



ECS Carolinas, LLP
Geotechnical • Construction Materials • Environmental

August 16, 2007

Mr. Marvin Moss
Laurens County Development Corporation
P.O. Box 248
Laurens, South Carolina 29360

Reference: Report of Preliminary Wetlands and Endangered Species Observations
1,380 Acre Site
U.S. Highway 221
Laurens, Laurens County, South Carolina 29360
ECS Project 14-4125

Dear Mr. Moss:

ECS Carolinas, LLP (ECS) is pleased to provide the Laurens County Development Corporation with the results of our Preliminary observations of Wetlands and Waters of the U.S. and of Threatened and Endangered Species for the referenced property. ECS services were provided in general accordance with ECS Proposal No. 14-4902-P dated April 12, 2007 and authorized on April 28, 2007. This report summarizes our findings.

Background

The site reconnaissance was performed to identify potential wetlands and waters of the United States, and potential threatened and endangered species located on the property along the western frontage of U.S. Highway 221 in Laurens, South Carolina. According to the Laurens County Tax Assessor's Office, the site is comprised of nine (9) parcels, totaling an area of approximately 1,380 acres. The property is currently developed with H&H Grading in the eastern central region of the site. Electrical power line utility easements cross the eastern and southwestern regions of the subject site. A natural gas utility easement crosses the southern region of the property. The remainder of the parcel is undeveloped wooded and former agricultural property.

Preliminary Wetlands Observations

The purpose of this survey was to determine the potential presence of wetlands and jurisdictional waters of the US on the subject property. Methods for this determination were based on Routine Determination methods described in the US Army Corps of Engineers (USACE) 1987 Wetlands Delineation Manual. In addition to perennial and intermittent streams, jurisdictional waters of the U.S. include wetland areas that are defined in the manual as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The delineation procedure uses a multi-parameter approach which requires positive evidence of hydrophytic vegetation, wetlands hydrology, and hydric soils. Areas exhibiting all three criteria are

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vegetation, wetlands hydrology, and hydric soils. Areas exhibiting all three criteria are considered wetland areas and are deemed jurisdictional waters of the U.S. This survey is not a full delineation, and was performed only to determine the possible presence of jurisdictional waters on the subject site.

Literature Review

As determined from the 1983 Provisional Edition USGS 7.5 Minute Topographic Map "Laurens North, South Carolina" Quadrangle, the site displayed moderate topographic relief, with an elevation of approximately 220 feet above mean sea level. The property slopes downward toward the southern and western property boundaries. Surface runoff on the site is generally toward the Little River and the unnamed tributaries of Little River which cross the subject site. No ponds are depicted within the site boundaries on the USGS topographic map. Little River and several unnamed tributaries of Little River are depicted crossing the subject site. There are several drainage swales on the property, draining toward Little River, indicating potential areas for wetlands and waters of the U.S. A portion of the topographic map is presented in Appendix I as Figures 1. Figure 2 depicts the tax parcels of the property on the USGS Topographic Map.

The USDA NRCS Soil Survey for Laurens and Union Counties was reviewed for the subject site (Figure 3). Little River is depicted along the western property boundary. Several unnamed tributaries of Little River are depicted crossing the central and southern regions of the subject site. No ponds are depicted within the site boundaries on the Soil Survey map. The majority of mapped soils on the surveyed area are soil types commonly identified along streams. Appling soils (ApB and ApC) are identified throughout the subject site, and are well drained soils commonly identified on ridges and slopes adjacent to drainageways. Cartecay-Toccoa soils (Ca) are identified along the unnamed tributary in the central region of the subject site. Cartecay-Toccoa soils are commonly located on first bottoms of streams, and are subject to flooding, poor drainage, and a high water table. Catula soils (CdB2, CdC2 and CeC2) are identified throughout the subject site, and are well drained soils found on ridges and adjacent to drainageways. Cecil soils (CID, CmB2, and CmC2) are identified throughout the subject site, and are well-drained soils located on ridges and adjacent to drainageways and small or medium size streams. Enon soils (EnC) are identified in the central and southwestern regions of the subject site. Enon soils are well drained soils located on ridges and slopes adjacent to streams. Madison-Pacelot soil-unit (MhF), identified in the southern and central regions of the subject site, is composed of well drained soils located adjacent to streams. Pacelot soils (PaD2) are identified in the southern region of the subject site and are well drained soils located on eroded areas adjacent to streams. Wilkes soils (WIF) are identified in the central region of the subject site, and are well drained soils found on side slopes adjacent to streams. Chewalca soils (Cn), as identified along Little River in the western region of the property, are poorly drained soils commonly identified in wetland hardwood forests and on the flood plains of medium and large streams. The presence of these soils indicates potential wetland and waters of the U.S. on the subject site.

The Fish and Wildlife Service National Wetlands Inventory (NWI) map was reviewed for the subject area (Figure 4). Little River is depicted along the western property boundary. Potential wetlands areas are depicted along Little River in the southwestern region of the subject site. Additional potential wetland areas are depicted on the northwestern region of the property, to the east of the Little River. An unnamed tributary of Little River is depicted crossing the central region of the subject site. Potential wetland areas are depicted along this unnamed tributary in the southern central region of the subject site. A potential wetland area is identified on the NWI map in the southeastern corner of the subject site. No additional streams, ponds, wetlands, or other waters of the US were depicted on the surveyed area in the NWI Map.

Site Reconnaissance

Ms. Lara McBride of ECS conducted the site reconnaissance on May 9 and 10, 2007. The subject area was determined using an aerial photograph of the subject property (Figure 5), the USGS "*Laurens North, SC*" topographic map, and information provided by Mr. Marvin Moss of Laurens County Development Corporation. The site was observed for potential wetland indicators which include wetland hydrology, wetland soils, and hydrophytic vegetation. The areas of potential wetlands and waters of the US were not confirmed or delineated as a part of this report.

