



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

January 24, 2011

Re: Protected Species Assessment  
Pee Dee Touchstone Energy Commerce City IP  
Florence County, SC  
S&ME Project No. 1614-10-255  
FWS Log No. 2011-TA-0111

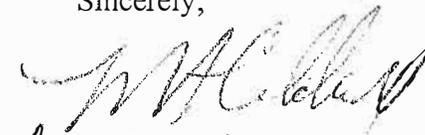
Thank you for your January 6, 2011, correspondence to the U.S. Fish and Wildlife Service (Service) regarding a protected species assessment for the property associated with the above-referenced project located in Florence County, South Carolina. Based on our review of the information received, the Service believes that development of a project at the proposed location will not result in "take" as defined under section 9 of the Endangered Species Act (Act).

Please note that obligations under the Act must be reconsidered if: (1) new information reveals impacts of this identified action may affect any listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

Please contact the South Carolina Department of Natural Resources regarding potential impacts to State protected species. If the proposed project will impact wetlands, please contact the U.S. Army Corps of Engineers, Charleston District.

If you have any questions regarding the Service's position in this matter, please contact Mr. Mark Leao at (843)727- 4707, ext. 228 and reference FWS Log No. 2011-TA-0111.

Sincerely,

  
for Jay B. Herrington  
Field Supervisor

JBH/MCL



January 6, 2011

Scotty Gagnier  
S&ME Inc.  
134 Suber Road, Columbia, SC 29210

John P. ...  
...

**Reference:** **Protected Species Assessment**  
Pee Dee Touchstone Energy Commerce City  
Florence County, South Carolina  
S&ME Project No. 1614-10-255

John P. ...

S&ME, Inc. (S&ME) is pleased to submit our Protected Species Assessment for the above-referenced project located in Florence County, South Carolina. This work was performed in general accordance with S&ME Proposal No. 1614-7608-10, dated July 7, 2010 and our signed AS-071. This Protected Species Assessment has been conducted to assess the potential for protected species or suitable habitat within the site in preparation for future industrial or light industrial developments.

## 1.0 PROJECT BACKGROUND

The site consists of an approximate 293-acre tract located southeast of the intersection of Interstate 95 and South Carolina Highway 327. The tract is located in the Pee Dee Touchstone Energy Commerce City, an industrial park situated approximately seven miles northeast of Florence in Florence County, South Carolina (Figure 1 in Appendix A). The site is identified on a portion of the USGS 7.5-minute topographic quadrangle map *Witherspoon Island, SC*, dated 1972 (Figure 2 in Appendix A). The site is the remaining undeveloped portions of the industrial park. The wetlands and upland buffers on the site have previously been preserved within restrictive covenants recorded in April, 2002 (See Composite Plat in Appendix C).

## 2.0 SITE/HABITAT DESCRIPTIONS

The site is located in northern Florence County within the Southeastern Plains/Atlantic Southern Loam Plains ecoregion of South Carolina. The properties adjacent to the project area consist of forestland, farmland, commercial businesses, light industrial facilities, highway/ utility easements, and a golf course (Figure 3 in Appendix A). The site primarily consists of six habitat types: open fields, early successional areas, pine stands, pine-mixed hardwood uplands, forested wetlands, and open water. Refer to the site photographs in Appendix A for the locations and depictions of the various habitats.

### **Open Fields (Photographs 1-2)**

A majority of the site consists of maintained open fields. These areas are somewhat sparsely vegetated with exposed soil and are bisected by paved roads, dirt roads and ditches. Common species observed include bahia grass (*Paspalum notatum*), crabgrass (*Digitaria sanguinalis*), sourgrass (*Rumex hastatalis*), oldfield toadflax (*Nuttallanthus canadensis*), rabbit tobacco (*Gnaphalium obtusifolium*), broomsedge (*Andropogon* spp.), and common dandelion (*Taraxacum officinale*).

### **Early Successional Areas (Photograph 3-4)**

Several fringe areas of the site have either recently been cutover or have been allowed to regenerate from maintained fields. The primary growth vegetation in these areas is less than 10 ft. in height and very dense. Emerging woody species include loblolly pine (*Pinus taeda*), live oak (*Quercus virginiana*), water oak (*Q. nigra*), and wax myrtle (*Morella cerifera*). Herbaceous species observed include broomsedge, dog fennel (*Eupatorium capillifolium*), goldenrod (*Solidago* spp.), Brazilian verbena (*Verbena braziliensis*), blackberry (*Rubus* spp.), and greenbrier (*Smilax rotundifolia*).

### **Pine Stands (Photograph 5-6)**

Loblolly pine stands were observed on the northern portion of the site. These stands ranged in height from 15 ft. to 35 ft. and based on the site visit and the resource maps appear to be less than 40 year-old. A thick understory of sweet-gum (*Liquidambar styraciflua*), blackberry, and yellow jessamine (*Gelsemium sempervirens*) was observed in the pine stands.

### **Pine-Mixed Hardwood Uplands (Photographs 7-8)**

A mature mixed pine-hardwood plant community is located on the slopes between the maintained fields and the forested wetlands on the southeastern and central portions of the site. Dominant canopy species include long-leaf pine (*Pinus palustris*), white oak (*Q. alba*), American beech (*Fagus grandifolia*), and southern red oak (*Q. falcata*). The understory is open and consists of saplings of the canopy species along with American holly (*Ilex opaca*) and greenbrier.

### **Forested Wetlands (Photographs 9-10)**

Forested wetlands are located near the tributaries and ponds in the central and southern portions of the site. The canopy is dominated by sweetgum, tulip poplar (*Liriodendron tulipifera*), red maple, (*Acer rubrum*), and water oak. Smaller woody species include tag alder (*Alnus serrulata*), red bay (*Persea borbonia*), titi (*Cyrilla racemiflora*), and in the more open areas, black willow (*Salix nigra*) was noted. The understory is dominated by grasses, ferns, and vines such as giant cane (*Arundinaria gigantea*), sedge (*Carex* spp.), soft rush (*Juncus effusus*), netted chainfern (*Woodwardia areolata*), Virginia chainfern (*W. virginica*), laurel-leaf greenbrier (*S. laurifolia*), greenbrier, and muscadine (*Vitis rotundifolia*).

### **Streams and Ponds (Photographs 11-12)**

Several small streams, two ponds and a borrow pit filled with water were observed on the site. While these open water habitats were less than six feet deep in areas, they lacked emergent vegetation and appear to be inundated throughout the year. These features had silty and sandy substrates and well-defined margins. Some floating aquatic vegetation and aquatic fauna was observed.

### **3.0 METHODOLOGY**

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened, and Endangered Species Inventory and the U.S. Fish and Wildlife Service (USFWS) websites were reviewed regarding current federal and state listed species known to occur in Florence County. Additionally, the SCDNR Natural Heritage Program spatial database was reviewed for protected species with documented populations in the *Witherspoon Island, SC* quadrangle. The purpose of the database search was to identify current and historic documented occurrences of federally protected species (threatened or endangered) located within this county. The literature review did not identify the presence of known federally protected species occurrences on or immediately adjacent to the site.

