

CESAC-DE

MEMORANDUM FOR RECORD

SUBJECT: Department of the Army Environmental Assessment, 404(b)(1) Guidelines Evaluation, Public Interest Review, and Statement of Findings for Above-Numbered Permit Application

1. Application

1.1 **Applicant:**
Berkeley County
c/o Mr. William Peagler
1003 Highway 52
Moncks Corner, South Carolina 29461

Agent:
Mr. Allen Conger
Amec Foster Wheeler Environment & Infrastructure, Inc.
720 Gracern Road, Suite 132
Columbia, South Carolina 29210

1.2 **Waterway & Location:**
The proposed project is located in waters near and adjacent to Timothy Creek at a location near Interstate 26 Exit 187 at US Highway 27 N in Berkeley County, South Carolina.

Latitude North: 33.138333°
Longitude West: -80.248333°



Figure 1. Project location showing Timothy Creek.

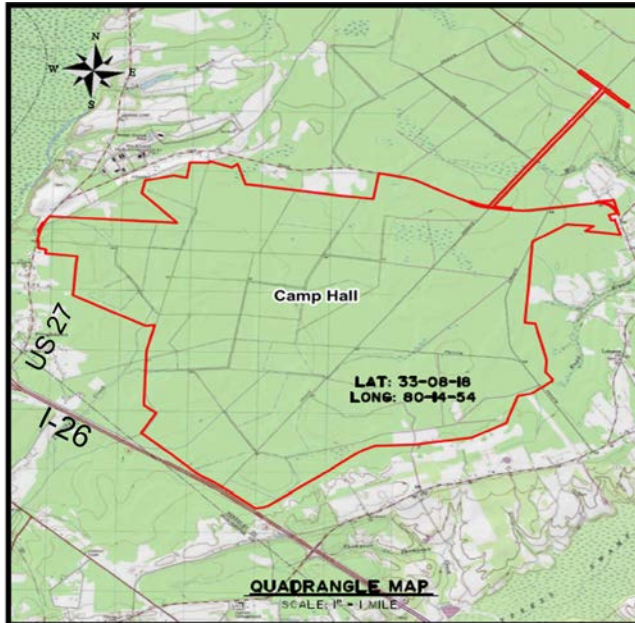


Figure 2. Project location shown on USGS topographic map.

1.3 Existing Conditions:

The project site, known as the Camp Hall Tract, consists of approximately 6,781 acres located at the convergence of two river drainage basins. The western portion of the property drains to the Lower Four Hole Swamp Watershed of the Edisto River, and the eastern portion of the site drains to the upper reaches of the Cypress Swamp Watershed of the Santee River and Cooper River Basins.

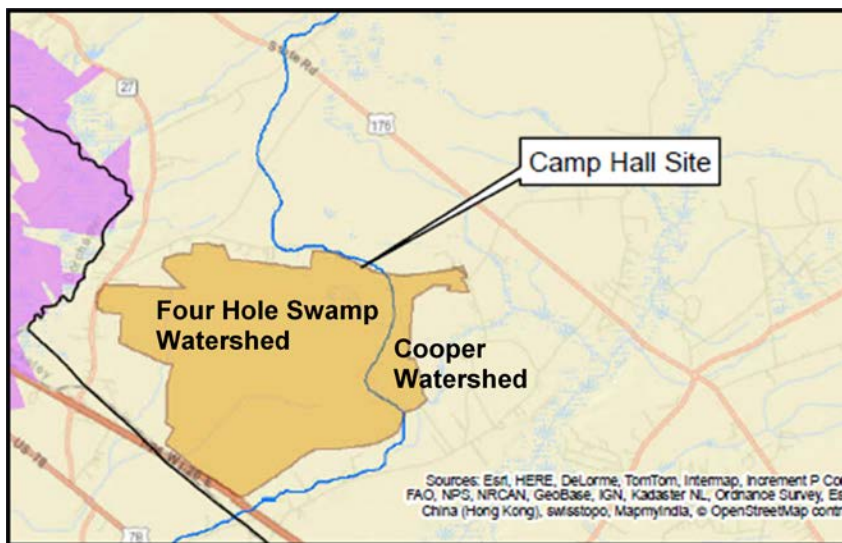


Figure 3. Project location showing the drainage divide between the Cooper and Four Hole Swamp Watersheds.

The proposed work that is the subject of this decision document is concentrated in the eastern portion of the overall tract and consists of approximately 2,880 acres draining primarily to the Four Hole Watershed. The entire site has been intensively managed as loblolly pine plantation for over 50 years, primarily in short pulp rotations (less than thirty cycles).

The 6,781-acre project site consists of 4,307 acres of uplands and 2,474 acres of aquatic resources. The 2,474 acres of aquatic resources on-site include 2,405 acres of federally jurisdictional freshwater wetlands, and 69 acres of federally non-jurisdictional wetlands. The total aquatic resources contained within the project area represent approximately 36.5% of the total site area.

The main wetland acreages present on the site include habitat types typical to the South Carolina Coastal Plain:

Upland Loblolly Pine Plantation – Upland habitats occupy approximately 63.5% (4,307 acres) of the total area of the site and are comprised by loblolly pine (*Pinus taeda*) plantation. These areas are managed for timber harvest and are subject to normal silvicultural practices including bedding, mechanical land clearing and burning. The average age of the pine trees in this community is approximately 20 years, with stand age ranging from 1 to 40 years.

Pine Flatwoods Wetlands – Pine stands occupying lower elevations on the site are wetlands with seasonally high water table elevations. These habitats are dominated by loblolly pine in the canopy and understory, along with lesser abundances of sweetgum (*Liquidambar styraciflua*), laurel oak (*Quercus laurifolia*), American holly (*Ilex opaca*), wax myrtle (*Morella cerifera*), red bay (*Persea borbonia*), fetterbush (*Lyonia lucida*) and high bush blueberry (*Vaccinium corymbosum*). Groundcover are dominated by Virginia chain fern (*Woodwardia virginica*), bristly dewberry (*Rubus hispidus*), and common panic grass (*Panicum capillare*).

Forested Hardwood Wetlands – The site includes bottomland hardwood and non-alluvial swamp with similar species compositions. These wetlands are seasonally or partially permanently inundated at lower elevations. The dominant vegetation consists of a dense canopy of laurel oak, water oak (*Q. nigra*) and red maple (*Acer rubrum*), with lesser abundances of loblolly and pond pine (*Pinus serotina*). The understory includes a mix of dwarf palmetto (*Sabal minor*), giant cane (*Arundinaria gigantea*), American holly, red bay, and sweetbay (*Magnolia virginiana*). The herbaceous groundcover stratum is a sparse mix of softrush, various sedges, and greenbrier (*Smilax* spp.) and muscadine (*Vitis rotundifolia*) vines.

Federally jurisdictional linear waters, characterized as relatively permanent waters (RPWs) based on their flow regimes, are man-made/manipulated linear conveyances which have been heavily channelized and straightened to remove storm water and excess surface water from the overall site. These features have minimal to no vegetation, have virtually no sinuosity, and have relatively little development of sediment sorting or other stronger channel development. On this basis, these features provide little ecological function other than conveying water, and in fact water is conveyed so rapidly that there is little to no water quality improvement function as water passes. In addition, the rapid drainage provided by these linear features actually serves to remove more water from the surrounding landscape than it should during a given period of time,

ultimately resulting in the net drainage of nearby and connected wetlands.

1.4 Proposed Work as described in the Public Notice:

The proposed work consists of placing 670,705 cubic yards of clean fill material in 192.94 acres, land clearing of 16.90 acres, excavating of 2.65 acres, and shading of 2.91 acres of wetlands and other waters to construct Phases 1 and 2 of the proposed project. Phase 1 will include the development of approximately 23,040,000 square feet of land for the construction of a manufacturing and production space. Phase 1 also involves the development of approximately 1,050,000 square feet of land for the construction of administrative offices and a visitor's center. The total footprint for Phase 1 is approximately 575 acres. 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. Phase 2 will include the development of an additional 14,040,000 square feet of land for the construction of a second manufacturing, assembly, and production space occupying approximately 322 acres. 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. As mitigation for the proposed impacts to wetlands and waters, the applicant proposes the Project Soter—Landscape Mitigation Plan to preserve, enhance, and restore approximately 1,533 acres of wetlands within approximately 2,496 acres of property to be permanently protected in the Dean Swamp and Walnut Branch watersheds, which are tributaries of Four Hole Swamp that are defined by the National Audubon Society as critical priority areas in need of protection. According to the applicant, the project purpose is to locate, build, and operate a new advanced manufacturing facility that requires the presence of certain transportation, distribution, and logistics sector facilities and infrastructure for viability and feasibility. These TDL (transportation, distribution, and logistics) cluster advanced manufacturing facilities include manufacturing and assembly facilities in the aerospace and automotive industries, for example, which according to today's accepted industry standards requires direct access to the Interstate Highway system and location within 50 miles of sea and air port facilities.

The applicant proposes to construct the proposed development in phases and has requested a 35 year permit for the proposed work.

Project description as provided by the applicant:

Berkeley County is the applicant to develop the site as a means to accommodate an entity to locate, build, and operate an advanced manufacturing and assembly facility that requires the presence of certain transportation, distribution, and logistics cluster infrastructure. When the permit application was received, no specific company was identified to build and operate the proposed facility. On May 11, 2015, it was revealed that the manufacturing facility will be Volvo automobiles.

- 1.4.1 Avoidance & Minimization Statement (as stated in the application):** The applicant provided the following information: *"An extensive alternatives analysis was conducted by the applicant to evaluate practicable alternatives to the proposed site which limited wetland impacts to the greatest practicable extent and yet was feasible in light of technology, costs, and logistics. Camp Hall Option 2 was selected as the preferred alternative, as it was technically feasible, provided efficient accessibility and visibility, and reduced wetland impacts to 293 acres. Following site*

selection, the applicant further minimized wetland impacts by 75.15 acres to a total of [216.02] acres with Option 2A. In this alignment the visitor's center/administrative offices were moved to an area of slightly lower visibility, but with greatly reduced wetlands impacts, the Phase 2 northern access road was completely removed to further reduce impacts, and the stormwater ponds associated with Phase 1 and 2 were relocated so that the site layout minimizes wetland impacts."

"In addition, further minimization occurred in association with the design and planning of the Lower Westvaco Road access as a result of design enhancements and a detailed wetland delineation. Impacts were further reduced from the original permit submittal (Option 2A) by 1.82 acres. Further minimization of wetland impacts may result from additional design enhancements associated with infrastructure improvements. Final design for these areas is ongoing."

"The applicant has also committed to installation [sic] to installation of additional culverts along the proposed road infrastructure corridors to prevent obstruction of existing surface flows during time of saturation within the wetlands and to facilitate the passage of terrestrial and aquatic organisms."

1.4.2 Compensatory Mitigation Plan (as stated in the application): The applicant provided the following information: *"In the absence of suitable existing wetland mitigation bank or an in-lieu fee program for the watershed, all required compensatory mitigation will be obtained through off-site landscape-scale permittee-responsible mitigation activities utilizing the watershed approach. The proposed Project Soter – Landscape Mitigation Plan (Mitigation Project) will preserve and enhance approximately 1,533 acres of wetlands within 2,496 acres of property in the Dean Swamp and Walnut Branch watersheds, priority areas for the National Audubon Society."*

1.4.3 Project Purpose and Need (as stated in the application): The applicant provided the following information: *"Berkeley County respectfully submits that the purpose of the Proposed Project is to locate, build, and operate a new advanced manufacturing facility that requires the presence of certain transportation, distribution, and logistics (TDL) sector facilities and infrastructure for viability and feasibility. These TDL cluster advanced manufacturing facilities include manufacturing and assembly facilities in the aerospace and automotive industries, for example, which in today's environment requires direct access to the Interstate Highway system and location within 50 miles of sea and air port facilities."*

"Berkeley County further contends that the need for the Proposed Project is to provide an appropriate site for a TDL cluster advanced manufacturing that meets the minimum criteria of such a manufacturer (such as one in the automotive or aerospace industry sectors). The Proposed Project will be built in phases in order to better meet current and expected demand. Phase 1 of the Proposed Project is expected to begin construction in 2015 and requires the construction of a primary manufacturing facility, with a total developed area of approximately 575 acres. This manufacturing facility will house state-of-the-art machines and systems capable of producing and assembling parts, as well as provide office and work space to house manufacturing, technical, engineering, management, and support personnel."

“Phase 2 of the Proposed Project is expected to be constructed and operational within 15 years of the start of Phase 1 and will require the construction of an additional manufacturing facility, with a Phase 2 developed area of approximately 322 acres.”

“In conjunction with the contemplated manufacturing facilities, Phase 1 of the Proposed Project involves the construction of a modern office facility, capable of accommodating approximately 500 full-time employees, frequent visitors, suppliers and corporate partners, consultants, and company personnel. This facility and complex will cover approximately 24 acres of developed area and will also include a visitor’s center that is intended to showcase and exhibit the new facility, the manufacturer’s products, and the history of the manufacturer. Due to the often assembly-line nature of TDL cluster advanced manufacturing for larger products (such as those found in the automotive and aerospace industries), locating advanced manufacturing companies require that the manufacturing and assembly facilities occupy large rectangular buildings and that the administrative offices and visitor’s center facilities be separate from the manufacturing footprint in order to minimize interference with manufacturing operations, employee and product traffic, secure areas, and/or other development areas, although close enough to be reasonably accessible and avoid inefficiencies caused by lengthy internal roads. Marketability of products further requires a site location that provides a significant visual presence at the site location, with proximity as close as possible to the Interstate Highway and facility interchange, with any necessary improvements that may be necessary to ensure adequate accessibility (e.g., construction of an interchange and/or road improvements).”

“In order to accommodate the Proposed Project, the advanced manufacturer requires a site that is a minimum total size of 1,500 acres to accommodate the approximately 900 acres required for the facility footprint and ancillary infrastructure requirements.”

“Any TDL cluster advanced manufacturer places significant emphasis on locating the contemplated facilities at a site that can take advantage of close proximity and availability of adequate transportation infrastructure, including roads and port facilities (both sea and air) in South Carolina, for use in domestic sales and exports and proximity and transportation for component parts and suppliers. The proposed advanced manufacturing and assembly facility also requires access to a significant available source of skilled workers with adequate education and training to fully staff the facility and meet the expected demand.”

The full justification for the need for the proposed interchange at Mile 190 on Interstate 26 is provided in the Technical Memorandum produced by Stantec and titled, “Preliminary Interchange Justification Report – I-26 and Volvo Boulevard,” dated June 16, 2015. The Memorandum cites the eight Federal Highway Administration policy requirements regarding interchange justification. The Technical Memorandum is hereby incorporated by reference into this decision document.

- 1.4.3.1 **Basic Project Purpose (as stated in the application):** The applicant provided the following information: *“Berkeley County respectfully submits that the basic purpose of the Proposed Project resulting in the discharge of dredged or fill material is: to build a transportation,*

distribution, and logistics sector advanced manufacturing facility.”

1.4.3.2 Water Dependency (preliminary determination based on the information in the application): The project ☐ is/ ☒ is not water dependent.

1.4.3.3 Overall Project Purpose (as stated in the application):

“To build and operate a standalone TDL cluster advanced manufacturing facility in South Carolina on a property that has sufficient continuous acreage, direct Interstate Highway frontage and/or access, is located close to a seaport facility with deep water access, is located close to an international airport, and the local area has an acceptable availability of a skilled workforce.”

1.5 Proposed Work that is subject of this Memorandum for Record:

The proposed work consists of placing 670,705 cubic yards of clean fill material in 192.94 acres, land clearing of 16.90 acres, excavating of 2.65 acres, and shading of 2.91 acres of wetlands and other waters to construct Phases 1 and 2 of the proposed project. Phase 1 will include the development of approximately 23,040,000 square feet of land for the construction of a manufacturing and production space. Phase 1 also involves the development of approximately 1,050,000 square feet of land for the construction of administrative offices and a visitor’s center. The total footprint for Phase 1 is approximately 575 acres. 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. Phase 2 will include the development of an additional 14,040,000 square feet of land for the construction of a second manufacturing, assembly, and production space occupying approximately 322 acres. 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. As mitigation for the proposed impacts to wetlands and waters, the applicant proposes the Project Soter—Landscape Mitigation Plan to preserve, enhance, and ecologically restore approximately 1,533 acres of wetlands 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.

2. Authority

☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403).

☒ Section 404 of the Clean Water Act (33 U.S.C. §1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

3. Scope of Analysis and Public Involvement

This scope listed in sections 3.1 – 3.3 represents the scope of the final project description, which may differ from the initially proposed project. If applicable, changes to the initially proposed project will be detailed in sections 3 and 4.

3.1 NEPA Scope

Factors:

Whether or not the regulated activity comprises "merely a link" in a corridor type project:
The project is not a corridor type project.

Whether there are aspects of the upland facility in the immediate vicinity of the regulated activity which affect the location and configuration of the regulated activity:

The majority of the proposed upland development would not occur without the proposed discharge. The extent and distribution of wetlands and other waters of the U.S. on the project site are such that very few project elements can be constructed without substantial discharge of fill material. In addition, to the extent and distribution of wetlands and waters, the major project elements include manufacturing and assembly facilities (buildings) that collectively occupy in excess of 23 million square feet.

The extent to which the entire project will be within USACE jurisdiction:

The entire tract is privately owned, and includes jurisdictional freshwater wetlands and other waters of the U.S. covering approximately 35.5% of the 6,781-acre tract. While the waters of the U.S. cover only 35.5% of the overall property, their distribution across the site is uniform such that there is no area of available uplands that will accommodate the proposed project without USACE jurisdiction. These wetlands are within the jurisdiction of the Clean Water Act.

The extent of cumulative Federal control and responsibility:

The proposed work will be performed by the applicant. Federal control and responsibility is limited to the issuance and enforcement of the Federal permit to allow the applicant to perform the proposed work, and does include the entire 6,781-acre property.

Determined scope:

☐ Only within the footprint of the regulated activity within the delineated water.

☒ Over entire property. Explanation:

The proposed work and the areas of wetlands and other waters of the U.S. within the entire tract (6,781 acres) are within federal control and responsibility because the extent and distribution of wetlands and waters of the U.S. on the project site are such that very few project elements can be constructed without substantial discharge of fill material. In addition to the extent and distribution of wetlands and waters, the major project elements include manufacturing and assembly facilities (buildings) that collectively occupy in excess of 23 million square feet.

3.2 **NHPA Permit Area**

Tests:

Activities outside waters of the U.S. are included in the Permit Area since ALL of the following tests are satisfied:

“Activity would not occur but for the authorization of the work or structures within the waters of the United States”.

☒ Yes ☐ No

None of the construction proposed in upland areas would be able to occur without the construction proposed within wetlands and other waters of the U.S.

“Activity is integrally related to the work or structures to be authorized within the waters of the United States. Or, conversely, the work or structures to be authorized must be essential to the completeness of the overall project or program”.

☒ Yes ☐ No

The portions of the project to be constructed within waters of the U.S. are integrally related to the completeness of the overall project.

“Activity must be directly associated (first order impact) with the work or structures to be authorized”.

☒ Yes ☐ No

The upland development is directly associated with the proposed work in waters of the U.S.
The upland development would not occur without the proposed discharge of fill within waters of the U.S. in order to construct the major project elements.

Permit Area:

The Permit Area includes the entire 6,781-acre property.

3.3 ESA Action Area

Action Area means all areas to be affected directly or indirectly by the Federal action, not merely the immediate area involved in the action.

Action Area:

The Action Area is the entire 6,781-acre property.

Explanation:

The proposed regulated activities extend to approximately 60% of the total land area of the project site. The footprint of manufacturing and assembly facilities and administrative offices is confined to 2,880 acres of the site; however, when the area and portions of the site where access roads must be constructed are also considered, approximately 60% of the land area becomes involved. On this basis, the Action Area includes the entire 6,781-acre property.

3.4 Public Involvement

3.4.1 Public Notice

Application received: April 10, 2015.
Application complete: April 10, 2015.
Public Notice date: April 16, 2015.
Public Notice period: 15 days.

3.4.2 Other public involvement: None

3.4.3 Comments Received

USEPA: USEPA requested the full 30-day comment period via e-mail correspondence dated April 22, 2015. The basis for a time extension was due to the large volume of material included in the applicant's federal permit application. The time extension was granted on April 28, 2015, until May 16, 2015. A comment letter was received electronically from USEPA on May 15, 2015; the printed original copy was received on May 20, 2015. In addition, to the written comment letter, USEPA attended an agency field visit that included the applicant and their representatives on April 30, 2015. During this field meeting USEPA verbally posed some of the same questions and concerns presented later in their letter.

During the April 30, 2015, site visit and in their letter, USEPA questioned why an onsite alternative with lesser impacts [to waters of the U.S.] was not the applicant's proposed alternative. However, the USEPA letter went on to explain that this concern was sufficiently addressed based on the applicant's clarifying explanation: that the manufacturing and assembly sequencing process would require transporting manufactured products across the proposed 5-lane highway multiple times during the production process if the major project components for manufacture and assembly were not all constructed as a functional unit, such as the proposed alternative.

Regarding potential alternatives, USEPA also commented that the alternatives analysis included sites across the state of South Carolina even though the applicant is Berkeley County. USEPA commented that the applicant has very specific requirements, including direct access to the interstate and location within 50 miles of sea and air port facilities. USEPA observed that these requirements eliminated the majority of alternative sites within the state, and that once the proposed site was identified the applicant considered many onsite alternatives to minimize impacts. This portion of the USEPA letter concluded that *"Therefore, the EPA believes the applicant has sufficiently demonstrated their effort to avoid and minimize impacts to waters of the United States."*

The USEPA comment letter also posed questions regarding the proposed permittee-responsible compensatory mitigation plan. The letter stated:

"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.”

“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.”

USFWS: The USFWS commented in a letter dated April 27, 2015. In their letter USFWS concurred with the April 16, 2015, Corps determination (Public Notice SAC 2015-0476-SIR) that the proposed project is “not likely to adversely affect,” any federally protected species and/or designated or proposed critical habitat. Their comments also noted that “*obligations under section 7 of the Endangered Species Act must be reconsidered if (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not considered in this assessment; or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.*”

The USFWS referenced their attendance at the April 15, 2015, interagency site visit and commented that the site has been intensively managed and logged for industrial pine production

by MeadWestvaco for several decades. Their observations included *“noting that numerous roads and associated ditches crisscross the site,”* providing fast and effective storm water drainage during rain events and have adversely impacted the existing on site wetlands. Comments in this regard concluded that *“runoff from the site is untreated and likely contains sediments, residual herbicides, or other pollutants associated with forestry practices.”*

In addition to the comments noted above, the USFWS observed that the proposed project would impact 217 acres within the main project footprint of 2,880 acres. This would leave approximately 2,188 acres of waters/wetlands located on the 3,900 acres of the site where no work would occur as part of this project. USFWS expressed concern that the remaining on site wetlands were not specifically proposed for additional protection, including no proposed upland buffers around wetlands. On this basis, USFWS recommended *“minimizing impacts to wetland resources by establishing a protective buffer around all remaining wetlands within the property boundary. The Service also recommends the applicant seek avoidance and minimization of wetland impacts along all proposed roadways. We recommend the applicant seek to avoid impacts through alignment shifts of the entrance road or the use of bridging where possible. In addition, for wetlands that cannot be avoided, we recommend the applicant increase all road shoulders from 4:1 to a 2:1 side slope.*

Regarding proposed compensatory mitigation for impacts to wetlands and other waters, USFWS concluded that the plan will adequately compensate for the loss of wetlands on the project site. The USFWS specifically noted that the proposed permittee-responsible compensatory mitigation plan to purchase, enhance, and ultimately protect the Bannister, Singletary, Dean Swamp, and Walnut Branch Tracts, would satisfactorily compensate for impacts of the proposed project, but would not *provide coverage* for wetland impacts associated with future support services or vendors that may be located within the property boundaries. In this regard, USFWS recommended the Corps require future projects that propose wetland impacts on the remainder of the site to develop stand-alone compensation packages independent of Project Soter.

NMFS: The NMFS provided a letter dated May 1, 2015, and commented that the proposed project would not occur in the vicinity of essential fish habitat (EFH) designated by the South Atlantic Fishery Management Council or NMFS. Their letter explained that *“present staffing levels preclude further analysis of the proposed activities and no further action is planned. This position is neither supportive of nor in opposition to authorization of the proposed work.”*

SCDNR: SCDNR commented in a letter dated May 1, 2015. SCDNR stated that *“DNR recognizes that for various and legitimate reasons, the ability of the Applicant to avoid and minimize impacts, further than the extent described in the application and supporting documents, is not practicable.”* As such, the comment letter focused on addressing the proposed compensatory mitigation plan:

“DNR recognizes the importance of the proposed mitigation tracts in furthering conservation efforts within the Four Holes Swamp Watershed which includes the wetland preserve known as Francis Beidler Forest. We reiterate that the Francis Beidler Forest is a nationally and internationally recognized old growth swamp forest of International Importance and an Audubon Important Bird Area. The preserve includes over 16,000

acres of protected wetlands and adjacent upland habitats. The protection of wetland systems such as those proposed in the Project Soter – Landscape Mitigation Plan is vital to the long-term health and sustainability of the Four Holes Swamp Watershed and the Francis Beidler Forest.”

“DNR believes the proposed mitigation plan will result in profound natural resource benefits through protection of vulnerable wetlands and critical fish and wildlife habitats, while adding to the collective efforts of DNR and its many public and private conservations partners. Our ongoing mission of landscape-scale conservation includes the following three basic features:

- 1. Identification of a regional system of interconnected lands, wetlands, streams and riparian corridors,*
- 2. Actions organized to achieve and link multiple specific conservation objectives, and*
- 3. Stakeholders who cooperate in a concrete fashion to achieve those objectives.”*

“The proposed project and its mitigation plan present a unique opportunity to embrace and further this concept while providing indispensable ecological benefits to include wetland and stream protection, restoration, and enhancement, buffering of wetlands and riparian corridors, water quality enhancement, protection of surface and source water, flood mitigation, storm water management and erosion control, connectivity of sensitive habitats, benefits to unique species, carbon sequestration, preservation of traditional uses, and broad recreational and other public uses.”

“It has been conclusively demonstrated that landscape-scale conservation encourages ecological resilience and economic sustainability through the use of science-based priorities. Additionally, it leverages resources and multi-functionality, is embraced by diverse stakeholders, facilitates reduced land management costs, reduces wildfire-risk potential, achieves watershed/river basin health objectives, utilizes forest products to benefit local economies, and provides public use and enjoyment of natural resources and tourism. Now, it can be used to facilitate the permitting of appropriately sited projects allowing infrastructure and development to proceed. Clearly, implementation of this mitigation plan can be one of the lasting positive legacies affecting the Four Holes Swamp Watershed.”

SHPO: Preliminary comments were received from Ms. Emily Dale via e-mail on April 23, 2015. These comments identified concerns regarding an NRHP-listed resource, the Cypress Methodist Campground, located within one mile of the project area. According to the comments: *“The integrity of this campsite depends on the quiet and rural setting, which could be impacted by increased traffic on Cypress Campground Road. We recommend that the USACE consult with the public, local historical societies, and people involved with the Cypress Methodist Campground.”* The comments also requested that *“an intensive Phase I archaeological survey”* be conducted on portions of the proposed project site where moderate- to well-drained soils occur.

Comments were received from Dr. W. Eric Emerson, Director and State Historic Preservation Officer, in a letter dated April 27, 2015. This comment letter stated:

“This letter is in response to the request for comments pursuant to Section 106 of the National Historic Preservation Act (NHPA) regarding Project Soter. This response supersedes all other communications from this office and constitutes the agency's final comments regarding this undertaking.”

“On April 23, 2015, Ms. Emily Dale, Archeologist and GIS Coordinator for this agency emailed a series of comments to Dr. Richard Darden, Regulatory Division, U.S. Army Corps of Engineers, Charleston District, concerning the public notice and this project. Those comments resulted from this agency's failure to appropriately consult the cultural resource assessments previously sent to this office. Those cultural resource assessments appear under the name Camp Hall Tract and not Project Soter. Those reports include the Draft Report Cultural Resource Identification Survey, Camp Hall Tract, Berkeley County, South Carolina (Amec, Foster, Wheeler, March 2015); Cultural Resources Assessment of the Camp Hall Tract Modification, Berkeley County, South Carolina (Brockington and Associates, Inc., October 2008); and Cultural Resources Assessment of the Camp Hall Tract, Berkeley County, South Carolina (Brockington and Associates, Inc., 12 March 2007).”

“The aforementioned reports address significantly the concerns listed in Ms. Dale's email message regarding cultural resources in the area of potential effect (APE). Cypress Methodist Campground, a National Register listed property also mentioned in that message, falls significant! y outside the APE, and therefore should not be impacted by undertaking.”

“Drawing upon the information ascertained from the previously noted cultural resource assessments and an onsite visit of the property by Ms. Elizabeth Johnson, Deputy State Historic Preservation Officer, and Ms. Dale, this agency concurs with the Army Corps of Engineers' determination that there will be no effect on historic properties.”

Tribes: The Catawba Indian Nation commented in a letter dated May 4, 2015: *“The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.”*

Internal Corps coordination: The Navigation Branch (OP-N) responded on April 20, 2015, that they had no comment on this application. Project Management (PM) responded on April 30, 2015, that they “concur with Navigation” and thus have no comment on this permit application. EN-H commented on May 13, 2015: *“It is not in a SFHA (Special Flood Hazard Area) according to FIRM 45015C0365D or 350D dated Oct 2003. All road crossings of wetland and streams will need culvert/bridges to convey flow without impacting other properties. (cross-sections do not indicate any proposed pipes)”* No concerns, objections or other comments were received from Internal Corps coordination.

Other federal or state agencies: James I. Newsome, III, South Carolina Ports Authority (SCPA). Representing the SCPA, Mr. Newsome commented in support of the proposed project, and commented from the perspective of the operator of the seaport that will handle inbound and outbound cargo associated with the project. In his comments, Mr. Newsome cited an estimated \$1 billion of initial investment, thousands of jobs for South Carolina, and the overwhelming public benefit of the proposed permittee-responsible compensatory mitigation. No comments were received.

Non-governmental organizations, individuals or corporations: Three letters were received with comments on the proposed project.

- 1) Roger Schrum and Lewis F. Gossett, South Carolina Manufacturers Alliance, commented in support of the project on April 30, 2015. From the perspective of the manufacturing industry, their comments focused on the positive contribution of the project to the state's economy and creation of 4,000 jobs, predicting that the development has the potential to transform the community with economic opportunity, as well as to enhance the local environment through the preservation of properties valued by National Audubon Society and other conservation groups.
- 2) Ted Pitts, South Carolina Chamber of Commerce, commented in support of the project on April 30, 2015. Mr. Pitts commented that the project is "*a landmark advanced manufacturing project*" that will bring development and job opportunities to the economically challenged area of the I-95 corridor. His comments also addressed the environment: "*Project Soter has the potential to transform the surrounding communities and do it in a way that is not only sensitive to the environment, but offers the ability to preserve key tracts of land that are important to the local conservation community for generations to come.*"
- 3) Adjacent property owners, Ridgeville, SC 29472 commented on April 29, 2015. The adjacent property owners expressed concern that they requested "*be taken into consideration in approving or disapproving this site for development;*"
 - *In the filling of these wetlands there is a concern with the trees and plant life that will be removed as well as the wildlife. Mitigating wetlands on another site will not restore the damage to this site.*
 - *The drainage/water runoff from this site to the 4 Hole Swamp will cause future concerns to trees, plants and wildlife.*
 - *The increase in traffic on the rural roads and the main roads (HWY 27, 176, I-26) are a concern for safety as well as pollution to the land and air.*
 - *Traffic increase in Cypress Campground Road and Lebanon Road because of the future residential development that this project will bring to this area.*
 - *Site access from Cypress Campground Road is a concern of the locals. The increase in traffic and noise.*"

3.4.4 Site ☒ was/☐ was not visited by the Corps to obtain information in addition to delineating jurisdiction.

The site was visited on multiple occasions during the previous five years in the course of wetland delineations, jurisdictional determinations, and as part of the review of information regarding evaluation of this permit application. Most recently, the site was visited on April 15 and 30, 2015, by an inter-agency review team that included the Corps, and again on June 4, 2015, by the Corps for the purpose of completing jurisdictional determination requests for eight separate tracts associated with the project: Centerline Road Tract, Colvin Tract, Bannister Tract, Singletary Tract, Dean Swamp Tract, and the Walnut Branch Tracts (Long Tract, Mims Tract, Salisbury Tract).

3.4.5 **Issues or concerns identified by the Corps:** ☐ N/A ☒ **Yes (Discussed below)**

3.4.6 **Issues or concerns forwarded to the applicant:**

☐ **No (Discussed below)** ☒ **Yes (Discussed below)** ☐ N/A

Comments received as well as issues raised by the Corps were forwarded to the applicant for their response regarding the following issues: project traffic effects on local and interstate roads; compensatory mitigation and monitoring; avoidance and minimization of impacts to waters of the U.S.; hydraulics and hydrology; and clarification of alternatives that might have less adverse effects on the aquatic ecosystem.

3.4.7 **Applicant responded to comments on:**

☐ **No (Discussed below)** ☒ **Yes (Discussed below)** ☐ N/A

The applicant responded to the comments via letter and electronic correspondence on multiple dates. The following is the applicant's response listed according to commenter, issue, and date.

1) USFWS: The applicant responded to these comments on June 29, 2015, by providing the following: *"In response to the USFWS concerns regarding the wetlands on the Project Soter development site that will remain, as well as the wetlands that will remain on the remaining portion of the Camp Hall site. The majority of the wetland areas in the vicinity of the Project Soter development area have previously been converted to silvicultural use and the monoculture of loblolly pine is not sustainable over the long term. The remaining wetland areas within the Project Soter development area will be incorporated into the site plan and designated for no development impacts. The applicant will manage the remaining wetlands and uplands in a sustainable manner using normal forestry practices. This includes normal maintenance activities for existing roads and ditches. Protective buffers will not be applied to the remaining wetlands. This approach was discussed in detail with South Carolina Department of Health and Environmental Control and accepted by their certifying divisions."*

"The wetlands located on the remaining portion of the Camp Hall site, not included within the Project Soter development area, are to be addressed at a future time. The landowner will manage the remaining wetlands and uplands in a sustainable manner using normal forestry practices including normal maintenance activities for existing roads and ditches. Protective buffers will not be applied to the remaining wetlands at this time."

USFWS indicated via telephone conference their acknowledgement of the applicant's response that they have no further comment.

2) USEPA: In their comment letter dated May 15, 2015, the US Environmental Protection Agency stated that: *“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.”* And also *“Performance standards should be tailored to each community.”* The USEPA recommended *“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 (FCI_{PLANT}) derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M.M. (2002), “A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Function of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains.”*

The applicant responded on July 6, 2015, *“The applicant agrees with the USEPA that there is a need for specifically tailored performance standards for each enhancement prescription. The applicant proposes to use a hybrid performance standard which incorporates traditional mitigation performance standards as well as FCI_{PLANT} in selected community types. Expanded wetland enhancement prescriptions are presented below with associated performance standards.”*

“Wetland Preservation”

“Wetland preservation activities within the Mitigation Project are anticipated to protect approximately 890 acres of wetlands, as shown in Figures 11 – 11c in Appendix A of the Project Soter Mitigation plan. The proposed wetland preservation areas lie directly adjacent to many streams and generally consist of a mix of high quality bottomland hardwood forest communities. Wetlands within the Mitigation Project will be protected through the establishment of a conservation easement with a minimum 75 foot buffer (Bannister Tract, Dean Swamp Tract, and Mimms Tract) and generally a 100 foot buffer on the other tracts (Singletary, Long, and Salisbury).”

“Wetland Enhancement and Ecological Restoration”

“Pine flatwoods/longleaf pine savanna enhancement Greater than 15 year old Pine”

*Sections of the Bannister Tract and the Dean Swamp Tract that have stands of existing loblolly pine greater than 15 years old will be thinned to between 20 and 50 square feet of basal area/acre and will be placed under a prescribed burn schedule. The following winter, the area also will be under-planted with longleaf pine (*Pinus palustris*) seedlings. Thinning of the existing planted loblolly pine will be conducted to reduce the basal area to open the forest canopy to allow for the recolonization of herbaceous and under-planted longleaf pine. The prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecotype. Depending on the conditions and success of burned areas, the frequency of successive fires will be prescribed.”*

*“Pine flatwoods/longleaf pine savanna enhancement
Less than 15 year old Pine”*

“Sections of the Bannister Tract and the Dean Swamp Tract that support stands of loblolly pine less than 15 years old will be thinned (to between 20 and 50 square feet of basal area/acre). Longleaf pine seedlings also will be under-planted in these stands. A prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecotype. Depending on the conditions and success of burned areas, the frequency of successive fires will be prescribed.”

“Pine flatwoods/longleaf pine savanna ecological restoration”

“The clear cut areas within the Bannister and Dean Swamp tracts will be burned, if feasible, during Monitoring Year 0 to reduce woody competition. The following late fall/winter, longleaf pine seedlings will be planted at a density of approximately 680 stems per acre. These areas will be placed into a burn regime with scheduled burns no greater than 3 years apart. Natural mortality of young seedlings is expected to reduce pine density over time to mimic natural, open grown stands. Thinning of pines may be required to prevent canopy closure.”

“Bottomland hardwood enhancement/ecological restoration”

“Sections of the Bannister Tract where the existing pine plantation has encroached into the bottomland hardwood communities located along Cedar Swamp, Sandy Run, and associated unnamed tributaries will be cleared and replanted with appropriate native hardwood species. Once the site preparation activities are completed, the wetland area will be planted with appropriate bottomland hardwood species. Wetland trees will be planted at a density of 680 trees per acre (8' x 8' spacing).”

“Wetland depression ecological restoration”

*“Depressional wetlands (ponds) which have recently been cleared by silvicultural activities will be planted with pond cypress (*Taxodium ascendens*) at a density of 300 saplings per acre. Fire will be allowed to enter the edges of both the replanted ponds and currently forested ponds located within existing pine plantations, during prescribed burns of the surrounding flatwoods/pine savanna, in order to reduce the prevalence of hardwood species on the pond margins.”*

“Success Criteria”

“Due to the broad range of habitats that will be enhanced or ecologically restored, a mix of traditional survival rates and FCI scores will be used to determine the success of the mitigation effort of each community type.”