Little River was observed along the western property boundary. Several streams were observed in the central and southern regions of the subject property, draining into Little River at the southwestern region of the property. Another stream was observed in the northern region of the subject site draining into Little River in the northwestern region of the subject site. These streams were not formally delineated as a part of this report. ECS recommends that they be delineated and confirmed with the US Army Corps of Engineers prior to any construction activities on the subject site.

The subject site showed a dominance of hydrophytic vegetation. Dry drainage pathways were observed running to unnamed tributaries which cross the subject site, draining into Little River at the western property boundary. Hydric vegetation was observed along the drainage pathways. Areas of standing water and saturated soil were observed along Little River and several tributaries, including the tributaries in the northwestern region of the subject site, and the tributary in the central region of the subject site. These areas near the streams appeared to be saturated, and appeared to be potential wetland areas. These areas were not formally delineated as a part of this report. ECS recommends that they be delineated and confirmed with the US Army Corps of Engineers prior to any construction activities on the subject site.

Photographs taken at the time of the site reconnaissance are included with this report.

Conclusions

Potential jurisdictional waters of the U.S. were observed within the boundaries of the surveyed area during the site reconnaissance. Little River crosses the western region of the

property. Several unnamed tributaries cross the central and southern regions of the property draining into Little River. An unnamed tributary in the southern region of the property has been partially dammed to create an agricultural pond. Adjacent to the banks of the pond are areas of saturated soils, indicated potential wetland areas. An unnamed tributary in the northern region of the subject site lies in a topographically low area, and there were areas of standing water and saturated soils adjacent to it, indicated potential wetland areas. Potential wetland areas are marked on Figure 6. This survey is preliminary in its findings, and these potential areas of wetlands and Waters of the U.S. do not represent all potential wetland areas on the subject property.

These areas are potential jurisdictional waters of the US. ECS recommends that the subject site should be formally delineated to determine the extent of the wetlands and waters of the US on the subject property. ECS recommends that this delineation be confirmed with the US Army Corps of Engineers. Any proposed impacts to jurisdictional wetlands and waters of the US would require a Nationwide or Individual Permit issued by the USACE, and Water Quality Certification issued by the SC Department of Health and Environmental Control, Division of Water Quality (SCDHEC DWQ). Plans for development of the subject site as a proposed retail center should be designed to avoid or minimize impacts to the suspected jurisdictional areas, to minimize any permitting required through the USACE and the SCDHEC Division of Water Quality.

Preliminary Threatened and Endangered Species Observations

Literature Review

The USDA/NRCS Soil Survey of Laurens and Union Counties (Figure 3) was also reviewed. Endangered plant species can be limited by the soil type on which they are able to grow. The soils on the subject site, as mapped in the USDA/NRCS Soil Survey, do not fulfill habitat requirements of the endangered species listed in Laurens County or its neighboring counties.

Threatened and endangered species listed by the United States Fish and Wildlife Service (US FWS) known to exist in habitats likely to occur in the region of the subject site were researched prior to the field assessment. According to the South Carolina Department of Natural Resources (SCDNR) database, Laurens County has no known occurrences of threatened or endangered species. Threatened and endangered species listed by the US FWS known to exist in neighboring counties in South Carolina were also researched. A listing of the species surveyed and their habitat requirements, as listed by the SCDNR, is included as an attachment to this report.

Site Reconnaissance

On May 9 and 10, 2007, ECS employee Lara E. McBride surveyed the subject site for potential threatened and endangered species. The site was observed for occurrences of threatened and endangered species known to exist in Laurens County and the counties neighboring Laurens County. The surveyed wooded area of the subject site was found to be

occupied by various species of grasses, shrubs, pines, and hardwoods typical for the Upstate of South Carolina. The forested areas were found to be occupied with mature hardwoods and pines, related saplings in the under-story, and low-lying grasses, shrubs and fern species that were observed extensively throughout the limits of the subject site. Typical species found there included Sweet Gum, Birch, American Holly, Tulip Poplar, Beech, White and Loblolly Pines, Ivy and Poison Ivy.

No rare, threatened, or endangered species were identified in the limits of the subject property. No evidence of habitats likely to house rare, threatened or endangered species was observed in the limits of the surveyed area. Photographs taken during the threatened and endangered species survey are included with this report. This study is limited to the observations and conditions encountered during the ECS field reconnaissance. Please be aware that this study is not an absolute and species (particularly birds and other ambulatory species) may be observed at or near the site in the future.

Conclusions

During the species survey performed by ECS personnel, no rare, threatened or endangered species were identified in the area to be cleared. Based on the habitat requirements of the threatened and endangered species known to exist in neighboring counties, as listed by the SCDNR, the area of the subject site does not possess the necessary habitat requirements for these species. Therefore, there should be no effect to listed species, based on the apparent absence of such species on the site. Effects to the surrounding properties from the site's construction should be minimal, and should not adversely affect any endangered or threatened species that might be present on neighboring sites.

We appreciate the opportunity to be of service to you during the planning phase of this project and look forward to our continued involvement during the final design and construction phases. If there are questions regarding this report, or a need for further information, please contact us.

Respectfully submitted,

ECS Carolinas, LLP represented by:



Lara McBride
Wetlands Scientist



Jeffrey V. Watson, M.S.
Principal Manager

Attachment Figures
 Site Reconnaissance Photographs
 Threatened and Endangered Species, Listings by County

Threatened and Endangered Species

Listings by County
As Listed By SCDNR

Laurens County

No Threatened or Endangered Species Listed

Abbeville County

Bald Eagle

- Federally Threatened/State Endangered
- *Haliaeetus leucocephalus*
- Bald eagles are able to live anywhere on the North American continent where there are adequate nest trees, roosts and feeding grounds.
- Open water such as a lake or an ocean, however, is a necessity.

