



System Integration Plan

Barwell Road Community Park

Raleigh, North Carolina

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For additional information please contact
City of Raleigh Parks and Recreation
Design/Development
parkplan@raleighnc.gov
(919) 996-4789

System Integration Plan Barwell Road Community Park Executive Summary

The City of Raleigh Parks and Recreation Department has developed a System Integration Plan for Barwell Road Community Park in southeast Raleigh. The intent of the System Integration Plan (SIP) is to document existing site conditions and develop a set of guidelines for interim management of the park property. The SIP includes background research on the property and involves site visits by a variety of contributors with expertise in different areas. The site specific SIP is developed with input from the Parks, Recreation and Greenway Advisory Board.

Barwell Road Community Center, completed in 2007, is located in the central portion of the site. Barwell Road Elementary School (a year round Wake County Public School) has been developed just north of the park, and City of Raleigh Fire Station #26 is located on Barwell Road at the northwest corner of the park property. The City of Raleigh and Wake County Board of Education have a *Joint Use Agreement* for facilities associated with the school and community center, including a multipurpose field, paved play areas, walking track, parking areas, and drive access.

The original development of a community center and school reserved space in the western portion of the site for future active recreation pursuits. In 2012 the City Council approved moving forward with a regional tennis center in this location.



System Integration Plan

Barwell Road Community Park

Executive Summary continued

Sewer easements are located on the eastern portion of the park property, generally following the orientation of stream channels. Vegetation on the sewer easements is primarily non-native and invasive. Fire ants are present throughout the sewer easements. Invasive plants and fire ants are a serious threat to the ecological functions of natural areas preserved in our parks for wildlife habitat and public recreation.

Various areas of debris are scattered throughout the property. Debris locations have been mapped and are described in this report. Some of the debris piles contain small amounts of waste such as pesticide containers, paint cans, and batteries. Barwell Park Drive (along the southern portion of the park) is a public street that has not yet been completed. Barwell Park Drive will need to be extended to the southern property line as part of future park development.

A natural resources inventory is included in the SIP. Forest resources were evaluated and recommendations are provided to satisfy the City of Raleigh Tree Conservation Ordinance. Locations of high quality trees on the property are described in this report. The undeveloped eastern portion of the park is primarily floodplain forest. A portion of the wooded area southeast of the Barwell Road Community Center is upland oak and mixed hardwood forest.

Water resources on the property are located primarily on the eastern, undeveloped portion of the park property. A system of braided stream channels flows east toward the Neuse River. There is a small wetland located at the intersection of a sewer easement and stream channel. The wetland is mapped and described in this report. Intermittent and perennial streams are subject to the Neuse River Riparian Buffer Rules and will require a minimum 50 foot buffer (*shown on page 1 map of Executive Summary*).

Barwell Road Community Park has been evaluated using City of Raleigh Nature Preserves Criteria. There are no known occurrences of protected plant or animal species on the property. The function of the eastern stream system is very important for stormwater filtration and storage, as well as providing wildlife value. The Parks and Recreation Department could consider managing undeveloped areas within the eastern portion of the park, however at the time of this report no significantly high quality natural areas fitting the Nature Preserve Criteria have been observed on the park property. Final determination of the best quality undeveloped portions of the park could occur during a future phase of park development or as an interim management task. A detailed application of the Nature Preserve Criteria to Barwell Road Community Park is included in Appendix A.

Interim management recommendations proposed for Barwell Road Community Park are organized into three categories: Safety, Environment, and Property Issues. Highlighted recommendations include removal of debris, cooperation with Public Utilities to remove old silt fence material from sewer easements to facilitate wildlife movement, and posting of *No Trespassing* signs on undeveloped portions of park property that have not yet been fully evaluated for public safety. The City of Raleigh Land Stewardship Coordinator will be responsible for initiating requests to appropriate staff to conduct the interim management tasks. The SIP is intended to be a useful tool to facilitate site management and land stewardship and is a baseline document to promote ongoing site inventory, evaluation, and management.





System Integration Plan Barwell Road Community Park

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Introduction

The City of Raleigh Comprehensive Plan established a park classification system to provide a diverse, well-balanced, well-maintained range of recreational opportunities. The five park classifications are Neighborhood Parks, Community Parks, Metro Parks, Special Parks, and Nature Preserves.

The Barwell Road Community Park site was purchased in 2001 to satisfy a documented need for Community Parks in the Southeast Planning District. Community Parks are expected to serve the needs of residents within a two mile radius of the park. Community Parks include features of a Neighborhood Park plus additional features to meet expanded recreational needs. The City of Raleigh Park Plan recommends that at least half of Community Parks include a community center and provide programmed services. Community Park sites are located along major transportation routes and typically range in size from 30 to 75 acres.

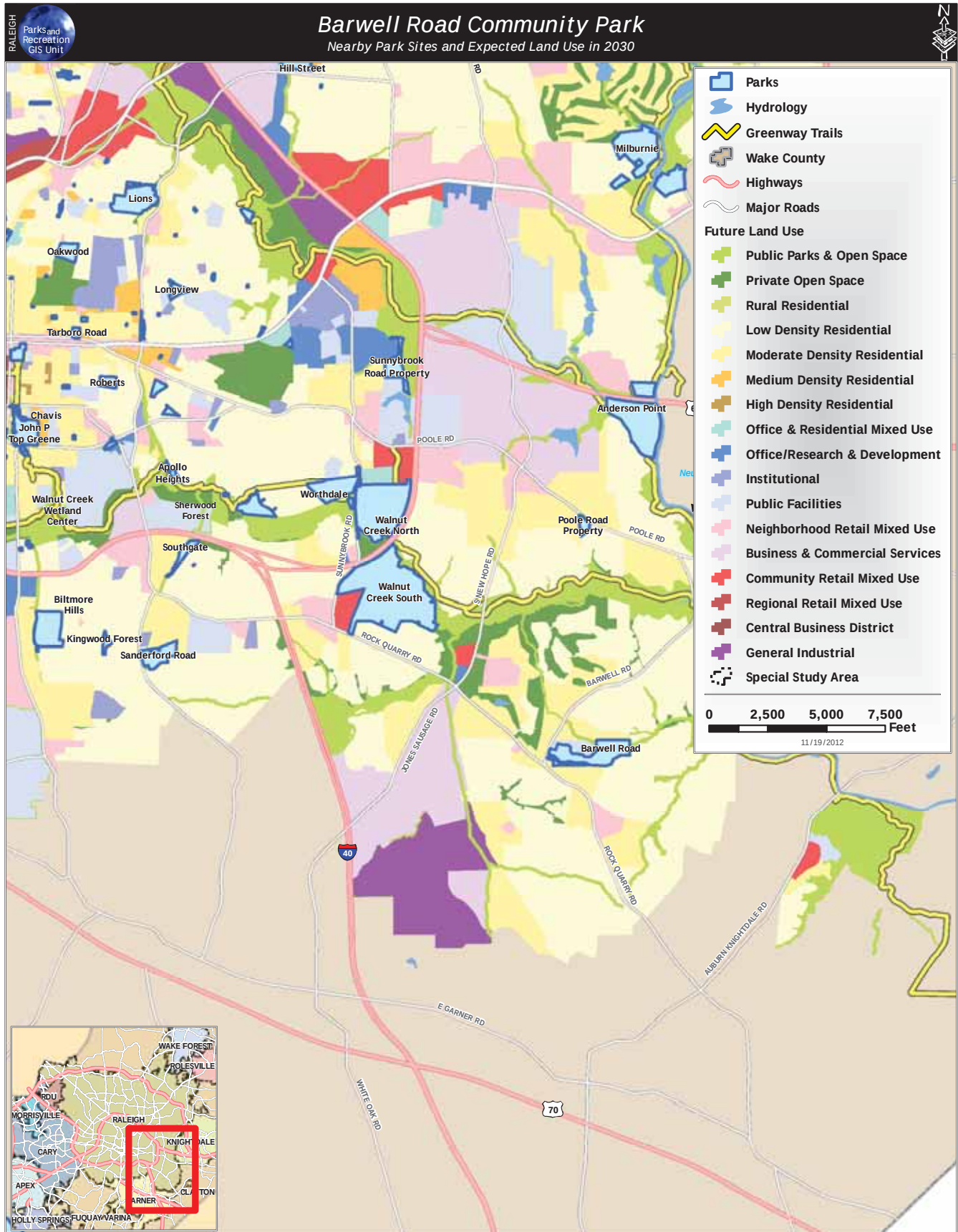
The number of acres of existing community parkland compared to the expected population of an area is used to try to meet a Level of Service (LOS) of 3.1 acres of parkland per 1,000 population. Other considerations, such as the size and character of existing parks in the area, barriers to access (such as major thoroughfares), opportunities for future acquisition, and other City of Raleigh Comprehensive Plan elements are also taken into account when acquiring parkland.

Barwell Road Community Park is 54.47 acres. The original development of Barwell Road Community Center and Barwell Road Elementary School reserved space in the western portion of the site for future active recreation pursuits. In 2012 the City Council approved moving forward with a regional tennis center in this location. The eastern portion of the park remains undeveloped at the time of this report. A map on the following page shows additional City of Raleigh parks in the vicinity of Barwell Road Community Park, and Future Land Use projected for the year 2030. Walnut Creek is a 309 acre metro park located approximately 2 miles northwest of Barwell Road Park. Walnut Creek South Metro Park provides a large venue facility for performance art at the Alltel Pavilion. Walnut Creek North Metro Park includes a large softball complex with associated park features such as a press box, concessions, and parking areas. Both of these parks also provide open space and conservation areas. Worthdale Community Park is just west of Walnut Creek Metro Park and provides a community center, playground, tennis courts and multi-purpose fields.

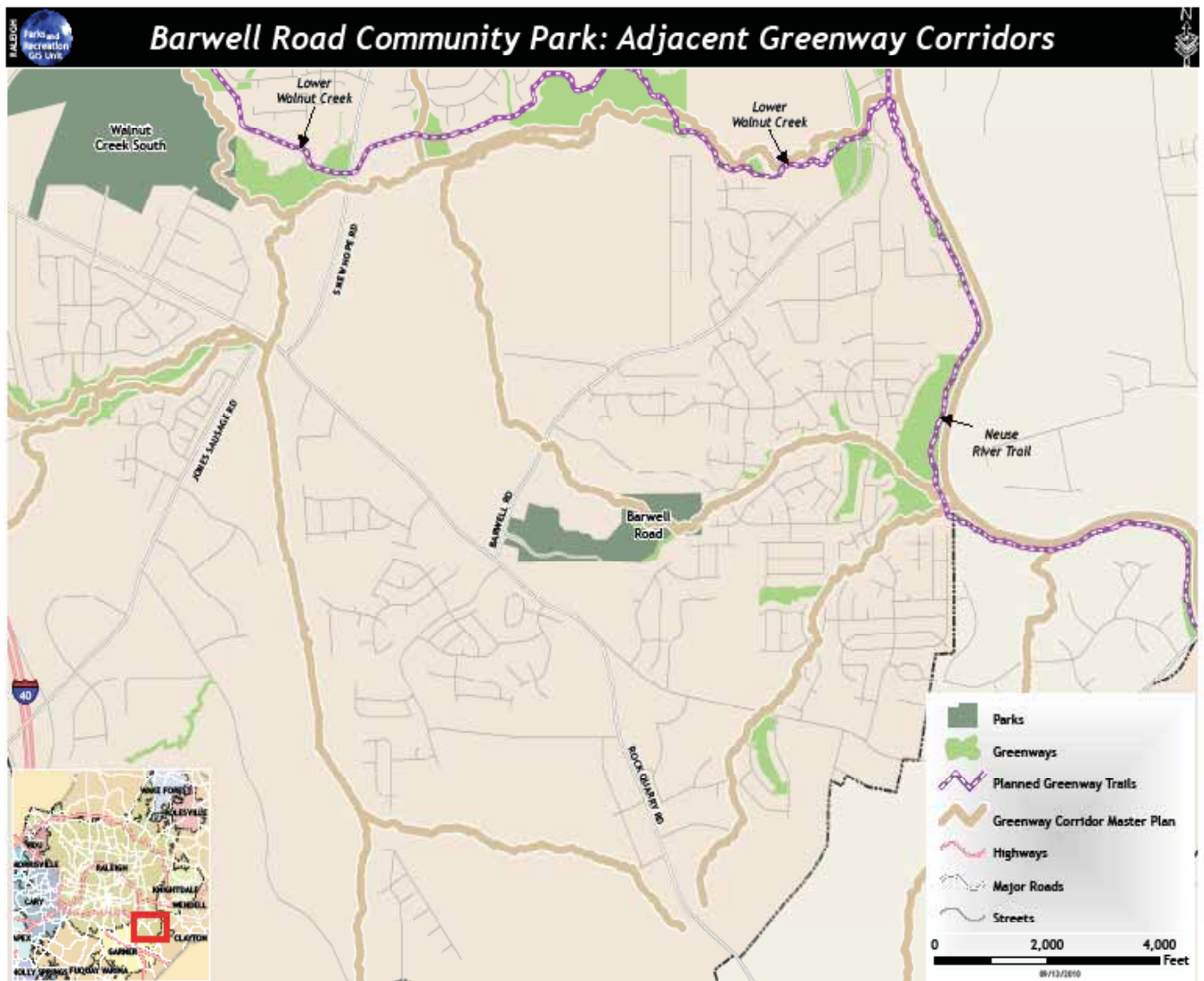
Anderson Point Park is a community park located approximately 5 miles north of Barwell Road Community Park. Anderson Point Park is at the confluence of Crabtree Creek and the Neuse River, and includes paved walking trails, multi-purpose fields, a playground, picnic shelters and restrooms, rental facilities, a public canoe launch with access to the Neuse River, and a Protected Natural Area. Two undeveloped neighborhood park sites are located in the vicinity of Barwell Road Community Park. Sunnybrook Road Property is a 20 acre undeveloped park site located to the northwest and Poole Road Property is a 6 acre undeveloped park site located to the north.

Natural resource-oriented recreation opportunities are accessible at park sites in proximity to Barwell Road Community Park. Anderson Point Park provides recreation trails, including an existing greenway trail, hiking, and birding trails through restored native tall grass meadows. Anderson Point Park also supports natural areas conserved as stream and river corridor and buffers, and high quality wetlands that provide significant habitat for salamanders and other amphibians. Walnut Creek Metro Park provides a greenway trail and open space, with conservation areas along the Walnut Creek stream corridor. Walnut Creek Wetland Center is situated in a 59 acre natural area near downtown Raleigh. The Wetland Center was completed in 2009 and offers educational activities for all ages.

SIP: Barwell Road Community Park



Development of new park land, such as the Sunnybrook Road Property and the Poole Road Property, typically includes conservation land in the form of buffers and officially designated Tree Conservation Areas. Additional natural resource-oriented recreation opportunities in proximity to Barwell Road Community Park include the City of Raleigh greenway system, a network of recreational trails and public open spaces that provide opportunities for a range of activities such as biking, running, hiking, fishing, picnicking, bird watching, and nature study. Hundreds of acres of conservation land are located in the general vicinity of Barwell Road Community Park in the form of the major greenway corridor up and down the Neuse River. The Neuse River Greenway Trail will be accessible less than one mile east of the park. The Greenway Corridor Master Plan calls for a connection between the park and the Neuse River Trail.



City of Raleigh Nature Preserves Criteria

A Nature Preserves Task Force was established in May 2010 at the request of Raleigh City Council. The Task Force consisted of representatives from the City of Raleigh, Wake Nature Preserves Partnership, and the Parks, Recreation and Greenway Advisory Board (PRGAB). The Task Force developed “Nature Preserves Criteria” for the purpose of evaluating existing park properties to determine whether the properties should be classified as Nature Preserves or Natural Areas.

A “Nature Preserve” park classification is defined as an entire park unit that contains examples of high-quality plant or animal populations, natural communities, landscapes or ecosystems, documented by subject matter experts through local or state programs, that contribute to biodiversity and environmental health. The size of a Nature Preserve should be sufficient to buffer, conserve, and protect the target element or area. Efforts should be made to protect and manage significant natural resources in these areas through stewardship and best-practice management that do not degrade the resources present. Opportunities for the public enjoyment of natural resource based recreation and environmental education may be provided that are compatible with the protection and enhancement of the Nature Preserve and the nature experience.

A “Protected Natural Area” overlay classification is defined as a portion of a park unit that contains examples of high-quality plant or animal populations, natural communities, landscapes or ecosystems, documented by subject matter experts through local or state programs, that contribute to biodiversity and environmental health. In the case of existing parks, Natural Areas should be identified as part of an inventory process based on the natural resources, buffers, educational opportunities, and consistency with adopted master plans. Efforts should be made to protect and manage significant natural resources in these areas through stewardship and best-practice management that do not degrade the resources present. The designation of a Protected Natural Area should be differentiated from areas reserved for future development.

