



DESKTOP WETLAND ASSESSMENT

Highland Square Apartments

200 Pine Creek Court
Greenville, South Carolina 39605

Report Date

September 30, 2024

Partner Project No.

24-463472.3

Prepared for:

Related Affordable
New York, New York 10001



Building
Science



Environmental
Consulting



Construction &
Development



Energy &
Sustainability



September 30, 2024

Mr. Tyler Percell
Related Affordable
30 Hudson Yards
New York, New York 10001

Subject: Desktop Wetland Assessment
Highland Square Apartments
200 Pine Creek Court
Greenville, South Carolina 39605
Partner Project No. 24-463472.3

Dear Mr. Purcell:

Partner Engineering and Science, Inc. is pleased to provide the results of the Desktop Wetland Assessment (DWA) performed on the above-referenced property. This assessment is intended to be used as a limited screening tool to indicate the likely presence or absence of wetland conditions on the subject property. The assessment is based on readily available information presented by regulatory agencies and, if possible, site conditions described in previous reports prepared for the subject property.

We appreciate the opportunity to provide these assessment services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact Scott Chiu at (214) 234-9561 or schiu@partneresi.com.

Sincerely,

Partner Engineering and Science, Inc.

Katie L. Morgan, PWS, EP
Director of Natural and Cultural Resources
Professional Wetland Scientist (#3100)

Scott Chiu
Relationship Manager

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The following report Figures and Appendices are attached at the end of this report.

FIGURES

- Figure 1:** Site Location Map
Figure 2: Site Plan
Figure 3: Topographic Map

APPENDICES

- Appendix A:** Supporting Documentation

1.0 WETLAND DESKTOP ASSESSMENT

Partner has performed a DWA for the subject property. Wetlands are areas that must meet three criteria: hydric soils, wetland vegetation, and wetland hydrology. The legal definition of a wetland is:

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. Wetlands generally include swamps, marshes, bogs and similar areas. (33 CFR §328.3(b)).

A qualified environmental professional reviewed readily available information presented by regulatory agencies and, if possible, site conditions described in previous reports prepared to preliminarily identify areas of interest on the subject property.

1.1 Property Description

The subject property is located at 200 Pine Creek Court in Greenville, South Carolina, on the northwest side of Pine Creek Drive and the southeast side of Pine Creek Court Extension within a mixed commercial and residential area of Greenville County. The subject property is identified as Tax Map Number WG02030101200. The subject property consists of approximately 13.4 acres of land and is developed with Highland Square Apartments. The development consists of 10 two- and three-story apartments buildings with a total of 152 units. In addition to the onsite buildings, the subject property is improved with a one-story leasing office, pool, tennis court, playground, paved drives and parking areas, and associated landscaping. The subject property is accessed along the northwest property boundary via Pine Creek Court Extension.

The immediately surrounding properties consist of undeveloped woodland to the north; single-family residences to the northeast; single-family residences to the southeast; and woodland followed by a FedEx facility to the northwest across Pine Creek Court Extension.

1.2 Historical Information

Readily available historical aerial photographs and topographic maps were reviewed to identify the historical use of the subject property, visible water features and indications of wetland and/or marsh features.

According to available historical sources, the subject property was formerly partially cleared land and woodland as early as 1947; and developed with the current structures in 1979. Based on a review of available historical imagery, obvious inundation, and/or saturation were not visible on the subject property.

Historical topographic maps and aerial photographs are included in Appendix A.

1.3 Current Freshwater Environments

Based on a review of online imagery, no freshwater environments are visible on the subject property at this time.

Based on a review of the United States Fish and Wildlife (USFW), National Wetland Inventory (NWI) online wetland map, neither current nor historic wetland areas are depicted on the subject property.

The State of South Carolina does not maintain an additional Interactive Wetland map, and the South Carolina Department of Natural Resources (DNR) references the USFWS NWI

A copy of the supporting soil information along with the USFW NWI wetland map is included in **Appendix A**.

1.4 Vegetation

According to the 1987 USACE Wetland Delineation Manual, hydrophytic vegetation is defined as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

According to the U.S. Army Corps of Engineers 2020 National Wetland Plant List, version 3.5 and the National Wetland Plant List Indicator Rating Definition document, wetland indicator status ratings and their rating categories, as described in the National List of Plant Species that Occur in Wetlands (Reed 1988) are provided in the table below.

WETLAND PLANT INDICATOR STATUS

| Indicator status (abbreviation) | % Occurrence in wetlands |
|---|--------------------------|
| Obligate (OBL). Occur almost always under natural conditions in wetlands. | 99 |
| Facultative Wetland (FACW). Usually occur in wetlands but occasionally found in non-wetlands. | 67–99 |
| Facultative (FAC). Equally likely to occur in wetlands and non-wetlands. | 34–66 |
| Facultative Upland (FACU). Usually occur in non-wetlands but occasionally found in wetlands. | 1–33 |

Review of online imagery indicates the subject property consists of 10 two- and three-story apartments buildings with a total of 152 units. In addition to the onsite apartment buildings, the subject property is improved with a one-story leasing office, pool, tennis court, playground, paved drives and parking areas, and associated landscaping.

The subject property is located within the Level III Piedmont Ecoregion (45) and the Level IV Southern Outer Piedmont Ecoregion (45b). The Piedmont Ecoregion (45) comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. Once largely cultivated, much of this region is in planted pine or has reverted to successional pine and hardwood woodlands. The historic oak-hickory-pine forest was dominated by white oak (*Quercus alba* [FACU]), southern red oak (*Quercus falcata* [FACU]), post oak (*Quercus stellata* [UPL]), and hickory (*Carya* spp. [FACU/FAC/FACW/OBL]), with shortleaf pine (*Pinus echinata* [UPL]), loblolly pine (*Pinus taeda* [FAC]), and to the north and west, Virginia pine (*Pinus virginiana* [UPL]). The Southern Outer Piedmont Ecoregion (45b) consists of mostly irregular plains dominated by pine (mostly loblolly and shortleaf) on old fields and pine plantations, with mixed oak forest in less heavily altered areas.

The Cecil soil series is mostly cultivated with the remainder comprised of pasture and forest. The Pacolet soil series consists of forests dominated by pine and mixed hardwood forest.

According to information outlined within the online Natural Resources Conservation Service (NRCS) *Soil Survey for Greenville County*, and the *USACE National Wetland Plant List for the Eastern Mountains and Piedmont Region*, the subject property is not conducive to hydrophytic wetland-type vegetation.

1.5 Hydrology

According to the 1987 USACE Wetland Delineation Manual, wetland hydrology is defined as an area that is inundated either permanently or periodically at mean water depths are less than or equal to 6.6 feet, or the soil is saturated to the surface at some time during the growing season of the prevalent vegetation. According to the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0), wetland hydrology is present when 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface is present, during the growing season at a minimum frequency of 5 out of 10 years unless an alternative standard has been established for a particular region or wetland type.

According to the contour lines on the United States Geological Survey (USGS), *Greenville*, South Carolina Quadrangle, dated 2024, the subject property is located between approximately 900 to 935 feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping toward the north and northwest (**Figure 3**).

Partner performed a review of the Flood Insurance Rate Map (FIRM), published by the Federal Emergency Management Agency (FEMA). According to Community Panel Numbers 45045C0392E, dated August 18, 2014; the subject property is located within Flood Zone X (Unshaded), an area located outside of the 100-year and 500-year flood plains, which is also referred to as an area of minimal flood hazards.

According to FEMA, flood hazard areas identified on the FIRM are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

A copy of the FIRM is included in the Appendix A.

1.6 Geology / Soils

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Hydric soil field indicators and a hydric soil technical standard have been developed to determine whether a soil meets the criteria for hydric soils. Evaluation of hydric soils was

completed based on criteria defined in NRCS (2010) and as outlined in the 1987 Manual and the Regional Supplement. Soils observed in wetland areas within the proposed survey area typically developed under anaerobic (i.e., inundated/saturated edaphic conditions) or alternating aerobic-anaerobic conditions (i.e., wet/dry hydroperiod).

The NCHS hydric soil definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006). However, not all areas within a mapping unit or polygon identified as having hydric soils may be hydric. Conversely, inclusions of hydric soils may be found within soil mapping units where no hydric soils have been identified. The Hydric Soils List should be used as a tool, indicating that hydric soil will likely be found within a given area, but should not be used as a substitute for onsite investigation and field indicators of hydric soils.

The subject property is situated within the Piedmont physiographic province of the State of South Carolina. The uppermost geologic formation underlying the soils at the subject property is the Cambrian Age sillimanite schist and sillimanite-mica schist.

According to the online web soil survey, the soil type located at the subject property consist of Cecil-Urban land complex, 2 to 10 percent slopes (CuC), Cecil-Urban land complex, 10 to 25 percent slopes (CuE), and Pacolet sandy loam, 15 to 25 percent slopes (PcE). According to the web soil survey hydric rating by map unit online map, the onsite soil map units are not rated as hydric soils based on the National Soil Information System (NASIS) NRCS hydric soil criteria.

- The Cecil series consists of very deep, well-drained, moderately to highly permeable soils that formed in residuum weathered from gneiss and/or granite. These soils are on interfluvies. The mean annual precipitation is 48 inches, and the mean annual temperature is 59 degrees Fahrenheit. The A or Ap horizon typically has a hue of 2.5 YR to 10YR, a value of 3 to 5, and a chroma of 2 to 8. The texture of the A or Ap horizon is fine sandy loam, sandy loam, or loam in the fine earth fraction. If in an eroded phase, the texture may be sandy clay loam or clay loam in the fine earth fraction. The E horizon, if present, has a hue of 7.5YR to 10YR, a value of 4 to 6, and a chroma of 3 to 8. The texture of the E horizon is sandy clay loam, loam, or clay loam. The BA or BE horizon, if present has a hue of 2.5YR to 10YR, a value of 4 to 6, and a chroma of 3 to 8. The texture is sandy clay loam, loam, or clay loam. The Bt horizon has a hue of 10R, 2.5YR, or 5YR, a value of 4 or 5, and a chroma of 6 or 8. Some mottling may be present. The texture of the Bt horizon is clay loam, clay, or sandy clay. The C horizon is similar in color to the BC horizon or is variegated. The C horizon consists of loamy saprolite weathered from igneous and high-grade metamorphic rocks.

- Urban land soils consist of soil that has been altered by human activity beyond accurate mapping capabilities and is typically covered with paved surfaces or buildings. Areas of this unit require onsite investigation and evaluation for most land use decisions.
- The Pacolet series consists of very deep, well drained, moderately permeable soils that formed in residuum weathered mostly from felsic igneous and metamorphic rocks of the Piedmont uplands. Slopes commonly are 15 to 25 percent but range from 2 to 60 percent. The A horizon has a hue of 5YR to 10YR, a value of 3 to 5, and a chroma of 1 to 6. In eroded areas, hue ranges to 2.5YR and chroma ranges to 8. The texture of the A horizon is typically sandy loam, but ranges to loamy coarse sand, loamy sand, fine sandy loam, or loam in fine-earth fraction. In eroded areas, the texture of the A horizon is clay loam or sandy clay loam in the fine-earth fraction. The E horizon, if present, has a hue of 5YR to 10YR, a value of 4 to 6, and a chroma of 3 to 8. The texture of the E horizon is typically sandy loam, but ranges to loamy coarse sand, loamy sand, fine sandy loam, and loam in the fine-earth fraction. The BA or BE horizon, if present, and the upper part of the Bt horizon in most pedons, have a hue of 2.5YR to 10YR, a value of 4 to 6, and a chroma of 3 to 8. The texture of the BA and/or BE horizons is clay loam, sandy clay loam, or loam. The Bt horizon has a hue of 10R or 2.5YR, a value of 4 or 5, and a chroma of 6 to 8. Mottles in shades of red, yellow, or brown are in the upper part of the Bt horizon in some pedons and in the lower part of the Bt horizon in most pedons. The texture of the Bt horizon is clay, sandy clay, or clay loam. The BC horizon has a hue of 10R to 5YR, a value of 4 or 5, and a chroma of 6 or 8, commonly with mottles in shades of red, yellow, or brown. The BC horizon of some pedons is mottled in shades of red, yellow, or brown. The texture of the BC horizon is clay loam, sandy clay loam, loam, or sandy loam. The C horizon has a hue of 10R to 10YR, a value of 4 or 5, and a chroma of 3 to 8 commonly with mottles in shades of red, yellow, or brown or is multicolored. The texture of the C horizon is loamy saprolite weathered from felsic crystalline rock.

1.7 Summary of Potentially Jurisdictional Waters

Suspect wetlands or waterbodies were not identified on the subject property.

1.7.1 Federal Definition of Jurisdictional Waters of the United States

In accordance with the revised WOTUS rule promulgated on January 18, 2023 ("revised rule") (88 Fed. Reg. 3004),¹ potentially jurisdictional WOTUS include: The territorial seas and traditional navigable waters; perennial and intermittent tributaries that contribute surface water flow to such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. See 33 CFR 328.3 and 40 CFR 120.2, revised as of January 18, 2023. Paragraph (a) of the revised rule identifies four categories of waters that are "waters of the United States." These waters are referred to as "jurisdictional" in this notice and in the regulatory text. Paragraph (b) of the revised rule identifies those waters and features that are excluded from the definition of "waters of the United States." These waters are referred to as "non-

¹ This revised rule was challenged in three federal district courts which, together, blocked implementation of the rule in 27 states. South Carolina is one of the 27 states and, therefore, the agencies continued to apply the revised rule in South Carolina.

jurisdictional” or “excluded” in this notice and as “non-jurisdictional” in the regulatory text. Paragraph (c) of the revised rule defines applicable terms.

As a baseline concept, this revised rule recognizes that waters of the United States are waters within the ordinary meaning of the term, such as oceans, rivers, streams, lakes, ponds, and wetlands, and that not all waters are waters of the United States. The revised rule includes the agencies' longstanding category of the territorial seas and traditional navigable waters. A “tributary” is defined in the revised rule as a river, stream, or similar naturally occurring surface water channel that contributes surface water flow to a territorial sea or traditional navigable water in a typical year either directly or indirectly through other tributaries, jurisdictional lakes, ponds, or impoundments, or adjacent wetlands. A tributary must be perennial or intermittent in a typical year. The alteration or relocation of a tributary does not modify its jurisdictional status as long as it continues to be perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year. A tributary does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized non-jurisdictional surface water feature, through a subterranean river, through a culvert, dam, tunnel, or other similar artificial feature, or through a debris pile, boulder field, or similar natural feature. The term “tributary” includes a ditch that either relocates a tributary, is constructed in a tributary, or is constructed in an adjacent wetland as long as the ditch is perennial or intermittent and contributes surface water flow to a traditional navigable water or territorial sea in a typical year.

The revised rule defines “lakes and ponds, and impoundments of jurisdictional waters” as standing bodies of open water that contribute surface water flow in a typical year to a territorial sea or traditional navigable water either directly or through a tributary, another jurisdictional lake, pond, or impoundment, or an adjacent wetland. The agencies note that to be jurisdictional, an “impoundment of a jurisdictional water” must be an impoundment of a territorial sea or traditional navigable water, tributary, jurisdictional lake or pond, or an adjacent wetland, and must meet the conditions in paragraph (c)(6) of the revised rule. A lake, pond, or impoundment of a jurisdictional water does not lose its jurisdictional status if it contributes surface water flow to a downstream jurisdictional water in a typical year through a channelized non-jurisdictional surface water feature, through a culvert, dike, spillway, or similar artificial feature, or through a debris pile, boulder field, or similar natural feature. A lake, pond, or impoundment of a jurisdictional water is also jurisdictional if, in a typical year, it is inundated by flooding from a territorial sea or traditional navigable water, or tributary, or from another jurisdictional lake, pond, or impoundment.

The revised rule defines “adjacent wetlands” as wetlands that abut a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water; are inundated by flooding from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water in a typical year; are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by a natural berm, bank, dune, or similar natural feature; or are physically separated from a territorial sea or traditional navigable water, a tributary, or a lake, pond, or impoundment of a jurisdictional water only by an artificial dike, barrier, or similar artificial structure so long as that structure allows for a direct hydrological surface connection to the territorial sea or traditional navigable water, tributary, or lake, pond, or impoundment of a jurisdictional water in a typical year, such as through a culvert, flood or tide gate, pump, or similar artificial feature. “Abut” means when a wetland touches a territorial sea, traditional navigable water, tributary, or lake, pond, or impoundment of a jurisdictional water at least at one point or side. An adjacent wetland is jurisdictional in

its entirety when a road or similar artificial structure divides the wetland, as long as the structure allows for a direct hydrologic surface connection through or over that structure in a typical year.