Additionally, S&ME personnel reviewed available supporting information including historic aerial photography, the USGS 7.5-minute topographic quadrangle map (*Witherspoon Island, SC*) and applicable soil survey sheets. The purpose of reviewing this supporting information was to identify drainage features and soil types in the study area. During the field reconnaissance, S&ME personnel integrated the information obtained from this supporting documentation with the field evaluation in order to determine the potential presence of protected species or protected species habitat.

Portions of the site that matched descriptions of preferred habitat for protected species listed in Table 1 were considered to be potential habitat for the respective protected species. These areas were subsequently field reviewed to confirm the presence/absence of the respective species. A field survey was performed within the project areas on December 7 and 9, 2010 by S&ME biologists Chris Daves and Amanda White.

### **4.0 PROTECTED SPECIES**

Descriptions of the species and their respective federal and state status are identified in Table 1 and in Appendix B. The SCDNR and USFWS websites identified the following federally listed species for Florence County:

**TABLE 1: PROTECTED FLORA & FAUNA SUMMARY  
 PEE DEE TOUCHSTONE ENERGY COMMERCE CITY  
 FLORENCE COUNTY**

Species	Federal Status	State Status	Habitat Description	Species Impacted
Bald Eagle <i>Haliaeetus leucocephalus</i>	BGEPA	BGEPA	Coastlines, rivers, large lakes which provide adequate feeding grounds.	No
Red-Cockaded Woodpecker <i>Picoides borealis</i>	E	E	Open pine stands with minimum age of 60 years; Nests in live pines with red-heart disease.	No
Shortnose Sturgeon <i>Acipenser brevirostrum</i>	E	E	Brackish water of large rivers & estuaries; Spawns in freshwater areas.	No
American Chaffseed <i>Schwalbea americana</i>	E	E	Margins of savannas and cypress ponds that are seasonally wet	No
Canby's Dropwort <i>Oxypolis canbyi</i>	E	E	Wet pineland ponds, savannas, wet meadows, & around edges of open cypress ponds; Prefers habitat with little or no canopy closure	No

BGEPA = Bald & Golden Eagle Protection Act    T = Threatened    E = Endangered

Bald Eagle – Protected Under the Bald & Golden Eagle Protection Act  
 BIOLOGICAL OPINION: NO EFFECT

This large raptor has characteristic adult plumage consisting of a white head and tail with a dark brown body. Juvenile eagles are completely dark brown and do not fully develop the majestic white head and tail until the fifth or sixth year. Adults average about three feet from head to tail, weigh approximately 10 to 12 pounds and have a wingspread that can reach seven feet. Generally, female bald eagles are somewhat larger than the males. The typical nest is constructed of large sticks and is lined with soft materials such as pine needles and grasses. The nests are very large, measuring up to six feet across and weighing hundreds of pounds. Nesting and feeding sites are generally in the vicinity of large bodies of open water (coastlines, rivers, large lakes).

Although wetlands are located on the central and southeastern portion of site, these areas are primarily forested with a closed canopy. Two open ponds and streams were observed in the same areas of the site, but these features are not considered large enough to support this species. Therefore, the site does not contain suitable nesting habitat for the bald eagle. There are no coastlines, rivers, or large lakes/streams on or adjacent to the site considered suitable habitat for the bald eagle. Accordingly, future development of the site is not expected to impact this species.

Red-Cockaded Woodpecker – Federally Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

The red-cockaded woodpecker is a black and white bird measuring approximately seven inches long. The bird displays black and white horizontal stripes on its back. The cheeks and underparts are white and the sides are streaked in black. The cap and stripe on the throat and neck of the bird are black. Male individuals have a small red spot on each side of the black cap and display a red crown patch after the first post-fledgling molt. The red-cockaded woodpecker's range is closely linked to the distribution of southern pines. Loblolly and longleaf pines that are 60-plus years old are generally selected for nesting sites. However, other species of southern pines are occasionally used for nesting. The woodpecker usually excavates nest cavities in trees infected with a fungus that produces red-heart disease. Preferred nesting sites generally include relatively open, mature pine stands with an undeveloped or low understory layer. Foraging habitat is frequently limited to pine or pine-hardwood stands that are 30 years or older, with a preference for pine trees with a diameter of 10 inches or larger. The USFWS indicates that the maximum foraging range for the red-cockaded woodpecker is approximately one-half mile.

The pines observed on the property were not appropriate age, size, or density; therefore, the site does not contain suitable nesting habitat for the red-cockaded woodpecker. Accordingly, future development of the site is not expected to impact this species.

Shortnose Sturgeon – Federally Listed Endangered, State Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

The shortnose sturgeon is a bony, anadromous fish growing to a length of up to four feet. Shortnose sturgeon exhibit five rows of plates along the body, with olive to black coloring along the back, and yellow to white coloring on the belly. Four barbels are located in front of the mouth are used to locate food along the river bottom. The shortnose sturgeon migrates from salt water to freshwater to spawn from April to May. The shortnose sturgeon's habitat consists of tidal river systems along the Atlantic coast of North America. This species typically occupies the channels and deeper holes within the river, while feeding in shallow areas at night.

The site does not contain suitable habitat for shortnose sturgeon. There are no rivers or large streams within the site. Accordingly, future development of the site is not expected to impact this species.

American Chaffseed – Federally Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

American chaffseed is an erect, perennial herb that grows to a height of 12 to 24 inches tall. The entire plant, including the leaves and flowers, is covered with fine hairs. Chaffseed has simple, alternate leaves that are lance-shaped to elliptic. The leaves are three to five centimeters long and approximately one centimeter wide, ascending and reduced upwards. The bracts and leaves are purplish-tinged. The corollas range from creamy yellow to purple-tinted green with rose-tinted green, and they are shaped like turtle's heads. The fruit resembles a capsule that is divided into four sections that shed numerous, winged seeds. The seeds are linear and greenish-brown in color. The flowering occurs in May through June, with the fruiting period occurring June through July. American chaffseed occurs in sandy (sandy peat, sandy loam), acidic, seasonally-moist to dry soils. It is generally found in early successional habitats described as open, moist pine flatwoods, fire-maintained savannas, ecotonal areas between peaty wetlands and xeric (dry) sandy soils, bog borders, and other open grass-sedge systems. American chaffseed is dependent on factors such as fire and fluctuating water tables to maintain the crucial open to partly-open conditions that it requires. American chaffseed occurs in species-rich plant communities where grasses, sedges, and savanna dicots are numerous.

The project area contains marginally suitable habitat for American chaffseed in the open areas immediately adjacent to the streams and wetlands in the central and southern portions of the site. These areas are protected by restricted covenants and will not be impacted. In addition, there are no true pine flatwoods or fire-maintained savannas within the project area. Accordingly, future development of the site is not expected to impact this species.

Canby's Dropwort – Federally Listed Endangered

BIOLOGICAL OPINION: NO EFFECT

Canby's dropwort is a perennial herb growing from elongate, stoloniferous rhizomes to a height of 2.5 to 4 feet in height. The stems are hollow and erect with slender leaves. The species is aromatic, smelling like dill. The flowering period is from mid-August through October. The flowers of Canby's dropwort have white petals and pale green sepals and are five-parted. The leaves are round in cross-section, thin, and divided by partitions. The primary habitats of Canby's dropwort are wet pineland ponds and savannas, wet meadows, and around the edges of open cypress ponds. The species prefers habitat with little or no canopy closure. Canby's dropwort prefers soils with a high water table.

