

**SECTION 404 INDIVIDUAL PERMIT APPLICATION**  
**SUPPORTING DOCUMENTATION AND ENVIRONMENTAL REPORT**

**PROJECT SOTER**  
**BERKELEY COUNTY, SOUTH CAROLINA**

**PREPARED FOR:**

**BERKELEY COUNTY**  
**1003 HIGHWAY 52**  
**MONCKS CORNER, SOUTH CAROLINA 29461**

**PREPARED BY:**



**AMEC FOSTER WHEELER ENVIRONMENT & INFRASTRUCTURE, INC.**  
**720 GRACERN ROAD, SUITE 132**  
**COLUMBIA, SOUTH CAROLINA**

**IN COLLABORATION WITH**



**REVISED**  
**APRIL 16, 2015**

**AMEC PROJECT 6250-14-0079**

# 1 EXECUTIVE SUMMARY

---

Berkeley County is requesting a Section 404 permit with a 25 year duration to promote a portion of the Camp Hall Commerce Park in Berkeley County to attract Project Soter, a major advanced manufacturing facility, into South Carolina.

The Camp Hall Commerce Park development proposes a singular large development. A large development, such as Project Soter, is planned to include up to \$1 billion in private capital investment. The State of South Carolina has projected a labor force of 4,000 jobs within 10 years after the start of manufacturing operations. The potential development of the Camp Hall Commerce Park would provide a significant economic impact on Berkeley County, the Greater Charleston Area, and the State of South Carolina. The proposed development of the Camp Hall Commerce Park will impact a total of 192.86 acres of jurisdictional wetlands, 23.14 acres of non-jurisdictional isolated wetlands, and 1.85 acres of jurisdictional relatively permanent waters (RPWs).

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 Project Soter – Landscape Mitigation Plan was designed to achieve a landscape scale conservation outcome based on the priorities of both local and regional environmental advocacy groups and the Federal and State regulatory and resource agencies. The Project Soter – Landscape Mitigation Plan will preserve and enhance approximately 1,533 acres of wetlands within approximately 2,458 acres of property to be permanently protected in the Dean Swamp and Walnut Branch watersheds, tributaries of Four Hole Swamp defined as critical priority areas needing protection by the National Audubon Society.

A detailed Alternatives Analysis was conducted to evaluate industrial sites in South Carolina for their ability to meet the purpose and need of the proposed project. This analysis determined that the Camp Hall Commerce Park meets the overall project needs. Further analysis of three on-site alternatives and refinement of the proposed alternative, showed that the proposed alternative meets the overall project needs, is economically and logistically viable, and provides for the least environmental impact.

In conclusion, Project Soter is expected to provide a significant positive economic impact Berkeley County, the Greater Charleston Area, and the State of South Carolina. This Section 404 Individual Permit Application and supporting documentation addresses and meets requirements set forth under the National Environmental Policy Act, 42 U.S.C.A. §§ 4321 *et seq.* (NEPA) and is compliance with the guidelines promulgated by the United States Environmental Protection Agency in conjunction with the Secretary of the Army under the authority of Section 404(b)(1) of the CWA (Guidelines) and NEPA.

## Table of Contents

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>2</b>	<b>INTRODUCTION .....</b>	<b>1</b>
2.1	Applicant's Proposed Project.....	1
2.2	Project Background .....	2
2.3	The USACE Authority and Scope of Analysis.....	4
<b>3</b>	<b>FINDING OF PRACTICABLE ALTERNATIVES .....</b>	<b>7</b>
3.1	Practicable Alternatives Framework (40 C.F.R. § 230.10 (a)) .....	7
3.2	Project Purpose.....	9
3.3	Alternatives Development.....	12
3.4	Identification of Alternatives.....	15
3.5	Alternatives Practicability Analysis .....	20
<b>4</b>	<b>WATERS TO BE IMPACTED .....</b>	<b>34</b>
4.1	Wetlands .....	34
4.2	Relatively Permanent Waters .....	35
4.3	Impacts.....	36
<b>5</b>	<b>PROPOSED MITIGATION.....</b>	<b>37</b>
<b>6</b>	<b>AFFECTED ENVIRONMENT AND IMPACTS.....</b>	<b>39</b>
6.1	Land Use .....	39
6.2	Aesthetics and Visual Resources .....	40
6.3	Air Quality.....	40
6.4	Noise .....	49
6.5	Geology and Soils .....	51
6.6	Water Resources/Floodplains .....	54
6.7	Biotic Communities.....	69
6.8	Protected Species .....	72
6.9	Cultural Resources.....	77
6.10	Socioeconomic Impacts .....	79
6.11	Environmental Justice .....	83
6.12	Traffic and Transportation .....	85
6.13	Utilities.....	88
6.14	Hazardous Materials/Toxic Substances .....	92
<b>7</b>	<b>APPLICATION FORM AND PERMIT DRAWINGS .....</b>	<b>94</b>
<b>8</b>	<b>LIST OF PREPARERS AND CONTRIBUTORS.....</b>	<b>95</b>
<b>9</b>	<b>REFERENCES .....</b>	<b>96</b>

## Tables

Table 1	Air Quality Data Summary for Tri-County Area .....	41
Table 2	Emission Summary for Tri-County Area.....	43
Table 3	Natural Gas Combustion @ 100 mmBtu/hour .....	46
Table 4	Employee and Ancillary Traffic .....	46
Table 5	Truck Traffic @ 300 Trucks per Day .....	47
Table 6	Soil Characteristics Within the Project Soter Study Area (USDA NRCS, 2015b). .....	52
Table 7	South Carolina Quality Standards for Freshwaters [R. 61-69 (G)(10)].....	57
Table 8	Summary of the Unified Stormwater Sizing Criteria for Stormwater Control and Mitigation .....	62
Table 9	Current list of federally endangered, threatened, and candidate species in Berkeley County, South Carolina (USFWS 2015) and their habitat types.....	73
Table 10	South Carolina, Berkeley County, and Project Area Population 1990 - 2010 .....	79
Table 11	Per capita money income in past 12 months, South Carolina and Berkeley County, 2013.....	80
Table 12	Median Family Income and Poverty Level for the Proposed Project Area, 2015.....	84
Table 13	Population Percentages by Race, 2015.....	84
Table 14	2013 Level of Service Estimations .....	86
Table 15	2018 Level of Service Estimations for Initial Development Phase.....	86
Table 16	2030 Level of Service Estimations for Interim Development Phase.....	87
Table 17	2040 Level of Service Estimations for Ultimate Development Phase.....	88
Table 18	Classes of Hazardous Waste Generators.....	93

## List of Figures

Figure 1	Project Location Map
Figure 2	Overall Project Layout
Figure 3	Aerial Photography
Figure 4	USGS Topographic Map
Figure 5	National Wetlands Inventory
Figure 6	USDA-NRCS Soil Survey
Figure 7	Flood Insurance Rate Map

## List of Appendices

Appendix A	Joint Federal and State Permit Application Package
Appendix B	Alternatives Analysis Drawings
Appendix C	Adverse Impacts Assessment
Appendix D	Jurisdictional Determination Letters
Appendix E	Landscape Mitigation Plan
Appendix F	Biological Assessment
Appendix G	Cultural Resources Assessment
Appendix H	Economic Impact Assessment
Appendix I	Project Soter Traffic Assessment
Appendix J	Stormwater Management Plan

## ACRONYMS

ACE	Ashepoo, Combahee and Edisto Rivers
ADT	Average daily traffic
amsl	Above mean sea level
APE	Area of potential effect
BA	Biologic assessment
BACT	Best Available Control Technology
BAQ	Bureau of Air Quality
BCWS	Berkeley County Water and Sanitation
BMP	Best management practice
CESQG	Conditionally exempt small quantity generator
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CGP	Construction General Permit
CH	Critical Habitat
CO	Carbon monoxide
CO <sub>2</sub> e	Carbon dioxide equivalent
CRIS	Cultural Resource Identification Survey
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DNL	Day-Night average sound level
DO	Dissolved oxygen
DPS	Distinct Population Segment
ER	Environmental Report
ESA	Endangered Species Act
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMNF	Francis Marion National Forest
FPPA	Farmland Protection Policy Act
FR	Federal Register

## ACRONYMS, cont'd

FW	Freshwaters
GPM	Gallons per minute
HAP	Hazardous air pollutant
HTC	Home Telephone Company
HUC	Hydrologic unit code
HUD	Housing and Urban Development
IMPLAN	Impact Analysis for Planning
IPAC	Information Planning and Conservation System
kV	Kilovolt
LCP	Larger common plan
LOS	Level of service
LQG	Large quantity generator
MACT	Maximum Achievable Control Technology
MS4	Municipal separate storm sewer system
MWV	Mead Westvaco
NAAQS	National Ambient Air Quality Standards
NEI	National Emission Inventory
NEPA	National Environmental Policy Act
NOx	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NTU	Nephelometric turbidity units
NWL	Normal water level
OHSCP	Oil and Hazardous Substance Contingency Plan
PM	Particulate matter
PM-2.5	Particulate matter < 2.5 micrometers
PM-10	Particulate matter < 10 micrometers
PSD	Prevention of significant deterioration
PTE	Potential to emit

## ACRONYMS, cont'd

RCRA	Resource Conservation and Recovery Act
RCW	Red-cockaded woodpecker
ROW	Right-of-way
RPW	Relatively Permanent Water
SC	South Carolina
SCDHEC	South Carolina Department of Health and Environmental Control
SCDNR	South Carolina Department of Natural Resources
SCDOT	South Carolina Department of Transportation
SCE&G	South Carolina Electric and Gas
SHPO	State Historic Preservation Office
SPCCP	Spill Prevention, Control and Countermeasures Plan
SQG	Small quantity generator
STP	Shovel test pit
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total maximum daily load
TPY	Tons per year
TSS	Total suspended solids
USACE	U.S. Army Corps of Engineers
USC	Unified Sizing Criteria
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geologic Survey
VMT	Vehicle miles travelled
VOC	Volatile organic compounds
WSE	Water surface elevation

## 2 INTRODUCTION

---

This document is prepared and submitted pursuant the permitting jurisdiction of the Department of the Army, U.S. Army Corps of Engineers (USACE or Corps) under Section 404 of the Clean Water Act (CWA) and certain requirements set forth under the National Environmental Policy Act, 42 U.S.C.A. §§ 4321 *et seq.* (NEPA). Berkeley County (Berkeley County) has submitted a Section 404 application with a 25 year duration for the Soter TDL Cluster Advanced Manufacturing Project (the “Proposed Project” or “Project Soter”), and this analysis is drafted to ensure compliance with the guidelines promulgated by the United States Environmental Protection Agency (USEPA) in conjunction with the Secretary of the Army under the authority of Section 404(b)(1) of the CWA (Guidelines)<sup>1</sup> and NEPA. Thus, the purpose of this document is, primarily, three-fold:

- To present the environmental documentation and information from which the USACE can make its Section 404(b)(1) compliance determination regarding the Proposed Project;
- To present environmental documentation and information to assist the USACE in making its necessary determinations pursuant to NEPA regarding the Proposed Project; and
- To inform the public of the USACE decision-making process in evaluating the Proposed Project’s compliance with Section 404(b)(1) and NEPA and to invite the public to participate and provide comments relevant to that evaluation.

### 2.1 Applicant’s Proposed Project

Berkeley County serves as the applicant to develop a site for an interested entity to locate, build, and operate an advanced manufacturing and assembly facility that requires the presence of certain transportation, distribution, and logistics (TDL) cluster infrastructure (e.g., automotive or aerospace industry sectors) and administrative offices in South Carolina.<sup>2</sup> The Proposed Project would result in an impact on the environment and involve

---

<sup>1</sup> 40 C.F.R. Part 230.

<sup>2</sup> South Carolina has a robust TDL cluster infrastructure providing a base for reliant advanced manufacturing facilities, as evidenced by the active involvement and support of public and private institutions of these industry sectors. For example, the South Carolina Automotive Council is a division of the South Carolina Manufacturers Alliance and acts as a leading organization dedicated to enhancing the state’s automotive manufacturing sector’s position, include fostering collaboration, promote innovation, and maintain a business environment conducive to growth and success in a global marketplace. South Carolina further boasts “South Carolina Aerospace,” a public-private partnership between the South Carolina Council on Competitiveness and the South Carolina Department of Commerce (SCDOC) to develop the aerospace industry cluster in the state. The TDL Council is a



discharge of dredge and fill material into waters of the United States. Section 404 of the Clean Water Act (CWA) establishes a regulatory program to regulate the discharge of dredge and fill material into waters of the United States, including wetlands, through issuance of Department of Army (DA) permits.

## **2.2 Project Background**

The Proposed Project involves the development and construction of a new, advanced manufacturing, production, and assembly facility in Berkeley County, South Carolina. The onsite work for the Proposed Project facilities currently includes two phases of planned construction and operation. 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 visitor's center. Therefore, the construction footprint for Phase 1 is approximately 575 acres. Operating at full capacity, Phase 1 of the Proposed Project is expected to employ approximately 2,000 individuals at the manufacturing facility, administrative offices, and visitor's center.

Phase 2 of the Proposed Project 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 (which is an additional approximately 322 acres). The timeline for construction of Phase 2 is dependent in part on market conditions. However, it is reasonably anticipated that Phase 2 will be constructed and operational within 10 years of the initiation of construction for Phase 1. Operating at full capacity, Phase 2 of the Proposed Project is expected to employ an additional 2,000 individuals at the facility.

### **2.2.1 Proposed Project Area**

The Proposed Project site is known as the Camp Hall Commerce Park and is located in Berkeley County, South Carolina. The site is adjacent to and bounded on the southwest side by Interstate 26, and is east of S.C. Highway 27, southwest of State Road (U.S. Highway 176) and west of Lebanon Road. No current interchange exists to provide direct access to the Camp Hall Commerce Park from Interstate 26, although the Proposed Project calls for a T-type interchange that would be located approximately nine miles northwest of Interstate 26 Exit 199, Summerville, and approximately 2.5 miles southeast of Interstate 26 Exit 187, Ridgeville.

The Proposed Project site has been screened for Industrial Site Certification by the SCDOC and is located within the Charleston-North Charleston-Summerville Metropolitan Statistical

---

division of the South Carolina Council on Competitiveness and aims at improving the TDL cluster in South Carolina to ensure adequate infrastructure support all industry clusters in South Carolina.

Area (MSA). The site does not currently have direct rail access; however, connection to a Norfolk Southern rail spur, located just south of Interstate 26 and in close proximity to the site, is possible and may be connected to further development of the Proposed Project site or property contiguous to the Proposed Project site. The Camp Hall Commerce Park is located approximately 18 miles southeast of Interstate 95, and approximately 28 miles northwest of the Port of Charleston. The Boeing 787 assembly campus, located at Charleston International Airport, is approximately 25 miles southeast of the Camp Hall Commerce Park.

The climate of the Proposed Project site is considered temperate to subtropical, with warm, humid summers and mild winters. Average temperatures, by season, range from: (1) Spring, 58°F to 72°F; (2) Summer, 87°F to 91°F, with July being the warmest month of the year; (3) Fall, with an average temperature of 76°F in September, falling to 58°F by November; and (4) Winter, 47°F to 52°F, January typically being the coldest average month of the year. Berkeley County has above-average levels of precipitation annually, when compared nationally, with 105 days of precipitation and an average annual rainfall of 47 inches. Freezing rain or snow occurs infrequently, with an average of 0.2 inches annually.

As shown in Figure 2, the total size of the Camp Hall Commerce Park (Proposed Project boundary) is approximately 6,781 acres, with approximately 2,880 acres being devoted exclusively to the Proposed Project.<sup>3</sup> A majority of the total site is currently an intensively managed pine plantation in short (less than thirty years) pulp rotations. The total footprint acreage encompassed by the advanced manufacturing and assembly facilities of Phases 1 and 2 of the Proposed Project is approximately 897 acres; Phase 1 development encompasses a facility footprint of approximately 575 acres, while Phase 2 development encompasses a facility footprint of approximately 322 acres. These footprint numbers are exclusive of necessary and associated acreage for ingress and egress, logistical support, and other infrastructure siting and support.<sup>4</sup>

---

<sup>3</sup> It is anticipated that the remainder of the site (*i.e.*, the remaining approximately 3,901 acres) would be either utilized for development of supporting suppliers and vendors or preserved or otherwise dedicated to environmental protection purposes using the same environmental ethos as a locating advanced manufacturer. However, while these may be considered secondary impacts, the development of the remaining 3,901 acres of the overall area is not a component of the Proposed Project.

<sup>4</sup> "The term 'infrastructure' is well understood to refer to the basic, underlying foundation of our built environment: roads and bridges, rail, air, water and wastewater, power, communication, etc. The most important component of our economic infrastructure is the Transportation, Distribution and Logistics (TDL) cluster. TDL supports virtually our entire economy, so it needs constant investment to maintain vibrancy and have the ability to grow and compete." <http://www.tdlcouncilsc.com/about.aspx> (accessed April 3, 2015)

The Proposed Project site is located in the Outer Coastal Plain region of South Carolina, which is generally a flat region underlain by unconsolidated sedimentary rocks. Rivers meander through broad floodplains characterized by cut-off lakes and swamp vegetation. Elevation differences in the Outer Coastal Plain range from 300 feet at the border of the Sandhills to sea level at the border of the Coast. Soils in the Outer Coastal Plain consist of a mixture of sand, clay and organic materials. Additionally, the Proposed Project site is located at the convergence of two distinct river basins: (1) the site is on the lower boundary of the Lower Four Hole Swamp Watershed of the Edisto River Basin and (2) the upper reaches of the Cypress Swamp Watershed of the Santee River and Cooper River Basins.

Other land uses in the vicinity of Proposed Project site include residential, agricultural, and wetlands. A wetlands delineation for the Proposed Project site has been conducted and the area has been mapped according to the Cowardin classification system and are classified as palustrine (forested wetland) with some emergent wetlands of the same type on the property. Construction and operation of the Proposed Project would directly affect approximately 192.86 acres of jurisdictional wetlands, 23.14 acres of non-jurisdictional isolated wetlands, and 1.85 acres of jurisdictional RPWs.

## **2.3 The USACE Authority and Scope of Analysis**

### **2.3.1 Section 404 of the Clean Water Act**

The Proposed Project is subject to the jurisdiction of the USACE under Section 404 of the CWA based on its contemplated placement and discharge of dredged or fill material into navigable waters and/or wetlands of the United States. The USACE administers the Section 404 program on behalf of the Secretary of the Army. The USEPA has the authority to determine the scope of Section 404 jurisdiction, has issued Guidelines on the discharge of dredged or fill material, and will generally prohibit a discharge if it determines under Section 404 that a discharge will result in unacceptable adverse effects on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas. The USEPA can exercise its Section 404(c) authority to veto the issuance of a Section 404 Permit of the USACE.

The USACE's review of the Proposed Project includes a determination of compliance with the Guidelines contained in 40 C.F.R. Part 230, including review of four specific requirements:

- **40 C.F.R. § 230.10(a):** An evaluation of alternatives to the Proposed Project to determine whether there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem than of the Proposed Project, so long as the alternative does not have other significant adverse environmental consequences. The alternative identified by this test is referred to as the *least environmentally damaging practicable alternative*, or the LEDPA.

- **40 C.F.R. § 230.10(b):** Whether the discharge would violate any applicable state water quality standards, Section 307 of the CWA, the Endangered Species Act (ESA), or federal laws concerning marine sanctuaries.
- **40 C.F.R. § 230.10(c):** Whether the discharge would cause or contribute to significant degradation of waters of the United States.
- **40 C.F.R. § 230.10(d):** Whether appropriate and practicable steps have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Evaluation of a proposed project under all four of the requirements set forth in the Guidelines constitutes a determination of compliance with the Section 404(b)(1).

The Corps' regulations also address the relationship between the Corps and state and local land use planning agencies. The regulations expressly state that "the primary responsibility for determining zoning and local land use matters rest with state and local and tribal authorities." 33 C.F.R. § 320.4(j)(2). The regulations direct that upon compliance with the Corps' rules and other applicable federal law, in the absence of "overriding national factors of the public interest" that may be revealed during a permit application, a permit "will be generally issued following receipt of a favorable state determination" 33 C.F.R. § 320.4(j)(4). While making a compliance determination, the Corps may gather information sufficient to support and make its decisions by soliciting comments from other federal, tribal, state, and local resource agencies and the public. Notwithstanding, the Corps is solely responsible for reaching a decision on the merits of the permit application, including determination of the project purpose, the extent of the alternatives analysis, which alternatives are practicable, the LEDPA, the amount and type of mitigation that is to be required, and all other aspects of the decision-making process.

### 2.3.2 National Environmental Policy Act

Because the required permit authorization from the USACE is a major federal action, the USACE must either prepare an Environmental Assessment for a determination of the significance of the environmental impacts or conduct an Environmental Impact Statement pursuant to the National Environmental Policy Act (NEPA).

According to the Guidelines, the alternatives analysis required in a NEPA evaluation is similar to that conducted under the Section 404(b)(1):

For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines.

40 C.F.R. § 230.10(a)(4). Additionally, USACE program literature has recognized that “Districts should not conduct or document separate alternatives analyses for NEPA and the 404(b)(1) Guidelines.” See USACE, *Standard Operating Procedures for the USACE’s Regulatory Program* (July 2009) (USACE SOP).

To meet the requirements of the Guidelines under the USACE’s regulatory program, as well as satisfy the alternative requirements under NEPA, alternatives were developed to incorporate the LEDPA, and no additional alternatives are necessary as part of the USACE’s Guidelines evaluation process of the Proposed Project.

### 3 FINDING OF PRACTICABLE ALTERNATIVES

---

#### 3.1 Practicable Alternatives Framework (40 C.F.R. § 230.10 (a))

This chapter forms the basis of the USACE's analysis of practicable alternatives for the Guidelines evaluation. The first requirement of the Guidelines provides:

(a) Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

(1) For the purpose of this requirement, practicable alternatives include, but are not limited to:

(i) Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;

(ii) Discharges of dredged or fill material at other locations in waters of the United States or ocean waters;

(2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

(3) Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E)<sup>5</sup> does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly

---

<sup>5</sup> *Special aquatic sites* are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. 40 C.F.R. § 230.3. These include sanctuaries and refuges (§ 230.40), wetlands (§ 230.41), mudflats (§ 230.42), vegetated shallows (§ 230.43), coral reefs (§ 230.44), and riffle and pool complexes (§ 230.45). Because the Proposed Project involves the discharge into and fill of wetlands, these more restrictive provisions apply to the Proposed Project.

demonstrated otherwise. In addition, where a discharge is proposed for a special aquatic site, all practicable alternatives to the proposed discharge which do not involve a discharge into a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.

