

# FINDING OF NO SIGNIFICANT IMPACT

## WESTON LAKE DAM REPAIRS

Fort Jackson, South Carolina

July 2020

### 1. Proposed Action

The National Environmental Policy Act of 1969 (NEPA), requires federal facilities to evaluate the environmental impacts of a proposed action and any associated alternative actions prior to construction of the action. This Finding of No Significant Impact (FONSI) summarizes the results of the evaluation, and documents Fort Jackson's conclusions.

Weston Lake is located north of S.C. Highway 262, east of the Fort Jackson cantonment area and west of its intersection with Weston Pond Road, in Richland County, South Carolina (Figure 1). The lake is located completely within the boundaries of Fort Jackson's Military Reservation, and as such, is owned by the Federal Government.

Fort Jackson is proposing to address deficiencies with the Weston Lake dam. Ongoing embankment seepage and the potential loss of highly erodible soils in the earthen spillway during large flood events have compromised the integrity of the structure. Alternative 4 from the Environmental Assessment (EA) is the preferred alternative. This alternative consists of constructing a short length toe berm over and below the existing embankment with a toe drain collection system, and armoring of the emergency spillway. The toe berm would extend approximately 190 feet from the dam crest centerline. Modification and extension of the primary spillway conduit and reconstruction of the plunge pool area would extend to a location approximately 70 feet downstream of the existing plunge pool in order to accommodate the toe berm. The emergency spillway improvements consist of the installation of turf reinforcing mat and vegetation for approximately 600-800 feet of the emergency spillway length, construction of a downstream riprap end trench, and construction of a diversion berm on the left bank to direct water towards the natural streambed. The riprap end trench is being constructed as a "self-launching" riprap section that is approximately 30 feet wide and has a maximum thickness of approximately 8 feet. The riprap would meet the gradation requirements of American Society for Testing and Materials (ASTM) D 6092, R-700 riprap. If scour were to form downstream of the emergency spillway, the riprap would self-launch and prevent the progression of head cutting up the emergency spillway. The dam top elevation and emergency spillway crest elevation would not change. The dam would continue to be listed on the National Inventory of Dams, undergo periodic inspections, and be maintained as required by dam safety standards.

### 2. Other Alternatives Considered/Analyzed

Fort Jackson's Environmental Assessment (EA) evaluated several alternatives before selection of the preferred alternative. These alternatives include the following:

**No Action:** The No Action alternative would leave the Weston Lake Dam in its current condition. In its current state, the emergency spillway does not have sufficient capacity or erosion protection to pass stormwater flows during large storm events which creates a potential risk for failure. Additional factors that increase the potential risk for failure include backward erosion

pipng through and below the dam embankment. The 2019 temporary emergency repairs have not addressed the spillway deficiencies. The No Action alternative would not repair the emergency spillway or dam embankment, and risk to the downstream population would remain above acceptable levels.

**Alternative 2:** This alternative would remove the existing earthen embankment and emergency spillway in its entirety and Weston Lake would not exist. The removal would likely occur over a period of time in order to prevent a large influx of sediments downstream. Once the embankment and spillway are completely removed and the lake bed drained, a single or in some areas a multi-thread channel with adjacent wetlands would be expected to develop over a period of time within the lake footprint. Current recreational opportunities in and around the lake such as boating, fishing, and access to the beach and swimming area, would be lost. Additionally, there would be a change in wildlife habitat as the existing still water or lentic ecosystem converts to flowing waters. While the original design for Weston Lake was not intended to provide stormwater detention or flood control benefits to downstream areas, in its current configuration the dam provides some level of attenuation to a range of flood events. The peak inflows entering Weston Lake are reduced before discharging downstream by utilizing the lake's storage capacity and outlet structure. Without the dam, there would be a loss to the attenuation of storm events.

**Alternative 3:** This alternative would include construction of an extended length toe berm with a toe drain collection system and armoring of the emergency spillway. The toe berm would extend approximately 250 feet from the dam crest centerline. Modification and extension of the primary spillway conduit and reconstruction of the plunge pool area would extend approximately 130 feet downstream of the existing plunge pool in order to accommodate the toe berm. Repairs to the emergency spillway would be identical to the preferred alternative design. The dam would continue to be listed on the National Inventory of Dams, undergo periodic inspections, and be maintained as required by dam safety standards.

### **3. Environmental Impacts of the Preferred Alternative**

Resources were evaluated for impacts in the EA. The impacts to the resources from implementing the preferred alternative include the following:

- **Land use.** Construction of the preferred alternative would not result in any significant or negative impacts to land use.
- **Climate.** Construction of the preferred alternative would not result in any significant or negative environmental impacts on climate.
- **Physiography, Geology, Topography, and Soils.** Construction of the preferred alternative would not result in significant or negative environmental impacts to physiography, topography, geology, or soils. Construction of this alternative would provide a long-term positive environmental impact by allowing sediments from runoff to settle out of suspension during high flow events, thereby reducing sedimentation downstream of the dam. During construction, best management practices (BMPs) would be followed to reduce temporary negative impacts from erosion and runoff due to construction activities.