Consistent with the U.S. District Court for the District of Arizona's August 30, 2021, order vacating and remanding the Navigable Waters Protection Rule, promulgated April 21, 2020 (85 Fed. Reg. 22250), effective June 22, 2020, the EPA and USACE halted implementation of the Navigable Waters Protection Rule and began interpreting "waters of the United States" consistent with the pre-2015 regulatory regime, as further defined in the revised rule discussed above. An approved jurisdictional determination (AJD) is a document provided by the Corps stating the presence or absence of "waters of the United States" on a parcel or a written statement and map identifying the limits of "waters of the United States" on a parcel. See 33 CFR 331.2. Under existing Corps' policy, AJDs are generally valid for five years unless new information warrants revision prior to the expiration date. See U.S. Army Corps of Engineers, Regulatory Guidance Letter No. 05-02, § 1(a), p. 1 (June 2005) (Regulatory Guidance Letter (RGL) 05-02). As a general matter, the agencies' actions are governed by the rule in effect at the time the Corps completes an AJD, not by the date of the request for an AJD. Therefore, AJDs that were pending on, or received after the court's decision will be completed consistent with the pre-2015 regulatory regime. AJDs completed prior to the court's decision remain valid until the expiration date unless one of the criteria for revision is met under RGL 05-02, or the recipient of such an AJD requests that a new AJD be provided pursuant to the pre-2015 regulatory regime.

On August 29, 2023, the EPA and the USACE issued a new final rule further limiting the scope of WOTUS consistent with the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. EPA* (as of the date of this report, not yet published in the Federal Register). The agencies are revising the 2023 Rule to remove the significant nexus standard and to amend its definition of "adjacent" as these provisions are invalid under the Supreme Court's interpretation of the Clean Water Act in *Sackett*. See section II of this preamble for the specific amendments. Under the decision in *Sackett*, waters are not jurisdictional under the Clean Water Act based on the significant nexus standard. In addition, under the decision in *Sackett*, wetlands are not defined as "adjacent" or jurisdictional under the Clean Water Act solely because they are "bordering, contiguous, or neighboring . . . [or] separated from other 'waters of the United States' by man-made dikes or barriers, natural river berms, beach dunes and the like." Therefore, under this conforming rule, waters cannot be found to be jurisdictional because they meet the significant nexus standard; nor can wetlands be found to be jurisdictional based on the definition of "adjacent" codified in the 2023 Rule. Furthermore, as a result of the decision in *Sackett* invalidating the significant nexus standard, the provision for assessment of streams and wetlands under the additional waters provision of paragraph (a)(5) is no longer valid as any jurisdictional streams and wetlands are covered by paragraphs (a)(1) through (4) of the 2023 Rule.² Finally, the agencies are removing "interstate wetlands" from the 2023 Rule to conform with the decision in *Sackett*. The Supreme Court in *Sackett* examined the Clean Water Act and its statutory history and found the predecessor statute to the Clean Water Act covered and defined "interstate waters" as "all rivers, lakes, and other waters that flow across or form a part of State boundaries." *Sackett* at 1337 (citing 33 U.S.C. 1160(a), 1173(e) (1970 ed.) (emphasis in original)). The Court concluded that the use of the term "waters" refers to such "open waters" and not wetlands. *Id.* As a result, under *Sackett*, the provision authorizing wetlands to be jurisdictional simply because they are interstate is invalid. The agencies will continue to interpret the remainder of the definition of "waters of the United States" in the 2023 Rule consistent with the *Sackett* decision. And it is both reasonable and appropriate for the agencies to promulgate this rule in response to a significant decision of

the Supreme Court and, to provide administrative guidance to address other issues that may arise outside this limited rule.

Partner's professional opinion of jurisdictional status of identified features (if any) on the subject property, is consistent with the interpretation used by EPA and USACE.

1.7.2 State Wetlands and Surface Waters Regulations

It should be noted that, the state of South Carolina has additional wetland and surface water regulations as discussed below.

Regulatory activities pertaining to wetlands are administered by South Carolina's Department of Health and Environmental Control (SCDHEC). SCDHEC's Office of Environmental Quality Control (OEQC), Bureau of Water regulates waters of the state, including wetlands, and issues §401 certifications under the Clean Water Act (CWA). Statewide, 401 Water Quality Certification is applied where a 404 permit is required by federal regulations and follow the same exemptions as those applied under the Section 404 programs by the Corps.

The state's regulation of coastal wetlands is extensive and represents a major component of wetland work in South Carolina. This additional layer of state-level regulation is coordinated by SCDHEC's Office of Ocean and Coastal Resource Management (OCRM)'s Regulatory Division. The Division regulates tideland critical areas through a direct permitting program under the state's Coastal Zone Management Act (CZMA). This program provides two-tiers of regulation. Tier One regulates tideland Critical Areas. Tier Two areas include brackish water wetlands outside the Critical Areas but within the coastal zone.

1.7.3 Local Wetlands and Surface Waters Regulations

According to the Greenville County Land Development Department, a minimum 35-foot buffer must be maintained between the last row of silt fence and surface waters, during land-disturbing activities. A wetland delineation is not required if a 100-foot undisturbed buffer is maintained between Waters of the State (WoS) and all land-disturbing activities.

2.0 FINDINGS AND CONCLUSIONS

Findings

Based on the limited information available to complete this assessment, the subject property does not appear to satisfy the three wetland criteria and wetland areas are unlikely to exist on the subject property.

Conclusions, Opinions and Recommendations

Partner has performed a Desktop Wetland Assessment in general conformance with the scope and limitations as detailed in our proposal, for the property located at 200 Pine Creek Court in the City of Greenville, Greenville County, South Carolina. Partner concludes and recommends the following:

- Additional investigation is not recommended.

It should be noted the USACE has the ultimate authority for wetlands and Waters of the United States (WOTUS) determinations. The Environmental Protection Agency (EPA) has the ultimate authority for official jurisdictional determinations; however, authority has been delegated to the USACE to give an approved jurisdictional determination (AJD) on potential Waters of the United States.

It should be noted that, the State of South Carolina has additional wetland and surface water regulations which are further discussed in Section 1.7.2.

3.0 LIMITATIONS

All conclusions expressed or implied in this report are limited by the contractual Scope of Work and standard commercial methods used to perform these services. This desktop review has been performed in general accordance with applicable guidelines that have been set forth by the USACE, EPA, and industry standards.

In preparing this report, Partner has relied solely on information that has been provided and/or derived from secondary sources and compiled data. Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluation. No other warranties are implied or expressed. The methodologies of this records review are not intended to identify all environmental concerns which may be identified in other Environmental Site Assessments. Site reconnaissance by Partner personnel was not conducted as part of this investigation.

Acceptance and use of this report infers acknowledgment that the condition of the property may have changed after the publication of the reviewed materials and that Partner, its officers, employees, vendors, successors or assigns, are not liable for changes in the condition of the property and damages that may occur as a result of the changes.

4.0 USER RELIANCE

All reports, both verbal and written, are for the sole use and benefit of the entities identified on the cover page. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of Partner.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at <http://www.partneresi.com/terms-and-conditions.php>.

5.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Desktop Wetland Assessment of the property located at 200 Pine Creek Court in the City of Greenville, Greenville County, South Carolina in conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

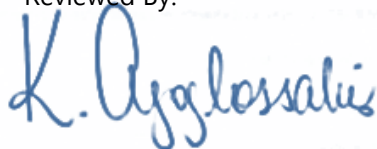
By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*.

Prepared and Managed By:



Amy Parker, PG, WPIT
Project Manager - Natural Resources

Reviewed By:



Kalli Agoglossakis, MS
Biologist & Project Manager – Natural Resources

Overseen By:



Katie L. Morgan, PWS, EP
Director of Natural and Cultural Resources
Professional Wetland Scientist (#3100)

6.0 REFERENCES

Reference Documents

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FIGURES

- 1. SITE LOCATION MAP**
- 2. SITE PLAN**
- 3. TOPOGRAPHIC MAP**

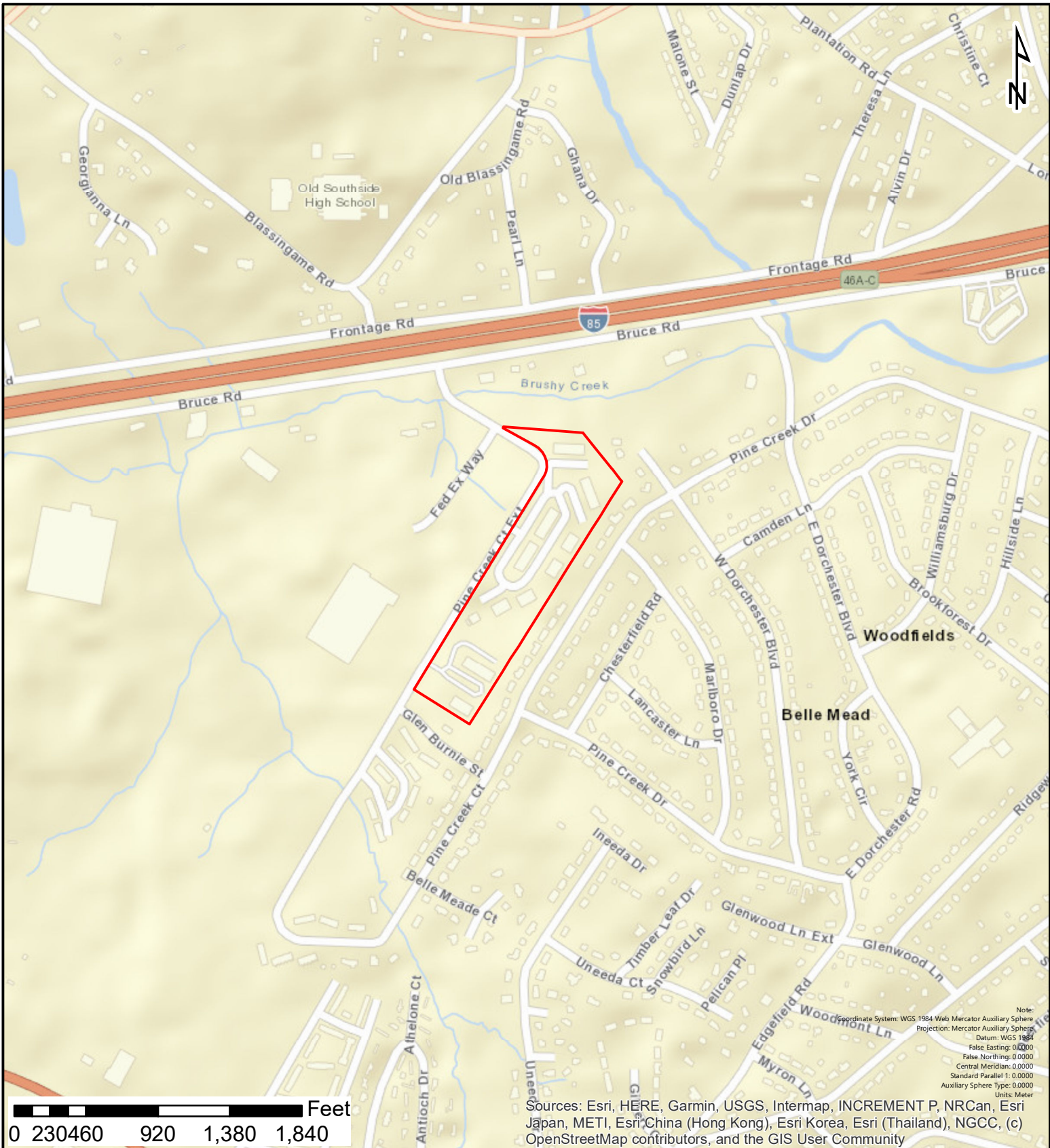


FIGURE 1: SITE LOCATION MAP

Legend

 SUBJECT PROPERTY BOUNDARY

PARTNER
Engineering and Science, Inc.

| | | |
|---------------------------------------|----------------------|-----------------------------|
| SOURCES: Esri, Field Data | DRAWN BY: aparker | SCALE: 1 inch = 833 feet |
| PROJECT NUMBER: 24-463472.3 | DATE: 9/26/2024 | |
| FILE NAME: Highland Square Apartments | | |

File: C:\Users\aparker\Desktop\Highland Square Apartments\24-463472.3 Figure 2 Site Plan.mxd User: aparker Date: 9/26/2024

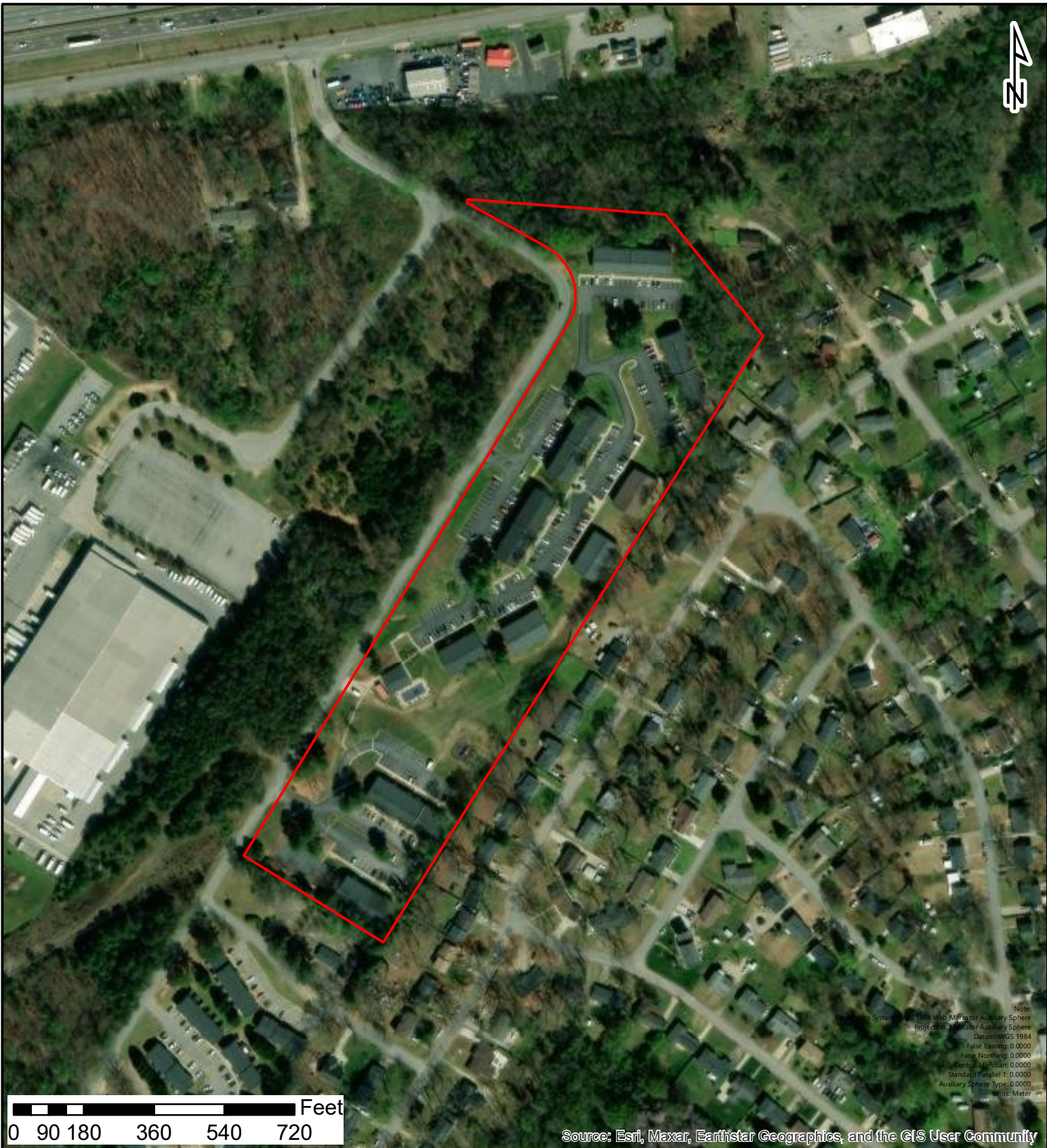


FIGURE 2: SITE PLAN

Legend

SUBJECT PROPERTY BOUNDARY

PARTNER
Engineering and Science, Inc.[®]

| | | |
|---------------------------------------|----------------------|-----------------------------|
| SOURCES: ESRI, Field Data | DRAWN BY: aparker | SCALE: 1 inch = 333 feet |
| PROJECT NUMBER: 24-463472.3 | | DATE: 9/26/2024 |
| FILE NAME: Highland Square Apartments | | |

File: C:\Users\aparker\Desktop\Highland Square Apartments\24-463472.3 Figure 2 Site Plan.mxd

