



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 4**  
**ATLANTA FEDERAL CENTER**  
**61 FORSYTH STREET**  
**ATLANTA, GEORGIA 30303-8960**

Lieutenant Colonel John T. Litz  
District Engineer  
Attn: Mr. Richard Darden  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: SAC-2015-0476-SIR Berkeley County, Project Soter

Dear Lieutenant Colonel Litz:

This letter is in response to your request for comments on the above referenced joint public notice. Berkeley County serves as the applicant to develop a site for an interested entity to locate, build, and operate an advanced manufacturing and assembly facility that requires the presence of certain transportation, distribution, and logistics cluster infrastructure (e.g., automotive or aerospace industry sectors). According to the applicant, the project purpose is to locate, build, and operate a new advanced manufacturing facility that requires direct access to the Interstate Highway system and location within 50 miles of sea and air port facilities. The proposed work consists of placing 670,705 cubic yards of clean fill material in 194.76 acres and 8,091 linear feet of relatively permanent waters, land clearing of 16.90 acres, excavating of 3.27 acres, and shading of 2.91 acres of wetlands and other waters to construct Phases 1 and 2 of the proposed project. The majority of the proposed impact areas are currently being managed as an active silviculture site. Operating at full capacity, Phase 1 is expected to employ approximately 2,000 individuals at the manufacturing facility, administrative offices, and a visitor's center. While the timing of construction of Phase 2 is dependent on market conditions, it is expected to be constructed and operational within 10 years of the initiation of construction for Phase 1. Operating at full capacity, Phase 2 is expected to employ an additional 2,000 individuals at that facility.

The applicant proposes a permittee-responsible mitigation plan to preserve, and enhance approximately 1,533 acres of wetlands and preserve 47,932 linear feet of stream within approximately 2,496 acres of property to be permanently protected in the Dean Swamp and Walnut Branch watersheds, tributaries of Four Hole Swamp that are defined by the National Audubon Society as critical priority areas in need of protection.

As background, the Environmental Protection Agency participated in a pre-application meeting on April 15, 2015, and site visits to proposed impact and mitigation sites on April 30, 2015. During the site visits, the EPA requested additional information regarding why an onsite alternative with less impacts was not the preferred alternative. Applicant representatives explained logistical reasons that would exclude this alternative, including having to truck manufactured products across a five-lane highway multiple times during the process, which sufficiently addressed this concern. The EPA also voiced questions regarding the proposed mitigation plan which will be explained in more detail below.

The EPA appreciates the fact that, though the applicant for this project is Berkeley County, the alternatives analysis includes sites across the state of South Carolina. The applicant has very specific requirements for the project including direct access to the Interstate Highway system and location within 50 miles of sea port and airport facilities. These requirements eliminated the majority of alternative sites within the state. Once a preferred site was chosen, the applicant considered many onsite alternatives to minimize their impacts. Therefore, the EPA believes the applicant has sufficiently demonstrated their effort to avoid and minimize impacts to waters of the United States.

For the unavoidable impacts proposed, the applicant has submitted a permittee-responsible compensatory mitigation plan. The 2008 Mitigation Rule, integrated into the Clean Water Act Section 404(b)(1) Guidelines as Subpart J, gives preference to mitigation through Mitigation Banks or in-lieu fee programs before permittee-responsible mitigation. However, there are currently no banks which have sufficient credits within the impact watershed and there are no active in-lieu fee programs that service the area. The proposed plan includes multiple tracts of land referred to as the Bannister Tract, Singletary Tracts, Dean Swamp Tract, and Walnut Branch Tracts. Combined, these parcels would preserve 890 acres of wetlands and 47,932 linear feet of streams, as well as the vegetative enhancement of an additional 611 acres of wetlands. The featured landscape mitigation parcel, the Bannister Tract, is approximately a 1,667 acre forested tract on Sandy Run Creek. This tract has extensive bottomland hardwood and pine flatwood wetlands which are currently under intensive silviculture management that will be returned to natural conditions through enhancement and restoration activities. This tract will be purchased and conveyed to the South Carolina Department of Natural Resources for use as a wetland demonstration site and for use as a public access wildlife management area with the intent of designating the property as a South Carolina Heritage Trust Preserve. The Dean Swamp tracts will be conveyed to the Audubon Society or the Lord Berkeley Conservation Trust (LBCT). These tracts along with the remaining tracts will be protected through a conservation easement held by LBCT. As a special condition of the permit and to fully satisfy the parameters of this landscape-scale mitigation plan, the applicant proposes to provide \$1.5 million (herein after, "Fund") into an escrow account to be held by LBCT. The Fund is to be used for fee simple conservation property acquisition or to support conservation easements on important conservation properties. The conservation projects will be chosen and administered by the representatives of the following organizations: Audubon Society, LBCT, and the Low Country Open Land Trust (collectively, the "Fund Oversight Committee").