### 3.1.1 **40 C.F.R. § 230.10(a).**

As provided above, the Guidelines prohibits the discharge of dredged or fill material in a special aquatic site unless it can be shown that there are is no practicable alternative which would have less adverse impact on the aquatic ecosystem. A practicable alternative is subject to reasonable interpretation; however, the Guidelines generally define a practicable alternative as one that is “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.” 40 C.F.R. § 230.10(a)(2).

Under subsection (a)(3), an initial determination must be made by the USACE with respect to whether the proposed discharges are “water dependent.” The Guidelines provide that, when an activity associated with the discharge of dredged or fill material in a special aquatic site does not require access or proximity to that special aquatic site to fulfill its basic purpose, the activity is not “water dependent.” A determination by the USACE that a proposed discharge is *not* water dependent carries with it two inherent presumptions that must be rebutted by a successful applicant.

The first presumption is that practicable alternatives that do not include impacts on special aquatic sites exist and are available to the applicant. It is thus incumbent upon the applicant to clearly demonstrate otherwise. The determination of water dependency by the USACE must be preceded by a clear understanding of the purpose of the Proposed Project, both the “overall project purpose” and the “basic purpose,” taking into consideration the stated purpose and need provided herein by Berkeley County.

After evaluating the water dependency of a proposed project, the USACE must then consider the full range of practicable alternatives that are capable of achieving the overall project purpose. The second inherent presumption created by a non-water dependency determination is that all practicable alternatives (not including the proposed discharge) which do not involve a discharge of dredged or fill material into a special aquatic site (wetland), are presumed as having less of an adverse impact on the aquatic ecosystem than the proposed discharge, unless clearly demonstrated otherwise.

The evaluation of practicable alternatives is based on the range of reasonable alternatives set forth in Section 3.3. This process was developed and implemented in a manner cognizant of the requirements of the Guidelines and NEPA. See USACE (Jax. Dist.), *Information for Preparing an Alternatives Analysis Under Section 404* (June 2014); USACE

(Sav. Dist.), *Guidelines For Preparation of Analysis of Section 404 Permit Applications Pursuant to the Section 404(b)(1) Guidelines of The Clean Water Act (40 C.F.R., Section 230)*. Thus, the alternatives analysis forms the basis from which the USACE will identify practicable alternatives and determine whether Berkeley County's Proposed Project is the LEDPA.

### **3.2 Project Purpose**

As discussed above, establishing the underlying purpose and need for a project is a key initial step in the USACE's process of evaluating the Proposed Project's compliance with the Guidelines. USACE regulations establish a three-part process for developing the official purpose of a project. As described below, one statement is provided by the applicant, and the other two are determined by the USACE:

- The Applicant develops and clearly states an overall purpose and need in the application to the USACE;
- The USACE determines the "basic" purpose of the project, which informs the conclusion as to whether the project is water dependent under Section 404(b)(1) of the CWA; and
- The USACE determines the "overall" purpose of the project.

These three statements of the Proposed Project's purpose and need form the basis by which the USACE will evaluate compliance of the Project with the Guidelines, including the range of practicable alternatives to the Proposed Project. These statements are also used as part of the analysis required under NEPA. Although the three statements were developed to meet distinct objectives within the USACE's evaluation of compliance with the Guidelines, it is expected that the alternatives analysis will overlap with and may, in most cases, provide the information required for the evaluation of alternatives under NEPA. Additionally, while consideration may be given to the Applicant's pronouncement of the Proposed Project's basic and overall purpose, the USACE is the ultimate arbiter of that conclusion and is entitled to determine the final statements without undue influence of the Applicant's views.

#### **3.2.1 Applicant's Stated Purpose and Need**

An applicant's stated purpose and need is an expression of the underlying goals for a proposed project. The USACE takes an applicant's purpose and need into account when determining the USACE's overall purpose.

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<sup>6</sup> 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

---

<sup>6</sup> The concept of "advanced manufacturing" includes utilizing state-of-the-art and next-generation technology and processes and systems to manufacture an end product.

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.

### **3.2.2 The USACE's Basic Project Purpose and Determination of Water Dependency**

The Guidelines require that the USACE determine whether a project is water dependent. *Water dependent* means that the project by its very nature requires access or proximity to, or siting within, a special aquatic site to fulfill its "basic purpose."

The regulations further require that the USACE alternatives analysis identify the LEDPA.

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.

Based on the standard used by the USACE, the Proposed Project is not water dependent. Accordingly, as a part of the alternatives analysis contained herein, the application will rebut the presumptions employed by the USACE.

### **3.2.3 The USACE's Overall Project Purpose and Alternatives Analysis**

Under NEPA regulations, alternatives to be evaluated must be reasonable. The Guidelines also require evaluation of practicable alternatives. The Corps uses the overall project purpose to identify the range of potential alternatives that will be evaluated. If an alternative does not meet the applicant's need, as determined by the Corps, it may be rejected from further consideration.

The Corps' regulatory guidelines further provide:

[T]he applicant's needs, and the type of project being proposed should be considered. The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the 404(b)(1) guidelines (USACE SOP).

Taking into consideration the above criteria, Berkeley County respectfully submits that the overall purpose of the Proposed Project is:

To build and operate a standalone TDL cluster advanced manufacturing facility in South Carolina on a property that has sufficient contiguous 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.

### 3.3 Alternatives Development

Having established the basic and overall purposes of the Proposed Project, it is incumbent upon the applicant to identify and evaluate a full range of alternatives in light of the overall purpose of the Proposed Project. The goal of this process is to identify and consider the broadest range of possible alternatives, working to narrow the scope of alternatives to the range of reasonable and practicable alternatives that could meet the overall purpose of the Proposed Project. Based on the requirements imposed under NEPA, regulations developed by the CEQ, and the USACE, Berkeley County initially considered all available alternatives for the Proposed Project.<sup>7</sup> Through the process of developing the purpose and need, as well as the overall project purpose, Berkeley County applied those basic project concepts to the full array of available alternatives in order to guide the identification of a "reasonable range" of alternatives as required by NEPA. Under NEPA, reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 Fed. Reg. 18026 (March 23, 1981)). In identifying and developing this list of alternatives,<sup>8</sup>

---

<sup>7</sup> The NEPA alternatives analysis requires consideration of all alternatives for a project has its roots in the fact that NEPA is a procedural statute, rather than one dictating substantive analysis or mandating a particular outcome. At its core, NEPA is a "stop, look, and listen" statute that is intended to result in an informed agency decision making process. As discussed below, the Guidelines impose a stricter, substantive standard to the range of reasonable alternatives identified under NEPA that is designed to arrive at a practicable alternative that has the least adverse impact on the aquatic ecosystem.

<sup>8</sup> This analysis considers a range of alternatives which might enhance environmental quality or have a less detrimental effect on the environment than the proposed activity and demonstrates that there is no *feasible* and *prudent* alternative that will have a less environmentally damaging effect. An alternative is *feasible* if it is available and consistent with sound engineering principles, such that the alternative can be successfully constructed or implemented. An alternative is *prudent* if it is economically reasonable in light of the benefits the activity would provide, but cost alone does not render an alternative imprudent.

Berkeley County has considered and included alternatives falling within the following categories:

- The proposed alternative;
- Alternatives that would involve no discharges of dredged or fill material into the waters of the United States (such as the “no action” alternative);
- Alternative offsite locations, including those that might involve less adverse impact to waters of the United States;
- On-site alternatives that would involve less adverse impact to waters of the United States (which would include modifications to the alignments, site layouts, or design options in the physical layout and operation of the project to reduce the amount of impacts to the waters of the United States); and
- Alternatives that would involve greater adverse impact to waters of the United States but avoid or minimize other significant adverse environmental consequences including offsite and onsite options.

The range of potential reasonable alternatives that was considered also included alternative sites, alternative project configurations, alternative technologies, and alternative project sizes. The range of reasonable alternatives identified in the initial NEPA analysis (through application of the above purpose and need and overall project purpose to the full panoply of alternatives) screened out unreasonable alternatives resulting in the reasonable alternatives addressed in the Level 1 analysis.

In addition to meeting the initial “reasonability” requirement under NEPA, the Guidelines impose further restrictions and deliberation on practicability considerations related to the range of reasonable alternatives. Under the Guidelines, the USACE typically only considers those alternatives that are available to the applicant and meet the overall purpose.<sup>9</sup> The intent of this further iterative process is to consider the range of reasonable alternatives, but eliminate infeasible and unreasonable concepts and alternatives early in the process, in order to allow the USACE to focus on practicable alternatives that are capable of achieving the overall purpose of the Proposed Project. The range of reasonable alternatives identified

---

<sup>9</sup> See 40 C.F.R. § 230.10(a)(2) (“If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded, or managed in order to fulfill the basic purpose of the proposed activity may be considered.”). By contrast, a NEPA analysis often requires consideration of alternatives that are not available to the applicant. See USACE SOP. The alternatives analysis undertaken by Berkeley County satisfies the requirements of both the Guidelines and NEPA alternatives analyses.

below forms the starting point for the evaluation of practicable alternatives for the project and determination of the LEDPA, which will become the proposed alternative. In support of the identified alternatives, Berkeley County is providing documentation that demonstrates that the proposed location is necessary with the least environmentally damaging design and will take place in the least environmentally damaging location. By examining the full scope of possible alternatives under NEPA and then narrowing down potential alternatives to incorporate all reasonable alternatives in this analysis, the desire is to provide the USACE with a range from which a determination can be reached that the proposed alternative of the Proposed Project is the LEDPA. Berkeley County believes that it has captured each reasonable alternative and component necessary for the USACE to reach its decision on the LEDPA as well as satisfy its obligations under NEPA.

Once the appropriate range of reasonable alternatives is identified, the practicability analysis of the project alternatives is conducted in three levels:

1. Level 1 Analysis is a refined screening process employed to evaluate certain identified reasonable alternatives with respect to consistency with the Proposed Project's purpose and need, as defined by Berkeley County, as well as the overall project purpose, as defined by the USACE.
2. Level 2 Analysis reviews those alternatives that survive Level 1 Analysis and employs the more rigorous practicability standards under the Guidelines, including:
  - a. Availability;
  - b. Cost;
  - c. Technological considerations, including environmental, social, historical and cultural impacts; and
  - d. Logistical considerations, including infrastructure assessments and requirements.

The goal of Level 2 Analysis is to identify the proposed site location of the Proposed Project.

3. Level 3 Analysis reviews different site designs of the Proposed Project at the proposed site location.
4. Taking into consideration all of the above, the final step of the alternatives practicability analysis is to identify the LEDPA from among the Level 3 site plans.

### 3.4 Identification of Alternatives

The range of alternatives included in this analysis was generated in order to satisfy the purpose and need of the Proposed Project.

#### 3.4.1 Proposed Project Criteria

Berkeley County recognizes that certain criteria are necessary specifying the minimum needs and conditions that would meet the operational requirements for particular TDL cluster advanced manufacturing facilities, particularly those in the automotive and aerospace industries. It is important to acknowledge at the outset that the principal concern of Berkeley County in serving as the applicant for this Proposed Project is to serve the best interests of its clients and make sure that the LEDPA adheres to the purpose and needs of the Proposed Project, as set forth above. Ultimately, the LEDPA must be able to accommodate the operational needs of the clients in order for this exercise to have been a success. In this situation, meeting the operational site requirements for the project necessitates careful integration of all the project component facilities that, by the unique nature of advanced manufacturing and assembly process, has limited flexibility in the variation of layout, orientation, and proximity to sufficient infrastructure, including air, land, rail, and sea transportation facilities. The Proposed Project requires, at a minimum, a development site that meets the following characteristics and criteria:

- 1,500 acres of available and developable land;<sup>10</sup>
- Direct frontage and/or direct access to an Interstate Highway (preferably Interstate 26);<sup>11</sup>
- Located within 50 miles of a seaport facility with deep water access;<sup>12</sup>

---

<sup>10</sup> 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).

<sup>11</sup> 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. See, e.g., Dean J. Uminski, *A Step-by-Step Guide to a More Strategic Site Selection Approach* (2013) ("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."); Ed McCallum, *What's Driving Automotive Assembly Plant Locations?*, Business Facilities (July 2004) ("An interstate-quality highway with dual access to [the] future site is highly desirable. For the site itself, redundant access on high quality secondary roads is important in the event the interstate is temporarily blocked."). However, this requirement could be satisfied through local roads and existing or improved highways based on close proximity to a suitable interchange facility to an interstate.

- Located within 50 miles of an international airport;<sup>13</sup>
- Access to utilities, including power, water, and sewer;<sup>14</sup> and
- Availability of a skilled workforce with access to adequate education and training, with a minimum need of 2,000 workers for the first phase and 2,000 workers for the second phase of development (for 4,000 workers total).<sup>15</sup>

Other factors weighing into the calculus are the: (1) availability of additional land adjacent to the site location for any potential expansion; (2) availability of additional land adjacent to or in close proximity for potential expansion or vendor or supplier location; (3) availability of cultural attractions, performing arts, visual arts, and similar activities related to quality of life for employees; and (4) availability of higher education.

### 3.4.2 Range of Alternatives

The goal of providing an exhaustive list of alternatives that meet the above needs of the client is twofold: (1) to disclose and evaluate potential environmental impacts that may result from the proposed project and retained alternatives; and (2) to evaluate the proposed alternative's ability to fulfill the project purpose and need consistent with criteria provided. Berkeley County arrived at its proposed alternative after conducting the required stages of

---

<sup>12</sup> 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. See, e.g., American Ass'n of Ports Auth., *Ports Benefit the Nation* <[www.aapa-ports.org/Industry/content.cfm?ItemNumber=1022](http://www.aapa-ports.org/Industry/content.cfm?ItemNumber=1022)> (accessed April 3, 2015) ("Ports play a major role in industrial plant location. Many manufacturing and processing industries locate their plants at or near waterfront sites to take advantage of low-cost inbound transportation of raw materials for production and outbound shipments of finished products to both export and domestic markets. Foreign Trade Zones, located on port property, also provide incentives for value-added manufacturing services and trade."); Ed McCallum, *What's Driving Automotive Assembly Plant Locations?*, Business Facilities (July 2004) (port access desired for supplier imports and good exports).

<sup>13</sup> 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. Ed McCallum, *What's Driving Automotive Assembly Plant Locations?*, Business Facilities (July 2004) ("Air transport is important for ... suppliers, vendors, and executives. Usually, proximity to a hub is desired....").

<sup>14</sup> Without adequate access to power, water, and sewer with sufficient capacity, no development is possible.

<sup>15</sup> 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.

increasingly thorough analysis, while balancing the environmental impacts discussed in this analysis with economic, technological, and safe concerns.

The following list provides the range of reasonable alternatives identified by Berkeley County for consideration, along with a short, descriptive identification of the alternative (Appendix B, Figure 1):

A. No-Action

- a. The Proposed Project is not constructed.

B. Camp Hall Commerce Park

- a. Tax Map ID: 157-00-00-003
- b. 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 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.

C. Winding Wood Industrial Site

- a. Tax Map ID: 059-00-00-006
- b. 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.

D. Century Aluminum Site

- a. Tax Map ID(s): 2230000019



- b. 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 Highway 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.

#### E. Ingleside Tract

- a. Tax Map ID(s): 3930000005; 3930000007; 3930000082; 3930000086; 3930000092; 3930000131; 3930000132; 3930000133; 3930000134; 3930000135; 3930000136; 3930000137; 3930000138
- b. 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.

#### F. Tyger River Industrial Site

- a. Tax Map IDs: 6-32-00-012-00.00
- b. 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 to the south. The site is approximately 15 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.

#### G. Conder Megasite – Central South Carolina Site

- a. 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
- b. 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.

#### H. White Hawk Commerce Park

- a. 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
- b. 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 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.

#### I. J. Shirer Industrial Site

- a. Tax Map ID: 0184-00-01-040.000
- b. 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.

#### J. Jafza Magna Park – Santee

- a. Tax Map IDs: 0323-00-06-012.000; 0323-00-06-001.000

- b. 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.

### **3.5 Alternatives Practicability Analysis**

#### **3.5.1 Level 1 Analysis**

Level 1 of the alternatives practicability analysis evaluates the range of reasonable alternatives identified above for their ability to best satisfy the purpose and need criteria of the Proposed Project. This step of the analysis is intended to identify on a macro level which of the alternatives might reasonably meet the purpose and need; those alternatives that clearly do not meet the requisite criteria were not considered further within this analysis.

As a result of the Level 1 analysis, certain of the identified alternatives were eliminated as not reasonably being able to fulfill the purpose and need of the Proposed Project. These alternatives include:

##### **A. Ingleside Tract**

- This alternative only has approximately 1,200 acres of available land for development and therefore fails to meet the minimum size site 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.

##### **B. Tyger River Industrial Site**

- 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.

#### C. Conder Megasite – Central SC Site

- 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.

#### D. White Hawk Commerce Park

- 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.

#### E. J. Shirer Industrial Site

- 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.

#### F. Jafza Magna Park – Santee

- 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.

Level 1 Alternatives		Minimum of 1,500 acres	Frontage or direct access to interstate	Located w/in 50 miles of a deep water seaport	Located w/in 50 miles of an international airport	Access to adequate utilities	Skilled and sufficient available workforce
A.	No-Action (No Build)	○	○	○	○	○	○
B.	Camp Hall Commerce Park	●	●	●	●	●	●
C.	Winding Wood Industrial Site	●	○	●	●	●	●
D.	Century Aluminum Site	●	○	●	●	●	●
E.	Ingleside Tract	○	●	●	●	●	●
F.	Tyger River Industrial Site	○	●	○	●	●	●
G.	Conder Megawatt - Central SC Site	○	●	○	●	●	Ø
H.	White Hawk Commerce Park	○	○	○	○	●	Ø
I.	J. Shirer Industrial Site	○	○	○	●	●	Ø
J.	Jafza Magna Park - Santee	○	●	○	○	●	Ø

● = passes criterion

○ = fails criterion

Ø = partially passes criterion

### 3.5.2 Level 2 Analysis

The Level 2 analysis evaluates each of the remaining alternatives in greater detail and compares quantitative and qualitative factors to determine which site provides the least environmentally damaging practicable alternative and meets the overall project purpose.

All three of the build alternatives reviewed in the Level 2 analysis satisfactorily accommodate the “other factors” calculus.

- (1) *The availability of additional land adjacent to the site location for any potential expansion.*

Each site is larger than the minimum required size of 1,500 acres. However, the Winding Woods Industrial Site is only 1,573 acres, whereas the Camp Hall Commerce Park is just under 3,000 acres for the Proposed Project but has site total site availability of 6,781 acres and the Century Aluminum Site over 2,500 acres. Therefore, the Camp Hall Commerce Park and Century Aluminum Site locations offer greater flexibility and options for any on-site expansions.

- (2) *The availability of additional land adjacent to or in close proximity for potential expansion or vendor or supplier location.*

As noted, the Camp Hall Commerce Park and Century Aluminum Site locations offer the greatest flexibility and options for co-location of suppliers or vendors. Moreover, given the relative proximity of all of these Level 2 site locations, a vendor or supplier could locate on one of the alternative site locations that are not the Proposed Alternative, allowing the opportunity for greater efficiencies and lower costs for any advanced manufacturer.

- (3) *The availability of cultural attractions, performing arts, visual arts, and similar activities related to quality of life for employees.*

The Charleston area is home to broad array of cultural and historical attractions. Charleston is home to a number of plantations, national monuments, museums, art galleries, an aquarium, and the Patriots Point complex, which includes a World War II aircraft carrier (the USS Yorktown). Festivals and events occur on a regularly basis, ranging from the Spoleto Festival to the Southeastern Wildlife Exposition to the Charleston Wine and Food Festival.

There are several stage companies in Charleston, as well as the Charleston Symphony Orchestra and Charleston Ballet Theater. *AmericanStyle* magazine listed Charleston as one of the top five arts destinations in the United States.

In addition to college sports, Charleston has three professional sports teams: (i) the Charleston Battery, a professional soccer/football team (and former league champions); (ii) the Charleston RiverDogs, a Class A baseball team affiliated with the New York Yankees; and (iii) the South Carolina Stingrays, a minor league hockey team affiliated with the Boston Bruins.

(4) *The availability of higher education.*

The Charleston area is home to the College of Charleston, one of the oldest colleges in the United States, and the Medical University of South Carolina, one of the premier medical research universities and hospitals in the country. Both of these schools are classified as research universities. Relevant to an advanced manufacturer, the College of Charleston has a Supply Chain and Information Management program with a concentration on Global Logistics and Transportation. The Citadel, the Military College of South Carolina, also is located in Charleston. Clemson University<sup>16</sup> also has a presence in the Charleston area, focusing on architecture and certain other ventures (such as the Clemson University Restoration Institute). Charleston Southern University is a private university also located in the Charleston area. Trident Technical College is also located in the Charleston area and is part of the South Carolina Technical College System offering two-year and technical degrees. Relevant to an advanced manufacturer, Trident Technical College offers an Aeronautical Studies program.

The Charleston area has significant cultural, arts, education, and recreational activities to ensure a high quality of life for employees.

#### 3.5.2.1 **Alternative A: No Action Alternative**

The No Action alternative means either no permit is to be required or that a permit is to be denied. In this specific case, Berkeley County submits that it is not possible to entirely avoid wetland impacts and meet the overall project purpose. Therefore, the No Action alternative would be equivalent to permit denial. Permit denial would meet the overall project purpose *only if* there were another parcel available that could accommodate the proposed project with no wetland impacts and no other significant environmental impact or effect.

---

<sup>16</sup> Clemson University in Clemson, South Carolina, is also home to the International Center for Automotive Research.

### **3.5.2.2 Alternative B: Camp Hall Commerce Park (Proposed Alternative)**

The Camp Hall Commerce Park is approximately 2,880 acres that lies northeast of the intersection of Interstate 26 and S.C. Highway 27 near the Town of Ridgeville. The site consists of a subparcel to a larger tract. The majority of the site is utilized for agricultural/silvicultural uses. Wetlands on the Camp Hall Commerce Park are shown in Appendix B on Figures 4-7.