“Pine Flatwoods/Longleaf Pine Savanna Enhancement”

“The overall goal of the pine flatwoods/longleaf pine savanna enhancement (in both greater and

less than 15 year old stands) is a reduction in loblolly pine stems, reduction in hardwood and shrub cover, and an increase in both longleaf pine and herbaceous species cover and diversity. Success criteria for the longleaf pine savanna communities will include:

- A reduction in loblolly pine stems to between 20 and 50 square feet of basal area/acre from pre-enhancement levels;*
- A reduction in both hardwood and shrub cover from pre-enhancement levels. Hardwood & shrub cover will be no greater than 25% to meet success criteria;*
- Planted longleaf pine saplings will show a survival rate of at least 50% to meet success criteria, and overall increase in height and diameter. Mortality due to fire is expected and required for overall ecosystem stability;*
- FCI_{PLANT} will show a general increase over time compared to pre-enhancement levels.”*

“Pine Flatwoods/Longleaf Pine Savanna Ecological Restoration”

“Pine flatwoods/longleaf pine savanna ecological restoration will occur within areas where clear cutting of planted loblolly pines has recently occurred (excluding those areas which will be planted in either bottomland hardwood or wetland depression). The ecological restoration goal within this community type is the healthy establishment of longleaf pine seedlings, increase in herbaceous species diversity, and a lack of hardwood and shrub establishment. Success criteria for the flatwoods/longleaf pine savanna ecological restoration communities will include:

- Longleaf pine saplings will show a survival rate of at least 50% to meet success criteria, and overall increase in height and root collar diameter. Mortality due to fire is expected and required for overall ecosystem stability;*
- FCI_{PLANT} will show a general increase over time compared to pre-enhancement levels, including the longleaf pine component of FCI_{PLANT} showing an increase of at least 25% of the same component in an identified reference plot.*
- Hardwood & shrub cover will be no greater than 25% to meet success criteria.”*

“Bottomland Hardwood Forest Ecological Restoration”

“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 diameter demonstrates an increase over baseline and each prior monitoring period. 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.”

“Wetland Depression Enhancement and Ecological Restoration”

“Wetland depression ecological restoration will occur within those depressional ponds that have been recently clear cut and enhancement will occur in currently-forested ponds located within existing pine plantations. The ecological restoration goal within this community type is healthy establishment of pond cypress seedlings (within those areas which require planting), an increase in herbaceous species on the pond margins, and limited hardwood establishment. Success criteria for the wetland depression ecological restoration communities will include:

- *Pond cypress seedlings will show a survival rate of at least 60% after 5 years, and an overall increase in height and diameter (within areas which require planting).*
- *FCI_{PLANT} (taken on pond margins) will show a general increase over time compared to pre-enhancement levels.*

Hardwood & shrub cover will be approximately 50% (acceptable range 30-70%) within the pond at the end of five monitoring years."

EPA indicated via e-mail dated July 7, 2015, that their concerns had been adequately addressed.

- 3) Corps Internal EN-H: comments about adequate culvert sizes and drainage for all project roads. *"Road crossings of wetlands and streams will be designed to provide flow conveyance in accordance with applicable design storm events and hydrological parameters set forth in state and local regulation."*

3.4.8 **Additional coordination with commenters and applicant:**

☐ No (Discussed below) ☒ Yes (Discussed below) ☐ N/A

Additional coordination with the applicant occurred as described below by issue and date:

The applicant's responses to comments were provided to the respective agencies/commenters for review and consideration.

1) Corps Internal EN-H: comments about adequate culvert sizes and drainage for all project roads. Following the coordination of the initial comments and receipt of the applicant's response, on June 19, 2015, the Corps requested to know whether the project plans would be revised with regard to drainage design prior to or after July 10, 2015. The applicant responded on June 19, 2015, that *"The specific designs for the roadway have not yet been completed, so the details from that effort will not be available at this time. The permit plans are only going to change to show the further minimization of impacts, that we have discussed."*

The applicant provided an additional response on June 29, 2015, further addressing the issue of drainage design and culvert placement for the project:

"The applicant proposes to install culverts at a maximum spacing of one culvert per 150 linear feet where wetlands currently exist adjacent (both sides) to the proposed road infrastructure corridors to prevent obstruction of existing surface flows during time of saturation within the wetlands and to facilitate the passage of terrestrial and aquatic organisms. Culverts will have a minimum diameter of 18-inches and be installed at a slope of no less than .003-0.005 ft/ft, upstream invert to downstream invert, as required by Berkeley County or SCDOT, and be placed on grade with the adjacent topography. In locations with ditches parallel to the proposed road, culverts will be appropriately designed, with a minimum diameter of 18 inches, to pass the 25-year storm event as per Berkeley County requirements and will be installed at an appropriate grade to prevent scour within the existing ditches and meet cleaning velocities, as calculated, and be installed at a slope of no less than .003-0.005 ft/ft. All culverts will be constructed of Reinforced Concrete Pipe (RCP), as required by Berkeley County."

EN-H reviewed the applicant's response and commented on July 6, 2015, that the issues had been addressed.

2) EPA commented on July 7, 2015: "The consultant has addressed all the outstanding concerns the EPA raised through our letter, emails, and phone conversations about the mitigation plan, monitoring, and performance standards. We appreciate that the monitoring period is not limited by a time period but by successfully demonstrating a positive trend toward a climax pine savanna community. One more recommendation the EPA has is to include language in the adaptive management section of the mitigation plan that spells out alternatives if conditions do not allow the proposed burning schedule.

The EPA believes the mitigation plan has the potential to adequately mitigate for unavoidable impacts to Waters of the United States. Thank you for the opportunity to comment on this project and for considering those comments in your permit review and issuance process.

I realize the timeline is moving quickly on this project so I wanted to give your quick feedback via email. However, if the Charleston District would like a formal letter stating that our concerns have been addressed please let me know and I will begin routing one as soon as possible."

3.4.9 **The following comments are outside the Corps purview and are not discussed further in this document:** ☒ N/A ☐ Yes

3.4.10 **Comments categorized by Topic:**

The comments received were concerning the following issues:

- 1) comments regarding the protection of remaining wetlands and buffers,
- 2) comments regarding how compensatory mitigation will be monitored,
- 3) comments regarding drainage design to prevent flooding on adjacent properties.

These issues are addressed in the applicant's response and in Section 6, the Public Interest Review.

4. Alternatives Analysis

4.1 **Project Purpose and Need:**

- ☒ Same as Section 1
☐ **Revised since P/N:**

4.2 **Basic Project Purpose:**

- ☒ Same as Section 1
☐ **Revised since P/N:**

4.3 **Water Dependency:**

☒ Same as Section 1
☐ **Revised since P/N:**

4.4 **Overall Project Purpose:**

☒ Same as Section 1
☐ **Revised since P/N:**

4.5 **Applicant Proposed Alternative:**

☒ Same as Section 1
☐ **Revised since P/N:**

4.6 **Criteria for Evaluating Alternatives:**

Table 1. Criteria Used to Evaluate Whether Alternatives Meet Overall Project Purpose.

ISSUE	MEASURE AND/OR CONSTRAINT
LEVEL 1 ANALYSIS (Location Alternatives – Initial Screening)	
Minimum area of developable land	1,500 acres
Direct frontage and/or access to an Interstate Highway	Presence/absence of existing interchange
Vicinity of a seaport with deep water access	50 miles or less
Vicinity of an international airport	50 miles or less
Access to utilities (including power, water, and sewer)	Presence/absence of utilities
Availability of a skilled workforce with access to education and training	Workforce = 4,000 or more and existing education infrastructure
LEVEL 2 ANALYSIS (Location Alternatives – Additional Evaluation)	
Development Cost	Dollars
Mitigation Cost	Dollars
Interstate Visibility	Degree of visibility
Interstate Access	Proximity to interstate exit

Port Access (Sea and Air)	Distance
Other adverse impacts	Nature and degree of resource impact(s)
Magnitude of impacts to waters of the U.S.	Acres of wetlands and linear feet of stream
LEVEL 3 ANALYSIS (Onsite Alternatives Evaluation)	
Magnitude of impacts to waters of the U.S.	Acres of wetlands and linear feet of stream
Interstate Visibility	Degree of visibility
Project Layout/Configuration	Acceptability of product flow logistics

The applicant's description of each of the evaluation criteria is provided below:

Criterion 1: 1,500 acres of developable land. *"This tract size is a minimum requirement to accommodate the facility footprint for Phases 1 and 2 and requisite infrastructure, as the 1,500 acres represents a physical facility footprint of 900 acres and an additional 600 acres for supporting infrastructure and logistical and transportation concerns (a 2:1 ratio of footprint land to supporting land)."*

Criterion 2: Direct frontage and/or direct access to an Interstate Highway. *"Direct access, such as a dedicated interchange, is important for logistical and transportation reasons as well as marketability for brand identity with a location and facility adjacent to and visible from an interstate."* The applicant cited Dean J. Uminski, *A Step-by-Step Guide to a More Strategic Site Selection Approach* (2013), which suggests *"For a manufacturing site, for example, ...highway access would be critical for both incoming raw materials and outgoing finished product. Lack of access would effectively rule out a site, regardless of any tax considerations or other incentives."*

Criterion 3: Location within 50 miles of a seaport with deep water access. According to the applicant's supporting information, *"A nearby deep-water port with adequate capacity for containers, break-bulk, and roll-on/roll-off capacity is vital for any advanced manufacturer, and a location within a 50-mile radius is necessary based on logistical concerns for turnaround, handling times, same-day transfers, and cost for both the import of component parts as well as the export of finished goods."* The applicant cited American Association of Ports Authority, *Ports Benefit the Nation* www.aapa-ports.org/Industry/content.cfm?ItemNumber=1022 (accessed by this office June 30, 2015); and Ed McCallum, *What's Driving Automotive Assembly Plant Locations?*, *Business Facilities* (July 2004).

Criterion 4: Location within 50 miles of an international airport. According to the applicant's supporting information, *"A nearby international airport within a 50-mile radius is necessary for any advanced manufacturer to provide immediate access to suppliers and executives from around the country and the world."* The applicant cited Ed McCallum, *What's Driving Automotive Assembly Plant Locations?*, Business Facilities (July 2004): *"Air transport is important for...suppliers, vendors, and executives...proximity to a hub is desired."*

Criterion 5: Access to utilities, including power, water and sewer. The applicant represented that this is a relevant criterion because not every large undeveloped/unused parcel has adequate utilities serving it.

Criterion 6: Availability of a skilled workforce with access to adequate education and training, with a minimum need of 4,000 workers. According to the applicant's supporting information, *"South Carolina's ReadySC program provides significant workforce training and development for almost any location in South Carolina. Labor profiles for various counties and metropolitan statistical areas (MSAs), combined with the close proximity of technical colleges participating in ReadySC provide the metric for the availability of a skilled workforce for the proposed project. In light of the number of workers required, only the larger MSAs could accommodate the labor need based on the critical mass of population necessary to generate a workforce profile based on volume."*

On July 2, 2015, the applicant provided additional supporting information regarding rail. This information is important in explaining why the Applicant's Proposed Project does not include rail, but other location alternatives were evaluated with rail access. According to the applicant:

"Summary: The Proposed Project has operational capability without immediate on-site rail access and no on-site rail access is proposed by the applicant as part of the Proposed Project."

"Explanation: The Proposed Project is capable of operating based on the roadway infrastructure (which includes the improvements as part of the Proposed Project)."

"Rail access is an additional transportation mode that enhances options for transportation, distribution, and logistics, but it is not an immediately necessary and critical component for the facility to function. Adequate roadway infrastructure is the necessary and critical transportation infrastructure to ensure that employees, suppliers, vendors, and logistics providers can access the advanced manufacturing facility. Rail cannot serve all of those constituencies adequately. In other words, an advanced manufacturing facility can function with road and without rail, but such a facility cannot function with rail and without roads. Therefore, only the roadway infrastructure is immediately necessary and critical for operations, such as "phase 1" of the Proposed Project. While rail access will be provided to the site location in the future, no proposal is available and the specifics of the provision of rail to the site location are speculative at this point in time. For example, the identity of the rail line or rail lines, proposed routes, line extensions, cost, and other factors are all unknown at this time. Information is currently insufficient to offer a "proposal" for rail access at this time. In other words, rail may be provided to the site location in an additional phase of the advanced manufacturing facility's future plans and operations. Therefore, rail access is not part of the Proposed Project."

4.7 Alternatives

4.7.1 Discussion on Alternatives Development

The applicant provided the details of the multi-level alternatives analysis conducted for this project. The analysis of location alternatives included a Level 1 Screening Analysis, a Level 2 Analysis evaluating availability, cost, technological considerations, and logistical considerations, and a Level 3 Analysis to identify the least environmentally damaging practicable alternative (LEDPA) from among four onsite configuration plans. Initially, the applicant identified nine locations within the state that potentially met the project purpose criteria. The Level 1 Analysis evaluated the nine location alternatives and eliminated those that failed to clearly meet the six project purpose criteria identified in Table 1. The Level 2 Analysis further evaluated the three remaining location alternatives with respect to development and mitigation costs, interstate visibility and access, air and sea port access, other potential adverse impacts, and waters of the U.S. impacts. The Level 3 Analysis compared and evaluated four onsite alternatives with respect to magnitude of impacts to waters of the U.S., interstate visibility to support brand recognition, and product component flow logistics based heavily on the configuration of project facilities.

4.7.2 Description of Offsite Location Alternatives

Each of the nine alternative site locations that were identified and evaluated with respect to the project purpose criteria is described below, according to the applicant:

Applicant's Proposed Alternative

Camp Hall Commerce Park – Tax Map ID 157-00-00-003

“This site is approximately 6,781 acres, located entirely within Berkeley County. It is adjacent to and bounded on the southwest side by Interstate 26, and is east of SC Highway 27, southwest [of] State Road (U.S. Highway 176) and west of Lebanon Road. No current interchange exists to provide direct access to Camp Hall from Interstate 26. The site’s frontage on Interstate 26 is approximately nine miles northwest of Interstate 26 Exit 199, Summerville, and approximately 2.5 miles southeast of Interstate 26 Exit 187, Ridgeville (18 miles southeast of Interstate 95). The site is approximately 28 miles northwest of the Port of Charleston and 25 miles from the Charleston International Airport. Certain due diligence of the site has already been performed. Rail access to the site is possible with a short line extension, although not currently constructed and available.” [No rail extension is proposed as part of this project.] Figure 4 below shows the location of all Level 1 Analysis alternatives.

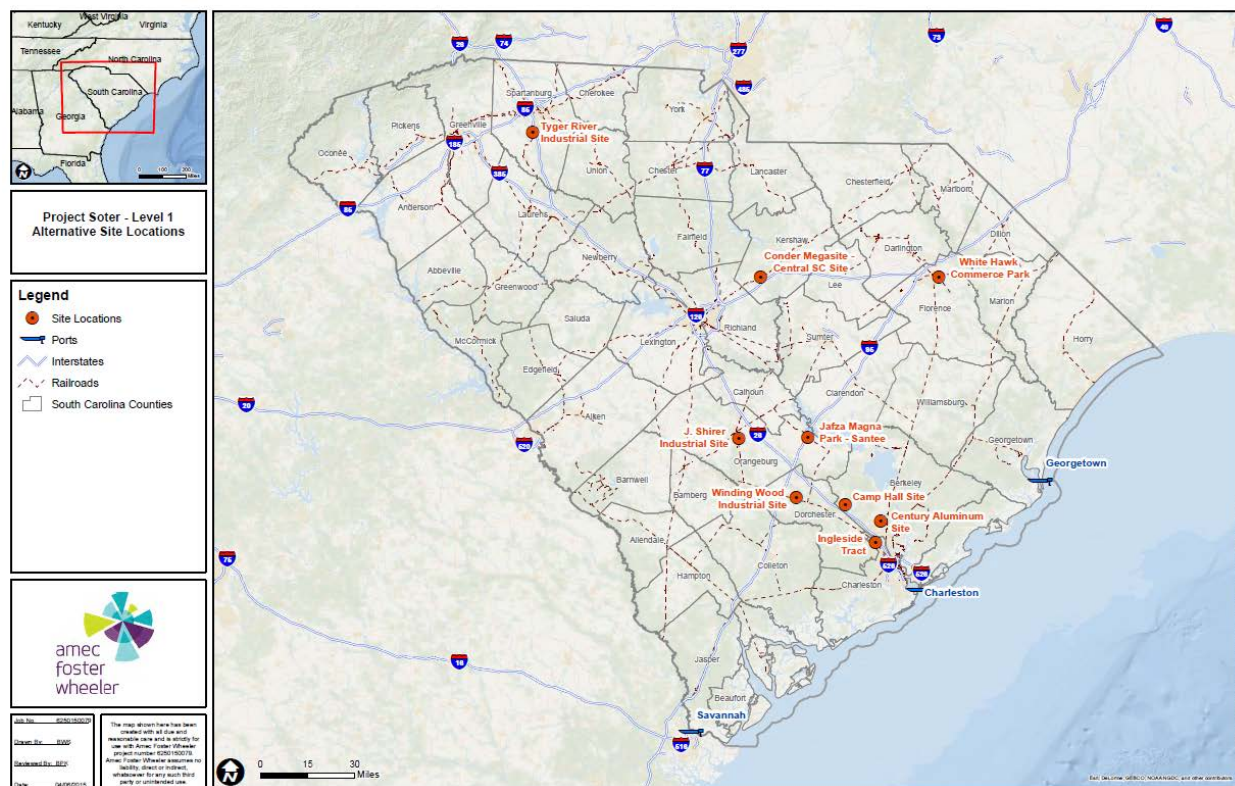


Figure 4. Location map showing all alternatives evaluated in the Level 1 Analysis.

Winding Wood Industrial Site – Tax Map ID 059-00-00-006

“The site is approximately 1,573 acres, located entirely within Dorchester County. It is located adjacent to U.S. Highway 78, near the town of St. George, and approximately three miles east of Interstate 95. The site has no direct access to Interstate 26, and is approximately 48 miles from the Port of Charleston and 39 miles from the Charleston International Airport. Certain due diligence of the site has already been performed. The site has current rail access served by Norfolk Southern Railway.”

Century Aluminum Site – Tax Map ID 2230000019

“This site is approximately 2,564 acres and is located with frontage on U.S. Highway 17A, entirely within Berkeley County. The site is approximately five miles northeast of Interstate 26, approximately 25 miles from the Port of Charleston and 16 miles from the Charleston International Airport. Certain due diligence of the site has already been performed. The site does not have rail access.”

Ingleside Tract – Tax Map IDs: 393-00-00-005; 393-00-00-007; 393-00-00-082; 393-00-00-086; 393-00-00-092; 393-00-00-131 through 393-00-00-138

“This site is approximately 1,700 acres and is located entirely in Charleston County, with approximately 500 acres slated for commercial/residential mixed use development. The site is adjacent to and bounded by Interstate 26 to the east, U.S. Highway 78 to the north, and Palmetto Commerce Parkway to the west. No current interchange exists to provide direct access to the Ingleside Tract from Interstate 26; however, Exit 205 on Interstate 26 is less than a mile to the

north. The site has approximately 2.5 miles of frontage on Interstate 26. The site is approximately 14 miles northwest of the Port of Charleston and 11 miles from the Charleston International Airport. Certain due diligence of the site has already been performed. The site has current rail access served by Norfolk Southern Railway.”

Tyger River Industrial Site – Tax Map ID 6-32-00-012-00.00

“The site is approximately 1,316 acres, located entirely within Spartanburg County. The site is adjacent to and bounded by Interstate 26 to the northeast, and Moore Duncan Highway to the southwest. No current Interstate 26 interchange exists to provide direct access to the site; however, Exit 22 on Interstate 26 is approximately three miles from the South Carolina Ports Authority’s Inland Port in Greer, South Carolina, and approximately 197 miles from the Port of Charleston and 17 miles from the Greenville-Spartanburg International Airport. Certain due diligence of the site has already been performed. The site has current rail access served by CSX Transportation.”

Conder Megasite – Central South Carolina – Tax Map IDs 323-00-00-011; 323-00-00-014; 309-00-00-031; 309-00-00-032; 309-00-00-070; 310-00-00-080; 324-00-00-001; 323-00-00-006

“The site is approximately 1,426 acres, located entirely within Kershaw County. The site is adjacent to and bounded by Interstate 20 to the south, and U.S. Highway 1 to the north. The site is located at the approximate intersection of Interstate 20 and U.S. Highway 601. The site is located within two miles of Exit 92 on Interstate 20. The site is approximately 127 miles northwest of the Port of Charleston and 32 miles east of the Columbia Metropolitan Airport. Certain due diligence of the site has already been performed. The site has current rail access served by CSX Transportation.”

White Hawk Commerce Park – Tax Map IDs 176-01-013; 205-01-005; 205-01-006; 205-01-007; 205-01-008; 206-01-013; 206-01-014; 206-01-019; 206-01-197

“The site is approximately 1,175 acres, located entirely within Florence County. The site is bounded by East Old Marion Highway to the north and has no direct Interstate Highway access. The site is located approximately six miles from Interstate 95. The site is approximately 114 miles north of the Port of Charleston, five miles from the Florence Regional Airport, and 100 [miles] from the Columbia Metropolitan Airport. Certain due diligence of the site has already been performed. The site has current rail access served by CSX Transportation.”

J. Shirer Industrial Site – Tax Map Id 0184-00-01-040.000

“The site is approximately 745 acres, located entirely within Orangeburg County. The site is adjacent to and bounded by U.S. Highway 21 to the west and has no direct Interstate Highway access. The site is located approximately seven miles from Interstate 26. The site is approximately 73 miles north of the Port of Charleston and 45 miles south of the Columbia Metropolitan Airport. Certain due diligence of the site has already been performed. The site has current rail access served by Norfolk Southern Railway.”

Jafza Magna Park – Santee – Tax Map IDs 0323-00-06-012.000; 0323-00-06-001.000

“The site is approximately 1,322 acres, located entirely within Orangeburg County, near Santee. The site is adjacent to Interstate 95 to the west. The site is located within three miles of Exit 95 on Interstate 95. The site is approximately 61 miles northwest of the Port of Charleston and 52

miles northwest of the Charleston International Airport. Certain due diligence of the site has already been performed. The site has current rail access served by CSX Transportation.”

For each alternative offsite location, a summary of the alternatives evaluation is provided below in Section 4.7.1 Offsite locations and configurations. For each onsite alternative, a summary of the alternatives evaluation is provided below in Section 4.7.2 Onsite Configurations.

4.7.3 Level 1 Analysis of Offsite Location Alternatives

Location alternatives identified and evaluated included the Applicant’s Proposed Alternative location and eight other locations. As discussed below, six location alternatives were eliminated in the Level 1 Analysis. The criteria used to evaluate location alternatives in the Level 1 Analysis are shown in Table 2, along with evaluation results for the nine locations. Three remaining location alternatives were carried forward to a Level 2 Analysis which is summarized following the Level 1 Analysis summary.

Level 1 Offsite Alternative 1: Ingleside Tract

According to the supporting information provided by the applicant, *“This alternative only has approximately 1,200 acres of available land for development and therefore fails to meet the minimum size requirements for the Proposed Project purpose and need. Originally 1,700 acres, 500 acres of the property is currently slated for mixed-use commercial/residential development, rendering the proximity of the proposed facilities to this type of mixed-use development unsuitable and undesirable. Because this alternative fails to meet the basic minimum site requirements of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”*

Level 1 Offsite Alternative 2: Tyger River Industrial Site

According to the supporting information provided by the applicant, *“This alternative is only 1,316 acres and therefore fails to meet the minimum size site requirements for the Proposed Project purpose and need. Additionally this alternative is located over 50 miles from a deep water seaport. Because this alternative fails to meet multiple basic needs of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”*

Level 1 Offsite Alternative 3: Conder Megasite – Central South Carolina

According to the supporting information provided by the applicant, *“This alternative is only 1,426 acres and therefore fails to meet the minimum size site requirements for the Proposed Project purpose and need. Additionally this alternative is located over 50 miles from a deep water seaport. Finally, it is unclear if this alternative can meet the requirements of a locality that provides immediate access to skilled and sufficient workforce. Because this alternative fails to meet multiple basic needs of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”*

Level 1 Offsite Alternative 4: White Hawk Commerce Park

According to the supporting information provided by the applicant, *“This alternative is only 1,175 acres and therefore fails to meet the minimum size site requirements for the Proposed Project purpose and need. This alternative is also located over 50 miles from both a deep water seaport and an international airport. Finally, it is unclear if this alternative can meet the*

requirements of a locality that provides immediate access to skilled and sufficient workforce. Because this alternative fails to meet multiple basic needs of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”

Level 1 Offsite Alternative 5: J. Shirer Industrial Site

According to the supporting information provided by the applicant, *“This alternative is only 1,175 [the site is actually only 745 acres in size] acres and therefore fails to meet the minimum size site requirements for the Proposed Project purpose and need. This alternative is also located over 50 miles from both a deep water seaport and an international airport. Finally, it is unclear if this alternative can meet the requirements of a locality that provides immediate access to skilled and sufficient workforce. Because this alternative fails to meet multiple basic needs of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”*

Level 1 Offsite Alternative 6: Jafza Magna Park – Santee

According to the supporting information provided by the applicant, *“This alternative is only 1,322 acres and therefore fails to meet the minimum size site requirements for the Proposed Project purpose and need. Additionally, this alternative is located over 50 miles from both a deep water seaport and an international airport. Finally, it is unclear if this alternative can meet the requirements of a locality that provides immediate access to skilled and sufficient workforce. Because this alternative fails to meet multiple basic needs of the Proposed Project, it was eliminated from consideration by Level 1 analysis.”*

Table 2 below summarizes the Level 1 Alternatives according to project purpose criteria.

Table 2. Level 1 Criteria Used to Evaluate Whether Alternatives Meet Overall Project Purpose.

Level 1 Alternatives	1,500 acres or greater	Interstate Frontage/ Direct Access	50 miles or less from seaport	50 miles or less from internat'l airport	Utility Access	Skilled Workforce
No Action	□	□	□	□	□	□
Camp Hall Commerce Park	■	■	■	■	■	■
Winding Wood Industrial Site	■	□	■	■	■	■
Century Aluminum Site	■	□	■	■	■	■
Ingleside Tract	□	■	■	■	■	■
Tyger River Industrial Site	□	■	□	■	■	■
Conder Megawatt – Central SC	□	■	□	■	■	►
White Hawk Commerce Park	□	□	□	□	■	►
J. Shirer Industrial Site	□	□	□	■	■	►
Jafza Magna Park – Santee	□	■	□	□	■	►

Table Legend:

- – passes criterion
- – fails criterion
- -- partially passes criterion

4.7.4 Level 2 Analysis of Offsite Location Alternatives

Each of the three remaining location alternatives met at least five of the six Level 1 project purpose criteria summarized above: minimum size requirement; proximity to deep water seaport and international airport; access to adequate utilities; and access to skilled and available workforce. The criterion of interstate highway frontage and/or direct access to an interstate was not met by all three; however, all three were carried forward for Level 2 Analysis to more fully evaluate the quantitative and qualitative site selection criteria. Discussion of each of the three Level 2 offsite alternatives is provided below with the analysis results summarized in Table 3.

Level 2 Offsite Alternative 1: Camp Hall Commerce Park (Applicant's Proposed Alternative)

According to the supporting information provided by the applicant, *"Land acquisition costs for the Camp Hall Commerce Park are generally higher than for the Winding Wood Industrial Site and comparable to the Century Aluminum Site (approximately \$10,000 per acre). Higher land prices are likely due to the site being located in the core of the Charleston-North Charleston-Summerville Metropolitan Statistical Area and adjacent to Interstate 26. Order of magnitude costs were completed for infrastructure improvements to serve [the] Proposed Project (Phase 1 and administrative office) at the Camp Hall Commerce Park, including rough grading, roadway access, water, and wastewater improvements. Grading costs at the Camp Hall Commerce Park are estimated at \$35 million, mainly due to site stabilization for geotechnical requirements. Road infrastructure improvements are expected to be major due to the necessity for the Interstate 26 interchange and on-site road improvements. The interchange and on-site road improvements have been estimated at \$85 million. Water & wastewater improvements costs are negligible as these utilities are already in the vicinity of the site. Off-site rail improvements to serve the site are estimated to cost \$25 million. Total site development costs of the Camp Hall Commerce Park site are estimated to be \$145 million."* It is noted that the costs presented here are exclusive of Phase 2 of this alternative and that no rail improvements are proposed as part of this project.

"Jurisdictional wetland impacts on the Camp Hall Commerce Park are unavoidable. To meet the specific requirements of this Proposed Project, a number of jurisdictional and isolated wetlands will be impacted...approximately [192.94] acres of jurisdictional wetlands and approximately 23 acres of isolated non-jurisdictional wetlands would be impacted with the Proposed Project footprint. Preliminary impact calculations indicated that the wetland mitigation would cost \$18.3 million."

"The Level 2 Analysis determined that the Camp Hall Commerce Park met the criteria required for a TDL cluster advanced manufacturing client."

Figure 5 below shows the applicant's proposed Camp Hall Commerce Park alternative. As this location was selected in the Level 2 Analysis, additional onsite configurations are presented below in **Section 4.7.2 Onsite Configurations**.

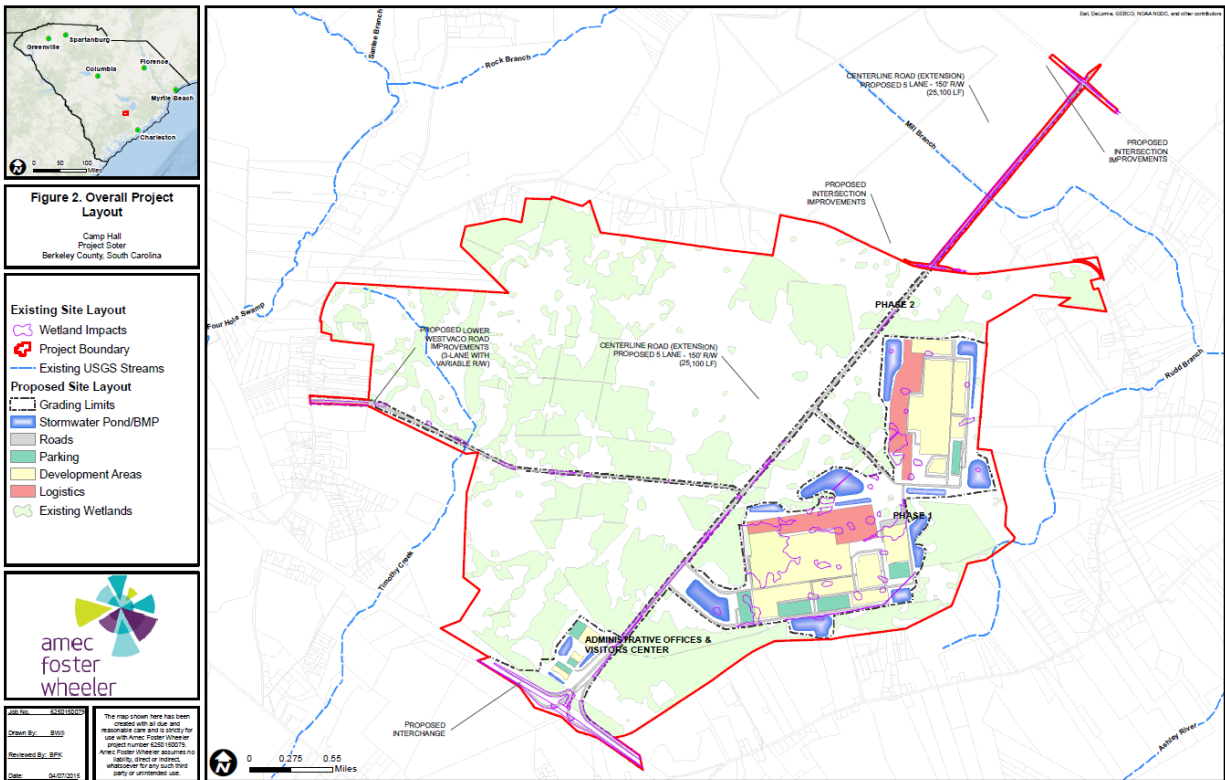


Figure 5. Applicant's Proposed Alternative location at Camp Hall Commerce Park. Wetland impacts would total 214 acres.

Level 2 Offsite Alternative 2: Winding Wood Industrial Site

According to the supporting information provided by the applicant, "A preliminary...plan was developed to evaluate costs and environmental impacts associated with development of the Proposed Project footprint on the Winding Wood Industrial Site. Costs associated with land acquisition, grading, utility infrastructure, roads, and railway were estimated by a civil engineer based on existing site conditions, distances to roads and utilities, and known property values." Note also for the description of costs associated with this location alternative that rail access is not proposed as part of the applicant's Proposed Project, and therefore no rail access costs are considered in this analysis and are not included in estimated costs summarized in Table 3 below.

"Land acquisition costs for the Winding Wood Industrial Site are generally lower than costs for the Camp Hall Commerce Park. Lower land prices are likely due to the site being located outside of the core Charleston-North Charleston-Summerville Metropolitan Statistical Area, not adjacent to an interstate, and away [from] larger population centers. Order of magnitude costs were completed for infrastructure improvements to serve Proposed Project (Phase 1 and administrative offices) at the Winding Wood Industrial Site, including rough grading, roadway access, water, and wastewater improvements. Grading costs at the Winding Wood site are estimated at \$33 million, mainly due to mucking and infill of wetlands. Road infrastructure improvements are expected to be major due to the necessity for access to the Interstate 26 corridor. The site is approximately seven (7) miles from Interstate 26 and since direct access has been requested, the construction of a five (5) lane roadway along this route has been

estimated at \$41 million. Water and wastewater improvements were estimated at \$10 million to design and construct. Total site development costs of the Winding Wood Industrial Site are estimated to be \$84 million.”

“Jurisdictional wetland impacts on the Winding Wood Industrial Site are generally unavoidable. To facilitate the development footprint of a project of similar size and scope to [the] Proposed Project, two jurisdictional wetland drainages would be impacted.” Figure 5 below shows “approximately 303 acres of jurisdictional wetlands and approximately 7 acres of isolated non-jurisdictional wetlands would be impacted with the Proposed Project footprint. Preliminary impact calculations indicated that wetland mitigation would cost \$32.2 million.”

“A review of the files and records at South Carolina Institute of Archaeology and Anthropology (SCIAA) [was] conducted to determine if archaeological sites are known in the Winding Wood Industrial Site tract. The tract has a moderate to low potential to contain intact cultural resources. The background research revealed that both prehistoric and historic cultural resources are located within or adjacent to the tract. Six previously identified archeological sites were identified within the vicinity of the tract; however, the sites were determined not eligible for the National Register of Historic Places (NRHP). Based on the background research, the tract could contain historic cultural resources that date to the 18th to 20th centuries. However, these historic sites are typically heavily disturbed and lack archaeological integrity. The tract does contain cemeteries associated with agricultural settlements dating to the 18th to 20th centuries. While cemeteries are not typically eligible for inclusion in the NRHP, South Carolina Code Section 16-17-600 does provide protection to cemeteries. The tract has a low potential to contain prehistoric sites based on the lack of perennial waters sources in the tract. There are no previously identified buildings within the property [or] within a mile radius of the property that are eligible for the NRHP.”

Figure 6 below shows the applicant’s proposed project footprint overlain on the Winding Wood Industrial Site alternative location.

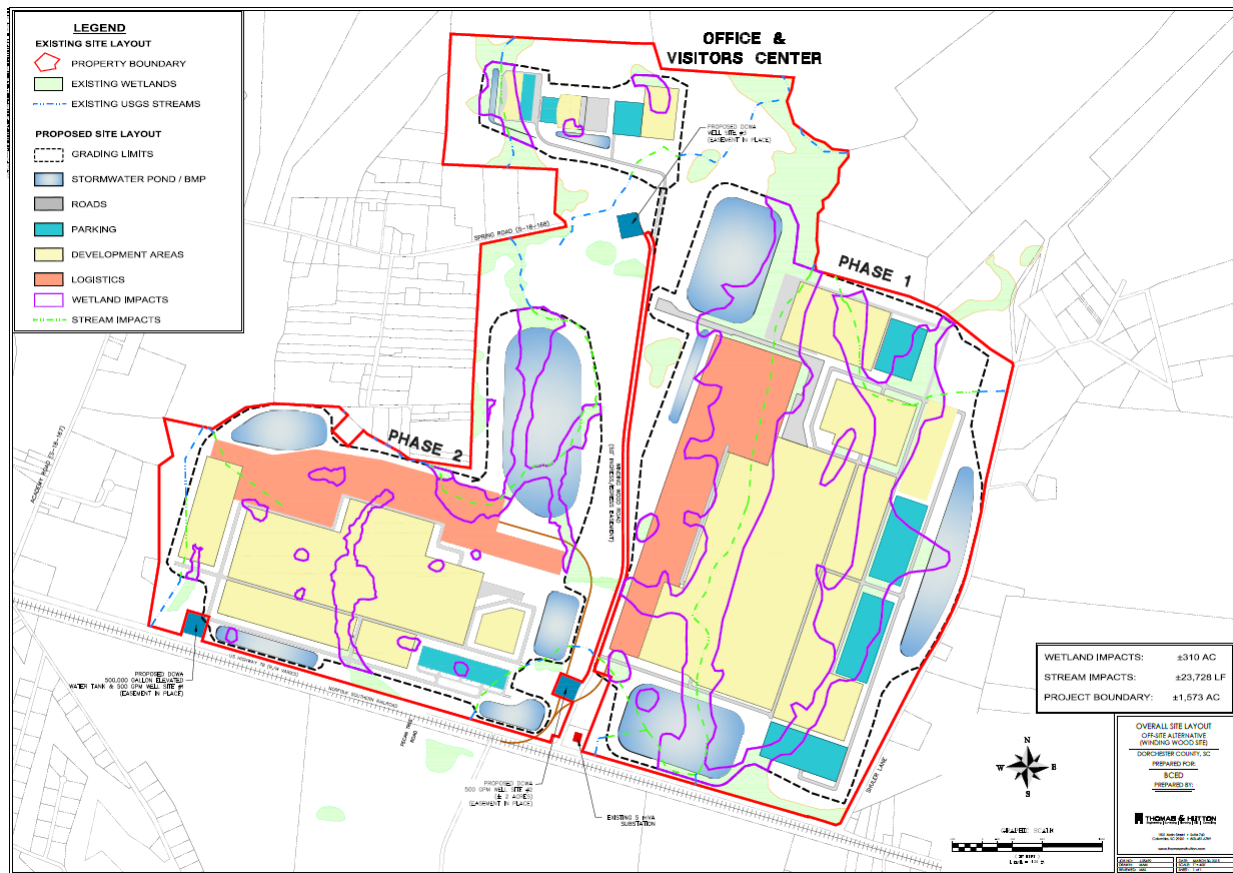


Figure 6. Applicant's proposed project footprint overlain on the Winding Wood Industrial Site alternative location. Wetland impacts would total 310 acres.

Level 2 Offsite Alternative 3: Century Aluminum Site

According to the supporting information provided by the applicant, "A preliminary...plan was developed to evaluate costs and environmental impacts associated with development of the Proposed Project footprint on the Century Aluminum Site. Costs associated with land acquisition, grading, utility infrastructure, roads, and railway were estimated by a civil engineer, based on existing site conditions, distances to roads and utilities, and known property values."