User: aparker

Date: 9/26/2024

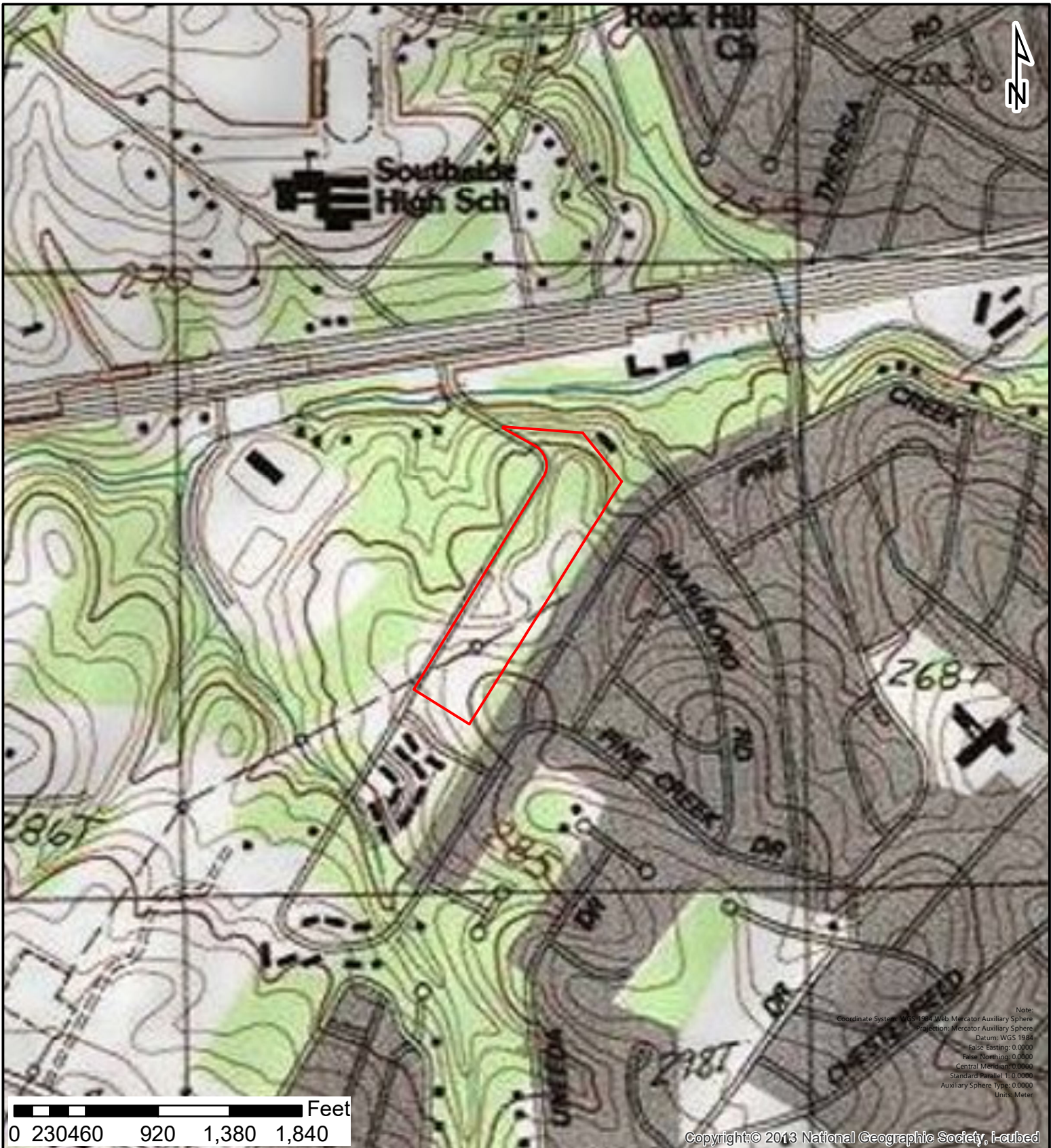


FIGURE 3: TOPOGRAPHIC MAP

Legend

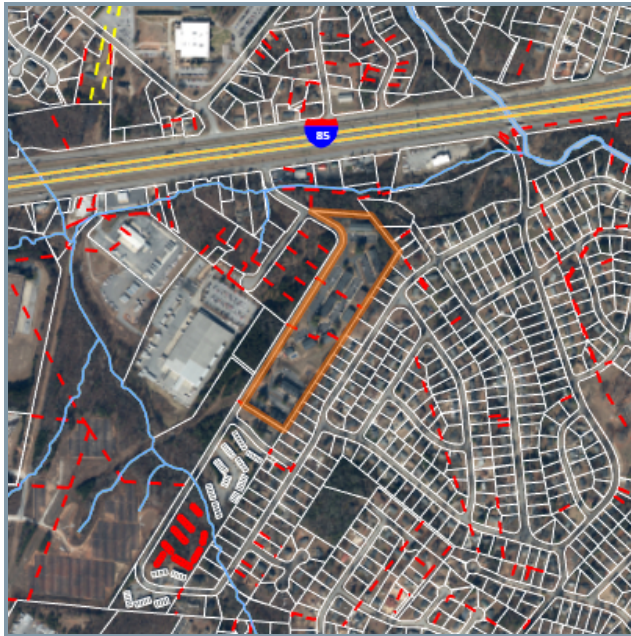
SUBJECT PROPERTY BOUNDARY

PARTNER
Engineering and Science, Inc.®

| | | |
|---------------------------------------|----------------------|-----------------------------|
| SOURCES: ESRI, Field Data | DRAWN BY: aparker | SCALE: 1 inch = 833 feet |
| PROJECT NUMBER: 24-463472.3 | DATE: 9/26/2024 | |
| FILE NAME: Highland Square Apartments | | |

APPENDIX A: SUPPORTING DOCUMENTATION

| | | |
|---|--------------------------------|-----------|
| Greenville County, SC - Property Report | Convert to PDF | 9/23/2024 |
| PIN / Tax Map # | | |
| WG02030101200 | | |



| Owner Information | |
|-----------------------|---------------------------|
| Owner Name | HS INVESTORS LLC |
| Additional Owner Name | |
| Care Of | Gh Capital Llc Suite 110 |
| Mailing Address | 26301 Curtiss Wright Pkwy |
| City | Cleveland |
| State | OH |
| Zip Code | 44143 |



Mobile
Maps and
Information



Disclaimer: Map and parcel data are believed to be accurate, but accuracy is not guaranteed. This is not a legal document and should not be substituted for a title search, appraisal, survey, or for zoning verification.

| Parcel Information | | | |
|--------------------|-------------|------------|-------------|
| Acres | Description | Location | Subdivision |
| 13.400 | 13 Pt 5 | Pine Creek | |

| Reference Information | | | | |
|-----------------------|-----------|-----------|-----------|-----------|
| Deed Book | Deed Page | Deed Date | Plat Book | Plat Page |
| 2186 | 1879 | 1/30/2006 | M | 95 |

| Building Information | | | |
|----------------------|-----------|------------|-------------|
| Bedrooms | Bathrooms | Half Baths | Square Feet |
| 0 | 0 | 0 | 0 |

| Classification | | |
|-----------------|---------------------|----------------|
| Land Use | Jurisdiction | Homestead Code |
| 120 - Apartment | County Jurisdiction | No |

| Values | | | |
|-------------------|----------------------|-------------|----------------|
| Fair Market Value | Taxable Market Value | Sales Price | Total Rollback |
| \$6,708,710 | \$6,062,960 | \$4,048,000 | \$0 |

| Taxes / Fees | | | | |
|--------------|-----------------------|---------------------|--------------|-----------------|
| Tax District | County Stormwater Fee | City Stormwater Fee | Taxes | Taxes Paid Date |
| 156 | \$2,484 | \$0 | \$148,302.21 | 12/28/2023 |

| Property Tax History | | | |
|----------------------|--------------------------------|----------------------|--------------|
| Tax Year | Owner Name | Taxable Market Value | Taxes |
| 2022 | Hs Investors Llc | \$6,062,960 | \$142,299.84 |
| 2021 | Hs Investors Llc | \$6,062,960 | \$139,634.87 |
| 2020 | Hs Investors Llc | \$5,272,150 | \$133,573.86 |
| 2019 | Hs Investors Llc | \$5,272,150 | \$132,008.33 |
| 2018 | Hs Investors Llc | \$5,272,150 | \$128,274.02 |
| 2017 | Hs Investors Llc | \$5,272,150 | \$120,885.74 |
| 2016 | Hs Investors Llc | \$5,272,150 | \$118,688.11 |
| 2015 | Hs Investors Llc | \$5,272,150 | \$116,464.21 |
| 2014 | Hs Investors Llc | \$4,584,495 | \$100,524.07 |
| 2013 | Hs Investors Llc | \$4,584,495 | \$99,175.72 |
| 2012 | Hs Investors Llc | \$4,584,495 | \$96,728.11 |
| 2011 | Hs Investors Llc | \$4,584,495 | \$94,775.11 |
| 2010 | Hs Investors Llc | \$4,584,495 | \$93,509.28 |
| 2009 | Hs Investors Llc | \$3,986,819 | \$87,102.74 |
| 2008 | Hs Investors Llc | \$3,986,819 | \$85,329.89 |
| 2007 | Hs Investors Llc | \$3,986,819 | \$82,315.85 |
| 2006 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$77,077.76 |
| 2005 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$72,290.96 |
| 2004 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$70,274.88 |
| 2003 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$69,519.09 |
| 2002 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$68,826.36 |
| 2001 | Highland Sq li Apts Assoc A Lt | \$3,519,969 | \$65,911.68 |
| 2000 | Highland Sq li Apts Assoc A Lt | \$2,223,500 | \$42,213.55 |
| 1999 | Highland Sq li Apts Assoc A Lt | \$2,223,500 | \$41,666.57 |
| 1998 | Highland Sq li Apts Assoc A Lt | \$2,223,500 | \$39,911.70 |

| Ownership History | | | | |
|--------------------------------|-----------|-----------|-------------------|-----------------|
| Owner Name | Deed Book | Deed Page | Date of Last Sale | Last Sale Price |
| Hs Investors Llc | 2186 | 1879 | 20060130 | \$4,048,000 |
| Highland Sq li Apts Assoc A Lt | 1093 | 990 | 19781219 | \$0 |

| Highland Square Apartments | | | | |
|---|--------|--------------|---------------|-----------------|
| Construction Scope | | | | |
| Item | QTY | Meas. | Unit Cost | Total Cost |
| Kitchen | | | | |
| Replace countertops with 2cm solid surface stone | 152 | unit | \$ 1,700.00 | \$ 258,400.00 |
| Re-install stainless steel sink | 152 | unit | \$ 175.00 | \$ 26,600.00 |
| Re-install garbage disposals | 152 | unit | \$ 100.00 | \$ 15,200.00 |
| Re-install faucet (including new water lines & p-traps) | 152 | unit | \$ 250.00 | \$ 38,000.00 |
| Bathrooms | | | | |
| Install new steel tub & three-piece fiberglass surround | 200 | unit | \$ 3,500.00 | \$ 700,000.00 |
| Demo tub & existing surround | | | \$ 250.00 | |
| Surround install prep | | | \$ 250.00 | |
| Steel tub | | | \$ 750.00 | |
| Three-piece fiberglass surround | | | \$ 1,500.00 | |
| Install tub drain & trim (drain and overflow cap) | | | \$ 250.00 | |
| Install shower/tub valve & trim (including diverter valve, valve trim, tub spout and shower head) | | | \$ 500.00 | |
| Install shower rod | 152 | unit | \$ 100.00 | \$ 15,200.00 |
| Front Door | | | | |
| Replace front door | 152 | unit | \$ 1,200.00 | \$ 182,400.00 |
| Replace front door hardware | 152 | unit | \$ 250.00 | \$ 38,000.00 |
| General Interior | | | | |
| Allocated general demo (task level demo built into each line item) | 152 | unit | \$ 200.00 | \$ 30,400.00 |
| Replace all outlets, switches, low voltage and covers | 4560 | each | \$ 30.00 | \$ 136,800.00 |
| Install new door stops | 912 | each | \$ 5.00 | \$ 4,560.00 |
| Install new vinyl floors, glue down LVP | 78806 | sqft | \$ 7.00 | \$ 551,642.00 |
| Install new baseboards | 157612 | sqft | \$ 2.00 | \$ 315,224.00 |
| Paint entire unit (walls, ceilings, doors, trim and baseboards) | 157612 | sqft | \$ 5.00 | \$ 788,060.00 |
| Replace thermostat | 152 | unit | \$ 125.00 | \$ 19,000.00 |
| Drywall, T&T allowance (sheetrock repair) | 152 | unit | \$ 500.00 | \$ 76,000.00 |
| Clean entire unit | 152 | unit | \$ 300.00 | \$ 45,600.00 |
| Converted ADA units | 8 | unit | \$ 20,000.00 | \$ 160,000.00 |
| Converted HVI units | 3 | unit | \$ 5,000.00 | \$ 15,000.00 |
| Replace lighting | 152 | unit | \$ 600.00 | \$ 91,200.00 |
| MEP's | | | | |
| Replace HVAC condensor & air handlers | 152 | unit | \$ 6,500.00 | \$ 988,000.00 |
| Replace unit water heaters | 152 | unit | \$ 2,000.00 | \$ 304,000.00 |
| Replace exterior hallway lights as needed | 68 | Allow | \$ 600.00 | \$ 40,800.00 |
| Replace general exterior lighting | 1 | Allow | \$ 25,000.00 | \$ 25,000.00 |
| Common Area Amenities | | | | |
| Install pedestal mailboxes with lockers | 10 | unit | \$ 3,500.00 | \$ 35,000.00 |
| Community room & kitchen refresh | 1 | Allow | \$ 40,000.00 | \$ 40,000.00 |
| Community business center | 1 | Allow | \$ 5,000.00 | \$ 5,000.00 |
| Leasing office refresh | 1 | Allow | \$ 15,000.00 | \$ 15,000.00 |
| Community pool refresh | 1 | Allow | \$ 25,000.00 | \$ 25,000.00 |
| Laundry room refresh | 1 | Allow | \$ 5,000.00 | \$ 5,000.00 |
| Upgrade existing playground | 1 | Allow | \$ 40,000.00 | \$ 40,000.00 |
| Building envelope | | | | |
| Add more security camera coverage to existing system | 1 | Allow | \$ 30,000.00 | \$ 30,000.00 |
| Roof replacement | 85000 | sqft | \$ 5.00 | \$ 425,000.00 |
| Gutter replacement | 3000 | Allow | \$ 20.00 | \$ 60,000.00 |
| Masonry, siding and façade repair | 1 | Allow | \$ 50,000.00 | \$ 50,000.00 |
| Replace staircase(s) tread and risers | 34 | each | \$ 7,500.00 | \$ 255,000.00 |
| Site Improvements | | | | |
| Mill & 2" overlay asphalt in parking lot and drive, restripe | 1 | Allow | \$ 200,000.00 | \$ 200,000.00 |
| Misc. concrete repairs | 1 | Allow | \$ 50,000.00 | \$ 50,000.00 |
| Install ADA compliant ramps & railings | 1 | Allow | \$ 35,000.00 | \$ 35,000.00 |
| Landscaping & tree trimming | 1 | Allow | \$ 35,000.00 | \$ 35,000.00 |
| Build dumpster enclosures | 5 | each | \$ 2,500.00 | \$ 12,500.00 |
| Demo or rebuild patio decks and railings | 30 | each | \$ 10,000.00 | \$ 300,000.00 |
| Replace exterior signage including monument | 1 | Allow | \$ 30,000.00 | \$ 30,000.00 |
| Demolish tennis court on top of hill and rebuild outdoor community area | 1 | Allow | \$ 50,000.00 | \$ 50,000.00 |
| Replace swing set at far end of property | 1 | Allow | \$ 12,000.00 | \$ 12,000.00 |
| Rebuild benches around property | 1 | Allow | \$ 6,200.00 | \$ 6,200.00 |
| Repair/rebuild railroad tie retention walls | 1 | Allow | \$ 25,000.00 | \$ 25,000.00 |
| Sub Total: | 152 | \$ 43,459.12 | | \$ 6,605,786.00 |

EXHIBIT W

Identification of Wetlands

Company: Related Affordable

Development: Highland Square Apartments

Development Location: 200 Pine Creek Court, Greenville, South Carolina 39605

County: Greenville Acres: 13.4

X I certify that the development listed above **does not** contain jurisdictional and non-jurisdictional wetlands.

 I certify that the development listed above **does** contain jurisdictional and/or non-jurisdictional wetlands and the proposed development will not disturb the wetlands. The wetlands are (acres) in size, rendering the buildable percentage at %.

I have provided the following:

1. National Wetlands Inventory (NWI) map
2. My credentials that qualify me to make this determination.

Financial Interest: Neither I nor the company I work for have any financial interest in the proposed LIHTC application other than in the practice of our profession.