The criteria developed by the Task Force includes both objective and subjective criteria to facilitate evaluation of existing parks for classification or re-classification as “Nature Preserves”, or recommendation for a “Natural Area” overlay within a park unit. A copy of the **Nature Preserve Task Force Report** is available at www.raleighnc.gov (search for Nature Preserve Park Classification or NPTF).

Barwell Road Community Park has undergone an initial evaluation using City of Raleigh Nature Preserves Criteria. There are no known occurrences of protected plant or animal species on the property (*see page 26 of this report*). The function of the undeveloped eastern portion of the Barwell Road Park is important for stormwater filtration and floodwater storage, and provides valuable wildlife habitat. The Parks and Recreation Department could consider preserving and managing undeveloped areas within the eastern portion of the park, however at the time of this report no significantly high quality natural areas fitting the Nature Preserve Criteria have been observed on the park property. Final determination for the best use of the undeveloped portions of the park could occur during a future phase of park planning and development or as an interim management task. A detailed application of the Nature Preserve Criteria to Barwell Road Community Park is included in Appendix A.

Cultural Resources and Historical Site Use

A cultural resources background study of Barwell Road Community Park was initiated using the following data sources:

1. Historic maps at the North Carolina Department of Archives and History were reviewed. The 1871 and 1878 Wake County Maps by Fendol Bevers show no evident occupancy on the property. The *Wake County 1914 Soil Survey Map* (with the approximate location of Barwell Road Community Park labeled) is included with this report on page 6. The 1914 Soil Survey Map indicates a secondary road running through the eastern portion of the park property, and a structure along the west side of this road. A portion of this old road location currently supports a sewer easement.

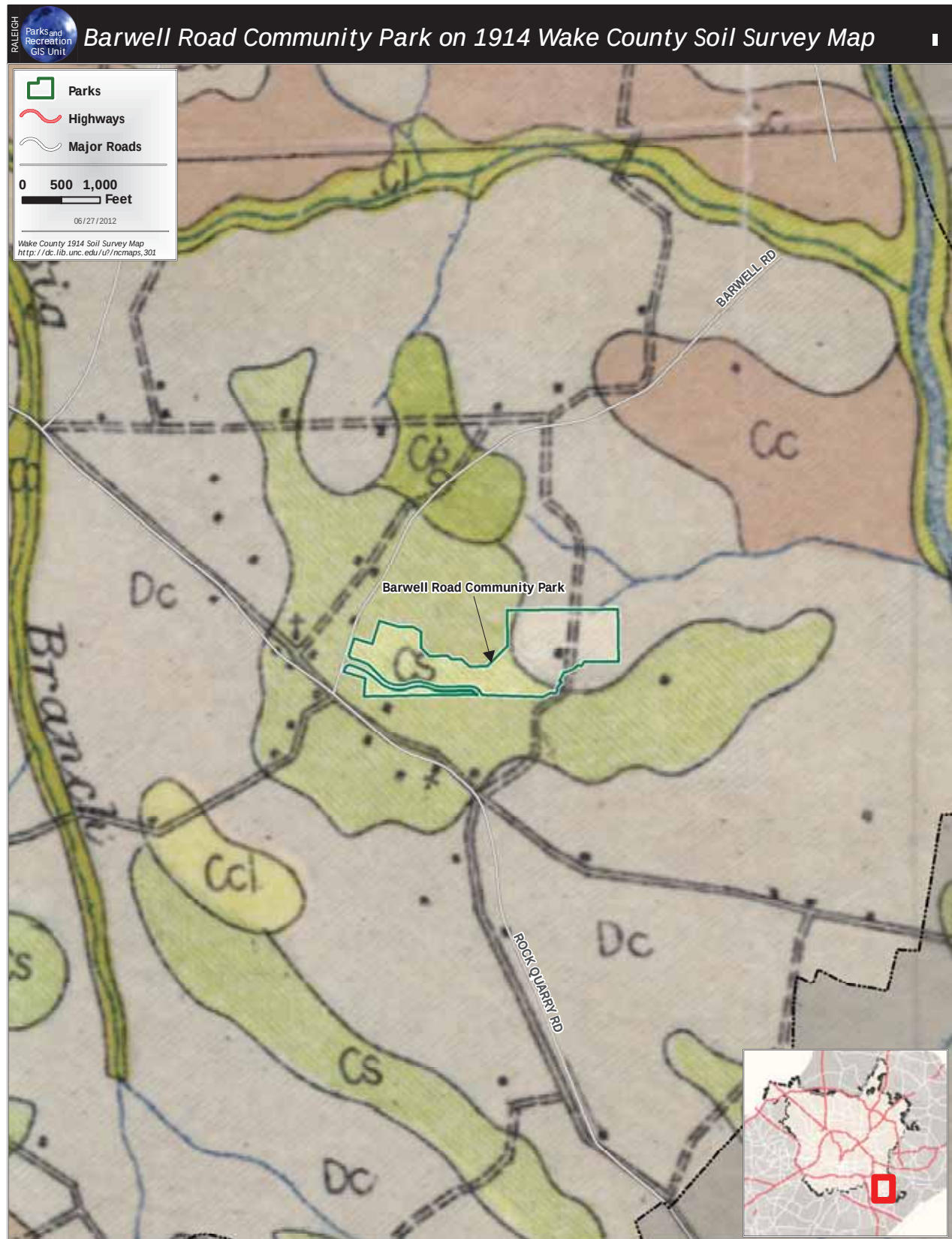
2. Deed records from the parcel.

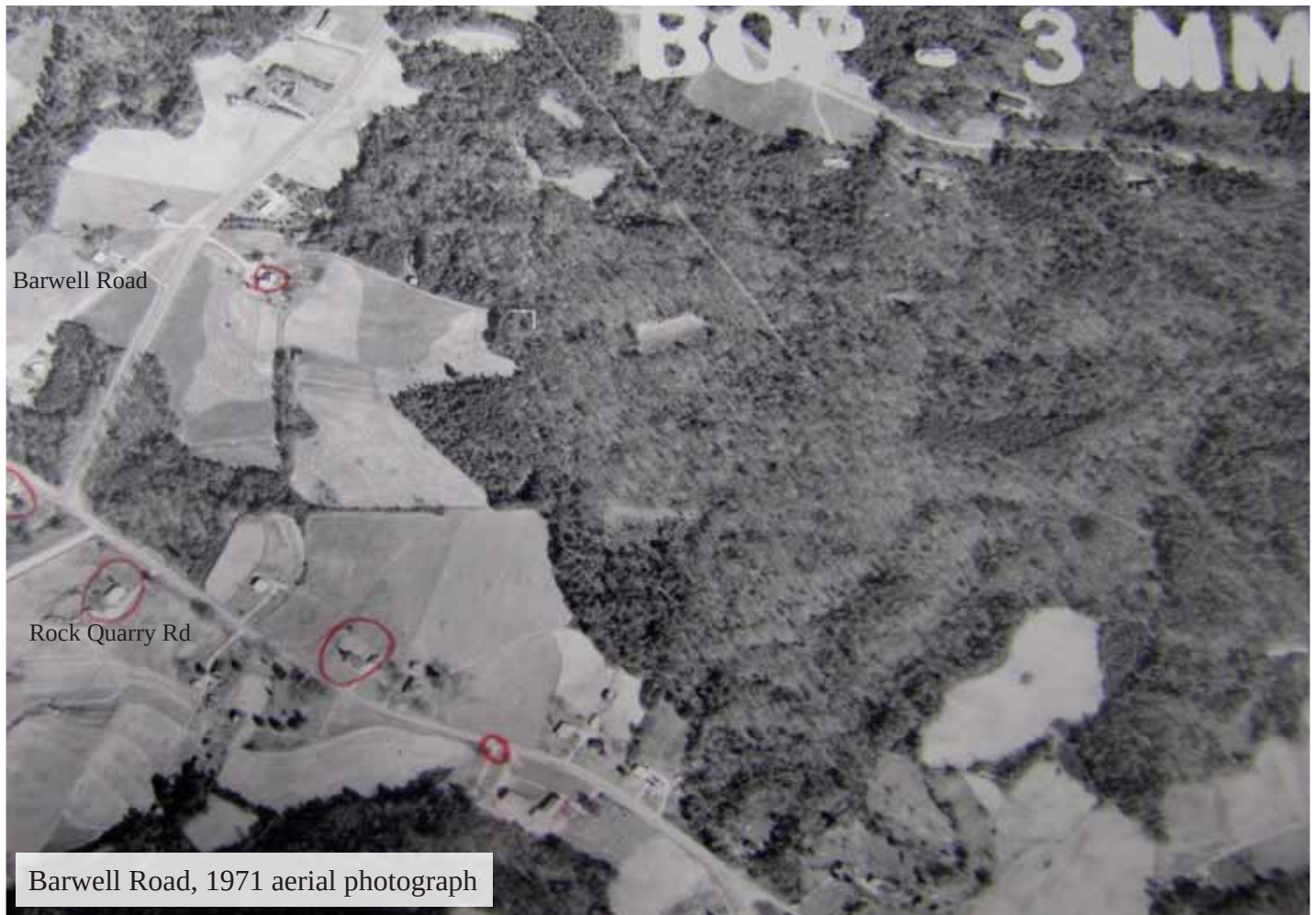
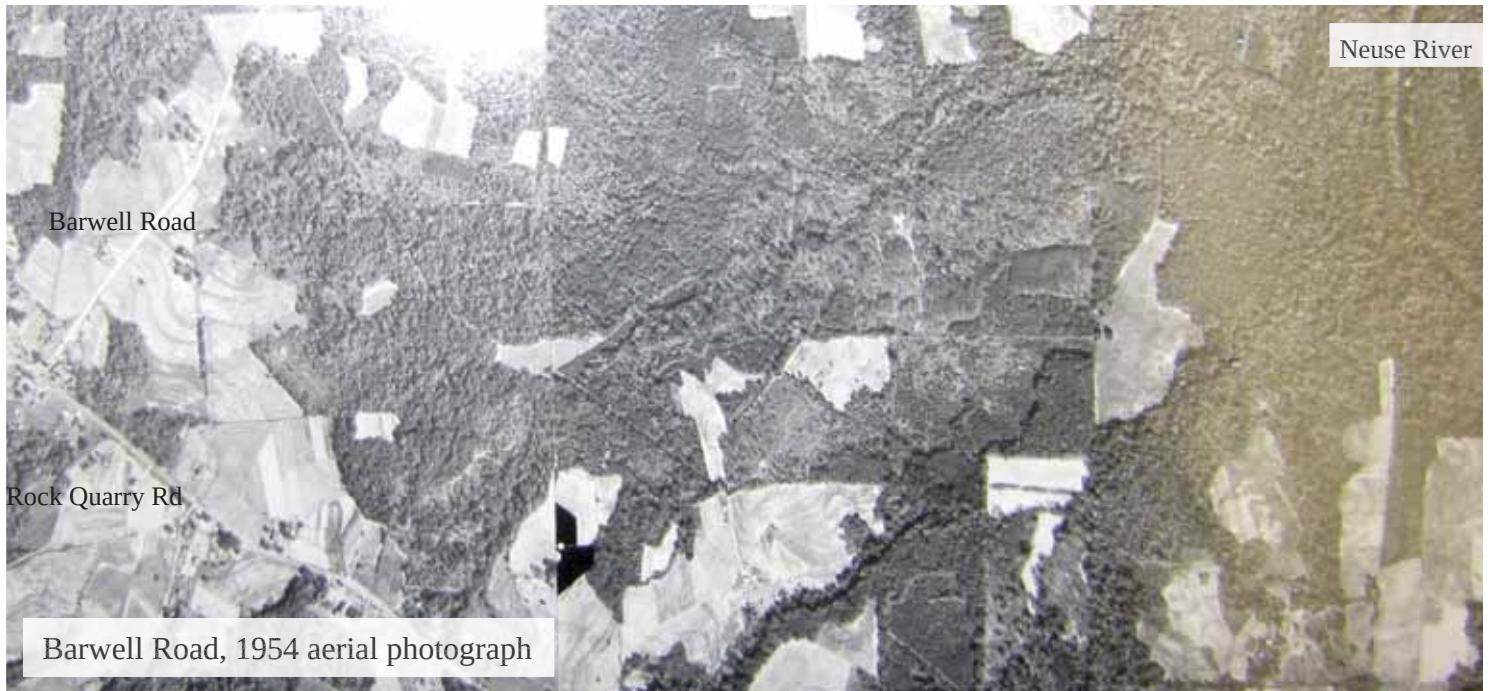
3. U. S. Department of Agriculture (USDA) Natural Resources Conservation Service in Raleigh North Carolina aerial photographs:

- a. Photo BOP-3F-160, Grid M-7, flown March 29, 1954 - USDA Natural Resources Conservation
- b. Photo BOP-7FF-182, Grid M-7, flown March 15, 1965 - USDA Natural Resources Conservation
- c. Photo BOP-3MM-40, Grid M-7, flown February 23, 1971 - USDA Natural Resources Conservation
- d. Photo USDA 40 37183, Grid 178-42, flown April 26, 1981 - USDA Natural Resources Conservation
- e. Photo NAPP 6137-227, Grid G-8, flown February 23, 1993 - USDA Natural Resources Conservation

Aerial photos of the Barwell Road property from 1949 to 1993 were reviewed to determine past land use and other potentially relevant historical information. There appeared to be two home sites in the area of the park along Barwell Road. A copy of the 1954 and 1971 aerial photographs are included with this report on page 7. Primary land use in 1954 and 1971 appeared to be agricultural. The eastern stream system and adjacent upland in the eastern portion of the property appear to have been forested throughout this time period.

4. Phase 1 Environmental Site Assessment for 3827 and 3925 Barwell Road, Raleigh North Carolina, completed August 7, 2000 by Law Engineering and Environmental Services Inc. The Phase 1 Environmental Report identified two homesites still existing on the western portion of the property at time of acquisition. A former residence, a water-supply well, three former tobacco barns, a trailer, a septic system, an abandoned septic system, a shed, and various areas of debris were observed at the two homesites. It appears that all of these homesite features were removed during previous site development of Barwell Road Elementary School, the Barwell Road Community Center, and city of Raleigh fire Station #26. The Phase 1 Report also identified recent clearing (as of August 7, 2000) performed for geotechnical drilling in the eastern wooded portion of the Barwell Road Park property. Previous property owners reported during the interview portion of the Phase 1 Report that the entire property had been used for farmland until 1985.



