

Water Quality Analysis for Augusta Regional Airport

The leading water resource of the project area is the Savannah River, which lies immediately east of the Airport. The river is among the largest in the southeastern United States, with a watershed encompassing 10,577 square miles, of which 5,821 square miles are in eastern Georgia. The Georgia watershed drains portions of twenty-seven counties and it defines most of the boundary between Georgia and South Carolina. At the U.S. Geological Survey river gauge near Clyo, in Effingham County Georgia, the Savannah's average annual flow is 12,040 cubic feet per second. Below this point, the last 61 miles of the Savannah River are tidally influenced, and conventional river-flow measurement is unreliable. Along its route from the Piedmont to the Atlantic Ocean, the Savannah River is used for various purposes, including navigation, the generation of electricity, and water for human consumption.

Although originating in the rugged Blue Ridge geologic province of Georgia, North Carolina, and South Carolina, most of the watershed lies in the Piedmont and the Coastal Plain provinces. The Savannah is therefore an alluvial stream, transporting large amounts of sediment that contributes to the sand deposits on coastal islands, and of nutrients that nourish life in the river. More than 110 fish species have been documented in the Savannah basin. In the warm-water Piedmont and Coastal Plain reaches of the river, the fish assemblage includes suckers, American shad, black crappie, bluegill, chain pickerel, channel catfish, sturgeon, largemouth bass, redbreast sunfish, redear sunfish, striped bass, and white bass.

The river provides drinking water to the City of Augusta and assimilates the City's treated wastewater from the Augusta Wastewater Treatment Plant via a system of constructed ponds and wetlands around Phinizy Ditch, within the 1150-acre Phinizy Swamp Nature Park (see Section D, Biological Survey). Phinizy Ditch, along with Butler Creek, are the local tributaries of the Savannah River that receive much of the drainage from the middle and northern portions of the Airport. Part of Airport drainage from around Runway 8/26 flows south via open ditches to hardwood swamps around the Triggs Dead River that flows through an old oxbow feature of the Savannah River.

State Water Quality Standards

Surface water quality standards are established and enforced in Georgia by the Georgia Environmental Protection Division (GAEPD) via Total Maximum Daily Load (TMDL) limits for water bodies under Section 303(d) of the Federal Clean Water Act (CWA) and National Pollution Discharge Elimination System (NPDES) permits for point and non-point sources under Section 402 of the CWA. Point sources are permitted under two basic permit types: those for municipal and industrial wastewater treatment facilities, and those for regulated storm water discharges. Non-point sources, including construction site erosion, are also controlled through permits under the Georgia Erosion and Sediment Control Act (ESC) of 1975.

Planning, monitoring, administration and enforcement of all water quality standards is delegated to the Watershed Protection Branch of the GAEPD, save for certain areas where Local Issuing Authorities (LIAs) permit and monitor construction site erosion under the ESC. However, public domain developments with federal/state funding such as the proposed project remain with an environmental liaison officer within the relevant regional office of the GAEPD.

Over 1500 TMDLs have been established for Georgia water bodies by the GAEPD. In the project vicinity, a fecal coliform (FC) standard (GAEPD, 2015a) has been established for Butler Creek from Boardman Pond to the Savannah River, a reach that includes the Phinizy Ditch and also receives storm water drainage from the Airport. Although storm water is identified as a major non-point source contributing to the Butler Creek water quality impairment, no recommended load reduction has been established. A dissolved oxygen (DO) TMDL (USEPA, 2000) also applies to Butler Creek from the Phinizy Ditch confluence to the Savannah River. On a much larger scale, the Savannah River harbor and estuary is subject to a TMDL for DO under a recently-published 5R Restoration Plan for this impaired water (GAEPD, 2015b). Development of this 5R TMDL revealed that its attainment would rely mostly on improved performance of the 13 existing industrial and municipal NPDES dischargers upstream, as these discharges are responsible for most of the biological oxygen demand that led to the TMDL. Analysis during TMDL development also showed that oxygen-demanding loads from industrial and municipal storm water sources were shown to have no measureable impact on DO levels in the Savannah River harbor and estuary.

