø	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☒ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: 18 in	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☒ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1769a.	
Today's date: 6/1/16		Time (Military): 14:05	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 87°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 16"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1770	
Today's date: 6/1/16		Time (Military): 1410	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 87	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 30 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1794 a.	
Today's date: 6/1/16		Time (Military): 12:30	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 85°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☒ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: 24 in	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 1807	
Today's date: 6/1/16		Time (Military): 14:30	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 86°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☑ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 52 x 32 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☐ No ☑ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☑ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☑ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: ST 1698	
Today's date: 6/1/16		Time (Military): 14:30	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 86°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☑ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ **Closed Pipe**	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☐ No ☑ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 2173	
Today's date: 6/2/16		Time (Military): 8:50	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 69°	Rainfall (in.): Last 24 hours: ø	Last 48 hours: ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 18 in	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 7228	
Today's date: 6/2/16		Time (Military): 9:10	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 70°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☑ Closed Pipe	☐ RCP ☑ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☑ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☑ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 42 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☑ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: ST 2341	
Today's date: 6/2/16		Time (Military): 9:30	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 76°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 18 in	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST2460	
Today's date: 6/2/16		Time (Military): 9:50	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 71°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 12 in	In Water: ☐ No ☑ Partially ☐ Fully With Sediment: ☐ No ☑ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST2522	
Today's date: 6/2/16		Time (Military): 10:06	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 71°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☒ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 48" AND 16"?	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☒ Yes ☐ No *If No, Skip to Section 5*			* small pipe only	
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: 2432	
Today's date: 6/2/16		Time (Military): 10:45	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 71°	Rainfall (in.): Last 24 hours: ø	Last 48 hours: ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 24 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST2A	
Today's date: 6/2/16		Time (Military): 11:20	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 72°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

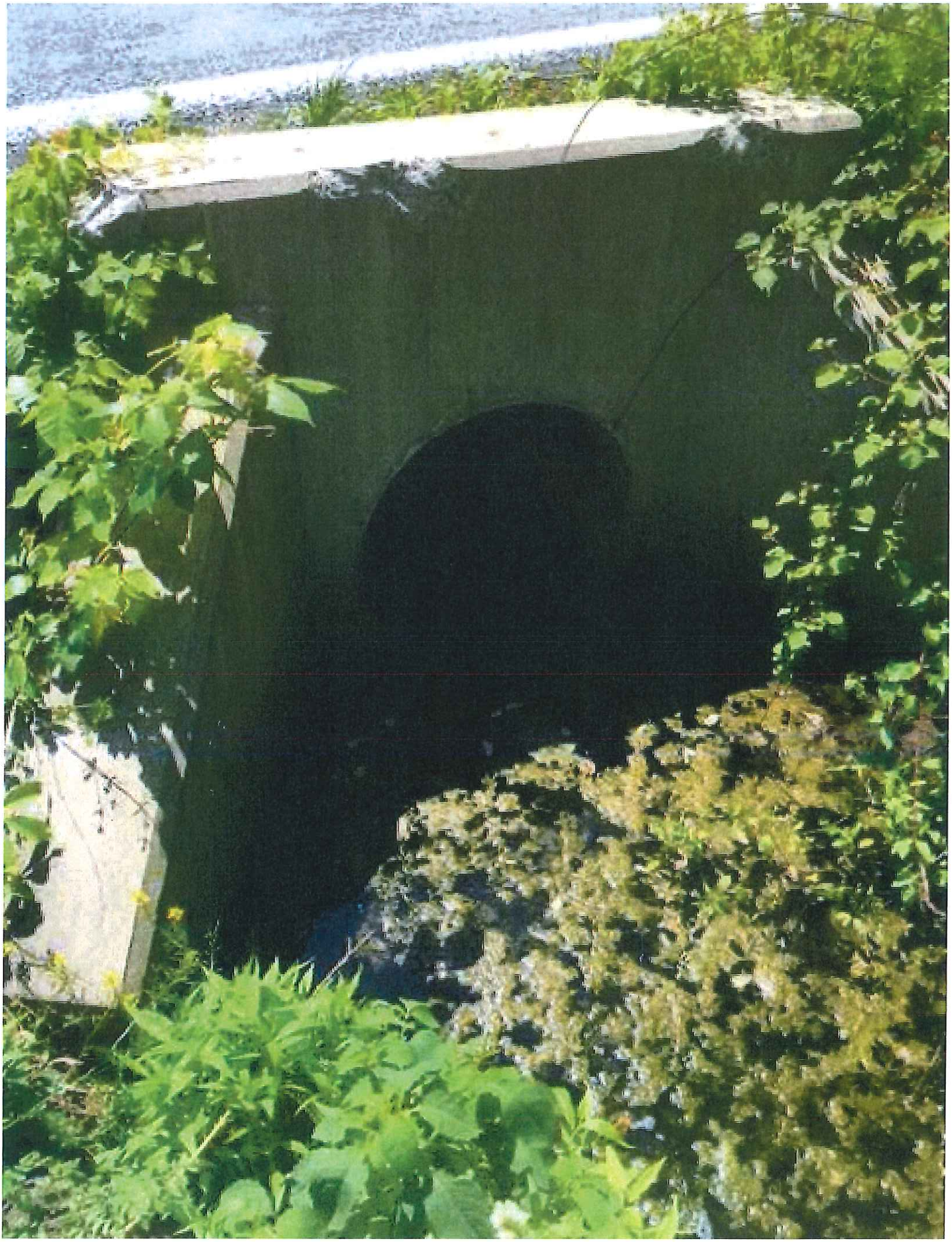
Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☒ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: 30 in	In Water: ☐ No ☑ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No	*If No, Skip to Section 5*			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip



Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST4A	
Today's date: 6/2/16		Time (Military): 11:50	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 74°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☒ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 24 in x 16 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: ST6A	
Today's date: 6/2/16		Time (Military): 12:00	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 74°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☒ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 20 in x 14 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1092	
Today's date: 6/2/16		Time (Military): 12:45	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 76°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____	☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____		Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1048	
Today's date: 6/2/16		Time (Military): 12:55	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 76°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____ / ☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 16 in	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☑ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____	Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)			
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial			

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 1035	
Today's date: 6/2/16		Time (Military): 1305	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 76°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: 6	
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 24 in	In Water: ☑ No ☐ Partially ☐ Fully With Sediment: ☐ No ☑ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: ST56	
Today's date: 6/8/16		Time (Military):	
Investigators:		Form completed by: 08:35	
Temperature (°F): 61°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 16"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 361	
Today's date: 6/8/16		Time (Military): 0915	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 61°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____ * can not be measured, pipe is burried	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☒ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	ST301
Today's date:	6/8/16	Time (Military):	0925
Investigators:	J. McNeil	Form completed by:	J. McNeil
Temperature (°F):	61°	Rainfall (in.): Last 24 hours:	0 Last 48 hours: 0
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 16"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 3453	
Today's date: 6/8/16		Time (Military): 1020	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 66°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☒ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☒ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 48"	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 3393	
Today's date: 6/8/16		Time (Military): 1030	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☒ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36"	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☒ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST3229	
Today's date: 6/8/16		Time (Military): 1050	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 66°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☒ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36"	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST842	
Today's date: 6/13/16		Time (Military): 0820	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 62°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☒ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☒ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 16"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST3513	
Today's date: 6/13/16		Time (Military): 0845	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 62	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- [x] Industrial
- [ ] Ultra-Urban Residential
- [ ] Suburban Residential
- [ ] Commercial
- [ ] Open Space
- [ ] Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
[x] Closed Pipe	[ ] RCP [x] CMP [ ] PVC [ ] HDPE [ ] Steel [ ] Other: _____	[x] Circular [ ] Eliptical [ ] Box [ ] Other: _____	[x] Single [ ] Double [ ] Triple [ ] Other: _____	Diameter/Dimensions: 36"	In Water: [x] No [ ] Partially [ ] Fully With Sediment: [x] No [ ] Partially [ ] Fully
[ ] Open drainage	[ ] Concrete [ ] Earthen [ ] rip-rap [ ] Other: _____	[ ] Trapezoid [ ] Parabolic [ ] Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
[ ] In-Stream	(applicable when collecting samples)				
Flow Present?	[x] Yes [ ] No *If No, Skip to Section 5*				
Flow Description (If present)	[ ] Trickle [x] Moderate [ ] Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
[ ] Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
[ ] Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID: ST3331	
Today's date: 6/13/16		Time (Military): 0930	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 64°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☒ Industrial
- ☐ Ultra-Urban Residential
- ☐ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