A preliminary development plan for the Camp Hall Commerce Park is presented in Appendix B on Figure 6. This plan was developed to evaluate costs and environmental impacts associated with development of the Proposed Project footprint on the Camp Hall Commerce Park. 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. The Level 1 Analysis determined that the Camp Hall Commerce Park met the criteria required for a TDL cluster advanced manufacturing client, with the exception of interstate access.

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 Proposed Project (Phase 1 and administrative offices) 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. This total cost does not include wetland mitigation costs, as described below.

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. As shown in Appendix B on Figure 6, approximately 194 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.

### 3.5.2.3 **Alternative C: Winding Wood Site**

The Winding Wood Industrial Site is approximately 1,573 acres, located along U.S. Highway 78, near the town of St. George, approximately 3 miles east of Interstate 95. The site consists of multiple parcels owned by several investment companies and private landowners. The majority of the site is utilized for either agricultural/silvicultural uses or residential properties. A portion of the site, approximately 600 acres, has received South Carolina Department of Commerce site certification, which includes a Phase I Environmental Site Assessment, protected species assessment, cultural resources reconnaissance survey, and wetland delineation. Wetlands on the Winding Wood Industrial Site are shown in Appendix B on Figure 2.

A preliminary development plan for the Winding Wood Industrial Site is presented in Appendix B on Figure 1. This 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. The Level 1 Analysis determined that the Winding Wood Industrial Site generally met the criteria required for a TDL cluster advanced manufacturing client.

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 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. This total cost does not include wetland mitigation costs, as described below.

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

Proposed Project, two jurisdictional wetland drainages would be impacted. As shown in Appendix B on Figure 1, 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) were 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 water sources in the tract. There are no previously identified buildings within the property of within a mile radius of the property that are eligible for the NRHP.

#### **3.5.2.4 Alternative D: Century Aluminum Site**

The Century Aluminum Site is approximately 2,500 acres, located along U.S. Highway 176, near the town of Goose Creek approximately 4 miles northeast of I-26. The site consists of a portion of a larger approximately 4,200-acre tract and is adjacent to an industrial facility owned by the same entity. The majority of the site is utilized for either agricultural/silvicultural uses. To date, no due diligence studies or surveys have been conducted for the subject site. A Preliminary Wetlands exhibit for the Century Aluminum is shown in Appendix B on Figure 3.

A preliminary development plan for the Century Aluminum Site is presented in Appendix B on Figure 2. This 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. The Level 1 Analysis determined that the Century Aluminum Site generally met the criteria required for a TDL cluster advanced manufacturing client, with the exception of interstate access.

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. Highway 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. This total cost does not include wetland mitigation costs, as described below.

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 Appendix B on Figure 2, 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 were 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 38KK280 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.

<b>Level 2 Alternatives</b>		Anticipated Development Cost	Anticipated Mitigation Cost	Interstate Visibility	Interstate Accessibility	Port (Air and Sea) Accessibility	Other Potential Adverse Environmental Impacts
A.	No-Action (No Build)	\$0	\$0	N/A	N/A	N/A	N/A
B.	Camp Hall Commerce Park	\$145,000,000	\$18,300,000	Available	Superior	Superior	Minimal
C.	Winding Wood Industrial Site	\$84,000,000	\$32,200,000	Unavailable	Adequate	Excellent	Marginal
D.	Century Aluminum Site	\$57,000,000	\$109,700,000	Unavailable	Adequate	Excellent	Moderate

### 3.5.3 Level 3 Analysis

Level 3 of the Alternatives Analysis will focus on the site layout in terms of accessibility, visibility, efficiency, and the site's environmental impacts. Each option in Level 3 of the Alternatives Analysis utilizes identical site designs for the visitor's center and administrative offices, Phase 1, and Phase 2, but with different layouts designed to minimize wetland impacts while still meeting the Proposed Project Purpose and Need. Since the Proposed Project will serve as the North American administrative office for the advanced manufacturer, its accessibility and visibility to the public, to suppliers, and to dealers will play a critical role in its success, and these aspects of the site layout are of the utmost importance to the advanced manufacturer. Additionally, the facility must have an efficient layout to support deliveries, shipping, and access from a logistical perspective. Options 1, 2, 2A, and 3 present a variety of alternatives that overlay these critical issues with the minimization of environmental impacts.

#### 3.5.3.1 Proposed Location Onsite Option 1

Option 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. Stormwater 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 would impact approximately 458 acres of wetlands.

### **3.5.3.2 Proposed Location Onsite Option 2**

Option 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 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. Stormwater 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 would impact approximately 273 acres of wetlands.

### **3.5.3.3 Proposed Location Onsite Option 2A**

Option 2A is a refinement of Option 2 (Appendix B, Figure 7), 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 would impact approximately 217 acres of wetlands.

#### **3.5.3.4 Proposed Location Onsite Option 3**

Option 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 would impact approximately 109 acres of wetlands.

#### **3.5.4 Identification of the LEDPA**

Berkeley County has identified potential alternatives for the Proposed Project in a number of ways.

As a starting point for identification and evaluation of alternatives, any project site must have a minimum of 1,500 acres to accommodate the facility footprint and ancillary requirements. The next logical step is to consider locations within 50 miles of a seaport with

deep water access and within 50 miles of an international airport. With these criteria, Berkeley County further narrowed the range of alternatives to those occurring at the proposed site.

Alternatives were identified through a detailed review of the alternatives analysis through a planning process that focused on the development of a technical, logistical, and economic feasibility analysis. During this planning process, Berkeley County evaluated a number of alternatives. After applying the appropriate criteria and screening levels, Berkeley County proposes Option 2A of the Level 3 Analysis on the Camp Hall Commerce Park as the Proposed Alternative.



## 4 WATERS TO BE IMPACTED

---

Jurisdictional waters of the United States (or “waters of the U.S.”), including wetlands, are defined by 33 C.F.R. § 328.3(b) and are protected by Section 404 of the CWA (33 U.S.C.A. § 1344), which is administered and enforced in South Carolina by the USACE (United States Army Corps of Engineers), Charleston District. The landward limits of waters of the U.S. regulatory jurisdiction within the Camp Hall Commerce Park tract boundaries were delineated by Newkirk Environmental, Inc. (SAC# 2008-00860-2JY). The site received jurisdictional determination by the U.S. Army Corp of Engineers in 2012 (letter dated August 16, 2012). The jurisdictional determination presented in this letter is valid through August 16, 2017 (Appendix D).

The proposed site layout will impact 192.86 acres of jurisdictional wetlands, 23.14 acres of non-jurisdictional isolated wetlands, and 1.85 acres of jurisdictional RPWs (Figure 2, Appendix C).

### 4.1 Wetlands

Wetlands on the Camp Hall Commerce Park site were delineated in 2009 by others, and received jurisdictional determination on August 16, 2012 (referenced by SAC# 2008-00860-2JY). Jurisdictional wetlands are generally described as a mix of wet loblolly pine plantation, wet sweetgum plantation, isolated ponds, bottomland hardwood forest, and non-alluvial swamp forest. Non-jurisdictional isolated wetlands are described as isolated gum ponds.

The majority of the wetlands on the Camp Hall Commerce Park tract are dominated by even-aged planted pine stands ranging from one to 40-year old loblolly pine. Saplings and shrubs in these areas vary in percent cover based on age of the pine and when the stand was thinned, and slightly differ from upland pine stands, though there is significant species overlap. Saplings and shrubs in the wet pine plantations include loblolly pine, sweetgum, diamond-leaf oak (*Quercus laurifolia*), American holly, red bay, sweetbay, wax myrtle, red maple, fetterbush, and high bush blueberry. The herbaceous layer is nearly absent in all of the stands, with the exception of newly cut and planted stands. The herbaceous layer includes planted loblolly pine, broom sedge, bushy bluestem, black berry, panic grass, St. John’s wort, goldenrod, sedges, soft rush, muscadine vine, and greenbrier.

A sweetgum plantation is located in the central portion of the tract near the intersection of Turkey Road and Centerline road. The area is bedded, and according to forestry maps, was planted in 1997. In addition to areas of ponding, the dominant overstory of sweetgum appears to be unthinned, resulting in very a limited understory. Saplings and shrubs include sweetgum, red bay, red maple, wax myrtle, and Chinese privet. The herbaceous layer includes sedges, soft rush, muscadine vine, and cinnamon fern (*Osmunda cinnamomea*).

Isolated ponds are seasonally to permanently flooded wetland depressions. The Camp Hall Commerce Park ponds are dominated by a nearly closed canopy of hardwoods including sweetgum, red maple, water oak, diamond-leaf oak, willow oak (*Quercus phellos*), and pond pine (*Pinus serotina*). Swamp blackgum (*Nyssa biflora*) and pond cypress (*Taxodium ascendens*) were rarely observed, and limited to a couple of ponds. The edges of these ponds were densely vegetated with shrubs including fetterbush, American holly, sweetbay, sweet pepperbush, inkberry, red bay, wax myrtle, dwarf palmetto (*Sabal minor*), and giant cane (*Arundinaria gigantea*). The herbaceous layer includes sedges, panic grass, greenbrier, club moss, and sphagnum moss. Many ponds which appeared isolated from aerial imagery were found to be depressional landforms in larger wetland systems or connected to Timothy Creek or its tributaries and other wetlands through the tract's RPWs.

A bottomland hardwood forest is located along the southern boundary of the tract adjacent to Interstate 26, and conveys flow to an unnamed tributary to Timothy Creek. Forestry maps indicate portions of the area were planted in loblolly pine in 1976, however, the overstory is now dominated by hardwood species. The overstory consist largely of diamond-leaf oak, water oak, and red maple, though a limited number of loblolly pines and pond pines are also present. Saplings and shrubs include dwarf palmetto, giant cane, American holly, redbay, sweetbay, and saplings from the hardwood overstory species. The herbaceous layer is very limited due to the overstory and ponding, and includes sedges, soft rush, greenbrier, and muscadine vine.

A non-alluvial swamp forest is located along the southern boundary of the tract, east of the bottomland hardwood forest adjacent to Interstate 26, but does not convey flow. Forestry maps indicate portions of the area were planted in loblolly pine in 1973, however, the overstory is now dominated by hardwood species. The species composition is very similar to the bottomland hardwood forest, with the exception of the absence of dwarf palmetto in the understory. The overstory of the swamp forest consists largely of diamond-leaf oak, water oak, and red maple, though a limited number of loblolly pines and pond pines are also present. Saplings and shrubs include giant cane, American holly, redbay, sweetbay, and saplings from the hardwood overstory species. The herbaceous layer is very limited due to the overstory and ponding, and includes sedges, soft rush, greenbrier, and muscadine vine.

## **4.2 Relatively Permanent Waters**

A system of ditches have been installed throughout the site to facilitate the active timber management of the property. Some of these ditches have been classified as RPWs. These RPW's are located adjacent to some of the timber roads on the property and convey water from wetlands to downstream receiving waters, including Timothy Creek and its tributaries to the west and Rudd Branch and its tributaries to the east. The flow regime within these RPWs exhibits no evidence of riffles, runs, or shallow pools. The substrate consists of sand, silt, and clay. The banks are steep from historic channelization, are partially vegetated, and appear to be unstable

throughout. Sinuosity is absent as these are constructed ditches. Sedimentation within the RPWs is high due to runoff from the adjacent forestry roads.

### **4.3 Impacts**

Proposed impacts to wetlands within the Camp Hall Commerce Park for the proposed Project Soter footprint are shown on the permit drawings located within Appendix A. Total impacts addressed in this application include 192.86 acres of jurisdictional wetlands, 23.14 acres of non-jurisdictional isolated wetlands, and 1.85 acres of jurisdictional RPWs. Appendix C presents an Adverse Impacts Assessment which describes the unavoidable impacts to waters of the US proposed for this project.

## 5 PROPOSED MITIGATION

---

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.

In an effort to locate a site which would provide the significant opportunity for ecological uplift, a watershed approach was utilized, which takes an in-depth look at the environmental issues facing the Four Hole Swamp watershed. Based on the results of this analysis and the site selection process, it was determined that large contiguous areas with opportunities for in-kind wetland preservation and enhancement would satisfy these environmental requirements.

The search for a suitable location focused in the vicinity of the proposed project impacts eventually led to the acquisition of a privately held tracts in the Dean Swamp and Walnut Branch watersheds which is encompassed within the Greenbelt Corridor and is directly adjacent and connected to Audubon's protected lands associated with the Francis Beidler Forest. The proposed mitigation site is within the Four Hole Swamp watershed (same 8-digit HUC 03050205) which has been identified by the National Audubon Society, South Carolina Department of Natural Resources (SCDNR), the Lord Berkeley Conservation Trust, and other conservation programs within the lowcountry as a priority acquisition target. The primary objective is to connect these isolated private lands with privately-owned protected lands to provide a contiguous wetland habitat corridor along the Four Hole Swamp and the Francis Beidler Forest.

A comprehensive search and in-depth discussions with private land owners has led to the proposed acquisition of privately held tracts of land which will make up the Project Soter-Dean Swamp Landscape Mitigation Project (Mitigation Project). The Mitigation Project is comprised of approximately 2,496 acres of proposed property acquisition located in Orangeburg, Berkeley, and Dorchester Counties, South Carolina. The Mitigation Project includes the twelve components required by the 2008 United States Environmental Protection Agency (USEPA) and Department of the Army, United States Army Corps of Engineers (USACE) 33 C.F.R. Parts 325 and 332 & 40 C.F.R. Part 230 (Mitigation Rule).

The Mitigation Project land(s) will encompass approximately 2,496 acres of property located within the Four Hole Swamp watershed. These properties will be protected by fee simple purchase and conservation easements.

The featured landscape mitigation parcel is the Bannister Tract, a 1,677 acre forested tract on Sandy Run Creek. This tract has extensive bottomland hardwoods and pine flatwoods wetlands that will be returned to natural condition as per enhancements and restoration as per the mitigation plan. This tract will be purchased and conveyed to the SCDNR for use wetland demonstration site and for use as a public access wildlife management area.

As a special condition of the permit and to fully satisfy the parameters of this Landscape Scale Mitigation Plan, the Applicant proposes to provide \$1.5 million (herein after, "Fund") into an escrow account to be held by Lord Berkeley Conservation Trust. The funds are to be used for fee simple conservation property acquisition or to support conservation easements on important conservation properties. The conservation projects chosen for the Fund will be administered by the representatives of the following organizations: Audubon, Lord Berkeley Land Trust, and the Low Country Open Land Trust (collectively, the "Fund Oversight Committee").

The priority of use for the Funds will be for conservation projects such as follows:

- Along Dean Swamp and its tributaries to provide connectivity between the Bannister Tract and Francis Beidler Forest;
- Within the Four Hole Swamp watershed;
- Upper Berkeley County; and
- Projects of regional significance in the Greater Charleston Area.

The Fund Oversight Committee will approve these conservation projects to acquire additional parcels or easements that have not yet been identified, but that are an integral part of the overall Mitigation Project to mitigate impacts occurring on the Camp Hall Site as a result of the proposed project. Approval of conservation projects within Four Hole Swamp will require a majority vote of the Fund Oversight Committee; conservation projects outside of Four Hole Swamp watershed will require unanimous approval.

Proposed mitigation activities are not anticipated to adversely impact protected species or cultural resources. The Permittee Responsible Mitigation Plan (PRMP), presented in Appendix E, includes specific goals and objectives for water resource mitigation, as well as site selection factors, site protection, baseline conditions of the mitigation and reference sites, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long term management plans, adaptive management provisions, and financial assurances for its success.

## 6 AFFECTED ENVIRONMENT AND IMPACTS

---

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and other with knowledge or experience related to the proposed project, has analyzed the proposed action in light of existing conditions and has identified relevant beneficial and adverse effects associated with the proposed action. Section 6 describes baseline conditions, the expected effects of the proposed action, and baseline study recommendations.

### 6.1 Land Use

#### 6.1.1 Description of Affected Environment

Land use is defined as the way people use and develop land, including uses such as agricultural, residential, and industrial. Many municipalities develop zoning ordinances and planning documents to control the direction of development and to keep similar land uses together. Land use in the incorporated areas of Berkeley County is governed by the Berkeley County Planning and Zoning Department. The study area, the Camp Hall Commerce Park tract (Camp Hall), is an approximately 6,781-acre tract consisting of undeveloped forests and pasture lands, containing a few dirt access roads (Figure 3). Camp Hall is intensely managed for timber, resulting in heavy bedding, interconnecting RPW systems, and established stands in various stages of rotation, though there is no evidence of fire management within the stands. The primary species in rotation on the tract is loblolly pine (*Pinus taeda*), with smaller stands of longleaf pine (*Pinus palustris*) and sweetgum (*Liquidambar styraciflua*) also present. Minor components of Camp Hall that are not currently in rotation comprise areas of mixed hardwood and wetland hardwood forests, including isolated ponds and areas associated with the Timothy Creek drainage. The site is adjacent to undeveloped forests, pasture lands, agricultural fields, and rural residential areas.

In addition to intense timber production, Camp Hall is leased for hunting. An active hunting camp is located within the eastern-central portion of the tract, and negligible areas scattered throughout the property appear to be utilized as food plots. Camp Hall is also crossed by a Santee Cooper transmission line corridor. The transmission line right-of-way is actively maintained and runs east-southeast to west-northwest across the southern portion of the tract.

The property is currently zoned by Berkeley County as “PD-OP/IP” which is office or industrial park. The definition of PD-OP/IP is for office, light and heavy industrial uses, and necessary supporting 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.

### **6.1.2 Potential Environmental Impacts and Proposed Mitigation Measures**

Implementation of the Project Soter facility would result in impacts to land use. Land use at the site would change from undeveloped and agricultural to industrial. These impacts are within the established zoning for the property. The surrounding area, however, is largely agricultural, undeveloped, and rural residential, which would not change. As a relatively small portion of a very large land use category would be lost, this adverse impact would be minor overall.

## **6.2 Aesthetics and Visual Resources**

### **6.2.1 Description of Affected Environment**

Project Soter will change the physical appearance of the existing property. The site is currently comprised of generally managed forested areas interspersed with forested wetlands and crossed by utilities and unimproved roads.

### **6.2.2 Potential Environmental Impacts and Proposed Mitigation Measures**

An approximate 1,500-acre manufacturing facility, administrative offices, and visitor's center, Interstate 26 interchange, other site and adjacent road improvements, and other infrastructure improvements are planned for the subject property. Vegetative buffers estimated to be at least 150 feet average width will be maintained on the property boundaries in areas with manufacturing uses. Currently, residences are located adjacent to the proposed project along S.C. Highway 27 to the west, along Fish Road to the north, along Cypress Campground road to the southeast, and along Lebanon Road to the east. The facility and proposed infrastructure (roads, rail spur, and utilities) would be visible from adjacent residences.

## **6.3 Air Quality**

### **6.3.1 Description of Affected Environment**

#### Air Quality Data Summary

A few common air pollutants are found all over the United States. The U.S. Environmental Protection Agency (USEPA) calls these pollutants "criteria air pollutants" because the agency has regulated them by first developing health-based criteria (science-based guidelines) as the basis for setting permissible levels. One set of limits (primary standard) protects health; another set of limits (secondary standard) is intended to prevent environmental and property damage. A geographic area that meets or does better than the primary National Ambient Air Quality Standards (NAAQS) is called an attainment area; areas that do not meet the primary NAAQS are called nonattainment areas.

SCDHEC operates air quality monitoring stations throughout the State. Data from these monitoring sites show that South Carolina enjoys some of the best air quality in the United States and is one of a few states that currently meet all NAAQS. Sampling data continues to show that the entire state is in attainment of the NAAQS. Table 1 summarizes the NAAQS and observed air quality data for Berkeley, Charleston, and Dorchester Counties.

**Table 1 Air Quality Data Summary for Tri-County Area**

Pollutant	Averaging Time	NAAQS	Maximum Observed <sup>(a)</sup>
Lead	Rolling 3-month	0.15 ug/m <sup>3</sup>	0.006 ug/m <sup>3</sup>
Carbon Monoxide	1-hr Maximum 8-hr Maximum	35 ppm 9 ppm	Not available for 3 County area
Nitrogen Dioxide	Annual Mean	100 ug/m <sup>3</sup>	12.4 ug/m <sup>3</sup>
Sulfur Dioxide	1-hr Maximum 3-hr Maximum	75 ppb 1300 ug/m <sup>3</sup>	41.9 ug/m <sup>3</sup> (16 ppb) 35.8 ug/m <sup>3</sup>
Ozone	8-hr Daily Maximum	0.075 ppm	0.061 ppm
Particulate Matter (PM10)	24-hr Maximum	150 ug/m <sup>3</sup>	49 ug/m <sup>3</sup>
Particulate Matter (PM2.5)	Annual Mean 24-hr Maximum	15 ug/m <sup>3</sup> 35 ug/m <sup>3</sup>	8.9 ug/m <sup>3</sup> 21 ug/m <sup>3</sup>

(a) Maximum observed valued during the 2011-2013 time period at any SCDHEC monitor in Berkeley, Charleston, and Dorchester Counties.

(b) Data Source: <http://www.scdhec.net/baq/>

### Emissions Summary

Air pollution is emitted by a variety of sources, ranging from large power plants to automobiles to household paints. The USEPA has compiled the National Emission Inventory (NEI) that contains data on all stationary and mobile sources emitting criteria air pollutants. Table 2 summarizes the NEI emission estimates for Berkeley, Charleston, and Dorchester Counties for the latest compiled year, 2011. There are several large industrial sources located within a 25-mile radius of the proposed site. These sources include electric generation stations, a pulp and paper mill, chemical plants, metal processing plants, and two cement plants. Highway vehicles and off-road equipment are also important sources of air pollution in the area.

There is a prevention of significant deterioration (PSD) facility located within 5 miles of the subject property, Showa Denko Carbon, Inc. The facility submitted a PSD Construction Permit application and a Case-by-Case Maximum Achievable Control Technology (MACT) Determination, also known as 112(g), application to the SCDHEC Bureau of Air Quality (BAQ) Department to increase production capacity of graphite electrodes from 45,000 to 85,000 metric tons per year (TPY) at the facility's Dorchester County location. The proposed modification resulted in increases that exceeded the PSD significant thresholds for the following pollutants; particulate matter (PM), particulate matter with an aerodynamic



diameter of less than or equal to 10 micrometers (PM10), particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers (PM2.5), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compounds (VOCs), and carbon dioxide equivalent (CO2e). On April 10, 2012, the SCDHEC BAQ made a preliminary determination that the air quality analysis submitted by the Showa Denko facility showed that operation of the proposed facility would not cause or contribute to the violation of any state or federal air quality standard.