The project area contains marginally suitable habitat for Canby's dropwort in the open areas immediately adjacent to the streams and wetlands in the central and southern portions of the site. These areas are protected by restricted covenants and will not be impacted. In addition, there are no true wet pineland ponds, savannas, wet meadows, or cypress ponds within the site. Based on these findings, future development of the site is not expected to impact this species.

## 5.0 QUALIFICATIONS

The field survey was lead by Chris Daves of S&ME. Mr. Daves is a biologist and natural resources project manager with over nine years experience in environmental consulting. Mr. Daves is proficient in conducting wetland delineations, environmental permitting activities, and habitat assessments, including protected species surveys. He is a Professional Wetland Scientist (PWS) and holds a B.S. degree in Biology from Wofford College and a Master's degree in Earth & Environmental Resources Management from the University of South Carolina.

## 6.0 REFERENCES CITED

Cummings, Candace J. and G.K. Yarrow. 1996. A Guide to South Carolina's Endangered and Threatened Species – EC 693. Clemson Extension Service.

Rayner, D.A. and R.D. Porcher. 2001. A Guide to the Wildflowers of South Carolina. University of South Carolina Press.

SCDNR. June 14, 2010. Rare, Threatened, and Endangered Species and Communities Known to Occur in Florence County, SC - <http://www.dnr.sc.gov/species/pdf/Florence.pdf>.

South Carolina Heritage Trust. 2006. Geographic Database of Rare and Endangered Species. Current On-Line Edition - <https://www.dnr.sc.gov:4443/pls/heritage/species.login>.

USFWS. 2010. Listed Endangered Species in South Carolina - <http://www.fws.gov/charleston/countyLists.html#Listed%20Species%20in%20Florence%20County>.

USFWS. March 2010. South Carolina List of Endangered, Threatened & Candidate Species. <http://www.fws.gov/charleston/pdf/endangeredSpeciescountylist.pdf>.

U.S. Department of Agriculture – National Resources Conservation Service Web Soil Survey. 2010. <http://websoilsurvey.nrcs.usda.gov/app/>.

## 7.0 SUMMARY AND CONCLUSIONS

Based on the literature review, habitat assessment, and pedestrian field review of the site, it is our opinion that the site does not provide suitable habitat for the listed protected species with the possible exception of American chaffseed and Canby's dropwort. Marginally suitable habitat was observed for American chaffseed and Canby's dropwort in the open areas immediately adjacent to the stream and wetland features located in the central and south portions of the site. These areas have previously been preserved by restrictive covenants and will not be impacted by future development. Based on these findings, the future development will have "no effect" on the listed protected species with documented populations in Florence County.

No further action is recommended at this time. This Protected Species Assessment will be forwarded to the USFWS for review and comment. The USFWS comments will be provided to you as soon as S&ME receives them.

S&ME appreciates the opportunity to be of service to you by performing this Protected Species Assessment for the project area. Please contact us at (803) 561-9024 with questions regarding this report or if you require additional information.

Sincerely,

**S&ME, Inc.**



Amanda White  
Biologist



Chris Daves, P.W.S.  
Biologist

Senior Review by Jim Palmer, P.E.

**Appendix A** – Figures & Site Photographs

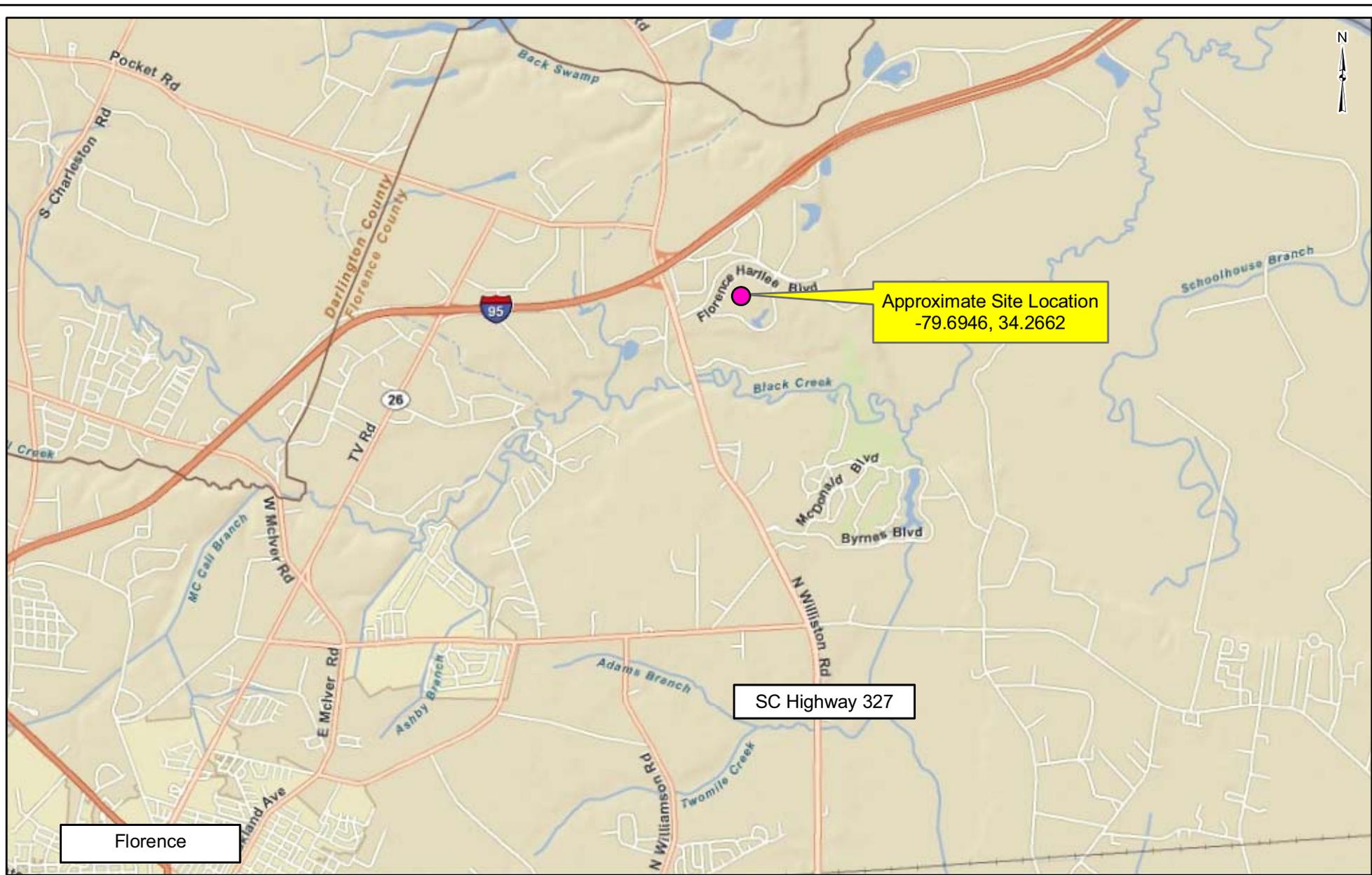
**Appendix B** – County Species Lists from USFWS and SCDNR