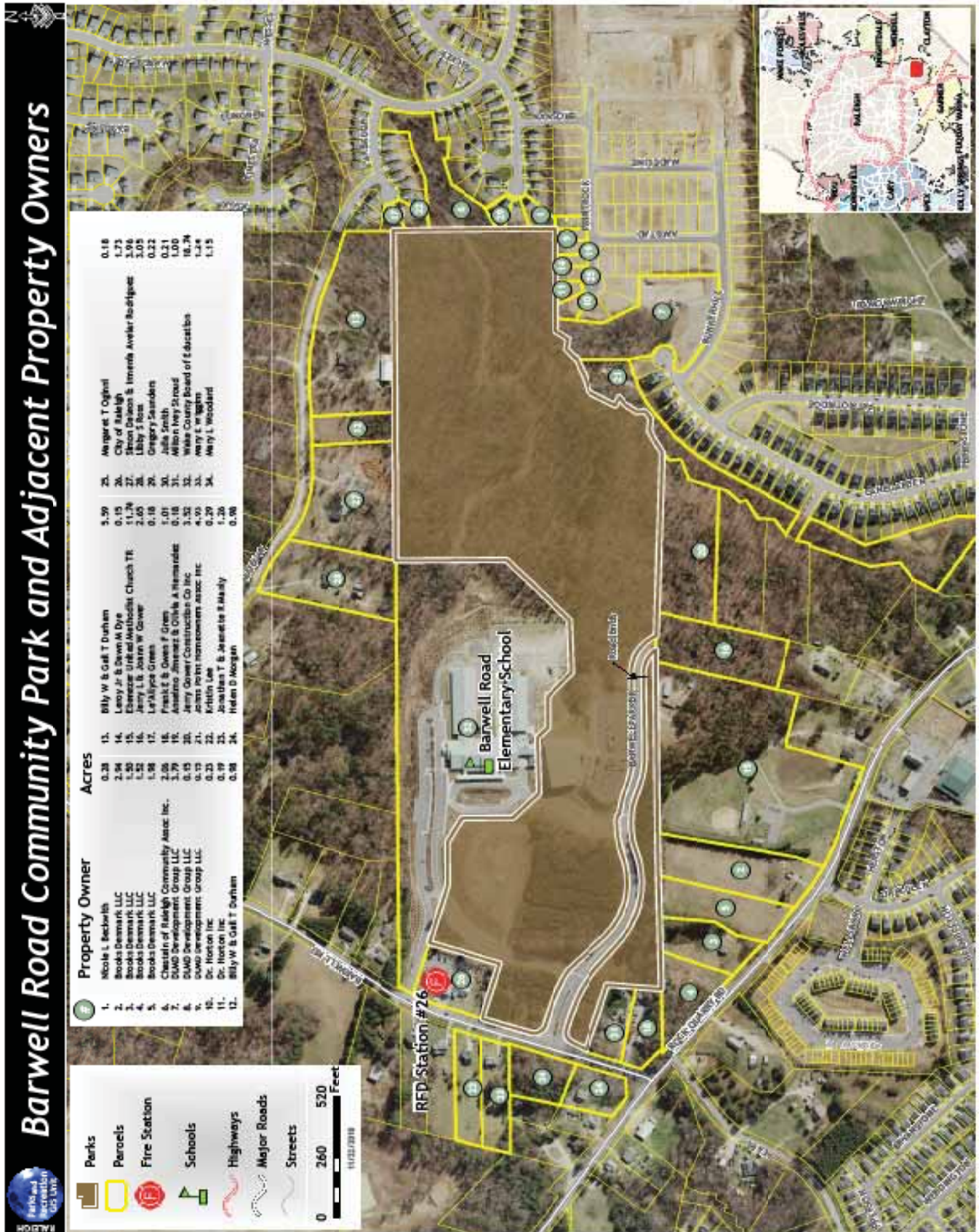


Site Description

Barwell Road Community Park is a 54.47 acre site located near the intersection of Rock Quarry Road (NCSR 2542) and Barwell Road (NCSR 2551) in southeast Raleigh. The physical address for the Barwell Road Community Center is 3935 Barwell Road. This property is located in the Southeast Planning District, and the Citizen Advisory Council (CAC) District is Southeast. The site is zoned as Residential-4 (R-4) with no overlay districts. The vicinity of the Barwell Road property is both residential and undeveloped (see map on following page). Barwell Road Elementary School is located north of the property; there is an existing Joint Use Agreement with Wake County for a multi-use field (photo below), paved play areas, walking track, parking areas, and drive access (*see Appendix B for a copy of the Joint Use Agreement*). Barwell Road is scheduled to be developed as a minor thoroughfare and will eventually be a four lane road with five foot sidewalks on both sides. The City will be required to dedicate Right of Way (ROW) and slope easement and contribute funds for future road improvements when Barwell Road is expanded. Adjacent land to the south of the property is a mixture of large lot residential, a church, and undeveloped forested land. The park site is bordered to the east by a stream system that has remained forested since at least 1949, as visible in the USDA aerial photos from 1949-1993. Adjacent land use to the east and southeast is high density residential, and to the west and north is low density residential. Barwell Park Drive is a paved road that splits to lead north to Barwell Road Elementary School and east towards the Barwell Road Community Center. Barwell Park Drive is a public street that did not get built in its entirety when Wake County Schools developed on the site (*see map on page 9*). Barwell Park Drive will need to be extended to the southern property line as part of future park development.



Multipurpose field and playground, east of school building



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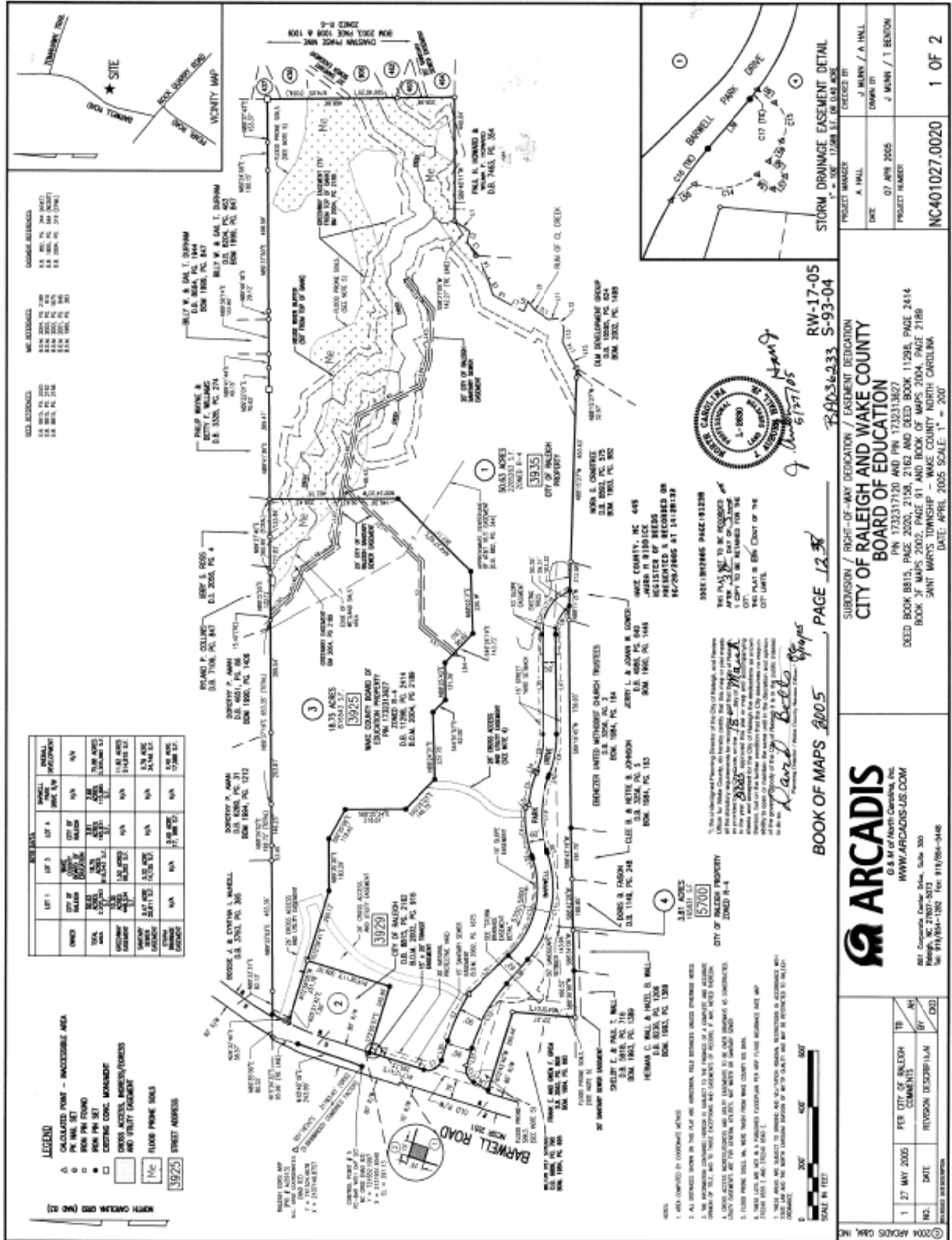
A City of Raleigh Sanitary Sewer Easement is located on the eastern portion of Barwell Road Community Park (see *detailed utilities map below*). Vegetation on the sewer easement is composed of early successional trees such as loblolly pine and sweet gum, and invasive, non-native plants such as lespedeza. There are some areas of erosion along the sewer easement. There are also several locations where silt fence material remains from easement construction in 2005. Silt fence materials inhibit wildlife movement on the site and should be removed after the construction and site stabilization phase.

A stormwater drainage easement for a small wetland/stormwater detention pond is located in the southwest corner of the park (*storm drainage easement detail can be seen on the map on page 11*).

There are two standard easement agreements with Progress Energy Carolinas, Inc. in proximity to the intersection of Barwell Road and Barwell Park Drive, allowing Progress Energy to keep their easements clear of trees, shrubs, and undergrowth, and to trim or cut trees adjacent to the easement that threaten or hinder facilities on the easement.

There is a Three Party Right of Way Encroachment Agreement between the Department of Transportation, the City of Raleigh, and the Wake County Public School System for an island located at the entrance to Barwell Road Community Center and Barwell Road Elementary School (see *map on page 11*). A copy of the Encroachment Agreement is included in Appendix C.





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Existing Facilities and Site Conditions

A *Phase 1 Environmental Site Assessment* was completed for the Barwell Road Community Park during the site acquisition process in 2000; the Executive Summary of the report is included in Appendix D. Environmental issues reported in the Phase 1 report were located on the western portion of the property, along Barwell Road, where two former residences were located before the City of Raleigh acquired the site. All structural remains, wells, septic tanks, and a reported 'suspicious' mound from the former residences appear to have been removed during initial site development of the school and Barwell Road Community Center.

Site investigations for the purpose of developing an System Integration Plan for Barwell Road Community Park were conducted during June, September, and October of 2010, March 2011, and June 2012. Survey and installation of property boundary signage along the perimeter of the parcel have been completed. There are currently no significant encroachment issues along the property boundary of the park.

Fire ants are present in disturbed areas around the community center and throughout the sewer easements. Fire ants are a serious safety concern for the general public and employees. Fire ants also have a tremendous impact on groundnesting birds and wildlife. Fire ants remove soil, causing structural issues, and routinely invade electrical equipment and ground irrigation, causing mechanical problems and staff injury during servicing. Fire ants typically move into new areas during new construction, landscaping, and when soil is disturbed. Baits have been shown to be the most effective and least expensive method of fire ant control. Technique and timing are very important for successful control. Comprehensive fire ant control recommendations are available at <http://www.ces.ncsu.edu/depts/ent/notes/Urban/ifa.htm#chemical>.

As stated previously, Barwell Park Drive is a public street that will need to be extended to the southern property as part of future park development. Fire ants and non-native invasive plants are abundant in the disturbed area just east of where Barwell Park Drive currently ends (see *photo below*).

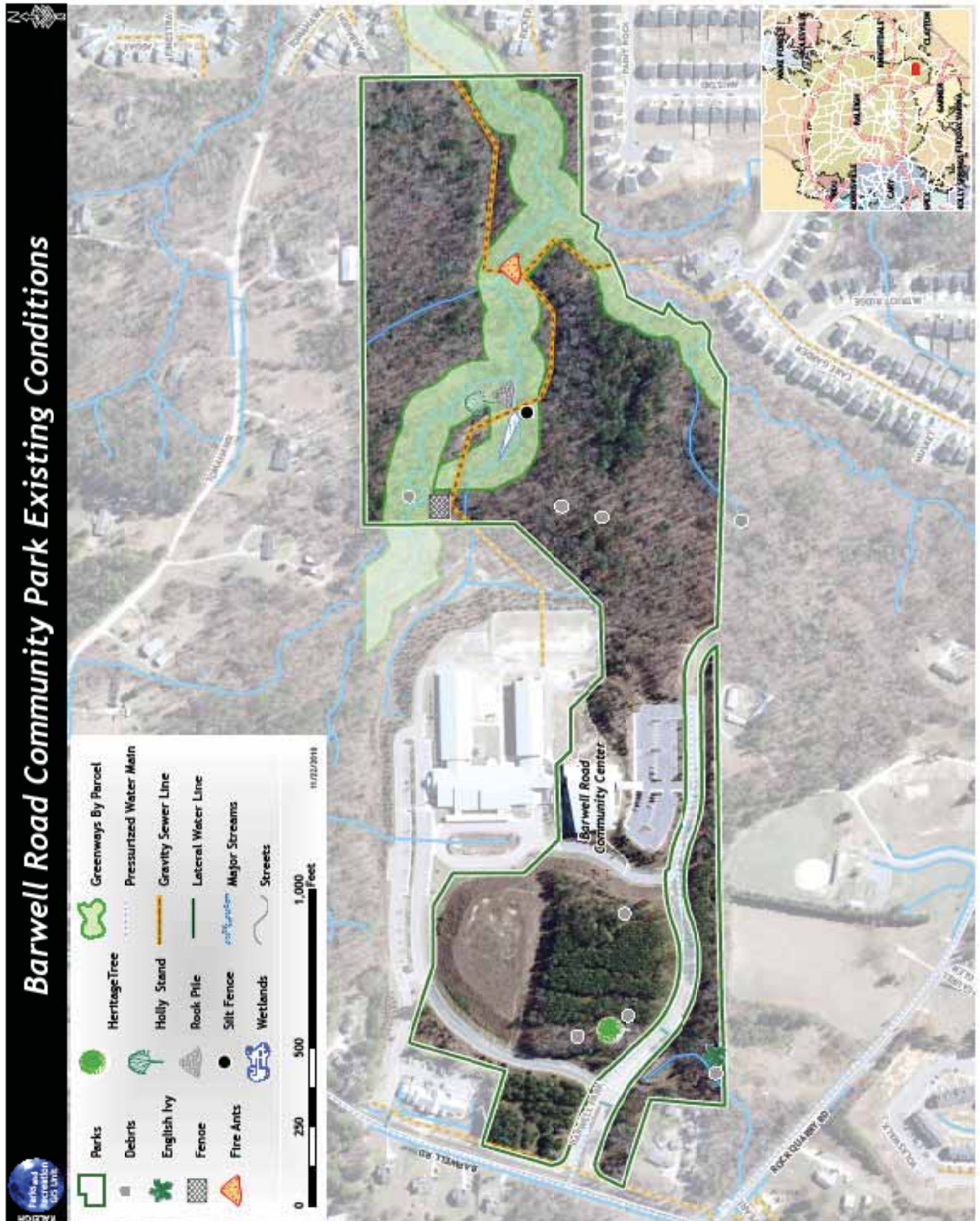


For purposes of evaluating the park for potential development and quality of natural resources, the park can be divided into two sections: the undeveloped area west and southwest of Barwell Road Community Center, and the undeveloped area east of the Community Center. The western section is primarily very young pine on an upland. A large red oak (*Quercus rubra*) is located near Barwell Park Drive (see map on page 14). There are a few informal trails in this section. The slope of stockpiled soil spoils on the east side of the pine forest is vegetated with non-native invasive sericea lespedeza. There are scattered areas of debris (see map on page 14), with concentrated debris in an old channel or draw (paint cans, rusty barrels, tires, etc.). A portion of this area is comprised of the soil type *Louisburg loamy sand* with frequent cobblestones on the surface layer (soil map provided on page 15 of this report). A small area used for stormwater management is located along Barwell Park Drive. Standing water was visible in October 2010. There is an area of invasive English ivy covering the ground and climbing up trees near the southern property boundary.

The undeveloped eastern section is a combination of upland oak forest and floodplain. A stream system travels throughout the eastern section, and is followed by both a sewer easement and a proposed greenway corridor (see *Existing Conditions map on page 14*). The sewer easement has several areas with silt fence debris remaining on site. Invasive plants and fire ants are present in the sewer easement. There is a six foot tall wire fence that appears to encroach on park property near the northwest property boundary of the eastern section. The fence continues onto Wake County Board of Education property. The location and length of fence segment on park property have been mapped. There are small areas of debris in the eastern section, including part of an old car, a lawnmower, and a barrel (see photo below). Locations of the debris piles have been mapped. Areas of minor debris from adjacent homeowners exist along property boundaries. An area of debris that appears to be just south of the property boundary contains old pesticide containers and other debris (see map on page 14).



