

2014

Storm Water Solutions. LP

# Stormwater Management Program

For

The Riverstone Coalition

Consisting of

Fort Bend County Levee Improvement District No. 15

Fort Bend County Levee Improvement District No. 19

Fort Bend County Municipal Utility District No. 128

Fort Bend County Municipal Utility District No. 129

Fort Bend County Municipal Utility District No. 149



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## **Acronyms and Abbreviations**

**AU** - Assessment Unit  
**AWBD** - Association of Water Board Directors  
**BIG** - Bacteria Implementation Group  
**BMP** - Best Management Practice  
**BRA** - Brazos River Authority  
**CRP** - Texas Clean Rivers Program  
**DMR** - Discharge Monitoring Report  
**DO** - Dissolved Oxygen  
**EPA** - U.S. Environmental Protection Agency  
*E. coli* - *Escherichia coli*  
**ETJ** - Extra-Territorial Jurisdiction  
**FOG** - Fats, Oils, and Grease  
**GCWA** - Gulf Coast Water Authority  
**H-GAC** - Houston-Galveston Area Council  
**I-Plan** - Implementation Plan  
**IA** - Implementation Activity  
**IS** - Implementation Strategy  
**LA** - Load Allocation  
**LID** - Low Impact Development  
**LIDs** - Levee Improvement Districts  
**MEP** – Maximum Extent Practicable  
**MGD** - Million Gallons per Day  
**mL** - Milliliter  
**MPN** - Most Probable Number  
**MS4** – Small Municipal Separate Storm Sewer System  
**MUD** - Municipal Utility District  
**OSSF** - On-Site Sewage Facility  
**SSO** - Sanitary Sewer Overflow  
**SOPs** – Standard Operating Procedures  
**SWCD** - Soil and Water Conservation District  
**SWMP** – Stormwater Management Program  
**TAC** - Texas Administrative Code

**TCEQ** - Texas Commission on Environmental Quality  
**TMDL** - Total Maximum Daily Load  
**TPDES** - Texas Pollutant Discharge Elimination System  
**UA** - U.S. Census Bureau-designated Urbanized Area  
**UAMP** - Utility Asset Management Program  
**WLA** - Waste Load Allocation  
**WPP** - Watershed Protection Plan  
**WQMP** - Water Quality Management Plan  
**WWTF** - Wastewater Treatment Facility

## **Part I - General Permit Requirements**

### **Permit Overview**

The Texas Commission on Environmental Quality (TCEQ) issued the Texas Pollutant Discharge Elimination System (TPDES) General Permit Number TXR040000 (the permit) on December 13, 2013, with an effective date of December 13, 2013. This permit supersedes and replaces the TPDES General Permit No. TXR040000, issued August 13, 2007. The permit provides authorization for stormwater and certain non-stormwater discharges from Small Municipal Separate Storm Sewer Systems (MS4s) to surface waters of the State.

The underlying purpose of the permit is to require regulated MS4's to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of Section 402 of the Clean Water Act and Section 26.040 of the Texas Water Code.

In order to achieve these goals, the permit requires regulated MS4s to submit a Notice of Intent (NOI) and develop and manage a Stormwater Management Program (SWMP) for all stormwater discharges that reach waters of the United States, regardless of whether the discharge is conveyed through a separately operated storm sewer system. A MS4 Operator that implements their SWMP and the selected Best Management Practices (BMPs) in accordance with the permit, will be considered meeting the standard of reducing pollutants to the MEP, and will be deemed in compliance with the permit.

### **Regulated MS4 Operator(s)**

#### **Applicants**

Riverstone Coalition  
Fort Bend County Levee Improvement District 15  
Fort Bend County Levee Improvement District 19  
Fort Bend County MUDs No. 128,129 and 149  
c/o The Muller Law Group PLLC  
16555 Southwest Freeway, Ste. 200  
Sugar Land, Texas 77479

This Stormwater Management Program will be implemented by a coalition of MS4 operators. The participants in the plan are as follows;

Fort Bend County Levee Improvement District 15

Fort Bend County Levee Improvement District 19

Fort Bend County MUDs No. 128,129 and 149

For purposes of this plan, this coalition will be referred to as the MS4 operator.

Written confirmation of the participating MS4 operators is attached as an appendix.

### **Legal Authority**

Fort Bend County Levee Improvement Districts No. 15 and 19 are conservation and reclamation Districts created pursuant to provisions of Chapter 57, Texas Water Code and Article XVI, Section 59 of the Texas Constitution and operates and is governed by provisions of Chapter 49 and 54 of the Texas Water Code, as amended. Each Municipal Utility District is a body politic and a political subdivision of the State of Texas created under the authority of Article XVI, Section 59 of the Texas Constitution and operating under and governed by the provisions of Chapters 49 and 54 of the Texas Water Code, as amended.

Each MS4 operator owns and operates a municipal separate storm sewer system and is considered a “Non-traditional Small MS4 Operator” as defined in the permit. TXR040000 defines the MS4 Operator as a Level 2 MS4 and is obligated to comply with all requirements, to develop rules and regulations, and to exert enforcement actions to require compliance with this SWMP. Such required compliance may be implemented by the incorporation of rules into the MS4 Operator’s Rate Order or the MS4 Operator’s adoption of rules and regulations via resolution of the MS4 Operator’s Board of Directors (which would serve the same function as an ordinance). Over the course of the permit term, the MS4 Operator will develop a program to inspect third party actions from contractors, builders, and other potential polluters within its jurisdiction and to ensure compliance with this SWMP.

### **Location of the MS4 Operator**

The Fort Bend County Levee Improvement District No. 15 boundaries lie wholly within the 2010 Census City of Houston Urbanized Area. The approximate center is Latitude/Longitude: **29.5447, -95.5196**. See Location Map 1 for the MS4 Operator's boundaries.

The Fort Bend County Levee Improvement District No. 19 boundaries lie wholly within the 2010 Census City of Houston Urbanized Area. The approximate center is Latitude/Longitude: **29.5292, -95.5704**. See Location Map 2 for the MS4 Operator's boundaries.

The Fort Bend County MUD 128 District boundaries lie wholly within the 2010 Census City of Houston Urbanized Area. The approximate center is Latitude/Longitude: **29.5517, -95.5865**. See Location Map 3 for the MS4 Operator's boundaries.

The Fort Bend County MUD 129 District boundaries lie wholly within the 2010 Census City of Houston Urbanized Area. The approximate center is Latitude/Longitude: **29.5533, -95.5755**. See Location Map 4 for the MS4 Operator's boundaries.

The Fort Bend County MUD 149 District boundaries lie wholly within the 2010 Census City of Houston Urbanized Area. The approximate center is Latitude/Longitude: **29.5285, -95.5709**. See Location Map 5 for the MS4 Operator's boundaries.

### **Resources**

Although financial resources are limited and the demand for funding is ever-increasing, the MS4 Operator will ensure its annual budget includes adequate financial resources for proper implementation of the SWMP. There will be a management team of consultants reporting to the MS4 Operator on a regular basis, to ensure that SWMP implementation stays on schedule and within the budget.

### **Selected Reporting Year**

The MS4 Operator has elected to align its reporting year with the calendar year. The end of reporting year 1 is December 31<sup>st</sup>, 2014. The MS4 Operator will submit an annual report outlining the accomplishments under the SWMP by March 31<sup>st</sup> of the following year and each year thereafter during the permit term.



### **Record Keeping**

The MS4 Operator will retain all records, a copy of the permit, and records of all data used to complete the NOI for the permit and satisfy the public participation requirements, for a period of at least three (3) years, or the remainder of the term of this general permit, whichever is longer. The MS4 Operator will submit the records to the executive director when specifically asked to do so. The SWMP will be retained at a location accessible to the TCEQ. The MS4 Operator will make the NOI and the SWMP available to the public at reasonable times during regular business hours, if requested to do so in writing. Copies of the SWMP will be made available within ten (10) working days of receipt of a written request. Other records must be provided in accordance with the Texas Public Information Act.

#### **The SWMP and its contents can be viewed at the following addresses:**

The Muller Law Group PLLC

16555 Southwest Freeway Suite 200

Sugar Land, TX 77479

Storm Water Solutions LP

16110 Hollister Street

Houston, TX 77066

### **Effluent Limitations**

Effluent limitations for stormwater runoff are narrative and not numerical, requiring implementation of best management practices to protect water quality to the maximum extent practicable. The targeted controls and BMPs chosen in this SWMP take into consideration applicable effluent limitations and are in compliance with State of Texas rules and regulations.

### **Enforcement measures and Standard Operating Procedures**

The MS4 Operator will adopt standard operating procedures (SOPs) over the course of the permit term that outline how to respond to permit violations. These SOPs will be included in a Stormwater Guidance Manual that will be created as part of the SWMP over the course of the permit term. Chapters regarding each Minimum Control Measure (MCM) will be developed and comprise the Stormwater Guidance Manual.

### **Implementation**

The MS4 Operator will engage a Stormwater Consultant to direct program implementation during the permit term. The Stormwater Consultant will be responsible for coordinating SWMP related activities including development of BMPs, correspondence with the TCEQ, preparing the Annual Reports, and other activities, as necessary, to comply with the permit conditions. The Stormwater Consultant will coordinate efforts, including those of other consultants, related to compliance

with TPDES Permit No TXR040000. The Stormwater Consultant will set milestones and report directly to the MS4 Operator on a regular basis to keep them apprised of the SWMP implementation progress. The following entities will assist in the implementation of the SWMP:

Attorney

The Muller Law Group, PLLC  
16555 Southwest Freeway, Ste 200  
Sugar Land, TX 77479

Levee Operator

Levee Management Services LLC  
1650 Highway 6, Suite 430  
Sugar Land, TX 77478

Engineer

Costello Inc  
9990 Richmond Ave. Suite 450N  
Houston, TX 77042

Operator

SI Environmental, LLC  
6420 Reading Road  
Rosenberg, TX 77471

Stormwater Consultant

Storm Water Solutions LP  
16110 Hollister Street  
Houston, TX 77066

**Public Notice Requirements**

From time to time, the MS4 Operator will be required to follow public notice guidelines during the permit term. The MS4 Operator will comply with public notice requirements when publishing the SWMP and applicable paperwork. After the MS4 Operator receives written instructions from the TCEQ's office of the chief clerk, a notice will be published of the executive director's preliminary determination on the NOI and SWMP. A copy of the press release and a copy of the notarized affidavit of the publication of notice will be retained in the annual report. The MS4 Operator will follow all State and local requirements regarding public notices.

**Noncompliance Notification**

As required, the MS4 Operator will report any noncompliance which may endanger human health or safety or the environment within 24 hours to the TCEQ regional office. The MS4 Operator will also provide a written report to the appropriate TCEQ regional office and to the TCEQ Enforcement Division (MS-224) within five working days of becoming aware of the noncompliance. The written report will contain:

- A description of the noncompliance and its cause;
- The potential danger to human health or safety, or the environment;
- The period of noncompliance, including exact dates and times;
- If the noncompliance has not been corrected, the anticipated time it is expected to continue; and
- Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effect.

## **Part II – Stormwater Management Program**

### **Overview of SWMP and Minimum Control Measures**

The underlying purpose of the permit is to require regulated small MS4s to reduce the discharge of pollutants from the MS4 to the MEP, to protect water quality, and to satisfy the appropriate water quality requirements of Section 402 of the Clean Water Act and Section 26.040 of the Texas Water Code. In order to achieve these goals, the MS4 is required to develop and manage a Stormwater Management Program for all stormwater discharges that reach waters of the United States, regardless of whether the discharge is conveyed through a separately operated storm sewer system.

The MS4 Operator has included the following Minimum Control Measures (MCMs) and the selected Best Management Practices (BMPs) in accordance with the permit in order to meet the standard of reducing pollutants to the MEP. Each MCM and/or Program Element for Bacteria applies to each MS4 operator, unless otherwise noted.

<b>MCM 1.0 Public Education, Outreach and Involvement</b>
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#### *Summary/Rationale*

A public education, outreach, and involvement program will be designed and used to inform the public about the impacts that pollution in stormwater runoff can have on water quality, hazards associated with illegal discharges and improper disposal of waste, and ways to minimize the impact on stormwater quality. Educational materials will be developed for residents, visitors, MS4 operator consultants, businesses, commercial and industrial facilities, and construction site personnel. The MS4 Operator will comply with public notice requirements when implementing a public involvement/participation program. The public involvement/participation program will be developed to include opportunities for a wide variety of constituents with the MS4 Operator's boundaries to participate in the SWMP development and implementation. The MS4 Operator will document the activities conducted as part of this MCM. These records, along with any changes made to the BMPs or the corresponding implementation schedule, will be communicated in the annual report.

## **1.1 Education and Involvement - MS4 Operator Consultants**

### *Description*

A training program will be developed for applicable MS4 Operator consultants and other parties responsible for municipal operations subject to the IDDE program, pollution prevention/good housekeeping, construction stormwater runoff control program, and post construction stormwater management. Training sessions will be used to educate these parties on the requirements of TXR040000, concentrating on the minimum control measures, as well as the goals of the MS4 Operator's SWMP.

### *Implementation Schedule*

- Year 1: MS4 Operator consultants and interested parties will be educated on the goals of the SWMP and the requirements of TXR040000 during at least one regular meeting.
  - Deadline; July 2014
- Year 2: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session, performed during a regularly scheduled meeting, will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; April 2015
- Year 3: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session, performed during a regularly scheduled meeting, will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; April 2016
- Year 4: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session, performed during a regularly scheduled meeting, will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; April 2017
- Year 5: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session, performed during a regularly scheduled meeting, will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Deadline; April 2018
- End of Permit Term Goal: All MS4 Operator consultants and interested parties will be educated on the goals of the SWMP and the requirements of TXR040000.

*Measurable Evaluation Criteria*

- Meeting agenda
- number of training sessions held
- training material distributed at meetings, where applicable

**1.2 Stormwater Website**

*Description*

The stormwater website, CleanBayous.org, will be the central location of SWMP information. Public documents will be available for download. Public participation opportunities will be announced on the website, as appropriate. The website will also showcase education materials. This website will specifically target required groups including residents, visitors, MS4 operator consultants, businesses, commercial and industrial facilities, and construction site personnel. Visitors will be able to report illicit discharge and illegal dumping through this website, as well as reference informative material relative to the SWMP.

*Implementation Schedule*

- Year 1: Research existing website, begin site development and/or improvement of existing website. Discuss strategies regarding adding the web address on mailings and/or MS4 Operator notification avenues.
  - Deadline: December 2014
- Year 2: Launch/Update website, as necessary, and ensure the MS4 Operator's information is readily available. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2015
- Year 3: Make public education material available on website. Explore the launch of illicit discharge complaint module. Review mechanics and procedures of discharge complaint module. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2016
- Year 4: Launch illicit discharge complaint module. Monitor and respond to complaints submitted thru illicit discharge complaint module. Update website with public education material. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2017
- Year 5: Review and update illicit discharge complaint module, as necessary. Monitor and respond to complaints submitted thru illicit discharge complaint

module. Update website with public education material. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Deadline; August 2018
- End of Permit Term Goal: A website will be developed/updated to showcase educational and training materials, receive and track complaints, announce public participation events, monitor website traffic, and post the NOI/SWMP for public viewing.

#### *Measurable Evaluation Criteria*

- Website Statistics
- Dollars spent on website
- Time spent developing/updating website

### **1.3 General Public Education & Involvement**

#### *Description*

A public education and involvement program will be used to inform the public about the impacts that pollution in stormwater run-off can have on water quality, hazards associated with illegal/illicit discharges and improper disposal of waste, and ways to minimize the impact on stormwater quality. This education effort will recommend methods to the MS4 Operator constituents as to how they can identify and reduce pollution/ illicit discharges. This effort may also convey program participation opportunities for MS4 Operator's residents. Educational material will address lawn maintenance, household hazardous waste, commercial stormwater impacts, and other sources of pollution. Material will be regularly distributed to registered customers within the MS4 Operator and will be posted on CleanBayous.org for public viewing.

#### *Implementation Schedule*

- Year 1: Research standard public education material that can be inserted into water bills or other mailings to the MS4 Operator's constituents.
  - Deadline; December 2014
- Year 2: Approve design for the education material to be distributed in mailings. Perform at least 1 mailing to MS4 Operator constituents. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2015
- Year 3: Approve design for the education material to be distributed in mailings. Perform at least 1 mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2016

- Year 4: Approve design for the education material to be distributed in mailings. Perform at least 1 mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2017
- Year 5: Approve design for the education material to be distributed in mailings. Perform at least 1 mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2018
- End of Permit Term Goal: All registered customers within the MS4 Operator's boundaries will receive educational material at least once annually. Applicable information will be accessible on Website.

*Measurable Evaluation Criteria*

- Educational material distributed
- Number of mailings distributed
- Website traffic

**1.4 Community Involvement**

*Description*

A Community Involvement program will be researched and developed to provide opportunities for a wide variety of constituents within the MS4 to participate in the SWMP development and implementation. Community Involvement will allow the public an opportunity for feedback concerning the SWMP during regular MS4 Operator meetings and/or the Website. Earth day events and other existing public involvement opportunities, such as stream cleanup, storm drain stenciling, and water conservation programs will be explored during the permit term.

*Implementation Schedule*

- Year 1: Include agenda item at MS4 Operator's regular meetings for public discussion of stormwater related issues.
  - Deadline; November 2014
- Year 2: Include agenda item at MS4 Operator's regular meeting for public discussion of stormwater related issues. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Regularly scheduled reoccurring meeting
- Year 3: Include agenda item at MS4 Operator's regular meeting for public discussion of stormwater related issues. Begin research of existing community involvement programs among similar Phase II entities for budget, effectiveness, and program feasibility. Based on the previous year's BMP evaluation included

in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Regularly scheduled reoccurring meeting
- Year 4: Include agenda item at MS4 Operator’s regular meeting for public discussion of stormwater related issues. Continue research of existing community involvement programs among similar Phase II entities for budget, effectiveness, and program feasibility. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Regularly scheduled reoccurring meeting
- Year 5: Include agenda item at MS4 Operator’s regular meeting for public discussion of stormwater related issues. Continue research of existing community involvement programs among similar Phase II entities for budget, effectiveness, and program feasibility. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Regularly scheduled reoccurring meeting
- End of Permit Term Goal: The SWMP will involve the local community where possible.

*Measurable Evaluation Criteria*

- Meeting agendas
- Researched opportunities
- Screen shot(s) of Website, if applicable
- Existing community programs researched

**Interim Milestone for MCM 1.0**

By the end of year 3, the Website will be operational, at least two mail outs will be sent to the MS4 Operator constituents, and all applicable consultants will have received at least three training sessions relative to the SWMP.

<p><b>MCM 2.0 Illicit Discharge Detection and Elimination (IDDE)</b></p>
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*Summary/Rationale*

A program will be established to detect and eliminate illicit discharges within the MS4 Operator. A description of detection and elimination techniques and procedures will be created. To the extent allowable under State and local law, a resolution or other regulatory mechanism will be utilized to prohibit and eliminate illicit discharges. In conjunction with the regulatory mechanisms, appropriate actions and enforcement procedures for removing the source of an illicit discharge, the appropriate actions, and potential enforcement procedures will be developed and implemented. A comprehensive map of the conveyance system, including the locations of outfalls and the names and locations of waters of the U.S. receiving discharges, will be developed to aide in the detection and elimination of sources of illicit discharges. The source of any



information used to develop the map will be retained in the annual report. The following non-stormwater sources may be discharged from the MS4 Operator as allowed under the general permit: water line flushing; runoff or return flow from landscape irrigation, lawn irrigations, and other irrigation utilizing potable water, groundwater, or surface water sources; discharges from potable water sources; diverted stream flows; rising ground water and springs; uncontaminated ground water infiltration; uncontaminated pumped ground water; foundation and footing drains; air conditioning condensation; water from crawl space pumps; individual residential vehicle washing; flows from wetlands and riparian habitats; dechlorinated swimming pool discharges; street wash water; discharges or flows from firefighting activities (firefighting activities do not include washing of trucks, runoff water from training activities, test water from fire suppression systems, and similar activities); and other similar occasional incidental non-stormwater discharges, unless the TCEQ develops permits or regulations addressing these discharges. The MS4 Operator will document the activities conducted as part of this MCM. These records, along with any changes made to the BMPs or the corresponding implementation schedule, will be communicated in the annual report.

## **2.1 Illicit Discharge Detection and Elimination Program**

### *Description*

The MS4 Operator will develop, implement, and enforce a program to detect, investigate, and eliminate illicit discharge into the MS4. The plan will contain an up-to-date MS4 stormwater conveyance map, methods for training, procedures for tracing, procedures for removing the source, and procedures to prevent and correct any leaking on-site sewage disposal systems, as applicable. If the illicit connection or illicit discharge is observed related to another operator's MS4, the MS4 Operator shall notify the other MS4 operator within 48 hours of discovery. If impracticable, the MS4 Operator shall notify the appropriate TCEQ regional office of the possible illicit connection. If another MS4 notifies the MS4 Operator of an illegal connection or an illicit discharge, then the MS4 Operator shall follow the IDDE plan. The MS4 operator will review and update, as necessary, the SWMP and IDDE plan throughout the permit term. The MS4 Operator will also develop and maintain on-site procedures for responding to illicit discharges and spills and will include source investigation and elimination, and conduct inspections and deemed appropriate in response to complaints. A chapter on IDDE will be included in a Stormwater Guidance Manual developed as a part of this SWMP. This chapter will

include information regarding responses to, and investigations of, illicit discharges and spills.

#### *Implementation Schedule*

- Year 1: Introduce need to comply with TXR040000 to MS4 Operator.
  - Deadline; July 2014
- Year 2: Examine existing resolution/rate order. Begin development of an Illicit Discharge Detection and Elimination plan by researching detection procedures. Begin development of a comprehensive stormwater conveyance map to be used as a part of the IDDE program. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during a regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2015
- Year 3: Finalize illicit discharge detection and elimination chapter of Stormwater Guidance Manual. Begin modifications to resolution/rate order language. Stormwater conveyance map will be updated, as necessary, to be used for IDDE practices. Research possibility of a hotline phone number to be used as a reporting mechanism. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during a regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2016
- Year 4: Finalize and adopt resolution/rate order language. Begin responding to resident reports of illegal dumping and/or illicit discharges as generated by the website's complaint module. Adopt hotline phone number if appropriate. Stormwater conveyance map will be updated, as necessary, to be used for IDDE practices. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2017
- Year 5: Continue responding to resident reports of illegal dumping and/or illicit discharges as generated by the website's complaint module. Evaluate effectiveness and enforceability of adopted regulatory mechanism. Evaluate effectiveness of hotline phone number, if adopted. Stormwater conveyance map will be updated, as necessary, to be used for IDDE practices. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled

meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Deadline; December 2018
- End of Permit Term Goal: An Illicit Discharge Detection and Elimination plan will be developed and fully implemented. A local resolution/rate order will be adopted, which mandates compliance with the IDDE program. A chapter of the Stormwater Manual will be completed and dedicated to IDDE. A map of the MS4s stormwater conveyance system will be developed.

*Measurable Evaluation Criteria*

- Meeting agenda
- Written resolution/rate order
- Illicit Discharge Detection and Elimination plan
- Conveyance Map
- Stormwater Guidance Manual

**Interim Milestone for MCM 2.0**

By the end of year 3, the illicit discharge chapter will be adopted pursuant to the Stormwater Guidance Manual. By the end of year 4, the resolution/rate order will be adopted as a regulatory and enforcement mechanism.

<b>MCM 3.0 Construction Site Stormwater Runoff Control</b>
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*Summary/Rationale*

The MS4 Operator, to the extent allowable under State and local law, will develop, implement, and enforce a program to reduce pollutants in any Stormwater runoff from construction activities that result in a land disturbance of greater than or equal to one acre including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres. The program will require construction site operators to implement erosion and sediment control practices as well as manage construction site stormwater runoff, as required by the Construction General Permit (CGP); TXR150000. The program will include the development and implementation of a resolution or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State and local law. Procedures will be developed for site inspection, enforcement of resolution, consideration of public input, and site plan review to consider water quality impacts. A dedicated chapter in the MS4 Operator's Stormwater Guidance Manual will address the MS4 Operator's approach to addressing construction site stormwater runoff. This chapter will feature the Construction Site Runoff Control Program, which will consist of a

Construction Operation Program, a Construction Plan Review Process, and a Construction Site Inspection and Enforcement Program; all of which shall meet the standards of the TXR150000, where applicable. The MS4 Operator will document the activities conducted as part of this MCM. These records, along with any changes made to the BMPs or the corresponding implementation schedule, will be communicated in the annual report.

### **3.1 Construction Site Runoff Control Program**

#### *Description*

The MS4 Operator will develop, implement, and enforce a program requiring operators of small and large construction activities to select, install, implement, and maintain stormwater control measures that prevent illicit discharges to the maximum extent practicable. The program will include the development/review of a resolution or other mechanism, as well as sanctions to ensure compliance to the extent allowable under law, to require erosion and sediment control. As a subchapter to the Construction Site Runoff Program, the Construction Operations Program will outline the methods of ensuring the Stormwater Pollution Prevention Plan (SWPPP) is in accordance with the TXR150000. An additional subchapter will detail how the MS4 Operator will maintain and implement site plan review procedures. The MS4 Operator will also develop inspection procedures for large and small construction projects. A subchapter will be written to outline methods relative to the construction site inspection and enforcement requirement.

#### *Implementation Schedule*

- Year 1: Introduce need to comply with both TXR150000 and TXR040000 to MS4 Operator and applicable consultants.
  - Deadline; July 2014
- Year 2: Examine existing resolution/rate order. Begin researching methods pursuant to the development of the Construction Site Runoff Control Program. The MS4 Operator will hold a minimum of one training session relative to Construction Site Stormwater Runoff Control and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties.
  - Deadline; August 2015
- Year 3: Begin modifications to resolution/rate order language. Pursuant of the Construction Operation Program, create SWPPP template to ensure the SWPPP is in accordance with TXR150000, hence, completing the first subchapter of the Stormwater Guidance Manual relative to the Construction Site Runoff Program. The MS4 Operator will hold a minimum of one training session relative to Construction Site Stormwater Runoff Control and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting

for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Deadline; December 2016
- Year 4: Finalize and adopt resolution/rate order language. Finalize Construction Plan Review Process pursuant to the Construction Site Runoff Program, hence, completing the second subchapter of the Stormwater Guidance Manual relative to the Construction Site Runoff Program. The MS4 Operator will hold a minimum of one training session relative to Construction Site Stormwater Runoff Control and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2017
- Year 5: Finalize Construction Site Inspection and Enforcement subchapter pursuant to the Construction Site Runoff Program. Evaluate effectiveness and enforceability of Construction Site Stormwater Runoff Program. Evaluate effectiveness and enforceability of adopted regulatory mechanism. The MS4 Operator will hold a minimum of one training session relative to Construction Site Stormwater Runoff Control and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2018
- End of Permit Term Goal: A construction site runoff control program ensuring compliance with TXR150000 will be implemented throughout the MS4 Operator's jurisdiction.

*Measurable Evaluation Criteria*

- Meeting agenda
- Chapters within Construction Site Runoff Control Program adopted
- Resolution/rate order adopted

**Interim Milestone for MCM 3.0**

By the end of year 3, the SWPPP template will be created to ensure the SWPPP is in accordance with the TXR150000. By the end of year 4, the resolution/rate order will be adopted as a regulatory and enforcement mechanism.

## **MCM 4.0 Post-Construction Stormwater Management in New Development and Redevelopment**

### *Summary/Rationale*

To the extent allowable under State and local law, the MS4 Operator will develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre of land, including projects less than one acre that are part of a larger common plan of development or sale that will result in disturbance of one or more acres. Any maintenance of structural/non-structural controls will be performed at a frequency determined by the MS4 Operator to ensure adequate long-term operation and to maintain the continued effectiveness of appropriate BMPs for the community. The program will include the development/revisions and implementation of a resolution or other regulatory mechanism to address structural/nonstructural controls on new development and redevelopment, as well as sanctions to ensure compliance, to the extent allowable under State and local law. The MS4 Operator will document the activities conducted and the amount of resources/materials used. These records, along with any changes made to the BMPs or the corresponding implementation schedule, will be communicated in the annual report.

### **4.1 Post-Construction Stormwater Maintenance Program**

#### *Description*

A chapter in the MS4 Operator's Stormwater Guidance Manual will address the MS4 Operator's approach to addressing Post-Construction Stormwater Maintenance in New Development and Redevelopment. A subchapter will be written to address the use and implementation of structural/nonstructural controls, where applicable. An accompanying subchapter will also outline methods used for the long term operation and maintenance of structural controls, where applicable. Any maintenance of structural/non-structural controls, according to the Stormwater Guidance Manual, will be performed at a frequency determined by the MS4 Operator to ensure adequate long-term operation and to maintain the continued effectiveness of appropriate BMPs for the community. Regular maintenance for all drainage ways and appurtenances within the MS4 Operator's jurisdiction will be required and outlined in the MS4 Operators Stormwater Guidance Manual.

### *Implementation Schedule*

- Year 1: Introduce need to comply with TXR040000 to MS4 Operator.
  - Deadline; July 2014
- Year 2: Examine existing resolution/rate order, and research potential resolution changes. Begin development of a comprehensive conveyance map to locate and identify any existing post-construction controls for maintenance.
  - Deadline; August 2015
- Year 3: Modify existing resolution/rate order. Begin development of Guidance Manual chapter relative to Post-Construction Stormwater Management. Conveyance map will be updated, as necessary, to be used for locating and maintaining controls. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2016
- Year 4: Finalize and adopt resolution/rate order for post construction. Finalize Post-Construction Stormwater Management chapter of Stormwater Guidance Manual. Conveyance map will be updated, as necessary, to be used for locating and maintaining controls. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2017
- Year 5: Evaluate effectiveness and enforceability of adopted regulatory mechanism. Conveyance map will be updated, as necessary, to be used for locating and maintaining controls. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2018
- End of Permit Term Goal: Resolution/rate order adopted and Stormwater Guidance Manual complete.

### *Measurable Evaluation Criteria*

- Meeting agenda
- Stormwater Guidance Manual
- Resolution/rate order

### **Interim Milestone for MCM 4.0**

By the end of year 4, the resolution/rate order will be adopted as a regulatory and enforcement mechanism. By the end of year 4, the Post-Construction Stormwater Management chapter of Stormwater Guidance Manual will be adopted.

<b>MCM 5.0 Pollution Prevention and Good Housekeeping for Municipal Operations</b>
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### *Summary/Rationale*

An operation and maintenance program will be established to prevent or reduce pollutant runoff from municipal operations and municipally owned areas. A training program will be developed

for all parties responsible for municipal operations subject to the pollution prevention/good housekeeping program. Procedures for the proper disposal of waste removed within the MS4 Operator boundaries and waste that is collected as a result of maintenance of stormwater structural controls will be developed. A list of maintenance activities, maintenance schedule, and long-term inspection procedures for controls used to reduce floatables and other pollutants will be developed. Housekeeping measures and BMPs that reduce pollutants will be developed. Stormwater discharges authorized by other TPDES permits are authorized and meet the applicability and eligibility requirements under TXR040000. A chapter in the Stormwater Guidance Manual will address the MS4 Operator's approach to Pollution Prevention and Good Housekeeping for Municipal Operations. This chapter will contain methods used to develop and maintain inventory of facilities and stormwater controls, procedures for contractor requirements and oversight, and evaluation of municipal operation and maintenance activities. The MS4 Operator will document the activities conducted as part of this MCM. These records, along with any changes made to the BMPs or the corresponding implementation schedule, will be communicated in the annual report.

### **5.1 Operations and Maintenance Program**

#### *Description*

The MS4 Operator will develop an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal activities and municipally owned areas. The program will include education concerning the proper disposal of waste material. Any contractor hired by the MS4 Operator to perform work within the MS4 Operators jurisdiction will be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management operating procedures described in the permit. This program will include contractor oversight. The MS4 Operator will evaluate Operation and Maintenance (O&M) activities for the potential to discharge pollutants.

#### *Implementation Schedule*

- Year 1: Introduce need to comply with TXR040000 to MS4 Operator.
  - Deadline; July 2014
- Year 2: Examine existing resolution/rate order relative to municipal operations Begin development of Guidance Manual chapter relative to Pollution Prevention and Good Housekeeping for Municipal Operations. The MS4 Operator will hold a minimum of one training session relative to Pollution Prevention and Good Housekeeping for Municipal Operations and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be



performed during the MS4 Operator's regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties.

- Deadline; August 2015
- Year 3: Modify existing resolution/rate order. Identify municipal owned facilities. Record and maintain Inventory of facilities and stormwater controls pursuant to fulfilling a subchapter of the Stormwater Guidance Manual relative to the Operations and Maintenance program. The MS4 Operator will hold a minimum of one training session relative to Pollution Prevention and Good Housekeeping for Municipal Operations and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2016
- Year 4: Finalize and adopt resolution/rate order. Develop procedures for contractor oversight, hence, completing the second subchapter of the Stormwater Guidance Manual relative to the Operations and Maintenance Program. The MS4 Operator will hold a minimum of one training session relative to Pollution Prevention and Good Housekeeping for Municipal Operations and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; August 2017
- Year 5: Evaluate effectiveness and enforceability of adopted regulatory mechanism. Complete final subchapter of Stormwater Guidance manual that evaluates municipal operations and maintenance activities. The MS4 Operator will hold a minimum of one training session relative to Pollution Prevention and Good Housekeeping for Municipal Operations and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regularly scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
  - Deadline; December 2018
- End of Permit Term Goal: Develop and implement an operation and maintenance program for municipally owned facilities.

#### *Measurable Evaluation Criteria*

- Meeting agenda
- Chapters relative to Stormwater Guidance Manual
- Resolution/rate order

### **Interim Milestone for MCM 5.0**

By the end of year 3, inventory of facilities and stormwater controls will be recorded. By the end of year 4, the resolution/rate order will be adopted as a regulatory and enforcement mechanism.

### **MCM 6.0 Industrial Stormwater Sources**

#### *Summary/Rationale*

As a level 2 small MS4 operator, there are no industrial stormwater requirements under the current permit. Should permits conditions change, the MS4 operator will make revisions to the SWMP.

### **MCM 7.0 Authorization for Construction Activities where the MS4 Operator is the Site Operator**

#### *Summary/Rationale*

The MS4 Operator has chosen not to develop this optional measure at this time. Each year, the MS4 Operator will re-evaluate the decision and will be communicate any changes made in the annual report.

## Part III - Pollutant of Concern Program

### Background

Section 303(d) of the federal Clean Water Act requires all States to identify and list waters that do not meet, or are not expected to meet, applicable water quality standards. The standards describe the ways the water bodies are used and those descriptions are embodied in the updated *Texas Surface Water Quality Standards (TSWQS-TCEQ 2014)*. Most water bodies in and around the Houston- Galveston region must meet the standard for contact recreation. In order to meet this standard, the water body must be safe for swimming, wading by adults and children, canoeing, or other activities that involve direct contact with the water. While there are several sources of pollutants in the streams in and around Houston, the most predominant source is bacteria. The *Texas Surface Water Quality Standards establish the following criteria for the designated uses:*

#### *Bacteria – Contact Recreation*

- The geometric mean of *E-Coli in freshwater* should not exceed 126 colony forming units (cfu) per 100 milliliter (ml).

For every listed water body that does not meet the standard, the State must develop a Total Maximum Daily Load (TMDL) for each pollutant that contributes to the impairment of the stream. A TMDL is a technical analysis that determines the amount of a particular pollutant that a water body can receive and still meet the applicable water quality standard. The TMDL document estimates how much the pollutant load must be reduced in order to comply with the standard.

A regulated MS4 operator that discharges stormwater into an impaired water body with a TMDL, is required to develop a program and choose Best Management Practices (BMPs) that target the pollutants of concern as identified in the TMDL. The stormwater discharge does not have to discharge directly into the impaired water body, but if this discharge is located in the watershed where the TMDL was developed, permit conditions will apply. The BMPs chosen will focus on areas the MS4 operator identifies as having the potential to be a cause of the pollutant of concern. Each BMP selected will have measurable goals, an implementation schedule and interim milestones will be set to assess program progress. A benchmark for the pollutant of concern will be identified by the MS4 operator to assist in determining if the program is effective in addressing the pollutant of concern. Monitoring of progress toward achieving the benchmark is also required and will be included in the annual report using appropriate program indicators.

### **Impaired Water Body**

Upper Oyster Creek extends for approximately 54 miles in an area of Fort Bend County that is rapidly growing. It is located in the Brazos river basin southwest of Houston. It originates at the Gulf Coast Water Authority's (GCWA) Shannon Pumping Station on the Brazos River, continues through Jones Creek to its confluence with Oyster Creek, through the City of Sugar Land to its confluence with Flat Bank Creek, through Flat Bank Creek to its confluence with a diversion canal, through the diversion canal to its confluence with Steep Bank Creek, and finally through Steep Bank Creek to its confluence with the Brazos River (Figure 1). There are three dams shown on Figure 1 that are located on the watercourse around the City of Sugar Land. GCWA uses the reach above dam 3 for its canal system, which supplies water for irrigation, industrial, and public drinking water to areas southeast of the watershed, including areas in the vicinity of Sugar Land.

Upper Oyster Creek is divided into two reaches in the TMDL analysis, upstream and downstream of Dam 3 located within the City of Sugar Land. Both reaches are impaired for bacteria, and neither meet the contact recreation standard as set by the 2014 TSWQS. The TMDL for Upper Oyster Creek States that a 73% reduction in bacteria loading is required to meet the contact recreation use in each reach.

### **Interior Stormwater Conveyance System Description**

The topography of the area is relatively flat. The natural drainage for the area before development was via shallow drainage swales or overland flow to one of the natural drainage ways within the boundary. Steep Bank Creek, Alcorn Bayou and Snake Slough are all drainage ways used by the coalition of MS4s for outfall drainage.

A portion of Fort Bend County LID 15, and Fort Bend County MUD 128, drain to Steep Bank Creek. All of Fort Bend County MUD 129, Fort Bend County MUD 149 and Fort Bend County LID 19 drain to Steep Bank Creek, which is considered part of the Upper Oyster Creek Watershed and impaired for bacteria. Since all of the MS4 operators discharge, as least in part, to an impaired water body, all of the coalition will comply with the conditions concerning Impaired Water Bodies and TMDLs.

### **Total Maximum Daily Load (TMDL) - Upper Oyster Creek (2007)**

Upper Oyster Creek is designated as segment 1245 as defined in the *Texas Surface Water Quality Standards (TCEQ 2014)*. Segment 1245 was first placed on the list of impaired water bodies (303d list) in 1996. The TCEQ adopted one TMDL for Bacteria in Upper Oyster Creek (Segment

1245) on August 8, 2007. This TMDL was approved by the U.S. Environmental Protection Agency (EPA) on September 28, 2007. On July 28, 2010, the TCEQ adopted two TMDLs for Dissolved Oxygen in Upper Oyster Creek (Segment 1245). This TMDL was approved by the EPA on September 21, 2010.

Note: In 2008 the TCEQ consolidated a previous subdivision of the creek from six (6) assessment units to three (3) assessment units (AUs). The lower reach is designated as AU 1245\_01, while the upper reaches are designated as 1245\_02 and 1245\_03. The document “Two Total Maximum Daily Loads for Dissolved Oxygen in Upper Oyster Creek” (TCEQ 2007) only included Assessment Units 1245\_02 and 1245\_03, upstream of Dam # 3. A separate use attainability analysis (UAA) was performed on AU 1245\_01 and determined that this AU was not impaired for dissolved oxygen.

#### **Benchmarks for Pollutants of Concern**

TXR040000 requires small MS4’s that discharge into an impaired water body with an approved TMDL, where stormwater runoff has the potential to cause or contribute to the impairment, to identify a benchmark for the pollutant of concern. While the benchmark has a numeric value, it is not a numeric effluent limitation, but rather a guideline for evaluating progress toward the goal of achieving the water quality standard for the stream. The establishment of the benchmark for the SWMP considered the following options, as outlined in the permit:

- If the MS4 is subject to a TMDL that identifies a Waste Load Allocation(s) (WLA) for permitted MS4 stormwater sources, then the SWMP may identify it as the benchmark. Where an aggregate allocation is used as a benchmark, all affected MS4 operators are jointly responsible for progress in meeting the benchmark and shall (jointly or individually) develop a monitoring/assessment plan as required in Part II.D.4(a)(6) of the permit.
- Alternatively, if multiple small MS4s are discharging into the same impaired water body with an approved TMDL, with an aggregate WLA for all permitted stormwater MS4s, then the MS4s may combine or share efforts to determine an alternative sub-benchmark for the pollutant(s) of concern (e.g., bacteria) for their respective MS4. The SWMP must clearly define this alternative approach and must describe how the sub-benchmark would cumulatively support the aggregate WLA. Where an aggregate benchmark has been broken into sub-benchmarks for individual MS4s, each MS4 Operator is only responsible for progress in meeting its sub-benchmark.

The MS4 Operator has elected to use the aggregate Waste Load Allocation (WLA) for all affected MS4’s and will jointly be responsible for progress in meeting the benchmark with other

MS4's located in the watershed and will develop a monitoring program as described in Part II.D.4(a)(6) of the TXR04000.

Upper Oyster Creek is unique in that it is divided into two distinct reaches. The source of the division is Dam # 3 located in the City of Sugar Land. In the TMDL document for Upper Oyster Creek, the WLA for bacteria is broken down into two hydrologic reaches. The reaches described in the TMDL document as follows;

- Allocation Reach 1: Segment 1245 from its downstream confluence with the Brazos River and extending upstream to Dam # 3, including Flat Bank Creek, Steep Bank Creek and a Diversion Canal. This corresponds with AU 1245\_01(Figure 1 )
- Allocation Reach 2: Segment 1245 from Dam # 3 upstream to the GCWA Shannon Pump Station. This includes AUs 1245-02 and 1245\_03 (Figure 1)

Sampling that has taken place to determine the TMDL for Upper Oyster Creek used *E-Coli* as the indicator bacteria for assessing contact recreation. The WLA for E-Coli for each reach is summarized in Table 12 of the TMDL.

