Stormwater Management Plan (SWMP)
City of North Augusta

Small MS4 Permit #SCR030304

Updated: April 2022

(Incorporates requirements of the small MS4 NPDES Permit issued Jan. 2014)

City of North Augusta SWMD General Information

Government:

Type: Municipal	City of North Augusta P. O. Box 6400 North Augusta, SC 29861-6400 http://www.northaugustasc.gov
Responsible elected official: Contact info:	Mayor Britton Williams Phone: (803) 441-4202 email: bwilliams@northaugustasc.gov
Demographics: Population:	 21,348 according to the US Census Bureau 2010 Census
Land Area:	21.979 Square Miles (14,066.88 ac^2)
Significant Local Waters:	Savannah River Horse Creek Little Horse Creek Fox Creek Mims Branch Storm Branch Pole Branch

Stormwater Contacts:

Principal:	Tanya Strickland
	Stormwater Superintendent Stormwater Management Phone: (803) 441-4246 Fax: (803) 441-4208 Email: tstrickland@northaugustasc.gov
Secondary Contact:	Michaela Canady
	Environmental Technician Phone: (803) 442-5711 Fax: (803) 441-4208 Email:Mcanady@northaugustasc.gov

Engineering Director:	Thomas C. Zeaser, P.E.
	Director of Engineering & Public Works Phone: (803) 442-5700 Fax: (803) 441-4232 Email: tzeaser@northaugustasc.gov

Stormwater Team:

Principal:	Tanya Strickland, CEPSCI & CSWPR Stormwater Superintendent Stormwater Management Phone: (803) 441-4246 Fax: (803) 441-4208 Email: tstrickland@northaugustasc.gov
Secondary Contact:	Michaela Canady, CEPSCI & CSWPR Environmental Technician Stormwater Management Phone: (803) 442-5711 Fax: (803) 441-4208 Email: mcanady@northaugustasc.gov

Engineering Director (authorized signatory):	Thomas C. Zeaser, P.E. Director of Engineering & Public Works Phone: (803) 442-5700 Fax: (803) 441-4208 Email: tzeaser@northaugustasc.gov

Engineering	Brian Malek, Engineer CSWPR/CEPSCI
Field Staff:	Thomas Meteraud, CEPSCI – Construction Site Inspector
Field Staff:	Michaela Canady, CEPSCI Environmental Tech (E&O, PP, Construction, Post Construction) & Jonah Baynham, Ind Lot Inspector
Field Staff:	Jonathan Morgan, Vehicle Operator 1 (SW Maint)
Field Staff:	Bill Fokes, Heavy Equip Operator, CEPSCI, (SW Maint)
Field Staff:	Lamar Harvey, – Foreman Field Operations (SW Maint)
Field Staff:	Streets & Drains Crew of 8 (2 Foremen, 2 HEO, 4 Laborers)

Engineering director and staff help to conduct stormwater plan reviews and construction oversight for new development and re-development.

All field staff conduct the daily outdoor operations of the department and illicit discharge detection and elimination activities and city facility O&M. This includes stormwater infrastructure assessments, maintenance and repairs.

All construction site and post construction site inspections are conducted by the site inspectors (CEPSCI certified inspectors) for the department.

Education and outreach and public participation is a staff wide endeavor with the environmental technician and superintendent managing the activities.

Streets & drains crews also work on stormwater infrastructure, maintenance and repairs as well as construction of new stormwater infrastructure. Staff and superintendent are CEPSCI certified.

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Overview of the NA Stormwater Management Program

The City has worked diligently to initiate, develop, and implement regulations, strategies, and procedures that meet all of the requirements and regulations of its National Pollutant Discharge Elimination System (NPDES) for Stormwater Discharges from Regulated Small Municipal Separate Storm Sewer Systems (small MS4s) permit number **SCR030304. See Appendix A, for the City's BMP** Implementation Plan and Appendix B, for its Implementation Status Table.

The City has adopted three ordinances approved by the City Council to enhance our efforts to protect the waters located within our boundaries. The City is delegated by the South Carolina Department of Health and Environmental Control (SCDHEC) to conduct plan reviews, issue permits, conduct inspections, and initiate enforcement actions regarding development and construction in North Augusta. In addition to the regulatory implementation of the program, a comprehensive education and outreach element is established both externally in the community and internally with city staff.

Note: When creating ordinances to meet any requirement of the NPDES SCR10000 or SCR30000, make sure to only ***reference the permits*** **in the ordinance. (Example: "must meet standards or requirements of** NPDES SCR10000"...). *Do not specify the standards required* ***in city ordinances*** *from state or federal permits, since the permits are amended or reissued with changes every 5 years.*

Funding Sources: The City implemented a "Stormwater Management Service Fee" that is included in monthly utility bills. An Equivalent Residential Unit (ERU) structure is used to set the fee for private residences and businesses. The Stormwater Program is adequately funded (Budget Appendix E).

To enhance the SWMD program further and to meet regulatory guidelines, mapping of the storm sewer system is near completion at 95% for the City. A comprehensive approach is being used to allow City personnel to conduct detailed engineering analysis for the design of storm drainage improvements in the future. The maps and analysis capability of the software program used, will allow for quick illicit discharge tracking. The program will also be used for pollution prevention and long range planning. The data generated during the mapping process will also be used to determine blockages and a program has been implemented to clear and clean all storm sewers on a routine basis.

CERTIFICATION OF SWMP: *The City certifies that it has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in its small MS4 permit, SCR30304. The details and information within this stormwater management plan (SWMP) describes the required elements in detail. The SWMP includes identification of all departments and staff (with contact information) that conduct stormwater related activities, identification of the local administrative and legal procedures and ordinances available to mandate compliance with the conditions of the permit (Ordinances, Appendix B, C, & D), describes stormwater related ordinances and how they are implemented and appealed (Ordinances, Appendix B, C, & D), and describes how compliance is enforced through the court system (ERP, Appendix F.)*

Tanya Strickland | April 19, 2022

Tanya Strickland, Stormwater Superintendent | Date

Thomas Zeaser | 4/19/22

Thomas C. Zeaser, P.E., Director of Engineering/Public Works | Date

Reviewing and updating the SWMP

This stormwater management plan (SWMP) is a living document.

As permit requirements are implemented, or regulations updated, they are assessed and if necessary the SWMP will be revised to incorporate those changes. A written request to accept the changes must be submitted to DHEC and signed according to the small MS4 permit requirements.

Permit Reissuance: The SWMP must be updated to comply with the NPDES General Permit for sMS4s if it is reissued or revised. The SWMP will be updated to reflect additional requirements.

Review: The SWMP must be **reviewed annually** in conjunction with the preparation with the annual report.

Update: The SWMP **may be changed** during the life of the permit in accordance with the following procedures:

a. Changes adding (but not subtracting or replacing) components, controls, or requirements to the SWMP may be made at any time upon written notification to DHEC.
b. Changes replacing an ineffective or unfeasible BMP specifically identified in the SWMP with an alternate BMP may be requested at any time. Unless denied by DHEC, changes proposed must be in accordance with the criteria below shall be deemed approved and may be implemented 60 days from submittal of the request. If request is denied, DHEC will send a written response giving a reason for the decision. Modification request must include:

    i. An analysis of why the BMP is ineffective or infeasible (including cost prohibitive)
    ii. Expectations of the effectiveness of the replacement BMP, and
    iii. An analysis of why the replacement BMP is expected to achieve the goals of the BMP being replaced.

Required by DHEC*:* Changes may be required by DHEC or the EPA.

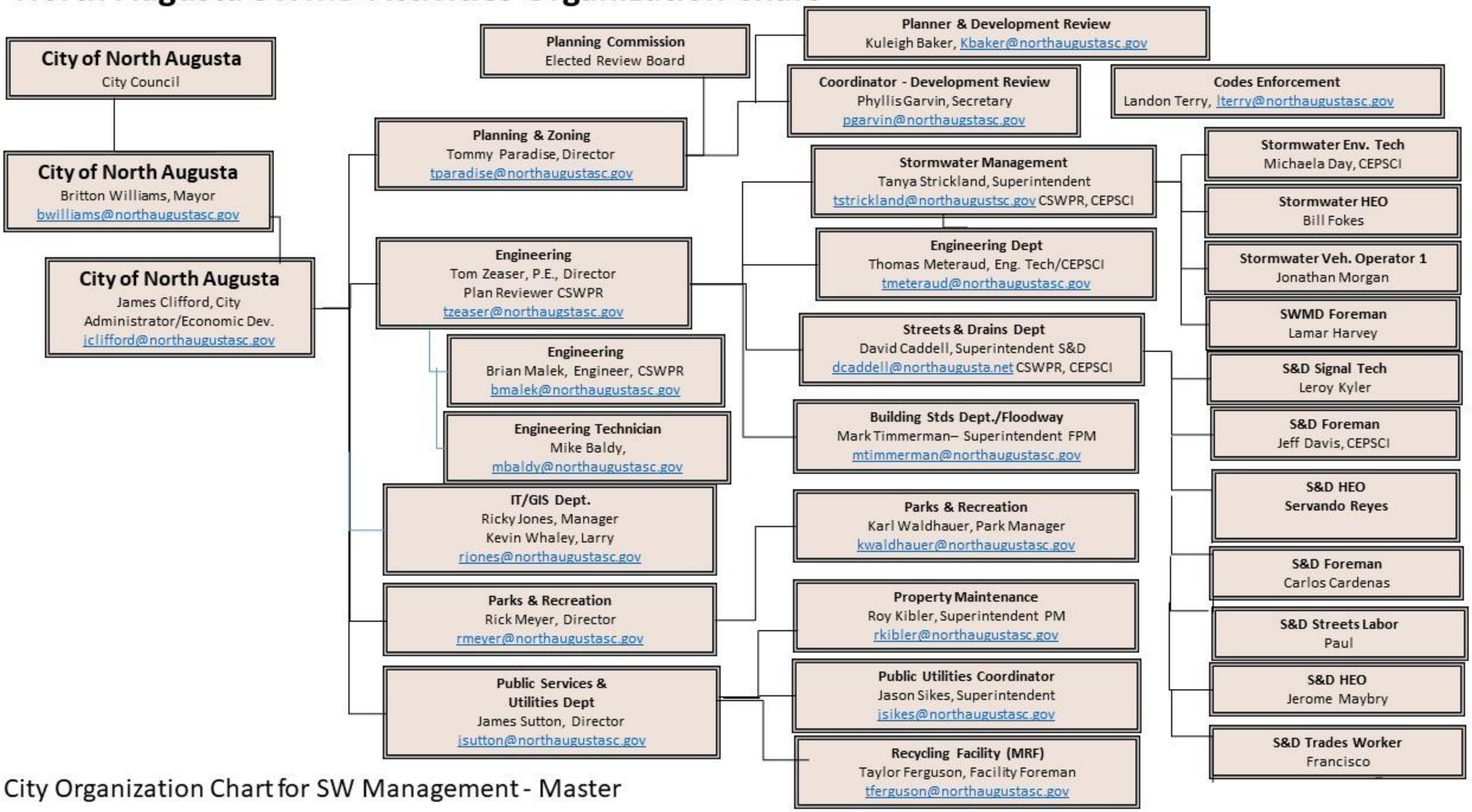
- To address documented impacts on receiving water quality caused or contributed by discharges from our sMS4 area.
- To include more stringent requirements necessary to comply with new federal statutory or regulatory requirements.
- To include other conditions deemed necessary by DHEC to comply with goals and requirements of the Clean Water Act.
- To include conditions or specifications directed by DHEC or the EPA resulting from compliance inspections of this program.

Changes must be requested by DHEC/EPA in writing and set the time and schedule for development of the changes and offer the city the opportunity to propose alternative program changes to meet the objective of the requested modification.

Personnel Involved in the stormwater management program.

See attached City Organization Chart with all staff members involved with stormwater management (with contact information).

North Augusta SWMD Activities Organization Chart



City Organization Chart for SW Management - Master

North Augusta sMS4 Program BMPs

The City of North Augusta sMS4 program will implement, and enforce a storm water management program designed to reduce discharge of pollutants from the municipal separate storm sewer system to the "maximum extent practicable" (MEP) to protect water quality. Six "minimum control measures" required under Phase II regulations are being addressed and a description of the City's plan are listed below:

North Augusta is protecting water quality by:

- requiring riparian buffers along all natural waterways,
- requiring open space preservation for developments,
- requiring water quality BMPs for projects,
- maintaining a vigorous pre and post construction inspection program,
- conducting a comprehensive illicit discharge detection and elimination program,
- creating a land acquisition program for sensitive environments within the city limits,
- conducting outreach and education activities within the community and involving the public..

1. Public Education and Outreach (PEO)

What is Required?

To satisfy this minimum control measure, the operator of a regulated small MS4 must to the Maximum Extent Practicable (MEP):

1. Identify pollutants of concern (POC) within the watershed and analyze to determine those to be targeted.
2. Initiate a planning process that defines the goals and objectives of the program to at least three high priority community issues with potential to decrease the POCs effect on water quality. Include short term goal to increase awareness and long-term goals to affect behavior change to the MEP. Include formative and summative evaluation within the planned goals and objectives.
3. Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.
4. Identify the target audience that may have influence on the POC, create an appropriate message, develop an education campaign, and determine methods and processes of distribution of campaign materials to target audience using their preferred modes of communication.
5. To the MEP, use quantitative and/or qualitative evaluation assessments to guide and/or change program goals and objectives and/or activities as needed. Evaluate the effectiveness of the program.
6. Use public input to the MEP in the development of this MCM.
7. Implement the program goals and objectives identified to the MEP.
8. Annual assessment of the stormwater education/outreach program and adjust the materials and delivery methods to address shortcomings found in the assessments.

Why is it Necessary?

EPA believes that the public can provide valuable input and assistance to a regulated small MS4's municipal storm water management program and, therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program because it promotes broader public support. An engaged citizenry is more likely to implement pollution control measures and follow recommendations if their input was considered.

Elements of the Program:

1. Identify POCs and Develop educational resources to address POCs
2. Develop educational resources for top three "high priority" POCs
3. Use planning process to expand educational resources with long and short-term goals
4. Program assessments, revisions and evaluation based on earlier outcomes
5. Storm Drain Stenciling / Curb Marking
6. Conduct Public Education Seminars
7. Maintain database of information and results of MCM
8. North Augusta Resource Newsletter, electronic version subscription program and one annual mail out
9. Household Hazardous Materials Collection Day Outreach and surveys of attendees
10. Earth Day Activities, develop outreach materials and giveaways for long-term reminders of issues

2. Public Participation/Involvement (PIP)

What is Required?

To satisfy this minimum control measure, the city must to the Maximum Extent Practicable (MEP):

1. Create opportunities for citizens to participate in the implementation of stormwater controls (stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).
2. Ensure the public can easily find information about the City's SWMP
3. Incorporate written procedures for implementing the PIP MCM into the SWMP

Why is it Necessary?

EPA believes that the public can provide valuable input and assistance to a regulated small MS4's municipal storm water management program and, therefore, suggests that the public be given opportunities to play an active role in both the development and implementation of the program. An active and involved community is crucial to the success of a storm water management program because it promotes broader public support. An engaged citizenry is more likely to implement pollution control measures and follow recommendations if their input was considered.

Elements of the Program:

1. Provide stormwater stencil and/or curb markers to volunteer groups and provide guidance for the use of these materials.
2. Meet with representatives of public/private schools to continue their partnership with the city to create a stormwater education program.
3. Evaluate school implementation of environmental programs relating to stormwater.
4. Implement a program for volunteer groups to assist with protecting streams
5. Conduct annual Household Hazardous Materials Collection Events maintain participant data/surveys
6. Include web pages on city website that will provide access to SWMP to all citizens
7. Develop and maintain an up to date procedure manual for PIP activities

3. Illicit Discharge Detection and Elimination

What is Required?

Recognizing the adverse effects illicit discharges can have on receiving waters, the final rule requires an operator of a regulated sMS4 to develop, implement and enforce a program to detect and eliminate illicit discharges into the sMS4. This program must include the following:

1. **Develop a system map** showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;

2. **Identify priority areas** for more detailed screening based on likelihood of illicit connections or by conducting ambient sampling to located impacted reaches. Document the basis for selection of priority areas no later than 12 months after the effect date of coverage (complete by January 1, 2015).

3. **Field screening to detect illicit discharges**. The city must implement or continue to revise, a written dry weather field screening and analytical monitoring procedure to detect and eliminate illicit discharges to the sMS4 within one year from the effective date of permit (complete by January 1, 2015)

   Include Dry weather field screening (visual observation, field screening monitoring and analytical methods of identifying and eliminating illicit discharge in the drainage area.

   Conduct field screening: Conduct dry weather field screening when necessary to identify the source of illicit discharges.

   i) Identify all field screening points within the priority areas where field screening will take place if warranted. If aware of non-stormwater discharges outside of the priority areas, identify points, outfalls, or major outfalls to conduct field screening in the non-priority areas.

ii) Include the following in the field screening portion of the program

a. Areas and schedule for conducting the screening, proposed location of outfalls, screening points. The effort should reflect water quality concerns to the MEP and to protect water quality.
b. Description of which screening method will be used and a description of why it is appropriate for each area.
c. Description of field screening equipment with respective methodologies for use.
d. Conduct all dry weather visual observations and required field screening at each outfall or screening point. Conduct dry weather screening activities after 72 hours of continuous dry conditions following at least 0.10 inches of rainfall.
e. Document elimination of illicit discharges.