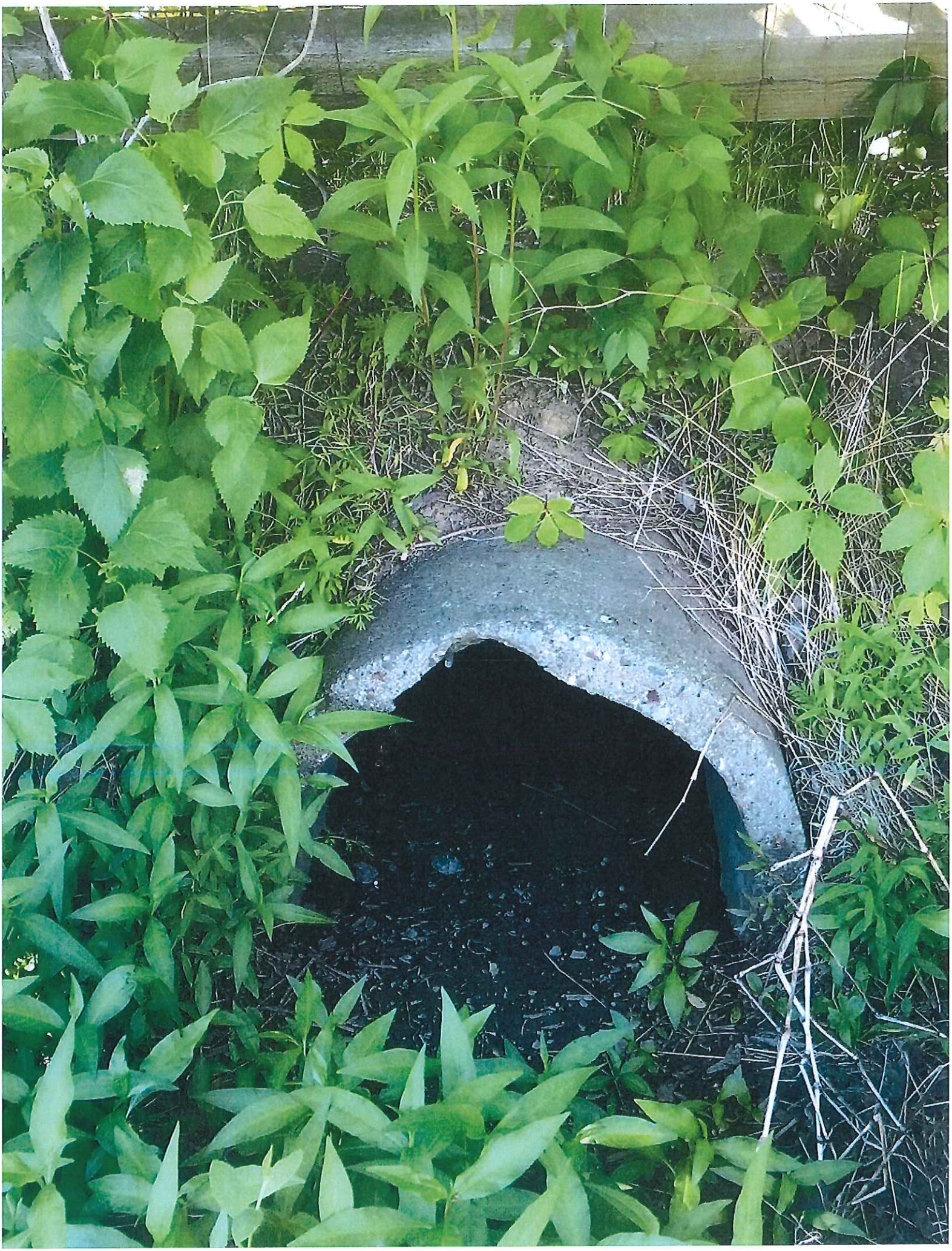
Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 18"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip



Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	ST537
Today's date:	6/13/16	Time (Military):	1005
Investigators:	J. McNeil	Form completed by:	J. McNeil
Temperature (°F):	65°	Rainfall (in.): Last 24 hours:	0 Last 48 hours: 0
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36"	In Water: ☐ No ☒ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST421	
Today's date: 6/13/16		Time (Military): 1020	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 65°	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 24"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☒ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	ST 392
Today's date:	6/13/16	Time (Military):	1040
Investigators:	J. M. Nel	Form completed by:	J. McNeil
Temperature (°F):	65°	Rainfall (in.): Last 24 hours:	0 Last 48 hours: 0
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☒ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☒ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 36" AND 30"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☒ Yes ☐ No *If No, Skip to Section 5*			BOTH PIPES	
Flow Description (If present)	☒ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: 561	
Today's date: 6/13/16		Time (Military): 1045	
Investigators: J. McNeil		Form completed by: J. McNeil	
Temperature (°F): 67°	Rainfall (in.): Last 24 hours: 0	Last 48 hours: 0	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☒ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____ * unmeasurable	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☒ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID: ST331	
Today's date:		Time (Military): 1100	
Investigators: J. M. Neil		Form completed by: J. M. Neil	
Temperature (°F): 66°	Rainfall (in.): Last 24 hours: Ø	Last 48 hours: Ø	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

- ☐ Industrial
- ☐ Ultra-Urban Residential
- ☒ Suburban Residential
- ☐ Commercial
- ☐ Open Space
- ☐ Institutional
- Other: _____
- Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☒ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☒ HDPE ☐ Steel ☐ Other: _____	☒ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☒ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: 18"	In Water: ☒ No ☐ Partially ☐ Fully With Sediment: ☒ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☒ No	*If No, Skip to Section 5*			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐ Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐ Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:	
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Ultra-Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Ultra-Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitutde:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Ultra-Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ In-Stream	(applicable when collecting samples)				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Reconnaissance Inventory/ Sample Collection Field Sheet

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Ultra-Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE	DIMENSIONS (IN.)	SUBMERGED
☐ Closed Pipe	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: ____ / ☐ Single ☐ Double ☐ Triple ☐ Other: ____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ Open drainage	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: ____	☐ Trapezoid ☐ Parabolic ☐ Other: ____	Depth: ____ Top Width: ____ Bottom Width: ____	
☐ In-Stream	(applicable when collecting samples)			
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*			
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial			

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		RESULT	UNIT	EQUIPMENT
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip