

Impaired Waterbodies Water Quality Assessment Monitoring and Implementation Work Plan Spirit Creek Augusta, Georgia

EXECUTIVE SUMMARY

Section 303(d) of the Federal Clean Water Act (CWA) requires developing 305(b)/303(d) list of waters. The Georgia Environmental Protection Division (GA EPD) develops this list for the State of Georgia rivers and streams in accordance with 40 CFR Part 130.7(b)(4) and guidance provided by the United States Environmental Protection Agency (U.S. EPA). Draft 2014 Section 303(d) list identified Spirit Creek in Richmond County as not supporting their designated use due to violation of Surface Water Quality Biological Criteria. Listed criterion violated is Bio F (fish) in 14 miles Marcum Branch to McDade Pond segment of Spirit Creek. The pollutant of concern identified is “sediment”.

The GA EPD finalized TMDLs in February 2016 for sediments in the Savannah River Basin due to a “biota/habitat-impaired designation on Georgia’s draft 2014 Section 303(d) list. The purpose of this work plan is to comply with Augusta, GA Area wide National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit and in general implement 2016 TMDL integrated management control measures to manage identified pollutant of concern to Maximum Extent Practicable (MEP). The listed segment originates outside jurisdictional boundary of Augusta, GA and accordingly Augusta’s efforts will be limited to its jurisdictional limits.

INTRODUCTION

Augusta is located adjacent to the Savannah River in east central Georgia. It is bounded by Columbia County to the north and northwest; McDuffie County and Jefferson County to the southwest; Burke County to the south; and the Savannah River and South Carolina to the east (FIGURE 1). Augusta is approximately 150 miles east of Atlanta, Georgia and approximately 68 miles southwest of Columbia, South Carolina. The County encompasses approximately 324 square miles, almost 75 percent of which is serviced by Augusta. The majority of Augusta is located within the Upper Coastal Plain Physiographic Province. However, a small northern portion, which includes the Rock Creek and Rae’s Creek, lies in the Piedmont Physiographic Province. The Coastal Plain is underlain by stratified and weakly unconsolidated marine sedimentary rock. Spirit Creek flows in an easterly direction to Savannah River. The creek flows through Fort Gordon and the community of Hephzibah.

WATERSHED DESCRIPTION

Spirit Creek watershed is located in the central portion of Richmond County. The creek drains approximately 41,210 acres (64.41 square miles) of the County, including a portion of Fort Gordon and the City of Hephzibah. Land use in the watershed is primarily residential, with significant amount of forests and natural areas. This results in a relatively low impervious percentage for the overall watershed. Soils are well drained with low runoff potential. The majority of the soil in the watershed is type A, followed by B or C. The following are characteristics of each of the hydrologic soil groups as defined by the Natural Resource Conservation Service (NRCS).

Type A – Sand, loamy sand or sandy loam type; Low runoff potential; mostly sandy soils; high infiltration rate, deep, well to excessively drained sands or gravel and have a high rate of water transmission.

Type B – Silt loam or loam type; moderately low runoff potential; mostly sandy soils; less deep and less aggregated than Type A, but the group as a whole has above average infiltration after thorough wetting.

Type C – Sandy clay loam type; moderately high runoff potential; Comprises shallow soils and soils containing considerable clay and colloids, though less than those of group D. The group has below average infiltration after saturation.

Spirit Creek watershed is located in the central portion of Richmond County. Land use in the watershed is primarily residential with significant amounts of forests and natural areas. There is some industrial activity in the lower two miles of the watershed along High Way SR56.

Commercial/Industrial	10.3
Residential	14
Lakes/Reservoir/water	0.2
Forests / Open Land	58.9
Agriculture	12.3
Other	4.3

PROJECT OBJECTIVE

The purpose of this work plan is to comply with Augusta, GA Area wide National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. Objective of this plan is to monitor and manage sediment load in designated section of the creek using integrated management control measures to Maximum Extent Practicable. The derived objective is to improve the over aquatic health of the water body.

PROJECT MEASURE OF SUCCESS

2016 TMDL requires overall minor sediment load reductions (1.1%) for Spirit Creek. The single most important measure of success of this program is managing sediment transport through periodic instream sediment monitoring and implementing integrated control measures, if warranted. Nearly upper half of the listed impaired segment flows through Fort Gordon (outside jurisdiction of Augusta, GA) and sediment management in this segment is not feasible due to jurisdictional limitations.