<b>Allocation Reach 1</b>	
Existing Loading	4,570 billion
Allowable Loading	1,453 billion
Waste Load Allocation (Continuous)	367 billion
Waste Load Allocation (Non-continuous)	699 billion
Waste Load Allocation (Total)	1,066 billion
Load Allocation	387 billion
Margin of Safety	Implicit
Required Percent Reduction	73 %
<b>Allocation Reach 2</b>	
Existing Loading	7,492 billion
Allowable Loading	1,682 billion
Waste Load Allocation (Continuous)	94 billion
Waste Load Allocation (Non-continuous)	407 billion
Waste Load Allocation (Total)	501 billion

Load Allocation	1,181 billion
Margin of Safety	Implicit
Required Percent Reduction	73 %

Note: The TMDL for Upper Oyster Creek was adopted in 2007. This TMDL identifies two separate Waste Load Allocations for point source contributions (continuous and non-continuous). The continuous WLA is associated with Waste Water Treatment Facilities (WWTFs). The non-continuous WLA is for other point sources, including urban stormwater sources. The Waste Load Total shown in the Table 12 is the total load allocation for both sources. The Load Allocation shown in the table is from non-point sources in the watershed.

<b>Benchmark</b>
<b>The MS4 Operator discharges stormwater into Reach 1. The Benchmark for bacteria is the WLA (non-continuous) and is 699 billion cfu/day.</b>

#### **Implementation Plans (I-Plans)**

In order to address the high levels of bacteria in the Houston and surrounding areas, the TCEQ asked stakeholder groups to convene and address these problems. Two separate groups were assembled. One group represented the watersheds in the Houston-Galveston Region and became known as the Bacteria Implementation Group (BIG), the other group represented Upper Oyster Creek and was simply known as the Upper Oyster Creek Implementation Group. While these were two distinct groups, they both consisted of representatives from city and county governments, resource agencies, business and agriculture, professional organizations, watershed groups and the public. The BIG group started meeting in 2010 and met over the course of over 2 years to produce a document entitled “Implementation Plan for Seventy-Two Total Maximum Daily Loads for Bacteria in the Houston-Galveston Region.” This document was adopted by TCEQ on January 30, 2013. The BIGs I-Plan outlines the potential sources of bacteria and dissolved oxygen, as well as implementation strategies that will be used to reduce these pollutants of concern over the next several years.

The Upper Oyster Creek Group began meeting in 2012 and produced a document entitled “Implementation Plan for Two Total Maximum Daily Loads for Dissolved Oxygen and One Total Maximum Daily Load for Bacteria in Upper Oyster Creek.” This Implementation Plan, or as commonly called, ‘I-Plan’ was approved by the TCEQ on January 15, 2014. While the Upper

Oyster Creek I-Plan used many of the ideas and strategies from the BIG's I-Plan, The Upper Oyster Creek I-Plan also addressed the Dissolved Oxygen impairment in the upper portion of the stream. This I-Plan outlines the potential sources of bacteria and dissolved oxygen, as well as implementation strategies that will be used to reduce these pollutants of concern over the next several years. The ideas and strategies are intended for the entire Upper Oyster Creek watershed. The MS4 Operator may refer to information found in both I-plans, and consider the ideas and applicability of program elements within its specific jurisdiction.

### **Sources of the Bacteria Impairment**

The TMDL documents state the sources for indicator bacteria vary, and there is no single predominant source. Bacteria specific to humans, avian, and non-avian wildlife and domestic animals all accounted for appreciable portions of the loadings. Both I- Plans summarize information found in the TMDL documents for potential pollution sources. The MS4 Operator has reviewed the potential sources of bacteria as identified in the TMDL and I-Plans as well as the strategies proposed to address these potential sources. I-Plan strategies are intended to be implemented on a watershed basis; however, some of the strategies may not apply within the jurisdiction of the MS4 operator. The MS4 operator will develop a Bacteria Program based on selected sources for bacteria that may occur within its jurisdiction.

### **Bacteria Specific Program Elements**

- 1.0 Sanitary Sewer System (if applicable)
- 2.0 Illicit Discharges and Dumping
- 3.0 Residential Education
- 4.0 Animal Sources
- 5.0 Monitoring

The MS4 Operator has chosen the following Best Management Practices that focus on the impairment of concern for the selected program elements.

#### **1.0 - Sanitary Sewer System**

*(Note: this program element applies to all MS4 participants except Fort Bend County LID 15 and LID 19)*

#### *Description*

Sanitary sewer system overflows (SSOs) may be a source of bacteria in stormwater runoff within the MS4 Operators jurisdiction. Both the BIG's I-Plan and the Upper Oyster Creek I-Plan mention strategies for SSOs. The EPA has concluded that SSOs contribute to bacteria loading in



nearly all impaired streams, but may or may not be a primary source of loading. These overflows can originate from individual homes, businesses, as well as MS4 Operator owned facilities. Overflows may be caused by blockages in the line, line breaks, defects that allow stormwater and groundwater to infiltrate into the system, lapses in operation, inadequate design and construction, power failures, and even vandalism. The goal of this program element is to review existing operations and develop the tools necessary for proper operation and maintenance of the system. This element will include a review of existing documents, as well as the physical system, including lift stations. Components of the program will be developed over the permit term as necessary. Training of the MS4 Operator's consultants and applicable parties will be an integral part of this program element.

### **BMP 1.1 Mapping of Sanitary Sewer System**

#### *Description*

An accurate map of the MS4 Operator's sanitary sewer system is critical to proper operations and reporting of overflows. The MS4 Operator will review existing maps of the sewer system and determine the need for creation/updates of existing maps.

#### *Implementation Schedule*

- Year 1: Introduce the need to comply with TXR040000 to the MS4's management team
- Year 2: Research existing maps of the MS4 Operator's sanitary facilities, including lift stations
- Year 3: Begin creation/updates of the overall map of all MS4 Operator owned or shared sanitary sewer facilities. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 4: Continue map development Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Complete map and implement use of the map for various initiatives involving the sanitary sewer system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of permit term goal – MS4 Operator will have an accurate overall map of the sanitary sewer system to aid in the proper management of the MS4 Operators wastewater flows.

#### *Measurable Criteria*

- Meeting Agenda
- Overall sanitary sewer system map.

## **BMP 1.2 Reporting of Sanitary Sewer Overflows (SSOs)**

### *Description*

Reporting of events that could discharge the pollutant of concern is critical to the proper management of the sanitary sewer system. Current EPA regulations specify reporting requirements for noncompliance, including SSOs, in 40 C.F.R. § 122.41 (1) (6) and (7) (2011). Reporting at regular meetings of any overflows and/or stoppages in the system, sanitary lift station operations, as well as critical information about operations at the WWTF, where applicable, will aid in the reduction of bacteria discharges into the receiving stream.

### *Implementation Schedule*

- Year 1: Introduce the need to comply with TXR040000 to the MS4's management team.
- Year 2: Begin review of regular operations reports for specific information that pertains to the discharge of the pollutant of concern from SSOs.
- Year 3: Continue review of operations reports and make recommendations on report modifications, as necessary. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Years 4: Modify operations report to ensure SSOs are being properly reported. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Implement Operations Report. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of permit term goal – MS4 Operator will have an operations report that includes information on SSOs.

### *Measurable Criteria*

- Meeting Agenda/minutes
- Completed operations report with SSO information included

## **BMP 1.3 Facilities Assessment**

### *Description*

The BIG's I-Plan suggested to the TCEQ that all sanitary systems should be required to develop and implement a Utility Asset and Management Program (UAMP) (Implementation Activity 2.1). The Oyster Creek I-Plan mentions the issue of aging infrastructure in its Implementation Strategy 11.0. As previously stated, the MS4 Operator enlists a group of professionals to manage its day to day business activities. The Engineer is the professional in charge of the design and construction of the MS4

Operator's sanitary sewer system. Regular reporting of the compliance with permit conditions, as well as on-going conversations with other members of the management team, help assess the operating condition of the sanitary sewer system. The MS4 Operator will review conditions of the sanitary sewer system with its management team on a periodic basis to determine if problems exist that may lead to non-compliance with effluent conditions.

#### *Implementation Schedule*

- Year 1 – Introduce the need to comply with TXR040000 to the MS4's management team.
- Year 2: Begin research to develop a reporting program that will aid management and operations personnel in determining the overall conditions of the sanitary sewer system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 3: Continue research to develop a reporting program that will aid management and operations personnel in determining the overall conditions of the sanitary sewer system (reports, checklists, programs). Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 4: Chose appropriate management program that will be developed by the management team to help identify problems with the sanitary sewer system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Implement management program to ensure the operational integrity of the sanitary sewer system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of permit term Goal – MS4 Operator will be aware of the condition of its sanitary sewer system and incorporate a management system to ensure continued compliance with all permit conditions, including SSOs.

#### *Measurable Criteria*

- Meeting Agenda
- Management programs researched
- Developed Program

### **BMP 1.4 Reporting and maintenance of Lift Station Functions**

#### *Description*

The proper design and maintenance of lift stations located within the MS4 Operators jurisdiction is critical for compliance with the bacteria program. Lift stations can fail, as demonstrated by the many power outages during 2008 when Hurricane Ike hit the Houston Metropolitan Area. There were many power outages that led to discharge of

untreated wastewater into the receiving streams. Lift stations may also fail due to mechanical failure, vandalism and old age. This program element will include a review of existing lift stations with the goal of developing an overall operations and inspection plan to be implemented on a regular basis, and also in case of emergencies.