Katie L Morgan
Signature and Certification of Wetlands Professional



09/30/2024

Date

Name of Wetland Professional

Signature and Certification of Development Owner

Date

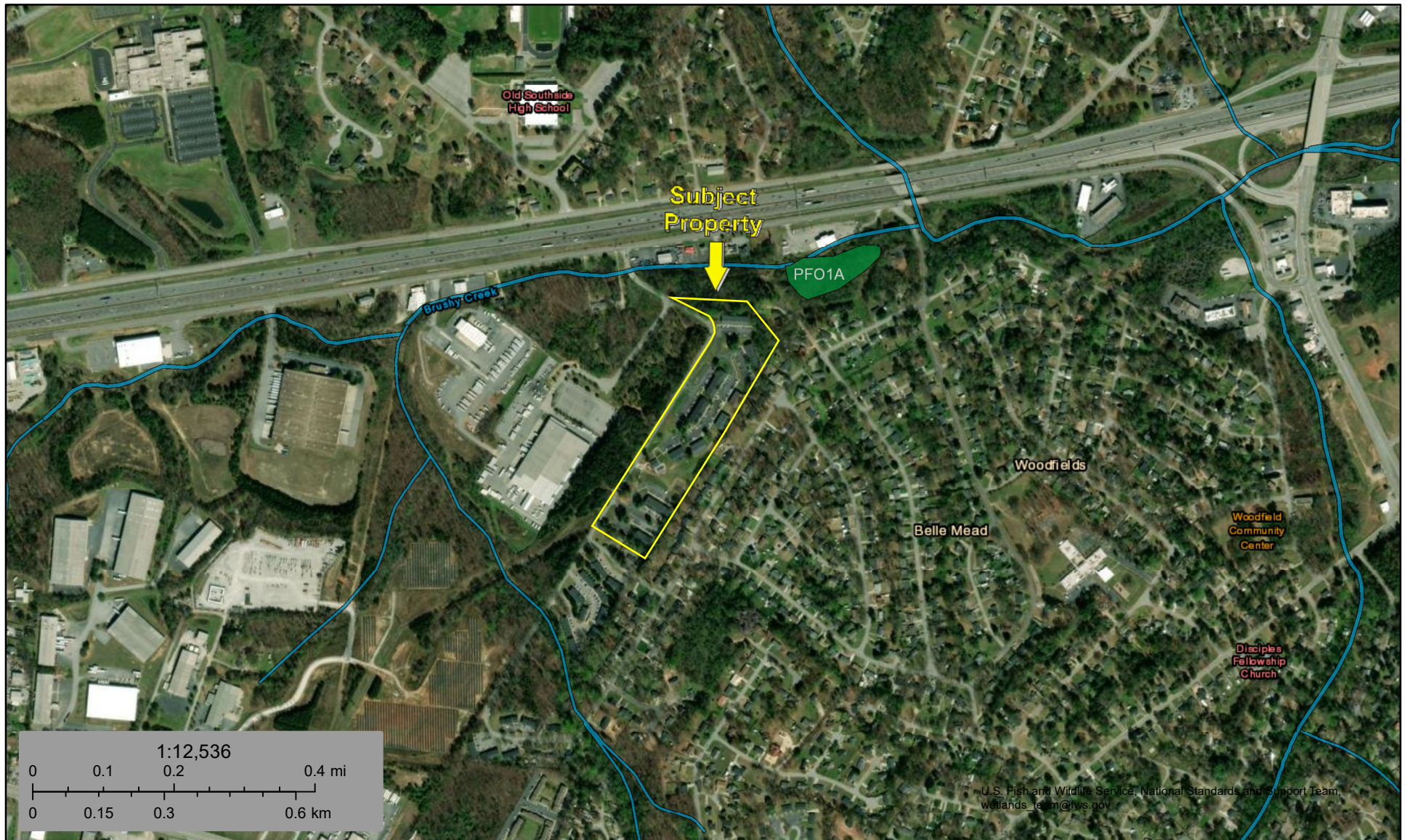
Name of Developer



U.S. Fish and Wildlife Service

National Wetlands Inventory

NWI Map



September 23, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Flood Hazard Layer FIRMette



82°23'56"W 34°47'39"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

82°23'18"W 34°47'9"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

| | | |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE) Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard Zone D |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | 17.5 |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| MAP PANELS | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/23/2024 at 1:40 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Established Series
Rev. ECH-DJD;DTA
08/2008

PACOLET SERIES

The Pacolet series consists of very deep, well drained, moderately permeable soils that formed in residuum weathered mostly from felsic igneous and metamorphic rocks of the Piedmont uplands. Slopes commonly are 15 to 25 percent but range from 2 to 60 percent.

TAXONOMIC CLASS: Fine, kaolinitic, thermic Typic Kanhapludults

TYPICAL PEDON: Pacolet sandy loam - forested. (Colors are for moist soil.)

A--0 to 3 inches; brown (7.5YR 5/4) sandy loam; few fine distinct yellowish red (5YR 5/8) mottles; moderate medium granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary. (1 to 12 inches thick)

Bt1--3 to 23 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm, slightly sticky; common distinct clay films on faces of peds; common fine and medium roots; common very fine pores; moderately acid; gradual wavy boundary.

Bt2--23 to 29 inches; red (2.5YR 4/6) clay; common fine prominent reddish yellow (7.5YR 7/8) mottles; moderate medium subangular blocky structure; firm, slightly sticky; common distinct clay films on faces of peds; common very fine pores; few fine flakes of mica; moderately acid; gradual wavy boundary. (Combined thickness of the Bt horizon is 12 to 26 inches)

BC--29 to 37 inches; red (2.5YR 4/6) clay loam; many medium prominent reddish yellow (7.5YR 7/8) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; strongly acid; gradual wavy boundary. (3 to 15 inches thick)

C1--37 to 52 inches; mottled red (2.5YR 4/6) and reddish yellow (7.5YR 7/8) clay loam saprolite; massive; friable; thin discontinuous distinct clay seams in cracks; few fine flakes of mica; strongly acid; gradual wavy boundary. (10 to 20 inches thick)

C2--52 to 80 inches; light yellowish brown (10YR 6/4) loam saprolite; common medium prominent red (2.5YR 4/6) and strong brown (7.5YR 5/8) mottles; massive; friable; strongly acid.

TYPE LOCATION: Chester County, South Carolina; 3.4 miles south of Chester in Chester County; 1.3 miles south of junction of State Highways 16 and 350; 3,700 feet northeast of junction of State Highways 16 and 171; 0.9 mile northeast of junction of unpaved State Highway 394 and unmarked county road and unpaved private road leading north; 35 feet northeast of unpaved private road.

RANGE IN CHARACTERISTICS: The Bt horizon is at least 10 to 24 inches thick and extends to a depth of 18 to 30 inches. Depth to a lithic contact is more than 60 inches. The soil is very strongly acid to slightly acid in the A horizon, and very strongly acid to moderately acid throughout the rest of the profile. Content of rock fragments, dominantly gravel, ranges from 0 to 35 percent in the A and E horizons, and 0 to 15 percent in the Bt horizon. Most pedons have few to common flakes of mica in the solum, and few to many in the C horizon.

The A horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 1 to 6. In eroded areas, hue ranges to 2.5YR and chroma ranges to 8. The A horizon commonly is sandy loam, but ranges to loamy coarse sand, loamy sand, fine sandy loam or loam in the fine-earth fraction. In eroded areas, it is clay loam or sandy clay loam in the fine-earth fraction.

The E horizon, where present, has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It commonly is sandy loam, but ranges to loamy coarse sand, loamy sand, fine sandy loam, loam in the fine-earth fraction.

The BA or BE horizon, where present, and the upper part of the Bt in most pedons, has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It is clay loam, sandy clay loam, or loam.

The Bt horizon has hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Mottles in shades of red, yellow, or brown are in the upper part of the Bt horizon in some pedons and in the lower part of the Bt horizon in most pedons. Texture is clay, sandy clay, or clay loam.

The BC horizon has hue of 10R to 5YR, value of 4 or 5, and chroma of 6 or 8 commonly with mottles in shades of red, yellow, or brown. The BC horizon of some pedons is mottled in shades of red, yellow, or brown. It is clay loam, sandy clay loam, loam, or sandy loam.

The C horizon has hue of 10R to 10YR, value of 4 or 5, and chroma of 3 to 8 commonly with mottles in shades of red, yellow, or brown or is multicolored. Texture is loamy saprolite weathered from felsic crystalline rock.

COMPETING SERIES: These are the [Appling](#), [Bethlehem](#), [Cecil](#), [Georgeville](#), [Herndon](#), [Lloyd](#), [Madison](#), [Nanford](#), [Nankin](#), [Saw](#), [Tarrus](#), and [Wedowee](#) series. Appling and Cecil soils have a thicker clayey Bt horizon. Bethlehem soils have a paralithic contact within 20 to 40 inches of the surface. Georgeville, Herndon, Nanford, and Tarrus soils formed from Carolina slate and have more than 30 percent silt. Lloyd soils have value of 3 in at least part of the Bt horizon. Madison soils contain more mica. Nankin soils formed from marine sediments. Saw soils have a lithic contact within 20 to 40 inches of the surface. Wedowee soils have Bt horizons with hue of 5YR or yellower.

GEOGRAPHIC SETTING: Pacolet soils are on gently sloping to very steep Piedmont uplands. Slopes commonly are 15 to 25 percent but range from 2 to 60 percent. The soils formed in material weathered mostly from felsic igneous and metamorphic rocks. The mean annual temperature ranges from 59 to 66 degrees F, the frost-free season ranges from 190 to 240 days, and the mean annual precipitation ranges from 37 to 60 inches.

GEOGRAPHICALLY ASSOCIATED SOILS: In addition to the competing [Appling](#), [Bethlehem](#), [Cecil](#), [Lloyd](#), [Madison](#), [Saw](#), and [Wedowee](#) series, these are the [Cataula](#), [Lockhart](#), [Louisburg](#), [Rion](#), and [Wateree](#) series. Cataula soils have a perched water table at 2 to 4 feet. Lockhart soils have more than 35 percent rock fragments in the particle-size control section. Louisburg, Rion, and Wateree soils have less than 35 percent clay in the particle-size control section.

DRAINAGE AND PERMEABILITY: Well drained; runoff is medium to rapid; permeability is moderate.

USE AND VEGETATION: Most areas are in forests of pine and mixed hardwoods. Cleared areas are used for small grain, hay, and pasture.

DISTRIBUTION AND EXTENT: The Piedmont of Alabama, Georgia, North Carolina, South Carolina, and Virginia. The series is of large extent

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina

SERIES ESTABLISHED: Catawba County, North Carolina, 1969.

REMARKS: The December 1987 revision recognized the low activity clay property of this soil and reclassification to Kanhapludults. Pacolet soils were formerly mapped as a thin solum phase of the Cecil series.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - the zone from the surface of the soil to a depth of 3 inches (A horizon).

Argillic and Kandic horizon - the zone from 3 to 29 inches below the surface (Bt1 and Bt2 horizons).

MLRA=136

ADDITIONAL DATA:

TABULAR SERIES DATA:

SOI-5 Soil Name Slope Airtemp FrFr/Seas Precip Elevation

SC0015 PACOLET 2-60 59-66 190-240 37-60 200-900

SC0107 PACOLET 2-60 59-66 190-240 37-60 200-900

| SOI-5 | FloodL | FloodH | Watertable | Kind | Months | Bedrock | Hardness |
|--------|--------|--------|------------|------|--------|---------|----------|
| SC0015 | NONE | | >6.0 | | - | >60 | |
| SC0107 | NONE | | >6.0 | | - | >60 | |

| SOI-5 | Depth | Texture | 3-Inch | No-10 | Clay% | -CEC- |
|--------|-------|-----------|--------|--------|-------|-------|
| SC0015 | 0-3 | SL FSL L | 0-2 | 80-100 | 8-20 | 4-7 |
| SC0015 | 0-3 | CL SCL | 0-1 | 90-100 | 20-35 | 4-10 |
| SC0015 | 0-3 | LS LCOS | 0-3 | 70-100 | 4-15 | 2-5 |
| SC0015 | 3-29 | SC CL C | 0-1 | 80-100 | 35-65 | 6-18 |
| SC0015 | 29-52 | CL SCL SL | 0-2 | 70-100 | 15-30 | 5-12 |
| SC0015 | 52-80 | SL FSL L | 0-2 | 70-100 | 10-25 | 4-10 |

| | | | | | | |
|--------|-------|---------------|-----|--------|-------|------|
| SC0107 | 0-3 | GR-LS GR-LCOS | 0-3 | 65-85 | 4-15 | 2-5 |
| SC0107 | 0-3 | GR-SL GR-FSL | 0-3 | 70-85 | 8-20 | 4-7 |
| SC0107 | 0-3 | GR-CL GR-SCL | 0-3 | 70-90 | 27-35 | 4-10 |
| SC0107 | 3-29 | SC CL C | 0-1 | 80-100 | 35-65 | 6-18 |
| SC0107 | 29-52 | CL SCL SL | 0-2 | 70-100 | 15-30 | 5-12 |
| SC0107 | 52-80 | SL FSL L | 0-2 | 70-100 | 10-25 | 4-10 |

| SOI-5 | Depth | -pH- | O.M. | Salin | Permeab | Shnk-Swll |
|--------|-------|---------|-------|-------|---------|-----------|
| SC0015 | 0-3 | 4.5-6.5 | .5-2. | 0-0 | 2.0-6.0 | LOW |
| SC0015 | 0-3 | 4.5-6.5 | .5-1. | 0-0 | 0.6-2.0 | LOW |
| SC0015 | 0-3 | 4.5-6.5 | .5-2. | 0-0 | 2.0-6.0 | LOW |
| SC0015 | 3-29 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |
| SC0015 | 29-52 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |
| SC0015 | 52-80 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |

| | | | | | | |
|--------|-------|---------|-------|-----|---------|-----|
| SC0107 | 0-3 | 4.5-6.5 | .5-2. | - | 2.0-6.0 | LOW |
| SC0107 | 0-3 | 4.5-6.5 | .5-2. | 0-0 | 2.0-6.0 | LOW |
| SC0107 | 0-3 | 4.5-6.0 | .5-2. | 0-0 | 0.6-2.0 | LOW |
| SC0107 | 3-29 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |
| SC0107 | 29-52 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |
| SC0107 | 52-80 | 4.5-6.0 | 0.-.5 | 0-0 | 0.6-2.0 | LOW |

Established Series
Rev. DTA, RHB
02/2007

CECIL SERIES

The Cecil series consists of very deep, well drained moderately permeable soils on ridges and side slopes of the Piedmont uplands. They are deep to saprolite and very deep to bedrock. They formed in residuum weathered from felsic, igneous and high-grade metamorphic rocks of the Piedmont uplands. Slopes range from 0 to 25 percent. Mean annual precipitation is 48 inches and mean annual temperature is 59 degrees F. near the type location.

TAXONOMIC CLASS: Fine, kaolinitic, thermic Typic Kanhapludults

TYPICAL PEDON: Cecil sandy loam--forested. (Colors are for moist soil unless otherwise stated.)

Ap--0 to 8 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium granular structure; very friable; slightly acid; abrupt smooth boundary. (2 to 8 inches thick)

Bt1--8 to 26 inches; red (10R 4/8) clay; moderate medium subangular blocky structure; firm; sticky, plastic; common clay films on faces of peds; few fine flakes of mica; strongly acid; gradual wavy boundary.

Bt2--26 to 42 inches; red (10R 4/8) clay; few fine prominent yellowish red (5YR 5/8) mottles; moderate medium subangular blocky structure; firm; sticky, plastic; common clay films on faces of peds; few fine flakes of mica; very strongly acid; gradual wavy boundary. (Combined thickness of the Bt horizon is 24 to 50 inches)

BC--42 to 50 inches; red (2.5YR 4/8) clay loam; few distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; very strongly acid; gradual wavy boundary. (0 to 10 inches thick)

C--50 to 80 inches; red (2.5YR 4/8) loam saprolite; common medium distinct pale yellow (2.5Y 7/4) and common distinct brown (7.5YR 5/4) mottles; massive; very friable; few fine flakes of mica; very strongly acid.

TYPE LOCATION: Franklin County, North Carolina; about 9.7 miles west of Louisburg on North Carolina Highway 56 to Franklinton, about 4.4 miles south on U.S. Highway 1, about 0.4 mile east on North Carolina Highway 96, about 500 feet north of the road, in a field; Franklinton USGS topographic quadrangle; lat. 36 degrees 02 minutes 24 seconds N. and long. 78 degrees 29 minutes 27 seconds W.

RANGE IN CHARACTERISTICS: The Bt horizon is at least 24 to 50 inches thick and extends to 40 inches or more. Depth to bedrock ranges from 6 to 10 feet or more. The soil ranges from very strongly acid to moderately acid in the A horizons and is strongly acid or very strongly acid in the B and C horizons. Limed soils are typically moderately acid or slightly acid in the upper part. Content of coarse fragments range from 0 to 35 percent by volume in the A horizon and 0 to 10 percent by volume in the Bt horizon. Fragments are dominantly gravel or cobble in size. Most pedons have few to common flakes of mica in the Bt horizon and few to many flakes of mica in the BC and C horizons.

The A or Ap horizon has hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 2 to 8. A horizons with value of 3 are less than 6 inches thick. The texture is sandy loam, fine sandy loam, or loam in the fine earth fraction. Eroded phases are sandy clay loam, or clay loam in the fine earth fraction.

The E horizon, where present, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8. It is sandy loam, fine sandy loam, or loam in the fine-earth fraction.

The BA or BE horizon, where present, has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8. It is sandy clay loam, loam, or clay loam.

The Bt horizon averages 35 to 60 percent clay in the control section but may range to 70 percent in some subhorizons. It has hue of 10R or 2.5YR, value of 4 or 5, and chroma of 6 or 8. Hue also ranges to 5YR if evident patterns of mottling are lacking in the Bt and BC horizons. Mottles that are few and random are included. The Bt horizon is clay loam, clay, or sandy clay and contains less than 30 percent silt.

The BC horizon has hue of 10R to 5YR, value of 4 or 6, and chroma of 4 to 8. Mottles in shades of yellow or brown are few to common in some pedons. The texture is sandy clay loam, clay loam, or loam.

The C horizon is similar in color to the BC horizon or it is variegated. It is loamy saprolite weathered from felsic, igneous and high-grade metamorphic rocks.