The Airport has a current storm water pollution prevention plan (SWPPP) for its 17 acres of developed lands that are classified as industrial under Standard Industrial Code 4581 and North American Industry Code System 488119 (Augusta Regional Airport, 2012). These lands discharge to Butler Creek to the east and Twiggs Dead River to the south. The SWPP documents storage, containment, handling and spill cleanup procedures for various fuels such as aviation gasoline, jet fuel, and vehicle diesel and gasoline. It also documents uses and locations of potential contaminants and best management practices (BMPs) for their use, as well as prevention and containment of any spills. All storage facilities for fuels are securely protected and contained within a single facility. The SWPP assigns regular compliance duties and inspection responsibilities to specific airport personnel and is subject to quarterly visual inspections of storm water discharges and annual inspections and reporting.

Maintenance, equipment cleaning and airport de-icing operations are among the potentially polluting activities identified and controlled by the SWPP. Most of these operations take place within covered structures, but mobile refueling, some aircraft cleaning and the de-icing of aircraft take place outside on designated paved areas. These designated areas are near the Fixed Base Operator (FBO), a relatively flat area that has no storm inlets and drains to well-maintained turf areas to the north and east where natural attenuation and decay of de-icing compounds can occur.

Local Regulations

Richmond County has adopted several ordinances to improve water quality by protecting wetlands, water supply watersheds, groundwater recharge areas and river corridors.

The Wetlands Protection Ordinance established land use controls on lands surrounding wetlands as well as local floodplain development controls. This ordinance inherently helps protect water quality in Butler Creek by protecting buffer lands and floodplains within and around the riparian wetlands. The Water Supply Protection Ordinance protects drinking water sources through limits on impervious surfaces and restrictions of land uses involving hazardous wastes or materials. The Groundwater Recharge Protection Ordinance limits the number and density of septic tank drainfields, hazardous waste storage, disposal and handling facilities and chemical storage facilities. The River Corridor Protection District is an overlay zoning district

that protects lands 100 feet from the banks of the Savannah River. Only single family homes with a two-acre minimum lot size and sanitary sewer service are permitted in this overlay district. The various elements of the proposed project are all consistent with these local water quality ordinances.

Project Effects

With the proposed airport improvements expanding or relocating certain airport industrial lands, the SWPPP will be updated to acknowledge the changes in storm water behavior, and modify or establish new controls as appropriate. With more development potentially focused south of Runway 8/26, additional controls on storm water discharges to Triggs Dead River may be warranted. At the same time, construction site erosion controls will be designed and permitted as required under the Georgia ESC, with Notices of Intent (NOIs) filed with the local GAEPD office as required for any phased development of the project. Updating the SWPPP and compliance with ESC requirements should suffice to contribute to attainment of water quality standards in Butler Creek and the Savannah River. No adverse effects to water quality are anticipated due to the proposed project.

References:

Augusta Regional Airport, 2012. *Stormwater Pollution Prevention Plan For: Augusta Regional Airport at Bush Field.* Augusta, Georgia: Augusta Regional Airport. 2012. 254 pp.

GAEPD, 2015a. *Draft Total Maximum Daily Load Evaluation for Seven Stream Segments in the Savannah River Basin for Fecal Coliform.* Atlanta, Georgia: Georgia Department of Natural Resources, Environmental Protection Division. August 2015. 44pp.

GAEPD, 2015b. *Subcategory 5R Documentation for Point Source Dissolved Oxygen Impaired Water in the Savannah River Basin, Georgia and South Carolina.* Atlanta, Georgia: Georgia Department of Natural Resources, Environmental Protection Division. November, 2015. 119 pp.

USEPA, 2000. *Total Maximum Daily Load (TMDL) Development for Butler Creek in the Savannah River Basin, HUC 3060106.* Atlanta, Georgia: U.S. Environmental Protection Agency. 2000. 26pp.