**Appendix C** – Copy of Composite Plat, Nesbitt Surveying Co., Inc.

# **APPENDIX A**

**Figures**

**Site Photographs**



Source: ESRI Streetmap



SCALE:	1 inch = 1 miles
CHECKED BY:	TB
DRAWN BY:	WCD
DATE:	12/13/2010



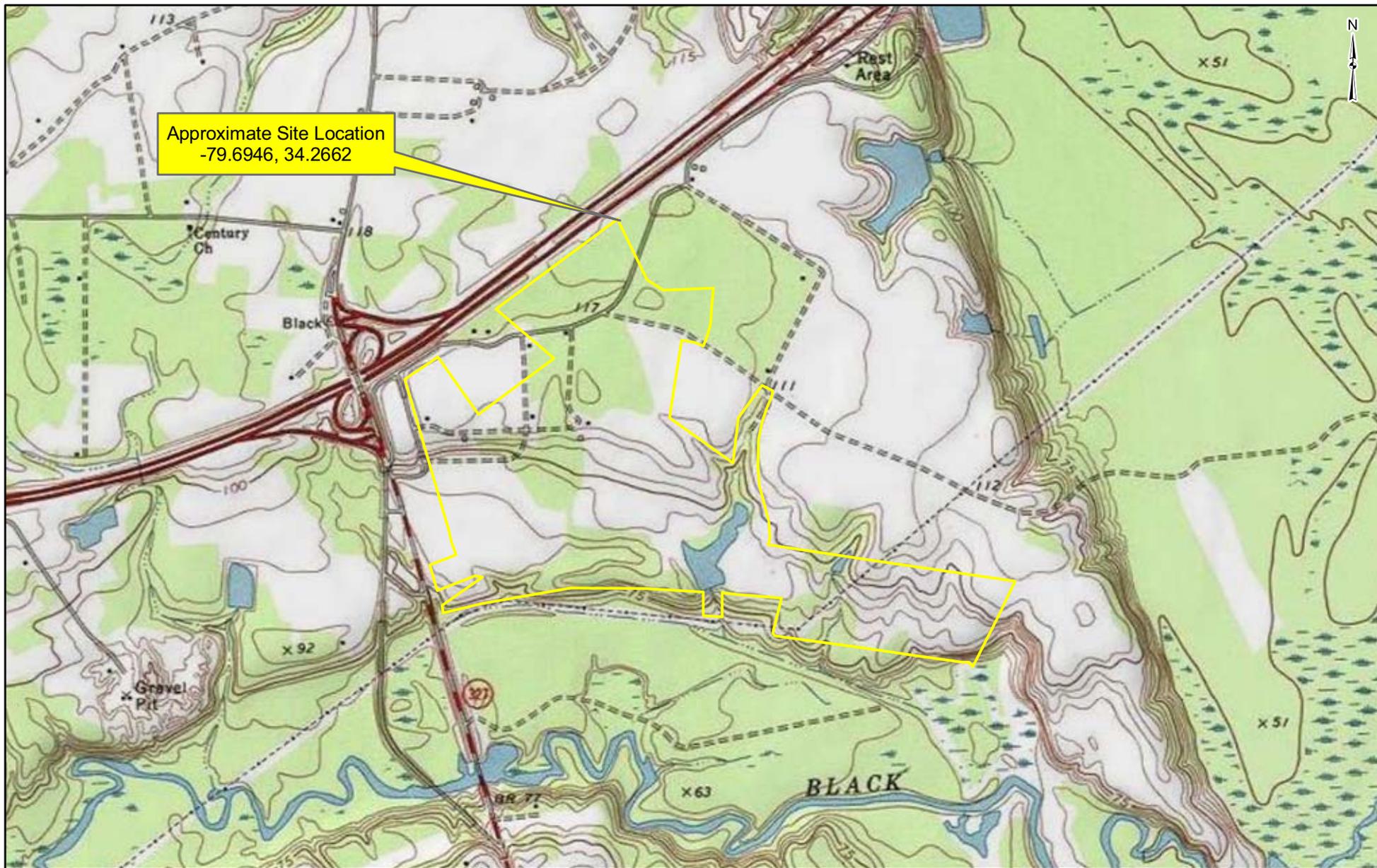
**Vicinity Map**

Pee Dee Touchstone Energy Commerce City  
 Florence, Florence County, South Carolina

S&M PROJECT NO. 1614-10-255

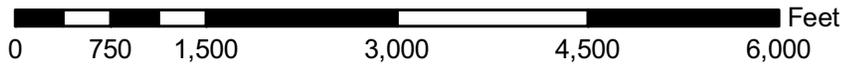
FIGURE NO.