4. **Field Screening Assessment:** Assess the effectiveness of the field screening component of the IDDE program in the **third annual report** to determine if the level of effort is adequate. If updates are found to be necessary, the permittee must make changes and include them as part of re-notification requirement.

Notify other sMS4s of illicit discharges we determine through our field screening are in their boundaries or address if notified by other sMS4's illicit discharges within our boundaries identified by them.

Create written procedures to conduct field screening, to assess field screening or to trace illicit discharges through investigations, and approaches to eliminate discharges.

5. **Minimum Investigation Requirements**: At a minimum, after becoming aware of the illicit discharge, initiate an investigation(s) to identify and locate the sources of any continuous or intermittent non-stormwater discharge within a timeframe that is consistent with this SWMP.

Report dry weather flows believed to be an immediate human health or environment threat to SCDHEC Emergency Response 1-888-481-0125

Illicit discharges suspected of being sanitary sewage or and/or significantly contaminated must be considered a high priority and addressed within a timeframe that is consistent with the SWMP.

Investigations of illicit discharges suspected of being cooling water, wash water, or natural flows may be delayed until after all discharges having the potential to adversely impact human health or water quality have been investigated, eliminated and/or solved.

Track and document the date of the illicit discharge observation, results of the investigation, any follow-up of the investigation and the date investigation is closed in the TRAK-IT database.

6. **Corrective Action to Eliminate Illicit Discharges**: the city shall do the following:

Notify the responsible party of the problem in a timeframe consistent with this SWMP

Require the responsible party to conduct all corrective actions required to eliminate the discharge **within 30 days**, submit a plan with a schedule for elimination. When and if the elimination will take longer than 30 days, require that a plan be submitted by the responsible party with a schedule for elimination.

Conduct and document a follow-up investigation and field screening activity to verify the discharge has been eliminated once notified by the responsible party that the discharge has been eliminated.

Follow the city Enforcement Response Plan (ERP), located in Appendix B of this SWMP and include the resulting enforcement actions in the next annual report due.

7. Provide, promote, publicize and facilitate a **reporting mechanism for the public** and staff to report illicit discharges. Establish and implement a citizen request response procedure.

   Conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure corrective measures have been implemented by the responsible party to achieve and maintain compliance.

8. **Employee training** must be implemented for all appropriate field staff (those that as part of their normal job duties, may come into contact with or observe an illicit discharge or may be conducting activities that could potentially impact the storm sewer system). Track all training and follow-up training.

Why is it Necessary?

Discharges from MS4s often include wastes and wastewater from non-storm water sources. Illicit discharges enter the system through either direct connections (e.g. wastewater mistakenly or deliberately connected to the storm drains) or indirect connections (e.g. infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic ecosystems, wildlife, and human health.

Elements of the Program:

1. Detection/Elimination
   a. Initial Identification of Illicit Discharge Sources
   b. Identify system - Storm Sewer System Map
   c. Create procedure guide for screening & assessment (Year 1)
   d. Create Web reporting - hotline and tracking mechanism
   e. Field Screening Program Implementation (Year 2)
   f. Field Screening Program Assessment (Year 3)
   g. Sanitary Sewer System Inflow and Infiltration Detection and Repairs
   h. BMP Implementation program (year 4)
   i. Enforcement (Appendix F)
2. Tracking
   a. Continue to manage and create an Information Management System for Tracking Illicit Discharges
   b. GIS mapping of infrastructure and maintenance activities
   c. Prioritize watersheds and target goals to address high priority annually

3. Education
    a. Enhanced education program component for priority watersheds
    b. Storm Drain Curb Markers
    c. Targeted: Stormwater Management Guides for Businesses
    d. Employee training – Pollution Prevention
4. Pollutant reduction/removal, elimination
    a. Household Hazardous Materials Collection Day
    b. Used Oil Collection
    c. Electronics recycling
    d. Street sweeping
    e. Litter pickup

Illicit Discharge Detection & Elimination Screening Protocols

1. Identify inspection locations using Priority Basin map and schedule staff to conduct screening, with the proposed location of outfalls mapped as that days screening points.

The effort should reflect water quality concerns to the MEP and to protect water quality. North Augusta has prioritized its sub-watershed basins by: **Priority 1-**high risk for pollutant impacts, **Priority 2**-medium risk for pollutant impacts and **Priority 3**-low risk for pollutant impacts. A map has been developed of all of these priority basins along with the stormwater conveyances, storm boxes and outfalls (see map). The map will be used to conduct field assessments and dry weather screening of outfalls.

To assist in the process, staff can use the "FLOWCHART FOR INVESTIGATIVE PROCEDURES (Pitt, 2001)." The flow chart is located on the following pages

Infrastructure assessments for dry weather flow:

- All Priority 1 basin areas outfalls to waterbodies or to conveyances/ditches leading to waterbodies will be screened for dry weather flow, intermittent flow or indications of pollutants visually. The Priority 1 basins are located in high density residential areas, high density commercial areas or areas where infrastructure such as septic tanks or known water quality impairments are present (TMDL or 303d streams). Industrial areas are limited in North Augusta to an industrial park on Revco Road.
- For Priority 2 areas, all stormwater outfalls to waterbodies will be visually observed and monitored for dry weather flows, intermittent flow or indications of pollutant sources visually. Priority 2 basin areas are medium density residential or commercial areas. Infrastructure assessments will be conducted and logged.
- For Priority 3 basins, all strormwater outfalls to waterbodies will be visually observed and monitored for dry weather flows, intermittent flow or indications of pollutant sources visually. Priority 3 basin areas are low density residential or commercial areas.

2. Description of which screening method will be used and a description of why it is appropriate for each area.

- Dry weather screening methods will be used at all outfalls where water flows are present and indication of pollutants are observed visually. If it is a flow that is known to be a piped stream or groundwater, the test may not be conducted. If this is not the case, water flowing will be tested for total chlorine and optical brighteners. If further tests are indicated by positive results, samples will be collected for additional testing to help determine the type of source of the flow. To help narrow down the potential source, field staff are to refer to the table below “SUMMARY OF POTENTIAL FLOW SOURCE CHARACTERISTICS (Pitt, 2001)” and also “SIMPLE FLOWCHART METHOD TO IDENTIFY POTENTIAL CONTAMINANT SOURCES (Pitt, 2001). Field inspectors will also try to locate the source of the flow through manhole inspections and observance of the surroundings for pipes or flows entering the system. If wet weather sampling is required, a followup wet weather sampling event will be planned and conducted.
- Wet weather sampling was conducted for the only TMDL stream in the city, Pretty Run Basin (Priority 1). A sampling plan, results and report is included in this SWMP as Appendix L.

3. Description of field screening equipment needed on hand (methodologies for use for most of these are intuitive otherwise consult operation & calibration manual for each prior to heading out to conduct screening).

    - Field notebook containing maps
    - Non-stormwater flow evaluation field sheets
    - Temperature meter (calibrated as required prior to leaving office)
    - pH Meter (calibrated as required prior to leaving office)
    - DO Meter (calibrated as required prior to leaving office)
    - Chlorine test kit (ensure powder reagents date of expiration is not exceeded)
    - Gloves (standard gloves and nitrile)
    - Tampons (for optical brightener tests, plastic sealed wrapper only)
    - Ziplock bags (large and sandwich/snack sized)
    - Chain of custody forms
    - Data collection tablet with WIFI
    - String (for lowering samples down to hard to reach flows)
    - Rope (for lowering sample equipment down to hard to reach locations)
    - Bucket (stainless steel)
    - Test strips (as available, ammonia, phosphorus, chlorine, detergents)
    - Waterproof marker/pen
    - Camera
    - Spray paint or marker for drain ID labeling
    - Tape measures (both 3’ yard stick, 25’ wood, and 100’ retracting)
    - Flashlight
    - Watch (with second hand)
    - Glass sample containers with waterproof labels (up to 500 mL)
    - Lab sample bottles as required by Laboratory
    - Plastic sample containers with waterproof labels (1 to 2 liter)
    - Ice boxes with ice (left in vehicle)
    - Backpack
    - Grab water sampler (dipper on long pole)

- Hand operated vacuum pump sampler for shallow flows
- Waders and walking stick
- First aid kit and pocket knife
- Self -protection pepper spray, bug/wasp spray, mosquito repellant
- Cell phone
- Hand held GPS (global positioning satellite) system receiver
- Manhole puller, shovels and pry bar

4. General Requirements for all Sampling or Measuring Water Quality

If there are questionable finding in the Visual Assessment, it may be necessary to collect samples to ensure the integrity of water quality by using simple field test kits and equipment, or by official collection of samples that will be taken and processed by a laboratory.

“Protocols for collecting a grab sample shall include the following:

- Do not eat, drink, or smoke during sample collection and processing.
- Do not collect or process samples near a running vehicle.
- Do not park vehicles in the immediate sample collection area, including both running and non-running vehicles.
- Always wear clean, powder-free nitrile gloves when handling sample containers and lids.
- Never touch the inside surface of a sample container or lid, even with gloved hands.
- Never allow the inner surface of a sample container or lid to be contacted by any material other than the sample water.
- Collect samples while facing upstream and so as not to disturb water or sediments in the outfall pipe or ditch.
- Do not overfill sample containers, and do not dump out any liquid in them. Liquids are often added to sample containers intentionally by the analytical laboratory as a preservative or for pH adjustment.
- Slowly lower the bottle into the water to avoid bottom disturbance and stirring up sediment.
- Do not allow any object or material to fall into or contact the collected water sample.
- Do not allow rainwater to drip from rain gear or other surfaces into sample containers.
- Replace and tighten sample container lids immediately after sample collection.
- Accurately label the sample with the time and location.
- Document on the Wet Weather Outfall Inspection Survey that analytical samples were collected, specify parameters, and note the sample time on the Inspection Survey. This creates a reference point for samples.

5. Conduct all dry weather visual observations and required field screening at each outfall or screening point. Conduct dry weather screening activities after 72 hours of continuous dry conditions following at least 0.10 inches of rainfall.

   Label storm drain “outfall” with predetermined ID number (use stencils and spray paint)

6. If illicit discharges are determined, you must document the elimination of illicit discharges.

Ref: *Robert Pitt, 2001* *<u>Methods for detection of inappropriate discharges to storm drainage systems</u>. Report for USEPA*

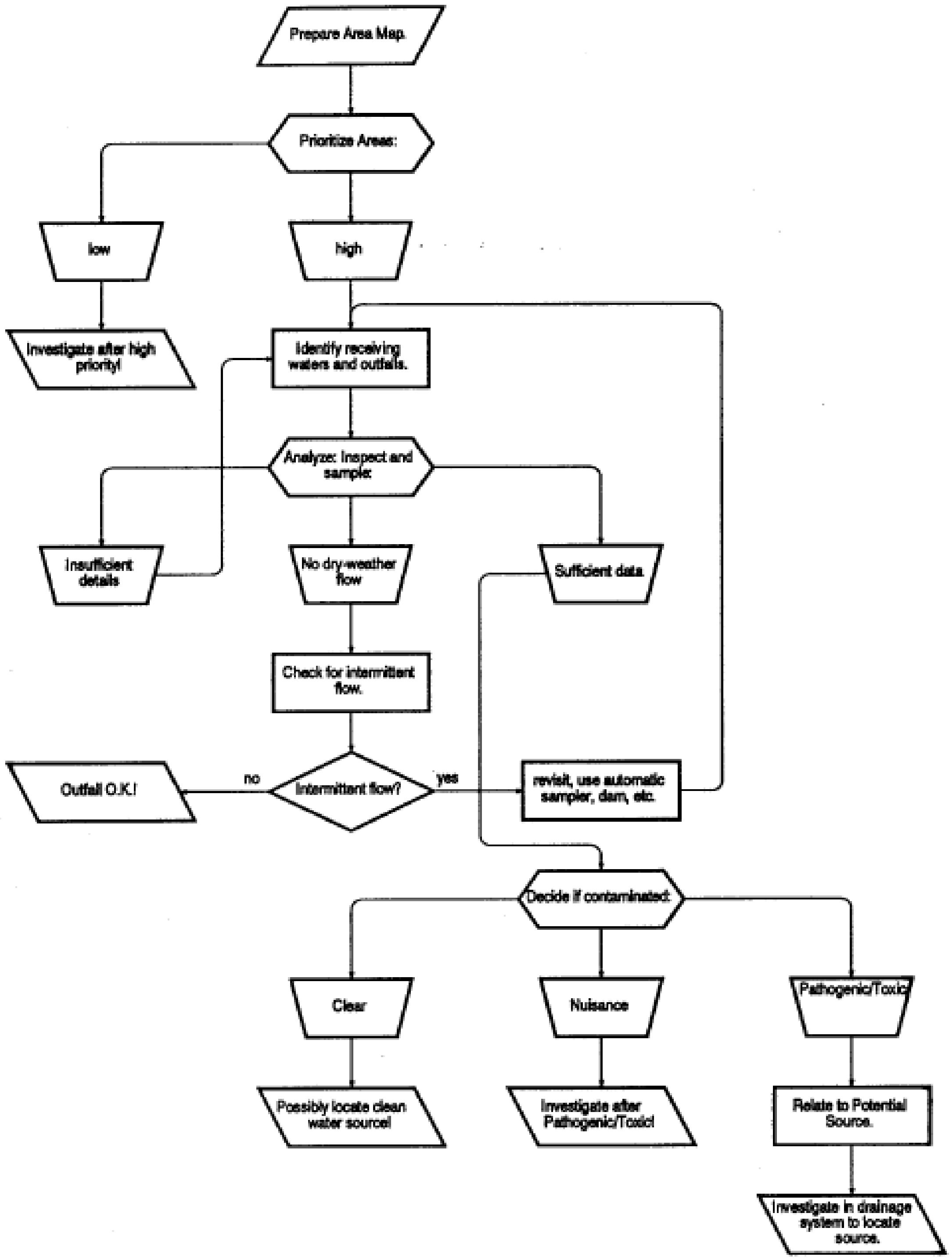


Figure 1. Flow chart for investigative procedures.

SUMMARY OF POTENTIAL FLOW SOURCE CHARACTERISTICS

(UNITS IN MG/L UNLESS NOTED)

Ref: Robert Pitt, 2001 Methods for detection of inappropriate discharges to storm drainage systems. Report for USEPA

Parameter	Natural[1]	Tap[2]	Sewage[3]	Septage[4]	Car Wash[5]	Laundry[6]
TDS	25-5000	47-63	250-850	291-2250		149-607
Conductivity (μmhos/cm)				500-2220		
BOD			110-400	34-547	<6-220	34-196
TOC	5	0.6-4.7	80-290		16-173	
COD			250-1000		61-1120	73-840
Total N			20-85	10-141		
Organic N			8-35	<0.5-72		
Ammonia	0-1	0.01-0.07	12-50	23-129		
Nitrites		0.2-0.4	0	<0.5-0.9		
Nitrate (NO_3	>0.1,<5	0.28-0.4	20-40			
Total P			4-15	2.8-39	0.25-24	
Organic P			1-5	<0.01-28		
Inorganic P			3-10			
Phosphate (PO_4)	>0.01,<0.1	0.02-0.04	5-15			
Total Alkalinity ($CaCO_3$)		18-36	50-200	128-908		
Bicarbonate (as $CaCO_3$)	5-500	18-36	50-100			
Carbonate (as $CaCO_3$)		0	0-10			
Grease			50-150		5.7-404	
Total Coliforms (org/mL)		0	10^6-10^9			
Chlorides	10-100	3.8-6	20-50	1-827		
Sulfate (SO_4)	5-200	9-12	15-50			
Calcium (Ca)	5-500	11-13	6-16	1-105		
Magnesium (Mg)	10-50	1-3	4-10	1-57		
Potassium (K)	>0.1,<5		7-15	1-121		
Sodium (Na)	10-100	1.6-3.6	40-70	12-761		
Aluminum (Al)	>0.01,<0.1	90-500ppb	0.1-0.2			
Boron (B)			0.1-0.4			
Fluoride (F)	>0.1,<5	0.9-1.1	0.2-0.4			
Manganese (Mn)			0.2-0.4			
Silica (SiO_2)	1-100	3-5	2-10			
pH		7.6-8.8		5.6-8.6	6.2-9	7.9-9.2
Total Hardness		32-40				
Manganese	>0.01,<0.1	<0.05				
Copper	>0.01,<0.1	<0.01			0-0.86	
Phenolics		<1ppb				
Zinc	>0.01,<0.1	10-130ppb			0-2.4	
Lead	>0.01,<0.1	<10ppb			0-4.2	
Detergents (as MBAS)		<0.01				12.6-101.3