The applicant's plan would mitigate wetland impacts through preservation and enhancement at approximately an 8 to 1 ratio and streams at nearly a 6 to 1 ratio. Also, while the Charleston District Corps of Engineers has indicated that their Standard Operating Procedure, "U.S. Army Corps of Engineers Charleston District 2010 Guidelines for Preparing a Compensatory Mitigation Plan," is not designed to assess large landscape-scale mitigation projects such as the one proposed, the plan would generate more than the required credits calculated using that document's formulas.

The EPA believes the plan has potential to adequately mitigate unavoidable impacts to waters of the United States provided that our comments and concerns below are sufficiently addressed.

The proposed mitigation plan indicates that several plant communities will be enhanced through planting and vegetation management techniques, including bottomland hardwood, pine flatwood, and isolated pond habitat. These communities require very different management (i.e., regular burning for pine flatwood) yet only a single vegetation performance standard is given:

*Vegetative monitoring documents a minimum of 320 planted stems per acre survive at the end of year 3, and 260 planted stems per acre survive at the end of year 5, and no more than 25 percent*

*of any one species and no more than 1 percent invasive species. Height, lateral growth and root collar diameter demonstrates an increase over baseline and each prior monitoring period. Planted vegetation demonstrates an average 5 to 7 feet in height at the end of year 5. If volunteers are utilized to meet the set performance standards, species will be tagged in the field as a volunteer and the same data collected as for planted stems.*

Performance standards should be tailored to each community. For the pine flatwood communities we recommend the applicant use an approach that has been formulated by the Alabama-Mississippi Mitigation Banking Review Team for Wet Pine Flats. This team suggests using the Functional Capacity Index of the Plant community (FCIplant) derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M. M. (2002), "A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains."

Assessment of this function reflects the ability of a Wetland Assessment Area (WAA) to maintain a characteristic plant community composition and diversity. This is called the Functional Capacity Index or FCI. The Functional Capacity Index of the Plant community (FCIplant) is the average of the relative groundcover, subcanopy and pine composition as shown in the equation below. The groundcover is the maximum of the herbaceous (Herb), native bunch grass (Nbg), or sedge (Sedges) scores. The WAA is an area of wetland within a bank that is relatively homogeneous with respect to the site-specific criteria used to assess wetland functions (i.e., hydrologic regime, vegetation structure, topography, soils, successional stage, etc.). The presence of invasive and exotic species (Exotics) reduces the groundcover functional capacity index as the aerial coverage of exotic species increases. Elimination of invasive species is preferred; however, less than 1 percent aerial coverage of exotic species is not reflected in the functional capacity index as long as control measures continue.

$$FCI_{\text{plant}} = (\text{Groundcover} + \text{Subcanopy} + \text{Pines}) \div 3$$

Where;

$$\text{Groundcover} = \text{Exotics} \times \left[ \text{MAX} \left( \text{Herb}, \text{Nbg}, \sqrt{(\text{Cypress} \times (\text{Sedges} + \text{Subc}) / 2)} \right) \right]$$

The site-scale variables are assessed at one (1) fixed location and one (1) location chosen at random within each WAA or 100ha (247 acres). Random monitoring plots should be located using a grid system and random number table. Monitoring will be assessed in four (4) nested plots at each location. A permanent pole placed vertically in the ground to mark the center of the nested plots should mark the center of the nested monitoring points; 1m<sup>2</sup> plot, 2m radius, 10m radius, and 100m radius. The center of the monitoring plots should be permanently marked, preferably with a metal pipe or a steel fence post.

Herb = 1m<sup>2</sup> plot: 1 point for each species below,  
 2m radius: 0.5 points for each additional species  
 Divide the mean herbaceous indicator score of each WAA by 8.0; for Cypress/Pine Savanna (if Cypress present) divide the mean indicator score by 7.0.