- **Surface Water and Stormwater.** Construction of the preferred alternative would cause temporary changes to stormwater and surface water during construction. These impacts would consist of a short-term decrease in the pool elevation and an increase in turbidity and downstream sedimentation during construction that would subside shortly after construction activities cease. After construction, the preferred alternative would have long-term beneficial impacts to surface and stormwater by maintaining the pool elevation, providing stormwater attenuation, allowing sediment to settle out of stormwater, and preventing erosion of the emergency spillway and seepage of the dam embankment. BMPs would be implemented during construction to reduce impacts to water quality.
- **Ground water.** Construction of the preferred alternative would result in temporary impacts to ground water due to drawdown of the lake during construction. Water levels would return to normal once construction activities cease. The preferred alternative would provide long-term beneficial effects to groundwater by maintaining the normal pool elevation of the lake.
- **Floodplains and Wetlands.** The preferred alternative would result in the permanent loss of 0.46 acre of wetlands associated with the placement of fill to repair the embankment structure and would reduce 0.46 acre of wetland function associated with the permanent conversion of woody vegetation to herbaceous vegetation. This alternative would require temporary construction activities within the floodplain but the dam and spillway crest elevations would not change and there would be no change in flood elevations. In compliance with Executive Order 11988, a Finding of No Practicable Alternative for construction in the floodplain has been prepared and is included as an Appendix of the EA for this project.
- **Fish and Wildlife.** The preferred alternative would result in temporary construction-related impacts to wildlife, and the permanent loss of 0.2 acre of habitat for the federally endangered red-cockaded woodpecker (RCW). This alternative would not result in any long-term significant or negative impacts to wildlife.
- **Vegetation.** Construction of the preferred alternative would not result in significant impacts to vegetation. Repair of the dam and spillway would require permanent removal of tree species. However, removal would be limited to the minimum number necessary to complete construction and no significant vegetative resources are located on the embankment or emergency spillway.
- **Threatened and Endangered Species.** Construction of the preferred alternative would result in the loss of 0.2 acre of foraging habitat for the federally endangered RCW due to permanent clearing of trees. This alternative may effect, but is not likely to adversely affect the wood stork and the RCW, and will have no effect on any other federally threatened or endangered species. The U.S. Fish and Wildlife Service (FWS), in a letter dated 31 March 2020, concurred with these determinations, thus satisfying the requirements of Section 7 of the ESA. However, contractors must not operate or store equipment outside the staging area in the adjacent foraging habitat of RCW cluster REC-A.
- **Air Quality.** Construction of the preferred alternative would lead to a short term increase in emissions during construction from the operation of construction equipment. No long term increases in emissions would occur from construction of the preferred alternative, as

construction equipment would no longer be in use once construction is complete. BMPs would be implemented to reduce impacts to air quality.

- **Noise.** BMPs would be implemented to reduce noise during construction. No long term increases in noise would occur from construction of the preferred alternative.

- **Cultural Resources.** Cultural resource surveys completed for the Weston Lake area in 1991, 1992, and 1993 did not reveal any sites eligible for listing on the NRHP. However, the recent drawdown of the lake during the 2019 temporary emergency repairs, exposed several pre-contact artifact clusters. One of these clusters, the Clawson site, is located approximately ½ mile north of the Weston Lake dam. The Clawson site is part of a 2019-20 effort to evaluate 5 late-discoveries located across the installation. This site appears potentially eligible for listing on the NRHP based on initial evaluation. The draft report is due in August, and will be coordinated with the SHPO. However, the project is expected to have no adverse effects to the Clawson site or any other cultural resources and/or historic properties.

- **Hazardous Materials and Hazardous Waste Management.** There are two known potential hazardous waste/material sites within the footprint of Weston Lake. However, these sites are not located within the vicinity of the embankment or spillway and would not be disturbed during implementation of the preferred alternative. As is typical with large rehabilitation projects, on-site hazardous materials will be present to support equipment operations. These materials will be handled and stored in accordance with all applicable state and federal laws and no negative environmental impacts, resulting from these materials, are expected as a result of construction. BMPs would be implemented to reduce the risk of spills or other means of contamination during construction.

- **Environmental Justice and Socioeconomic Conditions.** Construction of the preferred alternative would cause no significant adverse effects to any of the residents in the area regardless of race, national origin, or level of income.

- **Aesthetics and Recreation.** The preferred alternative would result in temporary impacts to recreation and aesthetics due to drawdown of the lake and construction activities associated with repair of the embankment and spillway. Once repairs to the embankment and spillway are complete, this alternative would provide long-term beneficial effects by maintaining the aesthetics and recreational opportunities that were previously available to soldiers, their families, and the public. There would be no long-term adverse effects to these resources.

- **Cumulative Effects.** No significant adverse cumulative effects are expected as a result of implementing the preferred alternative. Present and reasonably foreseeable future actions on Fort Jackson and within the Cedar Creek watershed largely involve temporary, construction related impacts. Although the Semmes Lake repair involves the placement of fill in 0.6 acre of wetlands, and future road construction projects have the potential to result in adverse impacts to wetlands, these projects would be required to meet federal and state regulatory permitting requirements, including mitigation requirements, thereby limiting their contribution to cumulative effects. No present or reasonably foreseeable future projects are located in areas with rare plant communities, or are expected to result in the loss of any endangered or threatened species or their habitat. Therefore, any impacts associated with the preferred alternative, when added to other past, present, and reasonably foreseeable future actions, are

collectively less than significant as the preferred alternative would correct the embankment seepage and spillway deficiencies, thereby reducing the safety risk to downstream populations.

#### **4. Mitigation Measures**

The EA identified mitigation measures and BMPs that must be followed to further reduce impacts of the preferred alternative. They are discussed in the EA and listed in Table 1 of this document. These mitigation measures and BMPs will be incorporated into all contract documents and specifications.

#### **5. Conclusions**

The draft EA and FONSI was distributed for public review in July 2020 for a 30-day comment period. The Final EA and FONSI address the comments received during this review period. Since Fort Jackson's findings demonstrate that the project will not result in significant adverse effects to environmental resources or human health, the preparation of an Environmental Impact Statement is not warranted.

I have considered the results of the analysis in the EA and the comments received during the public comment period, and have decided to proceed with the selection of the preferred alternative. The implementation of the preferred alternative would not result in a significant impact to the quality of the human or natural environment. This analysis fulfills the requirements of the NEPA of 1969 as implemented by the Council of Environmental Quality (CEQ) regulations (40 Code of Federal Regulations (CFR) Parts 1500-1508), as well as the requirements of the Environmental Analysis of Army Actions (32 CFR Part 651). Therefore, issuance of a FONSI is warranted, and an Environmental Impact Statement is not necessary. The full EA and FONSI can be downloaded from the internet at

<https://www.sac.usace.army.mil/Missions/Civil-Works/NEPA-Documents/Weston Lake Dam Repairs>

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Date

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Commanding



Figure 1. Weston Lake Location Map

Table 1. Best Management Practices and Mitigation Measures

Resource	Impact	BMPs and Mitigation Measures
Climate	Greenhouse gas emission	To reduce greenhouse gas emissions, the following BMPs will be utilized: reducing fugitive dust emissions, avoiding the unnecessary idling of construction equipment, and maintaining construction equipment in good operating condition.
Physiography, Geology, Topography, and Soils	Soil erosion during construction	To reduce soil erosion, the following BMPs will be utilized as needed: silt fencing and/or other control devices, mulching, removing sediment from pavement, temporary seeding, minimize exposed soil during construction, and other applicable erosion control practices. All erosion control and sedimentation control measures must be in place prior to land disturbance. Thereafter, all controls will be maintained and functioning until the area is permanently stabilized. Materials used for erosion control [hay bales, straw etc.] will be certified as weed free from the supplier. Weekly inspections will be performed to safeguard against failures. Once the project is initiated, it will be carried out expeditiously to minimize the period of disturbance. Upon project completion, all disturbed areas will be permanently stabilized with vegetative cover, riprap, or other erosion control methods. Where vegetation is removed, supplemental plantings will be installed following completion of the project. Such plantings will consist of appropriate native species.

Surface Water and Stormwater	Increased turbidity and sedimentation during construction	To reduce stormwater velocity, the following BMPs will be utilized as needed: limiting of the amount of area disturbed at a time, staging and/or phasing of the construction sequence, sediment basins and sediment traps, diverting off-site flow around the construction site, and controlling the drainage patterns within the construction site. To reduce stormwater velocity, the following BMPs will be utilized as needed: surface roughening along slopes, sediment basins and traps, level spreaders, erosion control blankets, turf reinforcement mats, riprap, and staging and/or phasing of the construction sequence. All stormwater controls will be inspected on a weekly basis
Air Quality	Emissions during construction	To reduce impacts to air quality, the following BMPs will be utilized: reducing fugitive dust emissions by taking the following measures; avoiding the unnecessary idling of construction equipment, imposing a strict slow speed limit for vehicular traffic in the construction site, wetting areas to reduce dust, and maintaining construction equipment in good operating condition.
Threatened and Endangered Species	Impacts to habitat	Contractors must not operate or store equipment outside the staging area in the adjacent foraging habitat of RCW cluster REC-A.
Noise	Noise during construction	To reduce noise, the following BMPs will be utilized: limiting work to daylight hours and avoiding the unnecessary idling of construction equipment.
Hazardous Materials and Hazardous Waste Management	Waste during construction	To reduce Hazardous Materials and Hazardous Waste, the following BMPs will be utilized: keeping equipment in good operating condition, properly storing and handling fuels, and cleaning leaks and spills immediately. Measures will be taken to prevent POL products, trash, debris etc. from entering adjacent areas, wetlands and surface waters.