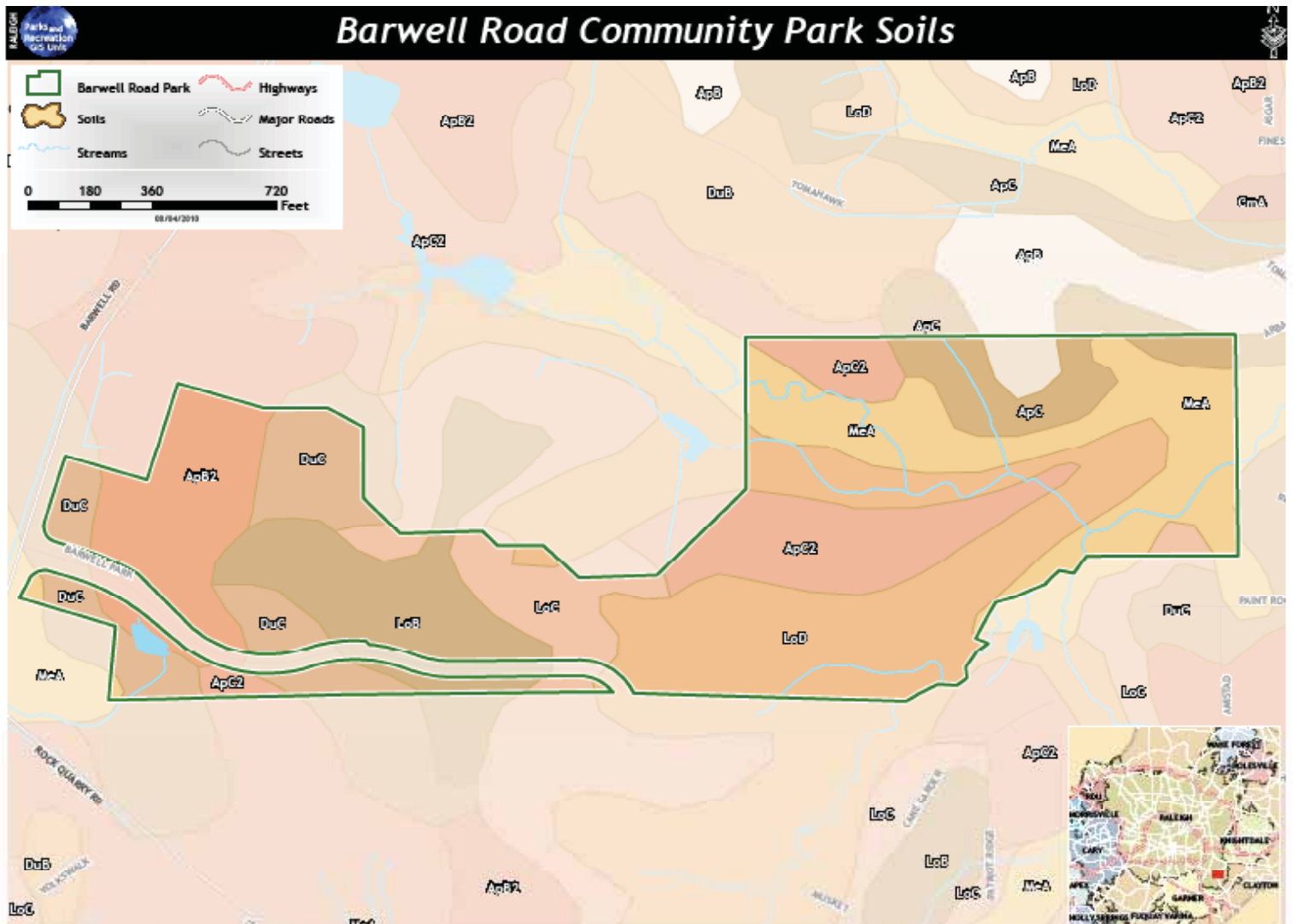
Debris piles east of Community Center, along old road bed



Inventory of Natural Resources: Soils, Water Resources, Flora and Fauna

Soils of Barwell Road Community Park

The following soil data was created by the USGS and the North Carolina Center for Geographic Information and Analysis. Barwell Road Community Park is underlain by the Appling-Louisburg-Wedowee soil association. This soil association is described in the *Wake County Soil Survey* as gently sloping to steep, deep and moderately deep, well-drained and somewhat excessively drained soils that have a subsoil of very friable coarse sandy loam to firm clay; derived mostly from granite, gneiss, and schist. This soil association is described as being droughty in many places. The *Wake County Soil Survey* describes the major soils of this association to have moderate to severe limitations to use as absorption fields for septic tanks, no special limitations if they are used to support foundation footings for large buildings, and a main limitation of bedrock near the surface for road construction. The Louisburg soils of Wake County are strongly acid and are low in natural fertility and content of organic matter (Cawthorn 1970). There are eight soil mapping units within the property. Approximately 16.6% of the site (9.03 acres) is underlain by the hydric soil MeA, primarily on the eastern portion of the site adjacent to the stream corridor. A hydric soil is saturated, flooded, or ponded long enough to develop anaerobic conditions, which impacts vegetation, organic matter, and nutrient dynamics.



Soil mapping units within Barwell Road Community Park

DuC Durham Loamy Sand 6 to 10 percent slopes

This soil is on narrow side slopes in the uplands. The surface layer is loamy sand 7 to 15 inches thick. The subsoil is friable sandy clay loam to clay loam that is 30 to 40 inches thick. Infiltration is good, and surface runoff is rapid. The hazard of erosion is severe.

ApB2 Appling Sandy Loam 2 to 6 percent slopes, eroded

This soil is on interstream divides in the uplands. The surface layer is sandy loam 3 to 7 inches thick, eroded in places. The subsoil is sandy clay loam to clay that is 24 to 40 inches thick. Infiltration is fair, and surface runoff is medium. The hazard of further erosion is moderate.

ApC Appling Sandy Loam 6 to 10 percent slopes

This soil is on narrow side slopes in the uplands. The surface layer is sandy loam 7 to 15 inches thick. The subsoil is clay loam to clay that is 24 to 36 inches thick. Infiltration is good, and surface runoff is rapid. The hazard of erosion is severe.

ApC2 Appling Sandy Loam 6 to 10 percent slopes, eroded

This soil is on narrow side slopes in the uplands. The surface layer is sandy loam 3 to 7 inches, eroded in many places. The subsoil is clay loam to clay that is 24 to 36 inches thick. Infiltration is fair, and surface runoff is rapid. The hazard of further erosion is severe.

LoB Louisburg loamy sand 2 to 6 percent slopes

This soil is on small ridges in the uplands. The surface layer is loamy sand 4 to 10 inches thick. The subsoil is very friable sandy loam 4 to 35 inches thick. Some areas have from 20 to 50 percent of the surface and surface layer consisting of pebbles and cobblestones. Infiltration is good, and surface runoff is rapid. The hazard of erosion is severe.

LoC Louisburg loamy sand 6 to 10 percent slopes

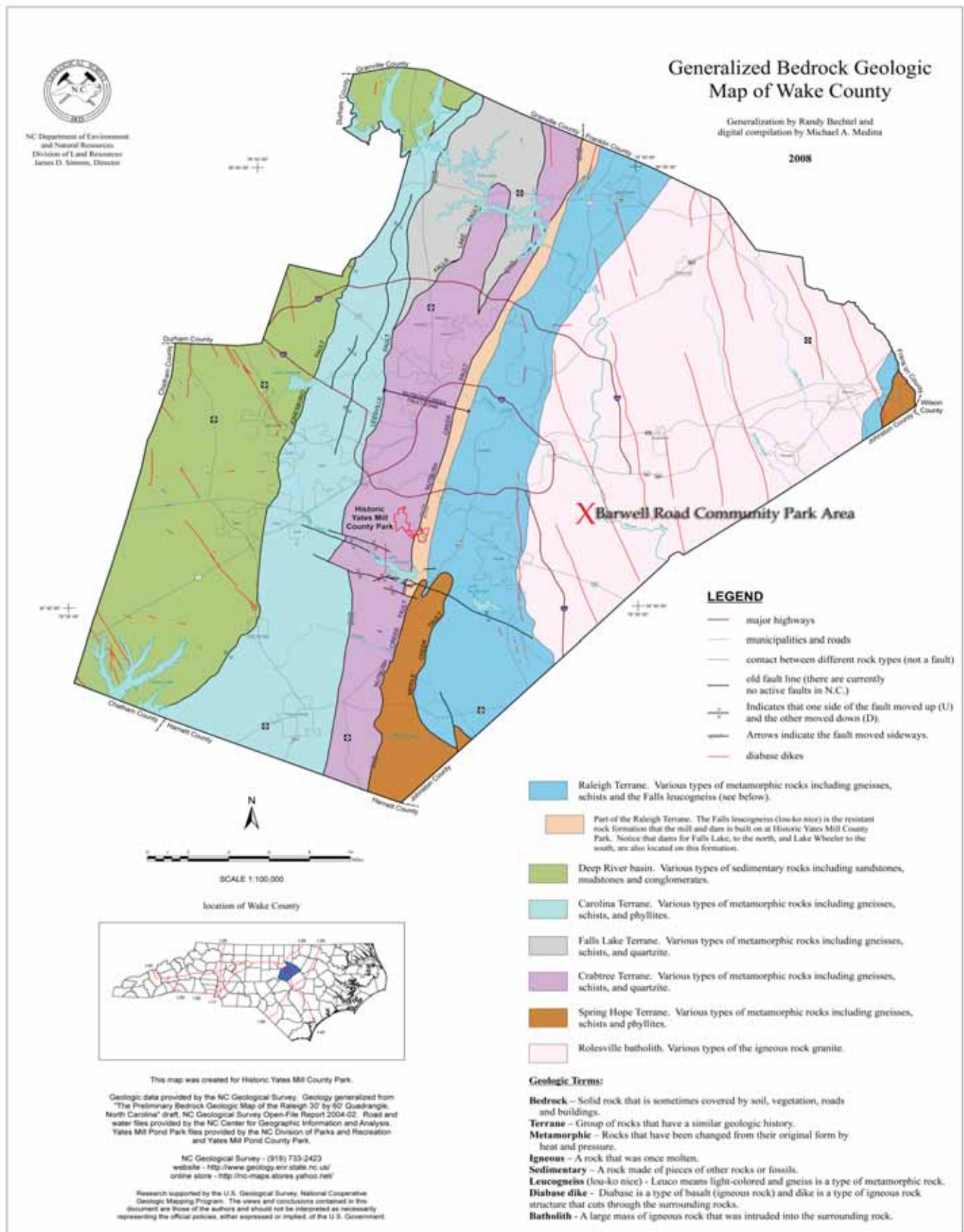
This soil is on side slopes in the uplands. The surface layer is loamy sand 4 to 8 inches thick. The subsoil is very friable sandy loam 4 to 30 inches thick. Some areas have from 20 to 50 percent of the surface and surface layer consisting of pebbles and cobblestones. Infiltration is good, and surface runoff is medium. The hazard of erosion is very severe.

LoD Louisburg loamy sand 10 to 15 percent slopes

This soil is on side slopes bordering drainage ways in the uplands. The surface layer is loamy sand 4 to 6 inches thick. The subsoil is very friable sandy loam that is 4 to 24 inches thick. Some areas have from 20 to 50 percent of the surface layer consisting of pebbles and cobblestones. Infiltration is good and surface runoff is very rapid. This soil is highly susceptible to further erosion.

MeA Mantachie, 0 to 4 percent slopes

The Manatchie series consists of nearly level or gently sloping somewhat poorly drained soils in depressions and draws. These soils have formed in deposits of local alluvium washed from surrounding soils of the uplands. A seasonally high water table is at approximately 2 feet. These soils are frequently flooded for short durations and remain mostly forested.

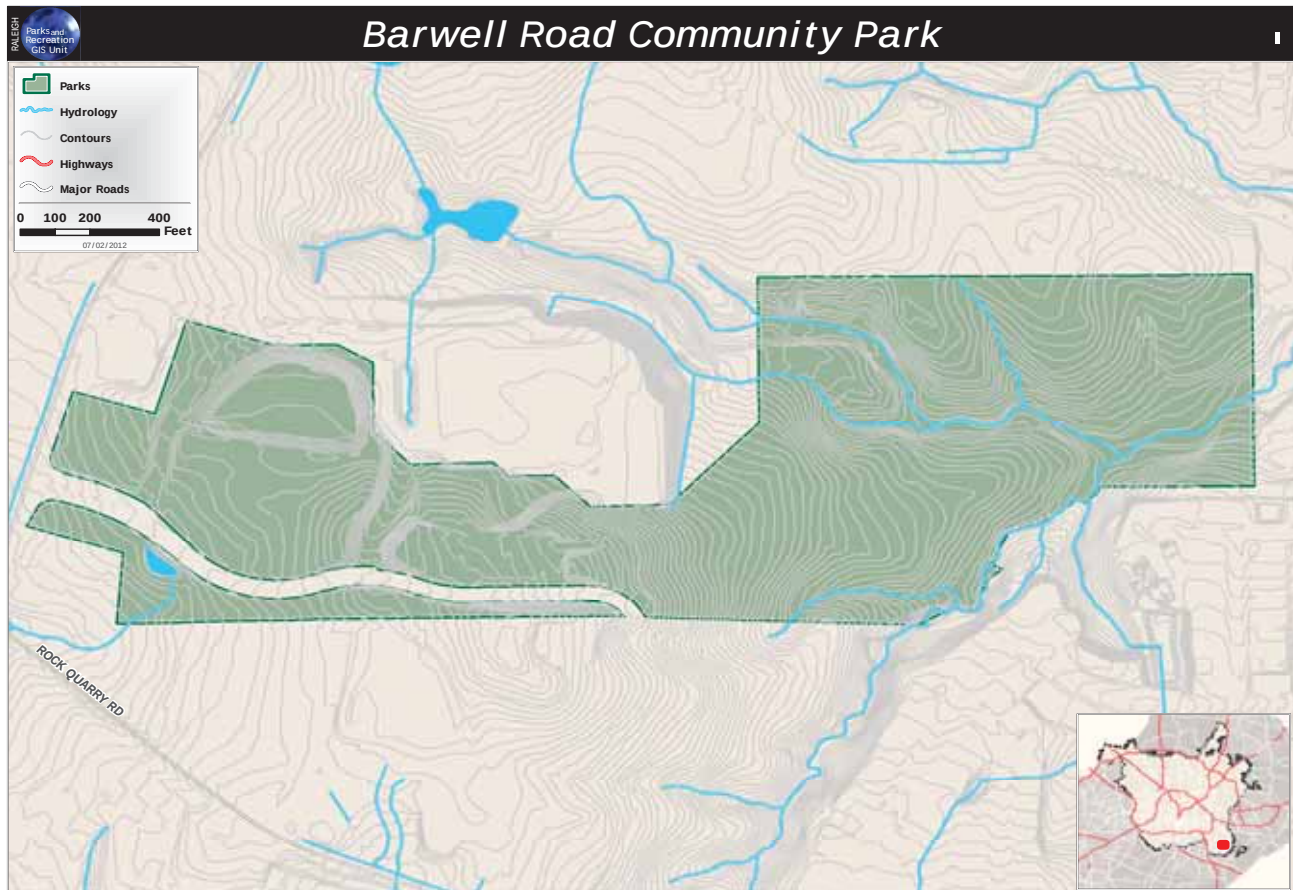


Geologic data displayed on the preceding map was provided by the NC Geological Survey and interpreted with assistance from the NC Department of Environment and Natural Resources Division of Land Resources. Barwell Road Community Park is located in the Rolesville batholith, which is comprised of various types of igneous rock (rock that was once molten). Small areas of exposed granitic outcrop are located throughout the park. A large boulder mound is located in the east-central portion of the park, and contributes to wildlife habitat and landscape diversity.



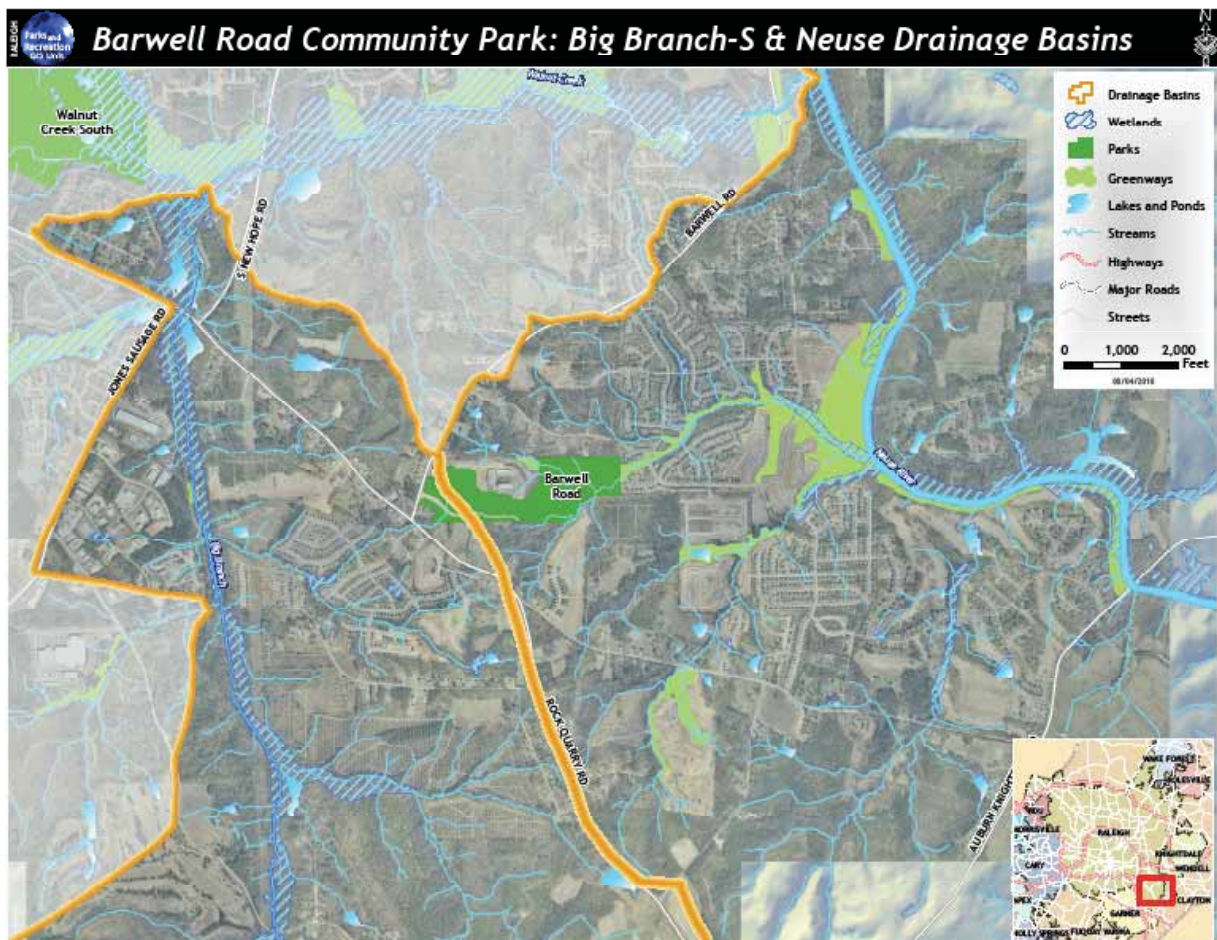
Barwell Road Community Park topography

Barwell Road site development, completed in 2007, created soil spoils in the western portion of the site and around the community center. The soil was stockpiled where future active recreation facilities were anticipated. The surface features of the soil spoils can be seen on the topography map provided below.