Greenville County

American Peregrine Falcon

- State Endangered
- *Falco peregrinus anatum*
- Typically found on barrier island beaches and waterfowl impoundments in South Carolina and Georgia.
- Also found in big cities where pigeons are easy and abundant prey.
- Do not build their own nests (called eyries) – use other birds' nests or crevices in trees or cliffs.
- A pair of falcons was observed nesting at Caesar's Head in Greenville County in 1933. Since then, no other falcons nested in the state until May of 1990. In 1990, a nesting pair was reported at Table Rock, and this area has been successfully nested ever since.

Bog Turtle

- Federally Threatened/State Threatened
- *Glyptemys myhlenbergii*
- Shallow and rather ephemeral wetland types – occur in saturated, usually spring-fed wetlands (incl. bogs, fens, wet meadows, sedge marshes, and alder, tamarack or spruce swamps)
- From sea level up to 1300 meters elevation.
- Relatively open with slowly flowing small streams, rivulets, or surface seepages – soft muddy or silty bottom substrates
- Vegetation dominated by clumped grasses and sedges – biotic diversity often very high in these habitats (ex: over 150 plant species reported in one small Tennessee bog)

Bunched Arrowhead

- Federally Endangered/State Endangered

- *Sagittaria fasciculata*
- Very gently sloping areas with some standing water refreshed by slow continuous seepage of cool clear water - very low water flow and no stagnation
- Soils are sandy loams overlain by muck 10-24 inches deep; some shade is beneficial.
- Appropriate habitat typically found in a narrow band at the bluff-floodplain ecotone.
- The seeps originate at the base of the bluffs and *Sagittaria fasciculata* is generally found near, but not at, the origin of the seep (water flow at the seep origin is usually too swift or too heavy to allow for colonization).
- Appropriate habitats often continue along the edge of the bluff downslope from the seep, but generally do not extend far into the floodplain proper because there the seepage tends to spread out and the water stagnates.

Dwarf-flowered Heartleaf

- Federally Threatened/State Threatened
- *Hexastylis naniflora*
- Acidic sandy loam soils along bluffs and nearby slopes, hillsides and ravines, in boggy areas adjacent to creekheads and streams.
- Soil type is the most important habitat requirement (Pacolet, Madison, or Musella types).
- Needs sunlight in early spring for maximum flowering and seed production.

Eastern Small-footed Myotis (bat)

- State Threatened
- *Myotis leibii*
- Wild, heavily forested, mountain regions
- Frequently but not exclusively in caves in hemlock forests.
- Known from hemlock forest habitats and from rock falls, caves, mines and rock crevices associated with hemlock forest regions.
- During the summer, these bats are usually found in buildings, towers, hollow trees, beneath the loose bark of trees, in crevices of cliffs, and beneath bridges.
- During winter, these colonial bats move into caves and abandoned mines where they either hang individually or in small clusters of 25 to 30. These are the only known winter habitat. It is active in late winter and hibernates in cold, dry areas near cave entrances (drafty, low humidity, may be subfreezing).
- Have been found in mountains rising to 2000 feet

Mountain Sweet Pitcher-Plant

- Federally Endangered/State Endangered
- *Sarracenia rubra ssp. Jonesii*
- Restricted to bogs and streamsides along the Blue Ridge Divide
- Generally found in level depressions associated with floodplains.
- Sometimes found along the sides of waterfalls on granite rock faces.
- Herbs and shrubs usually dominate the bogs where these plants are located, but there may be a few scattered trees.
- The bog soils are deep, poorly-drained combinations of loam, sand, and silt, with a high organic matter content and a medium to highly acidic composition.

Rafinesque's Big-eared Bat

- State Endangered
- *Corynorhinus rafinesquii*
- In South Carolina they are permanent residents of the coastal plain and hibernate rather than move south during winter months.
- Big-eared bats characteristically roost in dilapidated buildings or tree cavities near water. In some portions of their range, hibernating bats are found in caves, wells, and similar habitats.

Rocky Gnome Lichen

- Federally Endangered/State Endangered
- *Gymnoderma lineare*
- On shady vertical rock faces in areas of high humidity:
At high elevations (usually vertical cliff faces, frequently bathed in fog)
- At lower elevations, on boulders & large rock outcrops in deep river gorges Needs high humidity, but where seepage water from forest soils above the cliffs flows at (and only at) very wet times.
- Most populations occur above an elevation of 1,524 meters (5,000 feet).

Reflexed Blue-eyed Grass (also known as White Irisette)

- Federally Endangered/State Endangered
- *Sisyrinchium dichotomum*
- White irisette is endemic to the upper piedmont of North and South Carolina. It is currently known from 4 populations in North Carolina and 1 in South Carolina. The single extant site in SC is in Greenville County, which is contiguous with one of the Polk County, NC, sites. This species has apparently always been limited to an area in the Carolinas bounded by White Oak Mountain, Sugarloaf Mountain, Chimney Rock, and Melrose Mountain
- Occurs on rich, basic soils probably weathered from amphibolite.
- Grows in clearings and the edges of upland woods where the canopy is thin and often where down-slope runoff has removed much of the deep litter layer ordinarily present.
- Dependent on some form of disturbance to maintain the open quality of its habitat - currently depending on artificial disturbances - ex: power line and road right-of-way maintenance (where they are accomplished without herbicides and during a season that does not interfere with the reproductive cycle of this species). Unfortunately road maintenance is known to hurt these plants so artificial disturbance is clearly not as good as the original natural disturbance that this species relied on (probably fire and grazing).