PROJECT CONTACT

Augusta, GA primary contact for this Implementation Plan is Augusta Engineering Department, Assistant Director Engineering. Current contact information is provided below:

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SCOPE OF WORK

Scope of work consists of conducting periodic water quality monitoring within the impaired segment of Spirit Creek. Georgia Draft 2014 Section 303(d) list identified Spirit Creek in Richmond County as not supporting their designated use of “Fishing” due to violation of Surface Water Quality Biological Criteria. Listed criterion violated is Bio F (fish) in 14 miles Marcum Branch (Fort Gordon) to McDade Pond segment of Spirit Creek (Figure 2). The pollutant of concern identified is “sediment”.

a) Sampling Location

Sampling will be conducted at one location within Spirit Creek as shown on Figure 3. This location is selected to represent urbanized land use runoff; that is listed as a probable cause of sediment impairment.

b) Sampling Methods

Manual grab surface water samples will be collected for total suspended solids (TSS) analysis. Samples will be taken in vicinity of stream center area and at a point that is safely accessible. Where possible, the sample will be collected directly into the sample container. If direct access to the stream is not possible or wadeable, then supplemental sampling equipment (i.e., sampling rod with clean collection bucket) will be utilized.

Water quality sampling methods will conform to the guidance in the Water Protection Branch Quality Assurance Manual, June 1999 (Revised 2005).

c) Sampling Frequency

Sample will be collected semiannually. One sample will be collected during the summer period from May – October and second sample during the winter period from November – April.

Only “representative” sample (i.e. collecting samples under normal conditions for the creek) will be collected. For purpose of compliance with this sampling frequency, representative sample is a sample collected during dry weather or after 48-hours of a rain event of one inch or greater. Sampling variance will be documented and reported in Annual Report.

d) Sampling Parameters

Sampling collected during each event will be analyzed for Total Suspended Solids per EPA analytical method EPA 160.2 with detection limit of 10mg/L or equivalent analytical method. Samples analysis will be performed by Phinizy Center for Water Science Laboratory or Augusta Publically Owned Treatment Works (POTW) Laboratory or other external certified laboratory.

e) Documentation

Each sample will be labeled and sealed immediately after collection. Sample identification documents will be prepared so that identification and chain-of-custody records can be maintained. The following sample identification will be utilized.

- i) Sample Label
- ii) Field Form
- iii) Chain-of-custody forms

f) Sampling Schedule

Sampling will commence in summer period of 2017. Sampling schedule is established on a repeating annual basis. The MS4 reporting period ends in April of each year.

g) Sampling Duration and Data Reporting

Samples will be collected per schedule for five-year period (over duration of Augusta MS4 Permit reissued in 2017). Monitoring data will be included in MS4 yearly report starting 2017-2018 Annual Report Submittal. Augusta will initiate data trend evaluation during third year using first year data as baseline data for trend assessment. At a minimum data will be included in tabulated format.

STORMWATER QUALITY INTEGRATED CONTROL MEASURES

At present sediment loading in Spirit Creek is slightly above (1.1%) allowable sediment total load limits per TMDL document. The document review suggests that exceedance is associated to discrete point sources (such as improperly managed construction sites, crop and forest lands and eroding streambanks). It should be noticed that approximately upper half of the listed impaired segment flows through Fort Gordon (outside jurisdiction of Augusta, GA), and past and present construction activities at Fort Gordon can be possible contributor of observed sediment impairment. However, sediment management in this segment is not feasible due to jurisdictional limitations.

Scope of work consists of management practices that may be used to manage and maintain average annual sediment loads at current load. Augusta, Georgia has in-progress sediment management integrated control measures and proposing to continue these practices. These measures are listed below. Spirit Creek basin is relatively least developed suburban watershed within Augusta, GA legal boundary. Chosen control measures are based on assessment of current land use within the listed impaired drainage area. Augusta, GA will review following listed control measures and make adjustments / improvement on as needed basis or location specific basis.

- I) Natural Resources Management – Natural Resources Conservation , Erosion & Sedimentation outreach Events (Workshop / Training)
In association with Brier Creek Soil and Water Conservation District and the Georgia Soil and Water Conservation Commission, an Erosion & Sediment (E&S) Control Workshop will be conducted to provide information on latest changes for E&S Control in Georgia and the checklists. Various best management practices including skimmers will also be discussed. Augusta, GA will continue such educational activities.
- II) Natural Resource Management – Protection of local natural resources by enforcement of land development ordinances such as Erosion, Sedimentation and Pollution Control Plan compliance, encourage incorporation of low impact development / green infrastructure measures in overall land development practices, and watershed protection through management of various intensity storms. Augusta, GA will continue all in-progress control measures.
- III) Pedestrian surveys of creeks in the county - Augusta, GA, in conjunction with Phinizy Center for Water Sciences, have been conducting pedestrian surveys of major creeks within the county to assess geomorphic parameters which include observations of potential sediment sources to each stream.