"Land acquisition costs for the Century Aluminum Site are generally comparable to those at the Camp Hall Commerce Park, being approximately \$10,000 per acre at Century Aluminum. Order of magnitude costs were completed for infrastructure improvements to serve Proposed Project (Phase 1 and administrative offices) at the Century Aluminum Site, including rough grading, roadway access, water, wastewater and electrical relocation improvements. Grading costs at the Century Aluminum Site are estimated at \$41 million, mainly due to mucking and infill of wetlands. Road infrastructure improvements are expected to be minor, including a 6,500 linear foot access road and right and left turn lanes along U.S. 176 at the site entrance. These roadway improvements are anticipated to cost approximately \$4 million. Water improvements were estimated to be approximately \$7 million and wastewater was estimated at \$3 million to design and construct. The Proposed Project footprint will require the relocation of two (2)

electric transmission right-of-ways and electric lines. The estimated cost of the electrical relocation is approximately \$1.5 million. Total site development costs of the Century Aluminum Site are estimated to be \$57 million.”

“Jurisdictional wetland impacts on the Century Aluminum Site are unavoidable. To facilitate the development footprint of Proposed Project, jurisdictional wetlands in and associated with Laurel Swamp and Daisy Swamp would be impacted. As shown in [Figure 7], 1,055 acres of on-site jurisdictional wetlands would be impacted with the build-out of the Proposed Project footprint. Preliminary impact calculations indicated that wetland mitigation would cost \$109.7 million.”

“A review of the files and records at SCIAA [was] conducted to determine if archaeological sites are known in the Century Aluminum tract. The Century Aluminum tract has a high potential to contain intact archaeological resources. Twenty-nine archaeological sites have been previously identified within the tract or within a one mile radius of the tract. One previously identified archaeological site, Site 38BK280, is located within the property boundaries and is eligible for inclusion in the NRHP. Site [38BK280] is the remains of a Plantation that was occupied between the 17th to 19th centuries. Two other sites, Sites 38BK282 and 38BK1781, have prehistoric components that were determined eligible for inclusion in the NRHP and are located in the vicinity of the tract. One cemetery, the Whaley Family Cemetery, is located in the tract. While cemeteries are not typically eligible for inclusion in the NRHP, South Carolina Code Section 16-17-600 does provide protection to cemeteries. Due to the high density of previously identified archaeological sites located in the tract and within a one mile radius of the tract, the Century Aluminum property has a high potential to contain intact archaeological resources. Construction activities could impact an existing NRHP eligible site, a family cemetery, or additional unidentified intact archaeological resources.”

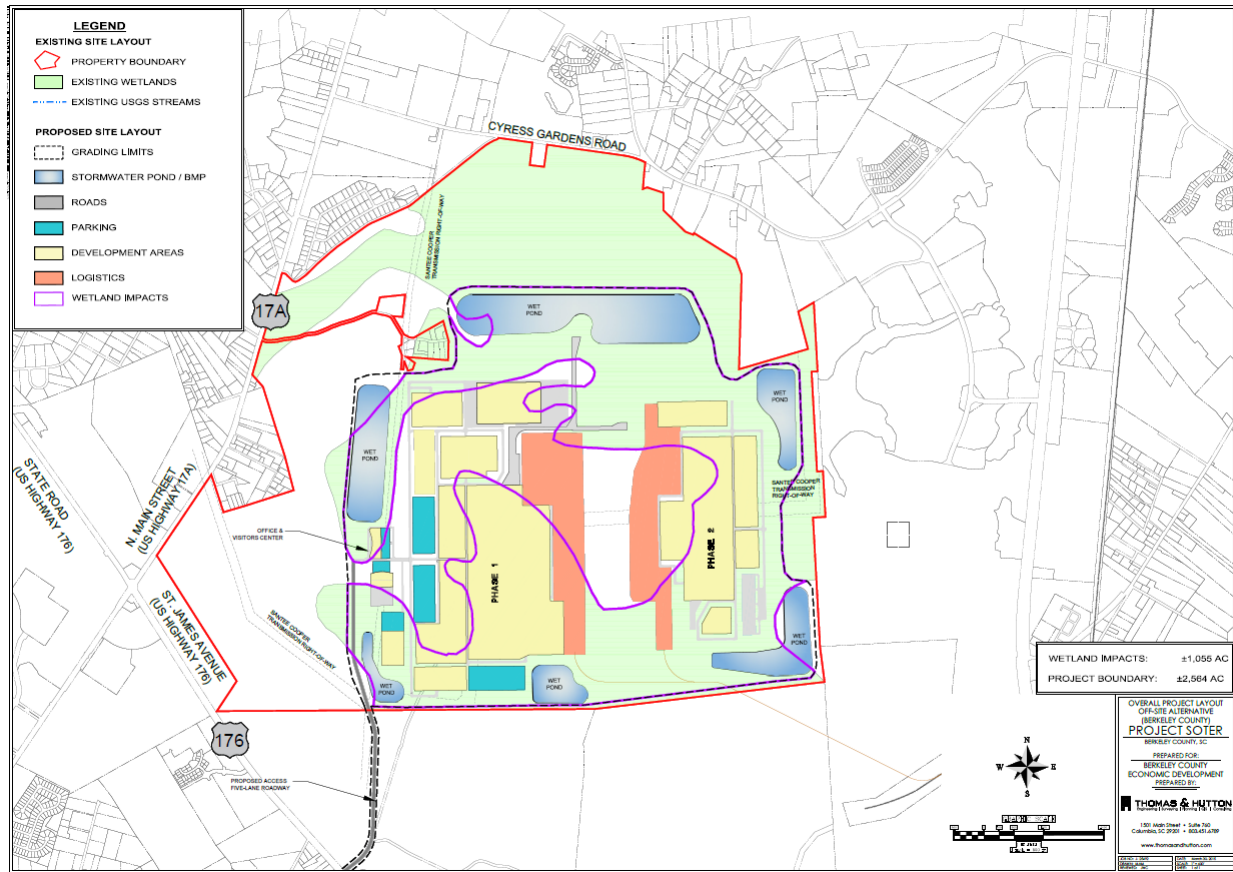


Figure 7. Applicant's proposed project footprint overlain on the Century Aluminum Site alternative location. Wetland impacts would total 1,055 acres.

A summary of the Level 2 Analysis for the three location alternatives considered is presented in Table 3 below.

Table 3. Summary of Evaluation Criteria for Level 2 Analysis.

Level 2 Alternatives	Estimated Development Cost	Estimated Mitigation Cost	Interstate Visible	Interstate Access	Port (Air and Sea) Access	Other Potential Adverse Impacts	Wetland Impacts (acres)
No Action	\$0	\$0	N/A	N/A	N/A	N/A	N/A
Camp Hall Commerce	\$120 million	\$18.3 million	Available	Superior	Superior	Minimal	214
Winding Wood	\$84 million	\$32.2 million	Unavailable	Adequate	Excellent	Marginal	310
Century Aluminum	\$57 million	\$109.7 million	Unavailable	Adequate	Excellent	Moderate	1,055

4.7.5 Conclusion of Offsite Alternatives Analysis

Based on the results of the Level 1 Analysis and the Level 2 Analysis regarding nine location alternatives, the Applicant's Proposed Alternative Camp Hall Commerce Park was selected by the applicant to move forward to the Level 3 Analysis. The Camp Hall Commerce Park location alternative was superior to the Winding Wood Industrial Site and the Century Aluminum Site with regard to interstate access and visibility, proximity to air and sea ports, and critical to this analysis had the least impacts to wetlands. Therefore, the Camp Hall Commerce Park location was evaluated for onsite configurations to determine the Least Environmentally Damaging Practicable Alternative that meets the proposed project's overall purpose.

4.7.6 Level 3 Analysis of Onsite Configuration Alternatives at Camp Hall Commerce Park Site

The Level 3 Analysis of onsite project layouts/configurations focused on site accessibility from the three major roads that serve the location and the site's visibility from Interstate 26. In addition, the layout of major project facilities was driven by need for operational efficiency in manufacturing and assembly of the product to be manufactured, and the potential for environmental impacts, including impacts to wetlands and other waters of the U.S. Based on the specific needs for design efficiency in manufacturing and assembling components, each of the onsite layouts utilized the same identical configurations for the three main project components: 1) administrative offices and visitor center, 2) Phase 1, and 3) Phase 2. The various layout alternatives were constrained by the need to maximize the Interstate 26 visibility of the administrative offices and visitor's center, as well as to achieve the most efficient access and internal connectivity to support deliveries, shipping and logistical flow.

Access to the site from Interstate 26 was also a major consideration in the four onsite configurations. The applicant's rationale regarding the need for a new interchange at mile 190 was addressed above, and on this basis the applicant evaluated four separate interchange "options" prior to incorporating the selected option into the onsite alternatives evaluated below. The results of this impact assessment for the interchange options are presented in Table 4 below.

Table 4. Impact assessment for interchange options associated with onsite alternatives.

Interchange Option	Wetland Impacts	Other Adverse Environmental Impacts
Option 1: T-Type at Mile 190	26 acres	N/A
Option 2: Jug Handle at Mile 190	34 acres	N/A
Option 3: Improve Existing 187	54 acres	N/A
Option 4: New Exit at 191	17 acres	Cypress Methodist Campground*

*National Register of Historic Places (NRHP) listed properties. This property is considered subject to FHWA regulations pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966.

Interchange Option 1: New T-Type at Centerline Road

According to the supporting information provided by the applicant, construction of a new T-Type interchange at Mile 190 to connect at the proposed project's Centerline Road would impact

26 acres of wetlands and would have no other adverse environmental impacts. Based on these factors, Option 1 had the least impact and was included in the design configuration for Onsite Alternative 2 and Onsite Alternative 2A. The Option 1 interchange layout is shown below in Figure 8.

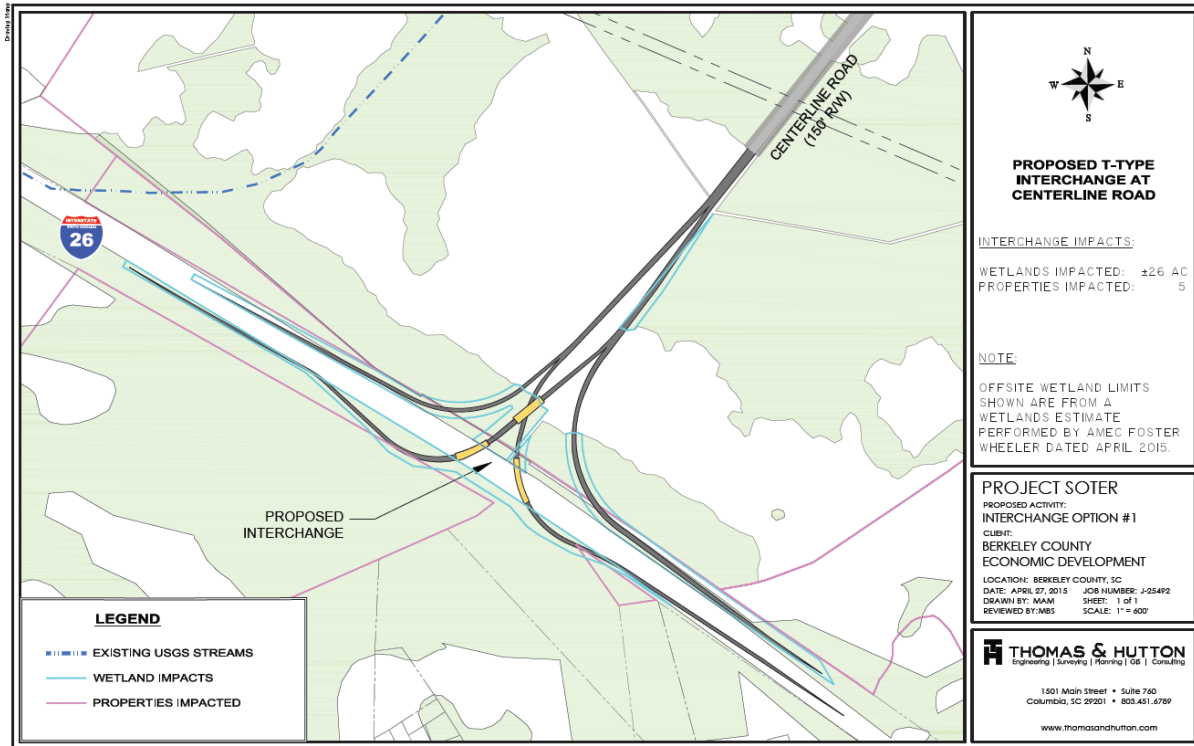


Figure 8. Interchange Option 1 would impact 26 acres of wetlands.

Interchange Option 2: New Jug Handle at Centerline Road

According to the supporting information provided by the applicant, construction of a new Jug Handle interchange design at Mile 190 would impact 34 acres of wetlands and would not involve any other adverse environmental impacts. Based on these factors, interchange Option 2 had the third highest wetland impacts and was included in the design configuration for Onsite Alternative 1 because the facility configuration in this option eliminates the feasibility of a T-type interchange. The Option 2 interchange layout is shown below in Figure 9.

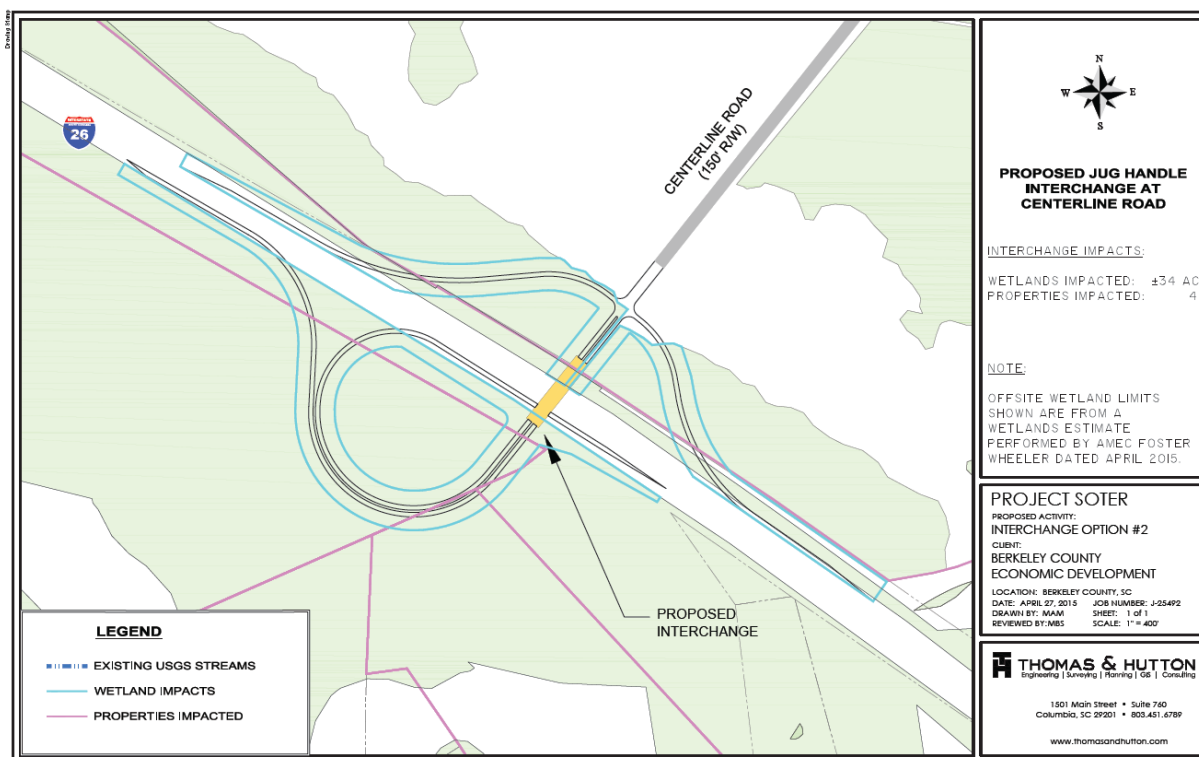


Figure 9. Interchange Option 2 would impact 34 acres of wetlands.

Interchange Option 3: Improvements at Existing Exit 187 at Highway 27

According to the supporting information provided by the applicant, construction of improvements at existing Exit 187 at Highway 27 would impact 54 acres of wetlands. Based on these factors, Option 3 had the most impact and was not included in the design configuration for the applicant's proposed project. It was not included in the design configuration for any Onsite Alternative. The Option 3 interchange layout is shown below in Figure 10.

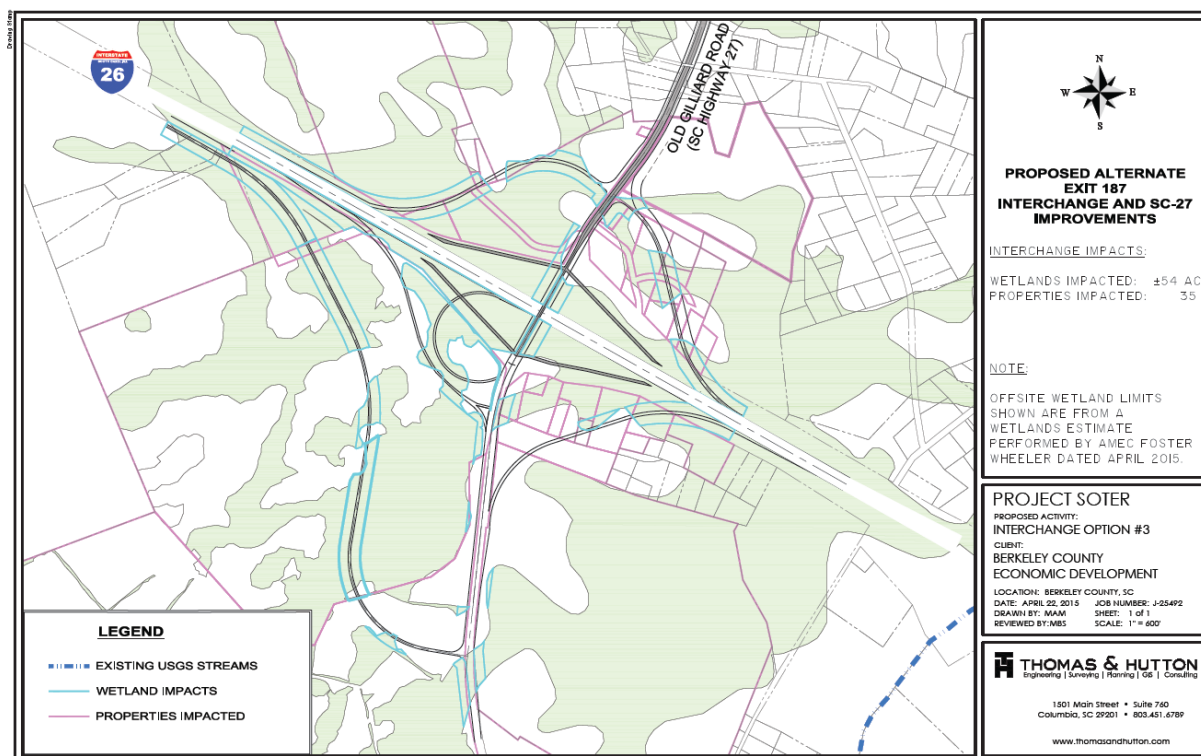


Figure 10. Interchange Option 3 would impact 54 acres of wetlands.

Interchange Option 4: New Exit 191 at Cypress Campground Road

According to the supporting information provided by the applicant, construction of a new Exit 191 at Cypress Campground Road would impact 17 acres of wetlands as well as 27 properties in the vicinity of the interchange. One of the properties that would be affected by this option would be the historic Cypress Methodist Campground, listed on the National Register of Historic Places (NRHP). Therefore, although interchange Option 4 had the least wetland impacts, it had other significant adverse environmental consequences in the form of its cultural resources impacts to the NRHP-listed Cypress Methodist Campground.

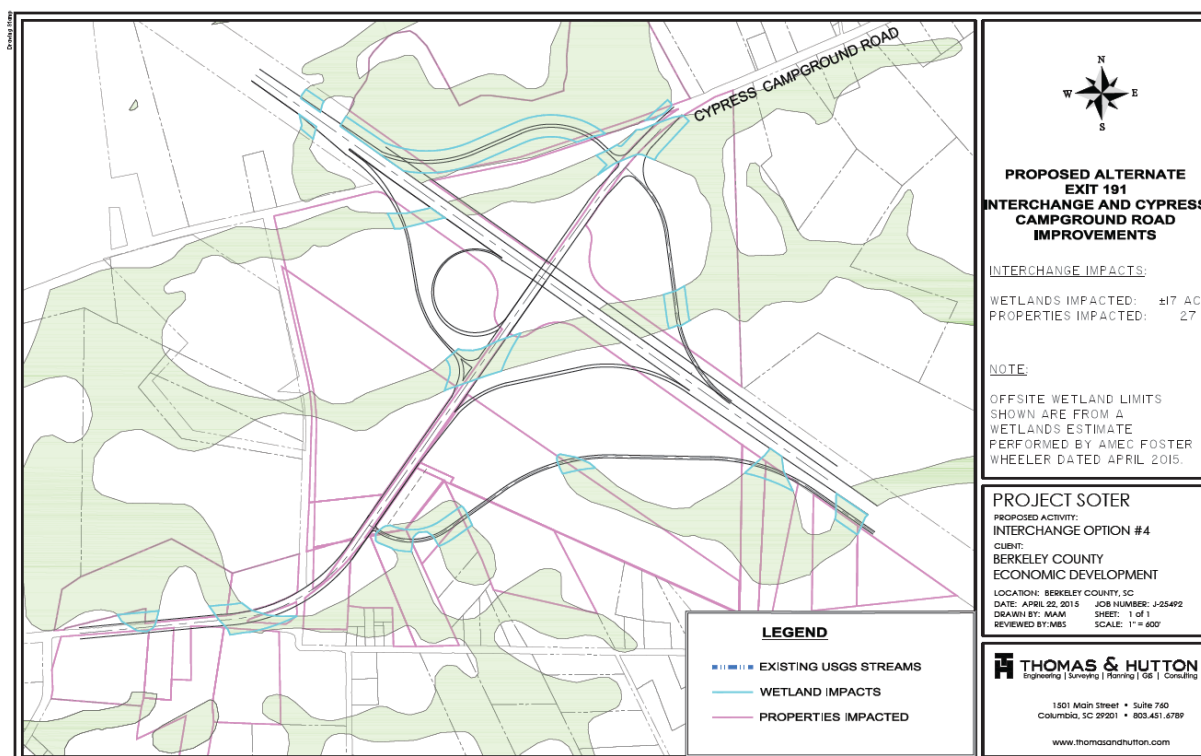


Figure 11. Interchange Option 4 would impact 17 acres of wetlands and affect 27 properties, including NRHP-listed Cypress Methodist Campground.

Onsite Alternative 1: According to the supporting information provided by the applicant, “Option 1 [Onsite Alternative 1] is the advanced manufacturer’s preferred option from a layout perspective. The visitor’s center/administrative offices and Phase 1 are located immediately adjacent to Interstate 26, and Phase 2 is located adjacent to Phase 1. A new interchange on Interstate 26 is included that routes traffic directly into the visitor’s center/administrative offices. Additional on-site road improvements include the proposed Lower Westvaco Road improvement to create a three-lane road, creating connectivity with S.C. Highway 27 to the west, and improving the existing Centerline Road to a five-lane road, creating connectivity with S.C. Highway 176 to the north. Storm water management facilities are located immediately adjacent to the facilities and are located outside of waters of the United States.”

“With the visitor’s center/administrative offices located immediately adjacent to Interstate 26, the site provides ideal accessibility for suppliers and visitors. Since Phase 2 is immediately adjacent to Phase 1, access from Phase 1 into Phase 2 is seamless. Visibility is also ideal for Option 1. Vehicular traffic along Interstate 26 will be able to see the visitor’s center, providing a constant reminder of the manufacturer’s presence in the Charleston area. With close proximity between the visitor’s center, Phase 1, and Phase 2, this site layout provides a very efficient layout. With the short distances between each facility, the manufacturer will be able to reduce travel time, carbon emissions, and costs to ensure its success in this location.”

“Although Option 1 provides a highly desirable site layout, the environmental impacts create some significant drawbacks. The proposed site layout as shown [in Figure 12] would impact approximately 458 acres of wetlands.”

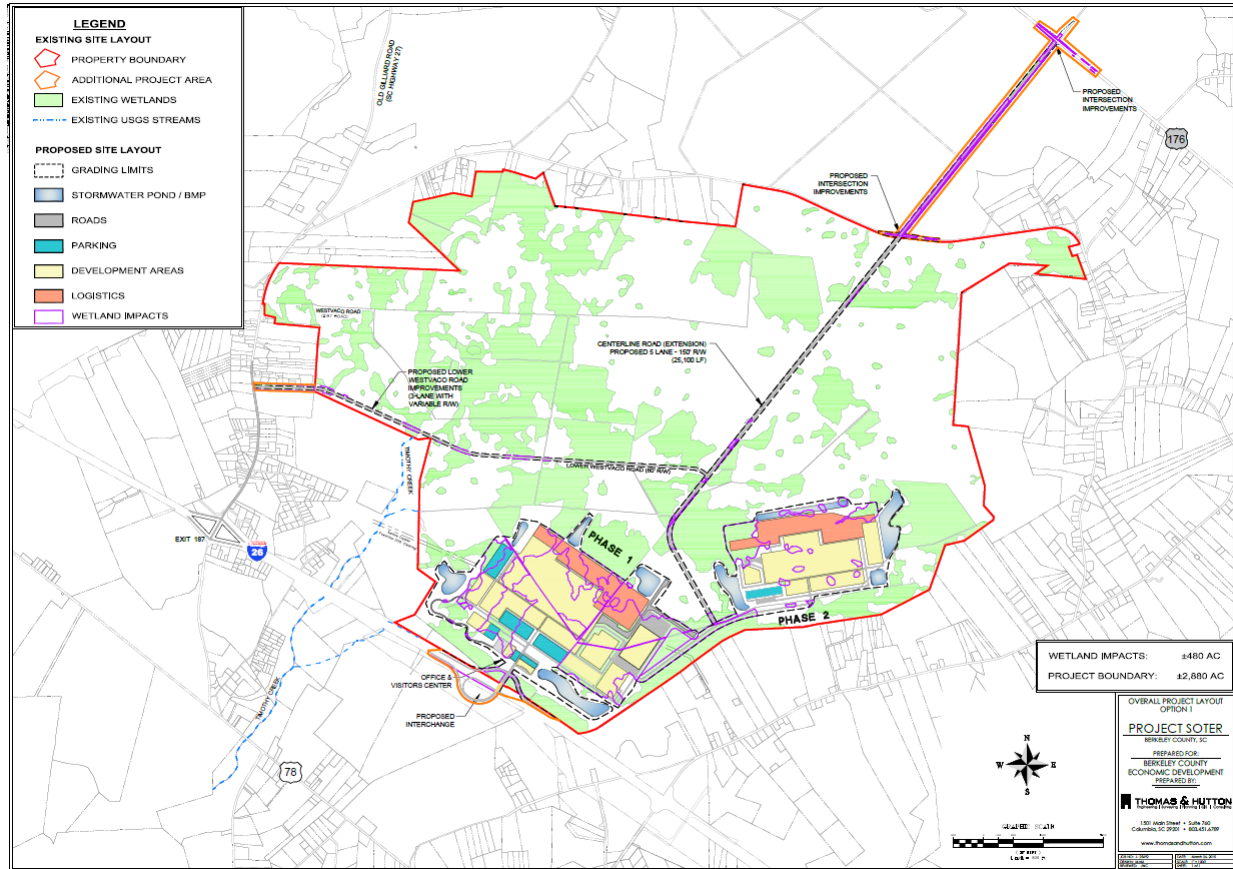


Figure 12. Onsite Alternative 1 would impact approximately 458 acres of wetlands.

It is worth noting that Onsite Alternative 1, as shown in Figure 12, is coupled with interchange Option 2 (rather than interchange Option 1, the new T-Type interchange); however, Onsite Alternative 1 would still have approximately 450 acres of wetland impacts (rather than 458 acres) even when coupled with interchange Option 1.

Onsite Alternative 2: According to the supporting information provided by the applicant, *“Option 2 [Onsite Alternative 2] is a blend of maximizing the site’s layout needs while minimizing the site’s environmental impacts. The visitor’s center/administrative offices are located immediately adjacent to Interstate 26, providing maximum visibility. Phase 1 is moved away from the interstate in a position which limits wetland impacts. Phase 2 is moved deeper into the property, at a greater [distance] from Phase 1 to further reduce wetland impacts. A new interchange on Interstate 26 would route traffic onto the proposed five-lane Centerline Road, where traffic could turn into the visitor’s center/administrative offices. Additionally, Lower Westvaco Road would be improved to three lanes to provide access from the west from S.C. Highway 27. Centerline Road would provide connectivity to S.C. Highway 176 to the north.*

Storm water management facilities are located immediately adjacent to the facilities and are located outside of waters of the United States.”

“While the site layout is not ideal for the proposed manufacturer, Option 2 provides an acceptable layout that would meet the needs of the project. The visitor’s center/administrative offices are located immediately adjacent to Interstate 26, providing maximum visibility and accessibility for visitors. Suppliers and trucks will have to drive slightly further to reach Phase 1 or Phase 2 for deliveries and shipping, but the accessibility is within reason. Vehicular traffic along Interstate 26 will be able to see the visitor’s center, providing a constant reminder of the manufacturer’s presence in the Charleston area. Although the proximity of the individual facilities is not as close as Option 1, the travel times between facilities are within the expectations of the manufacturer.”

“By relocating Phase 1 and Phase 2 of the proposed manufacturing facility, wetlands impacts are reduced when compared to Option 1. The proposed layout as shown [in Figure 13] would impact approximately 273 acres of wetlands.”

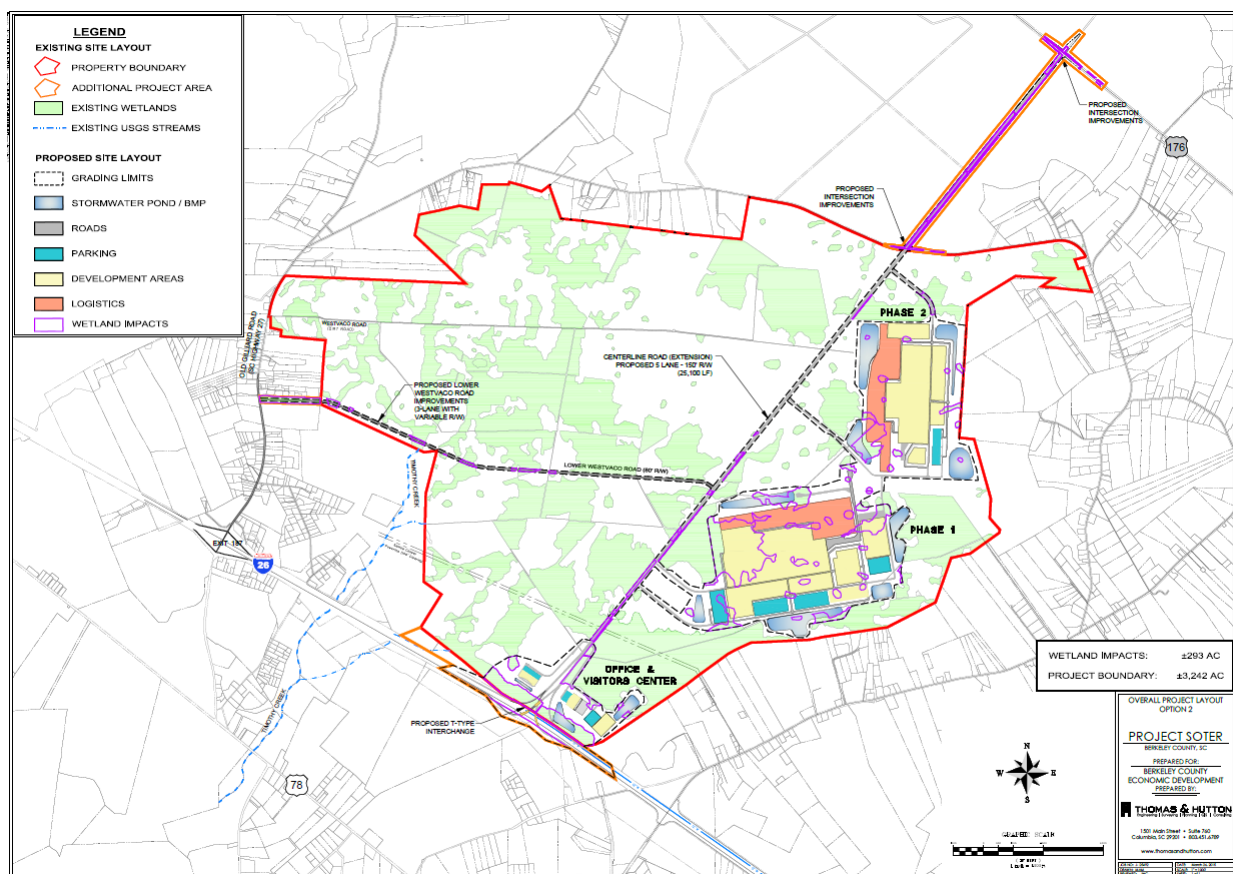


Figure 13. Onsite Alternative 2 would impact approximately 273 acres of wetlands.

Onsite Alternative 2A (Applicant’s Proposed Alternative): According to the supporting information provided by the applicant, “Option 2A [Onsite Alternative 2A] is a refinement of Option 2, designed to minimize wetland impacts of the selected on-site development concept to

the maximum extent practicable. When compared to Option 2, Option 2A includes an adjustment of the visitor's center/administrative offices to place it in an area with the fewest wetland impacts. The proposed access road to the north of Phase 2 has been removed to eliminate the associated wetland impacts. Additionally, the stormwater ponds associated with Phase 1 and Phase 2 were relocated so that the site layout minimizes wetland impacts."

"The Option 2A site layout provides equivalent accessibility, visibility, and efficiency to Option 2. The proposed Option 2A site layout as shown [in Figure 14] would impact approximately 217 acres of wetlands."

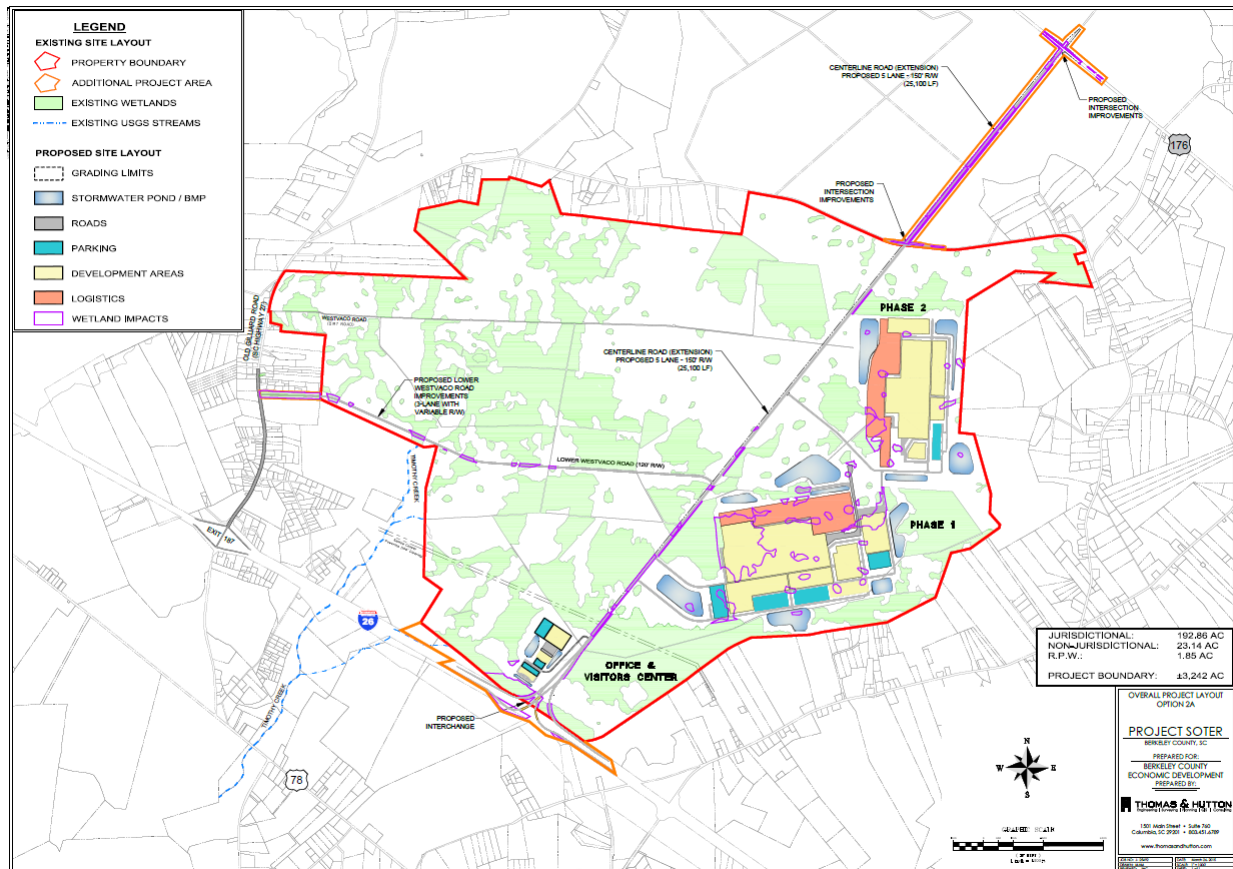


Figure 14. Onsite Alternative 2A (Applicant's Proposed Alternative) would impact approximately 214 acres of wetlands.

Onsite Alternative 3: According to the supporting information provided by the applicant, "Option 3 [Onsite Alternative 3] positions the proposed facility components on the site while minimizing wetland impacts to the greatest extent practicable. Primary access to the facility is via S.C. Highway 27 onto Westvaco Road, which would be improved to accommodate traffic flow. Option 3 includes an administrative office facility located along the Interstate 26 frontage, but without a new interchange. A 2.5 mile road would lead to the administrative offices facility from Westvaco Road. The proposed visitor's center would be separate from the administrative offices and located along the improved Westvaco Road. Phase 1 is located in a largest contiguous upland

area within the tract to minimize wetland impacts. Phase 2 is also located in an area with relatively few wetlands. Centerline Road would be improved to provide access to S.C. Highway 176 to the north. Stormwater management facilities are located immediately adjacent to the facilities and are located outside of waters of the United States.”

“Since the primary means of access to the site is via S.C. Highway 27, visitors would have to drive approximately 5.5 miles off of Interstate 26 to reach the administrative offices and approximately 3.3 miles to reach the visitor’s center. Supplier and truck access to Phase 1 would require a four mile drive off of Interstate 26 and access to Phase 2 would require a six mile drive. With the administrative offices located along the Interstate 26 frontage, the site layout retains some visibility, but the wetland area between the administrative offices facility and Interstate 26 would need to be cleared to have effective visibility to interstate traffic. Since the visitor’s center is located away from Interstate 26, the manufacturer would lose its visibility to this important landmark. With approximately nine miles of internal roads, the internal efficiency of the proposed manufacturing facility would suffer significantly. The distance between facilities would increase travel times, carbon emissions, and costs for the advanced manufacturer. Moreover, reliance and utilization of the local roads and highways creates issues of local land use, community disturbance and interference, and potential environmental justice issues. Based on the accessibility, visibility, and efficiency of this site layout, it would not be suitable to the advanced manufacturer.”