**Table 2 Emission Summary for Tri-County Area**

Source Category	Emissions (tons per year)				
	CO	NOx	SO2	VOC	PM10
<b>BERKELEY COUNTY</b>					
Fuel Combustion - Electric Utility	10,846	8,175	16,280	139	2,493
Fuel Combustion – Industrial	621	719	768	34	236
Fuel Combustion – Other	343	60	5	60	49
Chemical and Allied Products	333	0	0	302	5
Metals Processing	46,643	324	3,897	220	329
Other Industrial Processes	61	29	0	288	293
Solvent Utilization	0	0	0	1,307	0
Petroleum Storage/Transport	0	0	0	765	38
Waste Disposal	4,574	149	4	464	535
Highway Vehicles	15,627	3,461	16	1,789	223
Off-highway Vehicles	9,536	1,255	7	2,561	99
Miscellaneous	19,933	464	204	4,694	8,053
Berkeley County Totals	108,518	14,636	21,181	12,656	12,353
<b>CHARLESTON COUNTY</b>					
Fuel Combustion - Electric Utility	43	41	1	4	2
Fuel Combustion – Industrial	856	1,699	971	59	498
Fuel Combustion – Other	861	272	16	143	121
Chemical and Allied Products	6	0	3	129	10
Metals Processing	0	0	0	0	0
Other Industrial Processes	5,149	948	1,062	1,016	576
Solvent Utilization	0	0	0	2,747	1
Petroleum Storage/Transport	0	0	0	2,811	0
Waste Disposal	2	0	0	7	0
Highway Vehicles	34,422	7,744	38	3,845	587
Off-highway Vehicles	25,767	5,251	12,535	3,838	473
Miscellaneous	14,435	296	136	3,391	6,587
Charleston County Totals	81,541	16,250	3,760	17,989	8,856
<b>DORCHESTER COUNTY</b>					
Fuel Combustion - Electric Utility	0	0	0	0	0
Fuel Combustion – Industrial	296	213	69	10	163
Fuel Combustion – Other	258	46	3	46	36
Chemical and Allied Products	0	0	0	0	0
Metals Processing	5,149	228	971	78	133
Other Industrial Processes	2,982	1,413	389	377	487
Solvent Utilization	0	0	0	1,019	0
Petroleum Storage/Transport	0	0	0	564	108
Waste Disposal	68	12	2	14	0
Highway Vehicles	11,907	2,641	12	1,311	146
Off-highway Vehicles	3,774	495	3	313	46
Miscellaneous	5,202	124	54	1,217	3,830
Dorchester County Totals	29,636	5,172	1,501	4,948	4,951
<b>Tri-County Totals</b>	<b>219,694</b>	<b>36,058</b>	<b>26,443</b>	<b>35,592</b>	<b>26,160</b>

### 6.3.2 Potential Environmental Impacts and Proposed Mitigation Measures

Emissions from the project will be generated by process equipment (primarily surface coating operations), fuel combustion for process use and space heat, and transportation sources (employee vehicles and delivery trucks). The following sections discuss each source category.

Surface coating is the primary source of emissions from process equipment. Surface coating of the manufactured product is a multistep operation carried out on an assembly line conveyor system. Although finishing processes vary from plant to plant, they have some common characteristics. Major steps of such processes are:

- Solvent cleaning wipe;
- Phosphating treatment;
- Application of prime coat;
- Curing of prime coat;
- Application of guide coat;
- Curing of guide coat;
- Application of topcoat(s);
- Curing of topcoat(s); and
- Final repair operations.

VOCs and hazardous air pollutants (HAPs) are the major pollutants from surface coating operations. The application and curing of the prime coat, guide coat, and topcoat account for 50 to 80 percent of the VOC/HAP emitted from assembly plants. Final topcoat repair, cleanup, and miscellaneous sources such as the coating of small component parts and application of sealants account for the remaining 20 percent.

Several factors affect the mass of VOC/HAP emitted per vehicle from surface coating operations in the automotive industry. Among these are:

- VOC/HAP content of coatings
- Volume solids content of coating
- Area coated per vehicle

- Film thickness
- Transfer efficiency

The greater the quantity of VOC/HAP in the coating composition, the greater will be the emissions. Lacquers having 12 to 18 volume percent solids are higher in VOCs than enamels having 24 to 33 volume percent solids. Emissions are also influenced by the area of the parts being coated, the coating thickness, the configuration of the part, and the application technique. The transfer efficiency (fraction of the solids in the total consumed coating that remains on the part) varies with the type of application technique. Transfer efficiency for typical air atomized spraying ranges from 30 to 50 percent. The range for electrostatic spraying, an application method that uses an electrical potential to increase transfer efficiency of the coating solids, is from 60 to 95 percent. Both air atomized and electrostatic spray equipment may be used in the same spray booth.

Several types of control techniques are available to reduce VOC/HAP emissions from automobile and light duty truck surface coating operations. These methods can be broadly categorized as either control devices or alternative coating and application systems. Control devices reduce emissions by either recovering or destroying VOC/HAP before it is discharged into the ambient air. Such techniques include thermal and catalytic oxidizers on bake ovens, and carbon adsorbers on spray booths. Alternative coatings with relatively low VOC/HAP levels can be used in place of high-VOC/HAP-content coatings. Such coating systems include electrodeposition of waterborne prime coatings, and for top coats, air spray of waterborne enamels and air or electrostatic spray of high solids, solvent borne enamels and powder coatings. Improvements in the transfer efficiency decrease the amount of coating that must be used to achieve a given film thickness, thereby reducing emissions of VOC/HAP to the ambient air.

USEPA's National Emission Inventory was reviewed to identify a representative range of potential emissions for the manufacturer's surface coating operations. Facilities that are very well controlled typically emit approximately 100-250 tons per year of VOC. However, the more typical situation is that the facility-wide VOC emissions are in 250-1,000 ton per year range. Some older, low-controlled plants emit over 1,000 tons per year.

### Fuel Combustion

The requirement for natural gas for process use is unknown at this time but for evaluation purposes is estimated to be 100 mmBtu/hour. Additional natural gas will be required for seasonal heating purposes. Boilers of this size will probably require some sort of control, such as low-NOx burners. Potential emissions (without controls) were calculated using emission factors from USEPA's AP-42 publication and assuming that natural gas for process use is required 24 hours per day, 52 weeks per year. The potential emissions for a requirement of 100 mmBtu/hour are shown in Table 3 below:

**Table 3 Natural Gas Combustion @ 100 mmBtu/hour**

<b>Pollutant</b>	<b>Emission Factor (lbs/mmft<sup>3</sup>)</b>	<b>Potential Emissions (tons/year)</b>
Carbon Monoxide	84	36.8
Oxides of Nitrogen	100	43.8
PM10	7.6	3.3
PM2.5	7.6	3.3
Sulfur Dioxide	0.6	0.3
Volatile Organic Compounds	5.5	2.4
Hazardous Air Pollutants	1.9	0.8

### Transportation Sources

Air emissions were estimated by combining the projected 4,000 employees at full build out, along with an estimated additional 4,000 cars associated with use of the improved infrastructure and other development that could be reasonably expected in the vicinity of the project (Total of 8,000 vehicles). Assuming that each employee drives a vehicle to work each day and the round trip distance traveled by each vehicle is 5 miles to and from I-26, then the annual number of vehicle miles traveled (VMT) is estimated to be 14.6 million per year. Multiplying the VMT by USEPA average emission factors yields the following emission estimates in Table 4 for employee vehicle traffic near the plant:

**Table 4 Employee and Ancillary Traffic**

<b>Pollutant</b>	<b>Emission Factor (g/VMT)</b>	<b>Potential Emissions (tons/year)</b>
Carbon Monoxide	14.4	232
Oxides of Nitrogen	0.9	14.5
PM10	0.71	11.4
PM2.5	0.2	3.2
Sulfur Dioxide	0.1	1.6
Volatile Organic Compounds	0.9	14.5

Heavy duty truck traffic is unknown at this time; however approximately 300 trucks per day at full build-out is used for estimation purposes. Assuming that each truck travels a round trip distance of 5 miles to and from I-26, then the annual VMT is estimated to be 0.55 million (550,000) per year. Multiplying the VMT by USEPA average emission factors yields the following emission estimates in Table 5 for truck traffic near the plant:

**Table 5 Truck Traffic @ 300 Trucks per Day**

<b>Pollutant</b>	<b>Emission Factor (g/VMT)</b>	<b>Potential Emissions (tons/year)</b>
Carbon Monoxide	2.5	2.5
Oxides of Nitrogen	16.0	16.1
PM10	7.73	7.8
PM2.5	2.01	2.0
Sulfur Dioxide	0.5	0.5
Volatile Organic Compounds	0.5	0.5

### Overview of Air Quality Permitting Process

New Source Review (NSR) is the general term applied to air permitting programs regulating the construction of new industrial facilities. New facilities may be classified as either major or minor sources depending upon the location of the source, the projected increase in regulated pollutant emissions, and State regulations. The classification depends on the “potential to emit” (PTE) of the entire facility. The PTE is a theoretical calculation using the worst-case emission scenario, which generally assumes that every stationary source at the facility will be operating at its maximum capacity 24 hours per day, 365 days per year, without using any pollution control technology. It is important to note that the NSR program applies only to stationary sources (*i.e.*, emissions from vehicles and trucks are not regulated under the NSR permitting program).

The major source NSR program in South Carolina is administered by SCDHEC and closely follows the Federal regulations. The major source NSR program has two components: the PSD permitting program for attainment areas and the nonattainment area NSR permitting program. All of South Carolina is an attainment area for all pollutants. Thus, the PSD permitting program will apply to the proposed manufacturer if the facility-wide stationary source potential to emit of any criteria pollutant is 250 tons per year or greater. If potential emissions are below this threshold, then South Carolina’s minor source construction permitting requirements would apply.

If the facility-wide stationary source potential to emit of any criteria pollutant is 250 tons per year or greater, a PSD permit application must be prepared. Generally, a pre-application meeting with the SCDHEC is held prior to preparing any PSD application to discuss the agency’s specific requirements for each of the following required elements:

- *Best Available Control Technology (BACT) determination* – a process to select a technology that achieves a maximum reduction in pollutants by taking into account energy, environmental and economic impacts. This process is done on a case-by-case basis since BACT changes both from facility-to-facility and over time as advances in control technologies are made.

- *Air quality analysis* – an evaluation of the potential effect of the proposed source on the air quality of the local area. This analysis demonstrates that the ambient air quality standards and allowed increases in ambient concentrations will not be violated.
- *Additional impacts analysis* – an assessment of the air, ground and water pollution caused by the proposed project on soils, vegetation and visibility. This includes how secondary impacts (e.g., increases in the work force, housing and related industry) will affect the local area.
- *Class I area impact analysis* – a prediction of the possible effects of the project on visibility in national parks and wilderness areas.
- *Public review* - there are procedures to attain adequate public participation, including a public notice and comment period.

Note that obtaining a PSD permit can be a lengthy process – typically it takes 9-12 months after the PSD application is submitted to obtain a PSD permit that authorizes construction to begin.

To avoid PSD review, it is possible to restrict the facility-wide emissions below the major source threshold levels by accepting enforceable permit conditions. For example, it may be possible to limit hours of operation or commit to employing certain levels of controls to restrict the potential to emit. If the restricted emissions are less than 250 tons per year, then the facility is considered a “synthetic minor” source. A synthetic minor source is processed under the state’s minor source construction permitting program, which generally is a simpler and less time-consuming process. The minor source permit application will require a simpler evaluation of the potential effect of the proposed source on the air quality of the local area. This analysis will ensure that the ambient air quality standards and allowed increases in ambient concentrations will not be violated. Review of the state air permits are typically 150 days and can be expedited to as little as 90 days.

#### Anticipated Project Impacts

On a macro-scale basis, the anticipated emissions from the proposed manufacturing facility will most likely have an insignificant impact on air quality in the North Charleston-Summerville-Charleston MSA.

On a micro-scale level, SCDHEC regulations will require a detailed modeling analysis to demonstrate that the emissions from the proposed manufacturing facility will not interfere with attainment or maintenance of any NAAQS or South Carolina (SC) air toxic maximum allowable concentrations. Based on our experience permitting similar facilities, we do not

envision any major problems in being able to demonstrate through dispersion modeling that public health and welfare will not be adversely affected.

In summary, the proposed project is not expected to have a significant impact on air quality levels for criteria pollutants nor result in any adverse impacts associated with any toxic air pollutants that may be emitted.

## 6.4 Noise

Noise is generally defined as unwanted sound. Unwelcome sound interferes with normal activities such as sleeping conversation, recreation, and can have an adverse impact on human health. There are two types of noise problems, occupational and community. Occupational noise stems from loud machinery where community noise is attributed to the cumulative effect of several sources of noise. The main sources of community noises are highways, railroads, and airports (U.S. Department of Housing and Urban Development [HUD], 1998).

The degree of acceptability of the noise atmosphere at a site is determined by the outdoor day-night average sound level (DNL) in decibels (dB) (HUD, 1998). A decibel is defined as a unit of measurement of the loudness or intensity of sound.

### 6.4.1 Description of Affected Environment

Berkeley County Ordinance No. 05-08-56 and 09-04-21 sets the noise ordinance for the unincorporated areas of Berkeley County. The ordinance addresses maximum permissible noise levels as well as provides exemptions for certain noise sources.

Section 38.1(c)(2) of the noise ordinance exempts noise from construction or demolition activities occurring between 6:00 a.m. and 10:00 p.m. Construction activity means any site preparation, assembly, erection, repair, or similar activity and any associated equipment testing.

Section 38.1(b)(1) of the noise ordinance prohibits continuous sound levels from a facility or property in excess of the following maximum limits, as measured from the nearest property line in a non-residential area of the unincorporated areas of the County.

Hours of the Day	Maximum Sound Level in A-Weighted Decibels (dBA)
6:00 a.m. to 10:00 p.m.	75 dBA
10:00 p.m. to 6:00 a.m.	69 dBA



Any person or business that owns or operates any stationary source may apply to the County for a variance from one or more of the provisions of the noise ordinance. Applications for a permit of variance shall supply information including, but not limited to:

- The nature and location of the noise source for which such application is made;
- The reason for which the permit of variance is requested, including the hardship that will result to the applicant, his/her client, or the public if the permit of variance is not granted;
- The level of noise that will occur during the period of variance;
- The section or sections of this ordinance for which the permit of variance shall apply;
- A description of interim noise control measures to be taken for the applicant to minimize noise and the impacts occurring therefrom; and
- A specific schedule of the noise control measures that shall be taken to bring the source into compliance with this ordinance within a reasonable time.

The County may, at its discretion, limit the duration of the permit of variance, which shall be longer than one (1) year.

#### **6.4.2 Potential Environmental Impacts and Proposed Mitigation Measures**

Short-term and temporary noise will result from operation of construction equipment during the construction of the manufacturing facilities, roadways, and rail spur. During work hours, noise will be produced by construction equipment including backhoes, bulldozers, dump trucks, and loaders. At a distance of 50 feet, backhoes and tractors usually create noise levels in the range of 75-95 dBA (Golden, et al., 1979).

Due the much greater distance from receptors to the construction areas, the noise levels are not expected to be an issue. Efforts will be made to minimize this short-term impact through the appropriate maintenance of the construction equipment and the use of proper mufflers on motorized equipment. The above-described mitigation measures will be included in the construction documents.

To reduce noise impacts to adjacent residences and commercial developments during construction and daily operations of the plant, an existing vegetated buffer is planned for the proposed manufacturing plant. Noise barriers, such as vegetated wooded buffers, reduce the amount of noise that may reach potential receivers.

Long term noise impacts will be associated with the operation of the manufacturing facility, incoming and outgoing truck and automobile traffic. Residences located on adjacent properties range from 500 to 1,000 feet from the potential manufacturer.

### Vehicular Noise

Average daily traffic (ADT) volume for the proposed manufacturing facility is anticipated to be a maximum of approximately 48,000 vehicles. This number is based on the projected number of individuals the manufacturer will employ, the number of trucks entering and exiting the site, and local traffic. The proposed manufacturing plant will increase the amount of vehicular traffic on Centerline Road, Lower Westvaco Road, and Interstate 26. Residences located directly or near the proposed manufacturing facility will experience increases in noise levels. Most residences in the area back up to the eastern boundary of the manufacturing facility and are not located on Centerline Road, Lower Westvaco Road or along Interstate 26 West. Based on the Day/Night Noise Level Electronic Assessment Tool by HUD, a DNL of 56 is anticipated for areas located with 1,000 feet of roads that have an ADT of 48,000. According to the Berkeley County Noise Ordinance, this DNL is within the acceptable noise range for all hours of the day.

## **6.5 Geology and Soils**

### **6.5.1 Description of Affected Environment**

Camp Hall Commerce Park is located in the Middle Atlantic Coastal Plain Section of the Outer Coastal Plain Physiographic Province. The predominant landform consists of a flat, weakly dissected alluvial plain formed by the deposition of continental sediments onto a submerged, shallow continental shelf, which was later exposed by sea level subsidence. Geology in this Section is comprised of rocks formed through this process during the Cenozoic Era, with strata that consist of Quaternary marine deposits, including shales and sands, and smaller areas of Tertiary marine deposits, including of silts and clays. The soils resulting from this geology have a mixed or siliceous mineralogy.

Elevation ranges from 0 to 80 feet in the Middle Atlantic Coastal Plain Section, with typical local relief ranges from 10 to 20 feet on flat plains and from 20 to 40 feet on the irregular plains. The topography of Camp Hall is generally flat terrain (Figure 4). Elevations are at their greatest in the northwest corner of the property reaching approximately 75 feet above mean sea level (amsl) and at their lowest at approximately 55 amsl in the Timothy Creek drainage. The flat topography of Camp Hall is drained by an elaborate system of RPWs that convey water to Timothy Creek and an unnamed tributary to Timothy Creek in the southwest portion of the tract.

The Federal Farmland Protection Policy Act (FPPA) was created to protect farmland and combat urban sprawl (USDA-NRCS, 2015a). Consequently, soils specifically suited to

agricultural uses may be protected under the FPPA. Conversion of these soils from pastureland to non-pastureland uses may be limited. Specifically protected are cultivated areas identified by the FPPA as Prime Farmland, Unique Farmland, and Farmland That is of Local or Statewide Importance. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a Federal agency or with assistance from a Federal agency.

The soil on the site was mapped by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Berkeley County Soil Survey (USDA-NRCS, 2015b). Soils on the site are summarized in Table 6. Approximately 70.8% of the site contains Farmland of Statewide Importance, 11.6% of the site contains areas designated as Prime Farmland, and the remaining 17.6% of the site is not considered prime farmland.

Based on the soil survey, a significant portion of the site (62.3%) contains hydric soils. The remainder of the site is mapped as either non-hydric soil (0.1%) or as a non-hydric soil with potential hydric inclusions (37.6%). Hydric soils are frequently used to determine the location of potential wetland areas.

**Table 6 Soil Characteristics Within the Project Soter Study Area (USDA NRCS, 2015b).**

Map Unit Symbol	Map Unit Name	Percent of Property (approximate)	Farmland Rating	Hydric Rating (%)
Be	Bethera loam	0.30%	Farmland of statewide importance	97
By	Byars loam	0.30%	Farmland of statewide importance	97
CaB	Cainhoy fine sand, 0 to 6 percent slopes	0.00%	Not prime farmland	0
Ct	Chipley-Echaw complex	0.00%	Not prime farmland	2
Cu	Coxville fine sandy loam	19.80%	Farmland of statewide importance	97
CvA	Craven loam, 0 to 2 percent slopes	1.60%	All areas are prime farmland	2
DuA	Duplin fine sandy loam, 0 to 2 percent slopes	0.80%	All areas are prime farmland	2
GoA	Goldsboro loamy sand, 0 to 2 percent slopes	9.10%	All areas are prime farmland	2
Le	Lenoir fine sandy loam	6.00%	Farmland of statewide importance	2

Map Unit Symbol	Map Unit Name	Percent of Property (approximate)	Farmland Rating	Hydric Rating (%)
Lo	Leon fine sand	0.20%	Not prime farmland	100
Ly	Lynchburg fine sandy loam	16.60%	Not prime farmland	4
Mg	Meggett loam	32.10%	Farmland of statewide importance	100
NoA	Norfolk loamy sand, 0 to 2 percent slopes	0.10%	All areas are prime farmland	0
Ra	Rains fine sandy loam	9.60%	Farmland of statewide importance	97
Se	Seagate loamy sand	0.80%	Not prime farmland	4
Wa	Wahee loam	2.70%	Farmland of statewide importance	4

A majority of the tract contains soils that are listed as hydric, including Bethera loam, Byars loam, Coxville fine sandy loam, Leon fine sand, Meggett loam, and Rains fine sandy loam, or that are listed as containing hydric inclusions, including Craven loam, Duplin fine sandy loam, Goldsboro loamy sand, Lenoir fine sandy loam, Lynchburg fine sandy loam, Seagate loamy sand, and Wahee loam.

#### 6.5.2 Potential Environmental Impacts and Proposed Mitigation Measures

The Proposed Alternative would have minor direct impacts to geology and soil resources on-site as a result of construction and operation of the facility, but no significant adverse impact on the geology of the region. It is anticipated that minor impacts on soils would occur. These impacts would mostly occur during the construction phase, when excavation activities are underway. This would cause minor impacts to geology and soils including minor, localized increases in erosion and sedimentation. Should borrow material be required, small amounts of sand and gravel aggregate may be obtained either from on-site activities, or from local, off-site sources. The creation of new impervious surface, in the form of the panel footings, would result in an increase in stormwater runoff and potential increase in soil erosion. Use of best management practices (BMPs) such as soil erosion and sediment control measures would minimize the potential for increased soil erosion and runoff. A National Pollutant Discharge Elimination System (NPDES) Permit for discharges of stormwater associated with construction activities would likely be required. Application for the permit would require submission of a Stormwater Pollution Prevention Plan (SWPPP) describing the management practices that would be utilized during construction to site. Following construction, implementation of soil stabilization and vegetation management

measures and proper maintenance of BMPs would reduce the potential for erosion impacts during site operations.