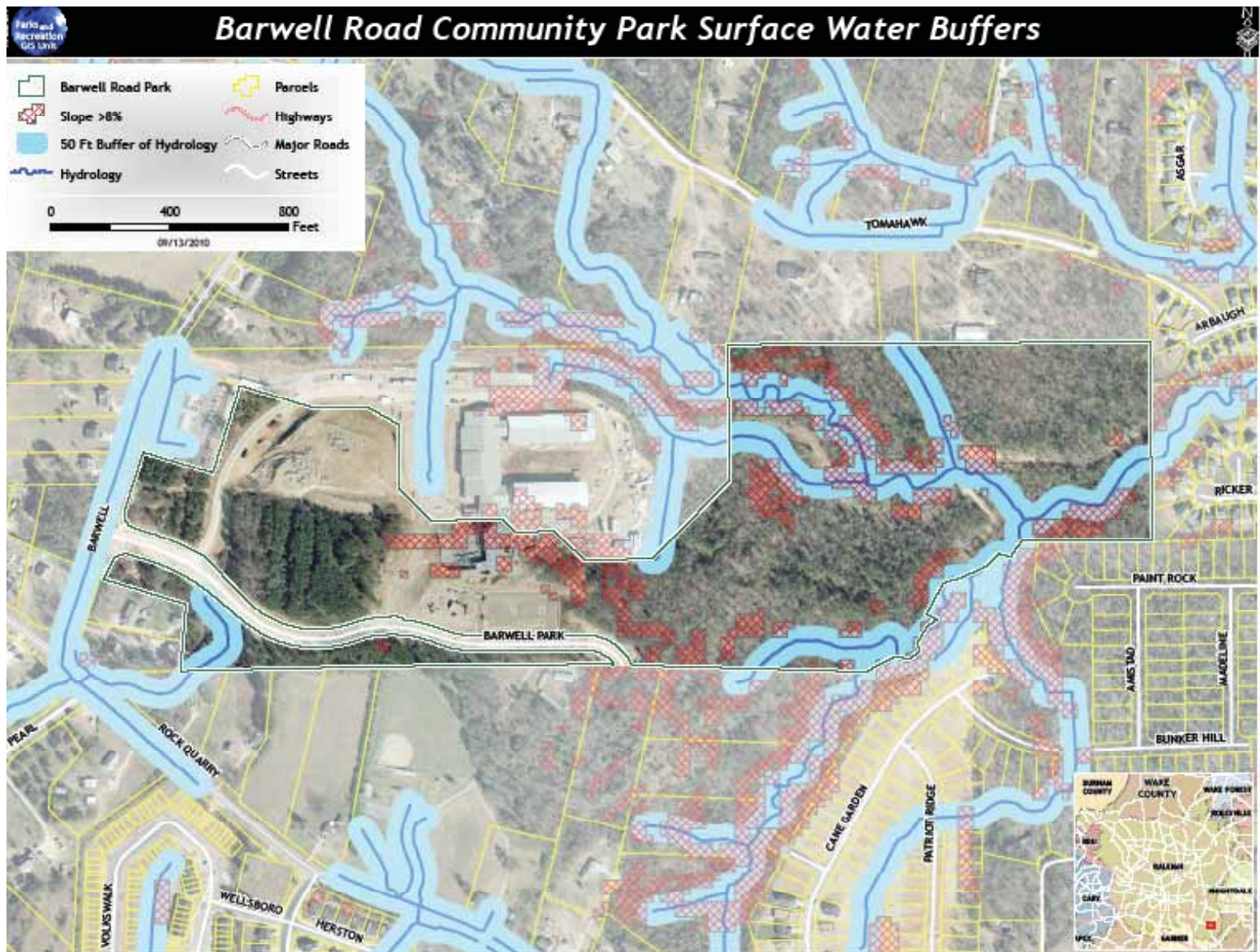


Water Resources of Barwell Road Community Park

Surface water resources on Barwell Road Community Park include a network of perennial, intermittent and ephemeral stream channels, floodplain, and small wetlands. The park is located primarily in the Neuse drainage basin, with streams flowing through the eastern portion of the site towards the Neuse River, located less than one mile east of the park. All waters of the Neuse River Basin have been classified as “Nutrient Sensitive Waters”. Nutrient Sensitive Waters is a classification (developed by NC Department of Environment and Natural Resources) for certain waters of North Carolina with a history of exceeding nutrient and chlorophyll standards and negatively impacting water quality. Nutrient Sensitive Waters may have more stringent laws and regulations than conventional statewide water quality regulations. The standard Best Management Practice (BMP) required for Nutrient Sensitive Waters in the Neuse River Basin is the protection of a 50 foot forested riparian buffer (the first 30 feet on all sides of a stream or other water body must be undisturbed forest plus another 20 feet of grass, trees, or other vegetation). Neuse Basin Water Quality Monitoring Stations are located on the Neuse River both north and south of where the Barwell Park stream system joins the Neuse, to monitor changes in water quality from inflow of the unnamed stream system. There is a small intermittent stream flowing south out of the southwestern corner of the park toward Big Branch in the Big Branch-S drainage basin. Big Branch flows into Walnut Creek and then into the Neuse River. Big Branch has been assigned a Best Usage Classification of C (aquatic life and secondary recreation) and is a Nutrient Sensitive Water. Big Branch is designated as a High Quality Water Zone in Wake County and is subject to erosion and sedimentation control regulations in unincorporated areas of Wake County, with the exception of municipal ETJs. All proposed activities in High Quality Water Zones are subject to review by the Wake County Divisions of Environmental Management regarding regulations to implement additional stormwater controls.

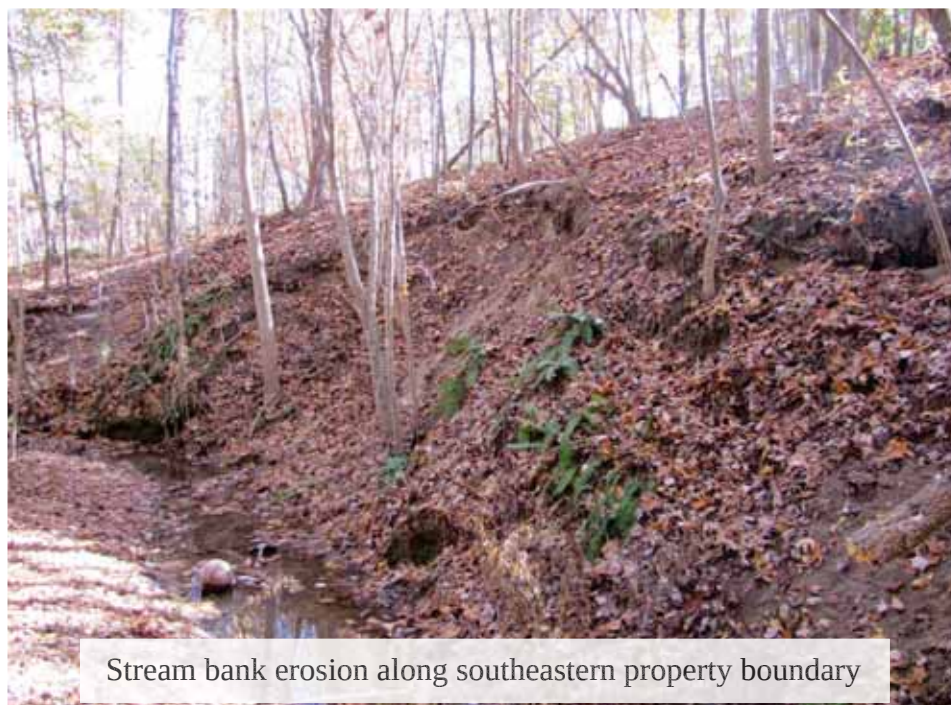


The perennial stream in the northern portion of the park is an unnamed tributary that flows into a larger perennial channel on the eastern property boundary. There is a total of approximately 4,493 linear feet of stream on the park property. Perennial and intermittent streams are subject to state and federal jurisdictional regulation under Section 404 of the Clean Water Act and North Carolina's Neuse River Riparian Buffer Rules. The Neuse River Riparian Buffer Rules require a minimum 50-foot wide riparian buffer directly adjacent to surface waters in the Neuse River Basin. The City allows some minimal use within a buffer, however no land-disturbing activity is allowed within 80 feet of the water edge if the average slope is between 15 and 20 percent, and within 95 feet if the slope exceeds 20 percent. Approximately 14.3% (7.8 acres) of the park property contains slopes greater than 8% (shown in red on the map below).





The stream system within the northeastern portion of the park has stream banks that appear somewhat disturbed, with areas of bank failure and scouring. The banks have little vegetation and only small trees to anchor the stream banks (see *photo above*). The stream channel at the southeastern corner of the park is suffering from fairly severe erosion on steep slopes (see *photo below*). This stream is adjacent to a residential development and contains debris from adjacent properties. The soil type in this area is Louisburg loamy sand (LoD) and is highly susceptible to further erosion.





Active floodplain characteristics include multi-stemmed small trees and a sparse herbaceous layer

As stated previously, 16.6% of Barwell Road Community Park is underlain by the hydric soil Mantachie (MeA), located in the floodplain of stream channels on the northeastern side of the park. Riparian vegetation is adapted to deal with flooding, sediment deposit, physical abrasion, and stem breakage during flow events. Plant colonization and successful establishment can be challenging. Saturated or flooded habitats have depleted oxygen. Plants develop morphological adaptations to an environment with reduced oxygen, including adventitious roots, shallow root systems, multi-stemmed trunks, buttressing (flare at base of trunks), and lenticels.

This floodplain is likely flooded frequently, evidenced by both the underlying soil type and the vegetation. Some seedlings tolerate flooding, but are challenged to reach a mature size. There are often very few shrubs found growing in floodplains, and frequent flooding can suppress the growth of understory herbaceous plants.

Many of the trees growing in this floodplain are small, multi-stemmed, and have adventitious roots and buttressed trunks, all characteristics of plants adapted to life in a floodplain (see *photo above*). Understory vegetation is sparse. The surface layer appears disturbed, and is comprised mainly of leaf litter.

Piedmont floodplains provide important movement corridors for mammals, reptiles, and amphibians. Birds use riparian corridors throughout the year, and neotropical migrants during migration periods. Floodplain forests generally have the highest nesting bird concentrations in the state. (NC Wildlife Action Plan)



A small wetland is located at an intersection of stream and sewer easement in the eastern portion of the park (see map on page 13). It is possible that this wetland was created or enlarged during construction of the sewer easement. A pile of rock is located downstream of the easement intersection (see photo below). Standing water was present in the wetland during the month of November (2010).



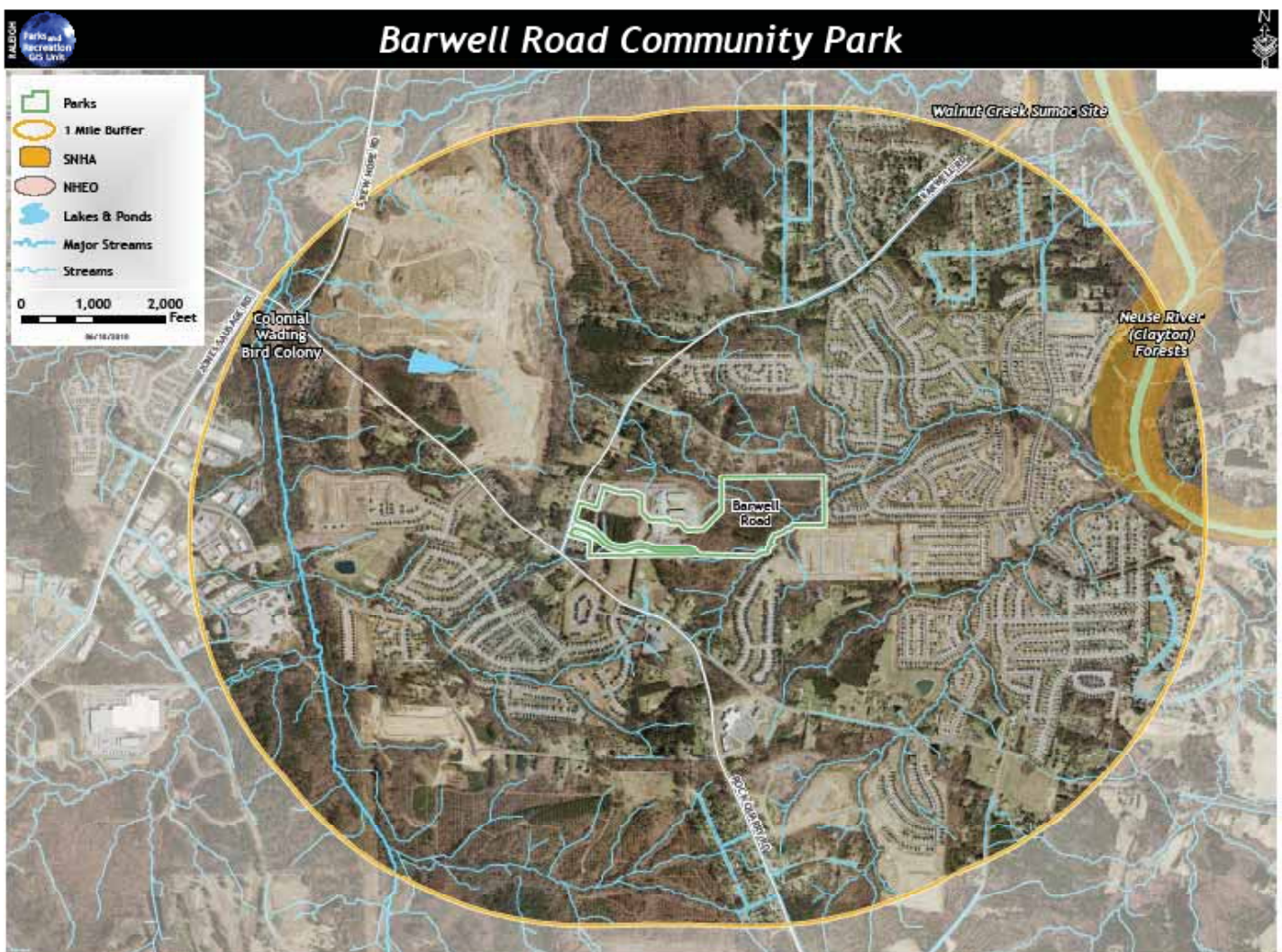


Several depressions within the upland oak forest (located southeast of Barwell Road Community Center) could provide amphibian breeding habitat, and should be explored in late winter or spring. Temporary or ephemeral pools of water within a forest can provide critical habitat for frogs, toads, and salamanders. The key characteristic of ephemeral pools is that they don't contain fish, which prey on amphibian larvae. Ephemeral pools are often filled with water in winter and spring. Soils of ephemeral pools can vary and are not necessarily hydric soils. Adult amphibians live in the forests adjacent to the ephemeral pools. This habitat type is in great decline and should be preserved whenever possible. The low area in the photo above is approximately 3 to 4 feet deep and over 10 feet long, with no connectivity to stream channels or floodplain. If it is determined that any of the forested depression areas within Barwell Road Park support amphibians they will be mapped and monitored.