[1]Kemmer & McCallien, 1979: NALCO

[2]Birmingham Water Works Board, 1992

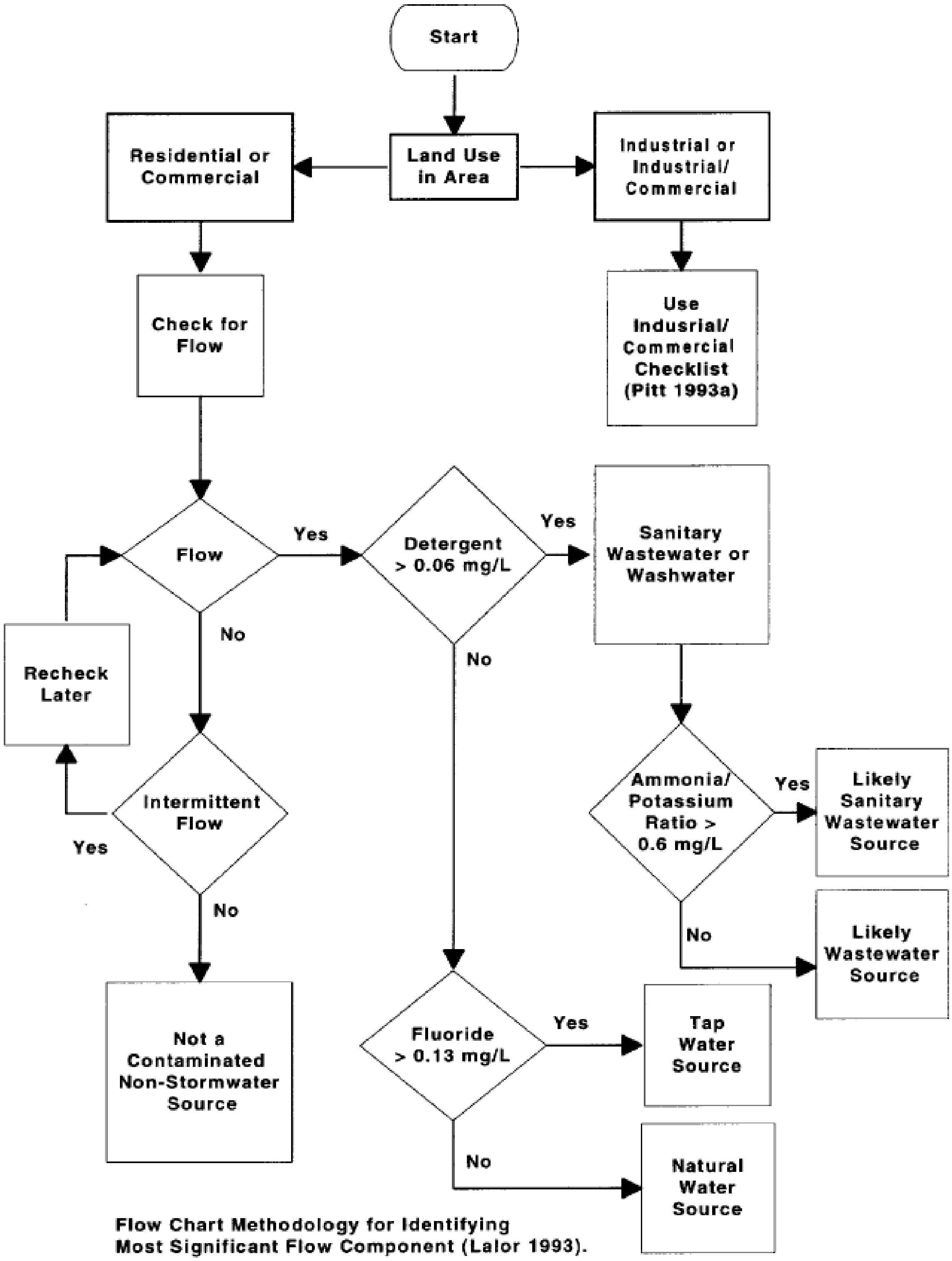
[3]Metcalf & Eddy, 1991

[4]Alhajjar et al., 1989

[5]International Carwash Association

[6]International Coin Laundry Association

Ref: *Robert Pitt, 2001 <u>Methods for detection of inappropriate discharges to storm drainage systems</u>. Report for USEPA*



Flow Chart Methodology for Identifying Most Significant Flow Component (Lalor 1993).

Figure 12. Simple Flow Chart Method to Identify Significant Contaminating Sources

Dry Weather Flow Standard Operating Procedure and Visual Observation

Objective: Inspections conducted during a dry weather period are intended to characterize observed discharges and facilitate detection of illicit discharges.

As an avenue of protection of our City's water resources, dry weather monitoring will be used as a method of finding indicators of an illicit discharge. During dry weather, it is expected that there will be minimal flow observed through stormwater infrastructure (such as junction boxes or outfalls) unless the infrastructure is piping a stream, ground water seep, or other known water source with year round flow. Therefore, dry weather inspections will be conducted in order to characterize any and all flow observed during dry weather and identified as one of the following:

1. Previously identified piped water source
2. Potential source of illicit discharge such as:
    - cross-connections of sewer services to engineered storm drain systems
    - leaking septic systems
    - intentional discharge of pollutants to catch basins
    - combined sewer overflows
    - connected floor drains

Define a dry weather period: time interval during which less than 0.1 inch of rain is observed across a minimum of 72 hours

Visual Assessment:

At an outfall discharge point or junction box, visually inspect and indicate if any of the following are present.

1. Foam: indicator of natural processes; upstream vehicle washing activities, or an illicit discharge of wash water.
2. Oil sheen: result of a leak or spill.
3. Cloudiness: indicator of suspended solids such as dust, ash, powdered chemicals and ground up materials.
4. Color or odor: Indicator of raw materials, chemicals, or sewage.
5. Excessive sediment: indicator or disturbed earth of other unpaved areas lacking adequate erosion control measures.
6. Sanitary waste and optical enhancers (fluorescent dyes added to laundry detergent and some toilet paper): indicators of illicit discharge.
7. Orange staining: indicator of high mineral concentrations.

Although many of the parameters listed above are considered to be indicators of illicit discharge, the presence of a parameter is not absolute evidence of an illicit discharge. Some of these indicators may occur naturally.

Odor: If odor is present, make sure to indicate the odor on the form. Describe the odor as best as you can. Sewage, human waste, dead decaying organism (look for source), medicinal, sulfur, gasoline, diesel, volatile organic odors, etc.

Color/Discoloration: Orange staining may be the result of naturally occurring iron, and therefore unrelated to pollution.

Foam: can be formed when the physical characteristics of water are altered by the presence of organic materials. Foam is typically found in waters with high organic content such as bog lakes, streams that originate from bog lakes, productive lakes, wetlands, or woody areas. To determine the difference between natural foam and foam cause by pollution, consider the following:

- Wind direction or turbulence: natural foam occurrences on the shoreline of rivers coincide with onshore winds. Often, foam can be found along a shoreline and/or on open waters during windy days. Natural occurrences in rivers can be found downstream of a turbulent site (like the rapids in North Augusta).
- Proximity to a potential pollution source: some entities including the textile industry, paper production facilities, oil industries, and firefighting activities work with materials that cause foaming in water. If these materials are released to a water body in large quantities, they can cause foaming. Also, the presence of silt in water, such as from a construction site can cause foam.
- Feeling: natural foam is typically persistent, light, not slimy to the touch, does not have odor, and does not increase in a vial when shaken.
- Presence of decomposing plants or organic material in the water (will cause foam).

Sheen: Some of the indicators can have multiple causes or sources. For example, both bacteria and petroleum can create a sheen on the water surface. The source of the sheen can be differentiated by disturbing it, such as with a pole. A sheen caused by oil will remain intact and move in a swirl pattern; a sheen caused by bacteria will separate and appear "blocky". Bacterial or naturally occurring sheens are usually silver or relatively dull in color and will break up into a number of small patches of sheen. The cause may be presence of iron, decomposition of organic material or presence of certain bacteria. Bacterial sheen is not a pollutant but should be noted.

Floatables: Indicate if you observe solids, trash, human waste or sewage waste or any other indications of contamination.

Optical enhancers: indicate washing machine or laundry or other waste water being discharged into the system. At high concentrations, some are sometimes visible to the naked eye as a bluish-purple haze in the water. However, due to physiological variation of the human eye, not all inspectors may be able to identify the presence of these materials, and quantitative testing is the preferred method to confirm the presence of these compounds. Optical enhancers are typically detected through the use of clean, white cotton pads placed within the discharge for several days, dried, and viewed under a fluorimeter. If the cotton pad fluoresces, optical enhancers are assumed to be present. The magnitude of the fluorescence, as measured in fluorescent units, can be used to correlate the concentration of optical enhancers in water to other samples collected locally.

Procedure: Field staff will come prepared to conduct an optical brightener test of an illicit discharge found during field inspections.

Optical Brightener Test Materials:

- Unopened new tampons that are wrapped (sealed with plastic wrap, not paper)
- String
- Gloves
- Teflon scooper (with long handle)
- New Ziploc baggies (lunch size) that will seal completely.
- Sample jar (wide mouth) with lid
- Black light optical brightener wand (leave in the lab and conduct reading at lab)
- Sample containers to collect sample for nutrients to be shipped to lab for analysis (if questions remain due to other indicators such as odor, color etc.)
- Cooler for samples (with ice if needed to transport samples)
- Manhole puller & pry bar

Optical Brightener Test Method:

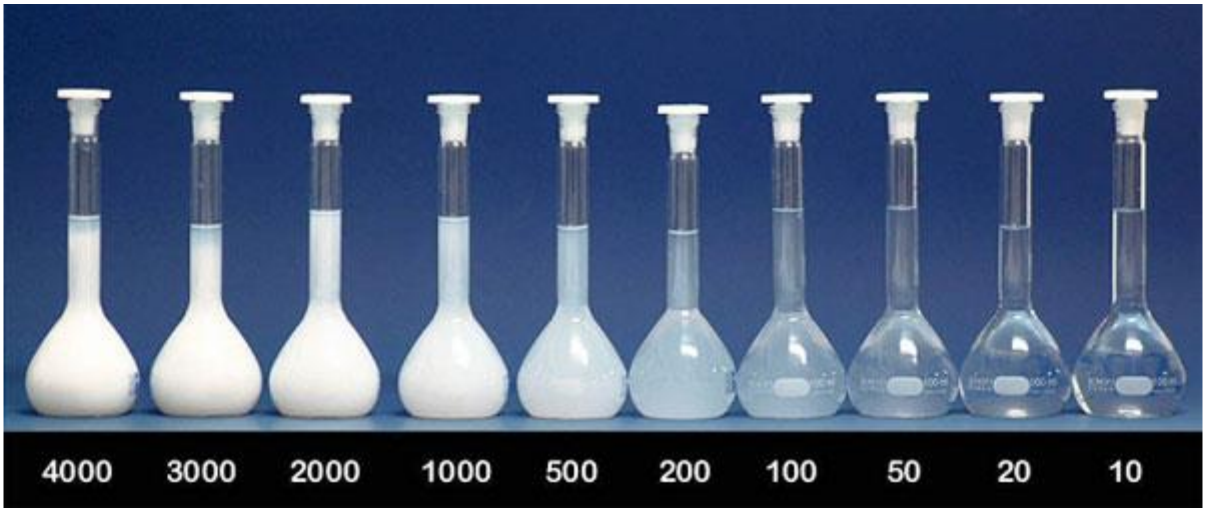
For dry weather sampling of a discharge:
Put on gloves prior to collecting the sample.
Use Teflon scooper to collect a sample of the dry weather flow you have identified. Once you have collected a full scoop of the sample water, bring it up and pour it into a wide mouth jar, leaving enough of the sample in the scooper to refill the sample jar after the test. If the scooper does not reach the sample, use the string or rope to lower the scooper to the flow. (test in the field) If that fails, you may tie a string to the tampon string and lower just the tampon to the flow so that it absorbs the sample sufficiently. Read test instructions below before you try that.

- With gloves on, open the Tampon rapper.
- Carefully push the tampon out of the holder being careful not to brush the tampon against anything. Holding the string, drop the tampon into the jar and let it saturate with the sample.
- Once saturated, place the sample (tampon) into a clean Ziploc bag and seal.
- Pour out the sample scooper.
- Refill the wide mouth jar with the remaining sample.
- Write down all of your observations about the sample on your log-sheet (odor, color, TSS, or other).
- Take the extra sample back to the lab for a duplication if needed and to prepare a sample for fluoride analysis by the city water lab staff. Also use this sample to run a detergent test. Place this sample in the cooler.
- Pull a second sample with the scooper and fill a nutrient sample bottle (label correctly). If the sample indicates optical brighteners (back at the lab), then log the sample in, fill out a Chain of Custody. then send the nutrient sample in for analysis (TKN, Phos, Ammonia, and Nitrogen).

Back at the lab:

- Do a quick check of the saturated tampon using the black light (in a darkened room to look for Optical Brightener indication).
- If negative, then allow the tampon to dry out within the Ziploc bag for several days. Open the top of bag and place in protected area (without allowing any materials to touch the sample).
- Test again in 72 hours.
- Use sample that remains in wide mouth jar, to duplicate the test (both methods).
- Record both results on the logsheet.

Turbidity: In our area, these vials (below) would generally be a red muddy color. Visual observation can give a good estimate of turbidity and the following graphic can be used by staff. If turbidity is a result of failed BMPs of a construction site that is a repeat offender, a water sample should be pulled upstream of the turbid water (before it is impacted) and downstream of the impact. The sample can be analyzed for turbidity (real numbers) at the North Augusta water plant. The resulting data should be held indefinitely with the construction project file for use in enforcement.



Structural damage: Identify any structural problems and what they are. Is the stormwater infrastructure creating contaminants loads such as sediment, failing banks or excessive vegetation. Field staff should identify the problems, identify what is needed (materials and equipment) to repair the problem. This information will be logged into the tablet and identified as needing a work order and time frame for repair.

Quality control and assurance are important to ensuring accurate analytical test results. Sample preservation is required to prevent contaminate degradation between sampling and analysis. Holding time is important because prompt laboratory analysis allows the laboratory to review the data and if analytical problems are found, re-analyze the affected samples within the holding times. Holding time is defined as the period of time between sample collection and extraction for analysis of the sample at the laboratory. Chain of custody forms are designed to provide sample submittal information and document transfers of sample custody. The forms are typically provided by the laboratory and must be completed by the field sampling personnel for each sample submitted to the lab for analysis. The document must be signed by both the person releasing the sample and the person receiving the sample every time the sample changes hands. The sampling personnel shall keep one copy of the form and send the remaining copies to the laboratory with the samples."

Quoted text from: Central Massachusetts Regional Stormwater Coalition

4. Pollution Prevention/Good Housekeeping

What is Required?

Recognizing the benefits of pollution prevention practices, the rule requires an operator of a regulated small MS4 to:

1. Develop and implement an operation and maintenance program with a training component with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system;
2. Include **employee training** on how to incorporate pollution prevention/good housekeeping techniques into municipal operations such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. To minimize duplication

of effort and conserve resources, the MS4 operator can use training materials that are available from EPA, their State or Tribe, or relevant organizations;

3. Develop a **Municipal Facility and Stormwater Controls Inventory**: Update and maintain an inventory of municipally-owned stormwater controls that are not covered under a separate general or individual NPDES permit.

4. **List of industrial facilities o**wned by the city that are subject to NPDES General Permits and that discharge stormwater to the city sMS4. Include a copy of the permit number and NOI for each facility.

5. Conduct a **comprehensive assessment** of pollutant discharge potential from all municipally owned or operated facilities at least once during the permit term and include the list in the reapplication for coverage.

6. Identify "**High Priority**" municipal facilities that have a high potential to generate stormwater pollutants.

7. **Document comprehensive assessment results**. Document the results of Item 5. And maintain copies of all site evaluations checklists used to conduct the comprehensive assessment. Include the results of the permittee initial assessments and any identified deficiencies and corrective actions taken.

8. Facility-specific stormwater management for **High Priority** facilities.

   Conduct **yearly comprehensive inspections**. Starting no later than 24 months from the effective date of coverage (**by January 2016**) and at least once per year thereafter, conduct a comprehensive inspection of high priority facilities including all stormwater controls. The yearly inspection results must be documented and records maintained. The report must include any identified deficiencies and corrective actions taken to fix them.

9. **Assessment/prioritization of MS4 catch basins**. Prioritize city owned and operated stormwater management systems and structures and implement a maintenance schedule.

10. Municipal activities and operations: Develop a set of **pollution prevention measures to apply during municipal O&M activities** to reduce the discharge of pollutants in stormwater. (pavement and right of way maintenance, bridge maintenance, cold weather operations, municipal sponsored events, etc.)

11. **Maintenance of city owned or maintained structural stormwater controls**: inspect and maintain wherever and whenever necessary all municipally owned or maintained structural stormwater controls including green infrastructure through regularly scheduled maintenance activities.

12. **Employee training** – annual training program for appropriate employees involved in implementing pollution prevention and good housekeeping practices.

    Include in the annual training a general stormwater education component, any new technologies, operations, or responsibilities that arise during the year and the permit requirements that apply to the staff being trained.

    A description of the training program must be maintained for review by DHEC.

    Identify and track all personnel requiring training and keep records of the training.

    Training must begin within the first five years of the effective date of permit authorization.

13. Require **contractor oversight to all contractors hired by the city** to perform municipal maintenance activities. The contractors must be contractually required to comply with all of the city stormwater control

measures, good housekeeping practices, and facility specific stormwater management procedures. The city must provide oversight of contractor activities to ensure that they are using the appropriate control measures and procedures.