“By locating the facilities in the areas of the site with the fewest wetlands, environmental impacts are reduced when compared to Options 1 and 2. The Option 3 site layout as shown [in Figure 15] would impact approximately 109 acres of wetlands.”

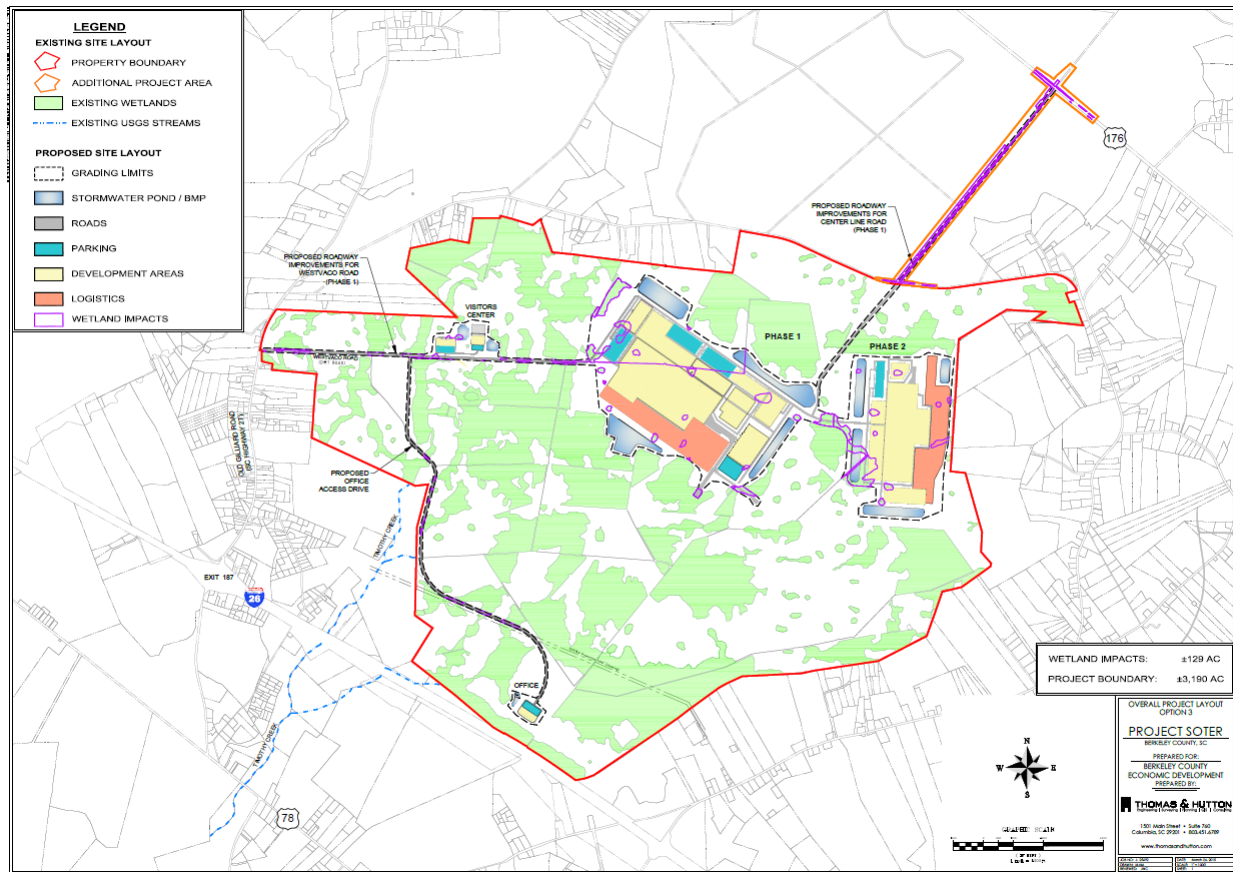


Figure 15. Onsite Alternative 3 would impact approximately 109 acres of wetlands.

A comparison of the four onsite configuration alternatives is presented in Table 5 below.

Table 5. Comparison of four onsite configuration alternatives.

	Waters of the U.S. (Acres)	I-26 Visibility	Flow Logistics
Onsite Alternative 1	458	Maximum	Maximum
Onsite Alternative 2	273	Maximum	Acceptable
Onsite Alternative 2A	214	Maximum	Acceptable
Onsite Alternative 3	109	Unacceptable	Unacceptable

4.7.7 Conclusion of Onsite Alternatives Analysis

Based on the results of the evaluation of four different onsite project layouts, the applicant selected Onsite Alternative 2A, which was proposed in the federal permit application as the Applicant's Proposed Alternative.

4.7.8 Alternatives not requiring a permit, including No Action

No Action Alternative: Under the No Action Alternative, either the project is constructed with

no impacts to waters of the U.S. and no permit is required or issued, or the requested permit is denied and no project is constructed. Berkeley County has submitted that it is not possible to entirely avoid wetland impacts and meet the overall project purpose at the proposed location. On this basis, the No Action Alternative can be considered equivalent to a permit denial, which would only meet the project purpose and need if another location were available which would have no impacts to waters of the U.S.

Under the No Action Alternative, impacts to the proposed project site are still possible and likely. The site might continue to exist as an active silviculture operation. While continued silviculture operations would not necessarily involve discharges of dredged or fill material, hydrological impacts to the extensive pine flatwoods wetlands would continue to occur because of the network of heavily straightened and channelized linear conveyances that drain the site.

Other scenarios that do involve discharges are also likely. In one scenario, the site might likely be proposed for residential development, similar to other properties in the outer fringe of the Charleston metro-area in western Berkeley and Dorchester Counties. Large-scale residential developments can often avoid and minimize impacts to waters of the U.S. to a high degree, but often are unable to completely avoid all impacts because of project constraints such as logical connection points to area roadways. In a second even likelier scenario, the Camp Hall Commerce Park might be pursued again as the chosen site for the previously proposed Camp Hall Industrial Campus. An application (SAC 2008-00860-2G) was received by the Charleston District on June 14, 2014, and a public notice was issued on December 23, 2014, for a permit to place fill material 7.648 acres of waters of the U.S. and 11.0 acres of additional non-jurisdictional wetlands. The proposed project included construction of access roads, building pads, stormwater management facilities, and utilities necessary for future development of the site by a *“large industrial employer.”*

- 4.7.9 **Least Environmentally Damaging Practicable Alternative (LEDPA):** It is the Corps’ determination that the applicant has adequately rebutted the presumption that practicable alternatives that do not involve impacts to special aquatic sites may exist, and further, has demonstrated that the Applicant’s Proposed Alternative Camp Hall Commerce Park is the least environmentally damaging practicable alternative (LEDPA) that meets the overall project purpose.

5. FURTHER EVALUATION OF THE 404(b)(1) GUIDELINES

For each of the below listed evaluation criteria, this section describes the potential impact, any minimization measures that would be used to reduce the level of impact, and the resultant impact level. This analysis addresses the impacts associated with placement of dredged or fill material into waters of the U.S., including special aquatic sites.

Potential effects on physical and chemical characteristics of the aquatic ecosystem (Subpart C)

Sec. 230.20 Substrate.

The substrate of the aquatic ecosystem underlies open waters of the United States and constitutes the surface of wetlands. It consists of organic and inorganic solid materials and includes water and other liquids or gases that fill the spaces between solid particles. The aquatic resources on the site forested wetlands and open water channels that were excavated within wetlands and historic streams and carry storm and surface water from the site's pine plantation to the Edisto and Ashley River systems.

The discharge of fill material in waters of the U.S. will result in the loss of 192.94 acres of waters of the U.S. at the disposal sites. The proposed work consists of placing fill material in waters of the U.S. to construct buildings and associated infrastructure for an advanced manufacturing and assembly facility in the automobile industry. The project site has been intensively managed for commercial silviculture for many decades, meaning that many of the pine flatwoods wetland acres have been tilled, planted and bedded for many years.

Based thereon, the proposed work will not have a significant effect on the substrate in the footprint of the proposed fill areas.

Sec. 230.21 Suspended particulates/turbidity.

Suspended particulates in the aquatic ecosystem normally consist of fine-grained mineral particles, usually smaller than silt, and organic particles. Suspended particulates may enter water bodies as a result of natural events such as runoff, flooding, vegetative and planktonic breakdown, and resuspension of bottom sediments. Human activities, such as the dredging and filling of waters of the U.S., may also cause turbidity in open waters. The level of impact and the degree of the turbidity will depend on factors to include the amount of agitation in the water, particulate specific gravity, particle shape, and physical and chemical properties of particle surfaces.

There will be no discharges of fill material into open waters, with exception of discharges into jurisdictional ditches and relatively permanent water tributaries. Most of the fill material will be placed in seasonally inundated or saturated wetland areas. None of these areas are considered to be open waters that could have an effect on suspended particulates/turbidity. To minimize impacts from suspended particulates/turbidity, the applicant has proposed the use of Best Management Practices during construction. Additionally, the applicant is required to comply with state storm water management regulations. The use of BMPs during construction as proposed by the applicant and required by the SCDHEC 401 Water Quality Certification will reduce or eliminate the chance of particulates entering the watershed.

A special condition will be included in the federal permit requiring the use of best management practices at the fill site during construction:

That the permittee agrees to utilize best management practices during construction and perform the work as proposed. The permittee must implement practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration

of sediments and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized.

The SCDHEC issued the 401 Water Quality Certification; they determined that water quality standards will not be contravened and designated uses will not be affected.

The proposed discharge will have no effect from suspended particulates/turbidity.

Sec. 230.22 Water.

Water is the part of the aquatic ecosystem in which organic and inorganic constituents are dissolved and suspended. It constitutes part of the liquid phase and is contained by the substrate. Water forms part of a dynamic aquatic life-supporting system. Water clarity, nutrients and chemical content, physical and biological content, dissolved gas levels, pH, and temperature contribute to its life-sustaining capabilities.

During construction, changes in the clarity, color, odor, and taste of water and the addition of contaminants can temporarily reduce or eliminate the suitability of water bodies for populations of aquatic organisms, and for human consumption, recreation, and aesthetics. The introduction of nutrients or organic material to the water column as a result of the discharge can lead to a high biochemical oxygen demand (BOD), which in turn can lead to reduced dissolved oxygen, thereby potentially affecting the survival of many aquatic organisms. Increases in nutrients can favor one group of organisms such as algae to the detriment of other more desirable types such as submerged aquatic vegetation, potentially causing adverse health effects, objectionable tastes and odors, and other problems.

The proposed project will result in the discharge of fill material in wetlands and man-made/heavily manipulated ditches and relatively permanent waters on the project site; however, the permittee is required to utilize only clean earthen fill material for the proposed work.

The applicant will use best management practices during construction. In addition, SCDHEC has issued a 401 Water Quality Certification for the project documenting that the proposed work will not contravene State water quality standards and designated uses will not be affected.

The proposed discharge will have no significant effect on water.

Sec. 230.23 Current patterns and water circulation.

Current patterns and water circulation are the physical movements of water in the aquatic ecosystem. Currents and circulation respond to natural forces as modified by basin shape and cover, physical and chemical characteristics of water strata and masses, and energy dissipating factors. The discharge of dredged or fill material can modify current patterns and water circulation by obstructing flow, changing the direction or velocity of water flow and circulation, or otherwise changing the dimensions of a water body.

Not applicable. The discharge of fill material to construct the buildings and associated

infrastructure for this project will result in a loss of waters of the U.S., but will not result in discharges into open water systems where current patterns and/or water circulation could be changed.

Sec. 230.24 Normal water fluctuations.

Normal water fluctuations in a natural aquatic system consist of daily, seasonal, and annual tidal and flood fluctuations in water level. Biological and physical components of such a system are either attuned to or characterized by these periodic water fluctuations.

The discharge of fill material to construct the buildings and associated infrastructure for this project will result in a loss of waters of the U.S., but will not result in discharges into open water systems where normal water fluctuations could be changed. No fill will be placed to impound water that could alter flood fluctuations in remaining waters of the U.S. Therefore, the proposed discharge will have no significant effect on normal water fluctuations.

Sec. 230.25 Salinity gradients.

Salinity gradients form where salt water from the ocean meets and mixes with fresh water from land. Since the proposed work is inland within non-saline waters of the U.S., the proposed project will have no effect on salinity gradients.

Potential effects on biological characteristics of the aquatic ecosystem (Subpart D)

Sec. 230.30 Threatened and endangered species.

The Guidelines specifically state that “where consultation with the Secretary of the Interior occurs under section 7 of the Endangered Species Act, the conclusions of the Secretary concerning the impact(s) of the discharge on threatened and endangered species and their habitat shall be considered final.” As discussed in Section 7 of this document, Corps consultation with the U.S. Fish and Wildlife Service concluded that the proposed project is not likely to adversely affect any federally-listed threatened or endangered species or their critical habitat. Therefore, the proposed discharge will have no significant effect on threatened and endangered species.

Sec. 230.31 Fish, crustaceans, mollusks, and other aquatic organisms in the food web.

Aquatic organisms in the food web include, but are not limited to, finfish, crustaceans, mollusks, insects, annelids, planktonic organisms, and the plants and animals on which they feed and depend upon for their needs. All forms and life stages of an organism, throughout its geographic range, are included in this category. The discharge of dredged or fill material can variously affect populations of fish, crustaceans, mollusks and other food web organisms through the release of contaminants which adversely affect adults, juveniles, larvae, or eggs, or result in the establishment or proliferation of an undesirable competitive species of plant or animal at the expense of the desired resident species. Suspended particulates settling on attached or buried eggs can smother the eggs by limiting or sealing off their exposure to oxygenated water. Discharge of dredged and fill material may result in the debilitation or death of sedentary

organisms by smothering, exposure to chemical contaminants in dissolved or suspended form, exposure to high levels of suspended particulates, reduction in food supply, or alteration of the substrate upon which they are dependent. Mollusks are particularly sensitive to the discharge of material during periods of reproduction and growth and development due primarily to their limited mobility. They can be rendered unfit for human consumption by tainting, by production and accumulation of toxins, or by ingestion and retention of pathogenic organisms, viruses, heavy metals or persistent synthetic organic chemicals. The discharge of dredged or fill material can redirect, delay, or stop the reproductive and feeding movements of some species of fish and crustacea, thus preventing their aggregation in accustomed places such as spawning or nursery grounds and potentially leading to reduced populations. Reduction of detrital feeding species or other representatives of lower trophic levels can impair the flow of energy from primary consumers to higher trophic levels. The reduction or potential elimination of food chain organism populations decreases the overall productivity and nutrient export capability of the ecosystem.

The proposed work will have a long-term negative effect on interstitial aquatic organisms in the footprint of the proposed fill, and any aquatic organisms that occupy these areas will be lost. While sedentary organisms will not be able to move from the impact area and will be lost, more mobile organisms may move to other wetland areas as fill activities commence.

The SCDHEC issued the 401 Water Quality Certification wherein they determined that water quality standards will not be contravened and designated uses will not be affected.

The proposed discharge will have no significant adverse effect on fish, crustaceans, mollusks, and other aquatic organisms in the food web at the project site or in adjacent waters.

Sec. 230.32 Other wildlife.

Wildlife associated with aquatic ecosystems includes resident and transient mammals, birds, reptiles, and amphibians. The discharge of fill material can result in the loss or change of breeding and nesting areas, escape cover, travel corridors, and preferred food sources for resident and transient wildlife species associated with the aquatic ecosystem. These adverse impacts upon wildlife habitat may result from changes in water levels, water flow and circulation, salinity, chemical content, and substrate characteristics and elevation. Increased water turbidity can adversely affect wildlife species which rely upon sight to feed, and disrupt the respiration and feeding of certain aquatic wildlife and food chain organisms. The availability of contaminants from the discharge of dredged or fill material may lead to the bioaccumulation of such contaminants in wildlife. Changes in such physical and chemical factors of the environment may favor the introduction of undesirable plant and animal species at the expense of resident species and communities. In some aquatic environments lowering plant and animal species diversity may disrupt the normal functions of the ecosystem and lead to reductions in overall biological productivity.

Since the fill for this project will eliminate 192.94 acres of waters of the U.S., individuals of wildlife species occupying these areas will be impacted through loss or displacement. While sedentary species will not be able to move from the impact area and will be lost, it is anticipated

that larger and more motile wildlife may move to other aquatic and high land areas as fill activities commence. In proportion to the overall wetland acreage within the project area, these fill impacts are considered to be minor long term impacts based on the relatively smaller amount of area to be lost.

There will be no significant effect on other wildlife.

Potential Effects on Special Aquatic Sites (Subpart E)

Sec. 230.40 Sanctuaries and refuges.

Sanctuaries and refuges consist of areas designated under State and Federal laws or local ordinances to be managed principally for the preservation and use of fish and wildlife resources.

Not applicable. There are no sanctuaries or refuges on or adjacent to the project site.

Sec. 230.41 Wetlands.

Wetlands consist of areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The discharge of fill material in wetlands for this project will result in the loss of 192.94 acres of wetlands and will adversely affect the biological productivity of the underlying wetland ecosystem. However, the project site has been intensively managed for commercial silviculture for many decades, meaning that many of the pine flatwoods wetland acres have been tilled, planted and bedded for many years. Potential impacts of the fill may result in smothering or altering the substrate elevation or periodicity of water movement. The addition of fill material will destroy wetland vegetation or result in advancement of succession to dry land species, specifically on road shoulders and other areas where no buildings or impervious surfaces will be constructed. Secondary impacts include the potential to reduce or eliminate nutrient exchange by a reduction of the system's productivity, or by altering current patterns and velocities where the surface water in wetlands is funneled through culverts or pipes.

The proposed discharge will not have a significant effect on wetlands at the disposal site.

Sec. 230.42 Mud flats.

Mud flats are broad flat areas along the sea coast and in coastal rivers to the head of tidal influence and in inland lakes, ponds and riverine systems. When mud flats are inundated, wind and wave action may re-suspend bottom sediments. Coastal mud flats are exposed at extremely low tides and inundated at high tides with the water table at or near the surface of the substrate. The substrate of mud flats contains organic material and particles smaller in size than sand. They are either un-vegetated or vegetated only by algal mats.

Not applicable. There are no mud flats on the project site.

Sec. 230.43 Vegetated shallows.

Vegetated shallows are permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as freshwater species in rivers and lakes in South Carolina. The discharge of dredged or fill material can smother vegetation and benthic organisms. It may also create unsuitable conditions for their continued vigor by: changing water circulation patterns; releasing nutrients that increase undesirable algal populations; releasing chemicals that adversely affect plants and animals; increasing turbidity levels, thereby reducing light penetration and hence photosynthesis; and changing the capacity of a vegetated shallow to stabilize bottom materials and decrease channel shoaling. The discharge of dredged or fill material may reduce the value of vegetated shallows as nesting, spawning, nursery, cover, and forage areas, as well as their value in protecting shorelines from erosion and wave actions. It may also encourage the growth of nuisance vegetation.

Not applicable. There are no vegetated shallows on the project site.

Sec. 230.44 Coral reefs.

Coral reefs consist of the skeletal deposits, usually of calcareous or siliceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.

Not Applicable. There are no coral reefs in the project area.

Sec. 230.45 Riffle and pool complexes.

Steep gradient sections of streams are sometimes characterized by riffle and pool complexes. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a steaming flow, a smooth surface, and a finer substrate. Riffle and pool complexes are particularly valuable habitat for fish and wildlife.

Not applicable. There are no riffle and pool complexes within the project area.

Potential effects on human use characteristics (Subpart F)

Sec. 230.50 Municipal and private water supplies.

Municipal and private water supplies consist of surface water or ground water which is directed to the intake of a municipal or private water supply system. Discharges can affect the quality of water supplies with respect to color, taste, odor, chemical content and suspended particulate concentration, in such a way as to reduce the fitness of the water for consumption. Water can be rendered unpalatable or unhealthy by the addition of suspended particulates, viruses and pathogenic organisms, and dissolved materials. The expense of removing such substances before the water is delivered for consumption can be high. Discharges may also affect the quantity of

water available for municipal and private water supplies. In addition, certain commonly used water treatment chemicals have the potential for combining with some suspended or dissolved substances from dredged or fill material to form other products that can have a toxic effect on consumers.

This project is located on a topographic divide such that most of the site drains to the Four Hole Swamp Watershed of the Edisto River Basin, and the remaining smaller portion of the site drains to the Cypress Swamp Watershed, which is part of the Santee and Cooper Rivers Basin. Stormwater on the site will be required to pass through stormwater detention ponds designed to meet the requirements of Section 402 of the Clean Water Act for treatment before it is released and allowed to flow off the site. The proposed project has been issued a Water Quality Certification pursuant to Section 401 of the Clean Water Act and will be required to use only clean fill to accomplish work that is the subject to Section 404 of the Clean Water Act. On this basis, there will be no effect on municipal and private water supplies.

Sec. 230.51 Recreational and commercial fisheries.

Recreational and commercial fisheries consist of harvestable fish, crustaceans, shellfish, and other aquatic organisms used by man. The discharge of dredged or fill material can affect the suitability of recreational and commercial fishing grounds as habitat for populations of consumable aquatic organisms. Discharges can result in the chemical contamination of recreational or commercial fisheries. They may also interfere with the reproductive success of recreational and commercially important aquatic species through disruption of migration and spawning areas. The introduction of pollutants at critical times in their life cycle may directly reduce populations of commercially important aquatic organisms or indirectly reduce them by reducing organisms upon which they depend for food. Any of these impacts can be of short duration or prolonged, depending upon the physical and chemical impacts of the discharge and the biological availability of contaminants to aquatic organisms.

This project will result in the loss of 192.94 acres of freshwater wetlands and linear conveyances that drain the site. There are no open waters or deep water habitats to be affected on the site. The SCDHEC has issued a Water Quality Certification pursuant to Section 401 of the Clean Water Act, wherein they determined that water quality standards will not be contravened and designated uses will not be affected. Stormwater on the site will be required to pass through stormwater detention ponds designed to meet the requirements of Section 402 of the Clean Water Act for treatment before it is released and allowed to flow off the site. On this basis, there will be no effect on recreational and commercial fisheries.

Sec. 230.52 Water-related recreation.

Water-related recreation encompasses activities undertaken for amusement and relaxation. Activities encompass two broad categories of use: consumptive, e.g., harvesting resources by hunting and fishing; and non-consumptive, e.g. canoeing and sight-seeing. One of the more important direct impacts of dredged or fill disposal is to impair or destroy the resources which support recreation activities. The disposal of dredged or fill material may adversely modify or destroy water use for recreation by changing turbidity, suspended particulates, temperature,

dissolved oxygen, dissolved materials, toxic materials, pathogenic organisms, quality of habitat, and the aesthetic qualities of sight, taste, odor, and color.

The discharges of fill material into wetlands are in areas that have been used intensively for commercial silviculture on privately-owned land for decades. No open waters or deep water habitats are present. Therefore, the proposed discharge will have no effect on water-related recreation.

Sec. 230.53 Aesthetics.

Aesthetics associated with the aquatic ecosystem consist of the perception of beauty by one or a combination of the senses of sight, hearing, touch, and smell. Aesthetics of aquatic ecosystems apply to the quality of life enjoyed by the general public and property owners. The discharge of dredged or fill material can mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal sites, inducing inappropriate development, encouraging unplanned and incompatible human access, and by destroying vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area. The discharge of dredged or fill material can adversely affect the particular features, traits, or characteristics of an aquatic area which make it valuable to property owners. Activities which degrade water quality, disrupt natural substrate and vegetative characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels may reduce the value of an aquatic area to private property owners.

The proposed fill activities necessary to construct the advanced manufacturing and assembly facility will affect the aesthetics of the area during construction. It is noted that large areas of privately-owned pine plantation are maintained for the purpose of logging, and are clear cut on a rotational basis similar to the site preparation activities proposed as part of this project. The disposal sites will change in aesthetic appearance from wooded landscape to buildings and associated infrastructure. The proposed discharge will have a significant effect on aesthetics.

Sec. 230.54 Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

These preserves consist of areas designated under Federal and State laws or local ordinances to be managed for their aesthetic, educational, historical, recreational, or scientific value. The discharge of dredged or fill material into such areas may modify the aesthetic, educational, historical, recreational and/or scientific qualities thereby reducing or eliminating the uses for which such sites are set aside and managed.

The proposed project is located on privately-owned lands and will not encroach onto lands of the any park; therefore there will be no impact to these resources.

This project will not involve encroachment into or location adjacent to national monuments, national seashores, wilderness areas, research sites, and similar preserves; therefore, the proposed discharge will have no effect on Parks, national monuments, national seashores, wilderness areas, research sites, and similar areas.

Evaluation and testing (Subpart G)

Sec. 230.60 and 230.61 General evaluation of dredged or fill material and Chemical, biological and physical evaluation and testing.

All fill material that will be used on the project site will be clean material from upland sources. Therefore, no chemical, biological, or physical testing was required.

Actions to minimize adverse effects (Subpart H)

Actions regarding the location of the discharge, the material to be discharged, controlling the material after discharge, the method of dispersion, those related to technology, plant and animal populations, spawning or migration seasons and other biologically critical time periods were considered. In evaluating this application, the direct fill in waters of the U.S. has been minimized to the maximum extent practicable and the following special conditions have been inserted in the federal permit to minimize the secondary impacts of the discharges:

That the permittee agrees to utilize best management practices during construction and perform the work as proposed. The permittee must implement practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized.

All necessary steps must be taken to prevent oil, tar, trash, debris, and other pollutants from entering the adjacent waters or wetlands.

Land disturbing activities must avoid encroachment into any wetland areas outside the permitted impact area.

Upon completion of construction activities, all disturbed areas, which are not paved, must be permanently stabilized with a vegetative cover. This may include sprigging trees, shrubs, vines or ground cover.

Factual Determinations (Subpart B, section 230.11) A review of appropriate information indicates there is minimal potential for significant short or long-term environmental effects of the proposed discharge as related to:

Sec. 230.11 Factual Determinations

The permitting authority shall determine in writing the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment in light of subparts C through F. Such factual determinations shall be used in Sec. 230.12 in making findings of compliance or non-compliance with the restrictions on discharge in Sec. 230.10. The evaluation and testing procedures

described in Sec. 230.60 and Sec. 230.61 of subpart G shall be used as necessary to make, and shall be described in, such determination. The determinations of effects of each proposed discharge shall include the following:

Physical substrate. (40 CFR 230.11(a)) As a result of fill-related earthwork and other construction activities, the proposed project will result in localized alterations of topography, geology, and soils on the project site. Additionally, as construction materials are added to and removed from the project site, soils will be replaced, redistributed, and/or compacted. The addition or removal of material will also raise or lower the elevations of specific areas on the project site. All earthmoving activities will employ best management practices as the substrate is and graded, lessening the potential for erosion of material from the project site.

The placement of dredged and/or fill material on the project site will result in a loss of 192.94 acres of wetlands and other waters of the U.S. The project is expected to have a major long-term adverse impact on the physical substrate underlying the fill areas.

Water circulation, fluctuation, and salinity. (40 CFR 230.11(b)) The discharge of dredged or fill material can modify current patterns and water circulation by obstructing flow, changing the direction or velocity of water flow and circulation, or otherwise changing the dimensions of a water body. The discharge of fill material to construct the advanced manufacturing and assembly facility will result in the loss of 192.94 acres of wetlands on the project site. Facilities to be constructed will include buildings, parking areas, and impervious surfaces that will alter surface drainage pathways for stormwater and wetland hydrology. Based thereon, there is minimal potential for short-term or long-term adverse effects on water circulation, fluctuation, or salinity. There will be no discharges of fill material into wetlands and open waters; therefore the proposed discharge will not have a significant adverse effect on current patterns and water circulation.

Suspended particulate/turbidity. (40 CFR 230.11(c)) Suspended particulates in the aquatic ecosystem normally consist of fine-grained mineral particles, usually smaller than silt, and organic particles. Suspended particulates may enter water bodies as a result of natural events such as runoff, flooding, vegetative and planktonic breakdown, and resuspension of bottom sediments. Human activities, such as the dredging and filling of waters of the U.S., may also cause turbidity in said waters. The level of impact and the degree of the turbidity will depend on factors to include the amount of agitation in the water, particulate specific gravity, particle shape, and physical and chemical properties of particle surfaces.

Approximately 622,960 cubic yards of fill material will be placed within 192.94 acres of wetlands and other waters of the U.S. to construct the advanced manufacturing and assembly facility. The proposed work may cause a temporary increase in turbidity levels within wetlands directly affected by the fill placement, but overall the proposed work will result in decreased suspended particulates and turbidity as storm flow and drainage from the site are routed to water quality treatment systems prior to discharge off the site. To minimize impacts from suspended particulates/turbidity during construction, the applicant has proposed the use of Best Management Practices and will be required to employ the same as permit special conditions. Additionally, the applicant is required to comply with state storm water management regulations. The use of BMPs during construction as proposed by the applicant and required by the SCDHEC 401 Water Quality Certification will reduce or eliminate the chance of

particulates entering the watershed. The State issued a Section 401 Water Quality Certification, documenting that the proposed project will not contravene state water quality standards.

Based thereon, there is minimal potential for short term or long term adverse effects on suspended particulates/turbidity.

Contaminant availability. (40 CFR 230.11(d)) See Section 5.0 above for Evaluation and testing (Subpart G), Chemical, Biological, and Physical Evaluation and Testing.

Based thereon, there is minimal potential for long term adverse effects from contaminants.

Aquatic ecosystem effects. (40 CFR 230.11(e)) Since the project will result in the loss of wetlands, organisms occupying these areas will be eliminated and/or displaced. While sedentary organisms will not be able to move away from the impact area and will be lost, more mobile organisms may move to other aquatic areas once the excavation and fill activities commence. Although the construction of the project site will result in the loss of a relatively large acreage (192.94 acres) of aquatic resources, the available habitat is considered common and abundant within the region and the loss of these aquatic resources will be more than offset by the proposed compensatory mitigation plan that is a part of this project. The work will have no effect on federally-listed threatened or endangered species or their critical habitat. Review and discussion of potential effects on the aquatic ecosystem are located in the Public Interest Review Section below and in the 404(b)(1) Guidelines Section above. Therefore, the Corps has determined that impacts on the aquatic ecosystem and organisms supported by the aquatic ecosystem will result in long-term major effects in the specific fill areas, but not any particular aquatic species.

Proposed disposal site. (40 CFR 230.11(f))(1) A close evaluation of 40 CFR 230.11(f)(1) states that each disposal site shall be specified through the application of the Guidelines defined within this section. These guidelines relate specifically to disposal sites in open waters and the factors to consider when determining the acceptability of a proposed mixing zone. Since the proposed discharge is located in wetlands and not open waters, this section is not applicable.

Cumulative effects. (40 CFR 230.11(g)) A full discussion of cumulative effects on the aquatic ecosystem can be found in Section 7.5. Based thereon, the Corps has concluded that there is minimal potential for short or long term adverse cumulative effects.

Secondary effects. (40 CFR 230.11(h)) A full discussion of secondary effects on the aquatic ecosystem can be found in Section 7.5. Based thereon, the Corps has concluded that there is minimal potential for short or long term adverse secondary effects.

Restrictions on Discharges (Subpart B, section 230.10)

(1) Alternatives (230.10 (a)):

There is no practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem and the alternative does not have other significant adverse environmental consequences. (See paragraph 4 for supporting information on this

determination)

☒ **True** ☐ **False**

(2) Other program requirements (230.10(b)):

(a) The proposed activity violates applicable State water quality standards or Section 307 prohibitions or effluent standards. (See paragraph 7 for supporting information on this determination)

☒ **No** ☐ **Yes**

(b) The proposed activity jeopardizes the continued existence of federally listed threatened or endangered species or affects their critical habitat. (See Section 230.30 above and paragraph 7 for supporting information on this determination)

☒ **No** ☐ **Yes**

(c) The proposed activity violates the requirements of a federally designated marine sanctuary. (See paragraph 7 for supporting information on this determination)

☒ **No** ☐ **Yes**

(3) Significant Degradation (230.10(c)):

The activity will not cause or contribute to significant degradation of waters of the United States. This finding is based on appropriate factual determinations, evaluations, and tests required by Subparts B and G, after consideration of Subparts C through F, with special emphasis on the persistence and permanence of the effects as discussed above.

☒ **True** ☐ **False**

(4) Minimization of adverse effects (230.10(d)):

(a) Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

☒ **True** ☐ **False**

6.0. Public Interest Review

All public interest factors have been reviewed as discussed below. Both cumulative and secondary impacts on the public interest were considered.

1. Conservation. (33 CFR 320.4(a),(m),(n)) Conservation is the efficient use of resources by actions that involve the significant use of the resource or that significantly affect the availability of the resource for alternative uses.

The proposed project will have a beneficial long term effect on conservation. As described in Section 8.0 of this document, the applicant has proposed a landscape-scale compensatory mitigation plan that will protect 2,496 acres of high quality habitat, including 1,533 acres of aquatic habitats. The proposed

compensatory mitigation plan is proposed in a watershed that includes the Francis Beidler Forest, designated as a RAMSAR site. The **Ramsar Convention** (formally, the **Convention on Wetlands of International Importance, especially as Waterfowl Habitat**) is an international treaty for the conservation and sustainable utilization of wetlands, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value. The compensatory mitigation plan as proposed will more than offset unavoidable adverse impacts associated with the construction project. Unlike many compensatory mitigation plans that restore, enhance, and/or preserve aquatic resources, the proposed landscape scale compensatory mitigation plan will also transfer easements and ownership of the restored, enhanced and preserved properties to South Carolina Department of Natural Resources, Low Country Open Land Trust, Lord Berkeley Conservation Trust, and Audubon Society for long term management, protection, and substantial public use and benefit.

2. Economics. (33 CFR 320.4 (q)) The proposed project will have a beneficial long term effect on economics. The construction of the advanced manufacturing and assembly facility is projected to involve over \$1 billion in private investment and generate a total of 4,000 new jobs directly associated with the project when both Phase 1 and Phase 2 are completed. It is expected that in addition to the direct jobs created at the proposed project, the project will attract a chain of suppliers and vendors to serve the project, each adding new jobs and income to the local and state economy. Consistent with other large industry operators in South Carolina, the manufacturer is anticipated to encourage and support its employees to volunteer for various community activities, and contribute to charities that help the local and state economy.

3. Aesthetics. (33 CFR 320.4(e), 40 CFR 230.53) Aesthetics issues are highly subjective and difficult to evaluate. The subject of aesthetics is generally one involving personal and subjective evaluations of the acceptability of visual scenes. The subject is often approached in terms of “viewsheds”—the scene of the proposed facility location as viewed from various locations. The public commonly describes such scenes in qualitative terms such as “beautiful,” “ugly,” “pastoral,” and “striking,” which do not lend themselves to quantitative evaluation and for which there are commonly no regulatory standards. Therefore, the treatment of this topic in this document will not attempt to make any value judgments regarding aesthetic qualities. Rather, the discussion will be to provide a description of the existing surroundings and the potential changes that may occur as a result of the proposed project.

The proposed project will have a neutral long term effect on aesthetics. While the project layout and design concept are consistent with other similar-scale industrial manufacturing and assembly operations in South Carolina and specifically along the proposed section of Interstate 26, it may be reasonable to conclude that some residents in the area, including adjacent property owners (see Section 3.4.3 of this document), would prefer the area to remain undeveloped. The existing condition of the project site is undeveloped commercial pine plantation, and has been for many decades. On this basis, local and area residents may consider the property to represent a buffer between themselves and interstate traffic or other industrial development in the area.

4. General environmental concerns. (33 CFR 320.4(a)(1) and 33 CFR 320.4(p)) The proposed project will have negligible long term effect on general environmental concerns. The environmental concerns for this project focus on the potential impacts of the proposed project on wetlands, cultural resources, and fish and wildlife values. Each of these concerns is further discussed elsewhere in this document. No other adverse environmental impacts are anticipated.

The net adverse effect of this project on the environmental factors, which are evaluated herein, would be negligible.

5. Wetlands. (33 CFR 320.4(b)) The proposed project will have a major long term adverse effect on the wetlands underlying the fill areas. However, the project site has been intensively managed for commercial silviculture for many decades, meaning that many of the pine flatwoods wetland acres have been tilled, planted and bedded for many years. Arguably most important in the context of wetland function and value, the conversion of native flatwoods wetlands to the monoculture loblolly pine plantation reduces the vegetative diversity of the habitat, and therefore the diversity of wildlife species that inhabit these areas. Even so, commercial pine plantation wetlands still retain much of their array of wetland functions, particularly seasonal water storage capacity, flood flow alteration and reduction, and maintenance of annual stream flows. While these aquatic resources will be lost when the project site is cleared and developed, the proposed landscape-scale compensatory mitigation plan is expected to more than offset the permitted losses of wetlands and other waters of the U.S.

6. Historic and cultural resources. (33 CFR 320.4(e)) The proposed project will have no effect on historic and cultural resources. Cultural resources surveys were performed by qualified cultural resources professionals and the results of these surveys were coordinated with the SHPO, who concurred with the Corps' determination that the proposed project would have no effect on historic properties.

The Corps is including the following special condition in the permit to ensure that proper coordination occurs if any previously unknown historic or archaeological remains are discovered during the development of the project site:

That the permittee agrees to stop work and to notify this office immediately if any previously unknown historic or archaeological remains are discovered while accomplishing the activity authorized by this permit. The Corps will initiate the Federal, State, and/or Tribal coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

7. Fish and wildlife values. (33 CFR 320.4(c)) The project site is currently undeveloped pine plantation and provides habitat commensurate with that land use for a variety of wildlife species. The construction of this project will have a long term adverse effect on wildlife that use the habitat. However, the proposed landscape-scale compensatory mitigation plan will result in the long term protection of 2,496 acres of upland and aquatic habitats within the Four Hole Swamp Watershed of the Edisto River Basin. The plan includes ecological restoration and wetland enhancement and preservation of 1,533 acres of aquatic resources, including transfer of these lands to qualified and suitable land conservation and stewardship entities as described in Section 8.0 of this document.

8. Flood hazards. The project design has not yet been completed to include the hydraulic analysis that will ensure that the project will not contribute to or increase the risk of flood hazards in the area, and in particular on properties adjacent to the site. However, the Corps requested that the applicant provide documentation and assurance that the project's final design

would meet these requirements. The applicant responded to this request by providing assurance that *“Road crossings of wetlands and streams will be designed to provide flow conveyance in accordance with applicable design storm events and hydrological parameters set forth in state and local regulation.”* The applicant’s full response to this issue is provided above in Section 3.4.8. Similar to other development projects, the advanced manufacturing and assembly facility will be required to obtain a stormwater discharge permit from SCDHEC and to document that the proposed stormwater management plan complies with the appropriate Federal and State regulations. In addition, in order to insure that there are minimal impacts to flooding, the following special condition has been included in the federal permit:

That the permittee agrees that the drainage/conveyance system shall be designed by a licensed Professional Engineer (PE) and constructed by the permittee (or his designated assignee) to provide for the proper drainage of surface water of the drainage area of which it is a part, to permit the flow of natural or manmade watercourses, and to maintain positive drainage for adjacent properties. In addition, the drainage/conveyance system shall be sufficient to prevent any appreciable increase in water surface elevations or expansion/increases of the flood hazard area.