COMPETING SERIES: These are the [Appling](#), [Bethlehem](#), [Georgeville](#), [Herndon](#), [Madison](#), [Nanford](#), [Nankin](#), [Pacolet](#), [Saw](#), [Tarrus](#), and [Wedowee](#) series in the same family. Those in closely related families are the [Cataula](#), [Chestatee](#), [Cullen](#), [Hulett](#), [Lloyd](#), [Mayodan](#), and [Mecklenburg](#) series. Appling soils have dominant hue of 7.5YR or yellower or where hue is 5YR it has evident patterns of mottling in a subhorizon of the Bt or BC horizon. Bethlehem soils have soft bedrock at depths of 20 to 40 inches. Cataula soils have a perched water table at 2 to 4 feet, Chestatee soils contain more than 15 percent, by volume, coarse fragments throughout. Cullen soils have more clay in the Bt horizon. Mayodan and Mecklenburg soils have mixed mineralogy and in addition, Mayodan soils formed in Triassic age sediments and Mecklenburg soils formed from basic diabase parent material. Georgeville, Herndon, Nanford, and Tarrus soils formed in Carolina slate and contain more than 30 percent silt. Hulett, Nankin, and Wedowee soils have a Bt horizon with hue of 5YR or yellower. In addition, Nankin soils formed from marine sediments. Lloyd soils have rhodic colors to depths of 40 inches or more. Madison, Pacolet, and Wedowee soils have thinner argillic horizons. Saw soils have hard bedrock at depths of 20 to 40 inches.

GEOGRAPHIC SETTING: Cecil soils are on nearly level to steep Piedmont uplands. Slope gradients are 0 to 25 percent, most commonly between 2 and 15 percent. These soils have developed in weathered felsic igneous and high-grade metamorphic rocks. Average annual precipitation is about 48 inches. Mean annual soil temperature is about 59 degrees F.

GEOGRAPHICALLY ASSOCIATED SOILS: In addition to the competing [Appling](#), [Bethlehem](#), [Cataula](#), [Chestatee](#), [Cullen](#), [Lloyd](#), [Madison](#), [Mecklenburg](#), [Pacolet](#), [Saw](#), and [Wedowee](#) series these are the [Durham](#), [Louisburg](#), [Rion](#), and [Worsham](#) series. Durham, Louisburg, and Rion soils have less clay in the Bt horizon. Worsham soils are poorly drained and are around the heads of drains.

DRAINAGE AND PERMEABILITY: Well drained; medium to rapid runoff; moderate permeability.

USE AND VEGETATION: About half of the total acreage is in cultivation, with the remainder in pasture and forest. Common crops are small grains, corn, cotton, and tobacco.

DISTRIBUTION AND EXTENT: The Piedmont of Alabama, Georgia, North Carolina, South Carolina, and Virginia. The series is of large extent, with an area of more than 10 million acres.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Raleigh, North Carolina

SERIES ESTABLISHED: Cecil County, Maryland; 1899.

REMARKS: The June 1988 revision changed the classification to Typic Kanhapludults and recognized the low activity clay properties of this soil as defined in the Low Activity Clay Amendment to Soil Taxonomy, August

1986. The December 2005 revision changed the type location from Catawba County, North Carolina to a more representative location. The May 2006 revision changed language in competing series for Wedowee.

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon--the zone from the surface of the soil to a depth of 8 inches (Ap horizon)

Kandic horizon--the zone between 8 and 42 inches meets the low activity clay requirement in more than 50 percent of the horizon (Bt1 and Bt2 horizons)

Argillic horizon--the zone between 8 and 42 inches (Bt1 and Bt2 horizons)

ADDITIONAL DATA: McCracken, R. J., editor: Southern Cooperative Series Bulletin 61, issued January, 1959, Virginia Agricultural Experiment Station, Blacksburg, Virginia. Soil Survey of Catawba County, North Carolina, issued 1975. Soil Survey of Forsyth County, North Carolina, issued 1976.

MLRA--136

REVISED--09/1997, RLV; 12/2005, DTA; 05/2006, RHB

TABULAR SERIES DATA:

| SOI-5 | Soil Name | Slope | Airtemp | FrFr/Seas | Precip | Elevation |
|--------|-----------|-------|---------|-----------|--------|-----------|
| NC0018 | CECIL | 0-25 | 57-65 | 175-200 | 45-55 | 200-900 |
| NC0268 | CECIL | 0-25 | 57-65 | 160-190 | 44-55 | 300-800 |

| SOI-5 | FloodL | FloodH | Watertable | Kind | Months | Bedrock | Hardness |
|--------|--------|--------|------------|------|--------|---------|----------|
| NC0018 | NONE | | >6.0 | - | - | >60 | |
| NC0268 | NONE | | >6.0 | - | - | >60 | |

| SOI-5 | Depth | Texture | | 3-Inch | No-10 | Clay% | -CEC- |
|--------|-------|-------------------|--|--------|--------|-------|-------|
| NC0018 | 0-8 | SL FSL L | | 0-5 | 80-100 | 5-20 | 1-5 |
| NC0018 | 0-8 | GR-SL GR-L GR-FSL | | 5-15 | 55-85 | 5-20 | 1-5 |
| NC0018 | 0-8 | SCL CL | | 0-5 | 75-100 | 20-35 | 5-10 |
| NC0018 | 8-50 | C CL | | 0-5 | 92-100 | 35-70 | 3-12 |
| NC0018 | 50-80 | VAR | | - | - | - | - |

| | | | | | | | |
|--------|-------|--------------|--|------|--------|-------|------|
| NC0268 | 0-8 | GR-SCL GR-CL | | 0-10 | 60-85 | 20-35 | 5-10 |
| NC0268 | 8-50 | C CL | | 0-5 | 90-100 | 35-70 | 3-12 |
| NC0268 | 50-80 | VAR | | - | - | - | - |

| SOI-5 | Depth | -pH- | O.M. | Salin | Permeab | Shnk-Swll |
|--------|-------|---------|---------|-------|---------|-----------|
| NC0018 | 0-8 | 4.5-6.5 | 0.5-1.0 | 0-0 | 2.0-6.0 | LOW |
| NC0018 | 0-8 | 4.5-6.5 | 0.5-1.0 | 0-0 | 2.0-6.0 | LOW |
| NC0018 | 0-8 | 4.5-6.5 | 0.5-1.0 | 0-0 | 0.6-2.0 | LOW |
| NC0018 | 8-50 | 4.5-5.5 | 0.0-0.5 | 0-0 | 0.6-2.0 | LOW |
| NC0018 | 50-80 | - | - | - | - | - |

| | | | | | | |
|--------|-------|---------|---------|-----|---------|-----|
| NC0268 | 0-8 | 4.5-6.0 | 0.5-1.0 | 0-0 | 0.6-2.0 | LOW |
| NC0268 | 8-50 | 4.5-5.5 | 0.0-0.5 | 0-0 | 0.6-2.0 | LOW |
| NC0268 | 50-80 | - | - | - | - | - |

Ecoregions of North Carolina and South Carolina

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance (Byrce and others, 1999). These general purpose regions are critical for structuring and implementing ecosystem management strategies across federal agencies, state agencies, and nongovernment organizations that are responsible for different types of resources within the same geographical areas (Omernik and others, 2000).

The approach used to compile this map is based on the premise that ecological regions are hierarchical and can be identified through the analysis of the spatial patterns and the composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity (Whitten 1986; Omernik 1987, 1995). These phenomena include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North America into 15 ecological regions. Level II divides the continent into 52 regions (Commission for Environmental Cooperation Working Group 1997). At level III, the continental United States contains 104 ecoregions and the conterminous United States has 84 ecoregions (United States Environmental Protection Agency [USEPA] 2002). Level IV is a further subdivision of level III ecoregions. Explanations of the methods used to define the USEPA's ecoregions are given in Omernik (1995), Omernik and others (2000), and Gallant and others (1989).

Ecological and biological diversity of the Carolinas is enormous. The two states contain barrier islands and coastal lowlands, large river floodplain forests, rolling

plains and plateaus, forested mountains, and a variety of aquatic habitats. There are 5 level III ecoregions and 29 level IV ecoregions in North and South Carolina and most continue into ecologically similar parts of adjacent states.

The level III and IV ecoregions on this poster were compiled at a scale of 1:250,000 and depict revisions and subdivisions of earlier level III ecoregions that were originally compiled at a smaller scale (USEPA 2002; Omernik 1987). This poster is part of a collaborative project primarily between USEPA Region IV, USEPA National Health and Environmental Effects Research Laboratory (Corvallis, Oregon), North Carolina Department of Environment and Natural Resources (NCDENR), South Carolina Department of Health and Environmental Control (SCDHEC), and the United States Department of Agriculture-Natural Resources Conservation Service (NRCS). Collaboration and consultation also occurred with the United States Department of Agriculture-Forest Service (USFS), United States Department of the Interior-Geological Survey (USGS)-Earth Resources Observation Systems (EROS) Data Center, and with other State of North Carolina and State of South Carolina agencies.

The project is associated with an interagency effort to develop a common framework of ecological regions (McMahon and others, 2001). Reaching that objective requires recognition of the differences in the conceptual approaches and mapping methodologies applied to develop the most common ecoregion-type frameworks, including those developed by the USFS (Bailey and others, 1994), the USEPA (Omernik 1987, 1995), and the NRCS (U.S. Department of Agriculture Soil Conservation Service, 1981). As each of these frameworks is further refined, their differences are becoming less discernible. Regional collaborative projects such as these in North and South Carolina, where some agreement has been reached among multiple resource management agencies, are a step toward attaining consensus and consistency in ecoregion frameworks for the entire nation.

Literature Cited:

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Byrce, S.A., Omernik, J.M., and Larsen, D.P., 1999. Ecoregions - a geographic framework to guide risk characterization and ecosystem management. Environmental Practice, v. 1, no. 3, p. 141-155.

Commission for Environmental Cooperation Working Group, 1997. Ecological regions of North America - toward a common perspective: Montreal, Quebec, Commission for Environmental Cooperation, 71 p.

Gallant, A.L., Whittier, T.R., Larsen, D.P., Omernik, J.M., and Hughes, R.M., 1989. Regionalization as a tool for managing environmental resources: Corvallis, Oregon, U.S. Environmental Protection Agency, EPA/600/3-89-060, 152 p.

McMahon, G., Gregonis, S.M., Waltman, S.W., Omernik, J.M., Thorson, T.D., Freecut, J.A., Ronick, A.H., and Keys, J.E., 2001. Developing a spatial framework of common ecological regions for the conterminous United States. Environmental Management, v. 28, no. 3, p. 293-316.

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Wikén, E., 1986. Terrestrial ecoregions of Canada: Ottawa, Environment Canada, Ecological Land Classification series no. 19, 26 p.



Several major land-cover transformations have occurred in the Piedmont over the past 200 years. From forest farms, back to forest, and even to many areas, sprawling urban areas and suburbanization. The Piedmont contains most of the largest urban areas of the Carolinas, with intensive high regional population densities and rates of growth.

45. Piedmont Consider the nonmountain portion of the old Appalachian Highland by physiographers, the relatively low-relief Piedmont ecoregion comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the northeast coastal plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. Once largely cultivated, this region is in planted pine or has reverted to successional pine and hardwood woodlands. The historic oak-hickory pine forest was dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), and hickory (*Carpe* spp.), with shortleaf pine (*Pinus echinata*), loblolly pine (*Pinus taeda*), and to the north and west, Virginia pine (*Pinus virginiana*). The soils tend to be finer-textured than in coastal plain regions.

45a. The Southern Inner Piedmont is generally higher in elevation with more relief than 45b. As a transitional region from Blue Ridge (66) to the Coastal Plain (63n), the Southern Inner Piedmont (45a) is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. Once largely cultivated, this region is in planted pine or has reverted to successional pine and hardwood woodlands. The historic oak-hickory pine forest was dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), and hickory (*Carpe* spp.), with shortleaf pine (*Pinus echinata*), loblolly pine (*Pinus taeda*), and to the north and west, Virginia pine (*Pinus virginiana*). The soils tend to be finer-textured than in coastal plain regions.

45b. The Southern Outer Piedmont ecoregion has lower elevations, less relief, and less precipitation than 45a. The landform class is mostly irregular plains rather than the chains with hills of 45a and 45c. Pine (mostly loblolly and shortleaf) and hickory dominate on old field sites and pine plantations, while mixed oak forest is found in less heavily altered areas. Gneiss, schist, and granite are typical rocks within this region, with deep clayey sand and mostly red, clayey sandstone and shale. Karbantholites are common, such as the Cecil, Appaling, and Madison series. Some areas within this region have more alkaline soils, such as the Fredrick series, formed over diabase, diorite, or gabbro, and may be associated with areas once known as blackjak oak prairies.

45c. The Carolina Slate Belt extends from southern Virginia, across the Carolinas, and into Georgia. The mineral-rich metamorphic and metasedimentary rocks with slaty cleavage are finer-grained and less metamorphosed than most Piedmont regions. Some parts are rugged, such as the Upland Mountains, and many areas are distinguished by trellised drainage patterns. Silty and silty clay soils are typical. The Georgetown and Henderson series, are typical. Streams tend to dry up and water yields to wells are low in this region because of the lower water-yielding rock units in the Carolinas.

45d. Similar to 45a, the rolling to hilly Northern Inner Piedmont has higher elevations, more rugged topography, and more metamorphic rocks than 45b. Outliers than those of the Piedmont, it has colder temperatures, more snowfall, and a shorter growing season than in 45a, b, c, and f, and it has mostly mesic soils rather than the thermic soils that cover other regions of the Carolina Piedmont.

63. Middle Atlantic Coastal Plain

Ecoregion 63 is found primarily in the Carolinas and other states to the north, and has a broad transitional boundary with Ecoregion 75 to the south. It consists of low elevation, flat plains, with many swamps, marshes, and estuaries. Forest cover in the region, once dominated by longleaf pine in the Carolinas, is now mostly loblolly and some shortleaf pine, with patches of oak, gum, and cypress near major streams, as compared to the mainly longleaf-slack pine forests of the warmer Southern Coastal Plain (75). Its low terraces, marshes, dunes, barrier islands, and beaches are underlain by unconsolidated sediments. Poorly drained soils are common, and the region has a mix of coarse and fine textured soils compared to the mostly coarse soils in the majority of Ecoregion 75. Ecoregion 63 is typically lower, flatter, more poorly drained, and more marshy than Ecoregion 65. Pine plantations for pulpwood and lumber are typical, with some areas of cropland.

63b. The Chesapeake-Panico Lowlands and Tidal Marshes occur on the lowest marine terrace with elevations ranging from sea level to about 25 feet. The western boundary of 63b generally occurs at the Suffolk Scarp. The region is characterized by nearly level plains with some broad shallow valleys, seasonally wet soils (Aquatic), brackish and fresh streams, and broad estuaries affected by wind tides. It is flatter and lower in elevation than 63c, with a slightly longer growing season than 63e and 65a. Some major areas of cropland are found in the region, growing corn, wheat, soybeans, and potatoes. Lake Mattamuskeet, the largest natural lake in North Carolina, provides valuable wintering areas for geese, swans, ducks, and other waterfowl.

63c. Nonriverine Swamps and Peatlands are flat, poorly drained areas containing organic soils of peat and muck. The dark red-brown to black soils, acedified, and nutrient-poor, often contain logs, stumps, and other woody matter from bald cypress and Atlantic white cedar trees. Pocosin lakes are common in some areas. The region is flat and low in elevation than 63b, with a slightly longer growing season than 63e and 65a. Some major areas of cropland are found in the region, growing corn, wheat, soybeans, and potatoes. Lake Mattamuskeet, the largest natural lake in North Carolina, provides valuable wintering areas for geese, swans, ducks, and other waterfowl.

63d. The Virginia Barrier Islands and Coastal Marshes occur in the northeast corner of North Carolina and contain salt, brackish, and freshwater marshes, dunes, beaches, and barrier islands that enclose Currituck Sound. The Quaternary-age deposits of unconsolidated sand, silt, and clay form dynamic landforms affected by ocean waves, tide, wind, and ocean currents. The northeast corner of the region is the longshore Virginia Currituck, tends to be colder than in most of 63g, especially south of Cape Hatteras, where warmer Gulf Stream waters occur. On the barrier islands, northern beach grass and deciduous oaks are common, but the interior is dominated by evergreen live oak more commonly found to the south in 63g. Salt marshes are dominated by saltmarsh and saltmeadow cordgrasses and black needlerush, while the freshwater marshes of upper Currituck Sound contain bulrush, cattail, sawgrass, and green cordgrass. The marshes provide wintering habitat for geese, ducks, and wading birds. Piping plover and loggerhead sea turtles occasionally nest along the beaches.

63e. The Mid-Atlantic Floodplains occupies the middle portion of the coastal plain in northern North Carolina and southern Virginia. Upland surfaces are wider, lower in elevation, with less local relief, and have more poorly drained soils compared to Ecoregion 65n. Soils such as Aquilula and some Udules formed in the mostly Pleistocene-age sands and clays. With slow natural subsidence, except near

region contains more Virginia pine and less shortleaf pine than 45b and 45c, more relief than 45b. As a transitional region from Blue Ridge (66) to the Coastal Plain (63n), the Southern Inner Piedmont (45a) is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. Once largely cultivated, this region is in planted pine or has reverted to successional pine and hardwood woodlands. The historic oak-hickory pine forest was dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), post oak (*Quercus stellata*), and hickory (*Carpe* spp.), with shortleaf pine (*Pinus echinata*), loblolly pine (*Pinus taeda*), and to the north and west, Virginia pine (*Pinus virginiana*). The soils tend to be finer-textured than in coastal plain regions.