Small whorled Pogonia

- Federally Threatened/State Threatened
- *Isotria medeoloides*
- Does not appear to exhibit strong affinities for a particular aspect, soil type, or underlying geologic substrate.
- Typically found in montane oak-hickory or acidic cove forests (deciduous or deciduous-coniferous forests)

- Occur on slopes where soils are influenced by water draining from upslope areas. (Therefore, buffer lands need to cover the actual acreage supporting the plant and all upslope lands to ensure that crucial water drainage processes are maintained)
- Acidic soils, in dry to mesic second-growth forests; Although soil moisture varies seasonally and can be difficult to measure, *I. medeoloides* populations tend to occur on soils ranging from dry-mesic to wet-mesic.
- Typically with light to moderate leaf litter, an open herb layer (occasionally dense ferns), moderate to light shrub layer, and relatively open canopy
- Frequently occurs on flats or slope bases near canopy breaks
- Sites currently or historically known to support this species range from 2000 to 4000 feet in elevation.

Swamp-pink

- Federally Threatened/State Threatened
- *Helonias bullata*
- Basal, evergreen leaves, up to 3 dm long, elongate-spatulate
- Flowering stems, usually 3-8 dm tall, bear a dense terminal cluster of fragrant pink flowers, 1 cm wide.
- Typically very few plants in each population produce flowers.
- Blooms from early April into mid-May.

Greenwood County

Bald Eagle

- Federally Threatened/State Endangered
- *Haliaeetus leucocephalus*
- Bald eagles are able to live anywhere on the North American continent where there are adequate nest trees, roosts and feeding grounds.
- Open water such as a lake or an ocean, however, is a necessity.

Carolina Heelsplitter

- Federally Endangered/State Endangered
- *Lasmigona decorate*
- Once found in large rivers and streams
- The Carolina heelsplitter is now restricted to cool, clean, shallow, heavily shaded streams of moderate gradient.
- Stable streambanks and channels, with pool, riffle and run sequences, little or no fine sediment, and periodic natural flooding, appear to be required.
- Although the heelsplitter is found in some degraded streams, such as Waxhaw Creek, it appears to be restricted to the highest quality portions of those streams.

Newberry County

Bald Eagle

- Federally Threatened/State Endangered

- *Haliaeetus leucocephalus*
- Bald eagles are able to live anywhere on the North American continent where there are adequate nest trees, roosts and feeding grounds.
- Open water such as a lake or an ocean, however, is a necessity.

Wood Stork

- Federally Endangered/State Endangered
- *Mycteria Americana*
- The Wood Stork is the only stork in North America.
- It frequents mangroves, swamps, marshes, and streams.
- It forages in very shallow water. Food items include fish, amphibians, aquatic invertebrates, and crustaceans.