9. Floodplain values. (33CFR320.4(l)) The proposed project will have a negligible long term effect on floodplain values. As described above, the project site is not located within a floodplain or a floodway. Stormwater management features, such as grassy swales and detention ponds will be used to manage increases in stormwater that result from a development of the project site, and will help prevent increases in downstream flows into existing floodplains.

10. Land use. (33 CFR 320.4(a)(1) and 33 CR 320.4(j)) The proposed project will have a negligible long term effect on land use. The primary responsibility for determining zoning and land use matters rests with state, local and tribal governments. The district engineer will normally accept decisions by such governments on those matters unless there are significant issues of overriding national importance. The property is currently zoned by Berkeley County as “PD-OP/IP” which is office or industrial park. As defined, PD-OP/IP is for office, light and heavy industrial uses, and necessary accessory uses and facilities, designed with a park-like atmosphere to complement surrounding land uses by means of appropriate siting of buildings and service areas, attractive architecture, and effective landscape buffering. The proposed project development is consistent with this zoning and its requirements. On this basis, the proposed project will have a negligible long term effect on land use.

11. Navigation. (33CFR320.4(o))

The proposed project will have no effect on navigation. The proposed project is primarily located in uplands. Although the proposed project will result in the loss of 192.94 acres of wetlands and other waters of the U.S., these aquatic resources are not considered waters that are suitable for navigation.

12. Shore erosion and accretion. (33 CFR 320.4(a)(1) and 33 CFR 320.4(g)) The proposed project will have a neutral long term effect on shore erosion and accretion. The proposed project is primarily located in uplands. Although the development of the proposed project site will result in an increase in the total acreage of impervious surfaces on the project site and within the

watershed, the stormwater management plan for the project site will ensure that any additional stormwater does not cause shore erosion or accretion within downstream waters.

13. Recreation. (33 CFR 320.4(a)(1) and 33 CFR 320.4(e))

The proposed project will have a neutral effect on recreation. The development of the advanced manufacturing and assembly facility will not create, destroy, or restrict access to any parks or recreational facilities on or near the project site. However, the landscape-scale compensatory mitigation plan will result in the transfer of the largest of the proposed mitigation tracts to the SCDNR for long term management and stewardship. A longstanding component of the SCDNR land management philosophy and policy continues to be public access for outdoor recreation activities such as hiking, birding, wildlife viewing, etc.

14. Water supply and conservation. (33CFR320.4(m)) The proposed project will have a negligible long term effect on water supply and conservation. The construction of the proposed project will use limited amounts of water for activities such as dust abatement during clearing and grading operations and as part of the mixture of concrete/aggregates for development of the project site. The Corps is unaware of any required water withdrawal permits that would be necessary for the success of the proposed project, and the project's operation is not expected to use substantial volumes of water above and beyond the water volumes that are typically required for employees at other commercial facilities. On this basis, the proposed project will have a negligible long term effect on water supply and conservation.

15. Water quality. (33 CFR 320.4(d)) The proposed project will have a negligible long term effect on water quality. Construction activities will have temporary negative impacts on water quality when the project site is being cleared, graded, and prepared for development. However, potential impacts will be minimized through the use of best management practices specified as conditions by SCDHEC in its Water Quality Certification issued to address water quality specific to this project. These conditions have been incorporated into the Department of the Army permit by reference. In addition, storm flow and drainage from the site will be routed to water quality treatment systems prior to discharge off the site as required by permits to be issued pursuant to Section 402 of the Clean Water Act.

16. Energy needs. (33 CFR 320.4(n)) Not applicable. The project does not involve energy conservation and development.

17. Safety. (33 CFR 320.4 (n)) The proposed project will have a negligible long term effect on safety. The construction and operation of the advanced manufacturing and assembly facility will be required to comply with the appropriate OSHA guidelines regarding employee safety.

18. Food and fiber production. Not applicable. The proposed project does not involve food or fiber production.

19. Mineral needs. Not applicable. The proposed project does not involve mineral needs.

20. Considerations of property ownership. (33 CFR 320.4(g))

The proposed project will have a negligible long term effect on property ownership.

Improvements identified as necessary to Interstate 26 for the construction of a new T-Type interchange at Mile 190 would affect five properties associated with the acquisition of additional right-of-way to accommodate the interchange. Based on a review of the proposed T-Type interchange layout, the affected properties would not be wholly taken to facilitate the interchange, but rather would be partially acquired. Improvements associated with the new interchange at Mile 190 would not be undertaken until after Phase 1 of the project is underway. All work associated with developing new interchange improvements to the interstate will require the review and approval of the Federal Highway Administration (FHWA), and in particular will require the development of an Interchange Justification Report (IJR) before design and construction could proceed. The IJR process will consider issues of property ownership.

21. Needs and welfare of the people.

The proposed project will have a beneficial long term effect on the needs and welfare of the people. The proposed project will provide approximately 4,000 new jobs as full-time employees at the advanced manufacturing and assembly facility, and will likely attract a chain of supplier and vendor businesses to the area that will represent additional jobs and economy to the local area and the state. Therefore, as long as the permittee complies with environmental commitments and permit conditions issued to ensure the short and long term protection of the environment, the project will have a beneficial long term effect on the needs and welfare of the people.

7. Effects, Policies and Other Laws

7.1 Public Interest Factors: See section 6.

7.2 Endangered Species Act

The proposed project is not likely to have any adverse effect on any threatened or endangered species or any designated or proposed critical habitat.

Pursuant to Section 7(c) of the Endangered Species Act of 1973 (as amended), the applicant provided a protected species survey for the property associated with the activity described above. Based upon this report, the District Engineer has determined that the project is not likely to adversely affect any federally endangered, threatened, or proposed species or result in the destruction or adverse modification of designated or proposed critical habitat.

The proposed project **will not** adversely modify designated critical habitat.
Species:

The Services ☒concurred/☐provided a Biological Opinion(s).

In a letter dated April 27, 2015, USFWS concurred with the Corps determination that the project is not likely to adversely affect any federally threatened or endangered species and will not adversely modify any designated or proposed critical habitat.

7.3 Magnuson-Stevens Fishery Conservation and Management Act

The proposed project will not result in adverse impacts to Essential Fish Habitat. Conservation Recommendations were not provided by the National Marine Fisheries Service. Conservation Recommendations will not be incorporated into the project or added as special conditions to the permit.

7.4 **Section 106 of the National Historic Preservation Act**

The proposed project will have no effect on historic properties. No sites listed, or eligible for listing, in the National Register of Historic Places or of other national, state or local significance are found on the proposed project site. The SHPO concurred with the Corps' determination of effect in a letter dated April 27, 2015.

The Corps is including the following special condition in the permit to ensure that proper coordination occurs if any previously unknown historic or archaeological remains are discovered during the development of the project site:

That the permittee agrees to stop work and to notify this office immediately if any previously unknown historic or archaeological remains are discovered while accomplishing the activity authorized by this permit. The Corps will initiate the Federal, State, and/or Tribal coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

7.5 **Cumulative and Secondary Effects**

This assessment is commensurate with the degree of the proposed impact, the existing and reasonably foreseeable watershed stress to aquatic resources, and the degree to which information and data are readily available.

Geographic area for the assessment:

The project site is 2,880 acres within an overall tract that is 6,781 acres in size. The largest portion of the overall site, and also the portion where the project is to be constructed, is located within the Lower Four Hole Swamp Watershed in the Edisto River Basin. Approximately 35% of the proposed project is located within the Cypress Swamp Watershed in the Santee River and Cooper River Basin.

Lower Four Hole Swamp Watershed (HUC 03050205-03) in the Edisto River Basin is 183,907 acres in area and includes 33.7% forested land, 30.8% forested swamp wetlands, 29.2% agricultural land, 5.0% urban land, 0.6% barren land, 0.4% non-forested marsh wetlands, and 0.3% open waters.

Cypress Swamp Watershed (03050201-05) is 139,162 acres in area and includes 52.5% forested uplands, 25.3% forested wetlands, 14.4% agricultural land, 7.1% urban land, 0.4% non-forested wetlands, 0.2% open water, and 0.1% barren land.

Baseline information

Percent of the watershed that is wetland:

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Berkeley County
c/o Mr. William Peagler

Lower Four Hole Swamp Watershed: 31.2%

Cypress Swamp Watershed: 25.7%

Stream miles in the watershed:

Lower Four Hole Swamp Watershed: 501.4 miles

Perennial: unknown

Intermittent: unknown

Ephemeral: unknown

Cypress Swamp Watershed: 357.9 miles

Perennial: unknown

Intermittent: unknown

Ephemeral: unknown

Corps permits issued in the last 5 years have authorized:

Lower Four Hole Swamp Watershed:

Acres of fill: 9.80

Linear feet of stream: 0

Cypress Swamp Watershed:

Acres of fill: 19.92

Linear feet of stream: 103

It is projected that authorizations will continue in the region at the current rate in the future.

Reason: Development pressure is increasing around the watersheds where this project is proposed. Population growth numbers for Berkeley County, SC are projected to increase over the next five, ten and twenty years for which data are available through the South Carolina Revenue and Fiscal Affairs Office (<http://www.sccommunityprofiles.org/census/proj0035.php>). Table 6 presents population data for Berkeley, Charleston and Dorchester Counties.

Table 6. Census numbers and population projections for the project area.

County	2000 Census	2005 Estimate	2010	2015	2020	2025	2030	2035
Berkeley	142,651	152,858	170,270	181,350	192,450	203,520	214,140	225,010
Charleston	309,969	337,199	348,370	357,370	366,380	375,390	386,660	396,640
Dorchester	96,413	111,722	129,450	139,370	149,300	159,210	170,210	180,580

From the population data in Table 6, the Corps calculated average growth and percent population increase for each of the three counties. These values are shown below in Table 7.

Table 7. Growth projections and percentage growth for the project area.

Data Years	Berkeley		Charleston		Dorchester	
	Growth	% Growth	Growth	% Growth	Growth	% Growth
2015 - 2020	11,100	6.1	9,010	2.5	9,930	7.1
2020 - 2025	11,070	5.8	9,010	2.5	9,910	6.6
2025 - 2030	10,620	5.2	11,270	3.0	11,000	6.9
2030 - 2035	10,870	5.1	9,980	2.6	10,370	6.1
Averages	10,915	5.6	9,984	2.7	10,303	6.8

Based on population numbers and projected population growth in the three counties most relevant to the proposed project, as well as the past five-year history of permits to allow fill in wetlands and streams in the two watersheds where the project is proposed, it is reasonable to conclude that the need for authorizations will continue at the same level. The Port of Charleston is developing a new marine container terminal at the former Charleston Navy Base, the Corps of Engineers Civil Works Review Board (CWRB) approved the Charleston Harbor Post 45 Deepening Project Final Feasibility Study and Integrated Environmental Impact Statement on June 25, 2015, Palmetto Railways is evaluating the development of a new regional Intermodal Container Transfer Facility (EIS underway with Charleston District acting as lead agency), as well as various other new industries proposed along the Cooper River industrial complex. Natural resource issues of concern in the watershed: According to a watershed assessment prepared by the USGS for the Cooper River watershed, habitat preservation is the number one priority within the watershed because of substantial growth and urban sprawl predicted within the region over the next 30 years (<http://sc.water.usgs.gov/nawqa/>).

Context

The proposed project is considered relatively large from an acreage standpoint and extremely large from an economic investment and job creation standpoint as compared to other projects in the area.

History of development similar to this proposal: Among other large-scale industrial manufacturing and assembly facilities in the local area and within the state, Boeing Commercial Airplanes South Carolina, located in North Charleston, was constructed within the past 10 years. That operation has been successful as an employer of approximately 6,500 employees, and was

issued a DA permit during 2015 to expand the facility and add an additional 2,000 employees. Outside the local area, but within the state economy, BMW Manufacturing Company was issued a DA permit during the past two decades to build automobiles in Greer, SC, which is near Spartanburg. BMW Manufacturing Company employs approximately 8,000 people and has applied for a DA permit to expand the facility by an additional 800 employees.

Future conditions are expected to be: Over the past decade there have been numerous large developments permitted and constructed in the Charleston-North Charleston-Summerville statistical area, including major residential projects at Daniel Island and Cane Bay (between Summerville and Moncks Corner). In addition, the South Carolina Ports Authority (commenting by letter to the public notice for this project) obtained a DA permit to develop a new marine container terminal at the former Charleston Navy Base; Palmetto Railways has submitted a proposal to develop a regional Intermodal Container Transfer Facility (with the Corps acting as lead agency on a regulatory EIS); and the Corps of Engineers CWRB approved the Charleston Harbor Post 45 Deepening Project Final Feasibility Study and Integrated EIS on June 25, 2015.

Besides Corps-authorized projects, other activities include: Various residential, commercial, and industrial activities that are constructed in uplands, construction and operation of upland borrow pits to obtain fill material, and exempt activities such as forestry.

Resulting natural resource changes and stresses include: Habitat fragmentation and loss, increases in impervious surfaces, changes to habitat, incremental changes to water quality, and non-point source discharges.

These resources are also being affected by: pollution, climate, weather, and sea level rise.

A key issue(s) of concern in this watershed is: increased human pressure on natural resources and the degradation of water quality resulting from development and wetland loss.

Mitigation and Monitoring

The project would affect the following key issue(s): wetlands, land use and water quality.

The magnitude of the proposed effect in the watershed is: The proposed project consists of constructing an advanced manufacturing and assembly facility on a 2,880-acre portion of an overall 6,781-acre tract of historic loblolly pine plantation along Interstate 26 and U.S. Highway 176 in Berkeley County. The construction of this project will result in the loss of 192.94 acres of wetlands and other waters of the U.S. In fact, this project will result in the loss of more aquatic resources than any other DA permit issued by the Corps in this watershed. However, the landscape-scale compensatory mitigation plan will preserve and enhance 1,533 acres of aquatic resources within a total preservation and enhancement area of 2,496 acres in the Four Hole Swamp Watershed of the Edisto River Basin. This compensatory mitigation will more than offset the proposed impacts to waters of the U.S.

There will be increased traffic associated with suppliers and vendors bringing materials to the facility, finished products being transported off the site, and increased construction traffic while the project is being built. As a result of increased traffic, Interstate 26 is expected to experience

sharply reduced Levels of Service, including failing Levels E and F. For this reason the project includes the proposal to improve Interstate 26 with the installation of a new T-Type interchange at Mile 190 to serve the project site.

Avoidance and minimization methods include: According to the applicant, *“An extensive alternatives analysis was conducted by the applicant to evaluate practicable alternatives to the proposed site which limited wetland impacts to the greatest practicable extent and yet was feasible in light of technology, costs, and logistics. Camp Hall Option 2 was selected as the preferred alternative, as it was technically feasible, provided efficient accessibility and visibility, and reduced wetland impacts to 293 acres. Following site selection, the applicant further minimized wetland impacts by 75.15 acres to a total of 217.85 acres with Option 2A. In this alignment the visitor's center/administrative offices were moved to an area of slightly lower visibility, but with greatly reduced wetlands impacts, the Phase 2 northern access road was completely removed to further reduce impacts, and the stormwater ponds associated with Phase 1 and 2 were relocated so that the site layout minimizes wetland impacts.”*

“In addition, further minimization occurred in association with the design and planning of the Lower Westvaco Road access as a result of design enhancements and a detailed wetland delineation. Impacts were further reduced from the original permit submittal (Option 2A) by 1.82 acres. Further minimization of wetland impacts may result from additional design enhancements associated with infrastructure improvements. Final design for these areas is on-going.”

“The applicant has also committed to installation [sic] to installation of additional culverts along the proposed road infrastructure corridors to prevent obstruction of existing surface flows during time of saturation within the wetlands and to facilitate the passage of terrestrial and aquatic organisms.”

Compensatory mitigation and monitoring include: As described in Section 8 of this document, the landscape-scale compensatory mitigation plan which was provided as part of this permit application will preserve and enhance 1,533 acres of high-quality aquatic ecosystems within six tracts of land in the Four Hole Swamp Watershed that together total 2,496 acres. The Corps believes the proposed compensatory mitigation plan exceeds the amount of compensatory mitigation that would normally be required to offset the proposed impacts to waters of the U.S. The specific compensatory mitigation sites were selected specifically to offset the impacts of this project, and thereby reduce the proposed impacts below the level of significance. The proposed compensatory mitigation tracts are strategically located within a corridor of conservation lands that form a high-quality ecosystem buffer around the Charleston metropolitan area, and also serve as an important headwater watershed of the mighty Edisto River Basin that forms a vital portion of the ACE Basin in the Lowcountry of South Carolina.

7.6 **Water Quality Certification under section 401 of the CWA**

SCDHEC issued a Notice of Department Decision – State Certification regarding Water Quality Certification on June 12, 2015. The Water Quality Certification was considered final on June 27, 2015. The State 401 Water Quality Certification is incorporated in the federal permit by general condition.

7.7 Coastal Zone Management Consistency / Permit

Coastal zone consistency certification/permit was issued on June 12, 2015.

7.8 State Navigable Waters Permit

State Navigable Waters Permit was not applicable.

7.9 Corps Wetland Policy

Based on the public interest review herein, the beneficial effects of the proposed project outweigh the detrimental effects.

7.10 Effect on Federal Projects

The proposed project will not have an adverse effect on any Federal project.

7.11 Effects on the limits of the territorial seas

The proposed project will not alter the coastline or baseline from the territorial sea is measured for purposes of the Submerged Lands Act and international law.

7.13 Safety of impoundment structures

The applicant demonstrated that impoundment structures comply with established dam safety criteria or have been designed by qualified persons and independently reviewed:

☐ True ☐ False ☒ Not Applicable

7.14 Activities in Marine Sanctuaries

If the proposed project would occur in a marine sanctuary, certification from the Secretary of Commerce was received:

☐ True ☐ False ☒ Not Applicable

7.15 Other Authorizations

As described in this document, the applicant will be required to obtain and comply with other permits to construct various aspects of the project. For example, National Pollutant Discharge Elimination System (NPDES) permits pursuant to Clean Water Act Section 402 will be required to treat stormwater on the site before it will be allowed to outfall to receiving waters. Air quality permits will be required from the SCDHEC Bureau of Air Quality pursuant to the Clean Air Act.

7.16 Significant Issues of Overriding National Importance

None

8. Compensation and Other Mitigative Actions

Compensatory mitigation

Is compensatory mitigation required? ☒ Yes ☐ No (If no, do not complete the rest of this section.

Is the impact in the service area of an approved mitigation bank? ☒ Yes ☐ No

Does the mitigation bank have appropriate number and resource type of credits available?

☐ Yes ☒ No

What is the name of the Bank? Pigeon Pond Mitigation Bank; Congaree-Carton Mitigation Bank

Is the impact in the service area of an approved in-lieu fee program? ☐ Yes ☒ No

Does the in-lieu fee program have appropriate number and resource type of credits available? ☐ Yes ☒ No

Check the selected compensatory mitigation option(s):

- ☐ mitigation bank credits
- ☐ in-lieu fee program credits
- ☒ permittee-responsible mitigation under a watershed approach
- ☐ permittee-responsible mitigation, on-site and in-kind
- ☐ permittee-responsible mitigation, off-site and out-of-kind

If a selected compensatory mitigation option deviates from the order of the options presented in §332.3(b)(2)-(6), explain why the selected compensatory mitigation option is environmentally preferable. Address the criteria provided in §332.3(a)(1)(i.e., the likelihood for ecological success and sustainability, the location of the compensation site relative to the impact site and their significance within the watershed, and the costs of the compensatory mitigation project):

Although there are two existing mitigation banks (Pigeon Pond and Congaree-Carton) located within the same watershed as the proposed project, the proposed project would use all of the available mitigation credits from both mitigation banks and the applicant would still be required to conduct a PRM plan to offset the remainder of the unavoidable impacts to waters of the U.S. Rather than proceed this way, the applicant elected to propose a landscape scale watershed approach to identify potential mitigation sites that would have regional and national importance.

Based on coordination with local conservation stakeholders, the applicant identified portions of the Four Hole Swamp Watershed that comprise six separate tracts of high-quality aquatic ecosystems: Bannister Tract; Singletary Tract; Dean Swamp Tract; Mimms Tract, Long Tract, and Salisbury Tract (collectively referred to as the Walnut Branch Tracts). Four Hole Swamp is an important headwater portion of the Edisto River Basin, and provides approximately one-third of the flow to the lower Edisto River as it enters the ACE Basin. The six tracts that together comprise the applicant's "Landscape Mitigation Plan" (LMP) that is part of this project's federal permit application and overall project design are presented in Table 8 below, along with approximate acreages for each, and information about proposed long term owners/stewards.

Table 8. Long Term Management Scheme for Compensatory Mitigation Tracts.

Tract	Bannister	Dean Swamp	Mimms	Singletary	Long	Salisbury
Current owner	Plum Creek	Plum Creek	Mead Westvaco	Celeste Singletary	Walnut Branch, LLC	Dorchester Mining, LLC
Approximate Acreage	1,667	380	177	112	85	75
Interim Owner	South Carolina Public Service Authority			N/A Or Current Property Owner		
Long Term Owner	SCDNR	Lord Berkeley Conservation Trust, LLC	Audubon			
Long Term Protective Instrument	LOLT Conservation Easement	LBCT Deed Restriction	LOLT Conservation Easement	USACE-approved Conservation Easement		
Easement Holder	LOLT	LBCT	LOLT	Lord Berkeley Conservation Trust	Low Country Open Land Trust	
Long Term Manager	SCDNR	Audubon				

Figure 16 below shows the six proposed compensatory mitigation tracts and their locations with respect to each other, Four Hole Swamp, and the proposed project location at Camp Hall Site.

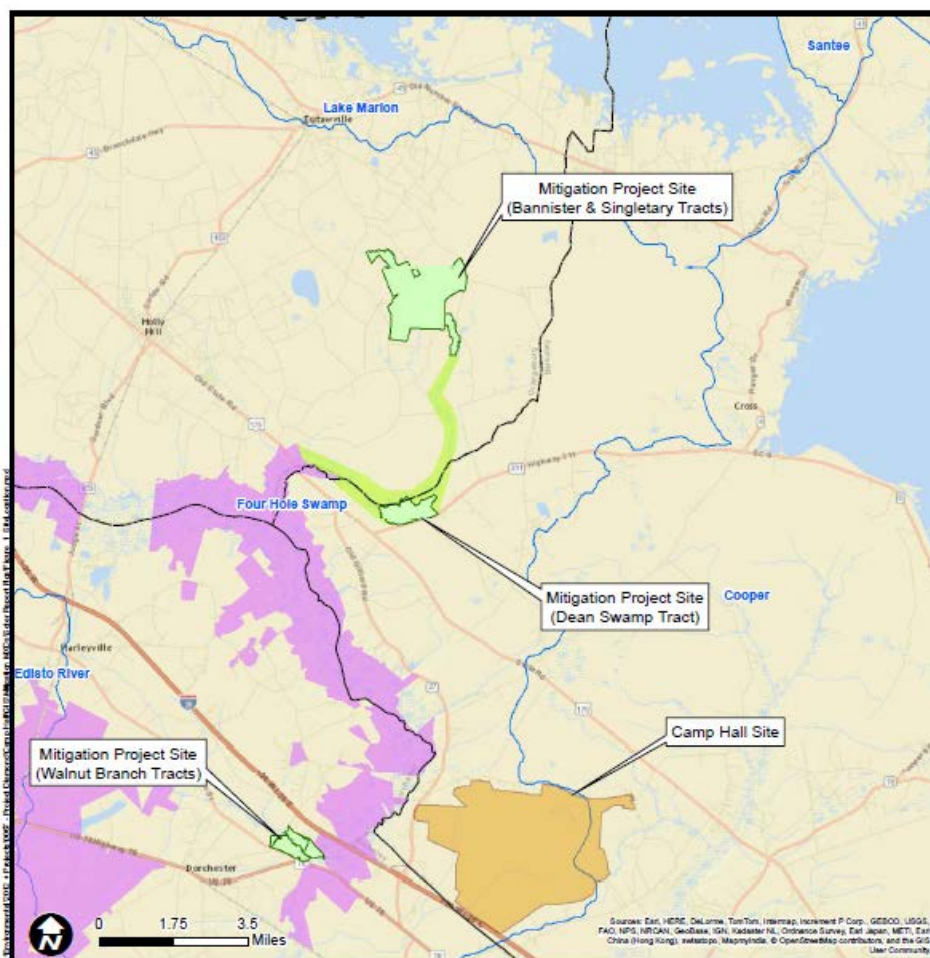


Figure 16. Compensatory mitigation tracts within Four Hole Swamp near the Camp Hall Site (taken from applicant's LMP Figure 1).

As mitigation for the proposed impacts, the permittee proposes as part of the original permit application the "Landscape Mitigation Plan" using a watershed approach to compensate and offset losses of waters of the U.S. associated with construction of this project. According to the work plan proposed by the applicant, *"wetland preservation activities within the Mitigation Project is anticipated to protect approximately 890 acres of wetlands... The proposed wetland preservation areas lie directly adjacent to many streams and unnamed tributaries within the proposed mitigation corridor and consist of a mix of high quality bottomland hardwood forests communities. Wetlands within the Mitigation Project will be protected through the establishment of a conservation easement with a minimum 75 foot buffer (Bannister Tract, Dean Swamp Tract, and Mimms Tract) and maximum 100 foot buffer on the other tracts (Singletary, Long, and Salisbury) and an additional 200 foot no construction buffer (total 300 feet buffer) where possible."*

"Wetland enhancement activities within the Mitigation Project are proposed on the Bannister Tract and the Dean Swamp Tract... The majority of the wetlands not found within the floodplain of Cedar Swamp, Sandy Run, Dean Swamp, and associated unnamed tributaries have been

converted to loblolly pine plantation and are in various stages of production. For the purposes of this mitigation work plan the pine plantation has been categorized as clearcut, greater than 15-year, or less than 15-years of age. An in-depth discussion of the plant communities associated with the pine plantation community found within the Bannister Tract can be found in Section 5.4.4” [of the LMP]. “The proposed wetland enhancement activities will primarily consist of converting existing pine plantation wetlands into pine flatwoods and longleaf forest communities, where applicable. Sections of the pine plantation that have encroached into the bottomland hardwood communities will be converted back into bottomland hardwood forest. The wetland enhancement work plan to be implemented on the Bannister Tract and Dean Swamp Tract has been categorized by activities based on the existing habitat and a detailed discussion is located below for each proposed enhancement activity.”

“Pine Flatwoods Enhancement (Thinning/Burning)

Sections of the Bannister Tract and the Dean Swamp Tract that have been planted and have stands of existing loblolly pine greater than 15 years old will be thinned and considered for prescribed burning. Thinning of the planted pine will be conducted to reduce the basal area the [sic] of the existing loblolly pine stands to open the forest canopy to allow for the recolonization of herbaceous and understory layers associated with the pine flatwoods community. A prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecotype. Depending on the conditions and success of burned areas, the frequency of successive fires will be prescribed. Where necessary, appropriate plant species will be planted to increase species diversity and accelerate forest regeneration.”

“Pine Flatwoods Enhancement (Thinning/Flattening/Burning)

Sections of the Bannister Tract and the Dean Swamp Tract that have been planted and have stands of loblolly pine less than 15 years old will be thinned and the topography will be smoothed with tracked and wheeled forestry machinery to match the surrounding contours to reduce furrows that were constructed during the planting process. Mechanical mulching equipment may be used during this process to thin the pines and deposit the resulting pine chips into the depressional areas. The existing loblolly pine stands will be thinned to appropriate ratios to mimic the pine flatwoods communities. At the appropriate time, a prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecosystem. Depending on the conditions and success of burned areas, the frequency of successive fires will be prescribed. Where necessary, appropriate plant species will be planted to increase species diversity and accelerate forest regeneration.”

“Wetland restoration activities within the Mitigation Project are proposed on the Bannister Tract and the Dean Swamp Tract... The proposed wetland restoration activities will primarily consist of converting [or] replanting clearcut wetlands with either pine flatwoods, bottomland hardwood, or isolated pond communities. The wetland restoration work plan to be implemented on the Bannister Tract and Dean Swamp Tract has been categorized by activities based on the existing habitat and a detailed discussion is located below for each proposed enhancement activity.”

Note in the applicant’s discussion below regarding “wetland restoration” that the areas are already wetlands and thus will actually undergo wetland enhancement.

“Bottomland Hardwood Vegetative Restoration

Sections of the Bannister Tract where the existing pine plantation have encroached into the bottomland hardwood communities located along Cedar Swamp, Sandy Run, and associated unnamed tributaries will be cleared and replanted with appropriate native hardwood species. Prior to clearing activities, herbicides may be used to control unwanted vegetation, as appropriate. Clearing activities may include mechanized equipment to smooth out the raised beds to restore the natural and historic topography. The residual pine stumps will be sheared below ground elevation or extracted from the soil only if necessary. After the clearing activities are complete and if necessary, equipment will be utilized to remove debris from the area (e.g. roots, stumps, limbs, etc.). The residual debris will be piled in the adjacent uplands for disposal. Once the site preparation activities are completed, the wetland area will be planted with appropriate bottomland hardwood species.”

“Isolated Pond Restoration

Sections of the Bannister Tract and Dean Swamp Tract have isolated ponds that have been impacted through silviculture practices. The majority of these areas have been encroached upon to expand timber production. The vegetative enhancement activity will be same as for the Bottomland Hardwood Vegetative Enhancement. Existing native hardwood species will not be removed during the clearing activities. Once the site preparation activities are completed, the wetland area will be planted with appropriate isolated pond species.”

“Pine Flatwoods Restoration

Sections of the Bannister Tract and the Dean Swamp Tract that [sic] have been clear cut prior to the execution of this mitigation plan. Appropriate wetland areas not associated with the bottomland hardwood forest community will be converted into pine flatwoods/pine savannah communities. Prior to mechanical activities herbicides may be used to control unwanted vegetation, as appropriate. Machinery may be used on the raised beds to smooth the landscape to mimic the historical topography and reduce the existing rutting that has occurred from clearcutting activities. During this process, the residual pine stumps will be sheared below ground elevation or extracted from the soil as necessary. After the clearing operations are complete, equipment will be employed to remove debris from the area (e.g. roots, stumps, limbs, etc.). The residual debris will be piled in the adjacent uplands for disposal. It is anticipated that the existing road infrastructure will be used for fire breaks. Once the site preparation activities are complete, the wetland area will be planted with appropriate pine flatwoods species. At the appropriate time, a prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecotype.”

“The upland loblolly plantation and clearcut buffers (75 feet) along the wetland enhancement and preservation areas within the Bannister and Dean Swamp Tract will be restored/converted to a longleaf pine forest ecosystem, where appropriate. Existing clear cut areas within the upland buffer will be planted with longleaf pine seedlings and other species, as appropriate, at a rate of 450 stems per acre. Existing loblolly plantation stands will remain intact through the required monitoring period. At the appropriate time, a prescribed burn schedule will be implemented to mimic the natural burn cycle typical of this ecotype.”

“It is anticipated that the existing upland areas not converted to longleaf pine and the remaining upland loblolly plantation areas, not associated with mitigation activities, within the Banister Tract will be converted to a longleaf pine ecosystem at a future time by the SCDNR at their discretion and in accordance with their WMA management plan.”

“Prescribed burning will be implemented every two to three years in the pine flatwoods enhancement areas and the upland longleaf restoration areas. Fire intensity will be adjusted in subsequent years to provide the best results of this habitat management technique. All initial and subsequent burns will be conducted by prescribed fire professionals with experience within the region. Specifically, only Certified Prescribed Fire Managers will conduct these burns. Burns will be conducted when conditions favor fire across the range of forest communities within the Mitigation Project Site. The burns will not be conducted when ponded water dominates the site or when dry weather creates dangerous fire conditions and fire control problems. Burning will only operate during conditions where smoke will have the least effect on adjacent populated areas.”

“Wetland reference areas will be identified within either the Mitigation Project tracts, Francis Marion National Forest, or Francis Beidler Forest. The target plant communities of the Mitigation Project wetland enhancement areas will attempt to replicate the species composition of the reference wetlands and show a progression towards the vegetation strata and diversity of the reference site by the end of the monitoring period.”

“Stream preservation activities within the Mitigation Project is anticipated to protect approximately 47,932 acres (9 miles) of streams consisting of Cedar Swamp, Sandy Run, Dean Swamp, Walnut Branch and associated tributaries. For the purposes of this PRMP, streams lengths were calculated using the available USGS hydro lines. Further evaluation of the streams will be conducted following the acceptance of this PRMP and the information will be provided in the FPRMP. Streams within the Mitigation Project will be protected through the establishment of a conservation easement with a minimum 75 foot buffer (Bannister Tract, Dean Swamp Tract, and Mimms Tract) and maximum 100 foot buffer on the other tracts (Singletary, Long, and Salisbury) and an additional 200 foot no construction buffer (total 300 feet buffer) where possible.”

“A planting plan will be developed following the acceptance of this PRMP. The planting plan for the different ecosystems will be developed to mimic the natural plant communities similar to high functioning ecosystems, such as Francis Beidler Forest and/or Francis Marion National Forest.”

The Landscape Mitigation Plan was carefully and thoroughly reviewed by this office and by other resource agency personnel who frequently review and comment on permit applications, including proposed impacts and compensatory mitigation. Regarding this project's compensatory mitigation plan, SCDNR provided the following supportive comments.

“DNR is familiar with the sites as mitigation and recognizes they have been identified as important potential conservation/preservation tracts for several decades through various conservation plans developed by the National Audubon Society working with other conservation

organizations partnering on landscape-scale conservation in the watershed. This area is of regional, national, and international conservation significance, and is located adjacent to the Francis Beidler Forest (RAMSAR site no. 1773) which is one of only two such sites in South Carolina, 37 sites in the United States, and 2,000 sites globally which have been designated by the RAMSAR Convention as Wetlands of International Importance.”

“DNR recognizes the importance of the proposed mitigation tracts in furthering conservation efforts within the Four Holes Swamp Watershed which includes the wetland nature preserve known as Francis Beidler Forest. We reiterate that the Francis Beidler Forest is a nationally and internationally recognized old growth swamp forest of International Importance and an Audubon Important Bird Area. The preserve includes over 16,000 acres of protected wetlands and adjacent upland habitats. The protection of wetland systems such as those proposed in the Project Soter – Landscape Mitigation Plan is vital to the long-term health and sustainability of the Four Holes Swamp Watershed and the Francis Beidler Forest.”

“DNR believes the proposed mitigation plan will result in profound natural resource benefits through protection of vulnerable wetlands and critical fish and wildlife habitats, while adding to the collective efforts of DNR and its many public and private conservation partners. Our ongoing mission of landscape-scale conservation includes the following three basic features:

- 1. Identification of a regional system of interconnected lands, wetlands, streams and riparian corridors,*
- 2. Actions organized to achieve and link multiple specific conservation objectives, and*
- 3. Stakeholders who cooperate in a concrete fashion to achieve those objectives.”*

“It has been conclusively demonstrated that landscape-scale conservation encourages ecological resilience and economic sustainability through the use of science-based priorities. Additionally it leverages resources and multi-functionality, is embraced by diverse stakeholders, facilitates reduced land management costs, reduces wildfire-risk potential, achieves watershed/river basin health objectives, utilizes forest products to benefit local economies, and provides public use and enjoyment of natural resources and tourism. Now, it can be used to facilitate the permitting of appropriately sites projects allowing infrastructure and development to proceed. Clearly, implementation of this mitigation plan can be one of the lasting positive legacies affecting the Four-Holes Swamp Watershed.”

Based on the Landscape Mitigation Plan proposed as part of this project, the Corps concludes that the Applicant’s proposed compensatory mitigation plan is environmentally preferable and adequately compensates for the Project’s impacts on Waters of the U.S. This includes the acquisition of six high-quality and ecologically valuable, wetland-dominated tracts to be enhanced and preserved in perpetuity, and ultimately conveyed to suitable qualifying stewards for long-term management. In accordance with Corps regulations (33 CFR 325.4(a); 33 CFR Part 325, App. B, Par. 21; and 33 CFR 230.15), the Corps is including the following special conditions to ensure that appropriate oversight and monitoring are conducted regarding the implementation of the mitigation plan underlying the Corps’ mitigated Finding of No Significant Impact (FONSI) determination (see Section 10.8):

1. **That as compensatory mitigation to offset impacts to aquatic resources, the permittee will implement and fully comply with the “Project Soter – Landscape Mitigation Plan” dated April 10, 2015 (revised July 8, 2015) (the Plan), including the provision to provide \$1.5 million into an escrow account to be held by Lord Berkeley Conservation Trust, and to also provide a Corps-approved performance bond as financial assurance for the mitigation activities proposed in the Plan. Your responsibility to complete the Plan as set forth in this Special Condition will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.**
2. **The permittee understands and agrees that a Corps-approved performance bond must be in place prior to commencement of the authorized work, and may not be terminated until the Corps of Engineers verifies that the compensatory mitigation requirement for the proposed project has been satisfied.**
3. **That the permittee must submit evidence of execution and recording of the Corps-approved conservation easements and surveyed plat of the mitigation area to both the Corps of Engineers and DHEC not later than 180 days from the effective date of this authorization, or prior to commencement of the authorized work, whichever is later.**

Other Mitigative Actions: None proposed.

9.0 **Public Interest Review General Criteria:** (33 CFR 320.4(a)(2)) - The following general criteria were considered in the public interest review.

- a. The relative extent of the public and private need for the proposed structure or work. The public benefits of the project include employment opportunities and an increase in the local tax base. Private benefits include land use and economic return on the property for the manufacturer and the local and state economy; transportation benefits include safety, capacity and adequate levels of service.
- b. There are no unresolved conflicts as to resource use. The proposed project would result in the loss of 192.94 acres of waters of the U.S. The proposed impacts to waters of the U.S. are unavoidable and there are no other conflicts regarding resource use.
- c. The extent and permanence of the beneficial and/or detrimental effects which the proposed work is likely to have on the public and private uses to which the area is suited. Detrimental impacts are expected to be minimal although they would be permanent in the construction area. The beneficial effects associated with utilization of the property would be permanent. As described in Section 6.0 of this document, the permittee will invest over \$1 billion in private investment to construct and operate the advanced manufacturing and assembly facility. The facility will employ approximately 4,000 people following completion of Phase 2 within a period of ten years.