**1**



Approximate Site Location  
-79.6946, 34.2662

Source: USGS 7.5-minute quadrangle  
Witherspoon Island, SC - 1982

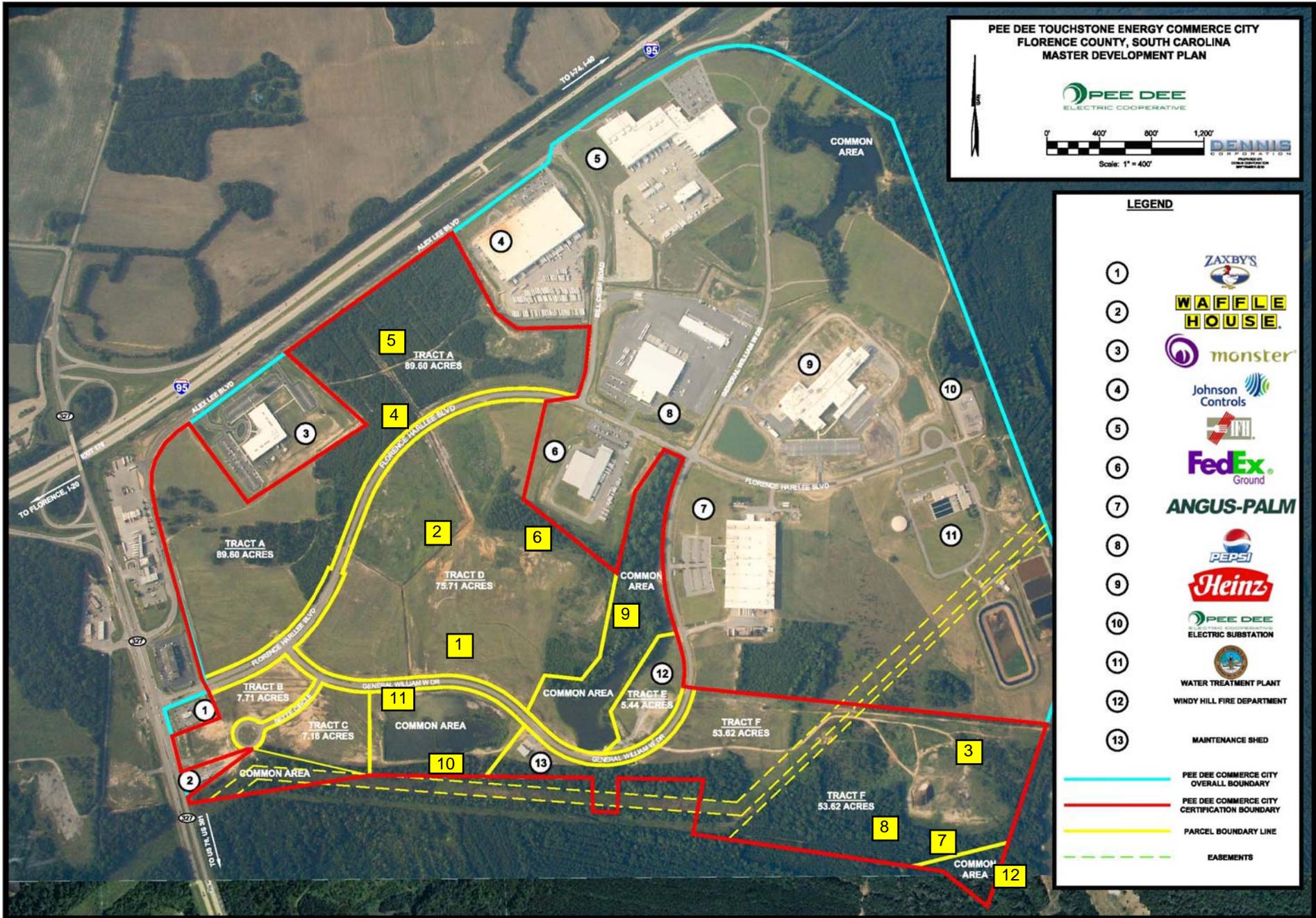


SCALE:	1 inch = 1,500 feet
CHECKED BY:	TB
DRAWN BY:	WCD
DATE:	12/13/2010



<b>Topographic Map</b>	
Pee Dee Touchstone Energy Commerce City Florence, Florence County, South Carolina	
S&ME PROJECT NO.	1614-10-255

FIGURE NO.	<b>2</b>
------------	----------



YELLOW NUMBERS = PHOTO NUMBERS

FIGURE 3 - AERIAL MAP



**Photo #1** The majority of the site is maintained open fields.



**Photo #2** Open fields surround the roads and ditches on the site.



**Photo #3** Portions of the site have recently been cutover or are regenerating fields.



**Photo #4** Early successional vegetation was observed in the northern portion of the site.



**Photo #5** Immature pine stands were observed in the northern portion of the site.



**Photo #6** A small stand of pines was observed near the center of the site.



**Photo #7** Pine – mixed hardwood uplands are located on the slopes between wetlands and the open fields.



**Photo #8** Pine – mixed hardwoods observed in the southern portion of the site.



**Photo #9** Forested wetlands in the central portion of the site.



**Photo #10** Forested wetland in the southern portion of the site.



**Photo #11** A detention pond was observed on the southern portion of the site.



**Photo #12** Perennial stream on the southeastern portion of the site.

## **APPENDIX B**

**County Species Lists from USFWS and SCDNR  
For Florence County**

**South Carolina List of Endangered, Threatened and Candidate Species  
March 2010**

E	Federally endangered
T	Federally threatened
P	Proposed in the Federal Register
CH	Critical Habitat
C	The U.S. Fish and Wildlife Service or the National Marine Fisheries Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species
S/A	Federally protected due to similarity of appearance to a listed species
*	Contact the National Marine Fisheries Service for more information on this species
**	The U.S. Fish and Wildlife Service and the National Marine Fisheries Service share jurisdiction of this species
BGEPA	Federally protected under the Bald and Golden Eagle Protection Act

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas where the species has a high possibility of occurring. Records are updated continually and may be different from the following. For a list of state endangered, threatened, and species of concern go to <http://www.dnr.sc.gov/species/index.html>.

<u>COUNTY</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
<b>Abbeville</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E
	Georgia aster	<i>Aster georgianus</i>	C
<b>Aiken</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Piedmont bishop-weed	<i>Ptilimnium nodosum</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Relict trillium	<i>Trillium reliquum</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum*</i>	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
	Wood stork	<i>Mycteria americana</i>	E
<b>Allendale</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum*</i>	E
	Smooth coneflower	<i>Echinacea laevigata</i>	E
	Wood stork	<i>Mycteria americana</i>	E

<u>COUNTY</u>	<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>
<b>Darlington Continued</b>	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
<b>Dillon</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
<b>Dorchester</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Bog asphodel	<i>Narthecium americanum</i>	C
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Pondberry	<i>Lindera melissifolia</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
	Wood stork	<i>Mycteria americana</i>	E
<b>Edgefield</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E, CH
	Georgia aster	<i>Aster georgianus</i>	C
	Miccosukee gooseberry	<i>Ribes echinellum</i>	T
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Relict trillium	<i>Trillium reliquum</i>	E
<b>Fairfield</b>	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Carolina heelsplitter	<i>Lasmigona decorata</i>	E
	Georgia aster	<i>Aster georgianus</i>	C
<b>Florence</b>	American chaffseed	<i>Schwalbea americana</i>	E
	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
	Shortnose sturgeon	<i>Acipenser brevirostrum</i> *	E
<b>Georgetown</b>	American chaffseed	<i>Schwalbea americana</i>	E
	Bald eagle	<i>Haliaeetus leucocephalus</i>	BGEPA
	Canby's dropwort	<i>Oxypolis canbyi</i>	E
	Finback whale	<i>Balaenoptera physalus</i> *	E
	Green sea turtle**	<i>Chelonia mydas</i> **	T

Rare, Threatened, and Endangered Species and Communities Known to Occur in Florence County  
October 1, 2009

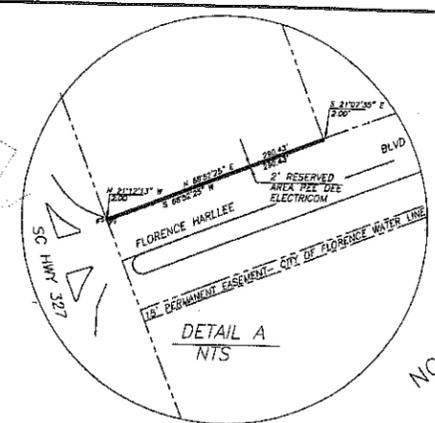
Scientific Name	Common Name	USESA Designation	State Protection	Global Rank	State Rank
<u>Vertebrate Animals</u>					
<i>Condylura cristata</i>	Star-nosed Mole			G5	S3?
<i>Haliaeetus leucocephalus</i>	Bald Eagle		SE-Endangered	G5	S2
<i>Lanius ludovicianus</i>	Loggerhead Shrike			G4	S3
<i>Picoides borealis</i>	Red-cockaded Woodpecker	LE: Listed endangered	SE-Endangered	G3	S2
<i>Rana palustris</i>	Pickerel Frog			G5	SNR
<u>Invertebrate Animal</u>					
<i>Elimia catenaria</i>	Gravel Elimia			G4	SNR
<i>Lampsilis cariosa</i>	Yellow Lampmussel			G3G4	S2
<u>Animal Assemblage</u>					
Waterbird Colony				GNR	SNR
<u>Vascular Plants</u>					
<i>Amorpha georgiana</i> var. <i>georgiana</i>	Georgia Leadplant			G3T2	S1
<i>Amphicarpum muehlenbergianum</i>	Blue Maiden-cane			G4	S2S3
<i>Asplenium resiliens</i>	Black-stem Spleenwort			G5	S1
<i>Carex amphibola</i>	Narrowleaf Sedge			G5	SNR
<i>Carex basiantha</i>	Widow Sedge			G5	S2
<i>Carex granularis</i>	Meadow Sedge			G5	S2
<i>Cayaponia quinqueloba</i>	Cayaponia			G4	S1?
<i>Coreopsis gladiata</i>	Southeastern Tickseed			G4G5	SNR
<i>Lobelia boykinii</i>	Boykin's Lobelia			G2G3	S3
<i>Lygodium palmatum</i>	Climbing Fern			G4	S3
<i>Macbridea caroliniana</i>	Carolina Bird-in-a-nest			G2G3	S3
<i>Oxypolis canbyi</i>	Canby's Dropwort	LE: Listed endangered		G2	S2
<i>Rhexia aristosa</i>	Awnead Meadowbeauty			G3	S3
<i>Rhododendron eastmanii</i>	May White			G2	S1
<i>Rhynchospora careyana</i>	Horned Beakrush			G4?Q	S3
<i>Rhynchospora tracyi</i>	Tracy Beakrush			G4	S3
<i>Rorippa sessiliflora</i>	Stalkless Yellowcress			G5	SNR
<i>Schwalbea americana</i>	Chaffseed	LE: Listed endangered		G2G3	S3