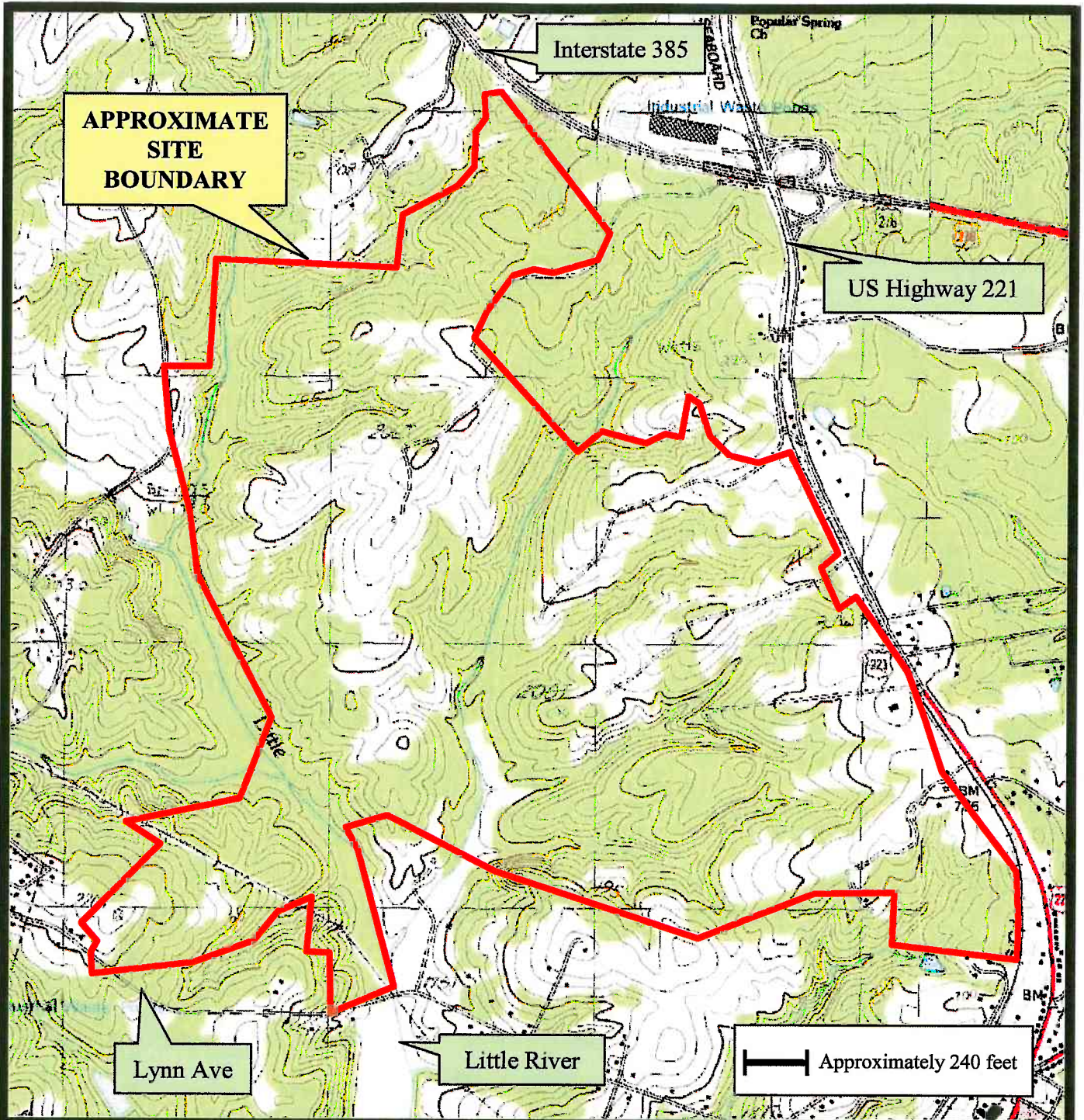
Spartanburg County

Dwarf-flowered Heartleaf

- Federally Threatened/State Threatened
- *Hexastylis naniflora*
- Acidic sandy loam soils along bluffs and nearby slopes, hillsides and ravines, in boggy areas adjacent to creekheads and streams.
- Soil type is the most important habitat requirement (Pacolet, Madison, or Musella types).
- Needs sunlight in early spring for maximum flowering and seed production.

Union County

No Threatened or Endangered Species Listed



Scale: As Shown

USGS Topographic Map

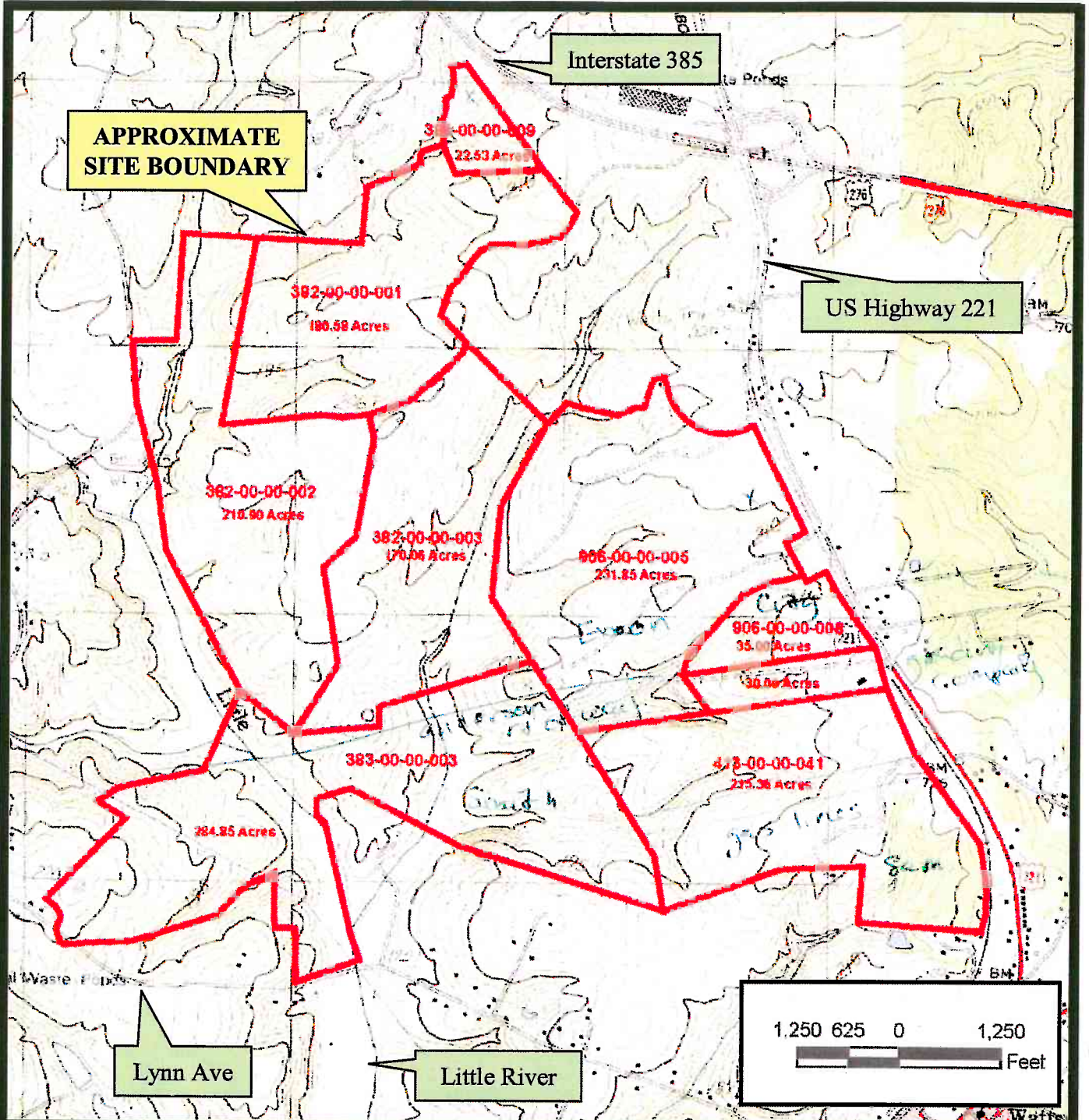
Source: USGS Topographic Map "Laurens North, South Carolina" dated 1983



Preliminary Wetlands and Threatened and Endangered Species Surveys
1,380 Acre Site
US Highway 221
Laurens, South Carolina



