

APPENDIX E

WETLAND EVALUATION REPORT

**New Savannah Bluff Lock and Dam
Wetland Evaluation
Final Report**

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**Prepared for:
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1.0 INTRODUCTION

Dial Cordy and Associates Inc. was authorized by the Savannah District, U.S. Army Corps of Engineers under contract DACW-21-98-D-0021, W.O. 0024 to perform environmental services associated with the New Savannah Bluff Lock and Dam Project. This task, as specified in the scope of work, includes the identification of jurisdictional wetlands that would be impacted, evaluation of wetland impacts (both positive and negative), and potential impact to protected species as a result of the removal of the New Savannah Bluff Lock and Dam (NSBL&D).

2.0 METHODOLOGY

2.1 Wetland Mapping

Black and white aerial photographs (1"=700') were initially reviewed for typical wetland signatures and compared to National Wetland Inventory maps, USGS topographic quadrangle maps, and USDA/NRCS soil survey maps. Overlays were prepared demarking potential jurisdictional wetlands, and field verification was conducted for the area. Jurisdictional wetlands were determined according to the criteria specified in the USACE's *1987 Manual for Identifying and Delineating Jurisdictional Wetlands*. Criteria included wetland soils and hydric indicators, wetland vegetation and indicator class (as listed in the *National List of Plant Species that Occur in Wetlands, Region 2 – Southeast, 1992*), and hydrologic indicators as described in the USACE 1987 Manual. Wetland Determination Data Forms were compiled for select wetland systems and are included with this assessment.

In addition, simulated water surface elevations for normal and low water conditions were evaluated at creek, littoral, and backwater swamp areas to determine potential negative impacts from the removal of the NSBL&D. Using the black and white aerial photography and water surface elevations, potential positive impacts were addressed such as creation of shoal habitat and potential increase in littoral areas.

2.2 Wetland Classification

The type and existing condition of the mapped wetland systems were assessed according to the Standard Operating Procedure (SOP) for Compensatory Mitigation (USACE Savannah District, 1997). See Tables 1 and 2 for complete category descriptions. Each wetland system was assigned a value from *Class 1* to *Class 6*, with 1 being the highest quality (essentially pristine and unimpacted by human activities) and 6 being the lowest quality (i.e., adverse permanent and significant changes to the wetland due to fill, excavation, etc.). The SOP characterizes the type of wetland impacted by "lost kind". *Lost kind* categories are based on functional values with values ranging from *Kind A*: riverine wetlands (including bottomland hardwoods) and intertidal wetlands (2.0 impact factor) to *Kind E*: lakes, impoundments, and borrow pits (0.1 impact factor).

Table 1. **Lost Kind**
 (Based on: US army Corps of Engineers- Savannah District, 1997. Standard Operating Procedure: Compensatory Mitigation).

| KIND | DESCRIPTION |
|------|---|
| A | Riverine wetlands (including bottomland hardwoods); intertidal wetlands 2.0 impact factor |
| B | Non-riverine forested wetlands; freshwater areas adjacent to tidal areas 1.5 impact factor |
| C | All isolated wetlands 1.0 impact factor |
| D | Pine flatwood wetlands 0.5 impact factor |
| E | Lakes, impoundments, and borrow pits 0.1 impact factor |

Table 2. **Existing Conditions**
 (Based on: US army Corps of Engineers- Savannah District, 1997. Standard Operating Procedure: Compensatory Mitigation).