Potential negative impacts include the loss of waters of the U.S., additional traffic on existing roadways,

increases in impervious surfaces, and stormwater on the project site. From the Corps' perspective, the loss of waters of the U.S. is more than offset by the proposed compensatory mitigation plan, and the potential increase in stormwater will be addressed during the review and approval of stormwater permits required pursuant to Section 402 of the Clean Water Act.

10. Determinations

10.1 Public Hearing Request

☒ There were no requests for a public hearing. The Corps had no requests for a public hearing.

☐ I have reviewed and evaluated the requests for a public hearing. There is sufficient information available to evaluate the proposed project; therefore, the requests for a public hearing were denied.

☐ In response to the requests for a public hearing, I determined that a public hearing was appropriate.

10.2 Section 176(c) of the Clean Air Act General Conformity Rule Review

The proposed permit action has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. It has been determined that the activities proposed under this permit will not exceed de minimis levels of direct or indirect emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps' continuing program responsibility and generally cannot be predictably controlled by the Corps. For these reasons a conformity determination is not required for this permit action.

10.3 EO 13175 Consultation with Indian Tribes, Alaska Natives and Native Hawaiians.

This action does not have a substantial direct effect on one or more Indian tribes. As described above in Section 3.4.3, the Catawba Indian Nation commented that they have no concerns with regard to traditional cultural properties, sacred sites, or Native American archaeological sites within the boundaries of the project site. A special condition is included in this authorization to address the discovery of any Native American artifacts and/or human remains during the ground disturbance phases of this project.

10.4 EO 11988 Floodplain Management

☒ The proposed project is not in a floodplain

☐ The evaluations in this document considered alternatives to locating the project in the floodplain, and minimizing and compensating for effects on the floodplain and are discussed above.

10.5 EO 12898 Environmental Justice

In accordance with Title III of the Civil Rights Act of 1964 and Executive Order 12898, it has

been determined that the project would not directly or through contractual or other arrangements, use criteria, methods or practices that discriminate on the basis of race, color, or national origin, nor would it have a disproportionate effect on minority or low-income communities.

10.6 **EO 13112 Invasive Species**

- ☒ There were no invasive species issues involved.
- ☐ The evaluation in this document included invasive species concerns in the analysis of effects at the project site and associated compensatory mitigation.
- ☐ Through the following special conditions, the permittee will be required to control the introduction and spread of exotic species.

10.7 **EO 13212 and 13302 Energy Supply and Availability**

- ☒ The proposed project will not increase the production, transmission or conservation of energy, or strengthen pipeline safety.
- ☐ This review was expedited or other actions were taken to the extent permitted by law and regulation to accelerate completion of this energy-related (including pipeline safety) project while maintaining safety, public health and environmental protections.

10.8 **Finding of No Significant Impact (FONSI)**

While the proposed 192.94 acres of impacts to wetlands and other waters of the U.S. could be considered to have significant impacts, it is the Corps' determination that the proposed mitigation plan, including wetland preservation and enhancement activities, more than offsets the adverse effects to the Four Hole Swamp and Cypress Swamp watersheds, such that the net result would be less than significant impacts to the quality of the human environment.

Guidance issued by the Council on Environmental Quality (CEQ), titled "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact," dated January 14, 2011, states as follows:

"[A]gencies have increasingly considered mitigation measures in EAs to avoid or lessen potentially significant environmental effects of proposed actions that would otherwise need to be analyzed in an EIS. This use of mitigation may allow the agency to comply with NEPA's procedural requirements by issuing an EA and a Finding of No Significant Impact (FONSI), or 'mitigated FONSI,' based on the agency's commitment to ensure the mitigation that supports the FONSI is performed, thereby avoiding the need to prepare an EIS."

In accordance with Corps regulations (33 CFR 325.4(a); 33 CFR Part 325, App. B, Par. 21; and 33 CFR 230.15), the Corps' mitigated FONSI determination is supported by multiple special conditions that will ensure that appropriate oversight and monitoring are conducted regarding the implementation of the mitigation plan underlying the Corps' determination.

Having reviewed the information provided by the applicant and all interested parties and an assessment of the environmental impacts, the undersigned finds that this permit action **will not** have a significant impact on the quality of the human environment. Therefore, an Environmental Impact Statement **will not** be required.

10.9 Findings of compliance or non-compliance with the restrictions on discharge. (Sec. 230.12 of the 404(b)(1) Guidelines

☐ The proposed site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines.

☒ The proposed disposal site for discharge or dredged or fill material complies with Section 404(b)(1) guidelines with the inclusion of conditions contained in this MFR.

☐ The proposed disposal site for discharge of dredged or fill material does **not** comply with the Section 404(b)(1) guidelines for the following reasons:

☐ There is a less damaging practicable alternative

☐ The proposed discharge will result in significant degradation of the aquatic ecosystem

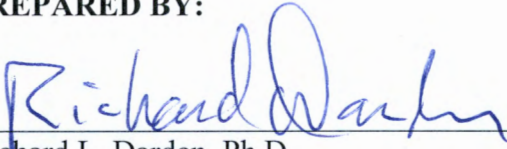
☐ The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.

10.10 Public Interest Determination

The undersigned finds that the issuance of a Department of the Army permit **is not** contrary to the public interest.

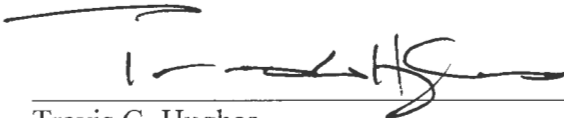
10.11 The above determinations were based on consideration of the final project description and the imposition of special conditions, both of which are detailed in Appendix A.

PREPARED BY:


Richard L. Darden, Ph.D.
Project Manager


Date 7-9-2015

REVIEWED BY:


Travis G. Hughes
Chief, Special Projects Branch

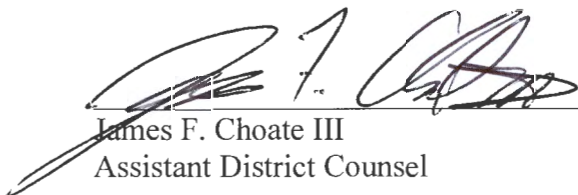
Date 7/9/2015

REVIEWED BY:


Tina B. Hadden
Chief, Regulatory Division


Date 7/9/2015

REVIEWED BY:


James F. Choate III
Assistant District Counsel

Date 7/9/2015

APPROVED BY:


John T. Litz
Lieutenant Colonel, U.S. Army
District Commander

Date 09 JUL 15

Appendix A

Final project description: The proposed work consists of placing 670,705 cubic yards of clean fill material in 192.94 acres, land clearing of 16.90 acres, excavating of 2.65 acres, and shading of 2.91 acres of wetlands and other waters to construct Phases 1 and 2 of the proposed project. Phase 1 will include the development of approximately 23,040,000 square feet of land for the construction of a manufacturing and production space. Phase 1 also involves the development of approximately 1,050,000 square feet of land for the construction of administrative offices and a visitor's center. The total footprint for Phase 1 is approximately 575 acres. 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. Phase 2 will include the development of an additional 14,040,000 square feet of land for the construction of a second manufacturing, assembly, and production space occupying approximately 322 acres. 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. As mitigation for the proposed impacts to wetlands and waters, the applicant proposes the Project Soter—Landscape Mitigation Plan to preserve, enhance, and ecologically restore approximately 1,533 acres of wetlands 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.

The applicant proposes to construct the proposed development in phases and has requested a 35 year permit for the proposed work.

Special Conditions:

An * denotes special conditions required by regulation. The rationale for all other special conditions is included in the evaluation in sections 4 through 8.

- A. That the permittee agrees to provide all contractors associated with construction of the authorized activity a copy of the permit and drawings. A copy of the permit will be available at the construction site at all times. ***
- B. That the permittee shall submit a signed compliance certification to the Corps within 60 days following completion of the authorized work and any required mitigation. The certification will include:**
 - 1. A copy of this permit;**
 - 2. A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;**
 - 3. A statement that any required mitigation was completed in accordance with the permit conditions;**
 - 4. The signature of the permittee certifying the completion of the work and mitigation.***

C. That the permittee recognizes that its commitment to perform and implement the following conditions was a deciding factor toward the favorable and timely decision on this permit and that the permittee recognizes that a failure on its part to both actively pursue and implement these conditions may be grounds for modification, suspension or revocation of this Department of the Army authorization:

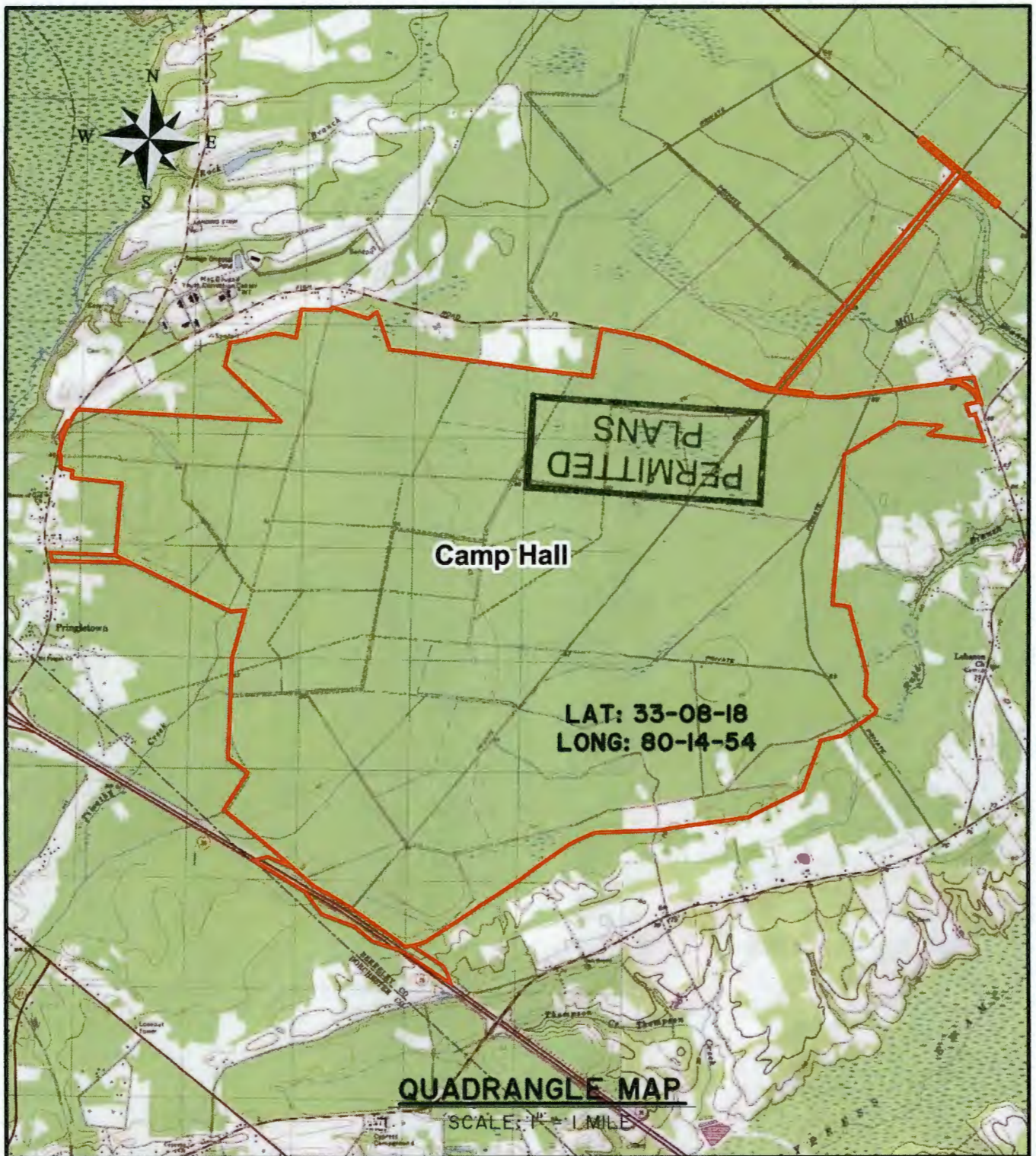
- 1. That as compensatory mitigation to offset impacts to aquatic resources, the permittee will implement and fully comply with the “Project Soter – Landscape Mitigation Plan” dated April 10, 2015 (revised July 8, 2015) (the Plan), including the provision to provide \$1.5 million into an escrow account to be held by Lord Berkeley Conservation Trust, and to also provide a Corps-approved performance bond as financial assurance for the mitigation activities proposed in the Plan. Your responsibility to complete the Plan as set forth in this Special Condition will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers (Corps).**
- 2. The permittee understands and agrees that a Corps-approved performance bond must be in place prior to commencement of the authorized work, and may not be terminated until the Corps verifies in writing that the compensatory mitigation requirement for the proposed project has been satisfied.**
- 3. That the permittee must submit evidence of execution and recording of the Corps-approved conservation easements and surveyed plat of the mitigation area to both the Corps and DHEC not later than 180 days from the effective date of this authorization, or prior to commencement of the authorized work, whichever is later.**

D. That the permittee agrees to utilize best management practices during construction and perform the work as proposed. The permittee must implement practices that will minimize erosion and migration of sediments on and off the project site during and after construction. These practices should include the use of appropriate grading and sloping techniques, mulches, silt fences, or other devices capable of preventing erosion, migration of sediments and bank failure. All disturbed land surfaces and sloped areas affected by the project must be stabilized.

- 1. All necessary steps must be taken to prevent oil, tar, trash, debris, and other pollutants from entering the adjacent waters or wetlands.**
- 2. Land disturbing activities must avoid encroachment into any wetland areas outside the permitted impact area.**
- 3. Upon completion of construction activities, all disturbed areas, which are not paved, must be permanently stabilized with a vegetative cover. This may include sprigging trees, shrubs, vines or ground cover.**

- E. That the permittee agrees that the drainage/conveyance system shall be designed by a licensed Professional Engineer (PE) and constructed by the permittee (or his designated assignee) to provide for the proper drainage of surface water of the drainage area of which it is a part, to permit the flow of natural or manmade watercourses, and to maintain positive drainage for adjacent properties. In addition, the drainage/conveyance system shall be sufficient to prevent any appreciable increase in water surface elevations or expansion/increases of the flood hazard area.**

- F. That the permittee agrees to stop work and to notify this office immediately if any previously unknown historic or archaeological remains are discovered while accomplishing the activity authorized by this permit. The Corps will initiate the Federal, State, and/or Tribal coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.**



PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 1 of 35

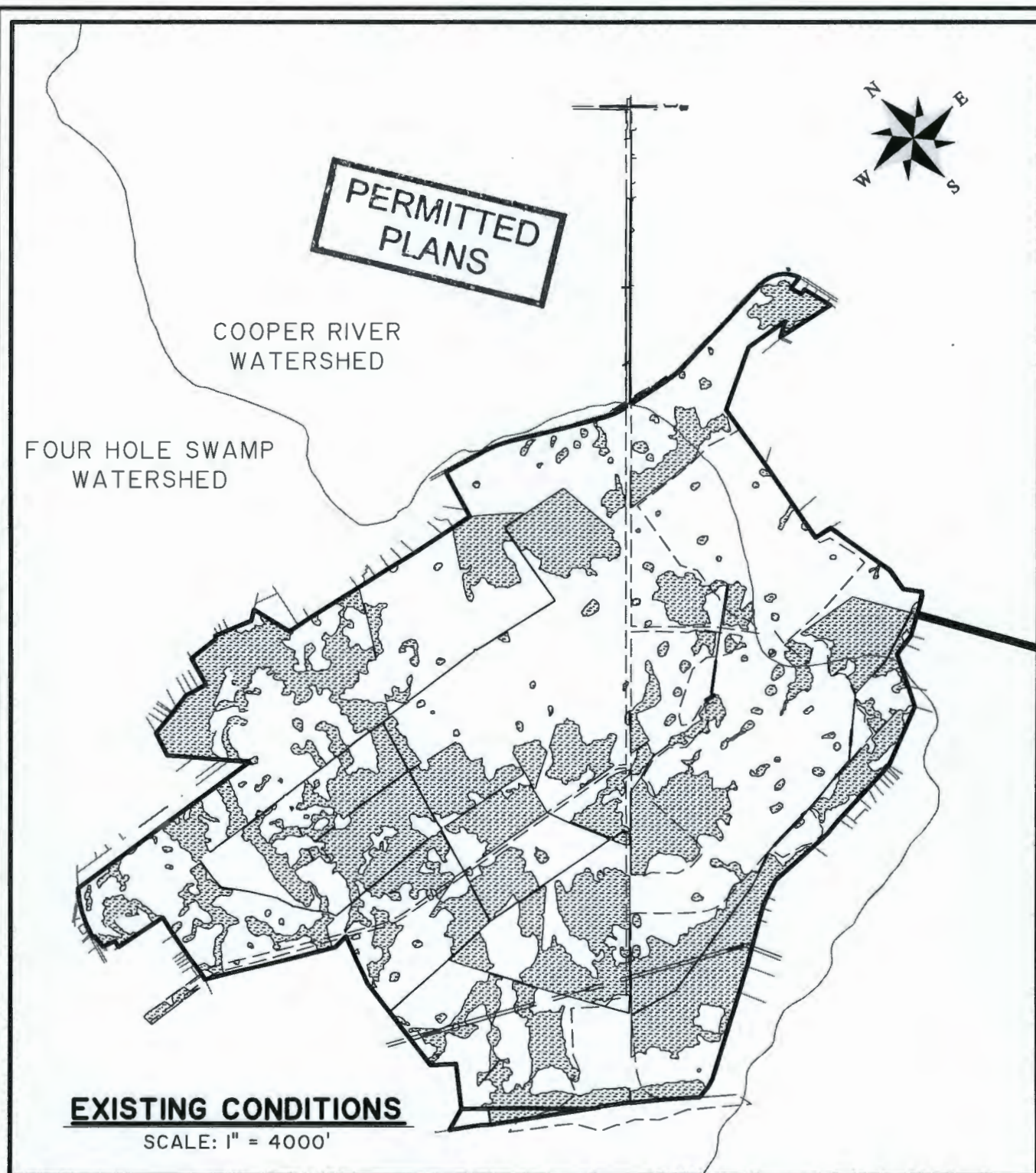
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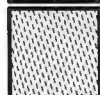
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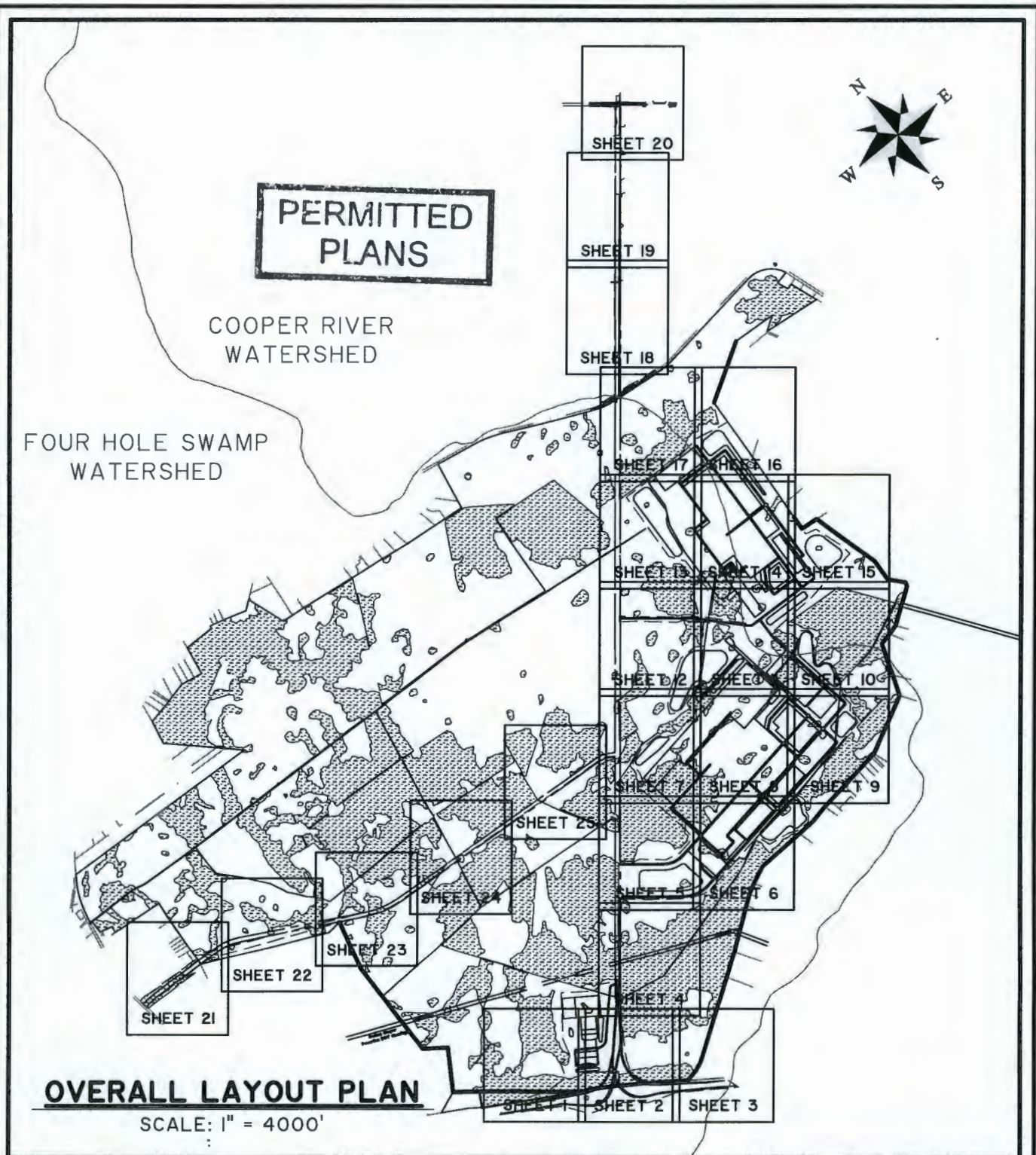
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**FILL
AREA****WATERS OF THE US IMPACT SUMMARY****EXCAVATION****NON JURISDICTIONAL****2.65 ACRES****JURISDICTIONAL****0 ACRES****TOTAL****2.65 ACRES****LAND CLEARING****0 ACRES****16.90 ACRES****16.90 ACRES****RPW FILL****0 ACRES****1.23 ACRES****1.23 ACRES****RPW EXCAVATION****0 ACRES****0.62 ACRES****0.62 ACRES****SHADING****0 ACRES****2.91 ACRES****2.91 ACRES****SITE DEVELOPMENT FILL****20.49 ACRES****171.22 ACRES****191.71 ACRES****TOTAL****23.14 ACRES****192.88 ACRES****216.02 ACRES****PERMITTED
PLANS****PROJECT SOTER****PROPOSED ACTIVITY:
WETLAND FILL****CLIENT:
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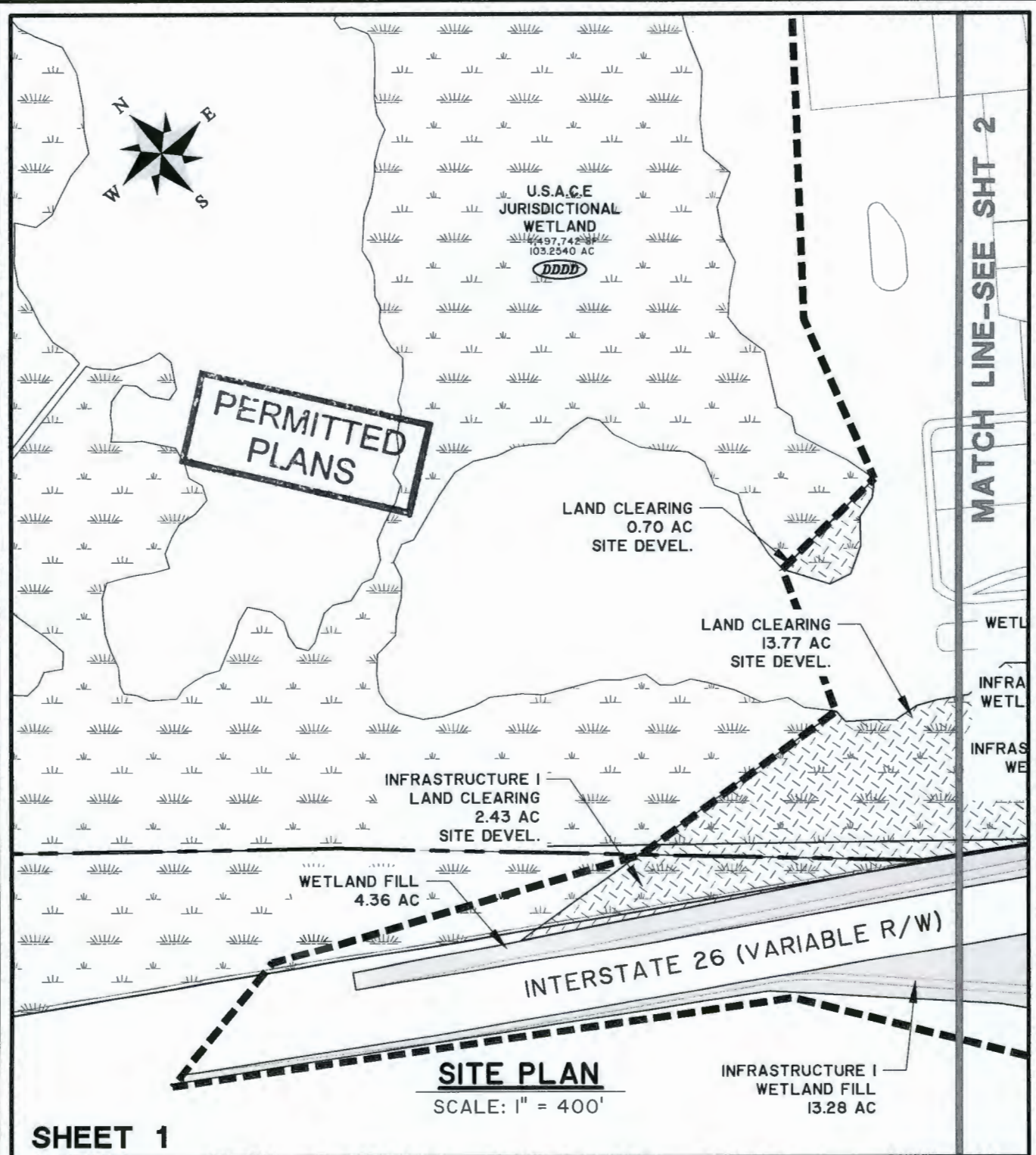
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SHEET 1

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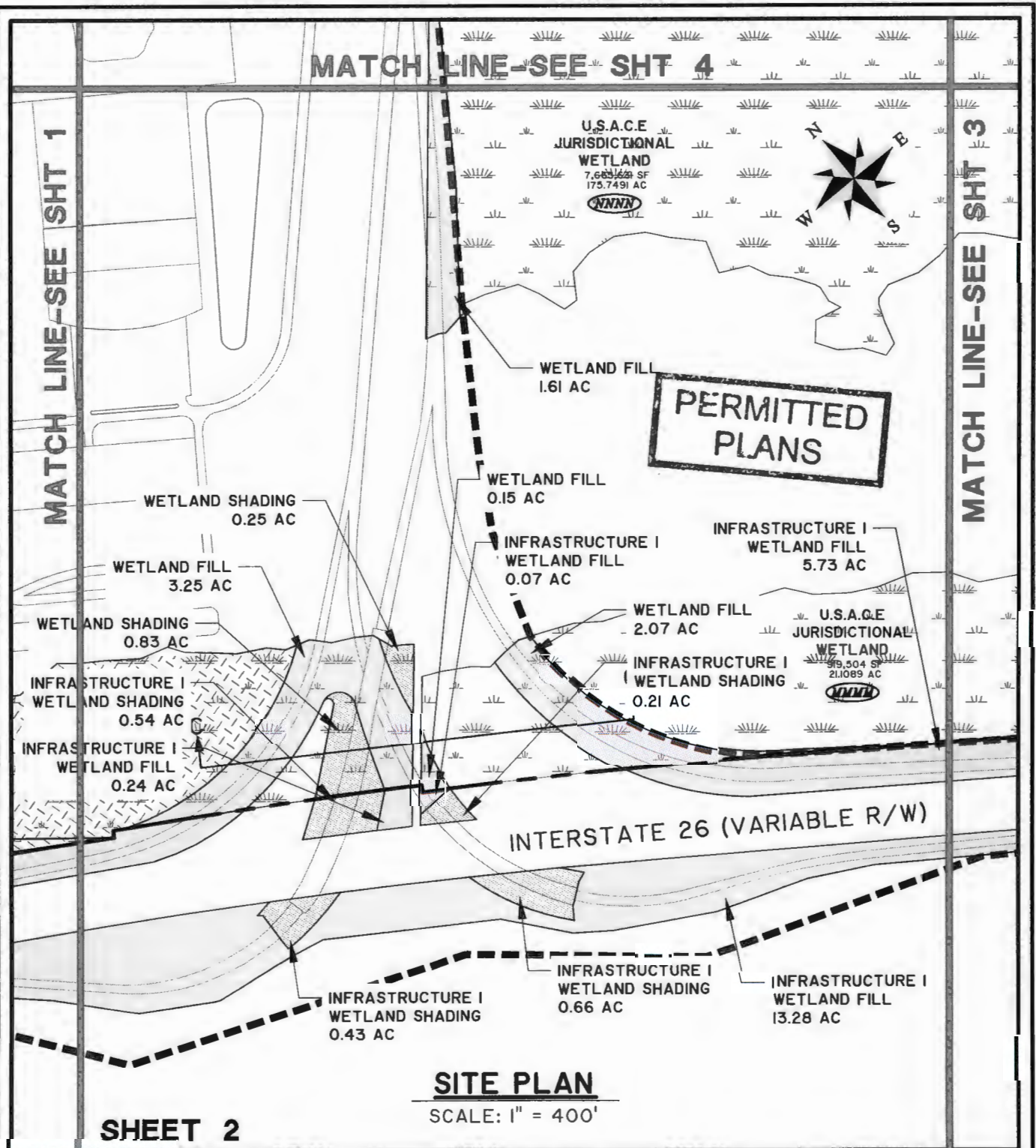


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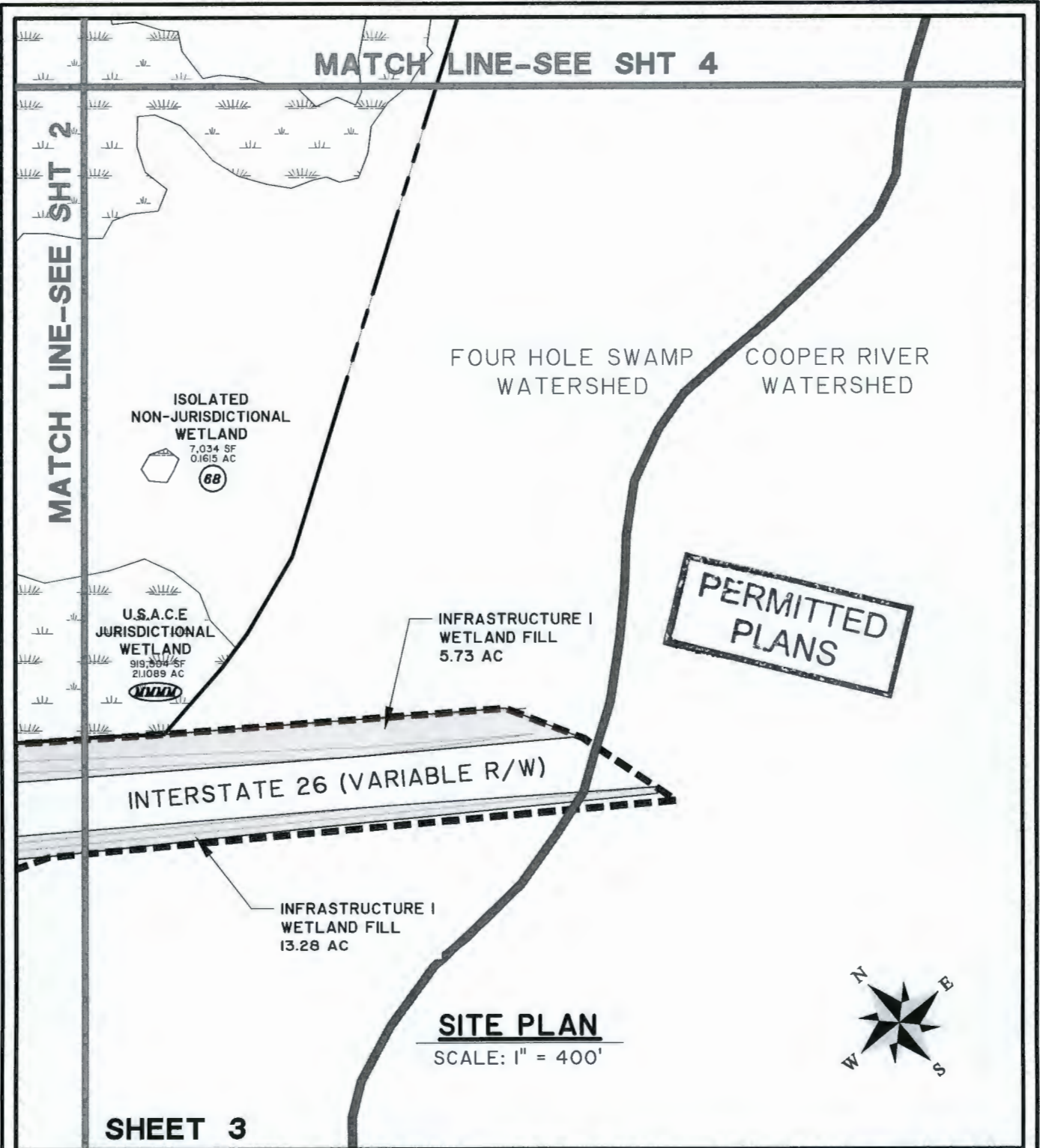


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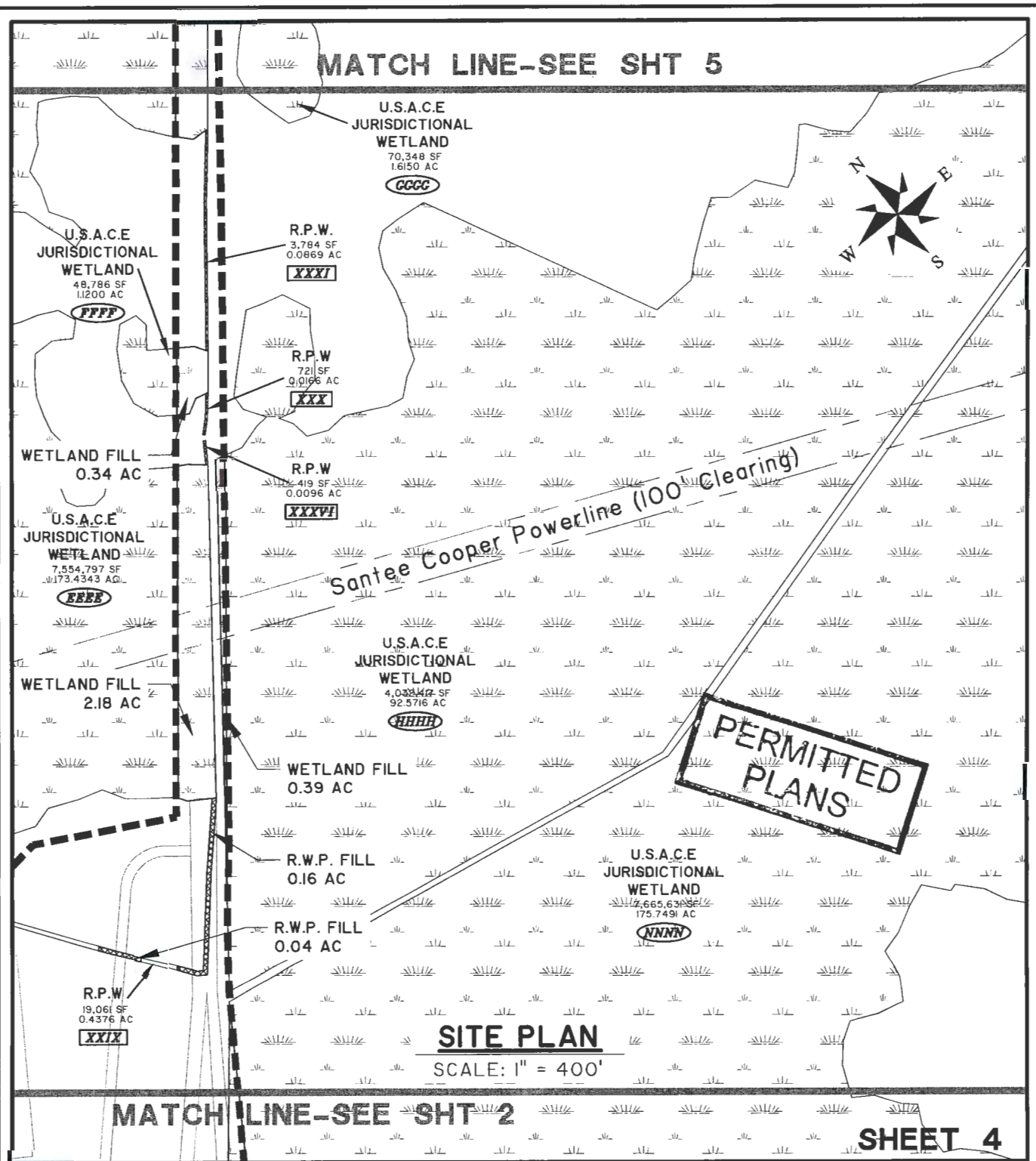
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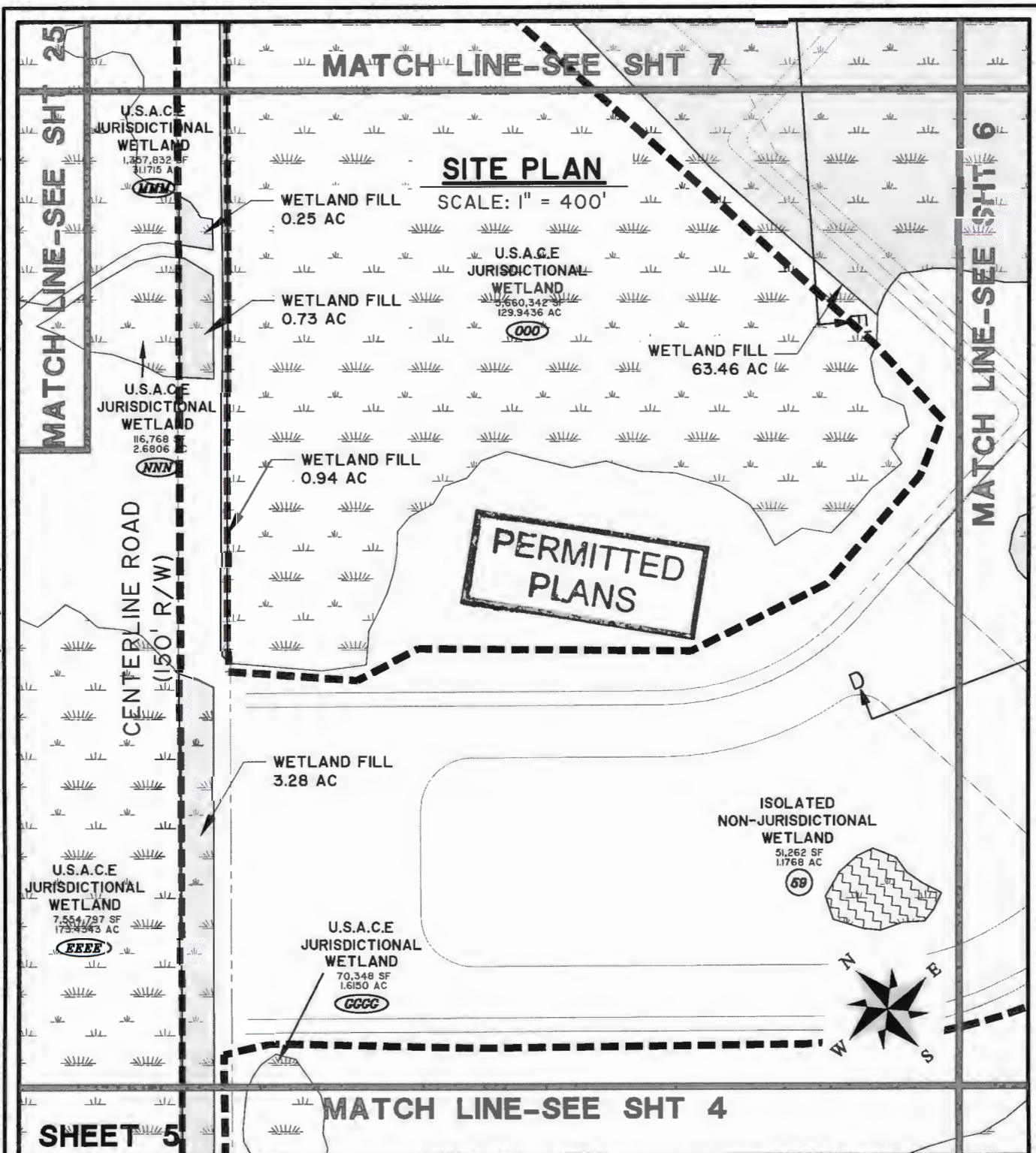
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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 9 of 35