Scientific Name	Common Name	USESA Designation	State Protection	Global Rank	State Rank
<i>Silene ovata</i>	Ovate Catchfly			G3	SX
<i>Stachys latidens</i>	Broad-toothed Hedge-nettle			G4G5	S2
<i>Thelypteris ovata</i> var. <i>ovata</i>	Ovate Marsh Fern			G3G5T3T4	S1
<i>Urtica chamaedryoides</i>	Weak Nettle			G4G5	S2
<u>Communities</u>					
Bald cypress - tupelo gum swamp				G5	S4
Fagus grandifolia - quercus alba - (acer barbatum) / mixed herbs forest	Atlantic Coastal Plain Mesic Mixed Hardwood Forest			G4	SNR

# **APPENDIX C**

**Copy of Composite Plat  
Nesbitt Surveying Co., Inc.**

FILED  
200 OCT 24 P 2:47  
COUNTY CLERK  
FLORENCE COUNTY SC

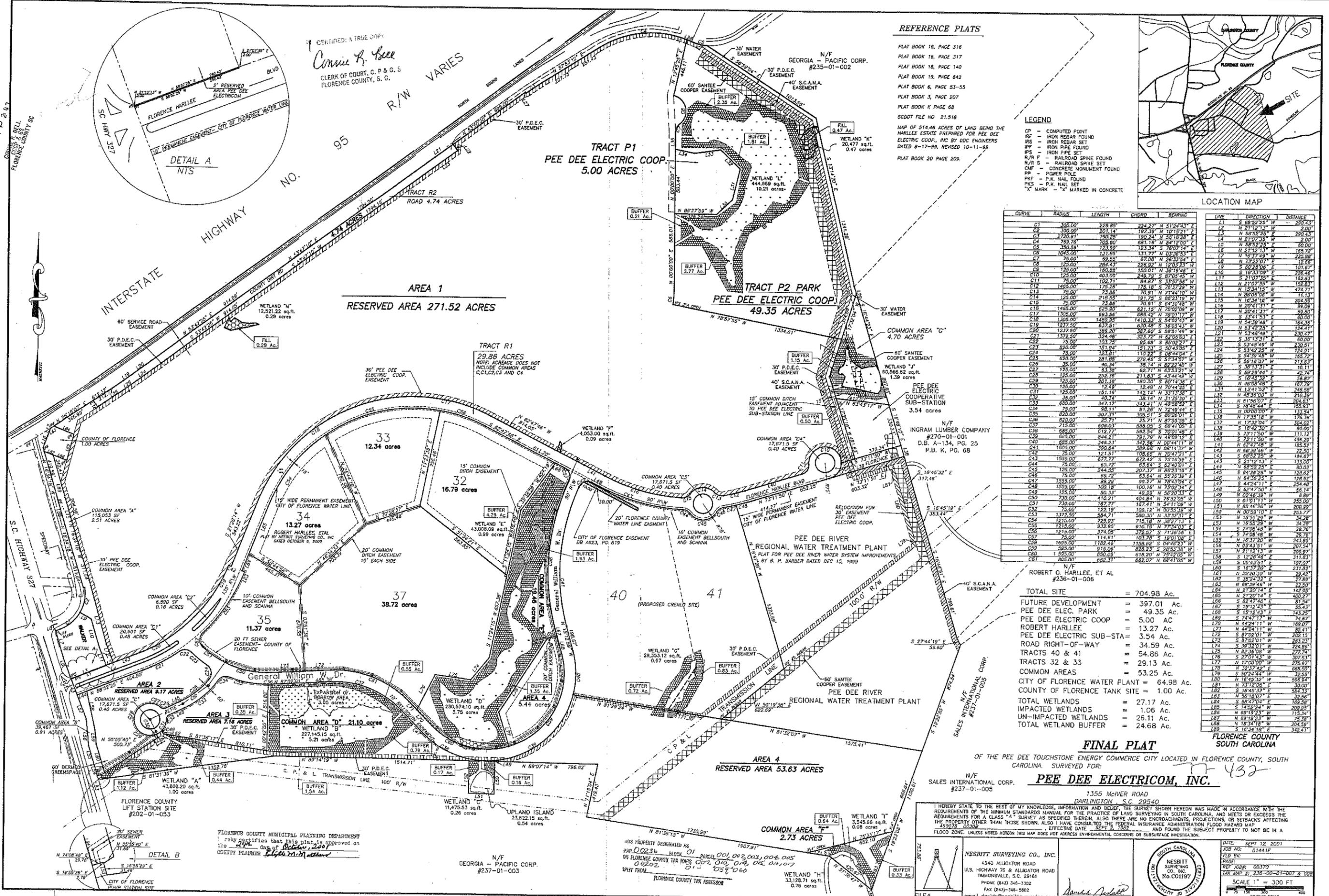
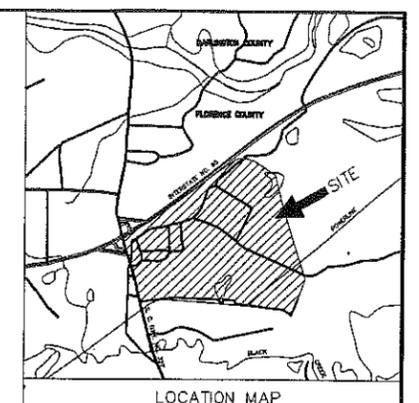


CERTIFIED A TRUE COPY  
Connie B. Lee  
CLERK OF COURT, C. P. & G. S.  
FLORENCE COUNTY, S. C.

REFERENCE PLATS

- PLAT BOOK 16, PAGE 316
  - PLAT BOOK 16, PAGE 317
  - PLAT BOOK 16, PAGE 140
  - PLAT BOOK 19, PAGE 642
  - PLAT BOOK 6, PAGE 53-55
  - PLAT BOOK 3, PAGE 207
  - PLAT BOOK K, PAGE 68
  - SCDOT FILE NO 21.518
- MAP OF 514.46 ACRES OF LAND BEING THE MARLEE ESTATE PREPARED FOR PEE DEE ELECTRIC COOP., INC BY DDC ENGINEERS DATED 8-17-99, REVISED 10-11-99
- PLAT BOOK 20, PAGE 209.