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Figure 1



Scale: As Shown

Tax Parcels of Subject Site

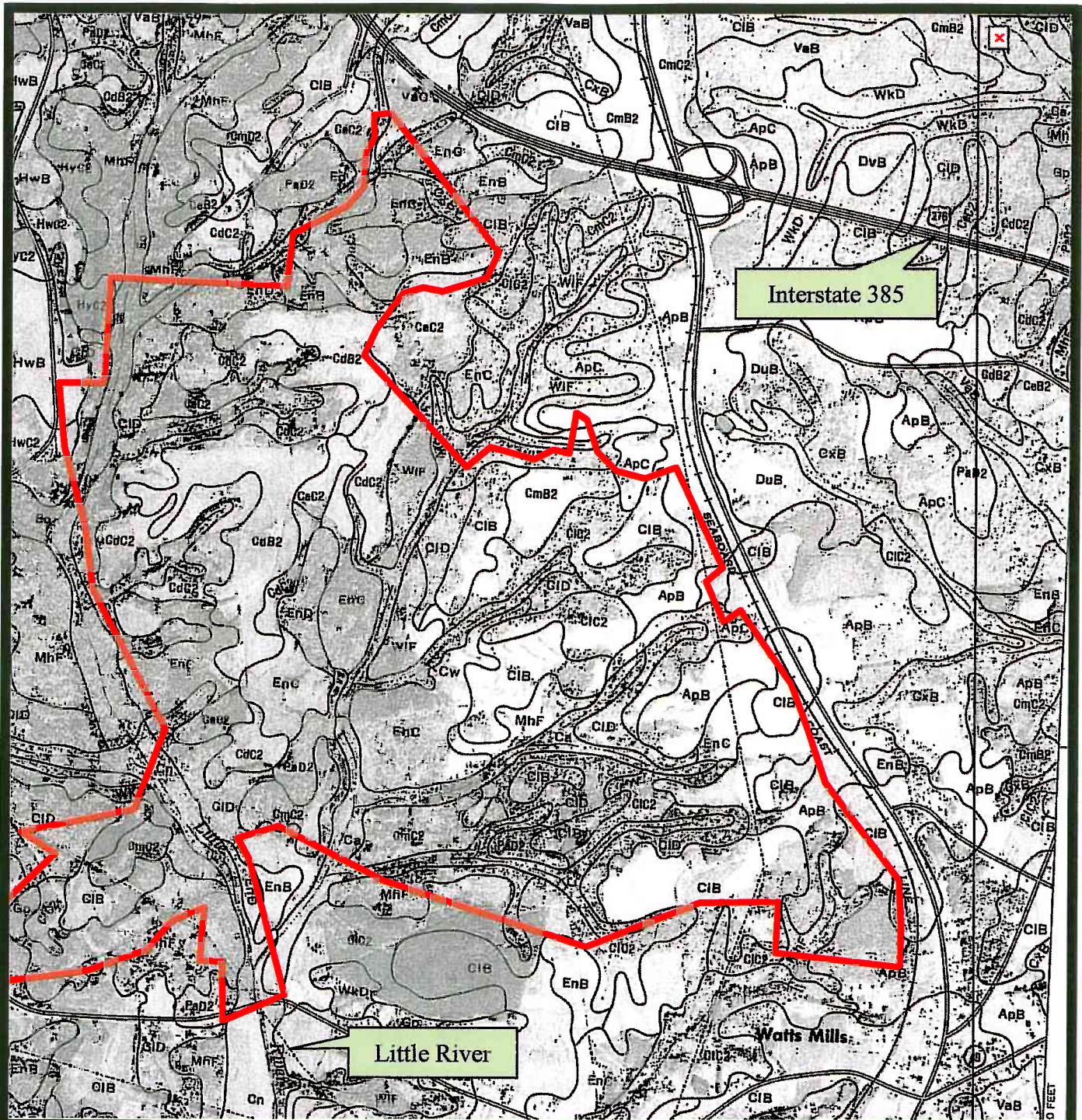
Source: Laurens County Development Corporation



Preliminary Wetlands and Threatened and Endangered Species Surveys
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 Figure 2



Interstate 385

Little River

Scale: As Shown

Soil Survey Map

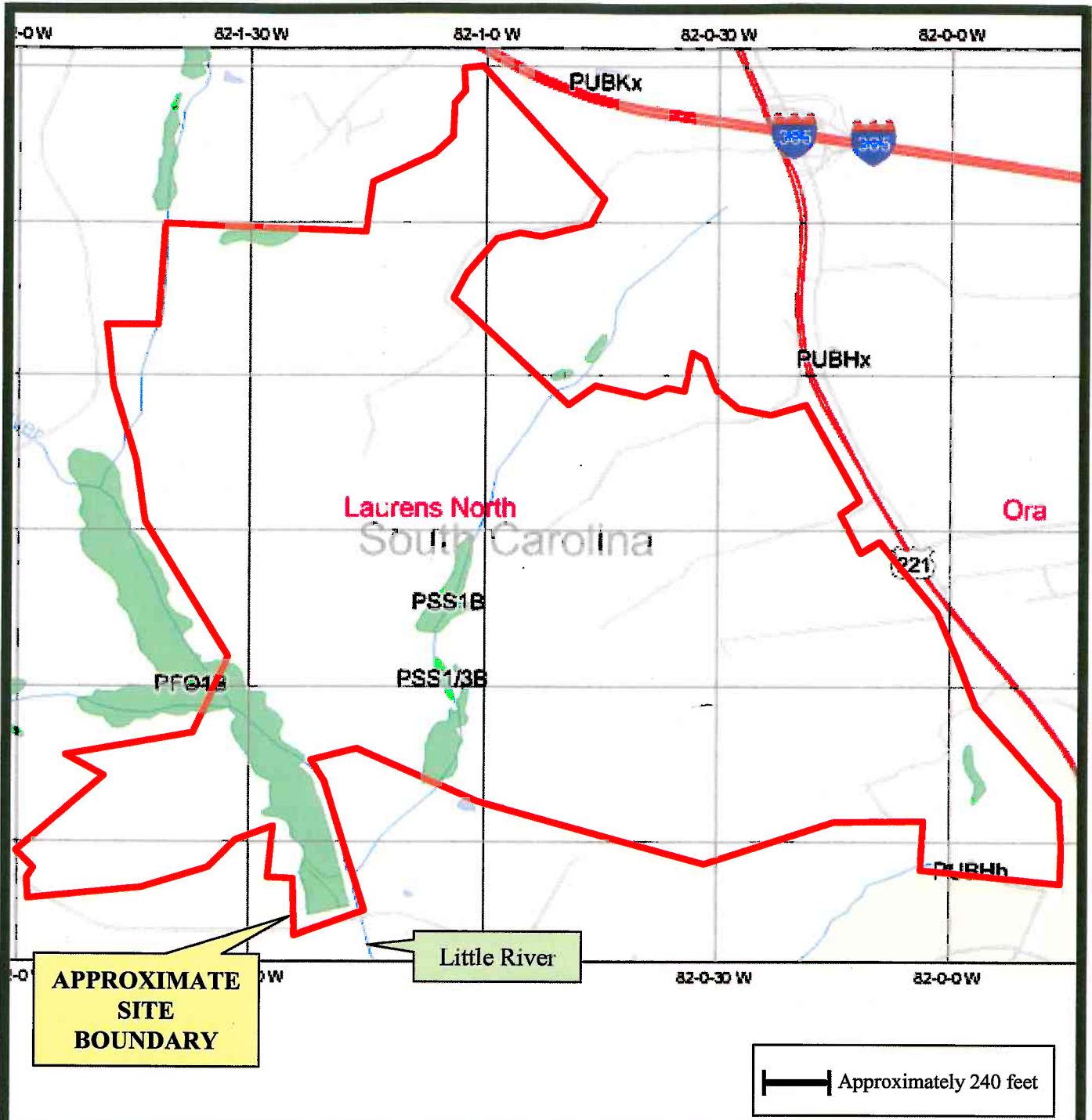
Source: USDA/NRCS Soil Survey of Laurens and Union Counties