SCALE: 1" = 400'

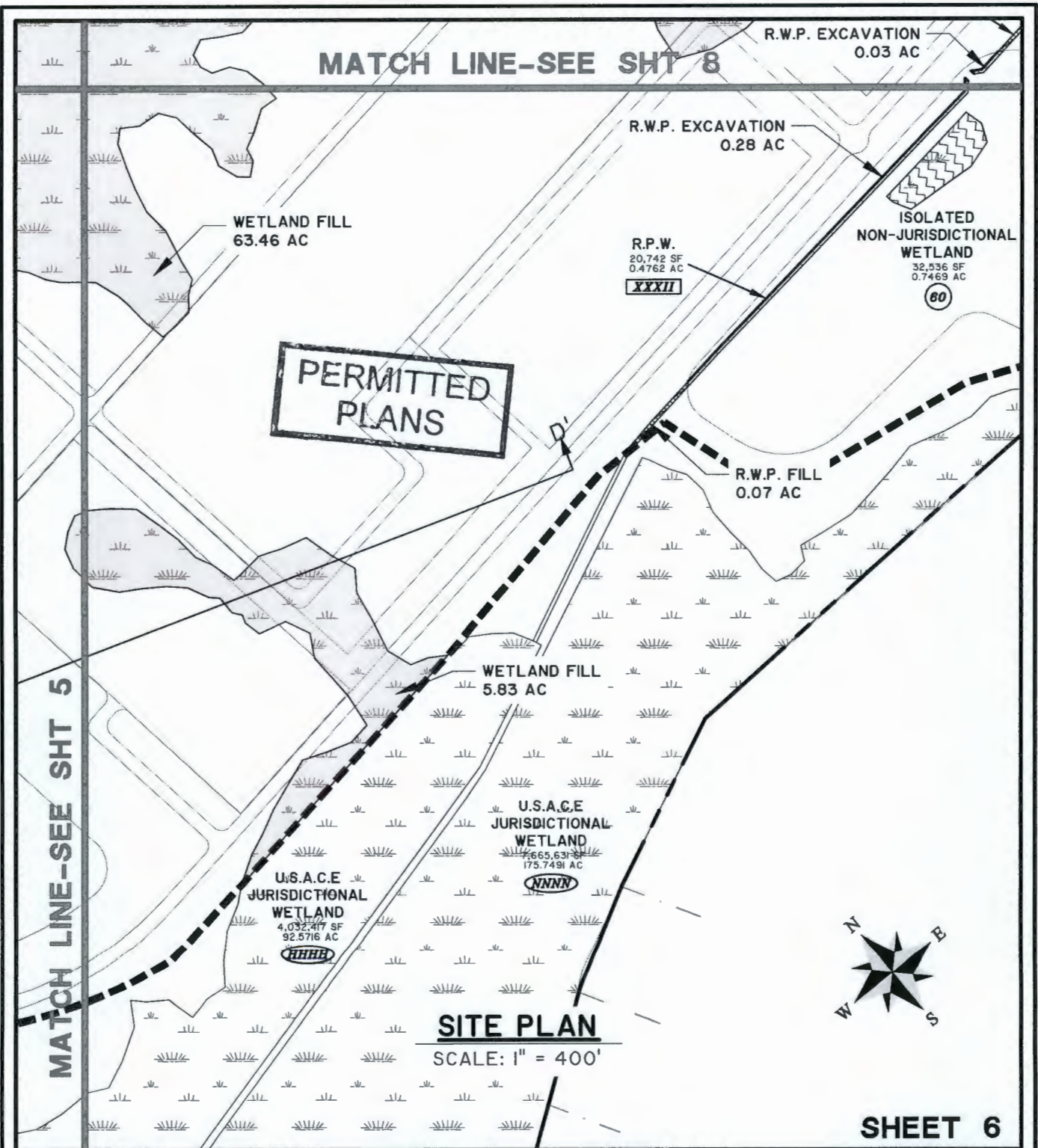


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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 10 of 35

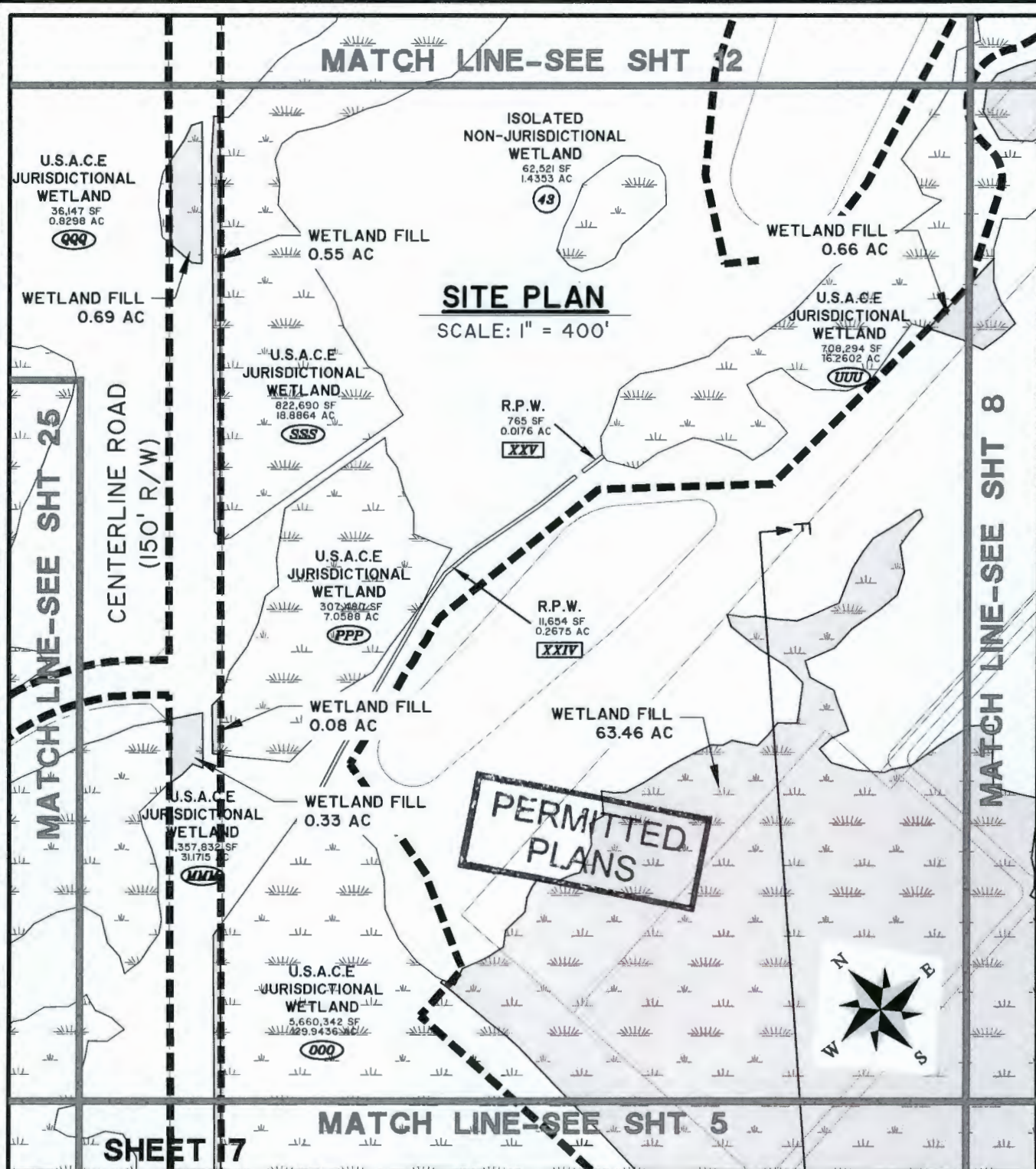
SCALE: 1" = 400'



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PROJECT SOTER

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WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 11 of 35

SCALE: 1" = 400'

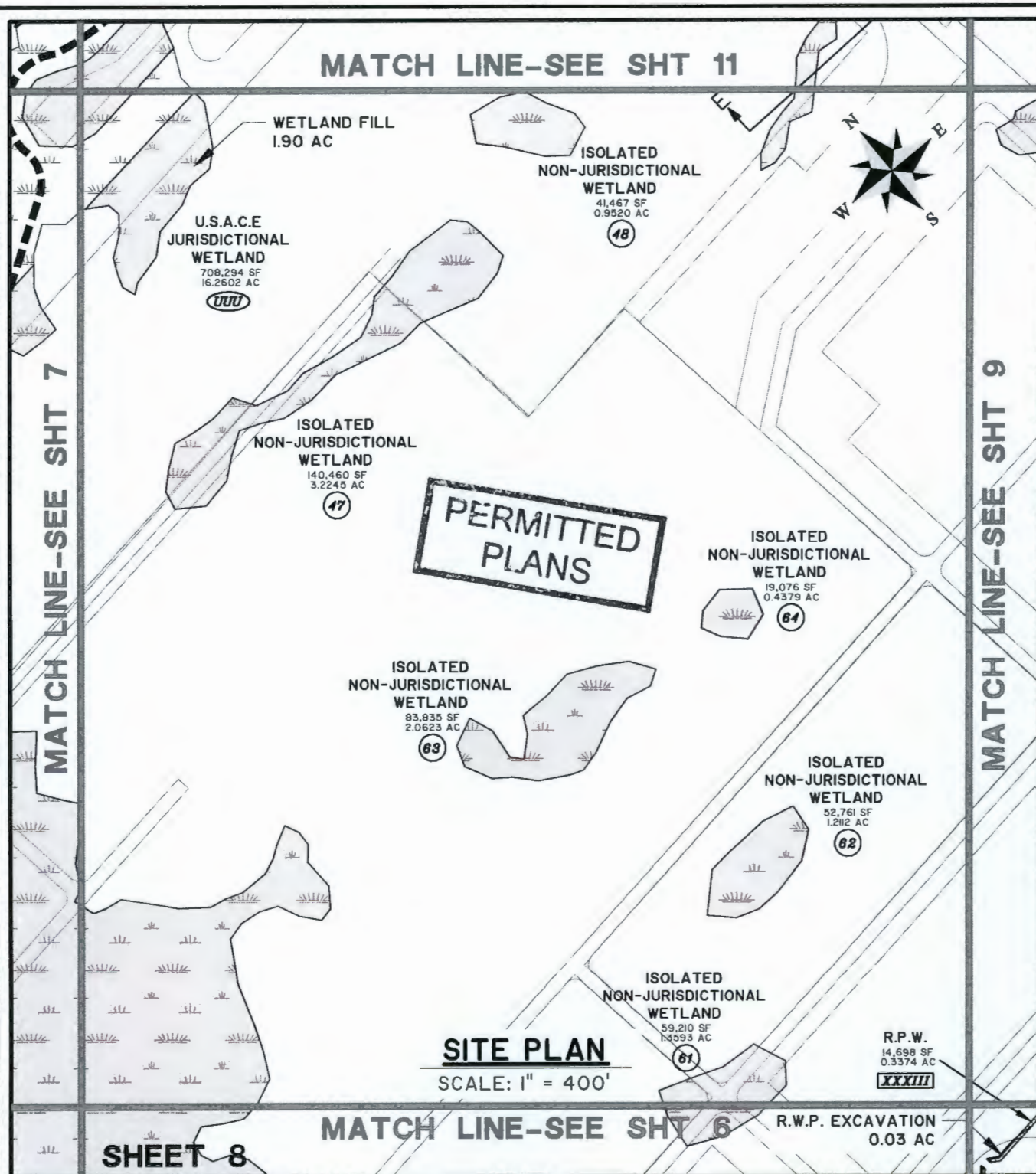


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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 12 of 35

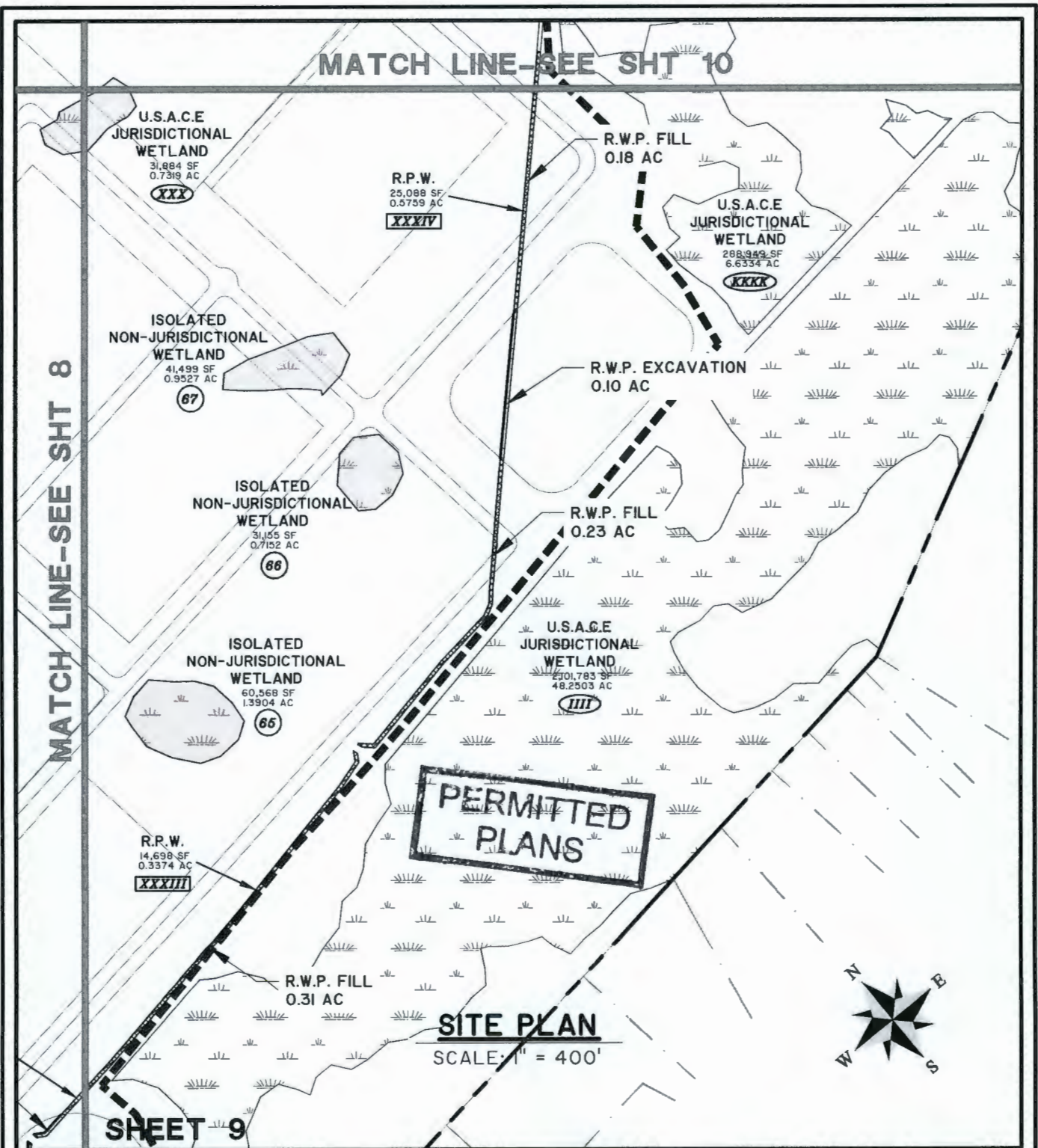
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PROJECT SOTER

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WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 13 of 35

SCALE: 1" = 400'

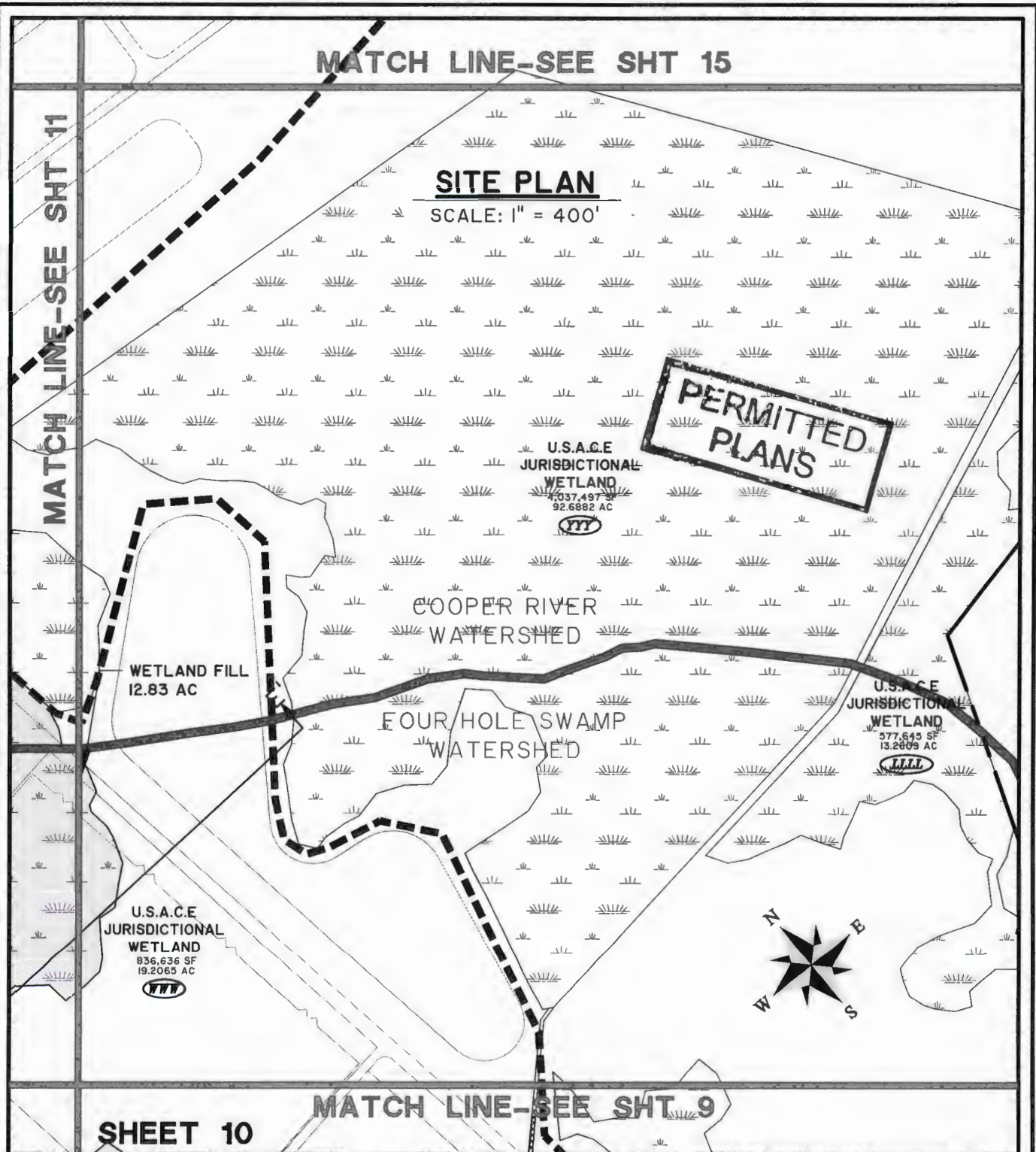


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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 14 of 35

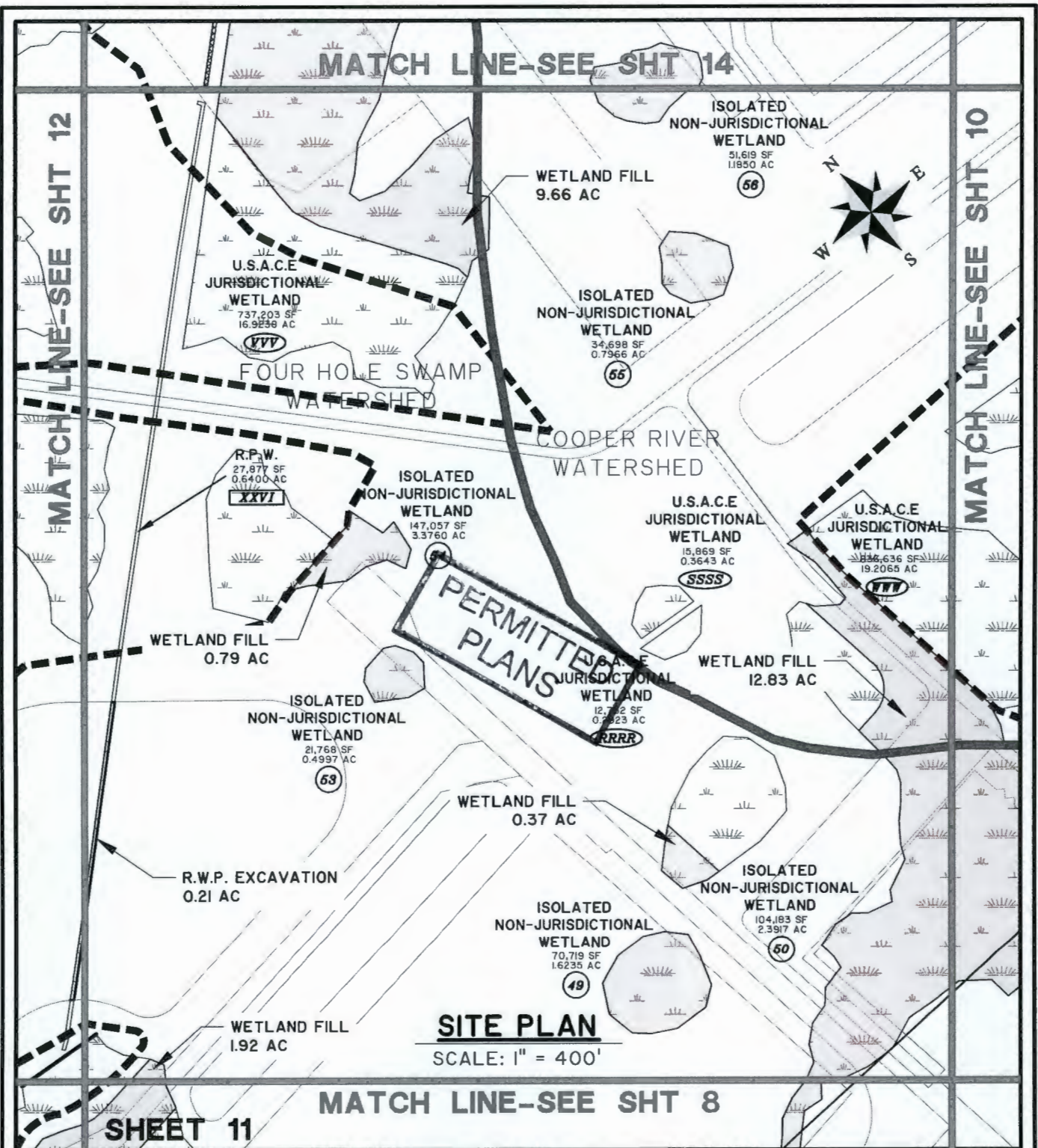
SCALE: 1" = 400'



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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 15 of 35

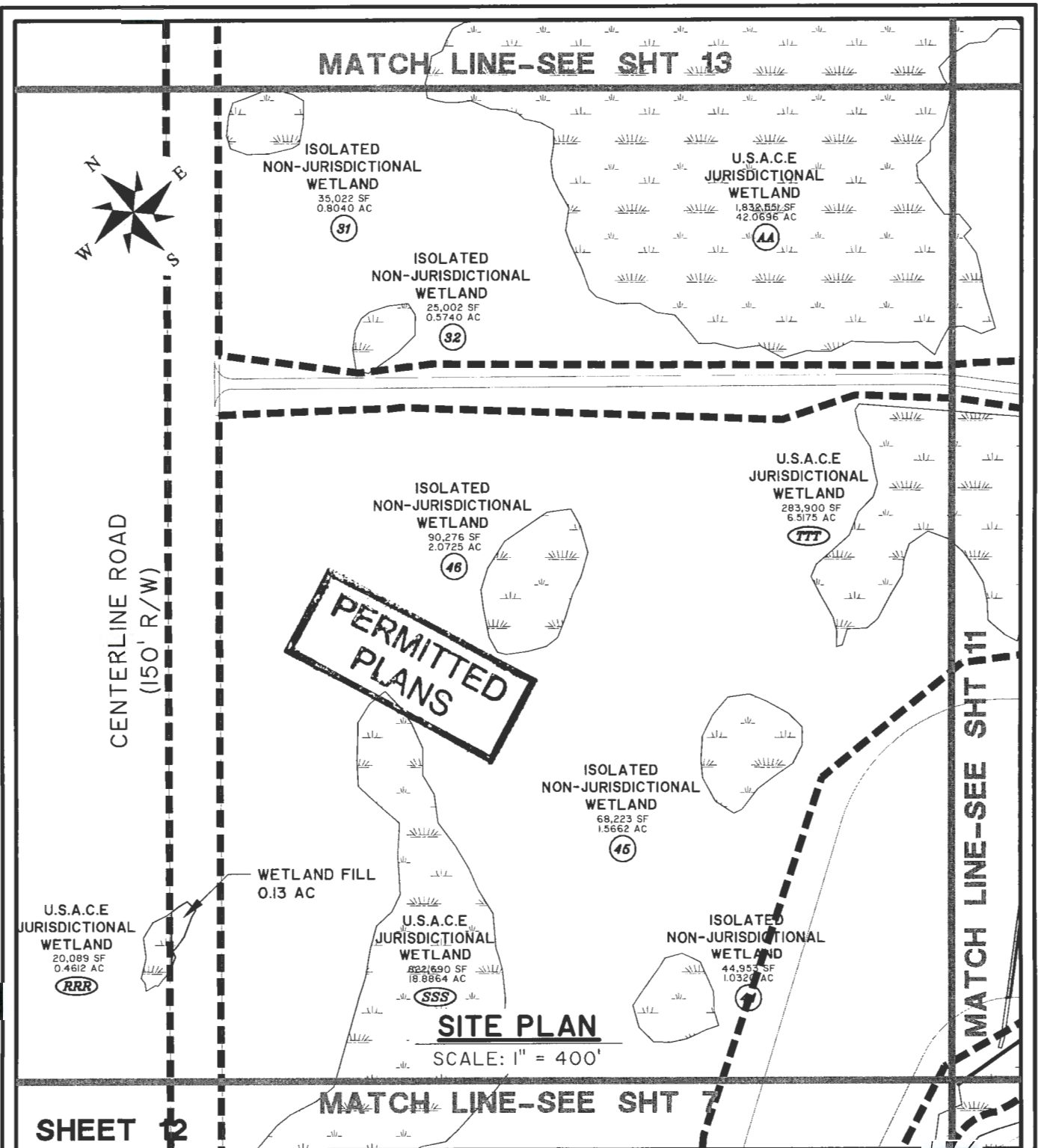
SCALE: 1" = 400'



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PROJECT SOTER

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WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 16 of 35

SCALE: 1" = 400'

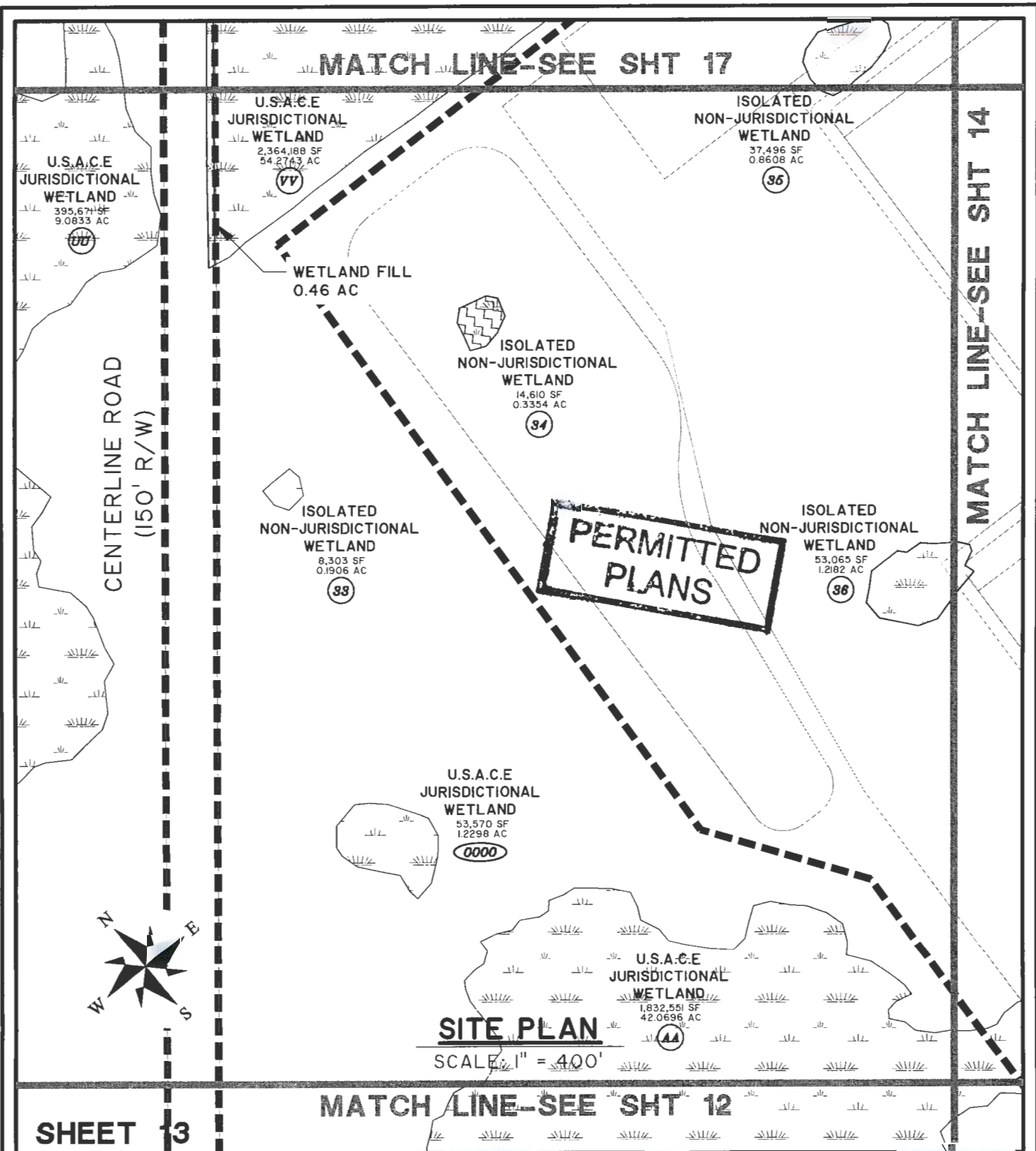


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PROJECT SOTER

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WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 17 of 35

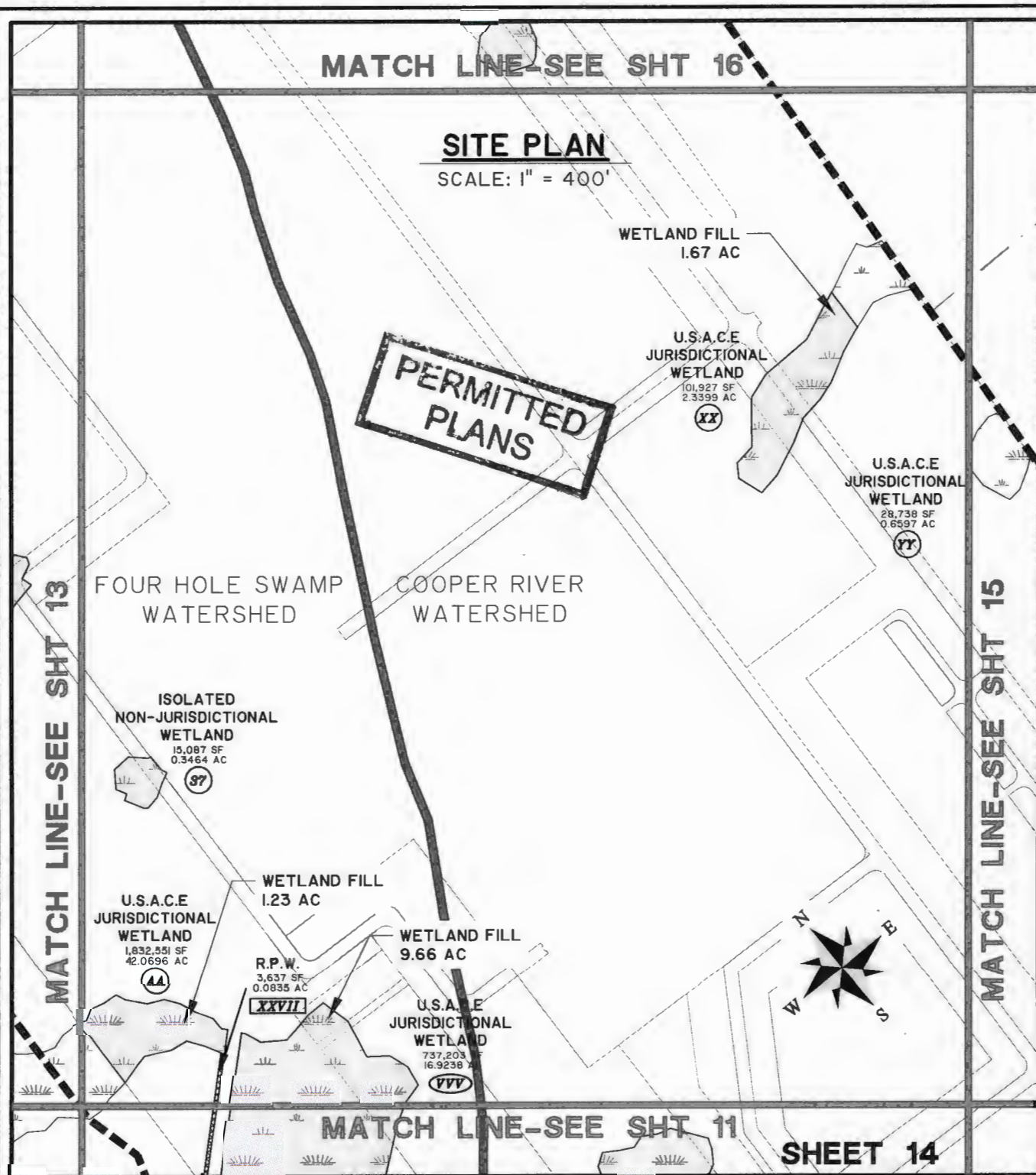
SCALE: 1" = 400'



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PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 18 of 35

SCALE: 1" = 400'



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SITE PLAN

SCALE: 1" = 400'



PERMITTED
PLANS

MATCH LINE-SEE SHT 14

ISOLATED
NON-JURISDICTIONAL
WETLAND
17,161 SF
0.3940 AC
67

U.S.A.C.E
JURISDICTIONAL
WETLAND
46,054 SF
1.0573 AC
222

MATCH LINE-SEE SHT 10

SHEET 15

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

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SHEET: 19 of 35

SCALE: 1" = 400'



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MATCH LINE-SEE SHT 17

SITE PLAN

SCALE: 1" = 400'