Why is it Necessary?

The Pollution Prevention/Good Housekeeping for municipal operations minimum control measure is a key element of the small MS4 storm water management program. This measure requires the small MS4 operator to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that:

1. Collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways
2. Results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems. While this measure is meant primarily to improve or protect receiving water quality by altering municipal or facility operations, it also can result in a cost savings for the small MS4 operator, since proper and timely maintenance of storm sewer systems can help avoid repair costs from damage caused by age and neglect.

Elements of the Program:

1. Develop a pollution reduction plan for municipal facilities and operations (includes street sweeping, BMP implementation at work sites, litter control, pesticide/herbicide/fertilizer BMPs, storm box cleaning, street maintenance, IDDE/CMOM activities regarding adjacent sanitary sewers)
2. Create Municipal Facility and Stormwater Controls Inventory (Year 1)
3. Rank municipal facilities based on assessments and perform a comprehensive stormwater inspection of all "HIGH" ranked facilities annually.
4. Create O&M Pollution Reduction plan for each high ranking facility.
5. Maintain list of NPDES Industrial facilities
6. Conduct comprehensive assessment (documented) of all Municipal Facilities (during 5 year permit period)
7. Using illicit discharge mapping elements and rankings of watershed to conduct an assessment and priority of storm boxes or catch basins within the city, begin a comprehensive inspection and maintenance program for those that rank high.
8. Assess, repair and maintain stormwater sewer system to prevent stormwater pollution to the MEP.
9. Maintenance Schedule
10. Conduct inspection and maintenance program documentation and assessments to determine effectiveness
11. Develop Employee Training Materials (ETM) and verify employee training activities occur with signed attendee sheets for each department (whose activities could affect or impact water quality).
12. Create mechanism to ensure contractor oversight of BMPs (including contract language) and city inspection program to verify maintenance of BMPs at city construction projects to the MEP.

5. Construction Site Runoff Control

What is Required?

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in storm water runoff to their MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.

The small MS4 operator is required to:

1. Have an ordinance or other regulatory mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites;
2. Have **procedures for site plan review** of construction plans that consider potential water quality impacts;
3. Have **procedures for site inspection and enforcement** of control measures;
4. Have **sanctions to ensure compliance** (established in the ordinance or other regulatory mechanism);
5. Establish procedures for the **receipt and consideration of information submitted by the public**; and
6. Establish Erosion and Sediment Controls and Soil Stabilization Practices for construction activities.
7. Minimize the discharge of pollutants from equipment and vehicle washing. Wash waters must be treated in a sediment basin or other BMP prior to discharge.
8. Minimize the exposure of building materials, products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on site that may cause adverse impacts to water quality.
9. Minimize the discharge of pollutants from spills and leaks and implement a chemical spill and leak prevention and response procedures.
10. Construction activities cannot begin until a plan is submitted for review and approved for a permit by the city through the stormwater management department. Developers must submit a stormwater pollution prevention plan (SWP3) that meets the requirements of the city ordinance and plans must meet the state NPDES general permit for construction activities permit (SCR100000) to acquire 1) a city stormwater permit and 2) the NPDES permit. The city is delegated by the state to review and approve the site plan. Ensure plan review incorporates requirements of state/federal permit programs prior to issuance and submittal to DHEC for NPDES permitting.

Why is it Necessary?

Polluted storm water runoff from construction sites often flows to MS4s and ultimately is discharged into local rivers and streams. The resulting siltation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to water quality.

Elements of the Program:

1. Provide an Information Management System to document and track compliance.

2. Ordinance / Regulatory Mechanism for Construction within the City (completed last permit cycle)
3. Provide public involvement in the development process through develop review committees, the public planning commission and city council meetings. Track attendance and input by the public.
4. Create a stormwater pollution plan review and permitting program with documentation component and provide forms, applications and checklists for engineers and developers, and reviewers.
    a. Ensure that construction activities do not begin (new and redeveloped sites) until a plan is approved for a permit by the city through the stormwater management department and the State.
    b. Developers must submit a stormwater pollution prevention plan (SWP3) that meets the specific design requirements of the city ordinance (based on disturbed acreage and common plans) and also specific design requirements to meet the state NPDES general permit for construction activities permit (SCR100000) (based on disturbed acreage and common plans) **to demonstrate discharges will not cause or contribute to a violation of water quality standards** to acquire:
        i. a city stormwater permit and
        ii. and a NPDES Construction General Permit. The city is delegated by the state to review and approve the site plan to verify the SWP3 incorporates requirements of state/federal permit programs prior to city submittal to DHEC (with appropriate fees) for NPDES permitting.
5. Incorporate procedures that identify construction activity discharges to specific TMDL, 303D or other impaired waters and provide BMPs to protect these streams from the POC to the MEP.
6. Qualified individuals will conduct plan reviews.
7. Conduct construction site inspections at a frequency described in Table 4.2.4.6.b of the NPDES General Construction Permit SCR10000 during and after construction (for new permanent stormwater control measures, redeveloped sites and existing site stormwater controls that discharge into the city sMS4) by **qualified inspectors**.
    a. Inspections must meet the minimum standards for inspections identified in Section 4.2.4.6.d. of the NPDES General Construction Permit, SCR10000.
8. Protect Water Quality through a vigorous Inspection and Enforcement Program (see ERP Appendix F)
9. Work toward maximum compliance and for persons/companies identified that consistently *are non-compliant,* increase inspection frequency with more stringent enforcement.
10. Require a program where property owners or operators of new development or redevelopment sites must provide verification of maintenance of structural stormwater control measures used to comply with performance standards.
11. Create written procedures for inspection of post-construction structural controls that include, inspection procedures and frequency, data tracking and recordkeeping (by January 2015)
12. Conduct Engineering Construction Site Runoff Pollution Control Seminars
13. Conduct Seminars for Contractors
14. Create education materials for contractors, engineer, and developers.
15. Provide employee educational training to conduct stormwater plan review and construction site inspections (new and redeveloped sites).
16. Provide development information and resources to the public through the city website.

17. Maintain a Stormwater Management Manual (consisting of)
    a. Sediment and Erosion Control Manual
    b. Water Quality Manual

6. Post-Construction Runoff Control

What is Required?

The Phase II Final Rule requires an operator of a regulated small MS4 to develop, implement, and enforce a program to reduce pollutants in post-construction runoff to their MS4 from new development and redevelopment projects that result in the land disturbance of greater than or equal to 1 acre. The small MS4 operator is required to:

1. Establish, implement and enforce a requirement that owners or operators of new development or redevelopment sites discharging to the sMS4, implement stormwater control measures that approximate pre-development conditions through city design standards (based on disturbed area or common plan), which include a combination of structural and/or non-structural best management practices (BMPs) to the MEP and protect water quality.
    a. Site performance standards must be established, implemented and enforced for projects that are greater than one acre (>1 acre) or less than one acre that are part of a larger common plan (LCP) for development (< 1 acre and part of an LCP) that show the site stormwater control measures approximate pre-development conditions to the MEP and protect water quality. The city provides these standards and directs design engineers to the *North Augusta Water Quality Manual* (Appendix H) for design standards that can be used to treat the 1st one inch of rain prior to release.
2. Establish by ordinance or other regulatory mechanism requiring the implementation of post-construction runoff controls for new and redeveloped sites in perpetuity (by January 2016)
3. Ensure adequate long-term operation and maintenance of controls are in place to meet the performance standards to the MEP and to prevent or minimize water quality impacts.
4. Provide an Information Management System to document and track compliance, to maintain inventory of installed post-construction structural stormwater control devices (public and private) at new or redeveloped sites from the effective date of the sMS4 permit (Jan 1, 2014). Also maintain maintenance, inspection records and corrective action activities to verify proper working conditions.
5. Incorporate procedures that identify permanent structural stormwater controls that discharge to TMDL, 303D or other impaired waters (existing infrastructure owners) to determine what BMPs can be implemented to protect these streams from the POC to the MEP. Provide the information to the owners with incentives to implement them.
6. Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure and produce written procedures that describe implementation of this MCM.

Why is it Necessary?

Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly affect receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management.

There are generally two forms of substantial impacts of post-construction runoff. The first is caused by an increase in the type and quantity of pollutants in storm water runoff. As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such as lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans. The second kind of post-construction runoff impact occurs by increasing the quantity of water delivered to the water body during storms. Increased impervious surfaces interrupt the natural cycle of gradual percolation of water through vegetation and soil. Instead, water is collected from surfaces such as asphalt and concrete and routed to drainage systems where large volumes of runoff quickly flow to the nearest receiving water. The effects of this process include stream bank scouring and downstream flooding, which often lead to aquatic ecosystem impairment and damage to property.

Elements of the Program:

1. Identification of BMPs currently in place in the sMS4 area.
2. Ensure post-construction stormwater controls provide a mechanism to treat the first 1” of rainfall prior to release for projects based on disturbed area or common plan development.
3. Ensure that post-construction stormwater controls approximate pre-development conditions to the MEP and protect water quality based on disturbed area or common plan development.
4. Water Quality Component of structural control systems: Provide incentives for participation encouraging owners to upgrading existing stormwater controls to protect water quality (existing infrastructure)
5. Inspection Program of privately owned facilities with a mechanism to enforce that deficiencies are corrected so that the systems work as designed
6. Inspection and Maintenance Program for City owned facilities with tracking system.
7. Inspection program (self) for privately owned facilities with tracking system.
8. Provide a “North Augusta Water Quality Manual” that identifies strategies and designs to protect water quality. Update the manual as needed to provide current and relevant practices.

Post Construction Inspection & Maintenance Procedures

The following schedule of maintenance activities is intended to provide general guidance for the inspection and maintenance of stormwater management systems. The below schedule may need to be modified to provide more frequent inspection and maintenance activities depending on site conditions.

Materials needed for field inspection:

- Tablet for recording inspection, correcting mapping errors (GiS capable)
- Camera
- Snake chaps (if needed)
- Measuring device (3' yard stick; extendable wooden ruler; 100' tape measure)
- Machete or Sling blade (for removing vegetation and briers)
- Approved set of site or pond details to verify structures and device components
- Paper inspection report forms
- Map of area showing streams or creeks of where the discharge is going to
- Insect spray (mosquito and for wasps)
- First aid kit
- Waders
- Manhole pullers, shovel or pry bar.

City Owned Ponds

Inspect Once per 6 months:

- Inspect outlet control structure orifices and weirs to insure they are not clogged.
- Clean and remove debris from inlet and outlet structures.
- Inspect emergency spillway and repair as needed. Remove all tree and shrub growth from within emergency spillway limits.
- Mow side slopes.

Maintenance & Inspection Once per 12 months:

- Harvest dead vegetation.
- Inspect for damage to control structure and repair as needed.
- Inspect sediment accumulation in the facility.
- Inspect for operational inlet and outlet structure malfunctions, repair as needed.
- Inspect embankment, side slopes, and any undercut or eroded areas, and repair as needed.
- Remove invasive vegetation.
- Remove trees and woody material from pond side slopes and embankment.
- Inspect rip-rap at the end of discharge pipe. Clean and repair rip-rap as needed.

Following Extreme Storm Events:

- Clean and remove debris from inlet and outlet structures as needed.
- Inspect embankment, side slopes, and any undercut or eroded areas. Repair as needed.

Long Term Maintenance:

Monitor and remove sediment accumulations in the main permanent pool on a projected 5 to 10 year cycle. Insure pond bottom slopes toward outlet structure at 0.5% slope as part of any sediment removal. Sediment removal should occur after 25% of the permanent pool volume is filled and/or the pond becomes eutrophic. Consult a PE prior to performing work.

Privately Owned Residential, Commercial and Industrial Pond Inspections will be conducted bi-annually using the **same protocols as City Owned Ponds.** If staff are unable to properly inspect a pond or stormwater device due to excessive vegetation or unable to access, the owner will be notified in writing by certified mail. The inspection report and a time frame to open the pond area or remove excessive vegetation to allow inspection will be provided. A follow-up inspection to conduct further inspection to verify the conditions of the structures or if owner feels they have completed all maintenance, a full inspection will be conducted to verify the pond is in compliance with its approved design. The owner may be present for the follow-up inspections.

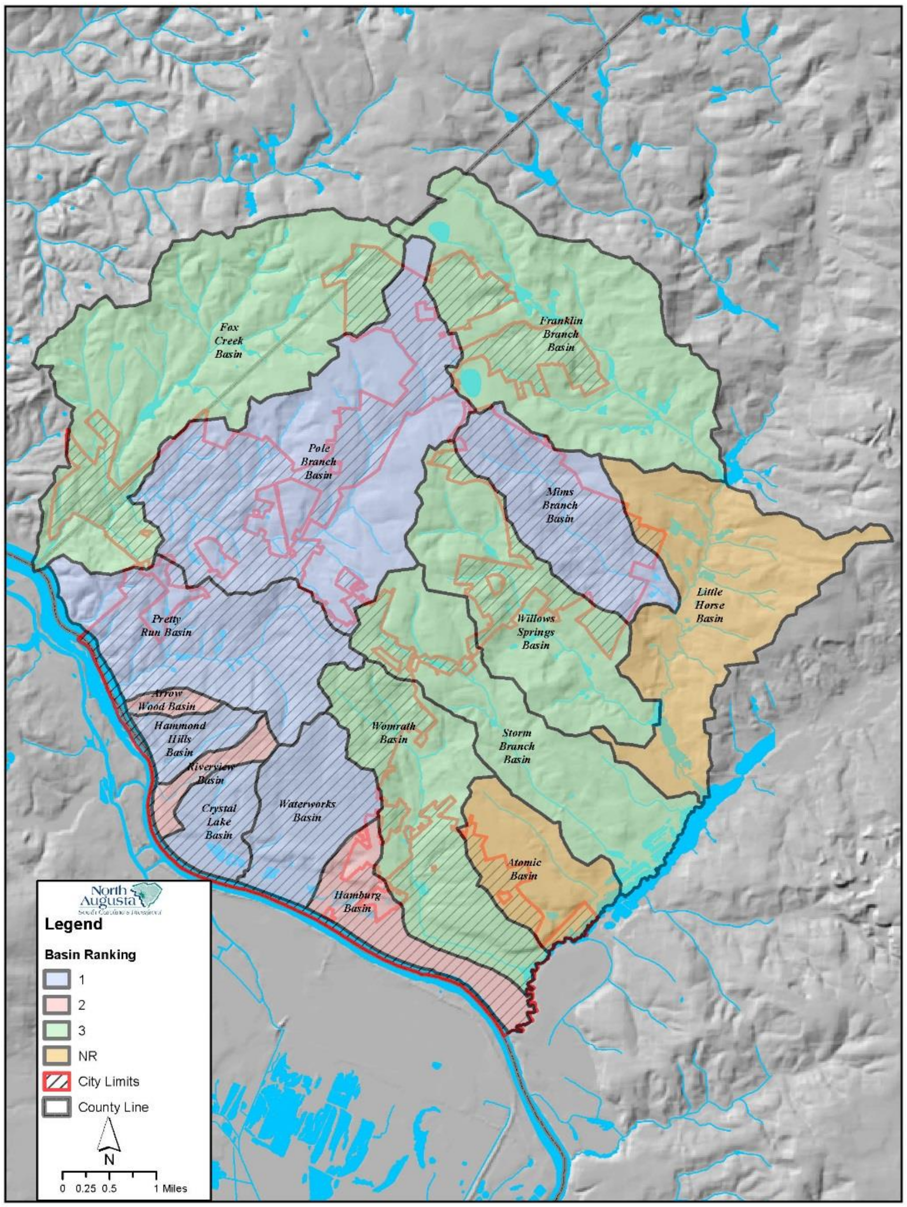
If owners fail to bring the ponds into compliance the *Enforcement Response Plan* (See Appendix F) will be implemented to bring the site into compliance.

North Augusta Monitoring, TMDLs, and Impaired Streams

Savannah River

North Augusta is located in the middle Savannah River Basin Watershed. The city is situated along the Savannah River across from Augusta, Georgia.

Sub-Basins in North Augusta



TMDL Monitoring/Screening Program (IDDE Elements)

Determining receiving water conditions and impacts in the city is an ongoing process. Currently, there are two TMDL streams within the city boundaries. Only one of those streams is impacted by stormwater falling in the city, Pretty Run Creek. Pretty Run Creek is located solely within city boundaries and all impacts are within city limits. Horse Creek, the second TMDL stream, borders North Augusta at the southeastern boundary line. No stormwater discharges are impacting Horse Creek from the city. Prior to reaching the stream, a vast wetland swamp exists. The swamp receives most of its water from groundwater seeps, small tributary streams and stormwater that is flowing into it from Aiken County.