45f. The Northern Outer Piedmont is composed of mostly gneiss and schist rock, intruded by granitic plutons, and veneered with saproelite. It is lithologically distinct from the adjacent Piedmont regions 45a and 45g, as well as from the younger unconsolidated sediments of 65n. Rocks and soils are similar to 45b, but 45f is cooler and has less precipitation than 45b. The region contains mostly loblolly pine on the Virginia pine and shortleaf pine found in the Piedmont to the west, but it also contains local concentrations of mountain disjunct plant species. At the eastern margin, the Fall Line marks the transition zone where Piedmont rocks occur for the same landscape with Coastal Plain sediments. Some areas near this boundary have metasedimentary and metasedimentary rocks similar to 45c.

45g. The Triassic ecoregion of the Carolinas occurs in four narrow bands and have unusual Piedmont geology of unmetamorphosed shales, sandstones, mudstones, siltstones, and conglomerates. Local relief and elevations are often less than in surrounding regions, and with rocks that are easier to erode, stream valleys that cross the region tend to widen. Soils tend to be clayey with low permeability, and streams have low base flows. The clay has a high shrink-swell potential that can hinder construction; it is also utilized by many brick makers in the region. A mosaic of mixed and deciduous forest, pasture, cropland, and urban land cover occurs here.

45i. The Kings Mountain ecoregion is a hilly, somewhat rugged area with some karbantholites. The northeast-trending ridges and distinctive metasedimentary and metasedimentary rocks are similar to 45c. The region is generally lower in elevation than 45b, but it has a longer growing season than 45b. The region is covered with oak-hickory pine forest, and Virginia pine is common.

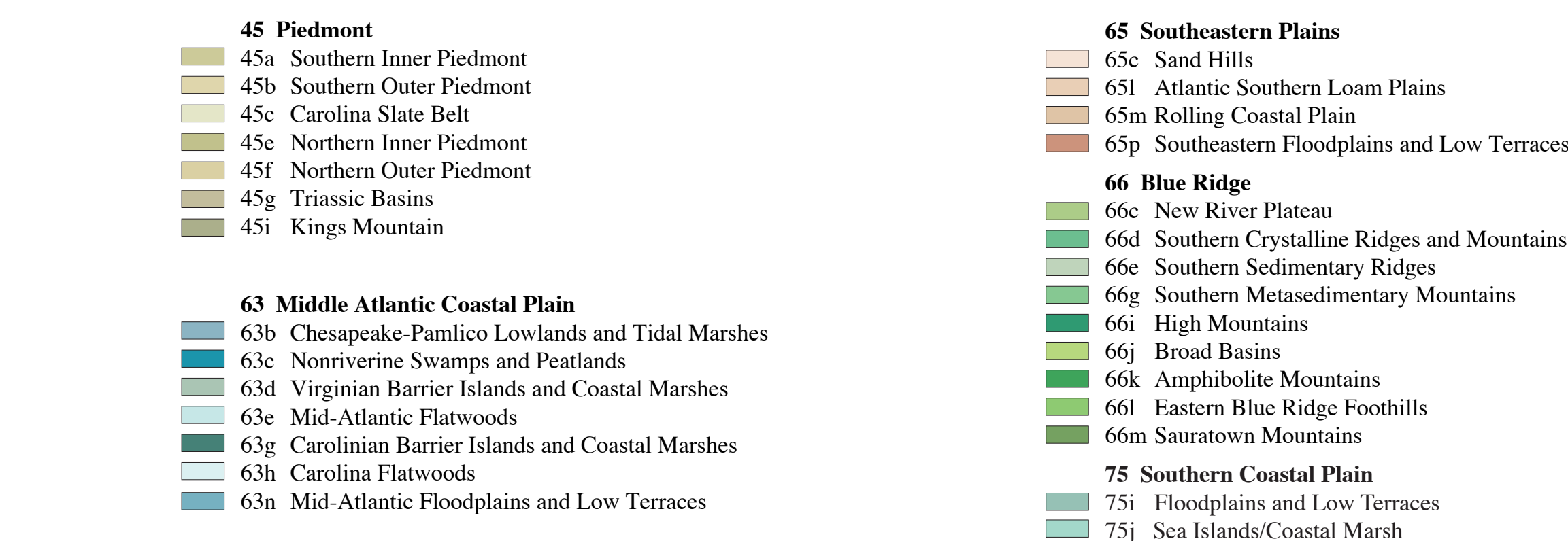
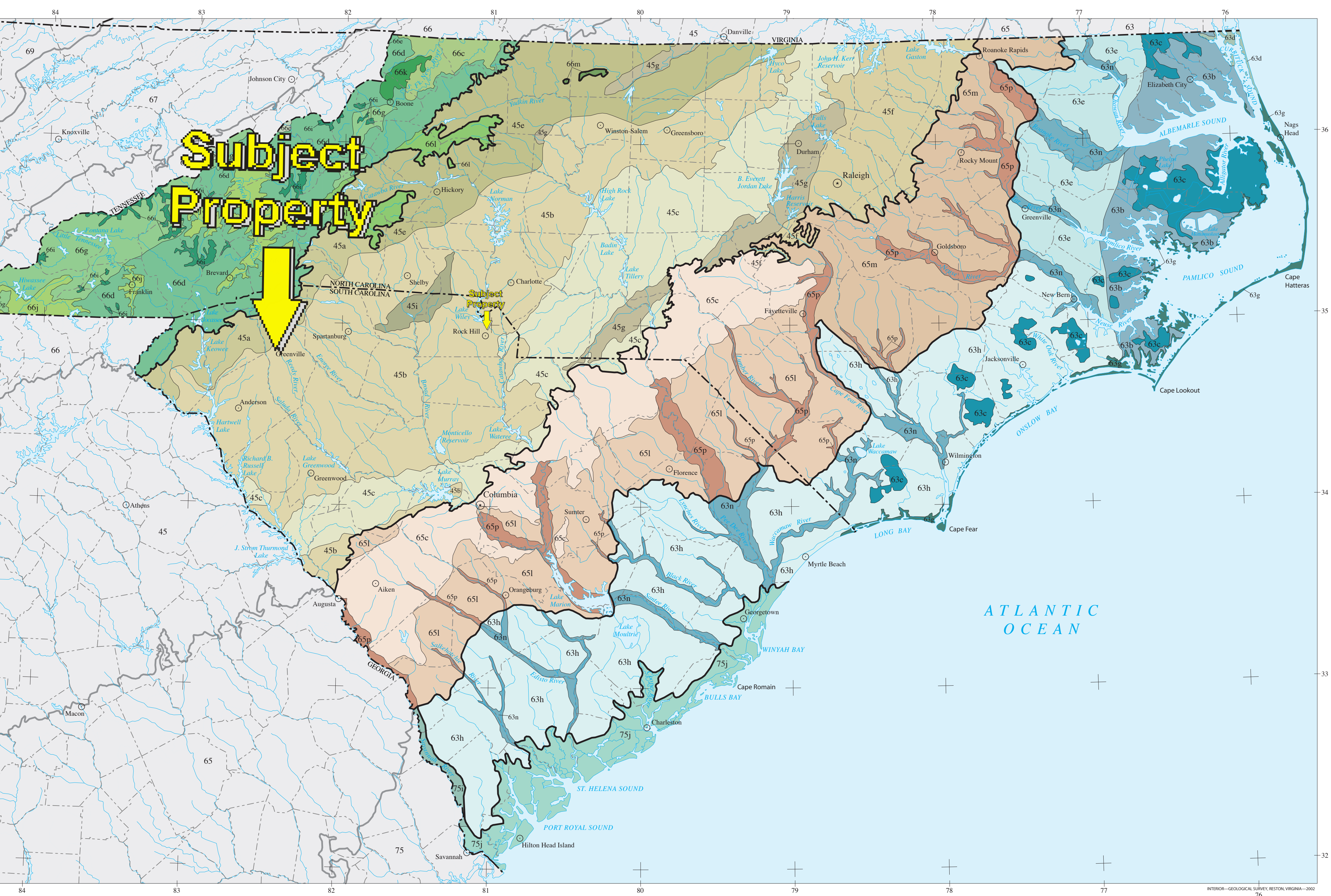


Today are an important part of the Piedmont poverty industry in the Carolinas. South Carolina is often the largest producer of tobacco in the nation.

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Longleaf pine forests once covered many portions of the Carolinas. Today, they are found in small, scattered patches, often in the form of remnant stands, along with smaller, scattered areas of mixed pine and hardwood forests. These forests had a diversity of age classes, structure, and species to support environmental gradients and natural disturbances. Over the past three centuries, natural forces or man-made protection, logging, open-range cattle and feed-grain growing, agriculture, and fire suppression removed almost all of the longleaf pine forests. Today, a landscape mosaic of cropland, pasture, pine plantations, and forested upland areas is a typical feature in many parts of the Southeastern Plains ecoregion.

65. Southeastern Plains These irregular plains with broad interstream areas have a mosaic of cropland, pasture, woodland, and forest. Natural vegetation was predominantly longleaf pine, with smaller areas of oak-hickory pine. On some moist sites, especially in the far south near Florida, Southern mixed forest occurred with beech, sweetgum, southern magnolia, laurel and live oaks, and various pines. The Cretaceous or Tertiary-age sands, silts, and clays of the region contrast geologically with the older metamorphic and igneous rocks of the Blue Ridge (66) and Piedmont (45). Elevations and relief are greater than in the Southern Coastal Plain (75), but generally less than in much of the Piedmont. Streams in this area are relatively low-gradient and sandy-bottomed.

65c. The Sand Hills are a rolling to hilly region composed primarily of Cretaceous-age marine sands and clays, capped in places with Tertiary sand and gravel. The region is characterized by rolling to hilly terrain with Tertiary sand and gravel deposited over the crystalline and metamorphic rocks of the Piedmont (45). Many of the droughty, low-nutrient soils formed in thick beds of sand, although some sites contain more loamy and clayey horizons. Some upland areas are underlain by plinthite, and siltlopes tend to have fragipans that perch water and cause lateral flow and seepage. Stream flow is consistent; streams seldom flood or dry up because of the large infiltration capacity of the sandy soil and the great ground-water storage capacity of the sand aquifer. On dry sites, turkey oak and blackjack oak grow with longleaf pine and a wiregrass ground cover. Shortleaf-loblolly pine forests and other oak-pine forests are now more widespread due to fire fire-regime and logging. The Sand Hills are a center of rare plant diversity in the Carolinas. The region is also known for its peach orchards, golf courses, and horse farms.

65f. The Atlantic Southern Low Plains ecoregion is lower, flatter, more gently rolling, with finer-textured soils than 65c. It is a major agricultural zone, with deep, well-drained soils, and more cropland than 65c or 66f. The flora is varied due to the variety of edaphic conditions, but is generally more mesic than found in 65c, and more xeric than in 65b. The region has the highest concentration of Carolina bays. These are shallow, elliptical depressions, often swampy or wet in the middle with dry

66. Blue Ridge

The Blue Ridge extends from southern Pennsylvania to northern Georgia, varying from narrow ridges to fully plateaus to more massive mountainous areas with high peaks. The mostly forested slopes, high-gradient, cool, clear streams, and rugged terrain occur primarily on metamorphic rocks with minor areas of igneous and sedimentary geology. Annual precipitation of over 100 inches can occur in the wettest areas, while dry basins can average as little as 40 inches. The southern Blue Ridge is one of the richest centers of biodiversity in the eastern U.S. It is one of the most floristically diverse ecoregions, and includes Appalachian oak forests, northern hardwoods, and, at the highest elevations in Tennessee and North Carolina, Southeastern spruce fir forests. Shrub, grass, and heath balds, cove hardwoods, and oak-pine communities are also significant.

66a. The New River Plateau is a high, hilly plateau with less relief and a different land cover mosaic than surrounding Blue Ridge ecoregions. It has less dense woodland and forest cover, and more land devoted to pasture, orchards, cropland, livestock, and dairy farms, and Christmas tree production. Elevations are generally between 2500-3500 feet, with a few higher peaks. Oak dominates most of the forests, with beech, birch, hickory, and poplar on more moist sites and pines on drier sites.

66b. The Southern Crystalline Ridges and Mountains occur primarily on Precambrian-age gneisses and high-grade metamorphic rocks, in contrast to the sedimentary and metasedimentary rocks of 66c and 66f. The crystalline rock types are mostly gneiss and schist, covered by well-drained, acidic, loamy soils. Some small areas of calcareous and ultramafic rocks also occur, producing more basic soils. The region has greater relief and higher elevations than 66f, 66c, and 66g. Elevations of this rough, dissected region are generally 1200-4500 feet. The southern part of the region with the highest elevations is the Blue Ridge. The region is dominated by American chestnut (dominating on most slopes and ridges). There are a few small areas of pasture, apple orchards, Fraser fir Christmas tree farms, or minor cropland.

66c. The Southern Sedimentary Ridges in North Carolina consist of small areas near the Tennessee border in western Albemarle, Mitchell, Yancey, and Madison counties. The disjunct areas contain Cambrian-age sedimentary rocks of slate, sandstone, siltstone, conglomerate, and dolomite. Some metasilicate or metasedimentary rocks, but it is material of very low-grade metamorphism. One of the larger areas, in Madison County, is associated with the Hot Springs Window, an opening where the major thrust sheet was eroded to expose younger, underlying rocks such as the Shady Dolomite and Rome Formation shale and siltstone. Slopes of the region are typically steep and forested, with elevations ranging from 1500-4000 feet.

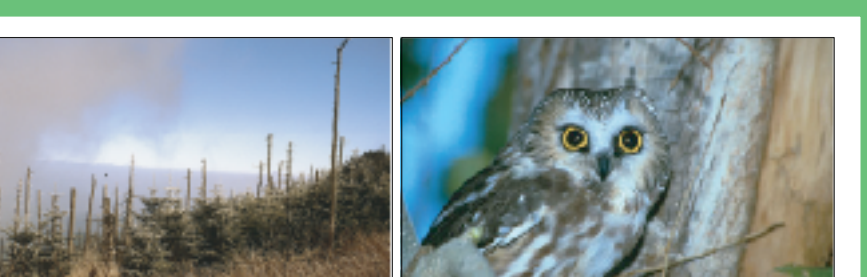
66d. The Southern Metasedimentary Mountains in North Carolina contain rocks that are not as strongly metamorphosed as the gneisses and schists of 66b. The geologic materials are mostly late Pre-Cambrian and include metagraywacke, metasilicate, metasedimentary, metacarbonate, slate, schist, phyllite, and quartzite. These are steep, dissected, biologically-diverse mountains that are densely forested. The Appalachian oak forests and, at higher elevations, the northern hardwoods forest include a variety of oaks and pines, as well as silverbell, hemlock, yellow poplar, hawwood, hickory, yellow birch, and beech. Much of the region is public land managed by the National Forest Service or U.S. Forest Service.

66e. The High Mountains ecoregion includes several disjunct high-elevation areas generally above 4500 feet. The region has a more severe, boreal-like climate than surrounding regions, with vegetation and climate reflecting its elevation. Soils are typically more acidic. Evergreen red spruce and Fraser fir forests are found at the higher elevations, and red oak forests and northern hardwood forests with beech, yellow birch, yellow hickory, and sugar maple are common in the lower elevations. The Fraser fir, and some red spruce, are found in the region. The Fraser fir forest has been affected by the balsam wooly adelgid, a non-native insect that kills mature Fraser fir, and some forest growth declines are possibly linked to air pollutants. Heath balds dominated by evergreen rhododendron and mountain laurel, and grassy

strandy rims. Carolina bays not drained for agriculture often contain rare or endangered plants and animal species.

66m. The dissected Rolling Coastal Plain extends south from Virginia and covers much of the northern outer coastal plain of North Carolina. Relief, elevation, and stream gradients are generally greater than in Ecoregion 63 to the east, and soils tend to be better drained. It has a slightly cooler and shorter growing season than 65b, but it is a productive agricultural region with typical crops of corn, soybeans, tobacco, cotton, sweet potatoes, peanuts, and wheat. The region appears to be agriculturally less diverse than the coastal plain regions 65a and 63b to the south.

66n. Southeastern Floodplains and Low Terraces comprise a riverine ecoregion that provides important wildlife corridors and habitat. Composed of alluvium and terrace deposits of sand, clay, and gravel, the region includes large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. It includes oak-dominated bottomland hardwood forests, and some river swamp forests of bald cypress and water tupelo. Similar to 63b, the flood-prone to the south of the region includes floodplains and backwater floodplains. The broadwater floodplains originate in or cross the Piedmont (45) and the sediments contain more weatherable minerals than the blackwater floodplains that have their watersheds entirely within the coastal plain. Cypress-gum swamps are common, along with bottomland hardwoods of wetland oaks, green ash, red maple, and hickories.



Koeleria is an introduced turf growing vine that was brought to the Carolinas by the U.S. Army for control of soil erosion. The vines can grow a foot per day, shading and smothering native plants and buildings. It can kill trees and other native vegetation by blocking sunlight.