Preliminary Wetlands and Threatened and Endangered Species Surveys
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 Figure 3



Scale: As Shown

NWI Map

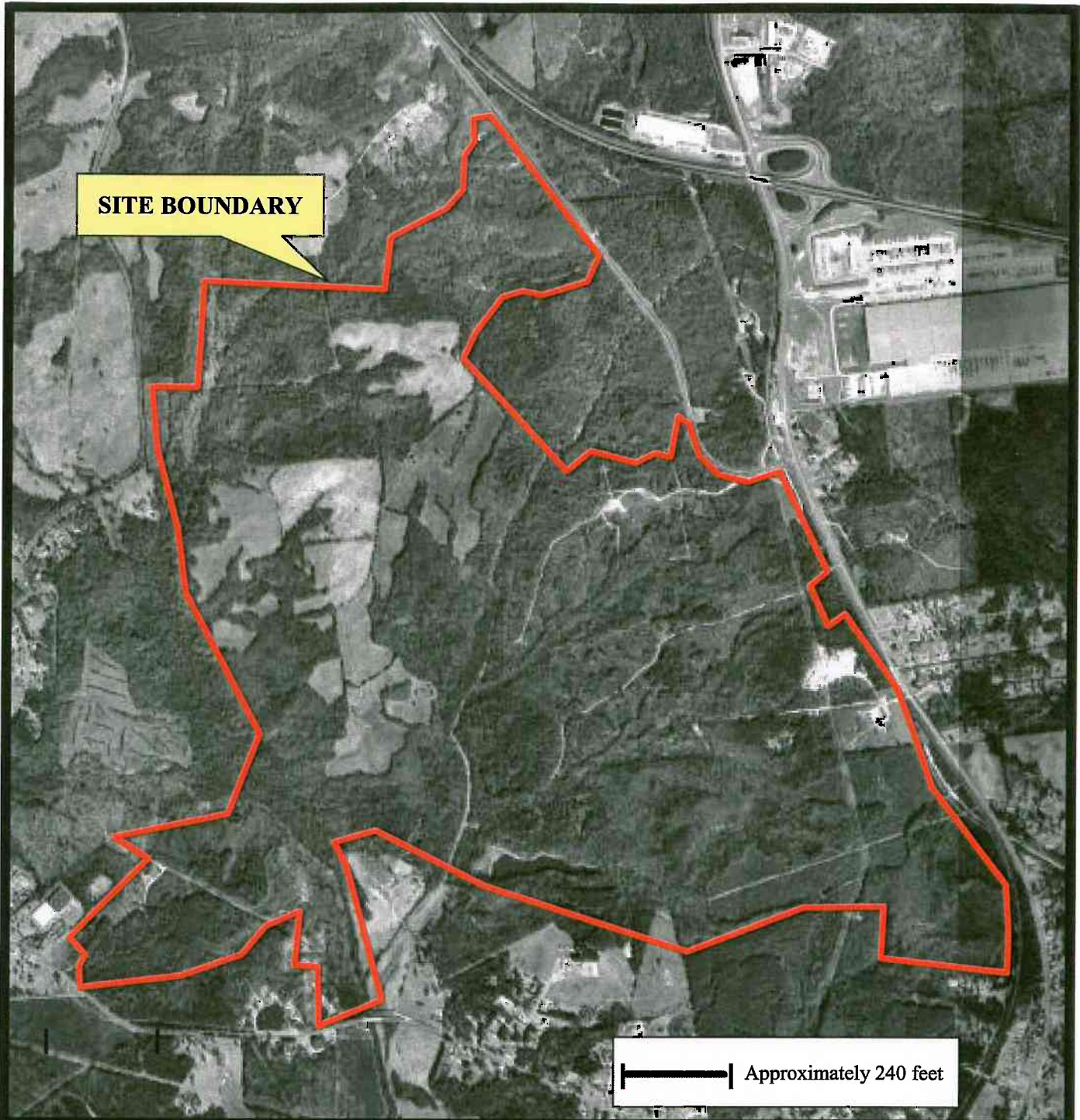
Source: USFWS National Wetlands Inventory Online Mapper