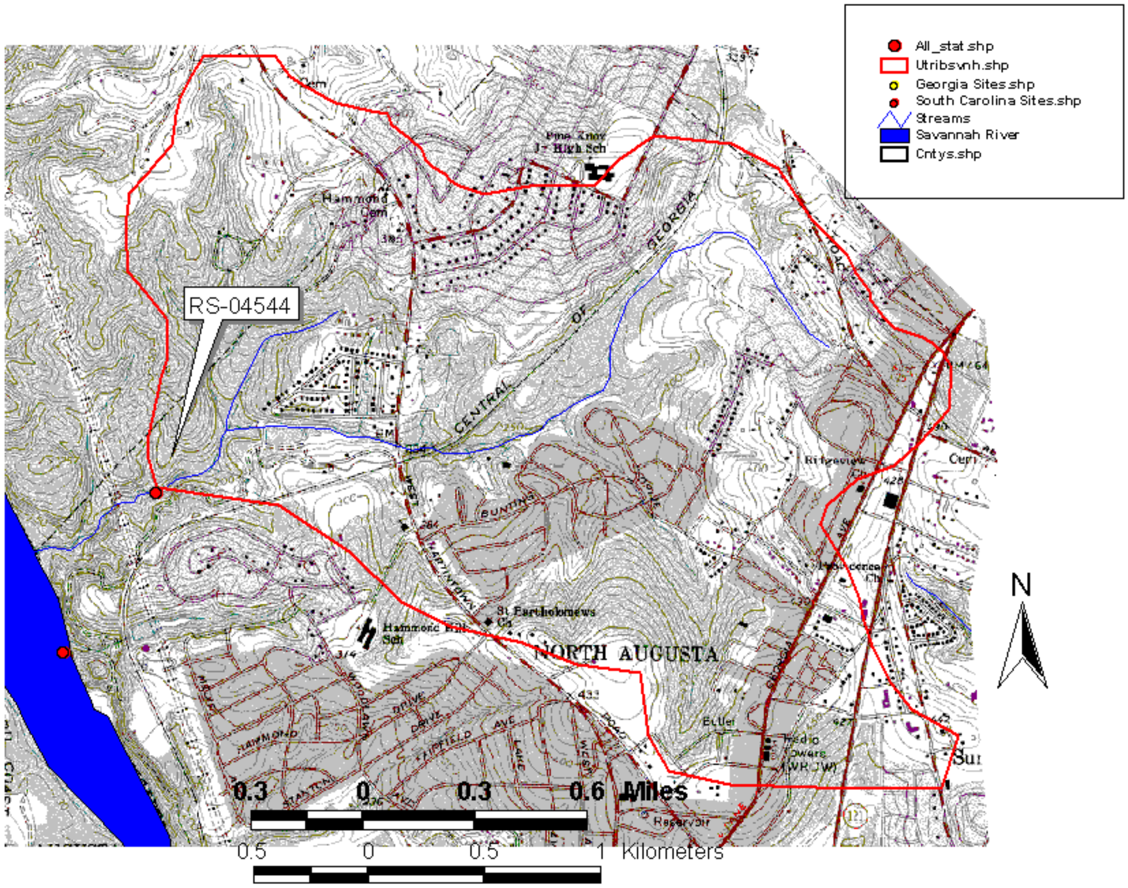
PRETTY RUN CREEK

Pretty Run Creek was sampled in 2004 and in 2009 by SCDHEC as a random sample point and was assigned a state station number RS-04544. In 2004, during the twelve (12) months that it was sampled, 67% of the samples exceeded the standard of 400 cfu/100 ml for fecal coliform. When more than 10% of samples for a particular stream are out of limits for a specific constituent (in this case, *fecal coliform*), the stream is listed as impaired and placed on the federal 303d list of impaired streams. Pretty Run creek was placed on the 2006 303d list for South Carolina. When a stream is placed on the list, it triggers the development of a Total Maximum Daily Load (TMDL). SCDHEC has developed the TMDL for Pretty Run. The TMDL requires a 31% reduction in fecal coliform loads to Pretty Run creek.

North Augusta SWMD is conducting an education and outreach campaign targeting this basin addressing animal waste and confinement near the stream, septic tank maintenance, and general education about the conditions and ways to improve conditions in Pretty Run creek. In 2006, an assessment was completed through a 319 Grant to determine impacts to the stream through infrared aerial photography. All potential impacts were investigated.

BMP requirements:

- Continue to investigate all issues along the stream and quickly address any complaints, impacts, or suspected inputs to the system.
- Continue education and outreach to the community and target those communities that border the creek.
- Investigate areas where structural BMPs can be implemented to improve conditions in the creek.

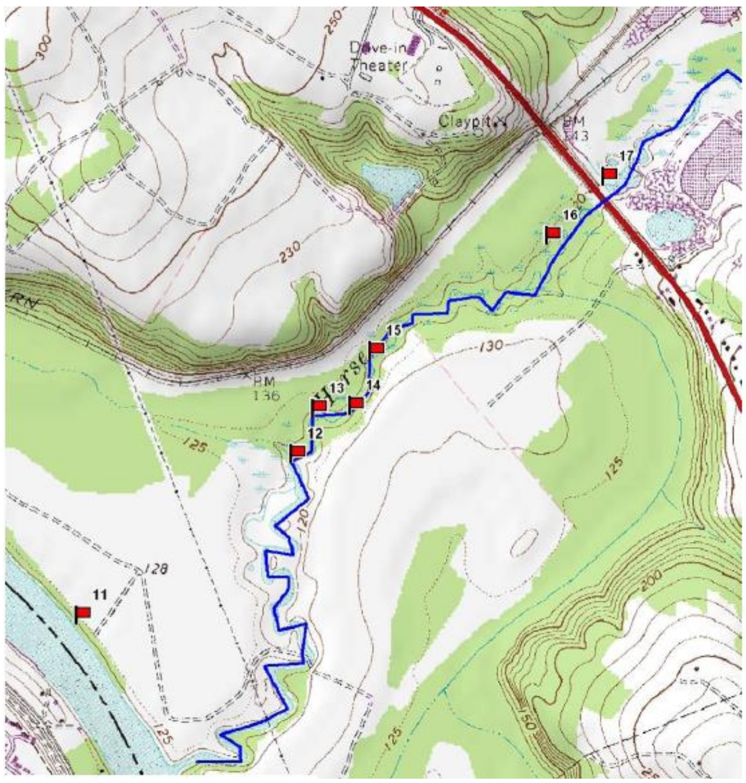


Pretty Run Creek sampling location *(SCDHEC)*

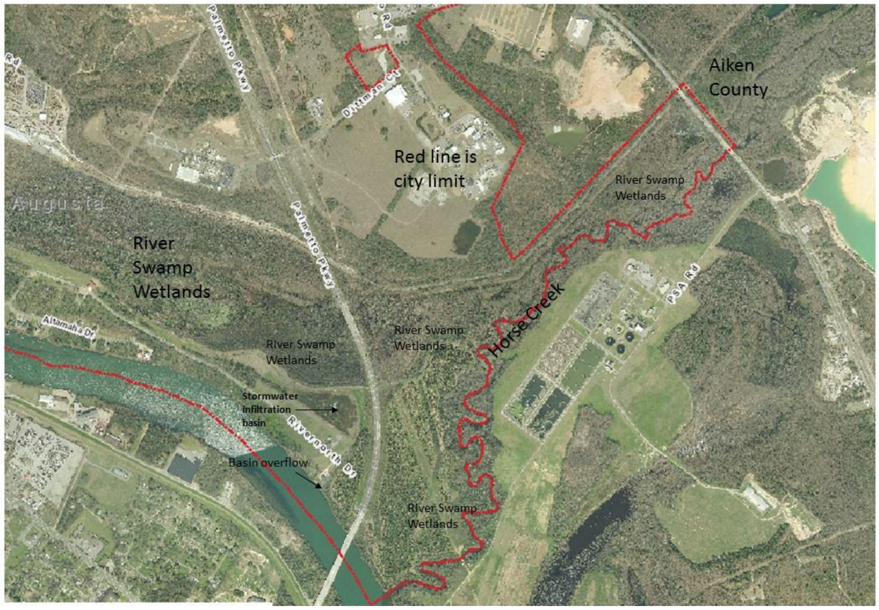
HORSE CREEK

Horse Creek is monitored by SCDHEC year round so ample data is being compiled. The reach of Horse Creek within the city limits is minimal and uninhabited. The only known possible area where Horse Creek could be impacted within the city boundaries is from the Aiken County operated sanitary sewer trunk line that runs through the wetland and connects to the Horse Creek Wastewater Treatment Plant. The sanitary sewer line has been inspected for surcharging and illicit discharges through inspection by county personnel.

The city will continue to assist local partners in developing better BMPs for Horse Creek.



Horse Creek borders the limits of North Augusta *(Red line is Atomic Road aka Hwy 125)*



Monitoring of Pretty Run Creek

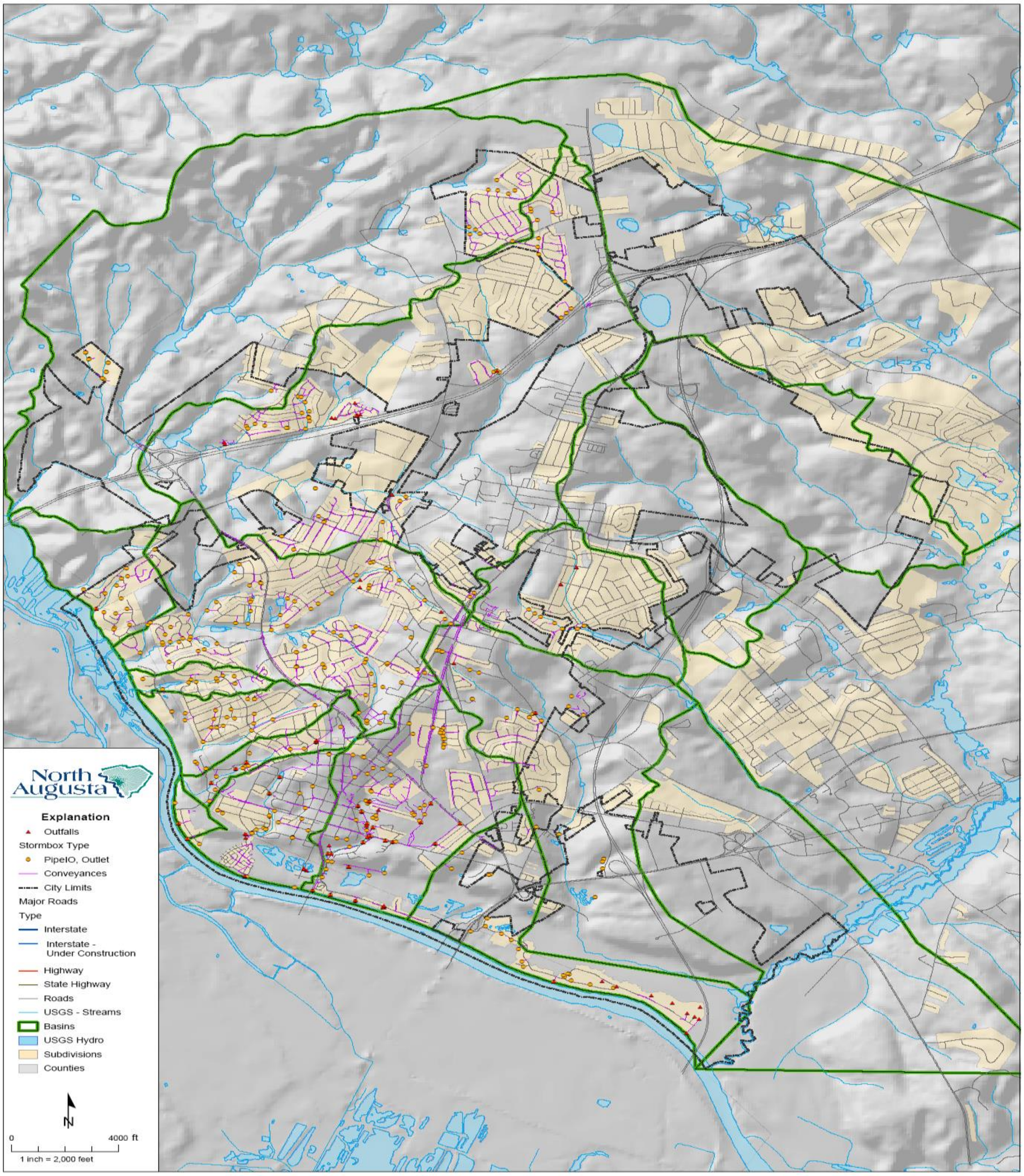
A MONITORING and ASSESSMENT PLAN was developed in January 2015.

The city will monitor Pretty Run creek for illicit discharges through a dry screening program of stormwater system outfalls that discharge to the stream. A **TMDL Monitoring and Assessment Plan** for the watershed, Pretty Run was developed and implemented. The plan elements included the following elements and was fully implemented, completed and reported to DHEC as a requirement of the city's small MS4 permit:

- Visual inspections of each outfall were conducted after approval of the city monitoring plan submitted in **January 2015.** The dry weather visual inspections will continue to determine if flow is occurring. If a flow is identified, an investigation will be initiated to determine the source of the flow. If a source cannot be identified, city staff will sample the flow to determine if *e. coli* bacteria are present and at what concentration. Follow-up testing may need to be initiated to determine source.
- Smoke testing continues when necessary in the watershed
- Dye testing continues when necessary in the watershed
- Water quality assessments continue
- Sewer system assessments within the watershed are identified
- On the ground field assessments within the watershed to assess ground conditions continue.
- Wet weather monitoring continues
- Stormwater monitoring continues

Upon completion of the regulatory sampling, investigation and source tracking of the watershed, the data was reported to DHEC and also to the EPA. The results to date indicate the most likely and probable source of the *e. coli* in the watershed is wild life due to the concentration of them along the stream corridors within the basin due to development pressures. The city has reviewed options to reduce pollutant loads to the MEP and continue to implement projects to address infrastructure failures that may contribute. In 2019, a capital project was funded within Lynnhurst Subdivision to replace inadequate storm pipes to reduce storm sewer overflow and flooding that likely contributed to washing pollutants into the basin stream, Pretty Run. The basin is a priority 1 basin and all stormwater infrastructure is observed and serviced annually.

North Augusta Storm Sewer Map



City of North Augusta Stormwater Management
Small Municipal Separate Storm Sewer System (sMS4)
Permit #SCR030304
Annual Report
September 1, 2008 - August 30, 2009

City of North Augusta
Storm Sewer Outfalls Mapped to Date
August 30, 2009

Report: #CNAsMS4 2009 Annual Report

Appendix A: Storm Sewer Map

Appendix A: North Augusta sMS4 Schedule of Best Management Practices

The City of North Augusta Phase II NPDES management plan consists of the following six minimum control measures. Each control measure has associated goals, or Best Management Practices (BMPs), that will be implemented during the course of the permit term. It is through the implementation and evaluation of these BMPs that the City will ensure that all the objectives of the Phase II NPDES program will be met. Following is a discussion of each BMP (based on the current MS4 permit 1/1/2020).

BEST MANAGEMENT PRACTICES FOR PUBLIC EDUCATION AND OUTREACH	
BMP 1 A, B, & C	**MEASURABLE GOALS AND MILESTONES**
Goals	Assess/Evaluate/Target Education & Outreach Campaign
Milestone Year 1 2020	Re-establish & identify top three High Priority POCs, conduct a comprehensive assessment of existing outreach activities, evaluate success or weakness, target audiences, and develop program short term-goals and long-term goals and milestones to address top 3 POCs. Update SWMP at end of process.
Milestone Year 2 2021	Implement short-term goals & milestones (from planning process in year one)
Milestone Year 3 2022	Implement program goals and milestones year 2.
Milestone Year 4 2023	Implement program goals and milestones year 3.
Milestone Year 5 2024	Implement program goals and milestones year 4. In June, conduct assessment of program.
BMP 1 D& E	**MEASURABLE GOALS AND MILESTONES**
Goals	Education & Outreach to all Residential Households and Commercial Businesses in the City
Milestone Year 1 2020	Resource Newsletter (1 annual in-mail), Conduct Earth Day Activities, Update & Maintain SW Web Site, Continue SD Marking, Electronic Resource, HHAZ Survey
Milestone Year 2 2021	Resource Newsletter (1 annual in-mail), Conduct Earth Day Activities, Update & Maintain SW Web Site, Continue SD Marking, Electronic Resource, HHAZ Survey
Milestone Year 3 2022	Resource Newsletter (1 annual in-mail), Conduct Earth Day Activities, Update & Maintain SW Web Site, Continue SD Marking, Electronic Resource, HHAZ Survey
Milestone Year 4 2023	Resource Newsletter (1 annual in-mail), Conduct Earth Day Activities, Update & Maintain SW Web Site, Continue SD Marking, Electronic Resource, HHAZ Survey
Milestone Year 5 2024	Resource Newsletter (1 annual in-mail), Conduct Earth Day Activities, Update & Maintain SW Web Site, Continue SD Marking, Electronic Resource, HHAZ Survey
BMP 1F	**MEASURABLE GOALS AND MILESTONES**

Goals	CONDUCT Educational Workshops/Seminars-Professional/Residential audiences (*also meets other MCMs*)
Milestone Year 1 2020	Contractors Workshop with handouts
Milestone Year 2 2021	Engineers & Developers with handouts, permit department brochures
Milestone Year 3 2022	Residential Customer training workshop) with handouts
Milestone Year 4 2023	Commercial Customer training workshop with handouts, permit department brochures
Milestone Year 5 2024	Engineering & Developers (Upcoming permit) with handouts

BMP 1G	**MEASURABLE GOALS AND MILESTONES**
Goals	Educate/Outreach to City Employees (*also meets other MCMs*)
Milestone Year 12020	Conduct Annual Refresher training (through departmental safety meetings), document
Milestone Year 2 2021	Conduct Annual Refresher training (through departmental safety meetings), document
Milestone Year 3 2022	Conduct Annual Refresher training (through departmental safety meetings), document
Milestone Year 4 2023	Conduct Annual Refresher training (through departmental safety meetings), document
Milestone Year 5 2024	Conduct Annual Refresher training (through departmental safety meetings), document

BMP 1H	**MEASURABLE GOALS AND MILESTONES**
Goals	Stormwater Education (Brick Pond Park SW Treatment Wetland) (*also meets other MCMs)*
Milestone Year 12020	Conduct 1 mtg with Advisory Group, Conduct 3 BPP Field Trips
Milestone Year 2 2021	Conduct 3 BPP Field Trips
Milestone Year 3 2022	Conduct 1 mtg with Advisory Group, Conduct 3 BPP Field Trips
Milestone Year 4 2023	Conduct 3 BPP Field Trips
Milestone Year 5 2024	Conduct 1 mtg with Advisory Group, Conduct 3 BPP Field Trips

BMP 1H	**MEASURABLE GOALS AND MILESTONES**
Goals	Local School Edcuational Opportunities
Milestone Year 1 2020	Conduct activities (i.e., Science Day) with local schools to teach stormwater education.
Milestone Year 2 2021	Conduct activities (i.e., Science Day) with local schools to teach stormwater education.
Milestone Year 3 2022	Conduct activities (i.e., Science Day) with local schools to teach stormwater education.
Milestone Year 4 2023	Conduct activities (i.e., Science Day) with local schools to teach stormwater education.