#### *Implementation Schedule*

- Year 1: Introduce the need to comply with TXR040000 to the MS4's management team.
- Year 2: Begin development of a lift station inventory program that will aid management and operations' personnel in determining the location and overall conditions of the lift stations.
- Year 3: Identify all lift stations within the MS4 Operators jurisdiction. Research existing operations procedures regarding lift stations to ensure proper operation that minimizes overflow potential. Begin analysis of lift station capability to operate under loss of power conditions. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 4: Finalize operations procedures for existing lift stations. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Based upon the gathered research, implement new or modify operational procedures as necessary. MS4 operator will be made aware of loss of power conditions at each lift station. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of permit term goal – MS4 Operator will have adequate operational procedures in place to ensure proper operation of MS4 Operator owned sanitary lift stations, including loss of power conditions.

#### *Measurable Criteria*

- Meeting Agenda
- List of Lift stations located within the MS4
- New/modified operations report

### **BMP 1.5 Sanitary Sewer Use Requirements**

#### *Description*

Whether the MS4 operator discharges to another WWTF (subscriber system), or owns and operates its own WWTF, the proper use of the sanitary sewer system by all registered customers within the MS4 Operator's jurisdiction is critical for compliance with stream standards. This program element will include a review of existing rules and regulations of the MS4 operator, including subscriber system contracts, as applicable, in order to ensure proper use of the system. Emphasis will be placed on rules that govern the ownership and

operations of grease traps, grit traps and the discharge of fats, oils and grease into the sanitary system.

#### *Implementation Schedule*

- Year 1: Introduce the need to comply with TXR040000 to the MS4's management team.
- Year 2: Identify any subscriber system to the WWTF, if applicable. Begin researching existing rules for system users and contracts with subscriber systems, if applicable. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 3: Review specific information that pertains to the proper use of the sanitary sewer system, with emphasis on ownership of grease traps, grit traps and the discharge of fats, oils and grease into the sanitary system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 4: Create/modify rules and amend subscriber system contracts, as necessary, to address any misuse of the sanitary sewer system. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Implement rules concerning the proper use of sanitary sewer systems, where necessary. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of permit term goal– MS4 Operator will have adequate rules in place to ensure proper use of the sanitary system by all parties, including subscriber systems.

#### *Measurable Criteria*

- Meeting Agenda
- Copy of rules and regulations
- Copy of subscriber system contracts, if applicable

#### **Interim Milestones**

By the end of year 3, all lift stations will be inventoried. Each lift station will be provided with signage that provides emergency information necessary for the reporting of problems. By the end of year 4, the operations report will include information on SSO's that have occurred in the system. Additionally by the end of year 4, existing rules and regulations relative to proper use of the MS4s sanitary sewer system will have been inventoried. Any subscriber system contracts will have been identified.

## **2.0 - Illicit Discharge & Dumping**

*(Note: this program element applies to all MS4 participants)*

### *Description*

As reported in the BIG's I-Plan "Many of the TMDLs in the BIG region indicate that illicit discharges and dumping account for a significant dry- weather bacteria loadings." The Upper Oyster Creek I-Plan addresses this issue in its Implementation Strategy 11.0, which deals with sanitary sewer systems. As described and developed in MCM 2, of this SWMP, the MS4 Operator will develop, implement, and enforce a program to detect, investigate, and eliminate illicit discharge into the MS4. Emphasis on bacteria laden discharges and spills, such as from grease traps, grit traps and waste haulers will be included. It will seek to eliminate illicit discharges to the extent allowable under State and local law. Training of the MS4 Operator's consultants and applicable parties will be an integral part of this program element.

### **BMP 2.1 Rules and Regulations for Illicit Discharges**

#### *Description*

Illicit discharge and dumping can introduce pollutants both directly and indirectly into the waterways. Sources can include illegal connections to the storm sewer, as well as discharges directly into the water body. As described in MCM 2, the SWMP will include a current map of the MS4 Operator's storm sewer system. The MS4 Operator will review existing maps of the storm sewer systems and determine the need for creation/updates of existing maps. The MS4 Operators will review existing rules and regulations concerning illicit discharges with emphasis on grease trap, grit traps and other sources of bacteria.

#### *Implementation Schedule*

- Year 1: Introduce need to comply with TXR040000 to MS4 Operator's MS4 Operator.
- Year 2: Examine existing resolution/rate order. Begin development/update of a comprehensive Stormwater Conveyance map to be used for IDDE practices. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties.
- Year 3: Begin modifications to resolution/rate order language. Update Stormwater Conveyance map, as necessary, to be used for IDDE practices. Research possibility of a hotline phone number to be used as a reporting mechanism. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4

Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.

- Year 4: Finalize and adopt resolution/rate order language. Begin responding to resident reports of illegal dumping and/or illicit discharges as generated by the website's complaint module. Adopt hotline phone number if appropriate. Stormwater Conveyance map will be updated, as necessary, to be used for IDDE practices. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Continue responding to resident reports of illegal dumping and/or illicit discharges as generated by the website's complaint module. Evaluate effectiveness and enforceability of adopted regulatory mechanism. Evaluate effectiveness of hotline phone number, if adopted. Conveyance map will be updated, as necessary, to be used for IDDE practices. The MS4 Operator will hold a minimum of one training session relative to IDDE and other SWMP goals, TXR040000 requirements, and/or Best Management Practices. The training session will be performed during the MS4 Operator's regular scheduled meeting for applicable MS4 Operator Consultants and interested parties. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of Permit Term Goal: An Illicit Discharge Detection and Elimination program will be developed and fully implemented. Local resolution will be adopted and mandate compliance with the IDDE program. A map of the MS4s stormwater conveyance system will be developed.

#### *Measurable Criteria*

- Meeting Agenda
- Stormwater conveyance map
- Training sessions held

#### **Interim Milestones**

Existing stormwater conveyance maps will be reviewed by the end of year 2. By the end of year 2, at least one training session will be held.

### **3.0 - Residential/Public & MS4 Operator Consultant Education**

*(Note: this program element applies to all MS4 participants)*

#### *Description*

MCM 1 in this SWMP is designed to be an overall public education program that will be used to inform the public about the impacts that pollution in stormwater run-off can have on water

quality, hazards associated with illegal discharges and improper disposal of waste, and ways to minimize the impact on stormwater quality.

This program element is aimed at changing public behavior through education efforts. Specific educational material will be developed placing emphasis on possible sources of bacteria, including bacteria from residential sites during stormwater runoff events, bacteria from fats, oils and greases that clog drains and sanitary lines, pet waste and general lawn care practices. Public education material will focus on why bacteria is an issue in our waterways and strategies that can reduce bacteria in these waterways. This program element will take advantage of existing public education programs and materials. Material will be regularly distributed to registered customers within the MS4 Operator's jurisdiction and will be posted on CleanBayous.org for public viewing. Training of the MS4 Operator's consultants and applicable parties will be an integral part of this program element.

### **BMP 3.1 MS4 Operator Consultant Training**

#### **Description**

A training program will be developed for applicable MS4 Operator consultants and other respective parties responsible for municipal operations. Training sessions will be used to educate all interested parties on the requirements of TXR040000, concentrating on the bacteria program elements of the SWMP.

#### *Implementation Schedule*

- Year 1: MS4 Operator consultants and interested parties will be educated on the goals of the SWMP and the requirements of TXR040000 during at least one regular meeting.
- Year 2: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session will be performed during the MS4 Operator's regularly scheduled meeting. The training session will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 3: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session will be performed during the MS4 Operator's regularly scheduled meeting. The training session will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.



- Year 4: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session will be performed during the MS4 Operator's regularly scheduled meeting. The training session will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: The MS4 Operator will hold a minimum of one training session for applicable MS4 Operator Consultants and interested parties. The training session will be performed during the MS4 Operator's regularly scheduled meeting. The training session will cover SWMP goals, TXR040000 requirements, and/or Best Management Practices. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of Permit Term Goal: All MS4 Operator consultants and interested parties will be educated on the goals of the SWMP and the requirements of TXR040000 relative to the bacteria program elements of the SWMP.

*Measurable Evaluation Criteria*

- Meeting Agenda
- number of training sessions held
- training material distributed at meetings, if applicable

**BMP 3.2 Residential/ Public Education**

*Description*

Educational material will be used to inform the public about the impacts that pollution in stormwater run-off can have on water quality, hazards associated with illegal/illicit discharges and improper disposal of waste, and ways to minimize the impact on stormwater quality. Educational material will address pet waste, lawn maintenance, household hazardous waste, commercial stormwater impacts, and other sources of pollution that may lead pollution, especially from bacteria. Material will be regularly distributed to registered customers within the MS4 Operators jurisdiction and will be posted on CleanBayous.org for public viewing, as outlined in MCM 1.