| Class | DEFINITION |
|-------|--|
| 1 | Essentially <u>pristine</u> areas not impacted by human activities. (2.0 impact factor) |
| 2 | Adverse changes to the environment are <u>short term and minor</u> (e.g. small temporary roads, minor dewatering, etc.). (1.5 impact factor) |
| 3 | Adverse changes to the environment are <u>short term and more than minor</u> (e.g. large temporary roads, major dewatering, temporary stream realignment, etc.). (1.0 impact factor) |
| 4 | Adverse changes to the environment are <u>long term and minor</u> (e.g. minor ditching, minor selective vegetation clearing, etc.). (0.5 impact factor) |
| 5 | Adverse changes to the environment are <u>long term and more than minor</u> (e.g. major ditching, impounded streams, extensive vegetation clearing, etc.). (0.3 impact factor) |
| 6 | Adverse changes to the environment are <u>permanent and significant</u> (e.g. permanent fills, excavations, cleared utility line easements, etc.). (0.1 impact factor) |

3.0 Results

3.1 Potential Negative Impacts

The wetland map prepared with this project is included in Appendix A. Overall, most wetland systems adjacent to the Savannah River were found to be above the existing pool level with the exception of a few creek systems that flow into the river system. Most jurisdictional wetland areas that would not be impacted by the removal of the NSBL&D are classified as isolated backwater floodplains and narrow creeks and would only be flooded during high flow conditions. All wetland areas that are impacted by the removal of the NSBL&D are considered *Class 5* (activities are long term and more than minor, 0.3 impact factor) and *Kind A* (riverine wetlands, 2.0 impact factor). The existing condition classification is dependent upon the interpretation of the SOP definitions. Because the NSBL&D has been established since the 1930's, the wetland systems above the NSBL&D could be considered mature or essentially pristine which is defined as a *Class 1* with a 2.0 impact factor. The total acreage of jurisdictional wetland areas and creek systems that would be negatively impacted totals approximately 20-30 acres.

Several concerns were noted regarding impacts to Phinizy Swamp and wetland areas near the South Carolina Electric and Gas (SCE&G) Urquhart Station with the removal of the NSBL&D. Other jurisdictional wetland areas that may be affected by the removal of the NSBL&D include littoral and forested fringe wetland areas along the shore of the Savannah River. These wetland systems were carefully analyzed to determine potential impacts to these areas.

3.1.1 Phinizy Swamp

Phinizy Swamp is located north of the NSBL&D and west of the Savannah River. Phinizy Swamp is a large wetland area that is currently under restoration and enhancement by public and private entities. Phinizy Swamp appears to be isolated from the upstream side of the NSBL&D by the Augusta levee, with its only connection located on the downstream side of the lock and dam via Butler Creek. At present, Butler Creek flows south, through the Augusta levee by means of a large water control structure located adjacent to the NSBL&D and then flows into the Savannah River below the NSBL&D. No impacts to Phinizy Swamp should be associated with the lowering of the pool elevation as a result of removing the NSBL&D.

3.1.2 SCE&G Urquhart Station

Wetlands located adjacent to the SCE&G Urquhart Station consists of backwater floodplain wetlands. The connection to the Savannah River is above the existing pool level, so removal of the NSBL&D would not affect this wetland area.

3.1.3 Littoral Wetlands

Littoral wetlands were found to fringe a large portion of the study area. These jurisdictional wetland areas are generally long slender strips of herbaceous vegetation comprised mainly of wild rice (*Zizania aquatica*). Impacts to these areas should be somewhat minimal with the lowered pool level because the wetland vegetation will simply shift down until equilibrium is met with normal flow conditions/pool elevations. Potentially, in some areas where larger expanses of shallow littoral shelves will be created, the herbaceous vegetation will create additional jurisdictional areas and enhancing habitat and filtering capabilities.

3.1.4 Forested Fringe Wetlands

Forested fringe wetlands are a very small component of the study area and are comprised of very small areas of trees and herbaceous layers that have established themselves along the existing pool elevation since the establishment of the NSBL&D. A canopy of green ash (*Fraxinus pennsylvanica*), bald cypress (*Taxodium distichum*), river birch (*Betula nigra*), box alder (*Acer negundo*) and silver maple (*Acer saccharinum*) generally dominated these areas. Wild rice and river oats (*Uniola latifolia*) dominated the herbaceous layers. There should be little or no impact to these areas with the removal of the NSBL&D, since they will naturally shift and possibly expand, similar to the littoral areas.