Milestone Year 5 2024	Conduct activities (i.e., Science Day) with local schools to teach stormwater education.

BEST MANAGEMENT PRACTICES FOR PUBLIC INVOLVEMENT AND PARTICIPATION	
BMP 2A	**MEASURABLE GOALS AND MILESTONES**
Goals	Documentation/Written Procedures for this BMP
Milestone Year 1 2020	Review current and planned activities, evaluate effectiveness and adjust if necessary to improve this MCM to the MEP.
Milestone Year 2 2021	Document written procedures for evaluation and selection of BMPs, and implementation and a way to assess effectiveness. Update SWMP if needed.
Milestone Year 3 2022	Continue to conduct all BMPs and use data from activities to improve or modify program procedures, Update SWMP if needed.
Milestone Year 4 2023	Continue to conduct all BMPs and use data from activities to improve or modify program procedures, Update SWMP if needed.
Milestone Year 5 2024	Continue to conduct all BMPs and use data from activities to improve or modify program procedures, Update SWMP if needed.
BMP 2B	**MEASURABLE GOALS AND MILESTONES**
Goals	Education Partnership Advisory Group & Brick Pond Park Education Program
Milestone Year 1 2020	Conduct Bi-Annual mtg of Advisory Group & 3 Field Trips to BPP
Milestone Year 2 2021	Three Field Trips to BPP
Milestone Year 3 2022	Conduct Bi-annual mtg of Advisory Group & 3 Field Trips to BPP
Milestone Year 4 2023	Three Field Trips to BPP
Milestone Year 5 2024	Conduct Bi-Annual mtg of Advisory Group & 3 Field Trips to BPP
BMP 2 C & F	**MEASURABLE GOALS AND MILESTONES**
Goals	Household Hazardous Waste Collection Events & Recycling Awareness Program
Milestone Year 1 2020	One event + public education component (survey/contact with each participant), Increase awareness and Participation in Recycling, document efforts and participation.
Milestone Year 2 2021	One event + public education component (survey/contact with each participant), Increase awareness and Participation in Recycling, document efforts and participation.
Milestone Year 3 2022	One event + public education component (survey/contact with each participant), Increase awareness and Participation in Recycling, document efforts and participation.

Milestone Year 4 2023	One event + public education component (survey/contact with each participant), Increase awareness and Participation in Recycling, document efforts and participation.
Milestone Year 5 2024	One event + public education component (survey/contact with each participant), Increase awareness and Participation in Recycling, document efforts and participation.

BMP 2D	**MEASURABLE GOALS AND MILESTONES**
Goals	Storm drain marking program
Milestone Year 1 2020	Provide materials and mark storm drains – 40 drains
Milestone Year 2 2021	Provide materials and mark storm drains – 40 drains
Milestone Year 3 2022	Provide materials and mark storm drains – 40 drains
Milestone Year 4 2023	Provide materials and mark storm drains – 40 drains
Milestone Year 5 2024	Provide materials and mark storm drains – 40 drains

BMP 2E	**MEASURABLE GOALS AND MILESTONES**
Goals	Earth Day Event (or other if not held)
Milestone Year 1 2020	One event + public education component
Milestone Year 2 2021	One event + public education component
Milestone Year 3 2022	One event + public education component
Milestone Year 4 2023	One event + public education component
Milestone Year 5 2024	One event + public education component

BMP 2G	**MEASURABLE GOALS AND MILESTONES**
Goals	City Website & Public Participation
Milestone Year 1 2020	Update City website pages for stormwater that incorporates public involvement element/subscriptions to newsletters, social media component, volunteer mechanism, reporting mechanism
Milestone Year 2 2021	Review and assess effectiveness of website elements, improve if needed, edit or eliminate those not being utilized, update information routinely.
Milestone Year 3 2022	Review and assess effectiveness of website elements, improve if needed, edit or eliminate those not being utilized, update information routinely.
Milestone Year 4 2023	Review and assess effectiveness of website elements, improve if needed, edit or eliminate those not being utilized, update information routinely.

Milestone Year 5 2024	Review and assess effectiveness of website elements, improve if needed, edit or eliminate those not being utilized, update information routinely.
BMP 2H	**MEASURABLE GOALS AND MILESTONES**
Goals	Development public involvement through Planning
Milestone Year 1 2020	Provide updated water quality assessment to planning commission, city council, and staff involved in development activity decisions. Use ranking system to update ranking of sub-basins in watershed.
Milestone Year 2 2021	Review and document public participation in the development process for the year in annual report.
Milestone Year 3 2022	Review and document public participation in the development process for the year in annual report.
Milestone Year 4 2023	Review water quality assessments and incorporate new findings from IDDE activities into ranking scheme if needed. Document public participation in the development process for the year in annual report.
Milestone Year 5 2024	Review and document public participation in the development process for the year in annual report.
BEST MANAGEMENT PRACTICES FOR ILLICIT DISCHARGE DETECTION AND ELIMINATION	
BMP 3 A & E	**MEASURABLE GOALS AND MILESTONES**
Goals	Field Assessment and IDDE
Milestone Year 1 2020	Create Dry Field Screening Procedures using <u>e-notepads to document activities</u> (incorporate complaint system tracking) 20% of outfall/system to be assessed
Milestone Year 2 2021	Conduct field dry screening activities, document and eliminate illicit discharges identified. 20% of outfall/system to be assessed
Milestone Year 3 2022	Conduct field dry screening activities, document and eliminate illicit discharges identified. Finalize field screening activities. Conduct an assessment of program. 20% of outfall/system to be assessed
Milestone Year 4 2023	Update field screening SOP if necessary to improve program. 20% of outfall/system to be assessed
Milestone Year 5 2024	Conduct field dry screening activities, document and eliminate illicit discharges identified.
BMP 3 B, C & H	**MEASURABLE GOALS AND MILESTONES**

Goals	Continue mapping storm system. *Update map to identify high priority areas (Rank 1-5 high to low), and implement field assessment program, and input data generated to mapping system.*
Milestone Year 1 2020	Update map of high priority areas and provide to field assessment staff to develop field assessment plan based on outfalls or discharge locations to TMDL, 303d or other impaired streams.
Milestone Year 2 2021	High priority areas assessment (all High Priority 1 areas) field assessments conducted and findings incorporated into GIS mapping system. Illicit discharges identified and eliminated mapped.
Milestone Year 3 2022	Assessment (Priority 2 areas) field assessments conducted and findings incorporated into GIS mapping system. Illicit discharges identified and eliminated mapped.
Milestone Year 4 2023	Report findings in 3rd annual report. Utilize field screening assessment report (from BMP 3A) to create updated maps of priority areas. Field staff work on assessments in Priority 3 areas
Milestone Year 5 2024	Field staff to conduct field screening activities on remaining areas necessary.
BMP 3D	**MEASURABLE GOALS AND MILESTONES**
Goals	Existing Storm Sewer Map QA/QC
Milestone Year 1 2020	Visit, Verify and Correct Mapping (if any) 20% of MS4
Milestone Year 2 2021	Visit, Verify and Correct Mapping (if any) 20% of MS4
Milestone Year 3 2022	Visit, Verify and Correct Mapping (if any) 20% of MS4
Milestone Year 4 2023	Visit, Verify and Correct Mapping (if any) 20% of MS4
Milestone Year 5 2024	Visit, Verify and Correct Mapping (if any) 20% of MS4
BMP 3G	**MEASURABLE GOALS AND MILESTONES**
Goals	BMP Implementation Program
Milestone Year 1 2020	Using field assessments, monitoring, mapping and prioritized watershed maps, assess the use of BMPs to reduce top three high priority POCs in Pretty Run. Develop plan to implement, grant funding?
Milestone Year 2 2021	Based on assessment, implement small scale pilot project in TMDL watershed and conduct assessment, field screening to determine if the project has positive outcomes.
Milestone Year 3 2022	Increase BMP implementation based on data generated in year 2. Monitor and assess outcomes.

Milestone Year 4 2023	Increase BMP implementation based on data generated in year 3. Monitor and assess outcomes.
Milestone Year 5 2024	Re-assess strategy and implementation program. Modify goals, milestones and projected outcomes if needed.

BMP 3I	**MEASURABLE GOALS AND MILESTONES**
Goals	City storm sewer infrastructure maintenance, field staff, utilize e-data for recordkeeping
Milestone Year 1 2020	Observe, maintain or repair 20% of Storm Sewer Infrastructure or develop corrective plan and time-frame for capital projects. Utilize electronic devices for data collection and reporting.
Milestone Year 2 2021	Observe, maintain or repair 20% of Storm Sewer Infrastructure or develop corrective plan and time-frame for capital projects. Utilize electronic devices for data collection and reporting.
Milestone Year 3 2022	Observe, maintain or repair 20% of Storm Sewer Infrastructure or develop corrective plan and time-frame for capital projects. Utilize electronic devices for data collection and reporting.
Milestone Year 4 2023	Observe, maintain or repair 20% of Storm Sewer Infrastructure or develop corrective plan and time-frame for capital projects. Utilize electronic devices for data collection and reporting.
Milestone Year 5 2024	Observe, maintain or repair 20% of Storm Sewer Infrastructure or develop corrective plan and time-frame for capital projects. Utilize electronic devices for data collection and reporting.
BMP 3J	**MEASURABLE GOALS AND MILESTONES**
Goals	CONDUCT Educational Workshops/Seminars-Professional/Residential audiences (also meets other MCMs)
Milestone Year 1 2020	Contractors Workshop with handouts
Milestone Year 2 2021	Engineers & Developers with handouts, permit department brochures
Milestone Year 3 2022	Residential Customer training workshop) with handouts
Milestone Year 4 2023	Commercial Customer training workshop with handouts, permit department brochures
Milestone Year 5 2024	Engineering & Developers (Upcoming permit) with handouts
BMP 3K	**MEASURABLE GOALS AND MILESTONES**
Goals	City Website & Reporting

Milestone Year 1 2020	Update City website pages for stormwater that incorporates public involvement through a reporting mechanism
Milestone Year 2 2021	Update City website pages for stormwater that incorporates public involvement through a reporting mechanism
Milestone Year 3 2022	Update City website pages for stormwater that incorporates public involvement through a reporting mechanism
Milestone Year 4 2023	Update City website pages for stormwater that incorporates public involvement through a reporting mechanism
Milestone Year 5 2024	Review and assess effectiveness of website elements, improve if needed, edit or eliminate those not being utilized, update information routinely.
BMP 3L	**MEASURABLE GOALS AND MILESTONES**
Goals	Enforcement Program
Milestone Year 1 2020	Identify illicit discharges and implement corrective action requirements utilizing ERP & Codes Enforcement Staff (if required) to bring compliance. Track compliance and document.
Milestone Year 2 2021	Identify illicit discharges and implement corrective action requirements utilizing ERP & Codes Enforcement Staff (if required) to bring compliance. Track compliance and document.
Milestone Year 3 2022	Identify illicit discharges and implement corrective action requirements utilizing ERP & Codes Enforcement Staff (if required) to bring compliance. Track compliance and document.
Milestone Year 4 2023	Identify illicit discharges and implement corrective action requirements utilizing ERP & Codes Enforcement Staff (if required) to bring compliance. Track compliance and document.
Milestone Year 5 2024	Identify illicit discharges and implement corrective action requirements utilizing ERP & Codes Enforcement Staff (if required) to bring compliance. Track compliance and document.
BMP 3M	**MEASURABLE GOALS AND MILESTONES**
Goals	Facility Inspections
Milestone Year 1 2020	Conduct inspections at 20% of industrial and 100% of high & medium priority municipal facilities for illicit discharges and structural controls. Require corrective action if problems are found, follow-up, tracking and documentation of results.

Milestone Year 2 2021	Conduct inspections at 20% of industrial and 100% of high & medium municipal facilities for illicit discharges and structural controls. Require corrective action if problems are found, follow-up, tracking and documentation of results.
Milestone Year 3 2022	Conduct inspections at 20% of industrial and 100% of high & medium municipal facilities for illicit discharges and structural controls. Require corrective action if problems are found, follow-up, tracking and documentation of results.
Milestone Year 4 2023	Conduct inspections at 20% of industrial and 100% of high & medium municipal facilities for illicit discharges and structural controls. Require corrective action if problems are found, follow-up, tracking and documentation of results.
Milestone Year 5 2024	Conduct inspections at 20% of industrial and 100% of high & medium municipal facilities for illicit discharges and structural controls. Require corrective action if problems are found, follow-up, tracking and documentation of results.
BMP 3N	**MEASURABLE GOALS AND MILESTONES**
Goals	Pollutant Removal and reductions
Milestone Year 1 2020	Conduct annual Household Hazardous Waste Collection event, continue street sweeping, drain cleaning, litter pickup and park maintenance activities. Document waste reduction, report.
Milestone Year 2 2021	Conduct annual Household Hazardous Waste Collection event, continue street sweeping, drain cleaning, litter pickup and park maintenance activities. Document waste reduction, report.
Milestone Year 3 2022	Conduct annual Household Hazardous Waste Collection event, continue street sweeping, drain cleaning, litter pickup and park maintenance activities. Document waste reduction, report.
Milestone Year 4 2023	Conduct annual Household Hazardous Waste Collection event, continue street sweeping, drain cleaning, litter pickup and park maintenance activities. Document waste reduction, report.
Milestone Year 5 2024	Conduct annual Household Hazardous Waste Collection event, continue street sweeping, drain cleaning, litter pickup and park maintenance activities. Document waste reduction, report.
BEST MANAGEMENT PRACTICES FOR CONSTRUCTION SITE RUNOFF CONTROL PROGRAM	
BMP 4A	**MEASURABLE GOALS AND MILESTONES**
Goals	Application for Construction Permit Review and Issuance (by Qualified Personnel, PE or SWPR)
Milestone Year 1 2020	Complete review of 100% of Applications to City (meets Development Code Ordinances)

Milestone Year 2 2021	Complete review of 100% of Applications to City (meets Development Code Ordinances)
Milestone Year 3 2022	Complete review of 100% of Applications to City (meets Development Code Ordinances)
Milestone Year 4 2023	Complete review of 100% of Applications to City (meets Development Code Ordinances)
Milestone Year 5 2024	Complete review of 100% of Applications to City (meets Development Code Ordinances)

BMP 4B	**MEASURABLE GOALS AND MILESTONES**
Goals	New Development Site Inspections (by Qualified Personnel, CEPSCI Certified)
Milestone Year 1 2020	All active Permitted Sites to be inspected twice (2x) per month.
Milestone Year 2 2021	All active Permitted Sites to be inspected twice (2x) per month.
Milestone Year 3 2022	All active Permitted Sites to be inspected twice (2x) per month.
Milestone Year 4 2023	All active Permitted Sites to be inspected twice (2x) per month.
Milestone Year 5 2024	All active Permitted Sites to be inspected twice (2x) per month.

BMP 4C	**MEASURABLE GOALS AND MILESTONES**
Goals	Establish & Maintain Standards
Milestone Year 1 2020	Review and update (if necessary) the city Sediment & Erosion Control Manual and city Water Quality Manual to incorporate new design standards or technologies required for new or re-developed construction projects so that the requirements of the small MS4 permit are included. Provide electronic and hard copies for use by developers, engineers and contractors.
Milestone Year 2 2021	Update as necessary (if new data or requirements indicates a need) to include new technologies or maintenance procedures required to protect water quality.
Milestone Year 3 2022	Update as necessary (if new data or requirements indicates a need) to include new technologies or maintenance procedures required to protect water quality.
Milestone Year 4 2023	Update as necessary (if new data or requirements indicates a need) to include new technologies or maintenance procedures required to protect water quality.
Milestone Year 5 2024	Update as necessary (if new data or requirements indicates a need) to include new technologies or maintenance procedures required to protect water quality.