The following description of groundwater characteristics on the parcel is from the *Phase 1 Environmental Site Assessment*: Elevations on the site range from 210 feet above mean sea level (msl) on the eastern border of the site to approximately 315 feet above msl on the western portions of the site. Groundwater generally flows in directions subparallel to the ground surface slopes and under the influence of gravity toward points of discharge such as creeks or drainage swales. Natural groundwater flow in the central portions of the Barwell Road property is toward the un-named intermittent stream in the eastern portion of the site. Natural groundwater flow in the western portion of the property appears to flow towards Barwell Road to the west.

Rare and Protected Species: Michaux Sumac (*Rhus michauxii*) is a federally protected plant known to occur in Wake County and listed as “Endangered” by the U.S. Fish and Wildlife Service (USFWS) *Endangered Species Act of 1973*. The Endangered Species Act requires that any action likely to adversely affect a federally protected species is subject to review by USFWS. No specimens of this endangered plant have been found on Barwell Road Community Park. The USFWS lists four federal plant species of concern (FSC) in Wake County: Bog Spicebush (*Lindera subcoriacea*), Sweet Pinesap (*Monotropis odorata*), Grassleaf Arrowhead (*Sagittaria weatherbiana*), and Virginia least trillium (*Trillium pusillum* var. *virginianum*). No specimens of these plants have been observed on the site during site investigations to date.

The North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (2008) was reviewed. There are two known Element Occurrences (Michaux sumac and colonial wading bird colony) and a Significant Natural Heritage Area (SNHA: *Neuse River (Clayton) Forest*) within an approximate one mile radius of the park property (see map below). The SNHA along the Neuse River provides important habitat for nesting birds and other wildlife. The stream corridor flowing through the eastern portion of Barwell Community Park does provide some connectivity for wildlife, however the stream corridor is surrounded by dense residential development east of the park.



Flora Resources of Barwell Road Community Park

Site investigations of flora resources were conducted by City of Raleigh staff during the months of June, September, and October in order to capture various flowering periods to correctly identify plant species. Flora identification will be ongoing at this site. Additional plants that are identified during annual site inspections and work days will be added to the plant inventory. Species naming follows “*Flora of the Carolinas, Virginia, and Georgia, and Surrounding Areas*” by Alan S. Weakley, 2008.

The diversity of plant community and habitat types on this site include streams, riparian area, dry and mesic forest, and the herbaceous easement areas that are artificially maintained to control woody vegetation, thus providing open grassland areas.

The western portion of Barwell Road Community Park is comprised of Piedmont Dry-Mesic Pine Forest. The vegetation is mainly a young pine plantation with very close spacing. Sweet gum (*Liquidambar styraciflua*), willow oak (*Quercus phellos*), American holly (*Ilex opaca*), and red cedar (*Juniperus virginiana*) are also present. The understory is sparse, with some scattered grape fern (*Botrychium sp.*), cranefly orchid (*Tipularia discolor*), and pipsissewa (*Chimaphila maculata*). There is a very large red oak (*Quercus rubra*) adjacent to the ephemeral stream. The location of this specimen tree has been mapped and is shown on page 9. Although most of the forested area is a young pine plantation, there are a few larger trees along the road, which could be preserved to meet the requirements of the Tree Conservation Ordinance (TCA).

Diversity of native flora in the riparian area appears low to moderate. The understory is sparse and appears to be frequently flooded. The trees appear young, with buttressed and coppiced trunks, indicating frequent flooding. There are a few small areas of scattered Giant Cane (*Arundinacea gigantea*), Greenbriar (*Smilax sp.*), and New York fern (*Thelypteris noveboracensis*). There are some areas of invasive Japanese Stilt Grass (*Microstegium vimineum*), but it is not dominant and is in scattered small patches.

A spring flora inventory should be undertaken, particularly along stream banks. In November, the vegetation along streambanks included yellowroot (*Xanthorhiza simplicissima*) and yellow star grass (*Hypoxis hirsuta*).

The small wetland at the intersection of the stream and sewer easement supports a wetland plant community of low to moderate diversity, including bulrushes (*Scirpus sp.*), smartweeds (*Persicaria spp.*), bee balm (*Monarda sp.*), false nettle (*Boehmeria cylindrica*), sweet woodreed (*Cinna arundinacea*), and seedbox (*Ludwigia sp.*). Invasive Japanese stilt grass (*Microstegium vimineum*) is present in the vicinity of the wetland.

Flora in the sewer easements is primarily non-native invasives, but there are a few scattered desirable natives including quinine (*Parthenium integrifolium*) and eupatorium.

The upland forested portion of Barwell Road Community Park is primarily Piedmont Dry-Mesic Oak Forest. There is a grove of white oaks (*Quercus alba*) in the upland area southeast of the community center, and approximately 25 specimens of the uncommon small tree Rusty Blackhaw (*Viburnum rufidulum*). This forested area is located in the sandy loam (ApC2) and loamy sand (LoD) soil mapping units found on the site. Some of the oak trees are large and provide exceptional wildlife habitat. White oak is one of the most important food sources for a large variety of wildlife. Oaks have a high cover value. White oaks are resistant to decay and long-lived, so they are one of the most valuable trees for providing cavities. Cavities provide nesting sites and dens for various birds and mammals. The white oaks at Barwell Road Community Park exhibit many cavities.

Tree Conservation Ordinance: The City of Raleigh Tree Conservation Ordinance (TC-7-04) is designed to protect trees during pre-development of a site by defining allowable tree removal activity. During site development tree preservation is required through the establishment and protection of Tree Conservation Areas (TCAs) (Section 10-2082.14). At present, four types of Primary TCAs must be identified and established wherever they occur on a site: tree protection areas required in Resource Management Districts and conditional-use zoning or re-zoning tree protection areas, Champion Trees, Neuse River Riparian Buffer Zone 2, and slopes greater than or equal to 45% adjacent to or within floodways.

During development of the Barwell Road Elementary School and Barwell Road Community Center, Tree Conservation Areas were established and recorded within the greenway easement on the eastern portion of the property, totaling approximately 10.3 acres of TCA.

The following tree removals and disturbance are not allowed within an Approved Tree Conservation Area without a Tree Conservation Permit:

- Champion trees
- Trees in Resource Management Districts
- Trees in natural protective yards
- Timber harvests
- Trees related to installation of a use, structure, driveway, or facility improvement
- Trees related to a subdivision or a site plan
- More than 15 trees on parcels greater than or equal to 2 acres in size
- Healthy trees greater than or equal to ten inches dbh within the following protected buffer areas: 50 feet of a thoroughfare, 32 feet of a vacant property line, 65 feet of any other property line including non-thoroughfare roadways

Control and removal of non-native invasive tree species to promote the vigor and diversity of native trees is appropriate under “Urban Forestry” practices within the context of the Tree Conservation Ordinance.

Invasive plants on Barwell Road Community Park

The disturbed areas and slopes around the community center and bordering the undeveloped areas are almost exclusively invasive lespedeza (see *photos below*). The sewer easements throughout the eastern portion of the park are also dominated by lespedeza and other invasives. Lespedeza has an extensive perennial root system and can spread quickly in disturbed areas. There are a variety of management techniques available to control this invasive, including mechanical and herbicide options.



Invasive lespedeza plant



Lespedeza growing on stockpiled soil spoils near Community Center



There is a small area of invasive Japanese stiltgrass (*Microstegium vimineum*) near the end of Barwell Park Drive (see photo above). This invasive plant can quickly take over, but could be controlled if treated before it covers large areas.

Autumn olive (*Elaeagnus umbellata*) is present in the existing forested area on the eastern portion of the park. This invasive plant grows rapidly and is widely disseminated by birds.

Additional invasive plants in the park include Mimosa (*Albizia julibrissen*), Chinese privet (*Ligustrum sinense*), and Japanese honeysuckle (*Lonicera japonica*).

English ivy (*Hedera helix*) is established near the property boundary in the southwestern section of the park. The English ivy is growing both on the forest floor as well as vertically on the tree trunks. English ivy smothers and displaces native vegetation, and will eventually kill the trees it grows on. English ivy is also especially problematic on trees because when the ivy grows vertically it produces seed. Birds eat the seeds and spread the ivy to new areas, further exacerbating the problem.

Fauna Resources of Barwell Road Community Park

The stream corridor and the adjacent upland of Barwell Road Community Park offer important wildlife habitat. As stated previously, 16.29% (approximately 9 acres) of the park is underlain by hydric soil, in the floodplains of the stream system on the eastern portion of the park. Floodplains provide wildlife corridors for mammals, reptiles and amphibians. Depression areas, vernal pools, and wetlands also provide important wildlife habitat, as does the upland oak forest. Wildlife identification and inventory will be ongoing at this site.

Silt fence remains are located in several locations along the sewer easement corridors. Silt fencing is installed to protect water quality during site disturbing activities. However, silt fencing should allow for wildlife movement on the site. It is beneficial to create occasional gaps in a silt fence to allow wildlife to migrate across the site, as wildlife often requires access to both upland areas and surface waters. It is also important to remove the silt fence once the site has been stabilized, to facilitate wildlife movement on the site.

Rare and Protected Wildlife: Three wildlife species known to occur in Wake County are listed as endangered or threatened through the *Endangered Species Act of 1973*: bald eagle (*Haliaeetus leucocephalus*), red-cockaded woodpecker (*Picoides borealis*), and dwarf wedgemussel (*Alasmidonta heterodon*). The Endangered Species Act requires that any action likely to adversely affect a federally protected species is subject to review by USFWS.

The bald eagle is listed as federally *threatened* and has a *threatened* state status in North Carolina. No bald eagles or bald eagle nests were observed during field investigations of the parcel. The NCNHP has no records of known populations of bald eagle on the parcel. Development of this park site is not expected to adversely affect the bald eagle.

The red-cockaded woodpecker is listed as federally *endangered* and has an *endangered* state status in North Carolina. The red-cockaded woodpecker is found in open, old-growth pine stands greater than sixty years old. No red-cockaded woodpeckers or their cavity trees were observed during field investigations of the parcel. The NCNHP has no records of known populations of this bird within a one mile radius of the park site. Development of this park site is not likely to adversely affect the red-cockaded woodpecker.

The dwarf wedgemussel is listed as federally *endangered* and has an *endangered* state status in North Carolina. The dwarf wedgemussel is known to occur in the Neuse River basin, inhabiting large rivers to small streams. In the southern portion of its range it is often found buried under logs or root mats in shallow water (USFWS 1993). It is unknown whether dwarf wedgemussel may occur on this site, and additional investigation is needed. The NCNHP has no records of known populations of the dwarf wedgemussel on Barwell Road Community Park.

The NCNHP database of rare species and unique habitats includes a *Colonial Wading Bird Colony* approximately one mile west of Barwell Road Community Park, along the Big Branch stream corridor (see map on page 26). Development of the park is not expected to affect this Element Occurrence.

The USFWS lists twelve federal species of concern (FSC) in Wake County. A table is included listing habitat requirements of the twelve species, and whether suitable habitat for them is available on Barwell Road Community Park.

	<u>Habitat Requirements</u>	<u>Habitat available on Barwell Road Community Park?</u>
Bachman's sparrow <i>Aimophila aestivalis</i>	Prefer longleaf pine woodlands with grassy areas, particularly those that have been burned recently; 'Special Concern' in North Carolina	No
Carolina darter <i>Etheostoma collis lepidinion</i>	Small to moderate sized streams with low current velocity, preferring substrates of mud, sand and sometimes bedrock; tolerant of fine sediments covering the substrate; 'Special Concern' in North Carolina	possible
Carolina madtom <i>Noturus furiosus</i>	Occupies relatively larger streams that flow into the Neuse and Tar rivers; commonly seen in mussel shells, under logs and rocks, in piles of leaves and sticks; 'Threatened' in North Carolina	possible but unlikely
Roanoke bass <i>Ambloplites cavifrons</i>	Creeks to medium rivers with rock, gravel, sand and silt substrates	possible
Southeastern myotis <i>Myotis austroriparius</i>	Roost in caves or abandoned buildings with standing water and forage over open water; Can also roost in hollow trees	possible but unlikely
Southern hognose snake <i>Heterodon simus</i>	Open xeric areas with well-drained sandy soils, and river floodplains	possible
Atlantic pigtoe <i>Fusconaia masoni</i>	Inhabits mostly medium to large streams with moderate gradients, clean fast water, and sand or gravel bed under riffles	unlikely
Diana fritillary <i>Speyeria diana</i>	Breed in deciduous or mixed woods; feed in grasslands and shrub lands	possible but unlikely
Green floater <i>Lasmigona subviridis</i>	Small to medium freshwater streams with slow current gravel and sand substrates, in water depths of one to four feet, in the Neuse River Basin	possible but unlikely
Yellow lance <i>Elliptio lanceolata</i>	Freshwater streams and rivers with clean coarse to medium sized sandy substrates, rocks, and in mud in slack water areas of Neuse River Basin	possible but unlikely

Interim Management of Barwell Road Community Park

Interim management of the Barwell Road Community Park will be ongoing until future park development and the initiation of a Master Plan for this site.

The Barwell Road Property is monitored by Parks staff and site issues are addressed as needed. Parks staff patrols the park boundaries and continues to conduct site investigations for the purposes of natural resources inventory.

The City of Raleigh Land Stewardship Coordinator shall conduct a site review on an annual basis to review existing site conditions, review the status of recommended interim management activities, and determine whether interim management recommendations should be modified.

Interim Management Recommendations

The following interim management recommendations are proposed for Barwell Road Community Park. The management tasks should be completed on the site as resources and staff are available. The City of Raleigh Land Stewardship Coordinator should prioritize the interim management recommendations and identify specific staff to complete the tasks. The Land Stewardship Coordinator will be responsible for initiating a request to appropriate staff to conduct the specific action recommended for the site. Work progression and updates will be recorded in the final section of this report.

Interim management recommendations are organized into three categories: Safety, Environment, Property Issues:

Safety

- The eastern portion of Barwell Road Community Park is undeveloped and therefore is not inspected on a frequent basis for public safety. The property has not yet been fully evaluated for safety, and could contain unknown conditions such as unstable trees, barbed wire, or other hazards. Public access to the site should be discouraged until a full site hazard evaluation and remediation is completed. Signage stating NO TRESPASSING should be placed at logical and apparent entrances to the site. Related educational information should be developed to aid in communication to neighbors and other groups that might be encountered on or interested in this site.
- Post No Hunting signs on the site
- Remove potential hazardous waste materials from debris piles scattered in various portions of the park (pesticide containers, paint cans, car battery, etc.)
- Fire ants are present in disturbed areas around the community center and throughout the sewer easements. Fire ants can spread when they experience disturbance. Fire ant management should be initiated in areas that will be disturbed *before* the disturbance takes place. Fire ant control requires a management plan, including mapping of mounds, long term control with baits, and monitoring to re-treat. Baits offer the most effective long term control and are preferred over broadcast treatments. Native ant populations are the only thing controlling the spread of imported fire ants so it is important to target only imported fire ants. Imported fire ants build mounds without holes (they enter and exit from galleries in the ground adjacent to the mound) compared to native ant mounds where you can see ants coming and going through holes in the mound.

Environment

- Initiate a thorough investigation of hydrology on the site. Roughly delineate the location of stream channels and floodplain on the eastern portion of the park to aid in park development, for example locating low impact trails
- Delineate highest quality forest and uncommon species, such as the large patch of Rusty Blackhaw, and areas recommended to be maintained as natural areas
- Preserve large specimen red oak along ephemeral stream in western portion of park if possible
- Forest management may be needed, for example to address storm damage, serious disease, insect infestations
- Silt fence material in easement areas should be removed by Public Utilities, to facilitate wildlife movement
- Inventory and assess invasives and determine suitable control methods. The invasive non-native species should be managed when staff and resources are available to do so. Cooperation should be initiated with City of Raleigh Public Utilities as most of the invasives at Barwell Road Community Park have been introduced from the sewer easements. English ivy on the southwestern section of the park should be controlled. It is particularly important to remove ivy from the trees. This could be achieved with volunteers.
- Continue inventory and mapping of natural resources including flora and fauna. An inventory of spring flora should be completed. A bird inventory should be initiated as staff or volunteers with inventory skills are available.
- Review areas with erosion and implement Best Management Practices (BMPs) where and when appropriate

Property Issues

- Signage at the site should include a Parks and Recreation phone number, and possibly website information, to report non-emergency site issues
- Park site is currently comprised of two separate parcels; recombination may be considered in the future
- Facilitate removal of debris from scattered piles throughout the property (see map on page 18)
- Continue to monitor for dumping and remove debris as needed
- Establish communication with neighborhood adjacent to the site
- Add additional property boundary markers along adjacent high density residential areas (every 50 feet)

Completed and Ongoing Interim Management responsibilities

- Inventory of natural and cultural resources initiated
- Park surveyed and boundaries marked (October 2010)

Appendix A

City of Raleigh Nature Preserves Criteria
applied to
Barwell Road Community Park

Barwell Road Community Park

54.47 acres

OBJECTIVE CRITERIA: GIS Evaluation

1. Parcel contains species or natural communities that are endangered, threatened or rare as identified by the NC Heritage Program (Element Occurrence).