3.1.5 Small Creek Systems

Only a few creek systems would be affected by the draw down of the existing pool level. Lowered surface water elevations of the creek systems would cause a change from a permanently flooded creek system to a seasonally flooded creek that is hydrologically dependent upon surrounding upland areas. Most of the affected creek systems are located within highly managed agricultural areas and/or industrialized areas and have lost most of their vegetated buffers and wetland functions (i.e. storage and filtering ability). With the re-introduction of flow to these small creek systems, a notable impact would be the potential of erosion. These small creeks have potentially high amounts of sedimentation from surrounding upland areas. Due to very low flows caused by the elevated pool environment, the small creek systems lost their ability to flush the sediments into the river thus causing a build up of sediments over many years.

A number of small creeks were investigated upstream of the NSBL&D influence. These creeks can be characterized as low flowing streams that feed from surrounding uplands or from backwater swamps that only flood during times of elevated river stages. The creeks are rocky, sparsely vegetated with small shoals located at the mouth of the creeks. These creeks provide an indication of what potentially could occur if the pool elevation is lowered.

3.2 Potential Positive Impacts

3.2.1 Increase in Jurisdictional Wetland Areas

As mentioned in the prior section, littoral and forested fringe areas would naturally shift, as the pool elevation is lowered. In some areas shallow shoals would be created, thus increasing

the size of the littoral zones and the overall total area of jurisdictional wetlands. Forested fringe wetlands would simply shift with the hydrological regime with no net loss of area, but with the potential to increase in size. Taking into account all potential areas of restorable riparian/shoal habitat, approximately 90-120 acres of riparian/shoal habitat would be restored within the project area.

3.2.2 Restoration of the Augusta Shoals

The NSBL&D project is believed to have raised water surface elevations over a portion of the Augusta shoals, which are part of only a small portion left in the Savannah River and South Carolina Piedmont. These habitats are given equivalent status with wetlands as special aquatic sites in the regulations implementing Section 404 of the Clean Water Act. Restoration of the shoal system would result in restoring additional potential habitat for the rocky shoals spider lily (*Hymenocallis coronaria*), which is proposed for federal endangered status.

4.0 IMPACTS TO THREATENED AND ENDANGERED SPECIES

No negative impacts to threatened and endangered species should occur with the removal of the NSBL&D. As mentioned earlier, restoration of the Augusta shoals will result in a positive impact to the rocky shoals spider lily, which is a State of Georgia species of concern and is proposed for listing as federally endangered. Other positively impacted species include the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) and the State of Georgia endangered robust redhorse (*Moxostoma robustum*). Removal of the NSBL&D would allow for expanded habitat for these species and other anadromous fish species.

5.0 REFERENCES

- Resource Management Group, 1992. National List of Plant Species that Occur in Wetlands Region 2 – Southeast.
- U.S. Army Corps of Engineers, 1987. Manual for Identifying and Delineating Jurisdictional Wetlands.
- U.S. Army Corps of Engineers, Savannah District, 1997. Standard Operating Procedures for Compensatory Mitigation.
- U.S. Army Corps of Engineers, Savannah District, 1999. New Savannah Bluff Lock and Dam Project, Savannah River, Georgia and South Carolina. Section 216 Disposition Draft Report.

APPENDIX A

Wetland Map

01-15-00

1" = 700'

SAN JOAQUIN RIVER

Elmer's
Swamp

Water Control
Structure

Elmer's Creek

New Settlement Bridge
and Canal Dam

 Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



Impacted/Displaced Wetland Areas
Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



Impacted/Displaced Wetland Areas
Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



Impacted/Displaced Wetland Areas
Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



 Impacted/Displaced Wetland Areas
 Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



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 Restored Riparian/Shoal Habitat

Approx. Scale: 1" = 700'



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