66f. The Broad Basins ecoregion is flatter, has lower elevations and less relief than the more mountainous Blue Ridge regions (66g, 66d). It also has less biodiversity than those two surrounding regions and more agriculture. The soils are mostly deep, well-drained, loamy to clayey Ultisols, although there are variations between the uplands, the high and low terraces, and the floodplains. The Asheville basin has the lowest annual precipitation amounts in North Carolina, receiving less than 42 inches. Compared to the higher mountainous ecoregions of 66, the Broad Basins have a mix of oaks and pines more similar to the Piedmont (45), with more areas of calcareous and ultramafic rocks also occur, producing more basic soils. The region has greater relief and higher elevations than 66f, 66c, and 66g. Elevations of this rough, dissected region are generally 1200-4500 feet. The southern part of the region with the highest elevations is the Blue Ridge. The region is dominated by American chestnut (dominating on most slopes and ridges). There are a few small areas of pasture, apple orchards, Fraser fir Christmas tree farms, or minor cropland.

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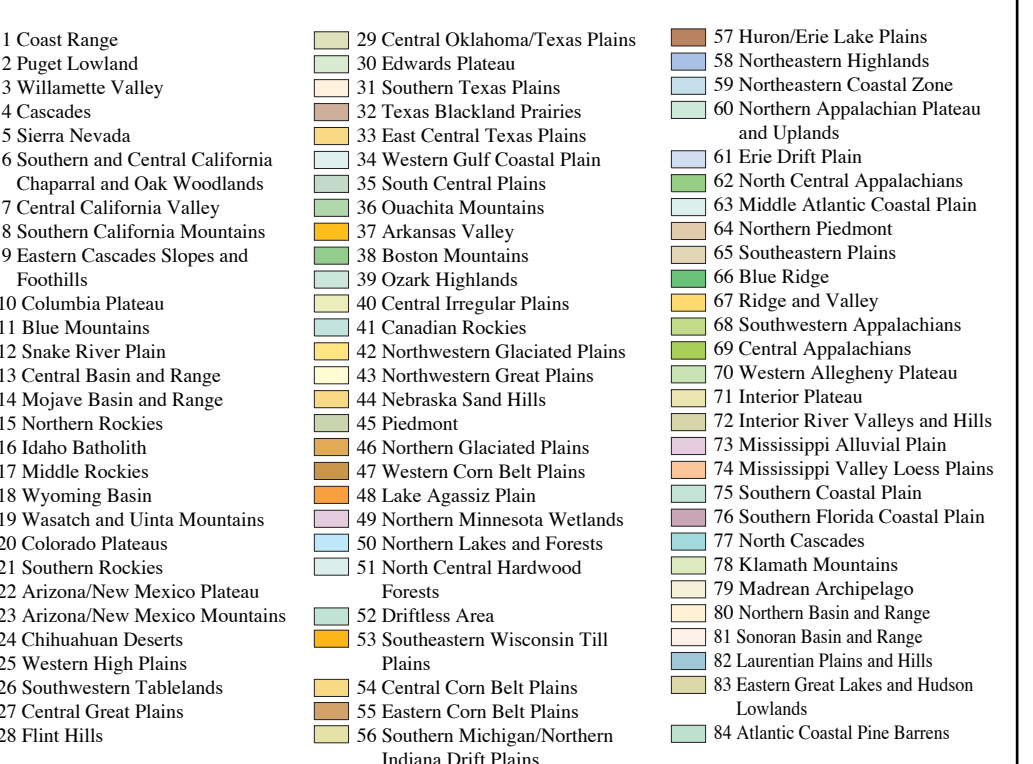
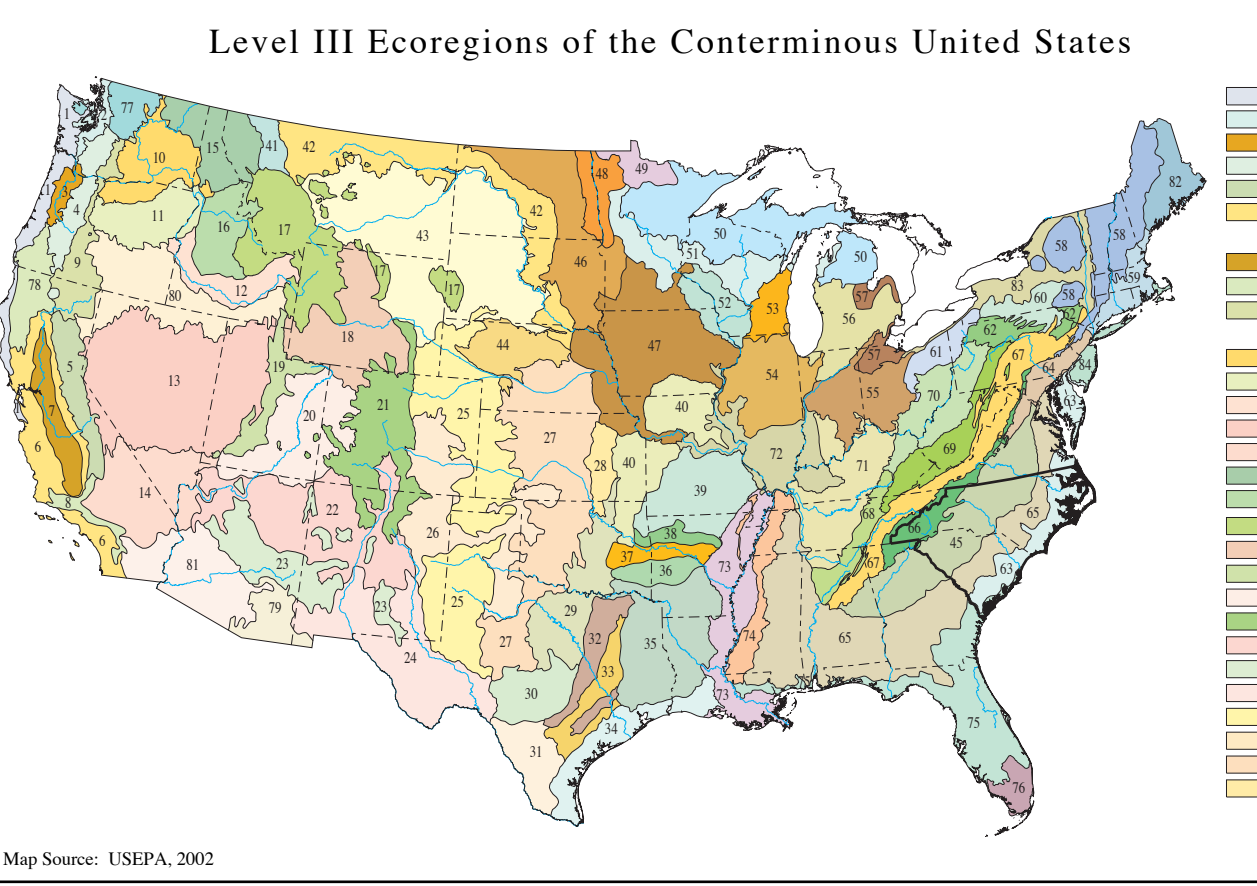
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Tolerant of acid spray, dry sandy soils, or saturated conditions, cabbage palms (Sabal palmetto) are uniquely adapted to the coastal environment. Patches of scrub oaks, live oaks, and cypresses are found in the coastal plain. In the Blue Ridge, the region is dominated by American chestnut (dominating on most slopes and ridges). There are a few small areas of pasture, apple orchards, Fraser fir Christmas tree farms, or minor cropland.

75. Floodplains and Low Terraces are a continuation of the riverine 63n. The Southern Coastal Plain is similar to 63n, but the broad water, floodplains and terraces of major rivers, such as the Savannah in South Carolina, comprise the region. Composed of stream alluvium and terrace deposits of sand, silt, clay, and gravel, along with some organic muck and swamp deposits, the region includes large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. River swamp forests of bald cypress and water tupelo and oak-dominated bottomland hardwood forests provide important wildlife habitat.

75f. The Sea Islands Coastal Marsh region contains the lowest elevations in South Carolina and is a highly diverse environment affected by ocean wind, river and river activity. Mostly sandy soils are found on the barrier islands, which comprise the region. Composed of stream alluvium and terrace deposits of sand, silt, clay, and gravel, along with some organic muck and swamp deposits, the region includes large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. River swamp forests of bald cypress and water tupelo and oak-dominated bottomland hardwood forests provide important wildlife habitat.

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| 66. BLUE RIDGE | | | | | | | | | | | | |
|------------------------|---------------------|---|--------------------------------|--|---|---|---------------------------------|--------------------|--|------------------------------|---|--|
| Level IV Ecoregion | Physiography | | Geology | | Soil | | Climate | | | Potential Natural Vegetation | Land Use and Land Cover | |
| | Area (square miles) | Elevation/ Low Relief (feet) | Surficial Material and Bedrock | Order (Great Group) | Common Soil Series | Temperatures/ Moisture Regimes | Precipitation (mean annual, in) | First Frost (days) | Mean Temperature January to May (mean, °F) | | | |
| 66c. New River Plateau | 443 | Hilly, high plateau, some low mountains. Moderate gradient streams with bedrock, boulders, cobble, and gravel substrates. | 2350-4175 500-1200 | Quaternary to Tertiary sandy to clayey siltstone, some mafic-basaltic heavy coludavium. Precambrian gneiss, schist, and amphibolite. | Inceptisols (Dystric, Humaqueps), Ultisols (Chandler, Watauga on uplands; Colvard, Keshongahala) Entisols | Evand, Ashe, Hayweville, Cliffo, Chandler, Watauga on uplands; Colvard, Keshongahala) Entisols. | Melic / dry | 43-55 | 150-170 58-80 | 21-42; 58-80 | Appalachian oak forest. Includes northern red oak, white oak, and chestnut oak forests; montane oak-hickory forest; cove forests (tulip poplar, basswood, buckeye, yellow birch, beech, hemlock, northern red oak). | Deciduous forest, mixed forest, pasture and cropland with hay, cattle, rabbits, and Christmas trees. |

| 75. SOUTHERN COASTAL PLAIN | | | | | | | | | | | | |
|-----------------------------------|---------------------|--|--------------------------------|---|--|--|--------------------------------|--------------------------------------|---------------------------------|------------------------------|---|--|
| Level IV Ecoregion | Physiography | | Geology | | Soil | | Climate | | | Potential Natural Vegetation | Land Use and Land Cover | |
| | Area (square miles) | | Elevation/ Local Relief (feet) | Stratigraphic Material and Bedrock | Order (Great Group) | Common Soil Series | Temperature / Moisture Regimes | Precipitation (Mean annual (inches)) | Free Frost (Mean annual (days)) | | | Mean Temperature (January minimum, July maximum (°F)) |
| 75i. Floodplains and Low Terraces | 146 | Major river floodplains and associated low terraces; low gradient streams with sandy and silty substrates, oxbow lakes, ponds, swamps. | 2-80 5-25 | Holocene alluvial silt and clay. | Inceptisols (Endoaqupts, Dystrandepts) | Chastain, Tawcaw, Chewalla | Thermic / Aquic | 48-50 | 240-260 | 35-58; 60-91 | Southern floodplain forest. Includes cypress-gum swamp (water tupelo, swamp tupelo, bald cypress, pond cypress) and bottomland hardwood forest (bottomland oaks, red maple, sweetgum, green ash, bitternut hickory). | Forested wetlands, deciduous forest. |
| 75j. Sea Islands / Coastal Marsh | 1987 | Barrier islands, dunes, beaches, lagoons, estuaries, tidal marshes. | 0-20 0-30 | Holocene saline marsh deposits of silt, sand, peat, and clay; Holocene beach and dune sand; Pleistocene beach and near-shore marine sand. | Entisols (Quartzipsamments, Udoqupamments, Sulfisquods, Hydroquods), Spodosols (Alaquods, Alorthods) | Seabrook, Wando, Cuthbert, Fripp, Ridgeland, Barataria, Levy; in tidal marshes Bokkettek and Capers. | Thermic / Aquic | 48-53 | 200-280 | 37-58; 72-89 | Salt and brackish marshes (cordgrass, saltgrass, rushes); maritime swamp forest (tupelo, red maple, sweetgum, bald cypress); maritime evergreen forest (live oak, sand laurel oak, slash pine, loblolly pine); dune grass (sea oats, bitter panic grass, cordgrass, beach grass). | Marsh, forested wetlands, evergreen forest, urban, wildlife habitat, beaches, recreation, fish and shellfish production. |

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Soil Survey Area - Soil Data Access (SDA) - Hydric Soils Rating by Map Unit

An SDA-populated select list is used to pick a state and SSA which enables creation of a "Hydric Soils Report" based upon those selections. The data is not static; it hits Soil Data Access Live. To reset the table change the state dropdown. Once a state is selected and table appears, if a new state is selected it will refresh the table. The report uses a count instead of component percent to determine the hydric rating by map unit. [For more information about the table,](#)

South Carolina ▼

selected stateId = SC

Greenville County, South Carolina ▼

selected SSA areasympol = SC045

| areasympol | musym | muname | mukey | hydric_rating |
|------------|-------|--|--------|------------------------|
| SC045 | ASG | Ashe-Cleveland association, very steep | 132454 | Nonhydric |
| SC045 | ATG | Ashe-Cleveland association, stony, very steep | 132455 | Nonhydric |
| SC045 | AvF | Ashe and cleveland soils, 15 to 40 percent slopes | 132458 | Nonhydric |
| SC045 | BrC | Brevard fine sandy loam, 6 to 10 percent slopes | 132459 | Nonhydric |
| SC045 | BrD | Brevard fine sandy loam, 10 to 15 percent slopes | 132460 | Nonhydric |
| SC045 | BsC2 | Brevard sandy clay loam, 2 to 10 percent slopes, eroded | 132461 | Nonhydric |
| SC045 | BsE2 | Brevard sandy clay loam, 10 to 25 percent slopes, eroded | 132462 | Nonhydric |
| SC045 | BvE | Brevard-Evard complex, 15 to 25 percent slopes | 132463 | Nonhydric |
| SC045 | BwB | Buncombe loamy sand, 2 to 5 percent slopes | 132464 | Nonhydric |
| SC045 | Ca | Cartecay and Chewacla soils | 132465 | Nonhydric |
| SC045 | Cb | Cartecay and Toccoa soils | 132466 | Predominantly Nonydric |
| SC045 | CdC2 | Cataula sandy loam, 6 to 10 percent slopes, eroded | 132468 | Nonhydric |
| SC045 | ClB2 | Cecil clay loam, 2 to 6 percent slopes, eroded | 132472 | Nonhydric |
| SC045 | ClC2 | Cecil clay loam, 6 to 10 percent slopes, eroded | 132473 | Nonhydric |
| SC045 | CuC | Cecil-Urban land complex, 2 to 10 percent slopes | 132474 | Nonhydric |
| SC045 | CuE | Cecil-Urban land complex, 10 to 25 percent slopes | 132475 | Nonhydric |
| SC045 | Cv | Chewacla soils | 132476 | Nonhydric |
| SC045 | Cw | Congaree fine sandy loam | 132477 | Nonhydric |
| SC045 | DuB | Durham loamy sand, 2 to 6 percent slopes | 132478 | Nonhydric |