The proposed action would result in loss of potential Prime Farmland soils and in more soils being converted to developed areas and/or impervious surfaces than under current conditions. A Prime Farmland analysis specified at 7 C.F.R. § 658.5 has not been completed for this project.

## **6.6 Water Resources/Floodplains**

### **6.6.1 Description of Affected Environment**

#### Surface Waters

Surface water includes streams, rivers, lakes, and reservoirs. The large majority of Camp Hall is located within the Four Hole Swamp Watershed (Hydrologic Unit Code [HUC] 03050205) of the Edisto River Sub-basin, while a small area in the northeast corner of the tract is located within the Cooper River Watershed (HUC 03050201) of the Ashley River Sub-basin, both of which are contained within the Ashepoo, Combahee and Edisto (ACE) River Basin. Major water bodies occurring near Camp Hall include Timothy Creek, and two unnamed tributaries to the Timothy Creek (Figure 4). These surface waters are further described below. Timothy Creek is not a 303(d) listed stream. The surface water classifications listed for these waters are based on the most recent SCDHEC 2012 303(d) List.

The Administrative Offices & Visitor Center (Parcel A) and Phase 1 (Parcel B) drain to the west in a series of wetland areas and RPWs towards an unnamed tributary of Timothy Creek. The unnamed tributary of Timothy Creek flows south to the confluence with Timothy Creek, approximately 0.75 miles south of Interstate 26. Timothy Creek flows south and then west to the confluence with Four Hole Swamp, approximately 2.25 miles south of U.S. Highway 78. Four Hole Swamp is a tributary of the Edisto River.

The east side of Phase 2 (Parcel C) drains to the east through a series of wetland sloughs towards Rudd Branch. Rudd Branch joins Mill Branch to form Partridge Creek, approximately 1.0 mile northwest of Cypress Campground Road. Partridge Creek Flows into Cypress Swamp approximately 0.5 miles south of U.S. Highway 176. The Cypress Swamp is the headwaters of the Ashley River. The remainder of Phase 2 drains west through RPWs to Timothy Creek.

#### Wetlands

Jurisdictional waters of the U.S., including streams and wetlands, are defined by 33 C.F.R. Part 328.3 et al. and are protected by Section 404 and other applicable sections of the Clean Water Act (33 U.S.C.A. § 1344). Impacts to these regulated resources are

administered and enforced by the USACE, as well as other federal and state government agencies. Jurisdictional wetlands are defined in the USACE Wetland Delineation Manual and the Atlantic and Gulf Coastal Plain regional supplement (USACE, 1987; 2012). These techniques use a multi-parameter approach, which requires positive evidence of three criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

A jurisdictional waters delineation was performed by others on the 6,781- acre Camp Hall Commerce Park. A jurisdictional determination was submitted to and concurred with by the USACE on August 16, 2012 (USACE SAC# 2008-00860-2JY).

For the roadway improvements north of the Camp Hall parcel, connecting the parcel to U.S. Highway 176, along Center Line Road, Amec Foster Wheeler conducted a preliminary jurisdictional waters screening to assess the potential presence/absence of jurisdictional waters, including wetlands. The in-house research included a review of readily available public information sources, including:

- U.S. Geological Survey (USGS) 7.5-minute quadrangle topographic maps (Figure 4);
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps (Figure 5);
- USDA-NRCS soil survey maps (Figure 6).

USGS topographic maps indicate features (ponds, marshes, streams, etc.) that may potentially be waters of the U.S. Streams indicated as “dashed” blue line streams on USGS topographic maps are categorized as intermittent streams, while streams indicated as “solid” blue line streams on USGS topographic maps are categorized as perennial streams.

Subsequent to this in-house research, Amec Foster Wheeler performed a jurisdictional waters delineation along both sides of Center Line Road (100 feet from centerline on each side of the road) on March 26, 2015. The results of this delineation are included in Appendix D and a jurisdictional determination is being submitted to the USACE concurrently with this report.

The jurisdictional waters and wetlands and isolated, non-jurisdictional wetlands that exist on the subject site consist of scrub/shrub wetlands, herbaceous wetlands, bottomland hardwood wetlands, pine savannah wetlands, sweet gum plantation, natural depressions (dominated by sweet gum and diamond-leaf oak), and jurisdictional RPWs. Palustrine forested wetlands are the dominant wetland type classified, covering approximately 615.9 acres, while approximately 54.6 acres of palustrine scrub-shrub wetlands, and 1.4 acres of palustrine emergent wetlands are also classified for the site.

## Floodplains

Federal Emergency Management Agency (FEMA) Floodplain Insurance Rate Maps (FIRM) were used to determine if areas within the project site are located within the designated 100-year floodplain (Figure 7). FIRM Community-Panel Numbers 45015C 0350D, 0365D, 0535D, and 0555D (10/16/2007) for Berkeley County indicate that approximately 800 linear feet of the Rudd Branch Zone A floodplain (approximately 200 feet wide) is located within the southeastern portion of the property. Also, the proposed centerline road extension near its intersection with Highway 176 northeast of the project site would cross a designated Zone A floodplain associated with Mill Branch (approximately 300 feet wide), a tributary of Partridge Creek. FIRM Community-Panel Number 450068 0150C (04/15/1994) for Dorchester County indicates that the proposed rail corridor portion located in Dorchester County would cross the 100-year Zone A floodplain of Timothy Creek (approximately 800 feet wide), a tributary of Four Hole Swamp. Zone A floodplains have been determined to be within the 100-year flood, but no base flood elevations have been determined. The remainder of the project site is located in Zone X, or areas determined to be outside of the 500-year floodplain.

For the purposes of Project Soter, it will be necessary to fill within portions of FEMA Flood Zone A for development of Phase 2 and Centerline Road; therefore, a Letter of Map Revision based on Fill (LOMR-F) will be necessary. Per FEMA, a LOMR-F is submitted for properties on which fill has been placed to raise a structure or lot to or above the Base Flood Elevation (BFE). National Flood Insurance Programs (NFIP) regulations require that the lowest adjacent grade of the structure be at or above the BFE for a LOMR-F to be issued to remove the structure from the floodplain. For Zone A floodplains, a 100-year base flood elevation will need to be determined as part of development and prior to any fill placement within this area. As part of the Project Soter development, coordination will be required between FEMA and the Berkeley County Floodplain Administrator, as well as meeting any pertinent requirements presented in the Berkeley County Floodplain Ordinance.

## Water Quality Regulations

SCDHEC Regulation 61-69 Classified Waters, classifies Four Hole Swamp, in Orangeburg, Dorchester, Berkeley and Colleton Counties, as "FW sp". The regulation classifies Cypress Swamp, in Dorchester County, as "FW". "FW" signifies Freshwaters. The "sp" designation for Four Hole Swamp signifies that a site-specific standard for a certain parameter has been established for the waterbody. For Four Hole Swamp, the site-specific standards include dissolved oxygen (DO) not less than 4 mg/l and pH between 5.0 and 8.5.

South Carolina Regulation 61-69(B), Tributaries to Classified Waters, states that where surface waters are not classified by name (unlisted) in the regulation, the use classification and numeric standards of the class of the stream to which they are a tributary apply,

disregarding any site-specific numeric standards for the named waterbody. Therefore, the streams and creeks to which Project Soter contributes are classified as Freshwater (FW).

Regulation 61-69(A), Criteria for Classes, states that all adopted classifications must conform to the standards and rules contained in Regulation 61-68 Water Classifications and Standards. Regulation 61-69(G) 10, Freshwaters (FW), state that freshwaters are suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment. It further states that Freshwaters are suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora and is also suitable for industrial and agricultural uses. Regulation 61-69(G) 10 list the Quality Standards for Freshwaters per Table 7 below.

**Table 7 South Carolina Quality Standards for Freshwaters [R. 61-69 (G)(10)]**

Items	Standards
a. Garbage, cinders, ashes, oils, sludge, or other refuse	None allowed.
b. Treated wastes, toxic wastes, deleterious substances, colored or other wastes except those given in a. above.	None alone or in combination with other substances or wastes in sufficient amounts to make the waters unsafe or unsuitable for primary contact recreation or to impair the waters for any other best usage as determined for the specific waters which are assigned to this class.
c. Toxic pollutants listed in the appendix.	As prescribed in Section E of this regulation.
d. Stormwater, and other nonpoint source runoff, including that from agricultural uses, or permitted discharge from aquatic farms, concentrated aquatic animal production facilities, and uncontaminated groundwater from mining.	Allowed if water quality necessary for existing and classified uses shall be maintained and protected consistent with antidegradation rules.
e. Dissolved oxygen.	Daily average not less than 5.0 mg/l with a low of 4.0 mg/l.
f. E. coli	Not to exceed a geometric mean of 126/100 ml based on at least four samples collected from a given sampling site over a 30 day period, nor shall a single sample maximum exceed 349/100 ml.
g. pH.	Between 6.0 and 8.5.



Items	Standards
h. Temperature.	As prescribed in E.12. of this regulation.
i. Turbidity. Except for Lakes. Lakes only.	Not to exceed 50 Nephelometric turbidity units (NTUs) provided existing uses are maintained. Not to exceed 25 NTUs provided existing uses are maintained.

### Water Quality Monitoring

SCDHEC water quality monitoring includes stations on Four Hole Swamp near the Project Soter site at U.S. Highway 78 (Monitoring Station E-100) and at Wire Road (Monitoring Station E-015A). Monitoring Station E-100 is approximately 2.25 miles upstream of the confluence with Timothy Creek. Monitoring Station E-100 is listed on the current (2012) 303(d) list as not meeting water quality standards for recreational use for fecal coliform. Note that the SCDHEC recently transitioned from monitoring fecal coliform to E. coli for freshwaters. No total maximum daily load (TMDL) has been established for fecal coliform (or E. Coli) for Four Hole Swamp at this location.

Monitoring Station E-015A is approximately, 5 miles downstream of the confluence with Timothy Creek. Monitoring Station E-015A is not on the current 303(d) list and thus meets all water quality standards that are monitored.

SCDHEC also monitors the Cypress Swamp near the Project Soter site at SC Highway 176 (Monitoring Station CSTL-063) and at U.S. Highway 78 (Monitoring Station CSTL-078). Monitoring Station CSTL-063, at U.S. Highway 176, is located approximately 0.5 miles north of the confluence with Partridge Creek. Monitoring Station CSTL-078, at U.S. Highway 78, is located approximately 6.5 miles downstream of the confluence with Partridge Creek. Neither monitoring station is on the current 303(d) list and both thus meet all water quality standards that are monitored. The 10-digit HUC 03050201-05 Cypress Swamp watershed (and thus a portion of the Project Soter site) is within the Cooper River Watershed (8-digit HUC 03050201) and drains to the Ashley River watershed (10 digit HUC 03050201-06).

The Cooper River Watershed is included in the TMDL for the Charleston Harbor, Cooper, Ashley and Wando Rivers for dissolved oxygen (DO). However, this TMDL is mainly associated with major point source dischargers (i.e. municipal and industrial wastewater treatment plants) at a critical low flow condition (when oxygen demanding substances assimilative capacity is lowest). The TMDL document concluded “non-point sources are a very minor contributor of oxygen consuming load under critical low flow conditions because of the absence of stormwater runoff.” The TMDL document also reported that wet-weather sampling and modeling determined that “developed areas currently contribute no more oxygen demanding pollutants to the TMDL segments than forested areas.” Therefore, the TMDL does not include a load allocation for or a target reduction of, non-point source

pollution or loads from regulated NPDES municipal separate storm sewer systems (MS4s) and other stormwater related discharges.

## 6.6.2 Potential Environmental Impacts and Proposed Mitigation Measures

### Surface Waters and Wetlands

Jurisdictional waters of the U.S., including wetlands, will be impacted as a result of the construction of the proposed project. Compensatory mitigation will be required to offset the permanent impacts. The permanent impacts for this project fall into three categories: fill, dredge, and flood/impound. "Fill" refers to depositing material used for the primary purpose of replacing an aquatic area with dry land. "Dredge" means to dig or excavate. "Flood/Impound," means to collect or confine the flow of a riverine system by means of a dike, embankment, or other man made barrier. For a more detailed discussion of wetland impacts and compensatory mitigation, please refer to Sections 4 & 5 above.

### Floodplains

Since a portion of the proposed Centerline Road and Phase 2 would be located within the regulated FEMA 100-year floodplain, appropriate road and site design measures will be implemented to ensure minimal impact to this regulated resource. This will likely include placement of appropriately sized culverts under the road crossings to allow water and aquatic organisms to pass relatively unhindered. The appropriate permits will be obtained to address this work.

### Water Quality Regulations and Monitoring

A Stormwater Management Plan for the proposed Project Soter development is attached in Appendix J.

State of South Carolina. Land disturbing activities (including the construction of roads, residential neighborhoods, commercial areas, etc.) are required to apply for and receive coverage under the NPDES Phase II Construction General Permit (CGP). The permit addresses water quality and quantity using thresholds based on the project's land disturbance footprint, distance to receiving water, and proximity to sensitive areas. Generally, a permit is required if a land disturbing project is:

- 1 acre and not within ½ mile of a receiving water or
- if a project is > ½ acre and within ½ mile of a receiving water.

However, a permit could be required even if the project is ½ acres and within ½ mile of a receiving water if it meets defined criteria that are outlined in the regulations. Also, projects within or part of a larger common plan (LCP) that will disturb more than one acre are subject

to the NDPES requirement. All development associated with Project Soter would be subject to these regulations as they will be part of the LCP and disturb areas greater than the thresholds listed above.

For nearly all acreages of disturbance, the regulations require that peak post-development discharge rates from the basin shall be at or below pre-development rates for the 2- and 10-year 24-hour storm events.

The regulations also specify a “water quality volume” be detained to improve water quality from the site. The thresholds of the “water quality volume” are related to the projects size and relative location to the receiving water body. Projects that disturb 5 acres and are not within ½ mile of a receiving waterbody are required to capture and detain onsite the first ½ inch of runoff and release that quantity over a 24 hour period. Projects within ½ mile of a receiving waterbody are required to capture and detain onsite:

- the first ½ inch of runoff from the site, or
- the first 1 inch of runoff from the built upon area, whichever is greater.

Project Soter’s outfalls would be within a ½ mile of a receiving waterbody (generally the SCDHEC considers “blue lines” on the USGS Quadrangle maps to represent the limits of receiving waters) and thus, at a minimum, Project Soter would be subject to the water quality volume listed above.

In addition to the above water quality regulations for the permanent stormwater management system for Project Soter, the NPDES Phase II CGP also requires the implementation of various construction site stormwater BMPs be implemented during construction to address erosion prevention and sediment control (and other water quality parameters). The current NPDES Phase II CGP requires that a SWPPP be developed for the project site. Based on the size of various phases of Project Soter, each phase will require its own phased SWPPP to meet the requirements of the NPDES Phase II CGP. The overall design consideration for the SWPPP is that it must provide for 80% total suspended solids (TSS) removal efficiency from the construction site under disturbed soil conditions.

In addition to erosion prevention and sediment control, the SWPPP must address various other components, including:

- project narrative;
- stormwater management and sediment control;
- sequence of conduction;

- identification of site features and sensitive areas (*i.e.* wetlands);
- buffer zone management compliance and plan;
- identification of potential sources of pollution;
- identification of BMPs to be implemented;
- site maps;
- engineering reports;
- construction plans (with phased control plan);
- velocity and volume control measures to be implemented to meet non-numeric effluent limits;
- management of non-stormwater discharges; and
- special considerations for TMDL watersheds.

Berkeley County, SC. Berkeley County's stormwater regulations reinforce the State's regulations and provide for the some additional regulations mainly associated with the specific implementation of various stormwater management facilities. (*i.e.* ditches, culverts, secondary collection systems, etc.). The County's design regulations are summarized in its Stormwater Design Standards Manual (December 1, 2009).

The County's design standards for ponds and pond routing require the analysis of the 2-, 10-, 25-, 50- and 100-year storm events. Like the State's requirements, the County requires that the post-development discharge rates should be less than the pre-development discharge rates for the 2- and 10-year storm events.

In addition, the County requires that stormwater detention ponds meet the following requirements:

- All detention ponds must have an emergency spillway that will release the 100- year event
- All detention ponds shall have a minimum free board of ½ foot between the maximum 10-year water surface elevation (WSE) and the emergency spillway.
- All detention ponds must have a minimum of ½ foot of freeboard above the 100-year WSE and the embankment (*i.e.* pond top of bank).

The County has adopted the State's requirements related to water quality; see the discussion above.

The County's requirements for the design of stormwater collection and conveyance systems vary based on the type of system and the areas being drained. In general, minor (or secondary) collections systems (closed pipe systems and drainage ditches) shall be designed for the 10-year storm event. Road culverts (pipes crossing under roads) should be design to the 25-year storm event. Major drainage systems (large ditches and canals draining more than 200 acres) shall be design to carry the 50-year storm event within its banks.

### Uniform Sizing Criteria

An additional potential opportunity for improved water quality which may be incorporated in the site design is a concept called the Unified Sizing Criteria (USC) method for stormwater design. This criteria would result in more stringent water quality and quantity design standards than those required by the State or the County. The USC is a concept put forward by the Center for Watershed Protection and has been incorporated in many state and local stormwater management regulations. State-wide manuals for five States have adopted the USC method for stormwater design. In these cases, the USC method has been scaled to meet the local and regional differences in hydrology.

The basis of the USC method for stormwater design is successive control of increasing stormwater runoff events including events affecting water quality, channel stability, overbank flooding and extreme flooding. Table 8 below summarizes the guidance of the USC stormwater design method adopted for Project Soter.

**Table 8 Summary of the Unified Stormwater Sizing Criteria for Stormwater Control and Mitigation**

Sizing Criteria	Description
Water Quality	Treat the runoff from 85% of the storms that occur in an average year. For coastal South Carolina, this equates to providing water quality treatment for the runoff resulting from a rainfall depth of 1.2 inches.
Channel Protection	Provide extended detention of the 1-year storm event released over a period of 24 hours to reduce bank-full flows and protect downstream channels from erosive velocities and unstable conditions.
Overbank Flood Protection	Provide peak discharge rate control for the 2-, 10-, and 25-year storm event such that the post-development peak rate does not exceed the predevelopment rate to reduce overbank flooding.

Extreme Flood Protection	Evaluate the effects of the 100-year storm on the stormwater management system, adjacent property, and downstream facilities and property. Manage the impacts of the extreme storm event through detention controls and/or floodplain management.
--------------------------	---

By incorporating the USC method for stormwater design, the water quality and water quantity design standards are increased well above those required by the State or County. The USC method for stormwater design emphasizes the planning and design of projects to incorporate better site design principals as the first step in addressing the stormwater management requirements. Better site design principals include the following:

- Conserving natural features and resources;
- Using lower impact site design techniques;
- Reducing impervious cover; and
- Utilizing natural features for stormwater management.

Finally, the USC method for stormwater design emphasizes the application of a variety of structural and non-structural BMPs to treat stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume, and velocity due to development.

#### Potential Impacts to Water Quality

Project Soter, being a large scale industrial development, has the potential to affect water quality in downstream waterbodies. The land development process alters the landscape by converting it from a natural state to a developed condition. During this process, clearing and grading practices are used to remove trees, shrubs and other vegetation, while cutting and filling are used to create clear and level building sites.

However, it should be noted that the Project Soter site has previously been partially altered for the development and management for silviculture practices, mainly for pine production. Much of the site has been altered for the planting of pine including the installation of “beds” or planting ridges and the installation of an improved drainage system to manage high groundwater and improve stormwater drainage. The existing drainage system consists of a series of smaller ditches draining to large, linear RPWs. The improved drainage system generally follows the existing topography, and drains towards Timothy Creek.

The potential effects of land development can include increased off-site stormwater runoff volumes and rates, and the potential reduction of on-site shallow groundwater recharge. The land development process can also potentially affect off-site stormwater quality.

Pollutants, can be picked up from impervious or improved pervious areas and washed into receiving waterbodies.

The closest downstream SCDHEC monitoring stations (see Water Quality Monitoring Section above) include E-015A on Four Hole Swamp at Wire Road and CSTL-078 on Cypress Swamp at U.S. Highway 78. Neither station is listed as impaired on the current (2012) 303(d) list. In addition, the TMDL associated with the Ashley River watershed (that the Cypress Swamp drains to) is a low-flow condition related to point sources discharges and is not associated with non-point source discharges. Therefore, the Project Soter site will address general stormwater quantity and quality and not focus on any condition or parameter associated with 303(d) listings or TMDL target reductions.

### Water Quality Mitigation Strategies

#### Construction

During construction, the project site will be subject to the implementation of a detailed, phased SWPPP. As discussed above, the SWPPP will provide for the layout, implementation, details, sequencing, operation and maintenance of various temporary construction BMPs to mitigate the potential off-site release of pollutants (particularly sediment). The SWPPP will include the implementation of three types of temporary construction BMPs including erosion prevention BMPs, runoff control and conveyance BMPs, and sediment control BMPs.

Erosion prevention BMPs that may be implemented include:

- Dust control;
- Mulching;
- Blown Straw;
- Hydro-mulching/seeding;
- Erosion control blankets;
- Turf reinforcement mats; and
- Outlet protection (*i.e.* rip-rap).

Runoff control and conveyance BMPs that may be implemented include:

- Diversion ditches/dikes;

- Pipe slope drains;
- Drainage swales; and
- Level spreader.

Sediment control BMPs that may be implemented include:

- Sediment basins;
- Sediment traps;
- Silt fences;
- Ditch checks;
- Stabilized construction entrances;
- Storm drain inlet protection; and
- Sediment tubes.

It is anticipated that the proposed permanent wet detention ponds would serve during construction as sediment basins. The ponds may be over excavated to allow for sediment build up during construction without affecting the permanent performance of the ponds during post-construction. Wet detention ponds, with a relatively deep permanent pool and large surface area, are excellent construction BMPs.

All construction BMPs will be designed, implemented and maintained per the guidance in the SCDHEC Storm Water Management BMP Handbook (August 2005).

### Post-Construction

#### Wet Detention Ponds

Wet detention ponds will be used extensively throughout the proposed Project Soter site for all planned phases including the administrative offices and visitor's center, Phase 1, and Phase 2. The wet detention ponds will generally be located at the exterior edges of each phase and stormwater runoff (potentially passing through other stormwater BMPs interior to the site) will be directed to the ponds by internal drainage and collection systems. The wet detention ponds will generally be the last stormwater BMP prior to discharge to off-site receiving waterbodies.