BMP 4 D & E	**MEASURABLE GOALS AND MILESTONES**
Goals	Enforcement & Compliance
Milestone Year 1 2020	100% of permitted development sites will be in compliance. Enforcement actions for those that fail to bring site into compliance by one or all of the following: stop work, permit

	revoked, city repair at owner expense, or legal action & fines. Document and track compliance to identify if repeat noncompliance warrants stricter controls or enforcement.
Milestone Year 2 2021	100% of permitted development sites will be in compliance. Enforcement actions for those that fail to bring site into compliance by one or all of the following: stop work, permit revoked, city repair at owner expense, or legal action/fines. Document and track compliance to identify if repeat noncompliance warrants stricter controls or enforcement.
Milestone Year 3 2022	100% of permitted development sites will be in compliance. Enforcement actions for those that fail to bring site into compliance by one or all of the following: stop work, permit revoked, city repair at owner expense, or legal action/fines. Document and track compliance to identify if repeat noncompliance warrants stricter controls or enforcement.
Milestone Year 4 2023	100% of permitted development sites will be in compliance. Enforcement actions for those that fail to bring site into compliance by one or all of the following: stop work, permit revoked, city repair at owner expense, or legal action/fines. Document and track compliance to identify if repeat noncompliance warrants stricter controls or enforcement.
Milestone Year 5 2024	100% of permitted development sites will be in compliance. Enforcement actions for those that fail to bring site into compliance by one or all of the following: stop work, permit revoked, city repair at owner expense, or legal action/fines. Document and track compliance to identify if repeat noncompliance warrants stricter controls or enforcement.

BMP 4F	**MEASURABLE GOALS AND MILESTONES**
Goals	Construction Education & Training Events
Milestone Year 1 2020	Provide city website with all forms and instructions for developers, engineers and contractors to acquire and maintain a permit. Conduct contractor seminar/workshop
Milestone Year 2 2021	Develop and supply outreach materials Conduct engineer/developer workshop
Milestone Year 3 2022	Develop and supply outreach materials
Milestone Year 4 2023	Develop and supply outreach materials
Milestone Year 5 2024	Workshop/seminar training event – developers/engineers if new permit is issued.
BMP 4G	**MEASURABLE GOALS AND MILESTONES**
Goals	Development public involvement through Planning
Milestone Year 12020	Provide updated water quality assessment to planning commission, city council, and staff involved in development activity decisions. Use ranking system to update ranking of sub-basins in watershed.
Milestone Year 2 2021	Review and document public participation in the development process for the year in annual report.

Milestone Year 3 2022	Review and document public participation in the development process for the year in annual report.
Milestone Year 4 2023	Review water quality assessments and incorporate new findings from IDDE activities into ranking scheme if needed. Document public participation in the development process for the year in annual report.
Milestone Year 5 2024	Review and document public participation in the development process for the year in annual report.

BEST MANAGEMENT PRACTICES FOR POST CONSTRUCTION STORMWATER RUNOFF CONTROL	
BMP 5A	**MEASURABLE GOALS AND MILESTONES**
Goals	Post Construction Device Tracking, Information Management
Milestone Year 12020	Maintain and update inventory of installed post-construction structural stormwater control devices at new or redeveloped sites. Include maintenance and inspection records, and corrective action activities to ensure working as designed. (100% inventory, 20% inspected)
Milestone Year 2 2021	Maintain inventory of installed post-construction structural stormwater control devices, log maintenance and inspection records, and corrective action activities for the period (20%)
Milestone Year 3 2022	Maintain inventory of installed post-construction structural stormwater control devices, log maintenance and inspection records, and corrective action activities for the period (20%) Incorporate inventory & assessment information in GIS.
Milestone Year 4 2023	Maintain inventory of installed post-construction structural stormwater control devices, log maintenance and inspection records, and corrective action activities for the period (20%) Verify GIS data for accuracy.
Milestone Year 5 2024	Maintain inventory of installed post-construction structural stormwater control devices, log maintenance and inspection records, and corrective action activities for the period (20%) Finalize GIS inventory and update as new or redevelopment alters controls, new controls are added, or existing controls are removed or upgraded.
BMP 5B	**MEASURABLE GOALS AND MILESTONES**
Goals	Post-construction control inspections (All controls over permit period)

Milestone Year 12020	Contact owners, inspect sites and records to ensure existing post-structural controls are working as designed and maintenance is ongoing. Year 1 inspect 20% of total.
Milestone Year 2 2021	Contact owners, inspect sites and records to ensure existing post-structural controls are working as designed and maintenance is ongoing. Year 1 inspect 20% of total.
Milestone Year 3 2022	Contact owners, inspect sites and records to ensure existing post-structural controls are working as designed and maintenance is ongoing. Year 1 inspect 20% of total.
Milestone Year 4 2023	Contact owners, inspect sites and records to ensure existing post-structural controls are working as designed and maintenance is ongoing. Year 1 inspect 20% of total.
Milestone Year 5 2024	Contact owners, inspect sites and records to ensure existing post-structural controls are working as designed and maintenance is ongoing. Year 1 inspect 20% of total.

BMP 5C	**MEASURABLE GOALS AND MILESTONES**
Goals	Post-construction Maintenance Assurance and Enforcement (All controls in compliance within permit period)
Milestone Year 1 2020	For malfunctioning devices, give a time-frame for compliance and establishment of a routine maintenance schedule. Follow-up to assure compliance as described in the city ERP. (20%)
Milestone Year 2 2021	For malfunctioning devices, give a time-frame for compliance and establishment of a routine maintenance schedule. Follow-up to assure compliance as described in the city ERP. (20%)
Milestone Year 3 2022	For malfunctioning devices, give a time-frame for compliance and establishment of a routine maintenance schedule. Follow-up to assure compliance as described in the city ERP. (20%)
Milestone Year 4 2023	For malfunctioning devices, give a time-frame for compliance and establishment of a routine maintenance schedule. Follow-up to assure compliance as described in the city ERP. (20%)
Milestone Year 5 2024	For malfunctioning devices, give a time-frame for compliance and establishment of a routine maintenance schedule. Follow-up to assure compliance as described in the city ERP. (20%)
BMP 5D	**MEASURABLE GOALS AND MILESTONES**
Goals	Discharges to TMDL/303d or sensitive streams/waters.
Milestone Year 1 2020	Identify location of all devices (existing/new development/redeveloped) that discharge to a TMDL or 303d or sensitive sub-basin in the city, list these devices as highest priority for compliance initiatives.

Milestone Year 2 2021	Conduct inspections of identified high priority devices. Ensure these devices (through the ERP) are working as designed and being maintained. (This period - a minimum 50% of devices up to 100%)
Milestone Year 3 2022	Conduct inspections of identified high priority devices. Ensure these devices (through the ERP) are working as designed and being maintained. (This period - at a minimum 50% of devices up to 100%)
Milestone Year 4 2023	Work with owners of high priority existing devices (that have not met the performance standards) to educate them on water quality issues and to determine BMPs that would help to improve water quality and provide incentives to achieve implementation where possible.
Milestone Year 5 2024	Incorporate data from Year 1 -3 into GIS, and place high priority devices on a more frequent city inspection and owner inspection/maintenance program.
BMP 5E	**MEASURABLE GOALS AND MILESTONES**
Goals	New and redeveloped sites – Performance Standards Plan Review
Milestone Year 1 2020	During permitting process, ensure that each submitted site plan meets the city performance standards, based on disturbed acreage and/or LCP. Redeveloped sites must consider LID practices.
Milestone Year 2 2021	During permitting process, ensure that each submitted site plan meets the city performance standards, based on disturbed acreage and/or LCP. Redeveloped sites must consider LID practices.
Milestone Year 3 2022	During permitting process, ensure that each submitted site plan meets the city performance standards, based on disturbed acreage and/or LCP. Redeveloped sites must consider LID practices.
Milestone Year 4 2023	During permitting process, ensure that each submitted site plan meets the city performance standards, based on disturbed acreage and/or LCP. Redeveloped sites must consider LID practices.
Milestone Year 5 2024	During permitting process, ensure that each submitted site plan meets the city performance standards, based on disturbed acreage and/or LCP. Redeveloped sites must consider LID practices.

BMP 5F	**MEASURABLE GOALS AND MILESTONES**
Goals	Education – Performance Standards, Retrofitting existing controls, Incentives
Milestone Year 12020	Prepare education materials to hand out during inspections (BMPs, TMDLs, Retrofitting, Incentives), and information on the city website and newsletters. Meet with owners to inform them of the issues in conjunction with inspections.

Milestone Year 2 2021	Prepare education materials to hand out during inspections (BMPs, TMDLs, Retrofitting, Incentives), and information on the city website and newsletters. Meet with owners to inform them of the issues in conjunction with inspections. Update Water Quality Manual with retrofitting section with written procedures to assess and implement additional BMPs at existing sites.
Milestone Year 3 2022	Conduct one Residential or Home Owner Association Workshop/seminar
Milestone Year 4 2023	Conduct one Commercial customer training workshop/seminar
Milestone Year 5 2024	Prepare additional education and outreach to deliver to owners during inspections. Assess owner knowledge through a survey or other instrument.
BEST MANAGEMENT PRACTICES FOR MUNICIPAL POLLUTION PREVENTION AND GOOD HOUSEKEEPING	
BMP 6A	**MEASURABLE GOALS AND MILESTONES**
Goals	Muncipal Employee Education Program
Milestone Year 1 2020	Designated employees attend one refresher training event.
Milestone Year 2 2021	Designated employees attend one refresher training event.
Milestone Year 3 2022	Designated employees attend one refresher training event.
Milestone Year 4 2023	Designated employees attend one refresher training event.
Milestone Year 5 2024	Designated employees attend one refresher training event.
BMP 6B	**MEASURABLE GOALS AND MILESTONES**
Goals	MAINTAIN Municipal Facility and Stormwater Control Inventory (MFACI) - Prioritize High to Low
Milestone Year 1 2020	Review and update MFACI
Milestone Year 2 2021	Conduct quarterly inspections and one annual inspection of High Priority facility(s)
Milestone Year 3 2022	Conduct quarterly inspections and one annual inspection of High Priority facility(s)
Milestone Year 4 2023	Conduct quarterly inspections and one annual inspection of High Priority facility(s)
Milestone Year 5 2024	Conduct quarterly inspections and one annual inspection of High Priority facility(s)
BMP 6C	**MEASURABLE GOALS AND MILESTONES**
Goals	Map and prioritize all catch basins in the MS4 (based on potential to discharge POCs), *Assess, Repair and Maintain High Ranking Structures*

Milestone Year 1 2020	Conduct inspection, assessment, repair and or maintenance on 20% of high ranking structures.
Milestone Year 2 2021	Conduct inspection, assessment, repair and or maintenance on 20% of high ranking structures.
Milestone Year 3 2022	Conduct inspection, assessment, repair and or maintenance on 20% of high ranking structures.
Milestone Year 4 2023	Conduct inspection, assessment, repair and or maintenance on 20% of high ranking structures.
Milestone Year 5 2024	Conduct inspection, assessment, repair and or maintenance on 20% of high ranking structures.
BMP 6D	**MEASURABLE GOALS AND MILESTONES**
Goals	Develop a set of pollution reduction plans for city operation and maintenance activities (rank for pollutant potential and create/implement high-lower potential). Schedule below may be adjusted based on prioritization.
Milestone Year 1 2020	Develop pollution reduction plan for pavement and right of way maintenance
Milestone Year 2 2021	Develop pollution reduction plan for municipal events and festivals
Milestone Year 3 2022	Develop pollution reduction plan for public utilities during O&M
Milestone Year 4 2023	Develop pollution reduction plan for parks & recreation
Milestone Year 5 2024	Develop pollution reduction plan for public safety
BMP 6E	**MEASURABLE GOALS AND MILESTONES**
Goals	Maintenance of city owned/maintained stormwater structural controls.
Milestone Year 1 2020	Inspect all city owned or maintained stormwater structural controls (rank as high if discharging to TMDL/303d or sensitive stream/waterbody). Maintain and repair all high ranked structural controls.
Milestone Year 2 2021	Maintain, repair or implement additional BMPs to 20% of structural controls to reduce pollutants.
Milestone Year 3 2022	Maintain, repair or implement additional BMPs to 20% of structural controls to reduce pollutants.
Milestone Year 4 2023	Maintain, repair or implement additional BMPs to 20% of structural controls to reduce pollutants.
Milestone Year 5 2024	Maintain, repair or implement additional BMPs to 20% of structural controls to reduce pollutants.

BMP 6F	MEASURABLE GOALS AND MILESTONES
Goals	Educational Materials Development & Training
Milestone Year 1 2020	Acquire or develop annual training materials and refresher course materials.
Milestone Year 2 2021	Acquire or develop annual training materials and refresher course materials.
Milestone Year 3 2022	Acquire or develop annual training materials and refresher course materials.
Milestone Year 4 2023	Acquire or develop annual training materials and refresher course materials.
Milestone Year 5 2024	Acquire or develop annual training materials and refresher course materials.

BMP 6G	MEASURABLE GOALS AND MILESTONES
Goals	Establish Contractor Oversight for city projects.
Milestone Year 1 2020	Inspect city owned projects and require compliance through report or enforcement.
Milestone Year 2 2021	Inspect city owned projects and require compliance through report or enforcement.
Milestone Year 3 2022	Inspect city owned projects and require compliance through report or enforcement.
Milestone Year 4 2023	Inspect city owned projects and require compliance through report or enforcement.
Milestone Year 5 2024	Inspect city owned projects and require compliance through report or enforcement.

Appendix B: City of North Augusta Stormwater Ordinance

Appendix C: City of North Augusta Illicit Discharge Ordinance

Appendix D: City of North Augusta Construction Program Ordinance (updated 12/21/21)

Appendix E: City of North Augusta Stormwater Management Fund (current year)

City of North Augusta

Stormwater Management Department

Enforcement Response Plan *(A Guidance Document only)*

The City of North Augusta's Stormwater Management Department inspects and investigates impacts to its storm sewer system and watershed as required by its MS4 permit. This document explains the legal authority of the department, types of violations that require correction, steps to ensure compliance, and the actions available if compliance is not met.

1. Enforcement Overview - Legal Authority

The following ordinances provide the City of North Augusta's Stormwater Management Department (SWMD) authority to

- access and conduct site inspections,
- conduct monitoring,
- to establish and enforce policy.

I. North Augusta Code - *Article V. Stormwater Management; Division 2. Illicit Discharge*

Sec. 14-150. Purpose/intent

The purpose of this division is to provide for the health, safety, and general welfare of the citizens of the city through the regulation of non-stormwater discharges to the storm drainage system to the "maximum extent practicable" as required by federal and state law. This division establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4). The objectives of this division are:

(1) To prohibit illicit connections and discharges to the municipal separate storm sewer system.

(2) To ensure the proper installation, operation, and maintenance of construction site best management practices (BMPs).

(3) To establish legal authority to carry out all procedures necessary to ensure compliance with this division.

(Ord. No. 03-21, § I, 8/14/03)

Sec 14-161 Enforcement**.**

(1) Whenever the SWMD finds that a person has violated a prohibition or failed to meet a requirement of this division, the SWMD may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

a) The elimination of illicit connections or discharges;

b) That violating discharges, practices, or operations shall cease and desist;
c) The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and
d) The implementation of source control or treatment BMPs.

(2) If Abatement of a violation and/or restoration of affected property are required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the city or a contractor will do the work and the expense thereof shall be charged to the violator.

Sec. 14-162. Civil Penalties.

Any person found to be in violation of this ordinance that fails to comply with a compliance directive issued by the SWMD and referenced in Section 14-161 shall be punishable as provided in Section 1-8(1) of the City Code of North Augusta. Each day in violation of the provisions of this division shall constitute a separate and distinct offense. The punishment shall be in addition to the remedial process provided for in Section 14-161. (Ord. No. 03-21 § I, 8-14-03)

Sec 14-163. Remedies not exclusive.

The remedies listed in this division are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies. (Ord. No. 03-21 § I, 8-14-03)

(Reference 1)

Chapter 1) General Provisions

Sec. 1-8. General penalty; continuing violations.

Wherever in this Code, or in any ordinance or resolution of the council, or rule, regulation, notice or order promulgated or given by any officer or agency of the city under authority duly vested in such officer or agency, and act is prohibited or is declared to be unlawful or an offense or a misdemeanor, and no specific penalty is provided for the violation thereof, the violation of any such provision of this Code or any such ordinance, resolution, rule, regulation, notice or order shall be punished by a fine of not more than five hundred dollars ($500.00) or by imprisonment for not more than thirty (30) days, or both, or as otherwise limited by state law. Each day any violation of this Code or any such ordinance, resolution, rule, regulation, notice or order shall continue, shall constitute, except where otherwise provided, a separate offence.

Sec. 1-10. Ordinance summons.

a) An "ordinance summons" is hereby adopted in accordance with Act 328 of 1992.

b) The city administrator (Administrator), all department directors (Director), and any person designated by the Administrator or Director as a code enforcement officer shall be empowered to use the ordinance summons.