PROJECT DATA EVALUATION AND REPORTING

Described under section “Scope of Work” (g).

STORMWATER INTEGRATED MANAMEGEMENT PLAN PERFORMANCE MEASURE

The single most important measure of success of this program is managing sediment transport through periodic instream sediment monitoring and implementing integrated control measures, if warranted. At the end of specified sampling duration period, adopted control measures will be adjusted depending on data trend analysis, and accordingly IWP will be amended. Augusta will consider adopted control measures performance satisfactory if collected data trend suggests that there is no significant increase ($\leq 15\%$) in TSS reported values as compared to baseline data. In case of significant upward trend in TSS noted values, Augusta will re-evaluate adopted control measures or stream natural conditions and propose modifications accordingly.

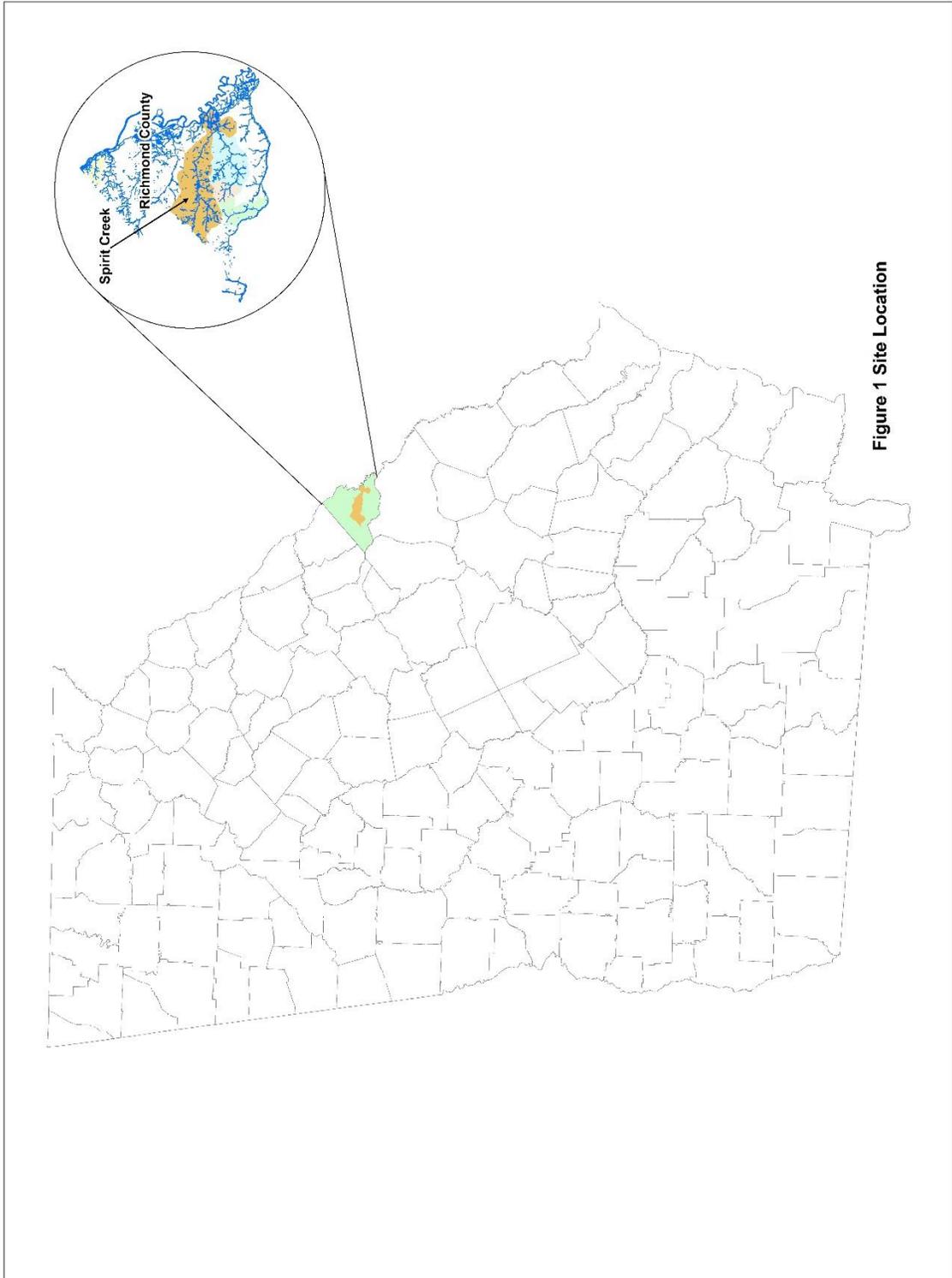


Figure 1 Site Location