PERMITTED
PLANS

ISOLATED
NON-JURISDICTIONAL
WETLAND
21,359 SF
0.4853 AC

38

U.S.A.C.E
JURISDICTIONAL
WETLAND
45,803 SF
1.0515 AC

SHEET 16

MATCH LINE-SEE SHT 14

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 20 of 35

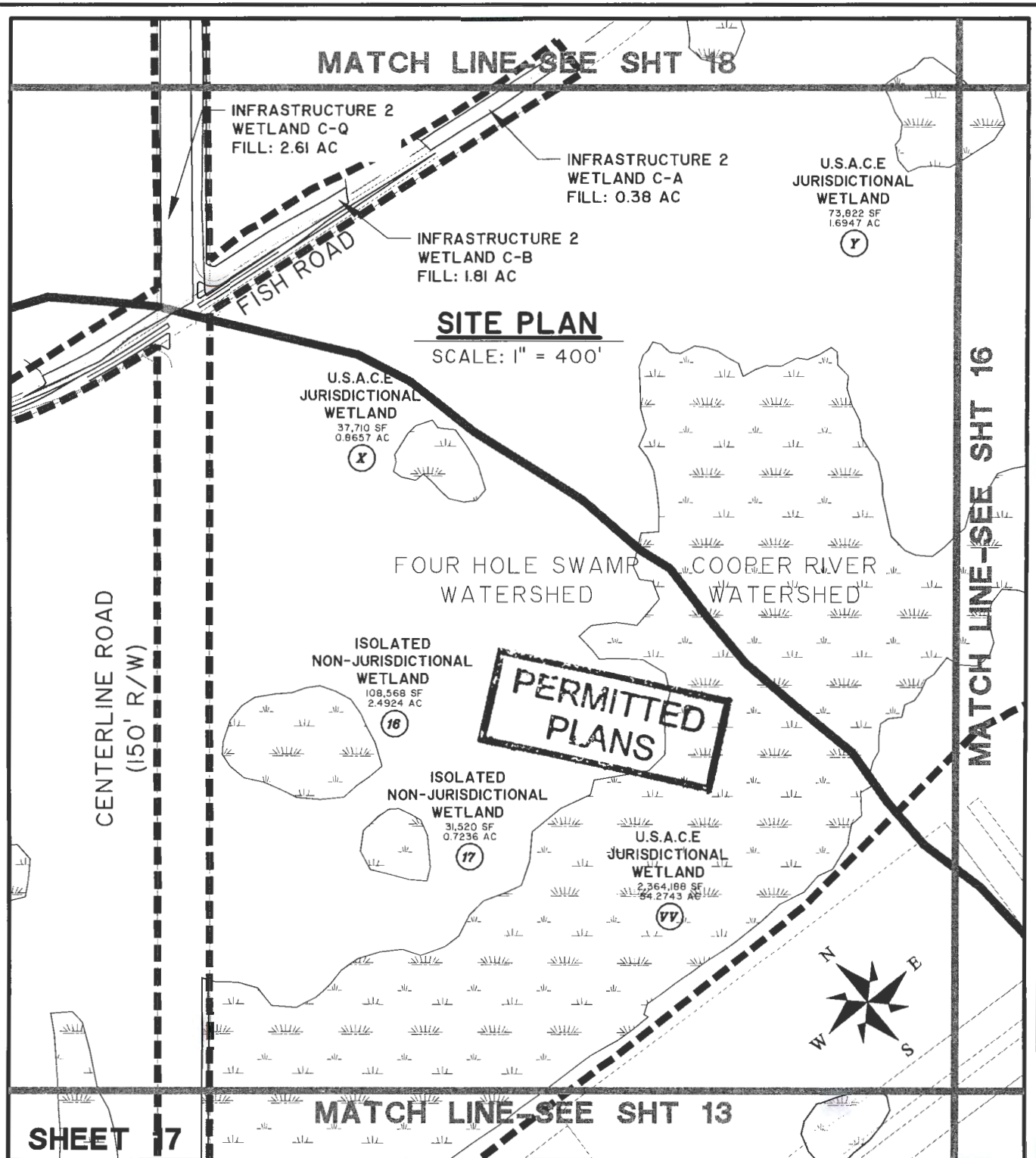
SCALE: 1" = 400'



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CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015
JOB NUMBER: 25492

DRAWN BY: MAM
REVIEWED BY: MBS

SHEET: 21 of 35
SCALE: 1" = 400'

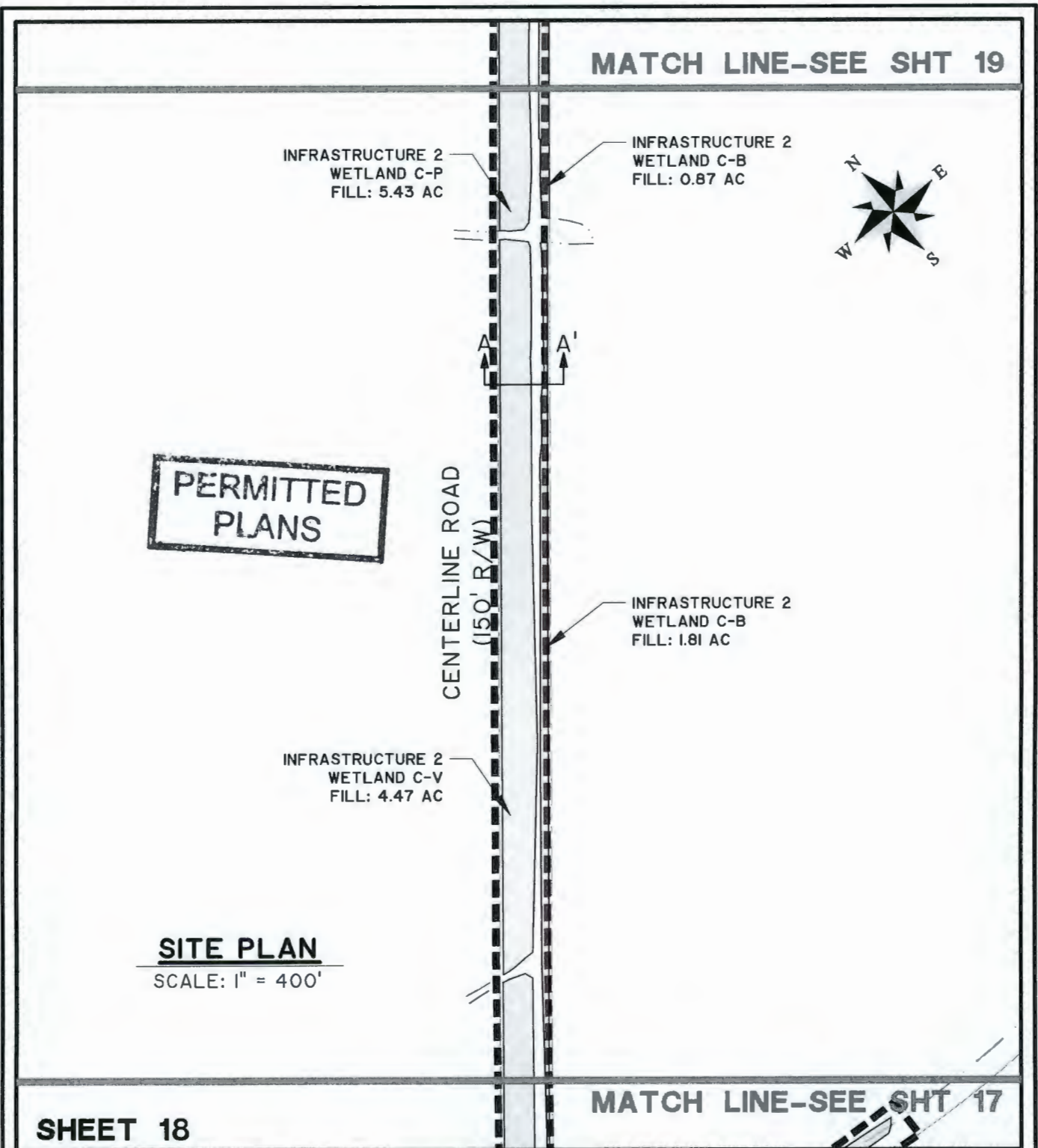


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PROJECT SOTER

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CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 22 of 35

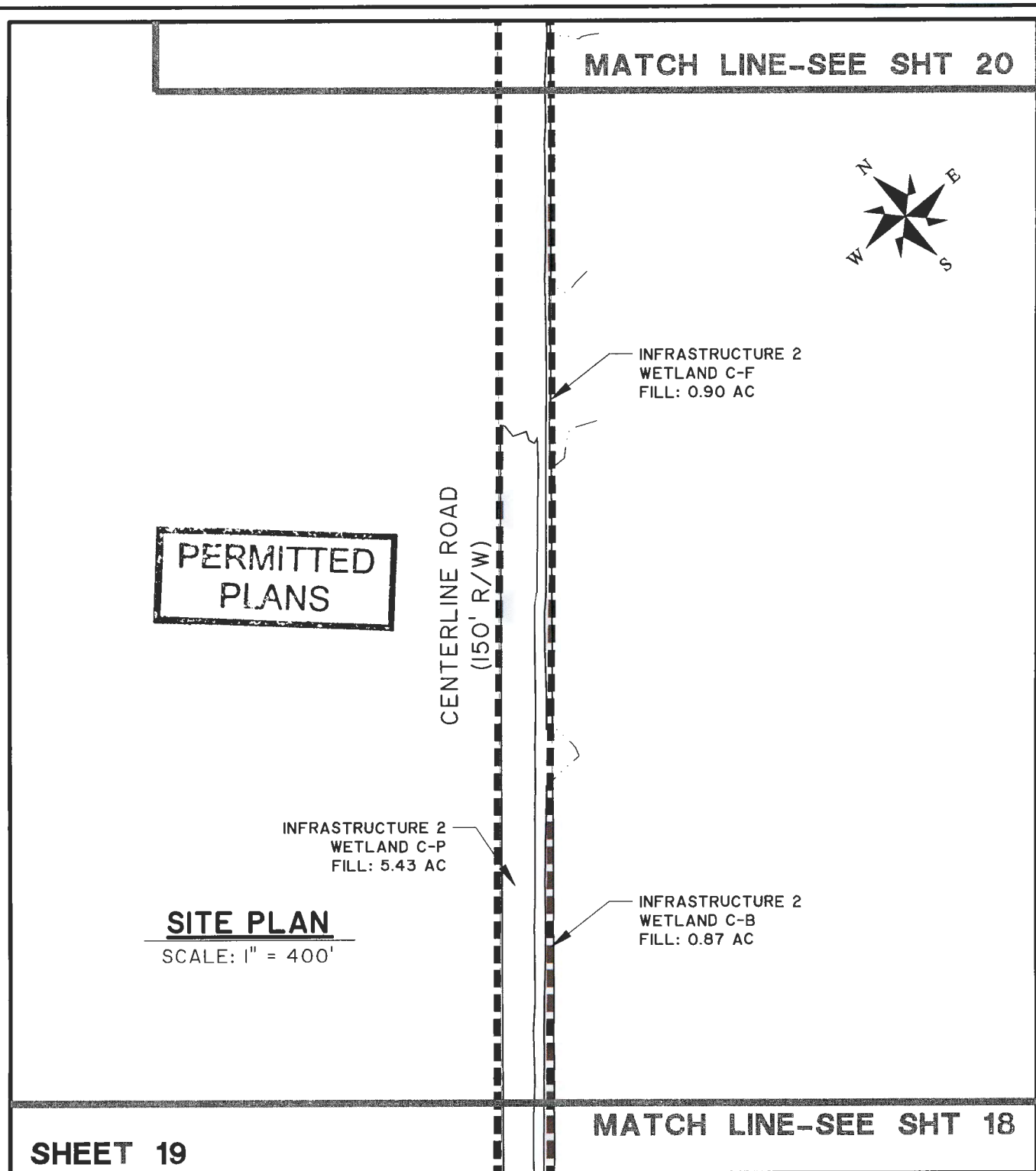
SCALE: 1" = 400'



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PROJECT SOTER

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LOCATION: BERKELEY COUNTY, SC

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JOB NUMBER: 25492

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REVIEWED BY: MBS

SHEET: 23 of 35

SCALE: 1" = 400'



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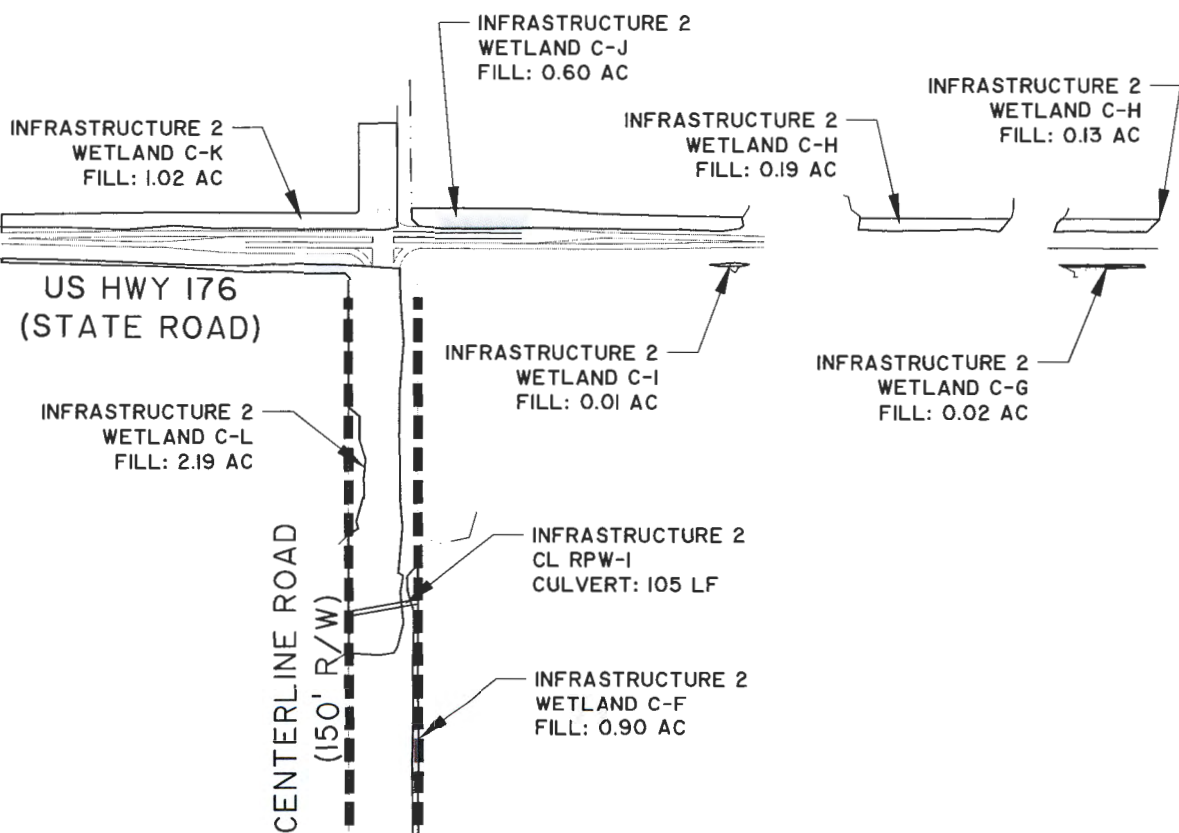
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SITE PLAN

SCALE: 1" = 400'



**PERMITTED
PLANS**



SHEET 20

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015
JOB NUMBER: 25492

DRAWN BY: MAM
REVIEWED BY: MBS

SHEET: 24 of 35
SCALE: 1" = 400'



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INFRASTRUCTURE I
WETLAND FILL
1.96 AC

INFRASTRUCTURE I
WETLAND FILL
1.34 AC

SC HWY 27 (OLD GILLIARD RD)

LOWER WESTVICO ROAD
(120' R/W)

WETLAND FILL
1.00 AC

U.S.A.C.E
JURISDICTIONAL
WETLAND
1,636,086 SF
37.5594 AC
(PP)

U.S.A.C.E
JURISDICTIONAL
WETLAND
1,636,086 SF
37.5594 AC
(PP)

MATCH LINE-SEE SHEET 22

PERMITTED
PLANS

SITE PLAN

SCALE: 1" = 400'

SHEET 21

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 25 of 35

SCALE: 1" = 400'



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MATCH LINE-SEE SHT 21

U.S.A.C.E
JURISDICTIONAL
WETLAND
1,636,086 SF
37.5594 AC

PP

U.S.A.C.E
JURISDICTIONAL
WETLAND
956,431 SF
21.9566 AC

BB

LOWER WESTVACO ROAD
(120' R/W)

WETLAND FILL
1.31 AC

WETLAND FILL
0.37 AC

U.S.A.C.E
JURISDICTIONAL
WETLAND
16,422 SF
0.3778 AC

GC

PERMITTED
PLANS

SITE PLAN

SCALE: 1" = 400'



MATCH LINE-SEE SHT 23

SHEET 22

PROJECT SOTER

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WETLAND FILL

CLIENT:
BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015
JOB NUMBER: 25492

DRAWN BY: MAM
REVIEWED BY: MBS

SHEET: 26 of 35
SCALE: 1" = 400'



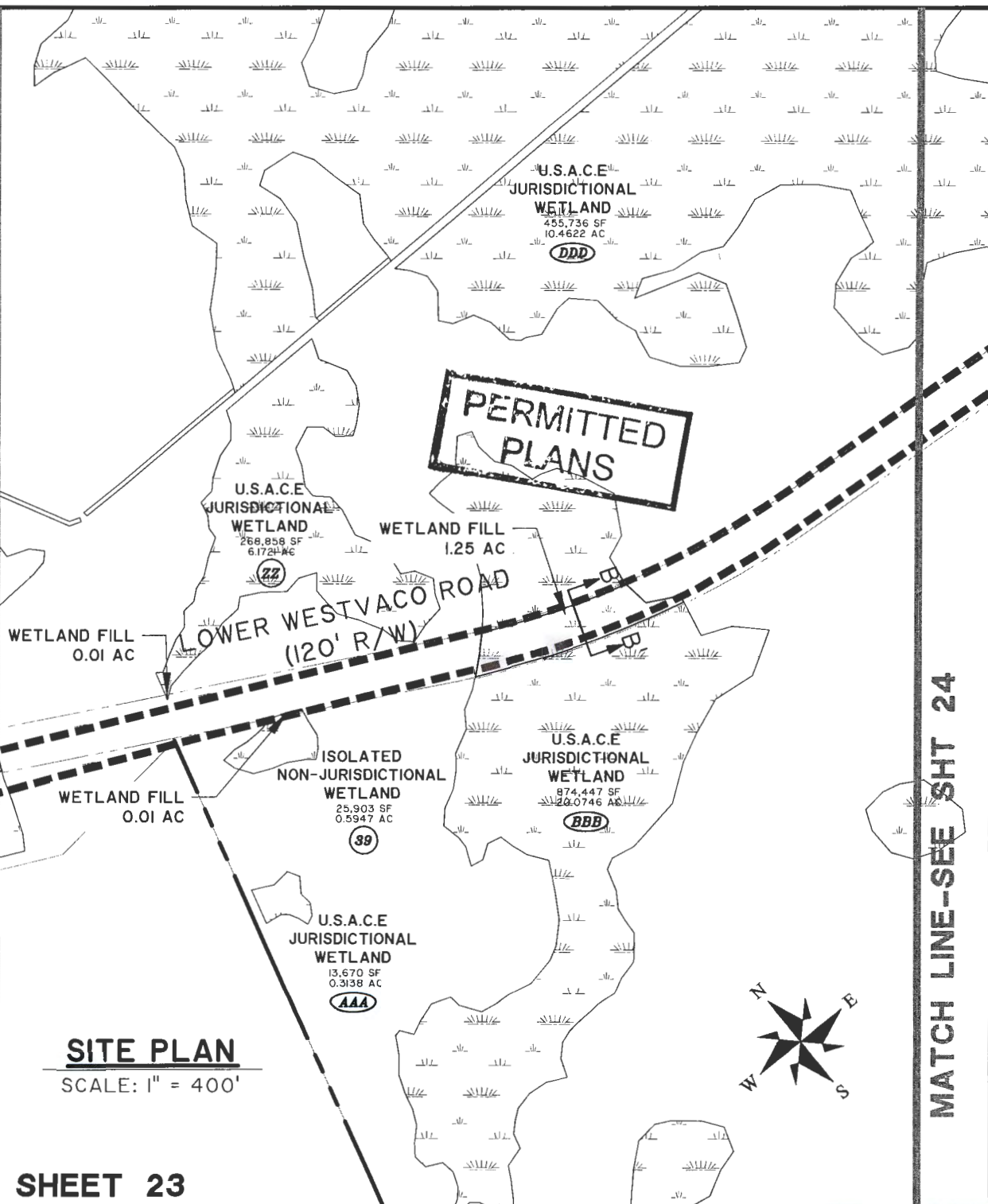
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MATCH LINE-SEE SHT 22

MATCH LINE-SEE SHT 24



PROJECT SOTER

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WETLAND FILL

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LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015
JOB NUMBER: 25492

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REVIEWED BY: MBS

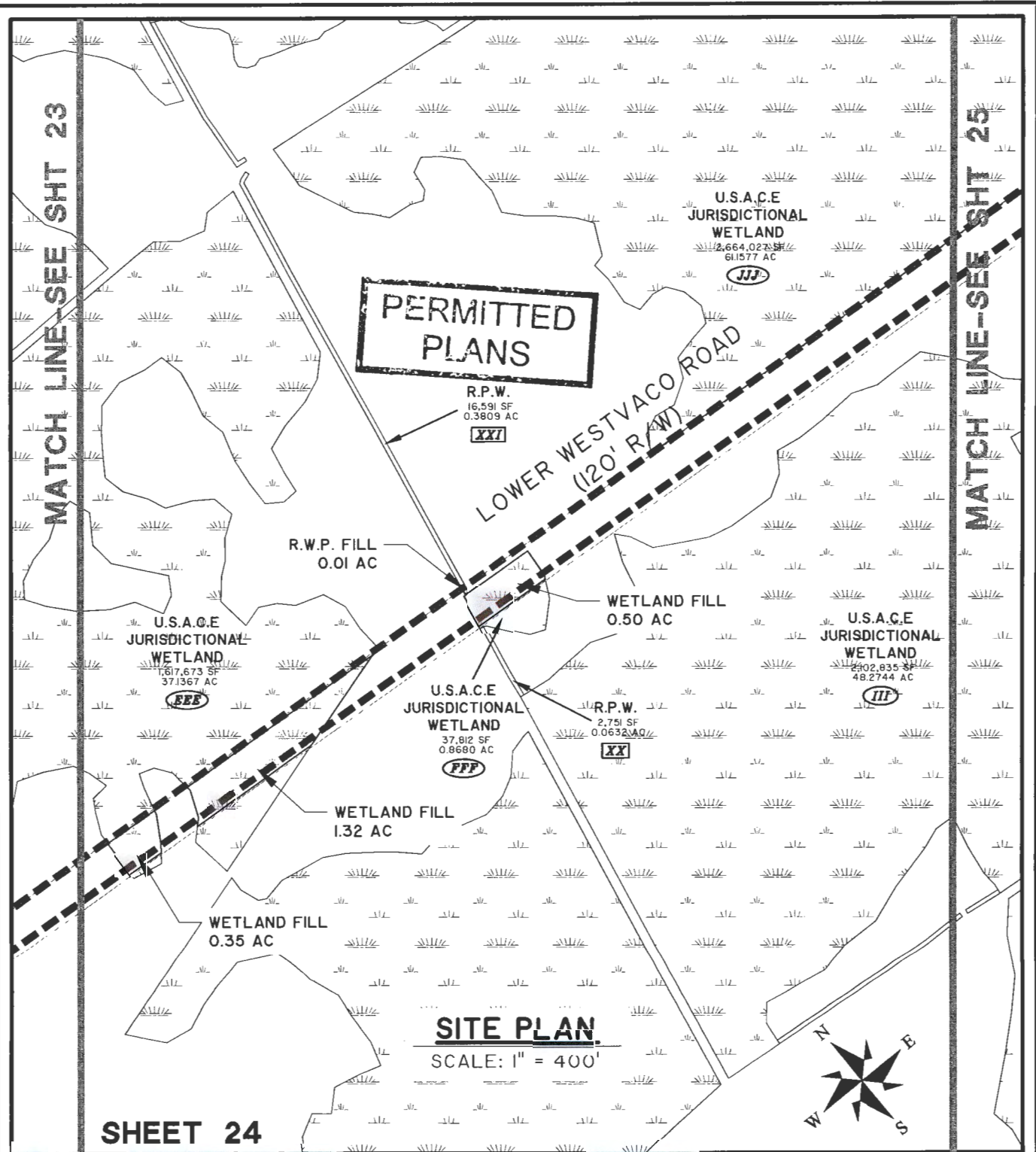
SHEET: 27 of 35
SCALE: 1" = 400'



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PROJECT SOTER

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WETLAND FILL

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BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MMS

SHEET: 28 of 35

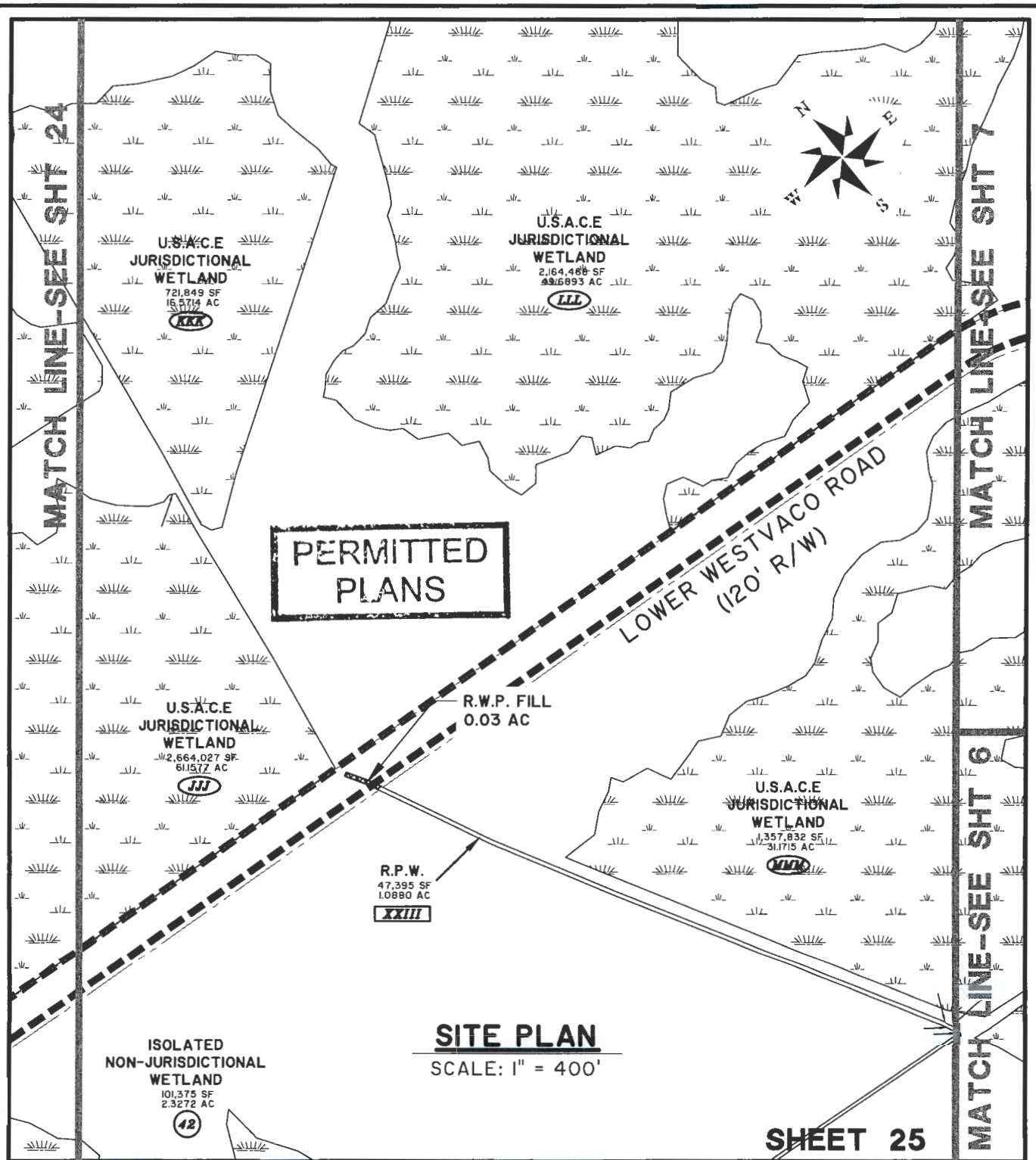
SCALE: 1" = 400'



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PROJECT SOTER

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CLIENT:

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LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: 25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 29 of 35

SCALE: 1" = 400'

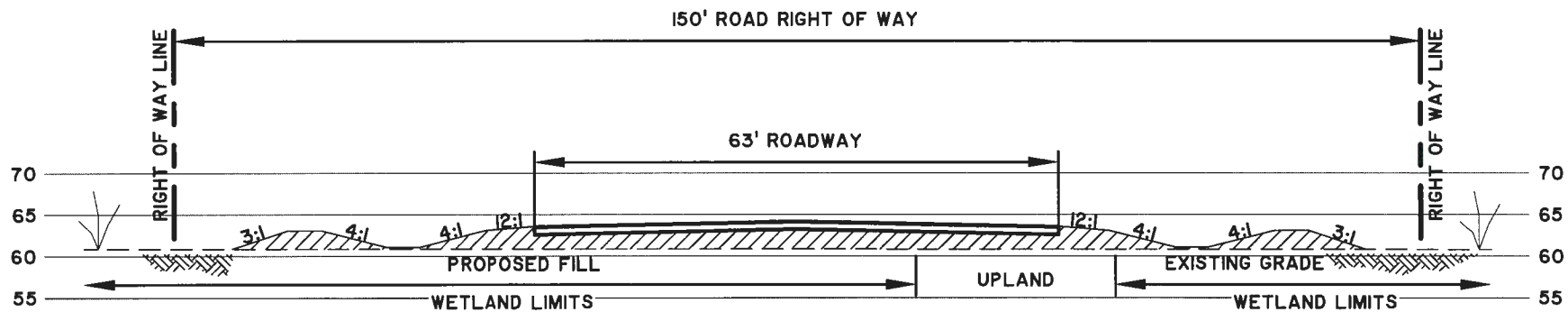


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PERMITTED PLANS



TYPICAL CENTERLINE ROAD SECTION (SECTION A-A')

SCALE: 1" = 20'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

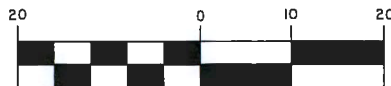
JOB NUMBER: J-25492

DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 30 of 35

SCALE: 1" = 20'



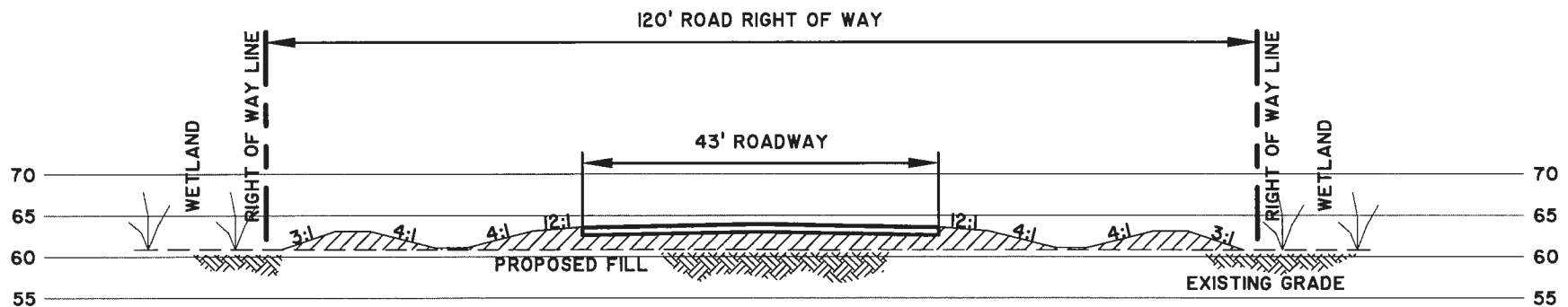
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**PERMITTED
PLANS**



TYPICAL LOWER WESTVACO ROAD SECTION (SECTION B-B')

SCALE: 1" = 20'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: J-25492



DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 31 of 35

SCALE: 1" = 20'

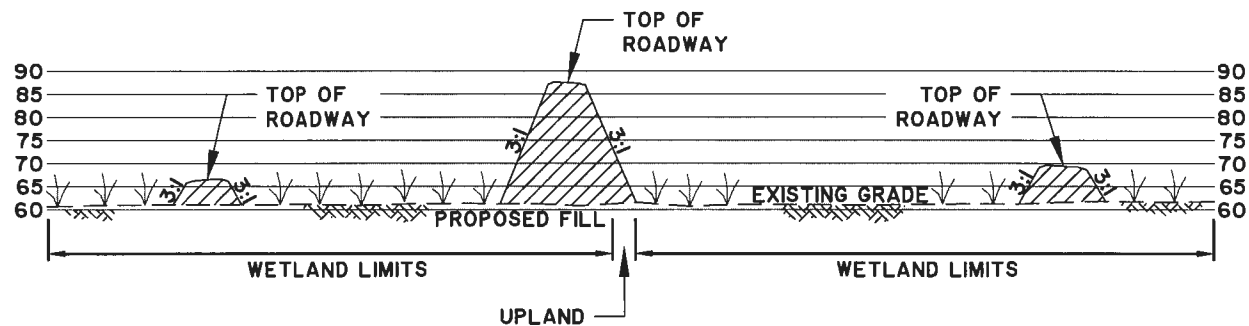


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**PERMITTED
PLANS**



TYPICAL INTERCHANGE SECTION (SECTION C-C')

SCALE: HOR: 1" = 200'
VERT: 1" = 40'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: J-25492



DRAWN BY: MAM
REVIEWED BY: MBS

SHEET: 32 of 35
SCALE: 1" = 40'

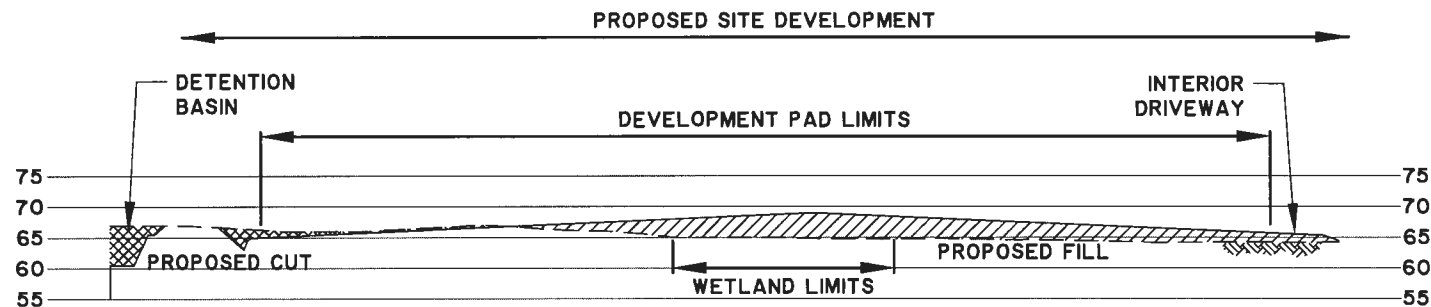


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PERMITTED PLANS



TYPICAL DEVELOPMENT PAD SECTION (SECTION D-D')

SCALE: HOR: 1" = 300'
VERT: 1" = 30'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

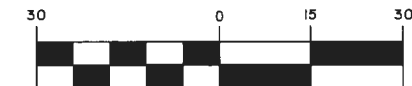
CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: J-25492



DRAWN BY: MAM
REVIEWED BY: MBS

SHEET: 33 of 35
SCALE: 1" = 30'

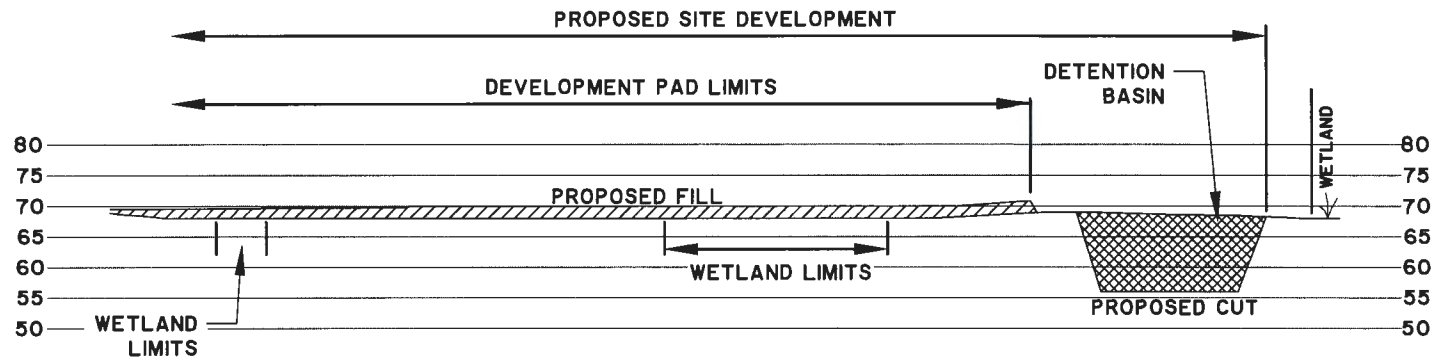


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PERMITTED PLANS



TYPICAL DEVELOPMENT PAD SECTION (SECTION E-E')

SCALE: HOR: 1" = 300'
VERT: 1" = 30'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: J-25492



DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 34 of 35

SCALE: 1" = 30'



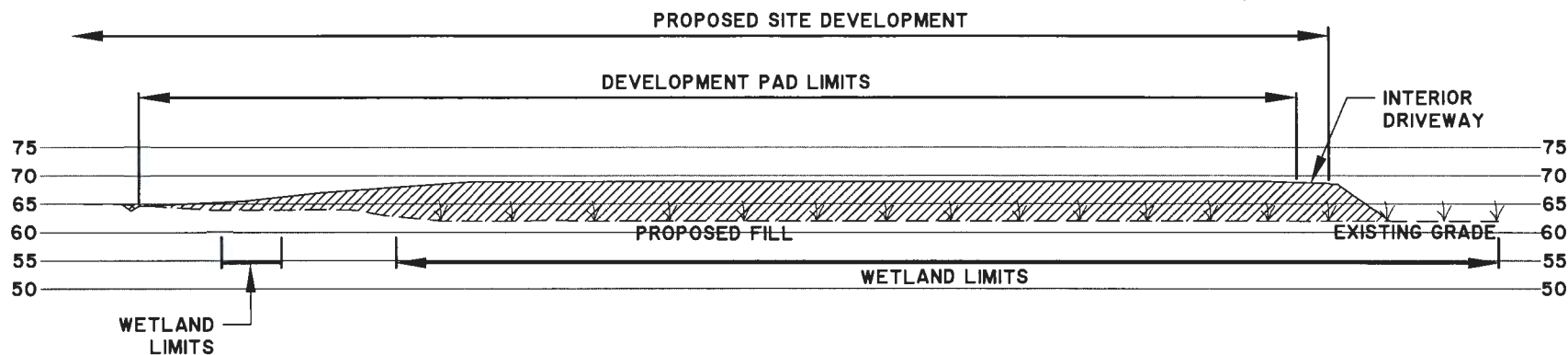
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**PERMITTED
PLANS**



TYPICAL DEVELOPMENT PAD SECTION (SECTION F-F')

SCALE: HOR: 1" = 300'
VERT: 1" = 30'

PROJECT SOTER

PROPOSED ACTIVITY:
WETLAND FILL

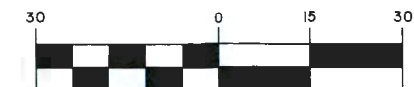
CLIENT:

BERKELEY COUNTY ECONOMIC DEVELOPMENT

LOCATION: BERKELEY COUNTY, SC

DATE: APRIL 2, 2015

JOB NUMBER: J-25492



DRAWN BY: MAM

REVIEWED BY: MBS

SHEET: 35 of 35

SCALE: 1" = 30'



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