- LEGEND
- CP - COMPUTED POINT
  - RF - IRON REBAR FOUND
  - RE - IRON RESUR SET
  - IFP - IRON PIPE FOUND
  - R/S - RAILROAD SPIKE FOUND
  - R/S S - RAILROAD SPIKE SET
  - CMF - CONCRETE MONUMENT FOUND
  - PP - POWER POLE
  - PKF - P.K. NAIL FOUND
  - PKS - P.K. NAIL SET
  - "X" MARK - "X" MARKED IN CONCRETE



CURVE	RADIUS	LENGTH	CHORD	BEARING	LINE	DIRECTION	DISTANCE
C1	300.00'	228.85'	224.27'	N 51°24'43" E	L1	S 68°32'55" W	200.43'
C2	300.00'	201.14'	187.39'	N 10°15'21" E	L2	N 21°21'33" W	2.00'
C3	2720.91'	190.28'	190.24'	N 56°18'28" E	L3	N 68°58'25" E	200.23'
C4	789.76'	708.80'	681.18'	N 84°12'00" E	L4	N 21°07'35" W	2.00'
C5	360.58'	733.89'	123.34'	S 76°07'12" E	L5	N 68°52'23" E	80.00'
C6	1045.00'	131.85'	131.77'	N 03°36'53" E	L6	N 21°12'15" W	128.72'
C7	75.00'	88.85'	87.93'	N 12°01'54" E	L7	N 16°37'49" W	222.08'
C8	125.00'	284.43'	226.92'	N 28°33'54" W	L8	N 73°22'07" E	12.65'
C9	125.00'	180.88'	150.01'	N 36°19'46" E	L9	S 68°52'23" E	101.67'
C10	125.00'	403.00'	248.78'	S 87°05'45" W	L10	S 16°43'08" E	276.48'
C11	75.00'	102.91'	84.27'	S 33°53'58" W	L11	S 21°07'35" W	182.03'
C12	1465.00'	175.28'	175.18'	N 78°17'29" W	L12	N 21°07'35" W	152.83'
C13	75.00'	73.86'	70.31'	N 74°44'10" W	L13	N 15°44'15" E	124.71'
C14	125.00'	73.86'	70.31'	S 68°50'48" W	L14	N 88°06'08" W	11.13'
C15	75.00'	73.86'	70.31'	N 78°02'08" W	L15	N 16°44'18" W	204.59'
C16	1465.00'	625.80'	621.18'	N 78°02'08" W	L16	N 20°41'31" E	39.06'
C17	1305.00'	683.66'	685.42'	N 78°01'17" W	L17	N 20°41'31" E	39.06'
C18	1305.00'	140.88'	140.81'	S 83°59'53" W	L18	N 13°41'53" E	60.00'
C19	1272.50'	637.81'	630.28'	S 36°53'43" W	L19	N 54°30'48" E	164.36'
C20	1272.50'	388.20'	387.50'	S 59°31'49" W	L20	N 51°42'25" E	124.47'
C21	1322.50'	324.48'	322.72'	N 62°08'03" E	L21	N 57°48'49" E	230.27'
C22	75.00'	103.75'	89.68'	N 62°08'03" E	L22	S 36°13'31" E	60.00'
C23	820.00'	181.84'	181.73'	S 50°43'05" E	L23	S 57°48'49" E	230.27'
C24	75.00'	123.81'	110.27'	S 08°44'04" E	L24	S 54°30'48" W	168.72'
C25	620.00'	281.88'	279.42'	S 83°59'53" W	L25	S 57°48'49" E	230.27'
C26	35.00'	40.34'	38.14'	N 82°22'40" W	L26	S 57°48'49" E	230.27'
C27	125.00'	83.38'	82.71'	N 83°32'11" W	L27	S 57°48'49" E	230.27'
C28	125.00'	258.36'	211.63'	S 43°44'49" W	L28	S 57°48'49" E	230.27'
C29	122.00'	201.38'	180.33'	N 83°32'11" W	L29	S 57°48'49" E	230.27'
C30	128.00'	12.48'	12.48'	N 70°44'35" E	L30	N 48°38'48" E	167.79'
C31	125.00'	151.19'	142.14'	N 33°13'30" E	L31	N 48°38'48" E	167.79'
C32	125.00'	218.55'	219.42'	S 83°59'53" W	L32	N 11°11'52" E	248.51'
C33	680.00'	342.17'	343.41'	N 48°58'52" E	L33	N 81°06'07" E	204.63'
C34	75.00'	88.11'	81.28'	N 72°49'44" E	L34	S 78°48'49" E	135.83'
C35	820.00'	307.21'	305.51'	S 20°28'07" E	L35	N 02°00'00" E	133.94'
C36	820.00'	25.21'	25.21'	S 20°28'07" E	L36	N 17°35'18" W	176.38'
C37	718.00'	608.03'	588.03'	S 89°41'05" E	L37	N 17°35'18" W	176.38'
C38	645.00'	612.77'	582.34'	S 70°01'46" E	L38	N 17°35'18" W	176.38'
C39	645.00'	844.27'	291.75'	N 49°09'12" E	L39	S 23°11'50" W	111.12'
C40	698.00'	346.51'	342.56'	N 00°04'11" W	L40	S 23°11'50" W	111.12'
C41	1895.00'	380.84'	389.68'	N 08°14'37" W	L41	N 86°39'46" W	185.52'
C42	75.00'	121.51'	106.68'	N 70°47'21" E	L42	N 86°39'46" W	185.52'
C43	1895.00'	671.77'	672.42'	S 78°18'58" E	L43	N 86°39'46" W	185.52'
C44	75.00'	65.72'	63.54'	S 82°40'01" E	L44	N 86°39'46" W	185.52'
C45	125.00'	244.58'	207.37'	N 86°23'18" E	L45	S 84°38'25" W	128.82'
C46	75.00'	88.22'	83.64'	S 55°35'38" E	L46	N 84°38'25" W	128.82'
C47	1555.00'	88.22'	88.22'	N 78°43'04" E	L47	S 44°27'40" E	224.44'
C48	1555.00'	100.18'	100.18'	N 75°02'34" E	L48	S 44°27'40" E	224.44'
C49	125.00'	30.33'	49.89'	N 56°39'31" E	L49	N 00°46'38" W	8.89'
C50	730.00'	410.21'	428.88'	S 75°20'55" W	L50	N 00°46'38" W	8.89'
C51	730.00'	187.77'	187.41'	N 54°11'09" W	L51	N 00°46'38" W	8.89'
C52	75.00'	122.18'	108.12'	N 00°55'19" W	L52	N 00°46'38" W	8.89'
C53	1212.50'	584.71'	390.30'	N 33°42'31" E	L53	N 16°55'58" W	34.28'
C54	1212.50'	725.51'	715.18'	N 38°17'13" E	L54	N 16°55'58" W	34.28'
C55	1215.00'	939.55'	910.18'	N 77°54'03" E	L55	N 16°55'58" W	34.28'
C56	1215.00'	374.05'	374.57'	S 71°38'56" E	L56	S 74°08'48" W	59.78'
C57	75.00'	114.61'	103.78'	N 18°01'08" E	L57	N 16°37'20" W	243.85'
C58	1695.00'	1184.68'	1168.78'	N 18°01'08" E	L58	N 16°37'20" W	243.85'
C59	593.00'	916.06'	828.23'	S 28°33'38" W	L59	N 16°37'20" W	243.85'
C60	593.00'	850.08'	618.20'	N 78°22'05" W	L60	S 12°28'02" E	311.83'
C61	865.00'	662.31'	642.07'	N 88°47'08" W	L61	S 05°43'51" E	107.07'
C62	865.00'	662.31'	642.07'	N 88°47'08" W	L62	S 16°37'20" W	243.85'
C63	865.00'	662.31'	642.07'	N 88°47'08" W	L63	N 35°24'32" E	27.89'
C64	865.00'	662.31'	642.07'	N 88°47'08" W	L64	N 35°24'32" E	27.89'
C65	865.00'	662.31'	642.07'	N 88°47'08" W	L65	N 35°24'32" E	27.89'
C66	865.00'	662.31'	642.07'	N 88°47'08" W	L66	S 62°47'46" E	81.34'
C67	865.00'	662.31'	642.07'	N 88°47'08" W	L67	S 15°12'43" E	143.29'
C68	865.00'	662.31'	642.07'	N 88°47'08" W	L68	S 15°12'43" E	143.29'
C69	865.00'	662.31'	642.07'	N 88°47'08" W	L69	S 74°47'17" W	74.67'
C70	865.00'	662.31'	642.07'	N 88°47'08" W	L70	N 42°24'11" W	169.07'
C71	865.00'	662.31'	642.07'	N 88°47'08" W	L71	N 42°24'11" W	169.07'
C72	865.00'	662.31'	642.07'	N 88°47'08" W	L72	N 42°24'11" W	169.07'
C73	865.00'	662.31'	642.07'	N 88°47'08" W	L73	S 87°02'01" W	202.15'
C74	865.00'	662.31'	642.07'	N 88°47'08" W	L74	S 87°02'01" W	202.15'
C75	865.00'	662.31'	642.07'	N 88°47'08" W	L75	S 87°02'01" W	202.15'
C76	865.00'	662.31'	642.07'	N 88°47'08" W	L76	N 92°18'08" W	227.74'
C77	865.00'	662.31'	642.07'	N 88°47'08" W	L77	S 27°31'43" W	307.53'
C78	865.00'	662.31'	642.07'	N 88°47'08" W	L78	N 17°00'00" W	275.97'
C79	865.00'	662.31'	642.07'	N 88°47'08" W	L79	N 17°00'00" W	275.97'
C80	865.00'	662.31'	642.07'	N 88°47'08" W	L80	N 16°45'32" W	588.52'
C81	865.00'	662.31'	642.07'	N 88°47'08" W	L81	N 16°45'32" W	588.52'
C82	865.00'	662.31'	642.07'	N 88°47'08" W	L82	N 16°45'32" W	588.52'
C83	865.00'	662.31'	642.07'	N 88°47'08" W	L83	N 16°45'32" W	588.52'
C84	865.00'	662.31'	642.07'	N 88°47'08" W	L84	N 16°45'32" W	588.52'
C85	865.00'	662.31'	642.07'	N 88°47'08" W	L85	N 16°45'32" W	588.52'
C86	865.00'	662.31'	642.07'	N 88°47'08" W	L86	N 16°45'32" W	588.52'
C87	865.00'	662.31'	642.07'	N 88°47'08" W	L87	N 16°45'32" W	588.52'
C88	865.00'	662.31'	642.07'	N 88°47'08" W	L88	N 16°45'32" W	588.52'
C89	865.00'	662.31'	642.07'	N 88°47'08" W	L89	N 16°45'32" W	588.52'
C90	865.00'	662.31'	642.07'	N 88°47'08" W	L90	N 16°45'32" W	588.52'