SWMD designee: Codes Enforcement Officer of the City of North Augusta

II. *<u>Ordinance No. 2004-09</u>*: *<u>Establishing Regulations for Erosion and Sediment Reduction and Stormwater Management on Land and Land Disturbing Activities. Effective July 19, 2004</u>*; *<u>Division 3 Construction Permitting for Land Disturbing Activities REVISED-ADOPTED CHANGES December 20, 2021</u>*

<u>Sec. 14-178 Enforcement</u>

(1) *Cease and Desist Order; Revocation of Permit*. In the event that any person holding a site development permit or individual building permit pursuant to this ordinance violates the terms of the permit, or implements site development in such a manner as to materially adversely affect the health, welfare, or safety of persons residing or working in the neighborhood or development site so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the SWMD may suspend or revoke the site development permit by issuance of a written notice.

(2) *Violation and Penalties*. Any person found to be in violation of this ordinance that fails to comply with a compliance directive issued by the SWMD shall be punishable as provided in Section 1-8[(1)] of this Code of Ordinances. Each day in violation of the provisions of this division shall constitute a separate and distinct offense. The punishment shall be in addition to any remedial activity needed to safeguard the public, the environment or the City storm drainage system. The SWMD reserves the right to conduct emergency repair or maintenance to any STP at the responsible party's expense if the responsible party is unwilling or unable to perform the necessary work.

2) Construction Site Compliance Inspections

Required Pre-Construction Meeting:

All projects require a pre-construction meeting prior to beginning work. These meetings are to be conducted on site. The SWMD and the Engineering Department site inspector will meet with representatives of the developer, contractors, sub-contractors, and utility installers to discuss the SWPPP and its requirements**.**

Self-monitoring inspections*:*

Site inspections are to be performed by the stormwater permit holders designated site inspector. As required by the NPDES General Permit for Stormwater Dischargers Associated with Construction Site (hereinafter "NPDES General Permit") a site inspector must be either:

- The stormwater pollution prevention plan (SWPPP) preparer or someone working under his or her direction.
- A DHEC certified erosion prevention and sediment control inspector (CEPSCI). To learn more about obtaining this certification contact Clemson (864) 656-1456 or visit their website at: http://www.clemson.edu/t3s/cepsci/index.htm.
- A professional engineer

Inspections must be performed at the frequency described in the project SWPPP. The SWPPP will indicate the required frequency. For most projects, that is weekly and after storm events that exceed 0.5" of rainfall.

The site inspector is required to perform routine inspections to effectively address maintenance and repair of Best Management Practices (BMPs). As part of the site inspections, the site inspector **must document** the inspection by preparing a sediment and erosion control inspection report for each inspection. The report **must include** findings of the inspection and list maintenance activities required to bring the site into compliance with its permit. The report should include notes regarding changes that may be required to the SWPPP. The site inspector must sign and date the inspection report. To enable effective communication and quick response to any stormwater quality control deficiencies, the City encourages the site inspector to contact the City Stormwater Management Department (803) 441-4246 regarding any questions, concerns, or major changes that may need to be implemented to protect water quality. All of the inspection reports must be kept on site for inspection.

Compliance inspections – Projects with a permitted C-SWPPP*:*

ALL OWNERS AND CONTRACTORS MUST FOLLOW THE PERMIT FOR THE PROJECT WHETHER IT BE A SWPPP (Site Plan and Associated Paperwork) OR AN INDIVDUAL LOT PERMIT (BMP guide or Subdivision SWPPP)

Site inspections are conducted routinely at residential and commercial projects to verify compliance with the approved SWPPP (stormwater pollution prevention plan) also known as "the Permit". Two permits are issued for projects with approval of the SWPPP, the City SW Construction Permit and the state NPDES Construction General Permit (CGP). The SWPPP also may *reference* other permits issued or guidelines required for protection of water quality (e.g. ACOE permits, 404 Permits, FEMA, Well, Septic, UST, SC Forestry BMPs, etc.). City inspectors will notify the project manager and developer of all deficiencies noted during the inspection with a time-frame required to bring the site into compliance before further action will be taken.

Inspection Rating Descriptions:

- **Satisfactory** – the site is in compliance with the SWPPP. For city oversight inspections, the inspection is electronically logged only. No paper report is generated.

- **Marginal** – the site inspection revealed minor site problems or related BMP maintenance issues that need to addressed and indicate that no offsite impacts are immanent. The marginal rating alerts the project manager that maintenance activities need to be addressed as soon as possible. A written report is submitted to the responsible party and permit holder.

- **Unsatisfactory –** the site inspection revealed that:
    - BMPs are not installed according to the SWPPP,
    - insufficient maintenance activities of BMPs are evident,
    - BMP installations are insufficient or improper,
    - site inspections inadequate or are not being performed,
    - *site clearing/grading has gone beyond the limits approved, (immediate Cease & Desist until approved Major Modification in hand)*

- sequence of construction for the project is not being followed,
- or the required documents (NPDES General Permit) are not on site.

The Unsatisfactory rating is to alert the project manager and permit owner that the site is non-compliant with its SWPPP thus violating the terms of the permit(s) and that the site must be brought into compliance. Failure to address the problems within the time-frame allotted by the inspector may result in a Cease & Desist order (aka "Stop Work Order"). After inspection, a written report is submitted to the responsible party or "operator" with a time frame to bring the site into compliance. A follow-up inspection will be conducted at the end of that time frame to verify compliance is met. If the operator cannot meet that deadline, **they must contact the inspector to discuss the issues and ask for more time to complete**. The inspector will conduct the follow-up inspection to verify compliance is met (no charge) on the day specified on the report or the date agreed upon if difficulty arises. For that inspection, if a second unsatisfactory rating is given for the site, the operator must immediately repair the controls and bring the site into compliance and call for a follow-up inspection within the timeframe given on the second report. This subsequent inspection is $50.00. The operator must pay the $50.00 to the city building standards office prior to receiving the third inspection. It may be paid prior to the end of the timeframe given on the second inspection report. **Failure to bring the site into compliance in a timely manner is a violation of the permit.** Each subsequent violation (failure to bring site into compliance) where the operator failed to correct issues or created further issues from the initial (first) unsatisfactory report, will require a fee payment of $50.00 for each inspection until the site is in compliance.

- **Cease & Desist** – The Cease & Desist notice requires that all site work stops *except* activities to correct deficiencies to stabilize the area(s) noted in the report(s) or when further permitting required is attained. No further inspections will be conducted by the city for any purpose except to verify compliance with the stormwater construction permit. If no permit exists, only sediment & erosion control BMPs can be implemented until the permit is issued. This rating alerts the project manager and permit owner that there are deficiencies that require immediate attention to protect properties or waterways from impact and or the site in not in compliance with its SWPPP and/or impacts to waterways, storm sewers, adjacent properties or right of ways are evident or immanent; and/or the operator has ignored stormwater inspection reports and directives, and has failed to manage the site as required by the permit.

  A Cease & Desist may be issued for failure to correct deficiencies. If previous site inspections have concluded that the site is not in compliance [violating the terms of the permit(s)] and no attempts have been made to correct deficiencies and bring the site into Satisfactory condition [within the time frame described in the Unsatisfactory inspection report(s)], the site can be issued a Cease & Desist *regardless* of immanent impacts to adjacent properties, waterways, or right of ways. A written report is submitted to the responsible party and permit holder.

  Operators that repeatedly fail to manage the site according the SWPPP are placed on a heightened inspection program due to those failures and a Cease & Desist may be issued to halt the project to address all stormwater concerns.

  If problems persist and compliance cannot be achieved by the Cease & Desist order, a summons will be issued litigation and fines.

General: Correction Time frames: These time frames may be adjusted based on previous SWMD experiences with project owners, managers or contractors. In addition, in the event of immanent weather forecasts of strong storms and excessive rainfall, the time-frames may be adjusted to prevent impacts that might occur. The actual time frame to bring a site into compliance is at the discretion of the inspector conducting the assessment of site conditions and imminent rainfall.

- **Impacts to waterways**: Discharges must stop immediately. Corrections must be made within 24 hours of inspection (1 day). This includes storm drainage systems leading directly to a waterway. Failure to comply will result in a Cease & Desist order.
- **Immanent/Potential impacts to waterways**: Corrections must be made within 48 hours of inspection (2 days). This includes storm drainage systems leading directly to a waterway.
- **Major impacts to right of ways**: Corrections must be made within 24 hours of inspection (1 day).
- **Minor impacts to right of ways**: Corrections must be made within 48 hours of inspection (2 days).
- **Major impacts to adjacent properties**: Corrections must be made within 24 hours (1 day).
- **Minor Impacts to adjacent properties**: Corrections must be made within 48 hours of inspection (2 days).
- **Installation/Maintenance of required or additional BMPs with no potential for impacts to waterways, adjacent properties, or right of ways:** Corrections must be made within 5 days of the inspection.
- **Installation/Maintenance of required or additional BMPs with immediate threat to waterways, adjacent properties, and right of ways:** Corrections must be made within 24 hours of inspection (1 day).

Compliance inspections – Residential S/D lot or individual lot*:*

Individual lot construction sites in permitted subdivisions or on private lands require an initial satisfactory BMP compliance inspection prior to obtaining a footing inspection by the Building Standards Department. **No land disturbing activity may be initiated until BMPs are in place.** All building permits holders (issued by Building Standards) are considered stormwater permits if an overall SWPPP or site permit is not issued. Each building permit holder is provided a BMP/sediment and erosion control pamphlet that guides them on proper BMPs and requirements. Owners or operators must contact the Stormwater Management Department for a compliance inspection once BMPs have been installed at the site. If the project is evaluated as <u>satisfactory</u> or <u>marginal</u> (see ratings descriptions on Page 4), the contractor may begin clearing and grading the site for the building, begin the footing or foundation work and then contact Building Standards for a footing inspection to proceed to the next step. If the project is rated <u>Unsatisfactory</u>, then BMPs must be installed/repaired and re-inspected and signed off as Satisfactory by the SWMD prior to requesting further site inspections by the Building Standard inspectors.

Failure of owners/contractor(s) to abide by SWMD compliance inspections will result in a Cease & Desist order being issued to that owner/contractor. While a Cease & Desist order is in place on a lot, the city may withhold all other permits under review, city required inspections, or Certificate of Occupancy requested. Repeated violations by a contractor or group of contractors working in a permitted subdivision that has the potential to impact storm sewers or waterways will result in the **subdivision** permit owner receiving a Cease & Desist order that will halt all construction within that subdivision until the permit owner brings the site into compliance with its SWPPP. Enforcement actions may be taken against all parties involved up to a summons.

3) Non-Compliant Inspections

Any maintenance, repair or installation of non-critical BMPs that are noted deficient during the inspection by the site inspector and/or City Inspector must be completed <u>within the time-frame noted on the report</u>. Non-critical means that the inspector deemed that there is no immediate threat to a waterway, adjacent property, or a right of way.

Any maintenance, repair or installations of critical BMPs that are noted during the inspections by the site inspector and/or City Inspector must be completed by the end of the working day or within twenty-four (24) hours from the time of the inspection. Critical deficiencies include any that pose an immediate threat or current impact to a waterway, adjacent property, or right of way.

As noted above, after the initial non-compliance report and its follow-up inspection, there is a fee ($50.00) that will be required for all subsequent inspections resulting from the initial non-compliance report. The $50.00 fee will be charged for all subsequent inspections until the site passes the inspection.

The following information outlines typical non-compliance issues and may lead to enforcement actions.

1. Failure to obtain a City of North Augusta Stormwater Permit and/or failure to obtain a State NPDES Construction General Permit if the project is greater than or equal to one (1) acre or are part of a larger common plan of development or sale. A Cease & Desist site work order will be issued until permits are approved and BMPs are required to be installed immediately if the site is disturbed.

2. Failure to abide by the conditions of the City Stormwater Discharge Permit (SWPPP).

3. Discovery of an illicit discharge to a waterway or the City Storm-sewer system.

4. Failure to properly install, maintain, and/or replace *critical* BMPs by the end of the working day or within twenty four (24) hours of such items being noted unsatisfactory during an inspection.

5. Failure to properly install, maintain, and/or replace non-critical BMPs within five (5) calendar days of such items being noted during an inspection.

6. Impacts to waterways, adjacent properties, or right of ways.

7. Failure to Cease & Desist site work after an order to do so is received, codes enforcement will become involved.

8. Failure of permit holders to inspect and monitor their BMPs and assure that the SWPPP is being followed.

9. Clearing beyond the limits of disturbance indicated within the OS-SWPPP.

10. Clearing and grading more than the permit allows for individual home construction. The permit dictates.

11. Cutting, filling, or disturbing soils in floodplains, floodways, or wetlands without authorization to do so.

Impacts to waterways:

Failure to maintain BMPs in such a way as to impact a waterway is a critical violation of the City Stormwater Discharge Permit, the State NPDES General permit, the South Carolina Pollution Control Act, and the federal Clean Water Act. No discharges of sediment, construction debris, or other pollutants are allowed into waterways, adjacent property, or rights of way within the city.

4) Post-Construction Facility Inspections

All stormwater facilities will be inspected annually for deficiencies and physical integrity. If a deficiency is found, the City inspector will submit a report to the responsible party. If the responsible party fails to correct a critical deficiency in a timely manner, the city may elect to correct the deficiency at the owner's expense.

5) Illicit Discharge Inspections

An illicit discharge is any discharge of pollutants or potential pollutants to the city's storm sewer system or waterways. The city conducts routine investigations, inspections, and water quality monitoring to determine if an illicit discharge is occurring. Any commercial, residential, or construction site found to have an illicit discharge coming from its property will be notified and the discharge must be eliminated immediately. If an illicit discharge is found, the city will contact the responsible party to implement corrective actions at the site. Illicit discharges could lead to an enforcement procedure. Failure to adhere to the direction of the City Stormwater department regarding illicit discharges will lead to enforcement proceeding as stated in (6) Enforcement.

6) Enforcement

If site conditions are found to be in violation of the SWPPP or any other requirements of the Construction Permit during an inspection by the City Inspector, one or all of the following actions may be taken:

1. In some instances, a verbal warning to bring the site into compliance or an email to the permit holder.

2. A Written Compliance Report (Inspection report/Notice of Violation) with a time frame to bring the site into compliance.

3. One free follow-up inspection to determine compliance will be conducted.

4. Cease & desist or stop work order for residential or commercial projects not brought into compliance as determined by a follow-up inspection by the SWMD designated official.

5. Cease & desist or stop work order for individual residential projects that fail to maintain BMPs at their site. No further site inspections from any city department will be conducted until the stop work order is lifted. Pending permits and other city required documents can be put on hold. The stop work order can only be lifted by the Stormwater Management Department.

6. Revocation of permit(s) for the project.

7. Denial of further review or follow-up inspections at sites of permit holder that is under a Cease & Desist site work order within the city.

8. Issuance of a summons to appear before the magistrate court for judgement and fine.

9. A formal legal action may be brought by the city against the permit owner, land owner or its agents to further remedy a non-compliant site located within the city if necessary.

10. A formal remedy authorized by the city or legal action may be taken to reimburse the city of any and all costs associated with bringing a site into compliance after failure to do so by the owner.

Additional penalties for violations: *for information only*

2017 South Carolina Code of Laws

SC Code Title 48 - Environmental Protection and Conservation Chapter 14 - THE STORMWATER MANAGEMENT AND SEDIMENT REDUCTION ACT

Civil penalties for violations. Universal Citation: SC Code 48-14-140

(A) Any person who violates any provision of this chapter or any ordinance or regulation promulgated, enacted, adopted, or issued pursuant to this chapter by the department or other implementing agency, or who initiates or continues a land disturbing activity for which a stormwater management and sediment control plan is required except in accordance with the terms, conditions, and provisions of an approved plan, is subject to a civil penalty of not more than one thousand dollars. No penalty may be assessed until the person alleged to be in violation has been notified of the violation. Each day of a violation constitutes a separate violation.

(B) The implementing agency shall determine the amount of the civil penalty to be assessed under this section for violations under its jurisdiction. It shall make written demand for payment upon the person responsible for the violation and set forth in detail the violation for which the penalty has been invoked. If payment is not received or equitable settlement reached within thirty days after demand for payment is made, a civil action may be filed in the circuit court in the county in which the violation is alleged to have occurred to recover the amount of the penalty. If the implementing agency is the department, the action must be brought in the name of the State. Local governments shall refer the matters under their jurisdiction to their respective attorneys for the institution of a civil action in the name of the local government in the circuit court in the county in which the violation is alleged to have occurred for recovery of the penalty.

Title 48 - Environmental Protection and Conservation

CHAPTER 1 - POLLUTION CONTROL ACT

Section 48-1-330. Civil penalties. Universal Citation: SC Code § 48-1-330 (2017)

Any person violating any of the provisions of this chapter, or any rule or regulation, permit or permit condition, final determination or order of the Department, shall be subject to a civil penalty not to exceed ten thousand dollars per day of such violation.

Appendix G: Annual Reports (last three years)

Appendix H: North Augusta Water Quality Manual

Appendix I: North Augusta Sediment & Erosion Control Manual

Appendix J: CMOM & SSO Reporting (Public Utilities Procedures)

Appendix K: Forms