*Implementation Schedule*

- Year 1: Research existing educational material that can be inserted into water bills or other mailings to the MS4 Operator's constituents.
- Year 2: Approve educational material to be distributed in mailings. Perform at least one mailing to MS4 Operator constituents. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 3: Approve educational material to be distributed in mailings. Perform at least one mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to

measurable goals and/or to the implementation schedule will be made as appropriate.

- Year 4: Approve educational material to be distributed in mailings. Perform at least one mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: Approve educational material to be distributed in mailings. Perform at least one mailing to MS4 Operator constituents. Post on Website. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of Permit Term Goal: All registered customers within the MS4 Operator's boundaries will receive bacteria specific educational material at least once annually.

#### *Measurable Evaluation Criteria*

- Meeting Agenda
- Bacteria specific educational material researched/reviewed
- Bacteria specific educational material delivered to constituents
- Number of material distributed

#### **Interim Milestones**

At least one training session on bacteria specific topics will be held by the end of year 2.  
At least one design for bacteria specific training material will be selected by the end of year 2.

### **4.0 - Animal Sources**

*(Note: this program element applies to all MS4 participants)*

#### *Description*

Animals that use open space and other green areas within the MS4s jurisdiction could be a significant source of bacteria entering the receiving stream. These sources include pets such as dogs, cats, horses and other types of domestic animals. The sources also include many species of wild animals that travel and use these open spaces. This program element is aimed at changing public behavior relating to the proper use of these open spaces and green areas. Public education may include signage, mail outs and/or other educational material that may be developed over the term of the permit. This program element will take advantage of existing public education programs and materials that may be available from other MS4s in the watershed. Education material will be regularly distributed, as deemed necessary by the MS4 Operator, to registered customers within the MS4 Operator's jurisdiction and will be posted on CleanBayous.org for public viewing, when necessary.

## **BMP 4.1 Residential/ Public Education –District Signs**

### *Description*

Educational material including signage may be used to inform the public about the impacts that pollution in stormwater runoff can have on water quality. Signs may be developed and installed around green areas and open space areas that exist within the MS4's jurisdiction

### *Implementation Schedule*

- Year 1: Research green areas and other open space areas that exist within the MS4s jurisdiction.
- Year 2: Research existing signs or design new signs and/or other education material that will be installed around green areas and open space areas within the MS4s jurisdiction. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 3: Approve signage and/or other educational material specific to animal waste. Approve other applicable educational material, if necessary. Begin installation of signs around common open areas, if applicable. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 4: If applicable, continue installing signs around open spaces and green areas, where necessary. Approve other applicable educational material, where necessary. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- Year 5: If applicable, complete sign installation. Approve other applicable educational material, where necessary. Based on the previous year's BMP evaluation included in the annual report, modifications to measurable goals and/or to the implementation schedule will be made as appropriate.
- End of Permit Term Goal: If applicable, signs concerning animal waste will be installed and/or updated/revised on green spaces and other common open areas that are used by area residents and other visitors. Where necessary, other education material will be distributed to residents.

### *Measurable Evaluation Criteria*

- Number of signs installed/updated/revised

### **Interim Milestones**

At least one sign design, or other piece of educational material will be approved for installation/distribution by the end of year 3.

**5.0 - Monitoring of Progress towards the Benchmark**

The MS4 Operator shall monitor progress in achieving the listed benchmark and improving water quality and shall report this progress in each annual report. Based on an evaluation of the BMPs chosen for each program element, the MS4 Operator will assess program success and progress towards achieving the benchmark. Progress will be reported using program indicators such as number of educational opportunities conducted, number of training sessions held, etc. In cases when the MS4 Operator is part of an I-Plan that has been prepared for the watershed, there may be additional sources for assessing stream quality for the stream segment or assessment unit using data produced by governmental agencies, such as the TCEQ. The MS4 operator will monitor these opportunities and include in the annual report, if available. The MS4 operator will review the effectiveness of the program to determine the need to change any program elements or BMPs and will make these decisions by the end of the third year of the permit term.

**Part IV – Appendices**

**Notice of Intent**

**Location Maps – District Boundaries**

**Bibliography**

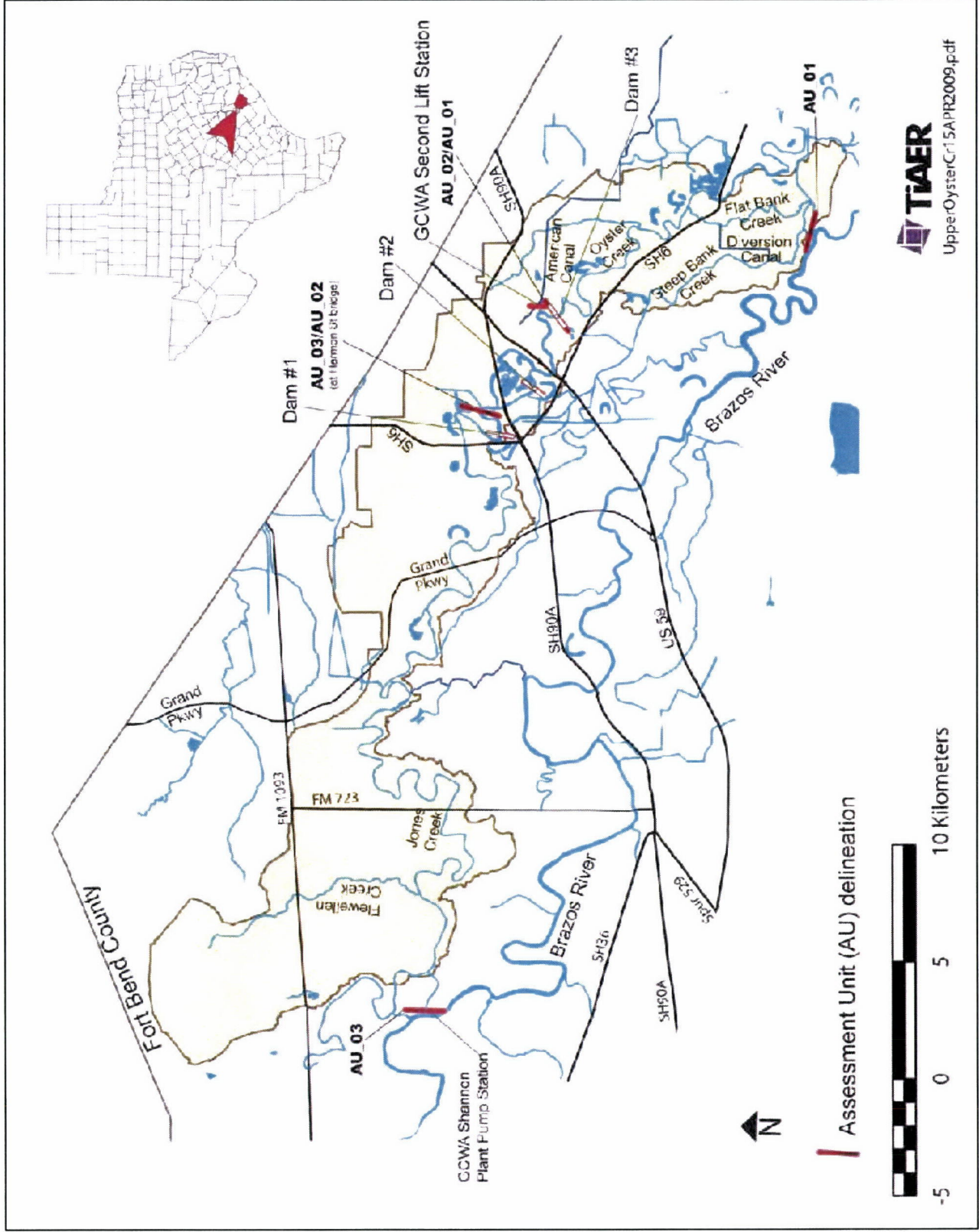


Figure 1 Upper Oyster Creek Watershed

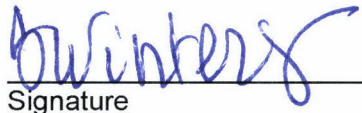
I certify that, to the best of my knowledge, this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

**Fort Bend County Municipal Utility District No. 149 MS4**

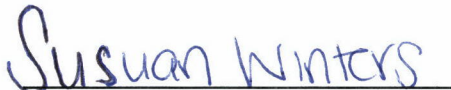
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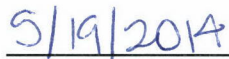
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