**Preliminary Wetlands and Threatened
and Endangered Species Surveys**
1,380 Acre Site
US Highway 221
Laurens, South Carolina



ECS Project No. 14-4125
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Figure 4



Scale: As Shown

Aerial Photograph

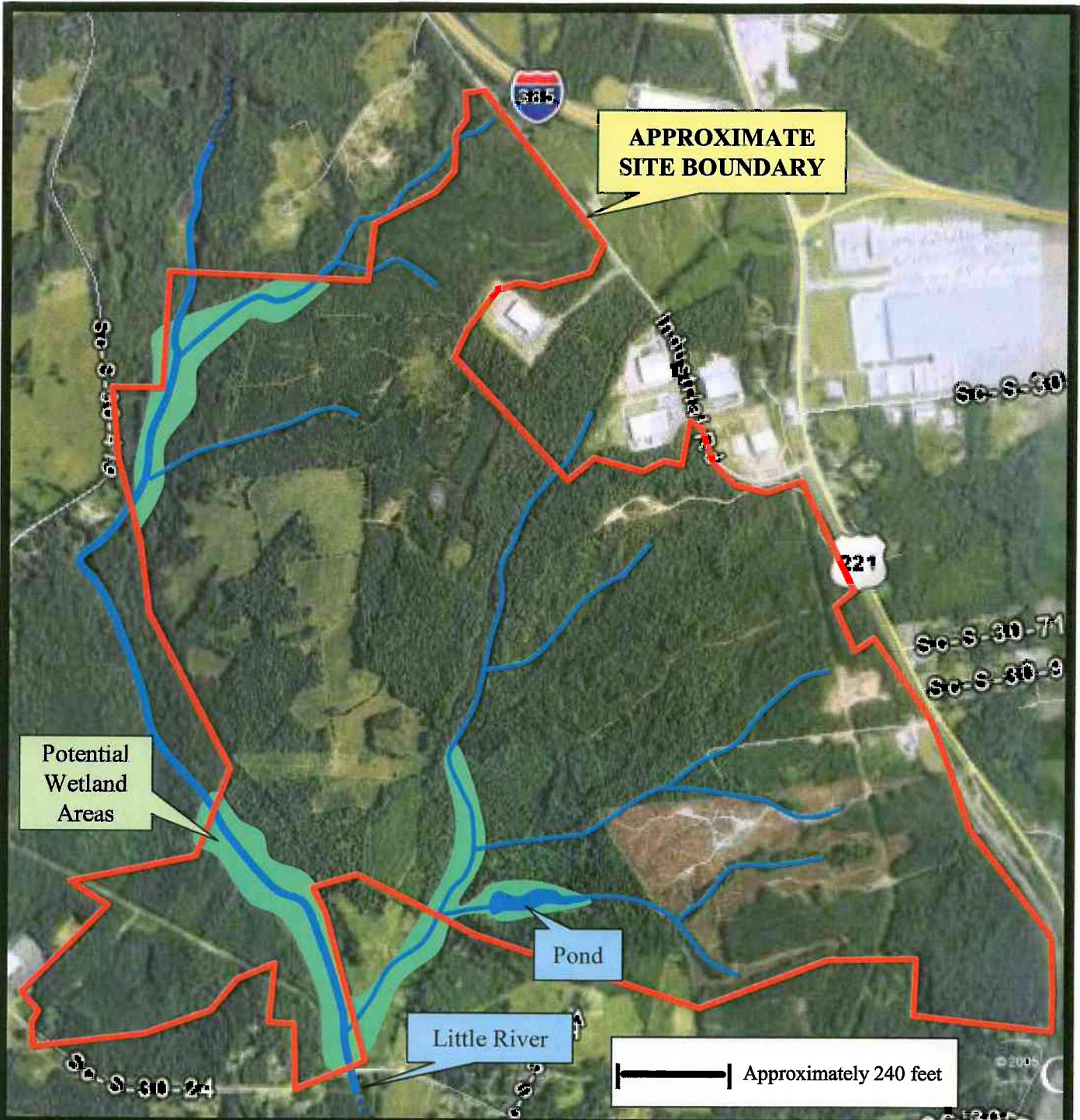
Source: www.terraserver-usa.com



**Preliminary Wetlands and Threatened
and Endangered Species Surveys
1,380 Acre Site
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**ECS Project No. 14-4125
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Figure 5**



Scale: As Shown

Potential Wetlands and Waters of the U.S.

Source: Google Earth



Preliminary Wetlands and Threatened and Endangered Species Surveys
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Figure 6

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Photograph No. 1

View of H & H Grading and associated parking area



Photograph No. 2

View of entrance to H & H Grading

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Photograph No. 3
View of electrical easement on subject site.



Photograph No. 4
Dirt and gravel road leading into parcel from H & H Grading

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Photograph No. 5
Tributary to Little River observed at subject site



Photograph No. 6
Field area at subject site



Photograph No. 7
Drainageway to tributary of Little River.



Photograph No. 8
Wooded area at subject site



Photograph No. 9

Dry drainageway in northern region of subject site.



Photograph No. 10

Tributary to Little River observed at subject site

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Photograph No. 11

Footbridge across unnamed tributary in northern region of subject site.



Photograph No. 12

Potential wetland area along streams in northwestern region of property.

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Photograph No. 13
Eastern end of pond on the subject site



Photograph No. 14
Pond in southern region of property

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Photograph No. 15
Unnamed tributary on subject site.



Photograph No. 16
Representative woodland area