The wet detention ponds will be properly designed to include a permanent pool of sufficient depth and volume to facilitate water quality treatment through settling, biological uptake,



die-off of bacteria, and other processes. The wet detention ponds will be designed to include storage of the water quality volume above the normal water level (NWL) that will be slowly released through a control structure. This storage volume will be designed for the runoff volume of the 85% rainfall event (approximately 1.2 inches) as dictated by the USC method for stormwater design. The wet detention ponds will also include storage detention volume sufficient to control the peak post-development discharge rate for the 2-, 10- and 25-year storm events to be equal to or less than the pre-development peak rates. The wet detention ponds will be designed to accommodate the 100-year storm event.

In addition to the extensive use of wet detention ponds, other structural and non-structural BMPs may be incorporated in the design of the Project Soter sites as the project design is developed. These BMPs can generally be incorporated in the interior of the site and may be implemented in series to create a “treatment train”. The structural and non-structural BMPs may include:

#### Disconnected Impervious Areas

Where site characteristics permit, impervious area disconnections can be used to spread rooftop runoff from individual downspouts across lawns and other pervious areas, where it is slowed, filtered and allowed to infiltrate into the native soils. They are typically used in lawn or landscape areas adjacent to buildings that have been disturbed by clearing, grading and other land disturbing activities. If properly designed, impervious area disconnections could provide measurable reductions in post-construction stormwater runoff rates, volumes and pollutant loads on the Project Soter site.

It is anticipated that the disconnected impervious areas could be implemented on a limited basis around buildings. Special considerations would have to be given to prevent erosion during large events and to manage excess runoff (that doesn't infiltrate) from the previous area during large events. Special consideration to the stormwater collection system adjacent these areas would need to be applied.

#### Stormwater Planters

Stormwater planters are landscape planter boxes that are specially designed to “receive” post-construction stormwater runoff. They consist of planter boxes that are equipped with waterproof liners, filled with an engineered soil mix and planted with trees, shrubs and other herbaceous vegetation. Stormwater planters are designed to capture and temporarily store stormwater runoff in the engineered soil mix, where it is subjected to the hydrologic processes of evaporation and transpiration before being conveyed back into the storm drain system through an underdrain. This allows them to provide measurable reductions in post-construction stormwater runoff rates, volumes and pollutant loads on development sites

It is anticipated that stormwater planters could be implemented on the Project Soter site around less industrial areas of the site, such as office buildings. The planters could be incorporated into the more formal landscape design that may be associated with the office setting.

#### Wetland, Pond and/or Channel Filter Buffers

Stormwater filter buffers, also known as vegetated filter strips, are generally uniformly graded, densely vegetated areas of land designed to slow and filter stormwater runoff. They are typically installed in areas that have been disturbed by clearing, grading and other land disturbing activities and are typically vegetated with managed turf. If stormwater runoff can be evenly distributed over them as overland sheet flow, vegetated filter strips can provide significant reductions in post-construction stormwater runoff rates, volumes and pollutant loads on development sites.

It is anticipated that stormwater filter buffers may be used throughout the Project Soter site, but mainly around the outer edges where runoff from developed areas can sheet flow to adjacent wetlands, wet detention ponds, swales and open channels.

#### Bioretention Areas

Bioretention areas are shallow depressional areas that are filled with an engineered soil mix and are planted with trees, shrubs and other herbaceous vegetation. They are designed to capture and temporarily store stormwater runoff in the engineered soil mix, where it is subjected to the hydrologic processes of evaporation and transpiration, before being conveyed back into the storm drain system through an underdrain or allowed to infiltrate into the surrounding soils. This allows them to provide measurable reductions in post-construction stormwater runoff rates, volumes and pollutant loads on development sites.

Bioretention areas are suitable for “clean” impervious areas and not generally for areas that may produce high loads of pollutants – particularly sediment. For this reason, it is anticipated that bioretention areas may be incorporated in large parking lots or other impervious areas where a finished product may be stored prior to shipping. These areas can be design to include some narrow tree species to provide some tree canopy and shading but would not affect the stored product with leaves and other detritus.

#### Enhanced Swales

Enhanced swales are vegetated open channels that are filled with an engineered soil mix and are planted with trees, shrubs and other herbaceous vegetation. They are essentially linear bioretention areas, in that they are designed to capture and temporarily store stormwater runoff in the engineered soil mix, where it is subjected to the hydrologic

processes of evaporation and transpiration, before being conveyed back into the storm drain system through an underdrain or allowed to infiltrate into the surrounding soils.

It is anticipated that enhanced swales can be used throughout the site, but like bioretention areas, they must be properly sited in areas that will not produce large sediment loads that may negatively affect the performance of the BMP.

### Rainwater Harvesting

Rainwater harvesting is the stormwater management practice of intercepting, diverting and storing rainfall for later use. In a typical rainwater harvesting system, rainfall is collected from a roof system, screened and “washed,” and conveyed into an above- or below-ground storage tank or cistern. Once captured in the storage tank or cistern, it may be used for non-potable indoor or outdoor uses. Other rainwater harvesting techniques has utilized the water stored in wet detention ponds as irrigation water. If properly designed, rainwater harvesting systems can significantly reduce post-construction stormwater runoff rates, volumes and pollutant loads on development sites.

It is anticipated that the traditional rainwater harvesting system with an above or below ground cistern may not be suitable for the Project Soter project as the water demands may not support the cost. However, irrigation of landscaped areas may be a significant water demand and thus the system of drawing from the stormwater detention ponds may be appropriate. Further study and analysis may be necessary for the implementation.

### Permeable Pavements or Alternative Surfaces

Permeable pavements represent an alternative to traditional impervious paving surfaces. They typically consist of an underlying drainage layer and an overlying permeable surface layer. A permeable pavement system allows stormwater runoff to pass through the surface course (*i.e.*, pavement surface) into an underlying stone reservoir, where it is temporarily stored and allowed to infiltrate into the surrounding soils or conveyed back into the storm drain system through an underdrain. This allows permeable pavement systems to provide measurable reductions in post-construction stormwater runoff rates, volumes and pollutant loads.

It is anticipated that due to the industrial nature of the Project Soter development, the use of permeable pavement or alternative surface may be limited to certain areas. Many areas would have to be traditional pavement or concrete to support the intended uses.

### Oil-Grit Separators and Water Quality Structures

Gravity oil-grit separators and similar proprietary “water quality structures” are generally used in high intensity areas where space (for other BMPs) may be limited. Oil-grit separators and water quality structures are generally installed in-line on stormwater

collection systems and as a “pre-treatment” device before stormwater is conveyed downstream to other stormwater BMPs (such as the wet detention ponds proposed for Project Soter). These devices only affect water quality and have no effect on water quantity. The devices generally are only effective on controlling floatables (trash), sediment (larger particle sizes, and not suspended sediment) and oils and greases. Some structures have been designed with filters or other systems to control other pollutants – particularly hydrocarbons.

It is anticipated that by designing Project Soter to the typical State & County design standards described above, and by implementing the various construction and post-construction stormwater best management practices, water quality in downstream receiving waters will not be adversely impacted by the project.

It is anticipated that these devices may be incorporated in the overall design of the Project Soter site, but would be limited to high traffic areas (i.e. entry gate area) or other high intensity areas (i.e. loading docks).

## **6.7 Biotic Communities**

### **6.7.1 Description of Affected Environment**

Camp Hall Commerce Park is located in the Carolina Flatwoods level IV ecoregion within the Middle Atlantic Coastal Plain level III ecoregion. The Carolina Flatwoods, as described above, were covered by shallow coastal waters during the Pleistocene, resulting in terraces and shoreline landforms that are typically covered by fine-loamy or coarse-loams soils, with some areas covered by clayey, sandy, or organic soils. This variation in soils contributes to the regional plant diversity where pine flatwoods, pine savannas, freshwater marshes, pond pine woodlands, pocosins, and some sandhill communities were once common. Loblolly pine plantations are now widespread with an active forestry industry in the region, where artificial drainage for forestry and agriculture is now common. The communities within Camp Hall, which have been heavily influenced by historical and ongoing silviculture activities, now include loblolly pine plantation, longleaf pine plantations, sweetgum plantations, isolated ponds, mixed pine-hardwood forest, bottomland hardwood forest, non-alluvial swamp forest, and maintained areas. Terrestrial communities on the tract are limited to loblolly and longleaf plantations, and maintained areas, described below, the remaining communities consist of wetland areas described in the wetlands section.

Overall, the project area provides suitable habitat for generalist wildlife species. During the March 9-12, 2015 field reconnaissance, AMEC observed various wildlife species or their signs including pine warbler (*Setophaga pinus*), rufous sided towhee (*Pipilo erythrophthalmus*), blue jay (*Cyanocitta cristata*), pileated woodpecker (*Hylatomus pileatus*), common crow (*Corvus brachyrhynchos*), great blue heron (*Ardea herodias*), northern cardinal (*Cardinalis cardinalis*), yellow rumped warbler (*Setophaga coronata*), northern

flicker (*Colaptes auratus*), red-shouldered hawk (*Buteo lineatus*), red-tailed hawk (*Buteo jamaicensis*), carolina chickadee (*Poecile carolinensis*), turkey vulture (*Cathartes aura*), black vulture (*Coragyps atratus*), mourning dove (*Zenaida macroura*), red bellied woodpecker (*Melanerpes carolinus*), downy woodpecker (*Picoides pubescens*), white eyed vireo (*Vireo griseus*), solitary vireo (*Vireo solitaries*), northern mockingbird (*Mimus polyglottos*), tufted titmouse (*Baeolophus bicolor*), brown thrasher (*Toxostoma rufum*), Northern parula (*Setophaga americana*), white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), coyote (*Canis latrans*), turkey (*Meleagris gallopavo*), raccoon (*Procyon lotor*), box turtle (*Terrapene carolina*), carolina anole (*Anolis carolinensis*), lined topminnow (*Fundulus lineolatus*), mosquitofish (*Gambusia affinis*), spring peeper (*Pseudacris crucifer*) and bullfrog (*Rana sp.*).

Based on review of aerial photography, forest stand maps, the previous Biological Assessment (BA) (Newkirk 2009), and ground-truthing the 6,781-acre site contains six general habitat types: loblolly pine plantation, longleaf pine plantation, isolated ponds, mixed pine-hardwood forest, sweet gum plantation, and power line right-of-way (ROW). The entire site is intensely managed for timber production (e.g., bedding, planted pines, ditching) with no evidence of fire management.

#### Loblolly pine plantation

Camp Hall Commerce Park is dominated by even-aged planted pine stands ranging from one to 40 year old loblolly pine. Saplings and shrubs in these areas vary in percent cover based on age of the pine and when the stand was thinned, while these layers are very limited in unthinned stands. Saplings and shrubs include loblolly pine, sweetgum, American holly (*Ilex opaca*), southern magnolia (*Magnolia grandiflora*), red bay (*Persea borbonia*), sweetbay (*Magnolia virginiana*), wax myrtle (*Morella cerifera*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), eastern baccharis (*Baccharis halimifolia*), fetterbush (*Lyonia lucida*), and high bush blueberry (*Vaccinium corymbosum*), and Chinese privet (*Ligustrum sinense*). The herbaceous layer is nearly absent in all of the stands, with the exception of newly cut and planted stands. The herbaceous layer includes planted loblolly pine, broom sedge (*Andropogon virginicus*), bushy bluestem (*A. glomeratus*), dog fennel (*Eupatorium capillifolium*), black berry (*Rubus spp.*), panic grass (*Panicum spp.*), St. John's wort (*Hypericum hypericoides*), goldenrod (*Solidago spp.*), bracken fern (*Pteridium aquilinum*), yellow jasmine (*Gelsemium sempervirens*), muscadine vine (*Vitis rotundifolia*), and greenbrier (*Smilax spp.*).

#### Longleaf pine plantation

There is one small stand of planted longleaf pine in the northeast section of the tract along Fish Road. There is an overstory of approximately 20% longleaf pine and 10% loblolly pine. Saplings and shrubs include sweetgum, post oak (*Quercus stellata*), water oak (*Q. nigra*), turkey oak (*Q. laevis*), inkberry (*Ilex glabra*), wax myrtle, high bush blueberry, horse sugar

(*Symplocos tinctoria*), and sweet pepperbush (*Clethra alnifolia*). The herbaceous layer includes bracken fern and heavy pine straw.

#### Maintained Areas (Right-of-Ways)

Maintained areas within the tract are limited to roadsides and the Santee Cooper transmission line corridor. Though portions of the maintained areas are within wetlands, the vegetative cover remains relatively similar across the tract. The maintained areas appear to be mowed, and there is evidence of spraying woody species along the transmission line corridor. These activities result in a community dominated by an herbaceous layer lacking an overstory or midstory. The herbaceous layer includes broom sedge, bushy bluestem, soft rush (*Juncus effusus*), blackberry, sedges (*Carex spp.*), panic grass, yellow jasmine, wax myrtle, goldenrod, and thistle (*Cirsium spp.*).

#### Isolated ponds

Isolated ponds are seasonally to permanently flooded wetland depressions. The on-site ponds are dominated by a nearly closed canopy of hardwoods including sweet gum, red maple, water oak (*Quercus nigra*), diamond-leaf oak (*Q. laurifolia*), pond pine. Swamp blackgum (*Nyssa biflora*) was only observed in a couple of ponds. The edges of these ponds were densely vegetated with shrubby species including fetterbush, sweet bay, sweet pepperbush, inkberry, red bay, wax myrtle, cane (*Arundinaria gigantea*) and a very few grasses. Many of the ponds that appeared isolated were depressional landforms in larger wetland systems or connected to Timothy Creek and other wetlands via the RPW system.

#### Mixed pine hardwood forest

There are several wetland areas classified as mixed hardwood pine forests associated with Timothy Creek. Timothy Creek is deeply incised and channelized in this area. These areas are dominated by sweet gum, red maple, water oak, diamond-leaf oak, and loblolly pine. The sapling and shrub layer is dominated by fetterbush, sweetbay magnolia, sweet pepperbush, wax myrtle, high bush blueberry, American holly (*Ilex opaca*). The herbaceous layer included cinnamon fern (*Osmunda cinnamomea*) and a few sedges (*Carex spp.*).

### **6.7.2 Potential Environmental Impacts and Proposed Mitigation Measures**

Implementation of the proposed project would result in direct impacts to vegetation. Approximately 1,500 acres of forested area would be cleared (see Figure 2). This would result in the long-term conversion of most of the facility areas to a mix of impervious buildings and infrastructure surrounded by grass and herbaceous vegetation. Direct impacts to forested areas would occur under the proposed project; however, the acreage of wooded area that would be permanently cleared for this project is minimal compared to the amount of similar habitat present in the project vicinity.

Taking into consideration the large amount of similar habitats in the area regionally and locally, the loss of the existing vegetation would be considered a minor impact. The surrounding area consists of very similar vegetative habitats and the loss or transformation of the approximately 1,500 acres of vegetation in this context would be relatively small. Indirect impacts are possible if the existing vegetation is part of a larger system which relies on these particular plant communities for regional propagation and genetic diversity. Due to the large amount of similar habitat and plant communities surrounding the properties; however, this impact is unlikely or at least would be very minor.

Direct impacts to wildlife are also anticipated under the Proposed Project. Much of the wildlife living on the property within the proposed footprint would be displaced by construction activities. Most species, especially those requiring more extensive, relatively un-fragmented areas, would find the converted areas unsuitable. Species occupying the forested areas that would be cleared would be permanently displaced. These forested areas are relatively fragmented limiting the diversity of the wildlife species they support. They also make up a small proportion of the forested habitat in the surrounding area.

Overall, direct impacts to wildlife would be permanent but minor. These impacts would be minimized by the ability of mobile species to colonize adjacent similar habitat which is highly abundant. Indirect impacts would be temporary and very minor as species colonized adjacent habitats.

## **6.8 Protected Species**

### **6.8.1 Description of Affected Environment**

Plants and animals listed as federally threatened and endangered are protected under the Endangered Species Act (P.L. 92-205) (ESA) which is administered and enforced by USFWS. The bald eagle is federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. A biological assessment (BA) was prepared in March 2015 that documented the results of a literature search, review of past BAs, and an on-site habitat assessment for federally endangered and threatened species and the bald eagle for the proposed alternative.

The Amec Foster Wheeler BA was an update to a previously prepared BA dated January 2009 (Newkirk 2009) that accompanied public notice SAC-2008-0086-2G, MWV-Camp Hall, LLC; FWS Log No. 2015-CPA-0025. The previous BA (2009) concluded "that activities on this tract are not likely to cause adverse effects to overall populations of any threatened or endangered species."

The USFWS response dated January 21, 2015 to the USACE stated that they concurred with the Newkirk BA findings. The USFWS letter stated "The Service concurs with your determination that this action is not likely to adversely affect federally endangered or

threatened species or adversely modify designated critical habitat. In view of this, we believe that the requirements of Section 7 of the ESA have been satisfied.”

A current list of federally endangered and threatened species for Berkeley County was compiled from the USFWS Charleston Field Office website in March 2015 and the USFWS Information Planning and Conservation System (IPAC) (March 2015, Table 9). The South Carolina Rare and Endangered Species Inventory website, a Geographic Information System natural resources data layer that includes the locations of all documented occurrences of federally endangered or threatened species, was reviewed for known occurrences of such species on or proximate to the subject project. There are no known occurrences of federally endangered or threatened species on the Pringletown, Ridgeville, and Summerville NW quadrangles in Berkeley County.

**Table 9 Current list of federally endangered, threatened, and candidate species in Berkeley County, South Carolina (USFWS 2015) and their habitat types.**

Common Name	Scientific Name	Status	General Habitat Type
West Indian manatee	<i>Trichechus manatus</i>	E	coastal waters
Frosted flatwoods salamander	<i>Ambystoma cingulatum</i>	T, CH	pine areas maintained in an open state by fire with isolated ponds for breeding sites
Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA	coastlines, rivers, large lakes or streams
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	mature pine forests
Wood stork	<i>Mycteria americana</i>	E	marshes, swamps, lagoons, ponds, flooded fields; depressions in marshes are important during drought; also occurs in brackish wetlands
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	E	major river systems along the eastern seaboard
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	E	major river systems along the eastern seaboard
Pondberry	<i>Lindera melissifolia</i>	E	swamp and pond margins, sandy sinks, swampy depressions, wet flats
Canby's dropwort	<i>Oxypolis canbyi</i>	E	pond-cypress savannahs dominated by grasses, sedges or ditches next to bays; borders and shallows of cypress-pond pine ponds and sloughs
American chaffseed	<i>Schwalbea americana</i>	E	fire maintained open pine forest

E Federally endangered

T Federally threatened

CH Critical habitat

BGEPA Federally protected under the Bald and Golden Eagle Protection Act

Amec Foster Wheeler conducted a literature search, desktop habitat assessment, a review of the previous BA (Newkirk 2009) and on-site ground-truthing to determine the likelihood of the presence or absence of each of the above listed species and if the conclusions/findings of the previous BA have changed over time. The above list was used as the baseline for the on-site habitat assessment and survey. Aerial photography and ground-truthing was



used to generalize habitat types on the site. General habitat types located on the tract are described below in the Habitats section. There are approximately 54 areas that could be characterized as ponds on-site. Amec Foster Wheeler conducted an on-site inspection of 35 of these ponds (~65%). On-site field work was conducted from March 2 – 5, 2015.

As described above in the Biotic Communities section, the proposed development area contains six general habitat types: loblolly pine plantation, longleaf pine plantation, isolated ponds, mixed pine-hardwood forest, sweet gum plantation, and power line ROW. The entire site is intensely managed for timber production (e.g., bedding, planted pines, ditching) with no evidence of fire management. The sweetgum plantation and power ROW were not reviewed for protected species since these habitats do not constitute suitable habitat for any protected species known to occur in Berkeley County.

#### West Indian manatee

The West Indian manatee was listed as endangered on March 11, 1967 (USFWS 1967). The West Indian manatee inhabits both salt and fresh water and may be encountered in canals, rivers, estuarine habitats, and saltwater bays (USFWS 1992a). None of these habitat types occur on the site.

#### Frosted flatwoods salamander

The flatwoods salamander was listed as threatened on April 1, 1999 (USFWS 1999b). Critical habitat (CH) has been designated for the frosted flatwoods salamander in Berkeley, Charleston, and Jasper Counties, SC (USFWS 2009) but the closest designated CH is over 20 miles away on the Francis Marion National Forest (FMNF). Typical breeding sites are isolated wetland depressions, which dry completely on a cyclic basis, thus eliminating fish species. The isolated ponds are typically small with an open canopy allowing grasses and sedges to grow on the edge where adult salamanders will lay their eggs in the fall. During the non-breeding season, the fossorial adults return to the upland pine areas that are maintained by frequent fire.

The habitat on-site does not meet the criteria for this species because (1) the ponds have a fairly closed canopy, (2) many of the ponds are not truly isolated but connected to larger wetlands via the on-site RPWs, (3) the upland pine habitat has not been burned or allowed to mature and will not support the adults.

#### Bald eagle

The bald eagle was listed as endangered on March 11, 1967 (USFWS 1967). On July 9, 2007, the bald eagle was removed from the endangered species list (USFWS 2007). The bald eagle is still federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It nests in large, sturdy trees with open canopies typically

near large open water bodies. Many nests are used annually. It has been documented that egg laying for the bald eagle peaks in late December in the South. The nesting season in the Southeast extends from October to May 15.

Based on review of the South Carolina Department of Natural Resources (SCDNR) Heritage Trust Database (SCDNR 2015) the closest known bald eagle nest is more than 10 miles to the northeast in on Lake Moultrie. In addition, there is no open water within ½ mile of the site. Therefore, based on lack of suitable nesting or foraging habitat and the closest known nest being over 10 miles away, it is unlikely that the proposed project will disturb the bald eagle.