ROBERT O. HARLLEE, ET AL  
#237-01-006

TOTAL SITE	= 704.98 Ac.
FUTURE DEVELOPMENT	= 397.01 Ac.
PEE DEE ELEC. PARK	= 49.35 Ac.
PEE DEE ELECTRIC COOP.	= 5.00 Ac.
ROBERT HARLLEE	= 13.27 Ac.
PEE DEE ELECTRIC SUB-STATION	= 3.54 Ac.
ROAD RIGHT-OF-WAY	= 34.59 Ac.
TRACTS 40 & 41	= 54.86 Ac.
TRACTS 32 & 33	= 29.13 Ac.
COMMON AREAS	= 53.25 Ac.
CITY OF FLORENCE WATER PLANT	= 64.98 Ac.
COUNTY OF FLORENCE TANK SITE	= 1.00 Ac.
TOTAL WETLANDS	= 27.17 Ac.
IMPACTED WETLANDS	= 1.06 Ac.
UN-IMPACTED WETLANDS	= 26.11 Ac.
TOTAL WETLAND BUFFER	= 24.68 Ac.

**FINAL PLAT**  
OF THE PEE DEE TOUCHSTONE ENERGY COMMERCE CITY LOCATED IN FLORENCE COUNTY, SOUTH CAROLINA. SURVEYED FOR:  
N/F SALES INTERNATIONAL CORP.  
**PEE DEE ELECTRICOM, INC.**  
1355 McIVER ROAD  
DARLINGTON, S.C. 29540

I HEREBY STATE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND WETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "B" SURVEY AS SPECIFIED THEREIN, ALSO THERE ARE NO ENCROACHMENTS, PROJECTIONS, OR SETBACKS AFFECTING THE PROPERTY OTHER THAN THOSE SHOWN. ALSO I HAVE CONSULTED THE FEDERAL INSURANCE ADMINISTRATION FLOOD HAZARD MAP 150078 0000B AND FOUND THE SUBJECT PROPERTY TO NOT BE IN A FLOOD ZONE, UNLESS NOTED HEREON THIS MAP DOES NOT ADDRESS ENVIRONMENTAL CONCERNS OR SUBSURFACE INVESTIGATION.

DATE: SEPT 12, 2001  
JOB NO: 01441F  
JOB BK: 2325  
REF PROJ: 00370  
TAX MAP #: 236-00-01-007 & 008  
SCALE 1" = 300 FT  
DRAWING SCALE

NESHITT SURVEYING CO., INC.  
4340 ALLEGATOR ROAD  
TIMMONSVILLE, S.C. 29161  
PHONE (843) 348-3302  
FAX (843) 348-5802  
email: davidn@neshittsurveying.com

DAVID A. NESHITT RLS NO 7222

FLORENCE COUNTY MUNICIPAL PLANNING DEPARTMENT  
I hereby certify that this plat is approved on the date of October 2, 2001  
COUNTY PLANNER Leah M. ...

N/F  
GEORGIA - PACIFIC CORP.  
#237-01-003

THIS PROPERTY DESIGNATED AS MAP 00236 BLOCK 01 PARCELS 001, 002, 003, 004, 005 ON FLORENCE COUNTY TAX MAPS 007, 018, 019, 010, 017, 02022, 011, 0587000  
NESHITT SURVEYING CO., INC.  
FLORENCE COUNTY TAX ASSESSOR