No, there are no known Element Occurrences on this property.

2. Parcel contains identified area or species within the Wake County Natural Areas Inventory as identified by the NC Natural Heritage Program.

No, there are no Significant Natural Heritage Areas (SNHA) known to occur on this property.

3. Parcel is in close proximity to or provides connection between other properties that are currently protected.

No. Currently there are no additional protected areas in proximity to the property.

4. Parcel contains appreciable water features in the landscape, such as wetlands, lakes, ponds, perennial stream systems, or floodplains.

Yes. Approximately 4,493 linear feet of perennial and intermittent stream are located primarily on the eastern portion of the park property. At least two small wetlands occur on the park property.

5. Parcel contains hydric soils which may be indicative of wetlands.

Yes. Approximately 16.6% (9.03 acres) of the park property is underlain by hydric soil Mantachie (MeA). The hydric soil Mantachie, 0 to 4 percent slopes consist of nearly level somewhat poorly drained soils in depressions and draws. A seasonally high water table is at a depth of approximately 2 feet. These soils have formed in deposits of local alluvium washed from surrounding soils of the uplands. These soils are frequently flooded for short durations and are mostly forested. (Wake County Soil Survey, USGS)

6. Parcel contains steep slopes (> 8%) near streams or river.

Yes. Approximately 14.3% (7.8 acres) of the park property is covered by slopes greater than 8%.

ADDITIONAL CRITERIA:

7. The property contains species that are uncommon as identified and mapped by staff.

As of June 2012, no uncommon species have been identified at Barwell Road Community Park.

8. The property contains outstanding geologic characteristics, such as cave, waterfall, cliffs, granite outcrop, etc. as identified and mapped by staff.

The park property is located within the Rolesville batholith and contains small areas of exposed granitic rock in various areas of the park. At least one large boulder pile is located in the eastern/central portion of the park that may be of geologic interest.

9. The conservation benefit outweighs the expense of stewarding the property due to location, maintenance of structures, resource management (invasives), liability, multiple owners, trespassing concerns, irreparable contamination, cost prohibitive cleanup, or other factors.

Considerations:

A significant portion of the eastern side of the park contains hydric soils, a stream system and active floodplain. The eastern portion of park along the stream corridors appears to be fully vegetated since at least 1949, indicating this area of the property was deemed inappropriate for cropland or pasture. This area remains important for stormwater filtration and does provide wildlife habitat. At the time of the Barwell Road SIP publication, the park does not appear to support *large areas of exceptionally high quality* wildlife habitat or natural resources.

Invasives are not well established within the eastern side of the park, except on sewer easements.

10. The property is of sufficient size and shape that its conservation resources are likely to remain intact, even if adjacent properties are developed; or sufficient neighboring property is either already protected or to be included as to achieve the same result.

The linear shape and isolated nature of Barwell Road negatively impact the quality of the natural resources and the wildlife value of the site.

11. The area can be sufficiently buffered.

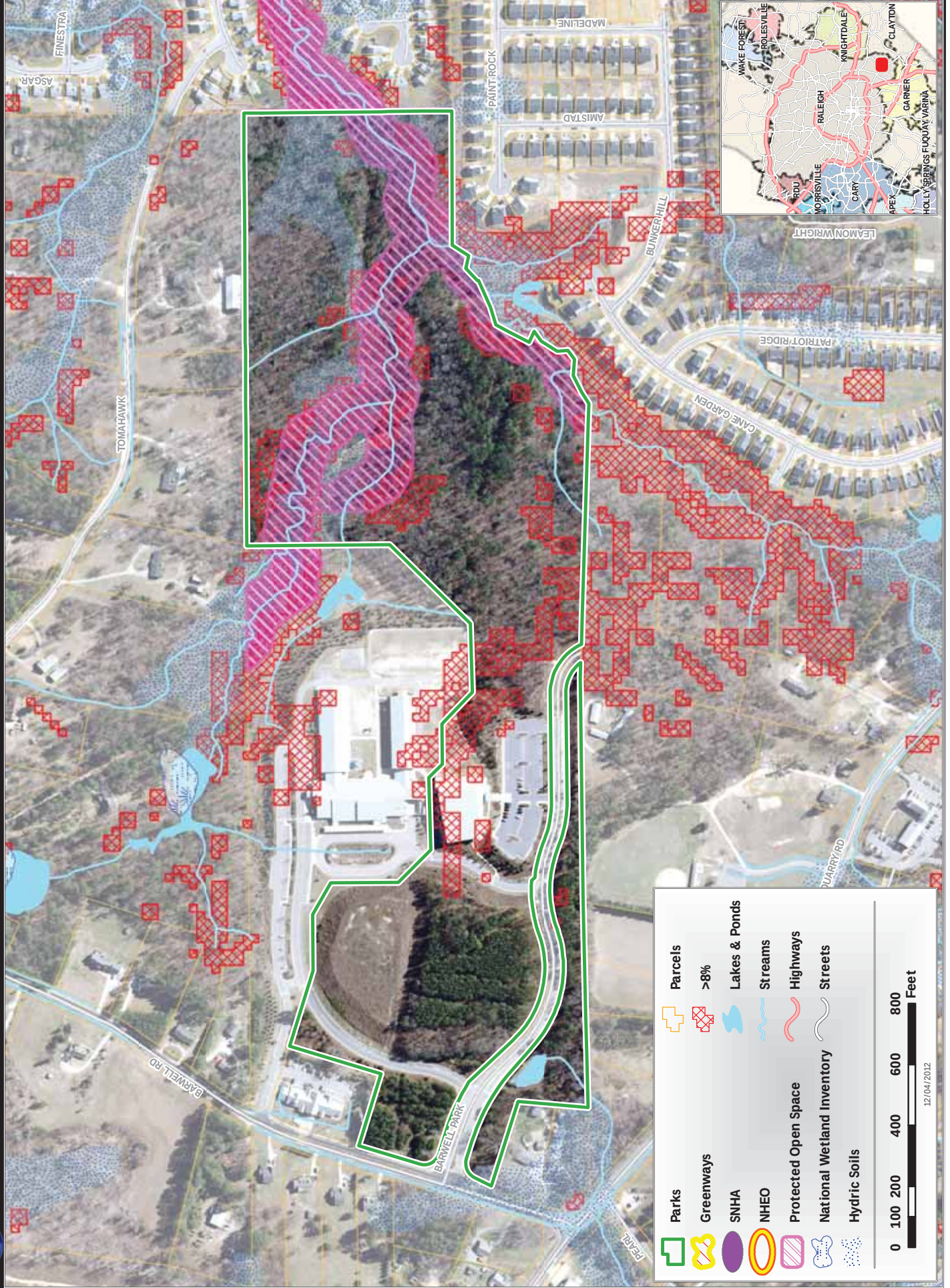
Large scale buffering of the undeveloped eastern portion of the park would be challenging. The vicinity is highly developed with small lot residential housing to the south and east of the park.

12. Compatibility of existing use or condition, in whole or part, is conducive to being a Nature Preserve.

At the time of the Barwell Road SIP publication, the park does not appear to support exceptionally high quality wildlife value or natural resources.

13. The larger context for Park Planning should be considered when designating new Nature Preserves and Protected Natural Areas.

Barwell Road Community Park Nature Preserve Criteria



Appendix B

*Joint Use Agreement for a portion
of Barwell Road Elementary School*

City of Raleigh and

Wake County Board of Education

NORTH CAROLINA
WAKE COUNTY

JOINT USE AGREEMENT FOR A PORTION OF THE BARWELL ROAD ELEMENTARY SCHOOL (MULTIPURPOSE FIELD, K2 AND 3-5 PAVED PLAY AREAS, WALKING TRACK, BRES VISITOR PARKING AREAS AND DRIVE ACCESS) LOCATED ON WAKE COUNTY BOARD OF EDUCATION-OWNED PROPERTY

This Agreement for the joint use of the Barwell Road elementary School Multipurpose Field, K2 and 3-5 Paved Play Areas, Walking Track, BRES Visitor Parking Areas and Drive Access (hereinafter referred to as "Agreement") made and entered into this 29th day of November 2007 by and among the CITY OF RALEIGH, a municipal corporation of the State of North Carolina (hereinafter referred to as "City") and the WAKE COUNTY BOARD OF EDUCATION (hereinafter referred to as "Board")

WITNESSETH

THAT WHEREAS, the parties recognize that joint cooperation and action between Board and City shall ensure that the best facilities and services can be provided to the citizens of Wake County with the least expenditure of public funds; and

WHEREAS, Board and City are mutually interested in quality education and recreation programs for Wake County students and citizens; and

WHEREAS, Board and City are authorized to enter into agreements with each other to aid and cooperate in the cultivation of citizenship by providing quality programs and facilities; and

WHEREAS, Board and City desire to enter into agreements for the use of Board and City property respectively; and

WHEREAS, Board owns certain real property at 3925 Barwell Road which is the campus for Barwell Road Elementary School (hereinafter referred to as "BRES" or "Board Property"); and

WHEREAS, City owns certain real property adjacent to the BRES campus that is to be developed by the City as the Barwell Road Park; and

WHEREAS, City and Board desire to enter into simultaneous agreements for the joint use of certain Board Property and City Property identified at Attachment B; and

WHEREAS, Board and City desire the joint use of the aforementioned properties and specific to this Agreement, the BRES multipurpose field, walking track, K2 and 3-5 paved play areas, BRES visitor parking areas and drive accesses located on Board Property as prescribed pursuant to this Agreement; and

WHEREAS, Board and city anticipate a mutually cooperative long-term joint use association at Barwell Road Park and BRES; and

WHEREAS, City desires to grant to the board access to City property for entrance and egress to and from Board Property; and

WHEREAS, City desires to assist the Board in the maintenance of the designated BRES visitor parking area and drive access of BRES in exchange for City use; and

WHEREAS, Board has determined that the use of the areas to be jointly used are not necessary at all times after normal school hours for public school purposes during the term of the Agreement; and

WHEREAS, Board desires to permit City use of the BRES multipurpose field, walking track, K2 and 35 paved play areas, BRES visitor parking area, and drive access when such are not scheduled or being used by the Board as prescribed pursuant to this Agreement; and

WHEREAS, community use of school property and facilities is encouraged by the Community Schools Act North Carolina General Statutes (NCGS) 115C-203; and

WHEREAS, Board and City are authorized to enter into this agreement pursuant to the provisions of N.C.G.S. 115C, Article 13; N.C.G.S. 115C-518; N.C.G.S. 115C-524; and N.C.G.S. 160A-274:

NOW, THEREFORE, pursuant to N.C.G.S. 115C, Article 13, N.C.G.S. 115C-524(b), and N.C.G.S. 160A-274 and in consideration of the above-stated desires of the parties and such other mutual promises and covenants as are hereinafter set forth, the City and Board do hereby agree as follows:

1. Property Description. Barwell Road Elementary School Campus is located at 3925 Barwell Road, Raleigh, North Carolina, specifically identified in Deed Book 11298, Page 2414, PIN #173231.3627.

2. Term. Board and City anticipate a mutually cooperative long-term use association at BRES and Barwell Road Community Center and Park.

A. The initial term of this Agreement shall be for a period of eighty years from the date of execution of this Agreement signed by the governing bodies of the board and City.

B. This Agreement may be amended to extend the use after the expiration of the initial term for consecutive terms of ten years each with written mutual consent of Board and City, provided that the board still utilizes the buildings on Board Property for a school use or school system related activity, and also provided that the terms hereof have not been breached.

3. Liability. Board and City agree that Board is authorizing the use of its property only to the extent permitted by N.C.G.S. 115C-524 (b), and that the Board does not hereby incur any liability to the City or any member of the public for permitting this use. No liability shall attach to the board of Education, individually or collectively for any injury suffered by reason of the city's use or maintenance of Board property pursuant to this Agreement.

4. Enhancements, Modifications, Renovations, and New Construction on board Property by Board and/or City. The Board may make any enhancements, modifications, renovations, or new construction on Board Property necessary for educational programming needs or modifications required by the Department of Instruction. The Board may make such enhancements, modifications, renovations, or new construction in its sole discretion and without approval from the city; however, the Board shall notify the City if it is making such improvements to any area of BRES identified for joint use. The City shall be responsible for any enhancements, modifications, renovations, or new construction for City needs; however, no such improvements to Board Property may be made by the City without the board or Board designee's prior written approval. The WCPSS Facility Modification Form shall be used to coordinate such plans for enhancements. After the Board approves the plans and schedule for improvements to Board Property proposed by the City, the City may proceed at its expense. The City shall plan and coordinate such improvements with the Board to ensure that such improvements pursuant to this Agreement are completed with minimal impact on the operations of BRES. City will be responsible for and shall repair at its sole expense any damage to parking areas, drive accesses, or Board property incurred due to City's use, maintenance, or construction.

5. City Licensed Areas. (CLA)

The Board hereby gives and grants to the City permission to use areas on Board Property defined pursuant to this Agreement as the City Licensed Areas of BRES:

A. CLA #1 - BRES Visitor Parking Areas and Drive Access

B. CLA #2 - BRES Carpool Stacking Lane

- C. CLA #3 - BRES School Bus Loop and Drive Access
- D. CLA #4 - K2 and 3-5 paved play areas
- E. CLA #5 - Multipurpose Field and Walking Track
- F. CLA #6 - Barwell Road Greenway Trail

6. Ownership. All improvements made to or upon Board Property shall be the property of the Board.

7. Appropriate Use. No use of BRES shall be inconsistent with the proper care of public and school system property.

8. Joint Use and Scheduling of City Licensed Areas. Board and City agree that use of CLAs as shown on Attachment B, shall be in accordance with the following conditions and provisions:

A. Administrative Control.

1. The Superintendent of the Wake County Public School System or designee shall have administrative control of Board property subject to the City's rights under this Agreement at all times.

2. Board shall have priority of use of City Licensed Areas.

3. Board and City agree to meet at least three times a year to inspect CLAs and to coordinate usage and maintenance schedules.

4. Board and City designees shall act in good faith to ensure that both parties have reasonable access to licensed areas pursuant to this Agreement.

B. For this Agreement:

1. Normal school hours are defined as student and teacher workdays from 7AM-6PM. From time-to-time school activities, events, or games may end before or extend beyond the normal school hours.

2. Non-School hours are defined as daily after normal school hours, weekends, holidays, staff vacation days, and during school breaks including spring, summer and winter breaks.

3. City use of Board Property shall be defined as the following:

a. Programs that the City initiates, directs, schedules, coordinates and/or funds;

b. Maintenance and/or housekeeping tasks performed by the City pursuant to this Agreement;

c. Use of Board Property as an open park by "walk-on" persons or visitors per this Agreement;

d. Use of Board Property by Third Parties who are authorized to use Board Property by the City but who have not executed the Facility Use Application, Form 2900, and submitted it to the Community Schools Office.

4. Third Party Use is defined as non-Board and non-City use.

5. City and Board shall jointly develop and use a Facility Evaluation and Inspection Checklist to document facility conditions.

C. Scheduling.

1. BRES Visitor parking area and drive access (CLA #1 and CLA #2) use shall be in accordance with the following conditions and provisions:

a. Board and City shall schedule use at the site coordination meetings.

b. Board shall have scheduling priority at all times.

c. So long as not necessary for school purposes, the parking areas may be used for City program activities after normal school hours.

d. During normal school hours, the City shall communicate to and coordinate with the school of the need for Community Center overflow parking.

2. BRES multipurpose field and walking track (CLA #5) and K2 and 3-5 paved play areas (CLA #4) use shall be in accordance with the following conditions and provisions:

a. Board shall have priority for use at all times.

b. For the City's After-School Care Program Only:

(1) So long as not needed by the Board, the City may schedule access one-half hour after school dismissal until the end of the normal school day (6:00 PM) at no additional costs.

(2) City must submit a Facility Use Application (Form 2900) for coordination purposes for all City use.

(3) Access request to be submitted at the site coordination meeting.

c. For all other City program use:

(1) Access shall be via Facility Use Application (Form 2900)

(2) Board approved non-subsidized rates (Non-profit Civic, Religious, Charitable Organizations Meetings, Youth Camps, Clinics, Baccalaureate Not to include tournaments) shall apply.

(3) Age appropriate activities must be scheduled.

3. Barwell Road Greenway Trail (CLA #6) use shall be in accordance with the following conditions and provisions:

a. So long as not needed by the Board and the City's programs do not interfere with WCPSS programs:

(1) Greenway trail located on Board Property may be used from sunrise to sundown.