#### Red-cockaded woodpecker (RCW)

In 1970, the RCW was officially listed as endangered (USFWS 2003). RCWs are unique in that they excavate cavities for roosting and nesting in living pines (USFWS 2003) and use living pines almost exclusively for foraging substrate, preferring longleaf pine when available (Walters 1991). RCWs require open pine woodlands and savannahs with large old pines for nesting and roosting habitat (i.e., cavity trees). Cavity trees must be in open pine stands with little or no hardwood midstory and few or no over-story hardwoods. For purposes of surveying, suitable nesting habitat consists of pine, pine/hardwood, and hardwood/pine stands that contain pines 60 years in age or older and that are within 0.5 mile of suitable foraging habitat. For the purposes of surveying, suitable foraging habitat consists of a pine or pine/hardwood stand in which 50 percent or more of the dominant trees are pines and the dominant pine trees are generally 30 years in age or older. (USFWS 2003)

Based on review of aerial photography, review of the previous BA (Newkirk 2009) and an on-site visit, it was determined that marginal suitable foraging and nesting habitat for the RCW is onsite. However, there is no evidence of burning or mechanical mid-story control on any of the pine areas. The few stands of mature pines have a dense mid-story, the remaining pine plantations are too young and/or too thick to be considered RCW habitat. The longleaf pine stand in the northeast corner of the property was surveyed for evidence of RCW cavity trees. No cavity trees were located. In addition, the closest known RCW clusters are more than 10 miles northeast on the Brosnan Forest.

#### Wood stork

The U.S. breeding population of the wood stork was listed as endangered on February 28, 1984 (USFWS 1992a). They typically nest in cypress/tupelo gum ponds with standing water. It is a highly colonial species usually nesting in large rookeries and feeding in flocks. The wood stork forages in a wide variety of shallow wetlands, wherever prey concentration reach high enough densities, in water that is shallow and open enough for the birds to be successful in their hunting efforts (Ogden et al. 1978, Browder 1984). Nesting wood storks

generally use foraging sites that are located within 31 miles flight range of the colony (USFWS 1996).

There are no known wood stork rookeries present on/or near the site (SCDNR 2015). The onsite wetlands within the project boundaries could provide minimal suitable foraging habitat for this species; however, foraging habitat is not the limiting factor for the wood stork. Therefore, it is our determination that the proposed project will not likely adversely affect the wood stork.

#### Shortnose sturgeon

The shortnose sturgeon was listed as endangered on March 11, 1967 (32 Federal Register [FR] 4001). It is an anadromous fish that spawns in the coastal rivers along the east coast of North America from the St. John River in Canada to the St. Johns River in Florida. In South Carolina, the species is present in the Waccamaw, Pee Dee, Black (Winyah Bay system), Santee, Cooper, Ashepoo, Combahee, Edisto, and Savannah Rivers (NMFS 1998). The shortnose sturgeon prefers the nearshore marine, estuarine and riverine habitat of large river systems (NMFS/NOAA 2012). Adults have separate summer and winter areas. There is no suitable habitat for the shortnose sturgeon on-site.

#### Atlantic sturgeon

The Carolina and the South Atlantic Distinct Population Segments (DPS) of the Atlantic sturgeon were listed as endangered in February 2012 (NOAA 2012). The Atlantic sturgeon is a long-lived, estuarine dependent, anadromous fish. Spawning adults migrate upriver in spring, beginning in February-March in the south. Adults spawn in freshwater of large rivers and migrate into estuarine and marine waters where they spend most of their lives. They spawn in moderately flowing water (46-76 cm/s) in deep parts of large rivers. There is no suitable habitat for the Atlantic sturgeon on-site.

#### Canby's dropwort

Canby's dropwort was listed as endangered on February 25, 1991 (USFWS 1991). It is a perennial herb with erect, hollow stems, aromatic foliage and elongate, stoloniferous rhizomes. This species occurs in pond cypress savannas, shallows and edges of cypress/pond pine sloughs, and wet pine savannas. The healthiest populations seem to occur in open bays or ponds which are wet most of the year and have little or no canopy cover.

Based on review of aerial photography, review of the previous BA (Newkirk 2009), and on-site assessment of the isolated ponds it is our determination that there is no suitable habitat for this species. None of the ponds had the open characteristics this species requires. In addition, the closest known population is more than 15 miles north of the site.

### Pondberry

Pondberry was listed as endangered on July 31, 1986 (USFWS 1986). Pondberry is a dioecious, deciduous shrub with pale yellow flowers. Pondberry is found in shallow depression ponds of the sandhills, along margins of cypress ponds in the pineland coastal areas of South Carolina, and in seasonally wet, low areas among bottomland hardwoods in interior areas. Based on review of aerial photography, review of the previous BA (Newkirk 2009), and on-site assessment of the isolated ponds, it is our determination that the on-site ponds are not suitable habitat for this species due to the thick overstory, mid-story, and understory. The on-site surveys of the ponds were conducted during the flowering season of this species and no individuals were observed. In addition, the closest known population is more than 20 miles east of the site on the FMNF.

### American chaffseed

American chaffseed was listed as endangered on September 29, 1992 (USFWS 1992b). It is a perennial, erect herb in the figwort family with large, purplish-yellow tubular flowers. American chaffseed occurs in sandy acidic, seasonally moist to dry soils (USFWS 1992a). It typically occurs in fire-maintained ecosystems, such as the longleaf pine-wiregrass ecosystem of the southeastern coastal plain, open, moist pine flatwoods, and fire-maintained savannas. American chaffseed seems to require fire for persistence. One of the most serious threats to its continued existence is fire-suppression (USFWS 1992a). Due to lack of fire management, there is no suitable habitat on-site for American chaffseed. In addition, the closest known population of chaffseed is more than 15 miles to the east in the FMNF.

## **6.8.2 Potential Environmental Impacts and Proposed Mitigation Measures**

Based on review of the literature, SCDNR database, aerial photography, review of the previous BA (Newkirk 2009), and on-site assessments it is Amec Foster Wheeler's determination that the proposed project will (1) have no effect on the West Indian manatee, bald eagle, frosted flatwoods salamander, RCW, Atlantic sturgeon, short-nose sturgeon, Canby's dropwort, pondberry, and American chaffseed, and (2) may affect, but not likely to adversely affect the wood stork.

## **6.9 Cultural Resources**

### **6.9.1 Description of Affected Environment**

Amec Foster Wheeler conducted a Cultural Resource Identification Survey (CRIS) of the Camp Hall Commerce Park tract. The reconnaissance survey was conducted between March 9 and 15, 2015. For the purposes of the CRIS, the Area of Potential Effect (APE) for archaeology was defined as the 6,700-acre tract. In addition, a windshield survey was

conducted within a 0.5 mile radius of the two tracts to identify buildings or structures that could be older than 40 years of age. A Cultural Resources Assessment of the APE was conducted by Brockington and Associates, Inc. in 2007. The present CRIS was conducted to expand the previous Cultural Resources Assessment through limited shovel testing in the APE.

Prior to the CRIS, background research was conducted at the state Site File Records, located at the South Carolina Institute of Anthropology and Archaeology, in Columbia, South Carolina. Amec Foster Wheeler reviewed the South Carolina archaeological site file to determine if any previously identified or previously recorded archaeological sites are present within or adjacent to the APE. Amec Foster Wheeler also reviewed the site files for any properties that are listed on the National Register of Historic Places (NRHP), or listed on the South Carolina State Register of Historic Properties. Based on the review of the archaeological site files, no archaeological sites have been previously identified within the APE. No NRHP properties, properties eligible for listing on the State Register, or areas of cultural concern have been previously identified within the APE.

The APE is comprised of pine flatwoods and swamps, which generally have been converted to intensively-managed pine plantations. Additionally, the APE has been disturbed from infrastructure development (roads and transmission line corridors). Vegetation in the APE consists of dense overgrowth with stands of pine and hardwood trees.

The APE is considered to have a low probability to contain significant archaeological resources due to wet nature of the property and past disturbances from agricultural and silviculture activities. In accordance with CRIS guidelines, the field crew surveyed the tract through pedestrian surveys and limited shovel testing. Placing shovel test pits (STPs) every five acres was not possible due to the wet nature of the property and from the heavy subsurface disturbance found across the property. The field crew conducted pedestrian surveys throughout the APE and excavated STPs in some areas to confirm the high level of subsurface disturbance observed throughout the property. A total of 1350 STP locations were located with a total of 50 STP locations excavated. The remainder of STP locations was located in standing water or in heavily disturbed areas. All excavated STPs were negative for cultural material. No archaeological sites or structures eligible for listing in the NRHP were identified during the CRIS.

Previous building/structure surveys, conducted by Frick and Davis in 1989, identified the Cypress Methodist Campground as eligible for the NRHP. The Cypress Methodist Campground is located approximately one mile from the APE. The Amec Foster Wheeler field crew conducted a limited windshield survey within a 0.5 mile radius of the APE. No new resources were identified during this windshield survey.

The APE has been heavily disturbed by timber and agricultural activities. At the time of the survey, the APE was very wet with large areas of standing water. Due to the disturbed and

wet nature of the APE and the lack of NRHP structures within a 0.5 mile radius of the APE, Amec Foster Wheeler recommended no additional cultural resource investigations for the APE.

## 6.9.2 Potential Environmental Impacts and Proposed Mitigation Measures

As no NRHP-eligible resources have been identified in the project APE, no potential impacts to NRHP-eligible resources would be expected. This conclusion would be coordinated with the South Carolina State Historic Preservation Office (SHPO) as a part of Section 404 permitting for the Proposed Project.

## 6.10 Socioeconomic Impacts

### 6.10.1 Description of Affected Environment

#### 6.10.1.1 Population

The population of Berkeley County, as reported in the 2010 U.S. Census of Population, is 177,842. Census tract 201.02, which contains the proposed project site, has a population of 3,931. Population trends are presented in Table 10.

**Table 10 South Carolina, Berkeley County, and Project Area Population 1990 - 2010**

Area	1990	2000	2010	Percent Increase 1990- 2010
Berkeley County	128,776	142,651	177,843	38.1
Census Tract 201.02	n/a	n/a	3,931	n/a
South Carolina	3,486,703	4,012,012	4,625,364	32.7
United States	248,709,873	281,421,906	308,745,538	24.1

**Source:** SC Revenue and Fiscal Affairs, 2015, USCB 2010.

#### 6.10.1.2 Employment and Income

Berkeley County had 77,984 persons employed in 2012 (SC Revenue and Fiscal Affairs, 2015). Per capita personal income in Berkeley County in 2013 was \$24,165, 64 percent of the national average of \$43,735 and slightly higher than the state average of \$23,943 (Table 11).

**Table 11 Per capita money income in past 12 months, South Carolina and Berkeley County, 2013**

Area	Per Capita Personal Income	Percent of National Average Income
Berkeley County	24,165	86
South Carolina	23,943	85
United States	28,155	100

**Source:** U.S. Census Bureau, 2015.

#### 6.10.2 Potential Environmental Impacts and Proposed Mitigation Measures<sup>17</sup>

##### Construction

Under the Proposed Action, the Project Soter facility would be constructed at the Camp Hall Commerce Park. Construction activities at the site are projected to take at least 30 months to complete and a work crew commensurate for a project of this size employed for the installation. Work would generally occur five days a week from 7 am to 5 pm. Occasionally work would proceed 7 days a week. There would be short-term beneficial economic impacts from construction activities associated with this alternative, including the purchase of materials, equipment, and services and a temporary increase in employment and income. This increase would be local or regional, depending on where the goods, services, and workers were obtained. It is likely some construction materials and services would be purchased locally in the Berkeley County area, as well as in adjacent counties. Also, the majority of the construction workforce would likely be from local or regional sources. The direct impact to the economy associated with construction would be short-term and beneficial.

Appendix H provides information on the potential economic impact of the proposed facility based on the "Impact Analysis for Planning" (IMPLAN) model. The proposed initial investment for facility construction is estimated to be approximately \$600 million. Of this, approximately \$400 million is equipment which is assumed to be purchased outside of South Carolina and would have no direct economic benefit to the local area. The remaining approximately \$200 million is assumed to be related to construction costs. The initial construction investment would generate a total of 3,086 jobs, including 1,988 direct, 376 indirect, and 722 induced jobs. The project would support \$140,304,240 in labor income and a total impact of \$336,535,375. State and local taxes collected as a result of the construction are estimated to be in excess of \$11 million.

---

<sup>17</sup> All numbers utilized for workforce or economic impact or related criteria are good faith estimates based on Berkeley County's independent analysis and do not rely upon any representations made by any individual company.

## Operation

The Proposed Project involves the development and construction of new, advanced manufacturing, production, and assembly facility in Berkeley County, South Carolina. The onsite work for the Proposed Project facilities currently includes two phases of planned construction and operation. 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 an administrative office building and visitor's center. Therefore, the construction footprint for Phase 1 is approximately 575 acres. Operating at full capacity, Phase 1 of the Proposed Project is expected to employ approximately 2,000 individuals at the manufacturing facility, administrative office building, and visitor's center.

Phase 2 of the Proposed Project 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 (which is an additional approximately 322 acres). The timeline for construction of Phase 2 is dependent in part on market conditions. However, it is reasonably anticipated that Phase 2 will be constructed and operational within 10 years of the initiation of construction for Phase 1. Operating at full capacity, Phase 2 of the Proposed Project is expected to employ an additional 2,000 individuals at the facility.

The site will likely become a business park as suppliers to the proposed advanced manufacturers also locate to or close to the site to maintain their proximity and strong relationship with the advanced manufacturer. Based on previous experience with similar projects in South Carolina, it can be expected that the proposed advanced manufacturer's positive impact on the Charleston Region and the state of South Carolina as a whole to be extensive.

Berkeley County, based on its own independent analysis and not in reliance on any representations made by private parties except as to direct job creation, has estimated the following:

- The proposed Phase 1 economic impact of Project Soter is approximately \$4.79 billion;
- It is anticipated that the Phase 1 implementation would generate a total of 8,052 jobs, including an anticipated 2,000 jobs directly tied to Project Soter;
- Berkeley County anticipates an additional 3,374 indirect, and 2,677 induced jobs;
- Berkeley County projects Project Soter would support over \$517 million in labor income.
- Berkeley County estimates state and local taxes collected as a result of Phase 1 implementation could be as high as in excess of \$72 million annually (Appendix H).



Berkeley County estimates the proposed Phase 2 economic impact, which involves an estimated doubling of the Project Soter facility, to be approximately \$9.59 billion. The Phase 2 implementation could generate a total of 16,103 jobs, including up to 4,000 direct jobs within 10 years as well as an estimated 6,748 indirect and 5,355 induced jobs. Berkeley County estimates the project would support over \$1.03 billion in labor income and estimates state and local taxes collected as a result of Phase 2 implementation to be in excess of \$144 million annually (Appendix H).

The following statistics show possible economic impacts with regard to jobs created, capital investment, tax revenue generated for local and state governments, certain infrastructure, population, etc:<sup>18</sup>

- Berkeley County estimates that the proposed manufacturer plans a capital investment in excess of \$1 billion following Phase 2 and employ approximately 2,000 during Phase 1 and approximately 4,000 workers following Phase 2 development. This dollar estimate includes investment in the building(s), manufacturing machinery and equipment, non-manufacturing machinery and equipment, etc.
- Along with job creation, a population increase of about 5,000 to 8,250 could likely be expected in the Charleston region at the project's full employment of about 4,000. This estimate is based on approximately 2.5 to 2.75 average persons per household in the Charleston region and the USA, as well as an assumption that as many as 50% - 75% of the manufacturer's jobs will likely need to be filled by new population to the region because of the low number of unemployed that currently exists and has existed in the Charleston region over the past several years. Even if the positions are filled by residents that already live in the region, many of the jobs they vacate will need to be filled by new population to the area. This trend is not new to the region as its population and labor force have been swelling in recent years, attracted by the quality of life and the record numbers of jobs that have been created in the Charleston-North Charleston-Summerville Metropolitan Statistical Area (MSA).
- This population increase may likely include between 1,440 to 2,880 school-aged children that will attend the local public and/or private school systems. This estimate is based on the 2000 Census figure that 36% of households in the U.S. have children and these households may have an average of up to about two children (national figures were used because the exact origin of new population is not known).

---

<sup>18</sup> All numbers utilized for workforce or economic impact or related criteria are good faith estimates based on Berkeley County's independent analysis and do not rely upon any representations made by any individual company.

- Based on the average wage in the Charleston region of similar manufacturing sectors, estimated annual payroll at the proposed manufacturing facility could be about \$421 million at completion. In addition, the proposed manufacturer could pay millions annually in fringe benefits to its direct employees.
- Based on the above payroll estimates as well as on past experience with similar projects in South Carolina, employees of the proposed manufacturer will pay millions in income taxes to the state. In addition, the proposed manufacturer will pay perhaps hundreds of millions annually in property taxes as well as corporate income and other taxes to area (non-federal) governments.
- Again, similar to other projects, the proposed manufacturer will likely procure millions of dollars of goods annually from South Carolina companies, not even necessarily including those suppliers it also attracts to relocate to the state.

The above estimates were assembled to represent the key (not necessarily all) impacts of the project and were calculated to be conservative with respect to the positive effects of this project (i.e., job creation and economic stimulation) and liberal with respect to the possible effects to the community's infrastructure (increased population and needs that accompany that).

## **6.11 Environmental Justice**

This section includes a discussion of minority and/or low-income populations that are in the vicinity of the site, as well as other areas of potential controversy regarding the proposed project.

### **6.11.1 Description of Affected Environment**

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires that federal projects consider whether the project would have an adverse effect on minority or low-income populations. The project site consists of approximately 6,781-acres surrounded primarily of woodlands and Interstate 26. The site is used for silviculture with no current residential populations.

The project area is located within Census Tract 201.02. The median family income was \$54,255 in Census Tract 201.02, with 13.2% of individuals living below the poverty level (Table 12). Berkeley County has a median family income of \$52,427 with 14.4% of individuals below the poverty level. In comparison, the state of South Carolina median family income was \$44,623 with 17.6% below the poverty level and the national median family income was \$60,609, with 15.3% below the poverty level (USCB, 2015).

**Table 12 Median Family Income and Poverty Level for the Proposed Project Area, 2015**

Boundary	Median Family Income	Percent below Poverty Level
Town of Ridgeville	\$40,000	15.0%
Census Tract 201.02	\$54,255	13.2%
Berkeley County	\$52,427	14.4%
South Carolina	\$44,623	17.6%
United States	\$60,609	15.3%

The site is located approximately 2.5 miles outside of the Town of Ridgeville, the closest incorporated town. According to 2010 census data (the most recent complete dataset available), the Town of Ridgeville has a median family income of \$40,000, with 15% of individuals living below the poverty line (Table 13). In the Town of Ridgeville, the 2010 census population was comprised of 33% white, 63.8% black or African-American, 2.48% Hispanic, 0.1% Asian, 0.6% American Indian or Alaska Native, and 0.3% two or more races (see Table 13).

**Table 13 Population Percentages by Race, 2015**

Boundary	White	Black / African-American	Hispanic	Asian	American Indian or Alaska Native	Two or more Races
Town of Ridgeville	33.0%	63.8%	2.5%	0.1%	0.6%	0.3%
Census Tract 201.02	59.0%	37.5%	1.6%	0.1%	1.1%	1.8%
Berkeley County	66.5%	25.0%	6.0%	2.3%	0.6%	2.7%
South Carolina	66.2%	27.9%	5.1%	1.3%	0.5%	1.7%

According to census data from 2010, the population in Census Tract 201.02, which includes the project site, was comprised of 59.0% white, 37.5% black or African-American, 1.6% Hispanic, 0.1% Asian, 1.1% American Indian or Alaska Native and 1.8 % two or more races (see Table 13). For Berkeley County the population was comprised of 66.5% white, 25.0% black or African-American, 6.0% Hispanic, 2.3 % Asian, 0.6 % American Indian or Alaska Native and 2.7% two or more races. The state of South Carolina population in 2010 was comprised of 66.2% white, 27.9 % black or African-American, 5.1% Hispanic, 1.3 % Asian, 0.5 % American Indian or Alaska Native and 1.7% two or more races (USCB, 2015).

#### 6.11.2 Potential Environmental Impacts and Proposed Mitigation Measures

Based on the existing conditions at the site and the nature of the proposed development, the project will have significant economic benefits to the community and the State. The project will not have adverse effects on the local population and will not disproportionately affect minority and/or low-income populations. No disproportionate impact on minority and disadvantages populations is expected as a result of this proposed project.

## **6.12 Traffic and Transportation**

### **6.12.1 Description of Affected Environment**

Near the site, Interstate 26 is a four-lane rural Interstate facility. The nearest existing interchanges are located at S.C. Highway 27 (Exit 187) and Jedburg Road – S-8-16 (Exit 194).

S.C. Highway 27 (Old Gilliard Rd/ Ridgeville Rd) is currently a two-lane rural facility. The I-26 interchange in this area is a diamond type with ramp spacing of approximately 780 feet. Ramp intersections with S.C. Highway 27 (at Exit 187) are currently controlled with stop signs. There are currently several intersections located within 500 feet of the ramp termini that provide access to adjacent properties.

Existing roadways through the site include Westvaco Road and Centerline Road. Currently, these are dirt facilities likely used primarily for logging activities. There are currently no direct connections from the site to Camp Hall Road, an adjacent roadway with an overpass on I-26 nor Jedburg Road (exit 194). Other public roadways near the site include Fish Road and U.S. Highway 176, both of which are two-lane facilities located to the north.

Aside from the Interstate, traffic volumes on surrounding roadways are relatively low. Average daily traffic volumes, based on South Carolina Department of Transportation (SCDOT) count station data are shown in Attachment 2. On Interstate 26, the afternoon hours have much higher volumes than the morning hours. Historical data shows morning hours with directional volumes less than 1,000 vehicles per hour; the afternoon volumes ranged from 1,000 vehicles per hour to 1,500 vehicles per hour in each direction. The counts show a generally even directional split and speeds near 70 mph.

A general Level of Service (LOS) for each roadway is estimated based on the latest volumes and the ADT thresholds used in SCDOT Travel Demand Models. LOS is a measure of quality of operational conditions within a traffic stream based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and the ratio of facility volume to capacity (v/c). Six LOSs from A (best) to F (worst), define each type of transportation facility. Each LOS represents a range of operating conditions and the driver's perception of those conditions. Most analysis, design or planning efforts typically use service flow rates at LOS C or D to ensure acceptable operating service for facility users. LOS E generally is considered unacceptable for planning purposes unless there are extenuating circumstances or attaining a higher LOS is not feasible or extremely costly. For LOS F, it is difficult to predict flow due to stop-and-start conditions.