| | | | | |
|-------|------|---|--------|-----------|
| SC045 | EHG | Edneyville and Ashe soils, very steep | 132479 | Nonhydric |
| SC045 | EVF | Evard-Brevard association, steep | 132480 | Nonhydric |
| SC045 | EdC | Edneyville fine sandy loam, 6 to 10 percent slopes | 132481 | Nonhydric |
| SC045 | EdD | Edneyville fine sandy loam, 10 to 15 percent slopes | 132482 | Nonhydric |
| SC045 | EdE | Edneyville fine sandy loam, 15 to 25 percent slopes | 132483 | Nonhydric |
| SC045 | EeF | Edneyville soils, 25 to 40 percent slopes | 132484 | Nonhydric |
| SC045 | FaF | Fannin fine sandy loam, 15 to 40 percent slopes | 132485 | Nonhydric |
| SC045 | HaD | Haywood loam, 6 to 15 percent slopes | 132486 | Nonhydric |
| SC045 | HbB | Helena sandy loam, 2 to 6 percent slopes | 132487 | Nonhydric |
| SC045 | HeB | Hiwassee sandy loam, 2 to 6 percent slopes | 132488 | Nonhydric |
| SC045 | HeC | Hiwassee sandy loam, 6 to 10 percent slopes | 132489 | Nonhydric |
| SC045 | HeD | Hiwassee sandy loam, 10 to 15 percent slopes | 132490 | Nonhydric |
| SC045 | HeE | Hiwassee sandy loam, 15 to 25 percent slopes | 132491 | Nonhydric |
| SC045 | HIB2 | Hiwassee clay loam, 2 to 6 percent slopes, eroded | 132492 | Nonhydric |
| SC045 | HID2 | Hiwassee clay loam, 6 to 15 percent slopes, eroded | 132493 | Nonhydric |
| SC045 | LuD | Louisburg loamy sand, 6 to 15 percent slopes | 132494 | Nonhydric |
| SC045 | LuF | Louisburg loamy sand, 15 to 40 percent slopes | 132495 | Nonhydric |
| SC045 | McB | Madison sandy loam, 2 to 6 percent slopes | 132496 | Nonhydric |
| SC045 | McC | Madison sandy loam, 6 to 10 percent slopes | 132497 | Nonhydric |
| SC045 | McD | Madison sandy loam, 10 to 15 percent slopes | 132498 | Nonhydric |
| SC045 | McE | Madison sandy loam, 15 to 25 percent slopes | 132499 | Nonhydric |
| SC045 | MdC2 | Madison clay loam, 6 to 10 percent slopes, eroded | 132500 | Nonhydric |
| SC045 | MdD2 | Madison clay loam, 10 to 15 percent slopes, eroded | 132501 | Nonhydric |
| SC045 | PcF | Pacolet sandy loam, 25 to 40 percent slopes | 132503 | Nonhydric |
| SC045 | PdD2 | Pacolet clay loam, 10 to 15 percent slopes, eroded | 132504 | Nonhydric |
| SC045 | PdE2 | Pacolet clay loam, 15 to 25 percent slopes, eroded | 132505 | Nonhydric |
| SC045 | PfE3 | Pacolet soils, 10 to 25 percent slopes, severely eroded | 132506 | Nonhydric |
| SC045 | PrD | Porters loam, 6 to 15 percent slopes | 132507 | Nonhydric |
| SC045 | PrF | Porters loam, 15 to 40 percent slopes | 132508 | Nonhydric |
| SC045 | PrG | Porters loam, 40 to 70 percent slopes | 132509 | Nonhydric |
| SC045 | RoG | Rock land-Cleveland complex, 25 to 80 percent slopes | 132510 | Nonhydric |
| SC045 | SFG | Saluda and Edneyville soils, very steep | 132511 | Nonhydric |
| SC045 | SeE | Saluda and Edneyville soils, 15 to 25 percent slopes | 132512 | Nonhydric |
| SC045 | SeF | Saluda and Edneyville soils, 25 to 40 percent slopes | 132513 | Nonhydric |
| SC045 | TdG | Talladega soils, 40 to 80 percent slopes | 132514 | Nonhydric |

| | | | | |
|-------|------|---|---------|-----------|
| SC045 | Ur | Urban land | 132515 | Nonhydric |
| SC045 | W | Water | 132516 | Nonhydric |
| SC045 | Wd | Wehadkee soils | 132517 | Hydric |
| SC045 | WhB | Wickham sandy loam, 2 to 6 percent slopes | 132518 | Nonhydric |
| SC045 | CdB2 | Cataula sandy loam, 2 to 6 percent slopes, moderately eroded | 132467 | Nonhydric |
| SC045 | PcE | Pacolet sandy loam, 15 to 25 percent slopes | 132502 | Nonhydric |
| SC045 | ApB | Appling sandy loam, 2 to 6 percent slopes | 132456 | Nonhydric |
| SC045 | M-W | Miscellaneous Water | 3173635 | Nonhydric |
| SC045 | ApC | Appling sandy loam, 6 to 10 percent slopes | 132457 | Nonhydric |
| SC045 | Qu | Quarry | 645094 | Nonhydric |
| SC045 | CeB | Cecil sandy loam, 2 to 6 percent slopes | 132469 | Nonhydric |
| SC045 | CeC | Cecil sandy loam, 6 to 10 percent slopes | 132470 | Nonhydric |
| SC045 | CeD | Cecil-Cataula complex, 10 to 15 percent slopes, moderately eroded | 132471 | Nonhydric |

Report Metadata: [Back to top](#)

- **areasymbol:** A symbol that uniquely identifies a single occurrence of a particular type of area (e.g. Dane Co., Wisconsin is WI025).
- **musym:** The symbol used to uniquely identify the soil mapunit in the soil survey.
- **Mapunit_Name:** Correlated name of the mapunit (recommended name or field name for surveys in progress).
- **mukey:** A non-connnotative string of characters used to uniquely identify a record in the Mapunit table.
- **hydric_rating:** This Hydric Soil Category rating indicates the components of map units that meet the criteria for hydric soils.

Hydric Soil Categories :

This Hydric Soil Category rating indicates the components of map units that meet the criteria for hydric soils. Map units are composed of one or more major soil components or soil types that generally make up 20 percent or more of the map unit and are listed in the map unit name, and they may also have one or more minor contrasting soil components that generally make up less than 20 percent of the map unit. Each major and minor map unit component that meets the hydric criteria is rated hydric. The map unit class ratings based on the hydric components present are: Hydric, Predominantly Hydric, Partially Hydric, Predominantly Nonhydric, and Nonhydric. The report also shows the total representative percentage of each map unit that the hydric components comprise.

- **"Hydric"** means that all major and minor components listed for a given map unit are rated as being hydric.
- **"Predominantly Hydric"** means that all major components listed for a given map unit are rated as hydric, and at least one contrasting minor component is not rated hydric.
- **"Partially Hydric"** means that at least one major component listed for a given map unit is rated as hydric, and at least one other major component is not rated hydric.
- **"Predominantly Nonhydric"** means that no major component listed for a given map unit is rated as hydric, and at least one contrasting minor component is rated hydric.

- **"Nonhydric"** means no major or minor components for the map unit are rated hydric. The assumption is that the map unit is nonhydric even if none of the components within the map unit have been rated.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they typically exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Vasilas, Hurt, and Noble, 2010).

The NTCHS has developed criteria to identify those soil properties unique to hydric soils (Federal Register, 2012). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria use selected soil properties that are described in "Field Indicators of Hydric Soils in the United States" (Vasilas, Hurt, and Noble, 2010), "Soil Taxonomy" (Soil Survey Staff, 1999), "Keys to Soil Taxonomy" (Soil Survey Staff, 2010), and the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

The criteria for hydric soils are represented by codes, for example, 2 or 3. Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 2. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
 1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 2. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
 1. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
 2. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

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United States
Department of
Agriculture

NRCS

Natural
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Conservation
Service

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agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Greenville County, South Carolina**



September 23, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

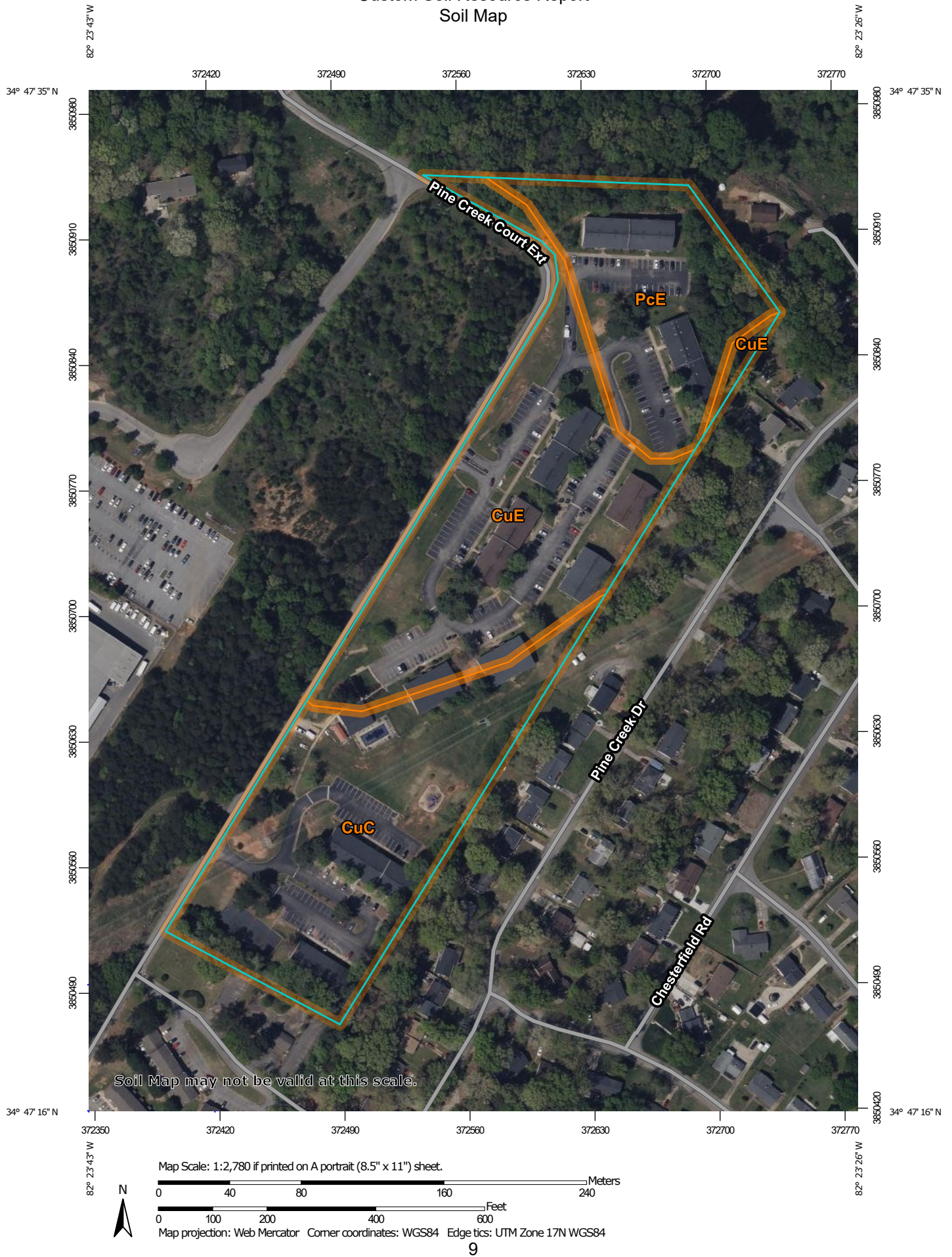
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greenville County, South Carolina
Survey Area Data: Version 19, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 19, 2022—Apr 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------------|----------------|
| CuC | Cecil-Urban land complex, 2 to 10 percent slopes | 5.4 | 38.0% |
| CuE | Cecil-Urban land complex, 10 to 25 percent slopes | 5.6 | 39.6% |
| PcE | Pacolet sandy loam, 15 to 25 percent slopes | 3.2 | 22.3% |
| Totals for Area of Interest | | 14.2 | 100.0% |

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Greenville County, South Carolina

CuC—Cecil-Urban land complex, 2 to 10 percent slopes

Map Unit Setting

National map unit symbol: 4fvc
Elevation: 590 to 1,510 feet
Mean annual precipitation: 43 to 73 inches
Mean annual air temperature: 49 to 71 degrees F
Frost-free period: 185 to 241 days
Farmland classification: Not prime farmland

Map Unit Composition

Cecil and similar soils: 51 percent
Urban land: 49 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cecil

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from granite and gneiss

Typical profile

A - 0 to 6 inches: sandy loam
Bt - 6 to 9 inches: clay
BC - 9 to 47 inches: sandy clay loam
C - 47 to 70 inches: sandy loam

Properties and qualities

Slope: 2 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F136XY820GA - Acidic upland forest, moist
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Hillslopes

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Landform position (two-dimensional): Summit
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Human transported material

Typical profile

M - 0 to 60 inches: artifacts

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

CuE—Cecil-Urban land complex, 10 to 25 percent slopes

Map Unit Setting

National map unit symbol: 4fvd
Elevation: 590 to 1,510 feet
Mean annual precipitation: 43 to 73 inches
Mean annual air temperature: 49 to 71 degrees F
Frost-free period: 185 to 241 days
Farmland classification: Not prime farmland

Map Unit Composition

Cecil and similar soils: 51 percent
Urban land: 49 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cecil

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Clayey residuum weathered from granite and gneiss

Typical profile

A - 0 to 6 inches: sandy loam
Bt - 6 to 9 inches: clay
BC - 9 to 47 inches: sandy clay loam
C - 47 to 70 inches: sandy loam

Properties and qualities

Slope: 10 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium

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Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: F136XY820GA - Acidic upland forest, moist

Hydric soil rating: No

Description of Urban Land

Setting

Landform: Hillslopes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Human transported material

Typical profile

M - 0 to 60 inches: artifacts

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: Unranked

PcE—Pacolet sandy loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2th0b

Elevation: 490 to 1,310 feet

Mean annual precipitation: 43 to 58 inches

Mean annual air temperature: 49 to 71 degrees F

Frost-free period: 185 to 241 days

Farmland classification: Not prime farmland

Map Unit Composition

Pacolet and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pacolet

Setting

Landform: Interfluves

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Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Residuum weathered from granite and/or residuum weathered from gneiss

Typical profile

A - 0 to 6 inches: sandy loam

Bt - 6 to 38 inches: clay

BCt - 38 to 80 inches: sandy clay loam

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: F136XY820GA - Acidic upland forest, moist

Hydric soil rating: No

Minor Components

Bethlehem

Percent of map unit: 10 percent

Landform: Interfluves

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

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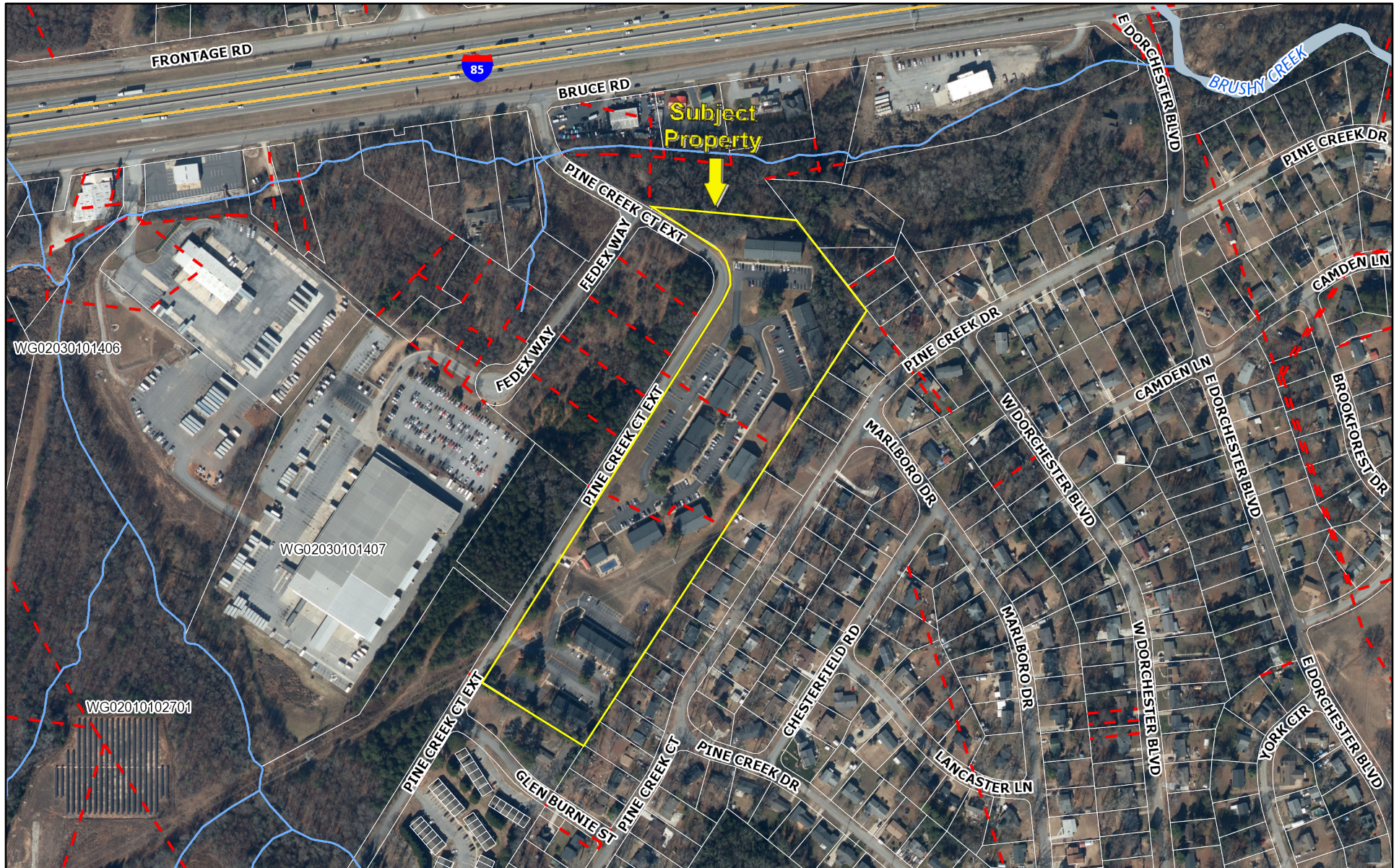
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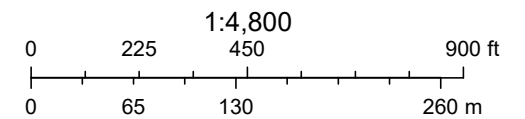
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Greenville County Parcel Map



September 23, 2024



Greenville County GIS Division, Greenville, South Carolina, Greenville County GIS Division, Greenville County, South Carolina GIS Division

Disclaimer: This Map is not a LAND SURVEY and is for reference purposes only. Data contained in this map are prepared for the inventory of Real Property found within this jurisdiction, and are compiled from recorded deeds, plats, and other public records.