<i>Aletris spp.</i>	<i>Aristida spp.</i>	<i>Balduina spp.</i>	<i>Biglowia nudata</i>	<i>Carphephorus spp.</i>
<i>Chaptalia tomentosa</i>	<i>Coreopsis spp.</i>	<i>Ctenium aromaticum</i>	<i>Dichromena spp.</i>	<i>Erigeron vernus</i>
<i>Eriocaulon spp.</i>	<i>Erygium</i>	<i>Eupatroium</i>	<i>Helianthus spp.</i>	<i>Lycopodium</i>

	<i>intergrifolium</i>	<i>leucolepis</i>		<i>spp.</i>
<i>Muhlenbergia expansa</i>	<i>Rhexia spp.</i>	<i>Sarracenia spp.</i>	<i>Schizachyrium scoparium</i>	<i>Xyris spp.</i>

Nbg = Native Bunch Grasses - 2m radius: Combined percent cover area of the following: *Ctenium spp.*, *Muhlenbergia spp.*, *Aristida spp.*, *Sporobolus spp.*, *Schizachyrium spp.*  
Divide cover by 0.50  
Average scores by WAA

Sedges = 2m radius: Combined percent cover area of the following; *Carex spp.*, *Sclaria spp.*, *Rynchospora spp.*  
Divide by 0.50  
Average scores by WAA

Cypress = Stems per hectare (2.47 acres). See alternative density calculation strategy below.\*  
Determine for density of pond cypress the following class sizes; (1) sapling >1m tall and less than 7.5 cm dbh (3 inches),  $x = \text{density}/250$  (if the resulting score is >1.0, reduce to 1.0), (2) midcanopy >1 m tall and 7.5-15 cm (3-6 inches) dbh,  $y = \text{density}/50$  (if the resulting score is >1.0, reduce to 1.0), (3) canopy >15cm (6 inches) dbh,  $z = \text{density}/100$  (if the resulting score is >1.0, reduce to 1.0). Cypress score =  $(x + y + z)/3$ .  
Average scores by WAA

Pines = 10m radius: Measure the basal area of all pine species > 1m high. Score  $\geq 0 \leq 6.25$  sq.ft = 1.0, 6.25-12.0 = 0.5,  $\geq 12.0 = 0$  (Lewis and Teaford, 1995)

Subc = Subcanopy Vegetation - 10m radius: Count all stems at one meter in height even if they originate from same plant. If Subc < 200, then Subc = 1.0, if Subc is 201-300, then Subc = 0.5, if Subc > 300, then Subc = 0 (Modified HGM)

Exotics = 100m radius: Estimate % aerial coverage of all invasive species (i.e., *Sapium Sebiferum*, *Panicum Repens*, *Imperata Cylindrica*, etc.) If Exotics < 1% then Exotics = 1.0, if >1% then Exotics =  $(1.0 - (\% \text{ coverage})/10)$ .

\*For Cypress density, another way to determine density is determine the distance to the closest individual in each size class from randomly selected points in the WAA. To do this, at each center point, measure the distance in meters from the center point to the nearest sapling, midcanopy and canopy stem of pond cypress. (Sample at least three points, more is better). Determine the average distance to individuals in each of three size classes. Calculate density as follows:  $\text{Density} = 10,000/[2 \times (\text{average distance})^2]$ .

We recommend that the applicant apply this method to the reference area and to the enhancement area for baseline data.

During the site visits to some of the bottomland hardwood preservation areas, it was noted that some of the areas had been clear-cut and the applicant planned to rely on natural regeneration. The EPA indicated that while enhancement credit was not being sought, performance standards would be required to show that these areas were trending toward reference bottomland conditions and worthy of preservation.

The applicant proposes to monitor all mitigation sites for 5 years and to supply monitoring reports to the Interagency Review Team (IRT) each year. The EPA appreciates the effort to keep the IRT involved with mitigation during the entire monitoring period. During the site visit, it was indicated that clear-cut areas proposed to be put on a burning rotation might not be burned before the monitoring period is over. If this is the case, it is unclear how the success of this management technique will be assessed. We recommend that the applicant provide additional information on how success will be adequately measured or extend the monitoring period so that management techniques can be utilized and measured.

Throughout the pre-application process, the EPA's concerns regarding avoidance, minimization, and alternatives analysis were addressed. Questions regarding the compensatory mitigation for unavoidable impacts remained after the review of the plan and site visits, but overall we find the plan to have potential to mitigate for the proposed impacts.

In summary, the EPA's concerns regarding avoidance and minimization, and alternatives analysis have been addressed. The EPA requests minor modifications and more details regarding the compensatory mitigation plan in order to alleviate our remaining concerns.

Thank you for considering these comments in your permit review and issuance process. If you have any questions, please contact Mr. Kelly Laycock at [laycock.kelly@epa.gov](mailto:laycock.kelly@epa.gov) or (404) 562-9132 for more information.

Sincerely,



Tony Able  
Chief  
Wetlands Regulatory Section

cc: See Enclosed List

cc: Send Electronically

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