Based on the 2013 volumes and the existing cross sections, the LOS is estimated in Table 14.

**Table 14 2013 Level of Service Estimations**

Corridor	Number of Lanes	Volume (vehicles per day)	LOS
I-26 east of Exit 187	4	38,700	B
I-26 west of Exit 187	4	32,300	B
Old Gilliard Road	2	2,200	A
U.S. Hwy. 176	2	3,000	A

#### 6.12.1 Potential Environmental Impacts and Proposed Mitigation Measures

A preliminary traffic assessment was completed in April 2015 (Appendix I).

By 2018, the site is assumed to consist of a main manufacturing facility with roughly 2,000 employees including an administrative office building and visitor center. In addition to the production facility, administrative offices, and visitor center, it is assumed that approximately 500,000 square feet of warehousing and manufacturing space will be developed within the remaining Camp Hall site acreage. Main access to the plant will be provided by Lower Westvaco Road and Centerline Road. Lower Westvaco Road will be a new facility connecting S.C. Highway 27 to the main production facility. It is assumed that Lower Westvaco Road will be constructed as a three-lane facility. Centerline Road will be constructed as a five-lane roadway from the future administrative offices/visitor's center to U.S. Highway 176. A new interchange access on I-26 is envisioned to serve the Camp Hall site and it has been assumed that this interchange will be constructed by the second quarter of 2019. Table 15 provides a summary of the predicted LOS in 2018.

**Table 15 2018 Level of Service Estimations for Initial Development Phase**

Corridor	Number of Lanes	Volume (vehicles per day)	LOS
I-26 east of Exit 187	4	43,900	C
I-26 west of Exit 187	4	35,900	B
S.C. Hwy. 27	2	7,930	A/B
U.S. Hwy. 176	2	4,150	A
Lower Westvaco Road	3	5,630	A
Centerline Road	5	1,000	A

By 2030, Phase 2 is assumed to be in full production and will house roughly 2,000 employees. The amount of warehousing and manufacturing facilities is anticipated to expand to roughly 4 million square feet will be developed within the remaining Camp Hall site acreage. By 2030, the new interchange access on I-26 is anticipated to be constructed. The new interchange, along with the completed Centerline Road, is envisioned to provide the main access to the facility. Lower Westvaco Road and S.C. Highway 27 will serve as a

secondary access to the area. Centerline Road will be fully constructed between the new interchange and U.S. Highway 176. Table 16 provides a summary of the predicted LOS in 2030.

**Table 16 2030 Level of Service Estimations for Interim Development Phase**

<b>Corridor</b>	<b>Number of Lanes</b>	<b>Volume (vehicles per day)</b>	<b>LOS</b>
I-26 east of Exit 187	4	56,700	C/D
I-26 west of Exit 187	4	44,600	C
S.C. Hwy. 27	2	3,700	A
U.S. Hwy. 176	2	6,800	A/B
Lower Westvaco Road	3	1,100	A
Centerline Road	5	17,700	B

A future outlook phase (estimated 2040) was evaluated that included, future expansions of Project Soter which could include the projected 4,000 employees at full build out, along with an estimated additional 4,000 cars associated with use of the improved infrastructure and other development that could be reasonably expected in the vicinity of the project (Total of 8,000 vehicles). The amount of warehousing and manufacturing facilities on the adjacent Camp Hall site acreage is assumed to include roughly 9.9 million square feet. The administrative office building and visitor's center would remain at a 500 employee level. Most of the site traffic, and especially the truck and delivery traffic, can be expected to use I-26. With the anticipated growth in the areas within the Nexton, Carnes Crossroad, Cane Bay, and other areas, however, more of the employment force could be expected to use U.S. Highway 176.

The level of background growth will play a major role in the need for widening corridors such as Interstate 26 and U.S. 176. Currently the section of I-26 from west of Ridgeville Road towards Charleston is on the SCDOT plan for widening from 4 to 6 lanes. Future analysis using the Regional Transportation Model, incorporating Project Soter, will better identify when this widening will need to occur and what other areas, such as U.S. Highway 176, may need improvements. Table 17 provides a summary of the predicted LOS in 2040.

**Table 17 2040 Level of Service Estimations for Ultimate Development Phase**

Corridor	Number of Lanes	Volume (vehicles per day)	LOS
I-26 east of Exit 187	4	69,100	D/E
I-26 west of Exit 187	4	51,700	C
S.C. Hwy. 27	2	7,450	A/B
U.S. Hwy. 176	2	13,200	C
Lower Westvaco Road	3	4,700	A
Centerline Road	5	33,000	C/D

In addition to the new interchange and roadway improvements mentioned above, other improvements may be needed to accommodate the overall growth plan for the region. Further study will need to be conducted to determine the comprehensive long term roadway needs, which may include significant widening projects, intersection improvements and signal additions. A complete traffic report is provided in Appendix I.

## **6.13 Utilities**

### **6.13.1 Description of Affected Environment**

#### Telecommunications Service

Home Telephone Company (HTC) will be the telecommunications service provider for Project Soter and the Camp Hall Commerce Park. HTC currently has fiber optics installed in close proximity to the Camp Hall Commerce Park.

#### Electric Service

Power to the area is currently provided to the proposed project area by Edisto Electric Cooperative.

#### Natural Gas Service

SCE&G will provide natural gas service to the Project Soter site within the Camp Hall Commerce Park. The route will be within existing roadway right-of-ways.

#### Wastewater Service

The Berkeley County Water and Sanitation (BCWS) will provide wastewater service to the Camp Hall Commerce Park. Currently, an existing 8-inch gravity main is located near the intersection of S.C. Highway 27 and Westvaco Road. This main was constructed as part of the wastewater system to serve the MacDougall Corrections Institute along S.C. Highway

27, but does not have the capacity to serve Project Soter. Thus, additional facilities will be installed to provide wastewater capacity.

#### Water Main Service

BCWS will be the service provider for water to serve Project Soter and the Camp Hall Commerce Park. Currently, the Camp Hall Commerce Park is not served with water service; however, preliminary plans to serve the Camp Hall Commerce Park with water infrastructure were developed as part of the Development Agreement between MeadWestvaco (MWV) and Berkeley County, so additional facilities have been planned to be installed to provide water service.

### **6.13.2 Potential Environmental Impacts and Proposed Mitigation Measures**

#### Telecommunications Service

It is proposed to extend the required telecommunications service to the Camp Hall Commerce Park to serve Project Soter along roadway right-of-ways and existing electrical right-of-ways and easements. It is not anticipated that the extension of services will impact wetlands.

#### Electric Service

Power is to be provided to the proposed project area by Edisto Electric Cooperative/Santee Cooper. The corridor (right-of-way) width for the projected 115 kilovolt (kV) line serving the Berkeley Interstate Site will be 100 feet wide. The electric provider may want to designate a greater width on fee-owned property.

The towers will average an anticipated 300-400 feet apart and could be constructed of lattice steel, tubular steel poles, wood H-frames or concrete poles. In any case, existing ground contours generally do not require alteration for structure installation. The normal structure height ranges from 60-120 feet, depending on terrain. Foundations for each of the possible structure types, except tubular steel poles, will be direct burial; tubular steel requires concrete caissons. Following line construction, the disturbed areas along the line corridor will be stabilized using native grass mixtures appropriate to the region.

#### Natural Gas Service

SCE&G will provide natural gas service to the Project Soter Site within the Camp Hall Commerce Park. The route will be within existing roadway right-of-ways. Proposed service will be extended from an existing 8-inch high pressure line and substation located near the Town of Ridgeville along S.C. Highway 27. The proposed natural gas line will be extended within the existing right-of-way of S.C. Highway 27 to the north, under I-26 and to the



proposed Project Soter access road known as Lower Westvaco Road. The proposed natural gas line will be extended from S.C. Highway 27 to the Project Site along the proposed right-of-way of Lower Westvaco Road. In addition, the improvements will include a town border station, meter upgrade, and new customer station. All improvements are anticipated to be within existing and proposed rights-of-way and are not expected to disturb wetlands along the proposed alignment.

### Wastewater Service

Due to the capacity requirements, location within the Camp Hall Commerce Park and other factors, plans have been developed to serve the proposed Project Soter and remaining developable areas of the Camp Hall Commerce Park, as discussed below.

The proposed new wastewater service will include a new 1,400 gallon per minute (GPM) pump station located on-site adjacent to the proposed Centerline Road. The Project Site will be served by an approximately 6,700 linear feet of 12-inch Gravity Main located within the right-of-way of Centerline Road. Wastewater from the proposed pump station will be conveyed to the existing wastewater pump station (PS-061) located near the interchange of I-26 and Jedburg Road via a proposed 12-inch force main. This proposed force main will be constructed within the existing 10-inch force main wastewater easement that parallels the I-26 right-of-way. This existing easement is owned and maintained by BCWS. Wastewater from Pump Station PS-061 will be conveyed downstream to an existing pump station (PS-060) located near the interchange of I-26 and U.S. Highway 17A via an existing gravity main. In-Place upgrades to both existing pump stations will be required as part of the wastewater system improvements. In addition, a new proposed 14-inch force main will be required from Pump Station P-060 to an existing manhole south of U.S. 17A. This proposed force main extension will be constructed within an existing wastewater easement.

As previously stated, on-site and off-site wastewater improvements will be constructed within proposed or existing roadway and wastewater rights-of-way and easements. An approximately 4,900 linear foot portion of force main will be constructed within a new 20-foot wastewater easement from Centerline Road to the existing force main easement paralleling I-26. Wastewater improvements are not expected to impact jurisdictional wetlands. If necessary, a separate wetlands permit will be applied for and obtained by BCWS.

### Water Main Service

Due to the capacity requirements, location within the Camp Hall Commerce Park and other factors, alternative plans have been developed to serve the proposed Project Soter and remaining developable areas of the Camp Hall Commerce Park.

To serve the capacity required for Phase 1 and the administrative office facility for Project Soter, it is planned to extend water infrastructure from the BCWS Lake Moultrie Water System to the Project Site. Currently, there exists a 500,000 gallon elevated water tank and 14-inch water main located along U.S. Highway 176 (U.S. 176) near the intersection with Jedburg Road (S-8-16), approximately 4.5 miles southeast of the intersection of U.S. 176 and Centerline Road. It is proposed to extend a 14-inch water main from the existing 14-inch water line at the intersection of U.S. 176 and Jedburg Road northwest within the existing right-of-way to Centerline Road. The proposed water line will be extended to the Project Soter Site within the proposed right-of-way of Centerline Road. A loop will be created for redundancy and fire protection by extending the water line through the site and along an existing access roadway to the west of the project site to Cypress Campground Road (S-8-32). The proposed line will extend to the north within Cypress Campground Road to its intersection with U.S. 176. In addition, it is proposed to construct a 500,000 gallon elevated water tank adjacent to Centerline Road near the Project Soter administrative offices to provide adequate pressures for fire protection needs. The proposed water main from Centerline Road to Cypress Campground Road will be constructed within a 20-foot water easement and will avoid all wetlands not permitted as part of the site construction. All other water main extension in this phase of improvements will be constructed within existing or proposed roadway right-of-ways and are not anticipated to disturb jurisdictional wetlands. Should wetlands be impacted as part of the project, a separate wetlands permit will be applied for and obtained by BCWS.

To serve future phases of Project Soter and the remainder of the Camp Hall Commerce Park, as well as to provide a secondary surface water source for Project Soter, it is planned to extend water from the Lake Marion Water Authority system to the Camp Hall Commerce Park. Currently, construction is underway extending a 16-inch water main from the Town of Holly Hill to the Town of Harleyville within the right-of-way of S.C. Highway 453. This water main will be sized adequately to take into consideration serving Project Soter. From its current termini in the Town of Harleyville, it is planned to extend the water service from the Town of Harleyville to the southeast to the Town of Ridgeville. Plans for this water main extension are in place and the water main size will be increased to serve the required capacity of Project Soter and future phases within the Camp Hall Commerce Park. The proposed route of the water main extends southeast within the right-of-way of U.S. Highway 178 to its intersection with S.C. Highway 27. The water main will be extended north within the SC 27 right-of-way to the intersection of S.C. Highway 27 and Fish Road adjacent to the Camp Hall Commerce Park. To serve Project Soter, a 14-inch water main will be extended to the Project Site within the proposed right-of-way of Lower Westvaco Road. All water main extensions are planned to be within existing rights-of-way of U.S. Highway 178 and S.C. Highway 27 and within the proposed right-of-way of Lower Westvaco Road and are not anticipated to disturb jurisdictional wetlands. If necessary, a separate wetlands permit will be applied for and obtained by BCWS.

## **6.14 Hazardous Materials/Toxic Substances**

### **6.14.1 Description of Affected Environment**

There are no known sources of hazardous wastes or toxic substances at the site under its current use as undeveloped and forestland. A Phase I Environmental Site Assessment (ESA) was completed for the project in October, 2013. The on-site investigation associated with the Phase I ESA was conducted on 4 and 10 October 2013. The results of the on-site investigation did not indicate the presence of recognized environmental conditions on the project site or within the immediate vicinity. Based on the information obtained during the Phase I ESA, the preparing consultant did not identify any recognized environmental conditions association with the project site.

### **6.14.2 Potential Environmental Impacts and Proposed Mitigation Measures**

The Proposed Project could generate hazardous waste based on the processes that could be employed at the facility. The paint process could generate fluids, filters, and wastes that would require disposal. Additionally, minor maintenance activities would be performed, resulting in generation of minor quantities of parts cleaners, fluids and rags that would require disposal.

Quantities of waste from maintenance activities will determine the level of required permitting. In 1976 Congress passed a law called the Resource Conservation and Recovery Act (RCRA). The law established a 'cradle to grave' regulatory system to track hazardous wastes (from the point at which waste is generated at a facility until its disposal). The law requires the use of safe and secure procedures in treating, transporting, storing and disposing of hazardous wastes. SCDHEC has its own regulations which are consistent with the federal regulations. SCDHEC is authorized by the USEPA to implement RCRA in South Carolina. SCDHEC issues RCRA hazardous waste management permits, which require and measure compliance at facilities that treat, store and dispose of hazardous waste. Hazardous waste generators fall into one of three general groups according to the amount of waste generated in a calendar month. The three classes of generators are described in Table 18. The regulations become increasingly more stringent as the volume of waste generated increases.

**Table 18 Classes of Hazardous Waste Generators**

Generator	Quantity
Large Quantity (LQG)	1,000 kg/month (approximately 2,200 lbs) > 1 kg/month acute (approximately 2.2 lbs) > 100 kg residue or contaminated soil from cleanup of acute hazardous waste spill
Small Quantity (SQG)	Between 100-1,000 kg/month (approximately 220-2,200 lbs)
Conditionally Exempt Small Quantity (CESQG)	100 kg/month 1 kg acute 100 kg residue or contaminated soil from cleanup of acute hazardous waste spill

In addition to the possible need for a hazardous waste permit, various environmental management and compliance plans could be required. A Spill Prevention, Control and Countermeasures Plan (SPCCP); SWPPP; and Oil and Hazardous Substance Contingency Plan (OHSCP) would be developed to show locations and quantities of waste material generated and provide disposal requirements.

## **7 APPLICATION FORM AND PERMIT DRAWINGS**

---

The Joint Federal and State Application Form and associated drawings for the proposed Camp Hall Development individual permit are attached in Appendix A. In addition, a letter from the applicant stating that this application is consistent with the South Carolina Coastal Zone Management Program has been included in Appendix A.

## 8 LIST OF PREPARERS AND CONTRIBUTORS

---

**Amec Foster Wheeler Environment & Infrastructure, Inc.** (Amec Foster Wheeler) served as lead consultant for preparation of the Section 404 Individual Permit Application and supporting documents. Amec Foster Wheeler served as primary author for the sections related to *Wetlands Impacts, Proposed Mitigation, Land Use, Aesthetics and Visual Resources, Geology & Soil, Biotic Communities, Cultural Resources, Socioeconomic Impacts, Environmental Justice*. In addition, Amec Foster Wheeler assisted in the preparation of the *Alternatives Analysis* and the sections related to *Protected Species* and *Water Resources/Floodplains*. Amec Foster Wheeler conducted all necessary field work for the above report sections.

**Thomas & Hutton** served as the primary civil engineers for this project. They have completed all necessary site design work associated with the permit application, including permit drawings, wetlands impacts and fill calculations, and alternatives analysis drawings. In addition, Thomas & Hutton served as primary author for the sections related to *Air Quality, Noise, Traffic & Transportation, Utilities, Hazardous Materials/Toxic Substances, and Stormwater*.

**Randolph Lowell** with Willoughby & Hoefer, PA served as primary author for the *Alternatives Analysis* and *Purpose and Need* sections of this Section 404 Individual Permit Application.

**Duncan & Duncan Wetland and Endangered Species Training (D&D WEST)** served as the primary author for the Protect Species Biological Assessment. D&D WEST completed fieldwork necessary for completion of this document and initiated consultation with the USFWS.

**Dr. Frank Hefner** of the College of Charleston prepared the Potential Economic Impact of the proposed project.

## 9 REFERENCES

---

### Geology and Soils

U.S. Department of Agriculture, Natural Resources Conservation Service, 2015a. Farmland Protection Policy Act. Available at <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/> Accessed 24 March 2015.

U.S. Department of Agriculture, Natural Resources Conservation Service, 2015b. Soil Resource Report for Berkeley County, South Carolina. Generated via WebSoilSurvey at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed 24 March 2015.

U.S. Forest Service, 1995. Description of the Ecoregions of the United States. Available at: <http://www.fs.fed.us/land/ecosysmgmt/>. Accessed 24 March 2015.

U.S. Geologic Survey, 2014. Documentation for the 2014 Update of the United States National Seismic Hazard Maps. Open-File Report 2014-1091.

### Noise

Golden, J., R.P. Ouellette, S.Saari, and P.N. Cheremisinoff, 1979. Environmental Impact Book. Ann Arbor Science Publishers, Inc. Ann Arbor, Michigan.

U.S. Department of Housing and Urban Development, 1998. The Noise Guidebook.

### Protected Species

Browder, J.S. 1984. Wood stork feeding areas in southwest Florida. Florida Field Naturalist 12:81-96.

Newkirk Environmental, Inc. 2009. Threatened and Endangered Species Assessment for Camp Hall Tract, Berkeley County, South Carolina, January 2009.

NMFS. 1998. Recovery Plan for the Shortnose Sturgeon (*Acipenser brevirostrum*). Prepared by the Shortnose Sturgeon Recovery Team for the National Marine Fisheries Service, Silver Spring, Maryland. 104 pages.

NMFS/NOAA. 2012. Shortnose Sturgeon (*Acipenser brevirostrum*). [www.nmfs.noaa.gov/pr/species/fish/Shortnose\\_sturgeon.html](http://www.nmfs.noaa.gov/pr/species/fish/Shortnose_sturgeon.html). (Accessed: July 2, 2014).

- NOAA. 2012. Endangered and Threatened Wildlife and Plants; Final Listing Determinations for Two Distinct Population Segments of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) in the Southeast. FR Vol. 77, No. 24, February 6, 2012.
- Ogden, J.C., J.A. Kushlan, and J.T. Tilmant. 1978. The food habits and nesting success of wood storks in Everglades National Park in 1974. Natl. Park Serv. Nat. Resour. Rep. No. 16.
- SCDNR. 2015. South Carolina Rare, Threatened, and Endangered Species Inventory, January 2006. Accessed March 18, 2015.
- USFWS. 1967. Endangered Species List - 1967. 32 FR 4001.
- USFWS. 1986. Determination of Endangered Status for *Lindera melissifolia*. 51 FR (147): 27495-27500.
- USFWS. 1991. Endangered and Threatened Wildlife and Plants; Determination of *Oxypolis canbyi* (Canby's Dropwort) to be an Endangered Species. Federal Register 51 (37):6690-6693.
- USFWS. 1992a. Endangered and Threatened Species of the Southeastern United States (The Red Book).
- USFWS. 1992b. Endangered and Threatened Wildlife and Plants; Endangered Status for *Schwalbea americana* (American chaffseed); 57 FR 44703-44708.
- USFWS. 1996. Revised recovery plan for the U.S. breeding population of the wood stork. U.S. Fish and Wildlife Service. Atlanta, GA. 41 pp.
- USFWS. 1999. Endangered and Threatened Wildlife and Plants; Final Rule to List the Flatwoods Salamander as a Threatened Species. 64 FR 15691-15704.
- USFWS. 2003. Recovery plan for the red-cockaded woodpecker (*Picoides borealis*): second revision. U.S. Fish and Wildlife Service, Atlanta, GA. 296 pp.
- USFWS. 2007. Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States from the List of Endangered and Threatened Wildlife; Final Rule; Endangered and Threatened Wildlife and Plants; Draft post-Delisting and Monitoring Plan for the Bald Eagle (*Haliaeetus leucocephalus*) and Proposed Information Collection; Notice. FR Vol. 72, No. 130, July 9, 2007.
- USFWS. 2009. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Reticulated Flatwoods Salamander; Designation of Critical Habitat for Frosted



Flatwoods Salamander and Reticulated Flatwoods Salamander; Final Rule. 74 FR 6699-6774.

USFWS. 2015. South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Berkeley County, February 10, 2015. Accessed March 18, 2015.  
[http://www.fws.gov/charleston/pdf/Endangered/species\\_by\\_county/berkeley\\_county.pdf](http://www.fws.gov/charleston/pdf/Endangered/species_by_county/berkeley_county.pdf)

Walters, J.R. 1991. Application of ecological principles to the management of endangered species: the case of the red-cockaded woodpecker. Ann. Rev. Ecol. Syst. 22:505-523.

### Socioeconomics

South Carolina Revenue and Fiscal Affairs Office, 2015. Population of South Carolina Counties (1940-2010 Censuses). Available at <http://abstract.sc.gov/chapter14/pop4.php>. Accessed March 25, 2015.

United States Census Bureau, 2015. State and County Quickfacts, South Carolina.  
<http://quickfacts.census.gov/qfd/states/45000.html>. Accessed March 26, 2015.

### Environmental Justice

United States Census Bureau (USCB; <http://factfinder.census.gov/>); American Communities Survey for Ridgeville, SC, Dorchester County, and Census Tract 010400, 2010 data; accessed March 2015.

### Water Resources/Floodplains

USACE, 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

USACE, 2010. Wetlands Regulatory Assistance Program, 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), Technical Report ERDC/EL TR-10-20, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.