(2) Board shall allow time to be scheduled during the normal school day to provide maintenance.

b. City maintains greenways in accordance to Item #9C(4).

D. Fees/Charges

Except as expressly stated in this Agreement, there shall be no additional fees and/or charges associated with use of CLAs unless mutually agreed upon.

E. Concession Operations.

Board and City shall coordinate concession operations on CLAs.

1. Proceeds from concessions shall go to the City or its program agent when the City operates the concessions for City purposes.

2. Proceeds from concessions shall go to the Board or its designee when the Board, City, or their program agent operates the concessions for Board purposes.

3. Concession proceeds shall be shared by the Board and the City based upon a mutually agreed upon percentage when operated for a jointly planned event.

F. Inclement Weather.

1. Board in its sole discretion will make decisions on when to close its schools due to inclement weather.

2. If the City decides to make use of CLAs during periods when schools are scheduled to be closed or closed because of inclement weather:

a. The City shall be responsible for clearing drive accesses, parking areas, entrances, and sidewalks.

b. City and its invitees may elect to use the CLAs during inclement weather at the City's and its invitees' own risk and without the approval of the Board.

G. Supervision and Security of Licensed Areas.

1. Board and City agree that City will provide adult supervision of participants, parents, staff, and visitors to ensure their safety and well being during City-sponsored events or programs on CLAs.

2. City shall ensure adherence to all school rules and policies pertaining to what is not allowed on campus (i.e. Board Policy Series #2300, #3000, and #4000).

3. City will provide security as appropriate to provide a safe environment for the participants and protect school system property.

4. In the event of damage attributed to use or maintenance, the City shall make restoration to school property.

9. Housekeeping, Routine Maintenance, and Major Repair or Life-Cycle Replacement
(refer to Maintenance Charts, Attachment A)

A. General Guidelines

1. Board and City designees shall meet at least three times each year to evaluate maintenance issues, coordinate calendars, and schedule access for routine maintenance and repairs.
 - a. Board and City agree to maintain the property in accordance with the Maintenance Charts at Attachment A.
 - b. Routine maintenance shall be performed according to pre-determined schedules or as mutually agreed upon by City and Board designees.
 - c. Board and City shall allow time to be scheduled during the school day for City and Board to have access to the facility to provide maintenance.
 - d. The user (Board, City, or Third Party) will be responsible for general cleanup such as, accidental spills, collecting litter and trash removal.
 - e. Board may take actions on Board Property that the Board deems necessary for school purposes.
 - f. Board may request City to undertake specific cleanup tasks on CLAs as needed.

B. Chiller and Boiler Maintenance

1. Board shall be solely responsible for routine maintenance.
2. Board and City shall share (Board 70% and City 30%) the costs for major repairs or life-cycle replacement of the chiller and/or boiler supporting the school and community center. Board shall provide City an invoice within 30 days of major repairs or chiller and/or boiler replacement.

C. Trash Removal.

1. Waste generated from the CLAs may be disposed of in school dumpsters.
2. City agrees to comply with the WCPSS Recycle Program guidelines.
 - a. Recycle bins (if applicable) shall be provided and placed at a mutually agreed upon location.
 - b. Recycle bins (if applicable) shall be serviced by the City on a regular basis.
3. Board shall maintain common utility service lines (i.e. sewer, electrical, storm drainage, and HVAC) outside of BRES and Barwell Road Community Center.
4. The City shall be responsible for the routine maintenance of the greenway trail asphalt surface and the routine maintenance for up to five feet of grassy area only on each side of the trail located on Board Property.

D. During Inclement Weather:

1. If school is open, the Board shall be responsible for snow/ice removal for Board Property including the carpool stacking lane access and the school bus loop access.
 2. City shall be responsible at all times for the snow removal on the fire station driveway portion of the BRES drive.
 3. City shall be solely responsible for damage caused by City authorized snow/ice removal on Board Property.
10. Utilities.

A. Water will be metered separately. The sewer and storm water fees will be charged to each property owner. Electrical and natural gas necessary for the use and operation of the Barwell Road Community Center will be metered through common utility meters which shall be in the name of the Board. The Board and City agree that the Board will invoice the City for the actual costs of electricity and natural gas based on the utility company invoice reflecting the total square foot cost for the electricity and gas. The City will pay appropriate utility fees quarterly for the total square footage of the Community Center and Gymnasium minus the square footage necessary for BRES program (i.e. 39,059 square feet minus 3,269 square feet equals 35,790 square feet).

B. Board and City shall share the responsibility for routine and major maintenance costs along with monthly utility costs associated with outdoor lighting of the BRES visitor access and parking area, bus loop access, and the carpool stacking lane access.

11. Insurance/Liability.

A. City shall maintain at all times during the term of this Agreement and during any and every extension thereof public liability insurance in the minimum amount required by North Carolina State Law, covering personal injury for each accident or occurrence growing out of the City's use or maintenance of the said Licensed Areas and at least the minimum required by North Carolina State Law to cover property damage growing out of each accident or occurrence.

B. City agrees to obtain Fire and Hazard insurance in the amount equal to the replacement value of the insurable structure and areas.

C. Board shall maintain at all times during the term of this Agreement and during any and every extension thereof public liability insurance per Board policy.

D. Board and City are each responsible for insuring replacement value of their respective personal property.

12. Use of Care.

The City acknowledges that construction, maintenance, and use pursuant to this Agreement will take place on a school site at which children, school employees, and members of the public are present. The City shall take reasonable care under the circumstances to protect and secure the construction and maintenance areas to minimize the possibility of injury to students, staff and the public from construction activity, equipment, and materials used in connection with the construction and maintenance activity on the property subject to this Agreement. The City further agrees to keep the property subject to this Agreement in a clean and safe condition at all times and to ensure that any equipment, materials, or supplies brought onto the City Licensed Areas by the city are properly and safely stored when not in use.

13. Nondiscrimination.

The Board and City shall not discriminate against any employee or applicant for employment because of race, color, creed, sex, age, religion, or national origin. Neither the board, City, or their employees shall discriminate against any person or organization on the basis of race, color, creed, sex, age, religion, or national origin by refusing to furnish such person or organization services for privileges offered to or enjoyed by residents of Wake County nor shall the board, City or their employees publicize the facilities provided hereunder in any manner that would directly or inferentially reflect negatively on any person because of race, color, creed, sex, religion or national origin.

14. Nonperformance.

In the event either party should fail to keep, perform or abide by any term, condition or covenant of this Agreement for a period of thirty days after written notice of such failure by the non-breaching party, then in addition to any other remedies available at law or equity, the non-breaching party shall have the right to remedy such nonperformance. In such event, the breaching party shall reimburse the non-breaching party for any expenses incurred by the non-breaching party in effecting such remedy. Such reimbursements shall be due and payable within thirty days after receipt by the breaching party of written notice specifying the amount due. If the Board is the non-breaching party, it may suspend the City's use of its property until the city demonstrates to the Board's satisfaction that the City has corrected its breach and is fully performing its obligations under the terms, conditions, and covenants of this Agreement.

15. Default/Termination.

In the event either party should fail to keep, perform or abide by the terms, condition or covenant of this Agreement for a period of thirty days after written notice of such failure by the non-breaching party, then the non-breaching party may elect to terminate this Agreement upon an additional thirty day written notice. If Board is the breaching party and City should exercise this right of termination, during the initial term of this Agreement, then and in that event, Board shall reimburse the City for the City's cost of improvements on Board Property on a pro rata basis.

16. Right to Termination.

With good cause shown by the terminating party, either party may request termination of this Agreement upon one hundred and eighty (180) days written notice to the other ("Termination Notice") provided that:

A. Board reserves the right to terminate this Agreement or the right to use a specific CLA at any time that the Board in its sole discretion deems Board property necessary for school purposes. If the Board should exercise this right of termination at any time during the term of this Agreement, then the Board shall reimburse City for a pro rata portion of the City's initial construction costs for improvements completed on

Board Property except that the City shall not be entitled to reimbursement for improvements to parking lot or school drive accesses.

B. If City should exercise this right of termination at any time during the initial eighty year term, then and in that event, City shall complete any improvements begun on Board Property and leave Board Property in a condition that is safe and acceptable to the Board. The City shall relinquish any interest City may have in any of the improvements City has made to the Board Property under this Agreement, and no reimbursement shall be due the City.

17. Notices. All notices, requests, approvals, or consents required to be given hereunder shall be in writing and hand delivered or sent by certified mail, return receipt requested, postage prepaid, and addressed as follows:

Board: The Board of Education
Wake County Public School System
3600 Wake Forest Road
P.O. Box 28041
Raleigh, NC 27611-8041

City: City Mayor/ City Manager
City of Raleigh
222 West Hargett Street
Raleigh, NC 27601

or to such other address as either party may specify in the manner hereinabove prescribed.

18. Severability.

In the event any term or provision of this Agreement shall be adjudged to be partially or completely invalid or unenforceable, then such term or provision shall be severed from this Agreement, and the remainder of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

19. Preservation and Care of Public School Property.

Board and City agree to regulate the use of BRES consistent with the Board's understanding of how to best maintain the property and to prevent deterioration of the property. The City may only use BRES so long as its use is consistent with the proper care and preservation of the public school property.

20. Non-Assignment.

The City may not assign this Agreement. The City may use Board Property only as provided in this Agreement and the City shall not allow any other person, organization, or corporation to use Board Property without the express written permission of the Board.

21. Entire Agreement. The Board and City agree that this document and its Attachment listed below constitute the entire Agreement between the two parties and may only be modified by a written mutual agreement signed by the parties. To the extent that there is any conflict between the terms of this Agreement and any prior understanding or agreement between the parties, the terms of this Agreement shall control.

Attachment A – Maintenance Charts

Attachment B – Diagram showing Licensed Areas

Attachment C – Master Plan

Attachment D – City of Raleigh Joint Use Agreement for Barwell Road
Community Center, Gymnasium, and Drive Access

22. Agreement in Counterparts.

This Agreement may be executed in several counterparts, each of which shall be deemed an original, and all of which shall constitute one and the same instrument.

Appendix C

Three Party Right of Way Encroachment Agreement

Barwell Road Community Park

THREE PARTY RIGHT OF WAY
ENCROACHMENT AGREEMENT ON
PRIMARY AND SECONDARY SYSTEM

DEPARTMENT OF TRANSPORTATION

-AND-

WAKE COUNTY PUBLIC SCHOOL SYSTEM

-AND-

CITY OF RALEIGH

ROUTE: Barwell Park Drive PROJECT: Barwell Road Area Park and Elementary School
COUNTY OF: Wake STATE OF NORTH CAROLINA

This Agreement, made and entered into this the 27th day of Jan 2005, by and between the Department of Transportation, party of the first part, and Wake County Public School System party of the second part, and City of Raleigh, party of the third part,

WITNESSETH

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) Barwell Park Drive, located on east side of Barwell Road (NCSR 2551) and approx 420 feet north of Rock Quarry Rd (NCSR 2542) with the construction and/or erection of: a planted landscape island, approx 235 feet in length and variation in width from 22 feet to 12 feet, defined by 30 inches concrete curb and gutter commencing at intersection with Barwell Road (as shown on plans prepared by the Wooten Co. dated 2-11-05).

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the installation, operation, and maintenance of the above described facility will be accomplished in accordance with the party of the first part's latest Policies and Procedures for Accommodating Utilities on Highway Rights-of-Way and such revisions and amendments thereto as may be in effect at the date of this agreement. Information as to these policies and procedures may be obtained from the Division Engineer or State Utility Agent of the party of the first part.

That the said party of the second part binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse the party of the first part for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to installation and existence of the facilities of the party of the second part, and if at any time the party of the first part shall require the removal of the or changes in the location of the said facilities, that the said party of the second part binds himself, his successors and assigns, to promptly remove or alter the said facilities, in order to conform to the said requirement, without any cost to the party of the first part.

That the party of the second part agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements

thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

That the party of the second part agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soils, silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property, or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division engineer of the party of the first part.

That the party of the second part agrees to have available at the construction site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic, the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

That when a title to the subject that constitutes the aforesaid encroachment passes from the party of the second part and vests in the party of the third part, the party of the third part agrees to assume all responsibilities and rights and to perform all obligations as agreed to herein by the party of the second part.

Appendix D

Contributors to Barwell Road Community Park

System Integration Plan

Contributing Staff and Agencies to the Barwell Road Community Park System Integration Plan

City of Raleigh Parks and Recreation Staff:

Melissa Salter, Land Stewardship Coordinator

David Shouse, Senior Planner

Dick Bailey, Design/Development Administrator

Emily Ander, Planner

Andy Hayes, Planner

David Berra, Landscape Architect

City of Raleigh staff:

Paul Kallam, City of Raleigh Transportation Engineer

Cesar Sanchez, City of Raleigh Public Utilities Project Engineer

Parks Committee, Parks, Recreation and Greenway Advisory Board

Appendix E

Phase 1 Environmental Assessment Report

Executive Summary

EXECUTIVE SUMMARY

PROPERTY NAME: 3827 and 3925 Barwell Road

LOCATION: Raleigh, North Carolina

This executive summary is provided for convenience and should not substitute for review of the complete report, including all attachments.

Based on the data collected during the assessment, our findings and conclusions are summarized as follows:

On-Site

The subject sites are contiguous properties located at 3827 and 3925 Barwell Road near Rock Quarry Road in Raleigh, Wake County, North Carolina. According to real estate records obtained from Wake County Geographic Information Services (GIS), the tract located at 3827 Barwell Road (the northernmost site) consists of 36.74 acres, and the tract located at 3925 Barwell Road (the southernmost site) consists of 42.41 acres. The western portions of both sites are mostly cleared. The central and eastern portions of the sites are wooded and undeveloped, with the exception of areas recently cleared to enable geotechnical drilling.

A former residence, a water-supply well, and three former tobacco barns remain at the 3827 Barwell Road tract. Mr. Bobbie Belvin, the current owner of the property at 3827 Barwell Road stated that the septic system on former tract was abandoned in 1977. Sheila K. Chappell, sister-in-law to Mr. Belvin, owns and resides at 3925 Barwell Road. An inhabited trailer, a septic system, and a shed are located in the western portion of 3925 Barwell Road. LAW observed debris at 3827 Barwell Road, including three empty 55-gallon drums, one smaller drum, and empty motor oil and gasoline containers. We observed a small earthen mound in the western portion of 3827 Barwell Road. According to Mr. Belvin, his wife's family has owned the property on both sites for several generations, and until 1985 the property was used for farmland. LAW did not observe evidence of past or present, environmentally adverse commercial or industrial activity on-site during the reconnaissance or in the historical review.

Off-Site

During our regulatory review and reconnaissance of the site vicinity, we did not identify off-site environmental concerns.

Conclusions

LAW does not have knowledge that past or present, environmentally adverse commercial or industrial activity has occurred on the sites. We do not have evidence that the subject sites have been adversely affected by off-site activities. We do not have the technical evidence to support further environmental assessment at 3925 Barwell Road at this time. We recommend disposing of the on-site debris at a permitted facility. We also recommend using a backhoe to investigate the nature of the mound observed on the western portion of 3827 Barwell Road, and having an environmental professional observe the excavation of these soils to document the possible presence of hazardous materials.

Appendix F

Flora Resources

Barwell Road Community Park

Inventory of Flora Observed: Barwell Road Community Park



Trees and Shrubs

<i>Acer barbatum</i>	Southern sugar maple
<i>Acer rubrum</i>	Red maple
<i>Alnus serrulata</i>	Tag alder
<i>Baccharis halmifolia</i>	Groundsel tree
<i>Betula nigra</i>	River birch
<i>Callicarpa americana</i>	American beautyberry
<i>Carpinus caroliniana</i>	Ironwood
<i>Carya spp.</i>	Hickory
<i>Cornus florida</i>	Flowering dogwood
<i>Euonymus americana</i>	Strawberry bush
<i>Fraxinus sp.</i>	Ash
<i>Ilex opaca</i>	American holly
<i>Juniperus virginiana</i>	Eastern redcedar
<i>Liquidambar styraciflua</i>	Sweet gum
<i>Liriodendron tulipifera</i>	Tulip poplar
<i>Morella cerifera</i>	Wax myrtle
<i>Oxydendrum arboretum</i>	Sourwood
<i>Pinus echinata</i>	Shortleaf pine
<i>Pinus taeda</i>	Loblolly pine
<i>Platanus occidentalis</i>	Sycamore
<i>Prunus serotina</i>	Black cherry
<i>Quercus phellos</i>	Willow oak
<i>Quercus rubra</i>	Red oak
<i>Rhododendron periclymenoides</i>	Pink azalea
<i>Rosa sp.</i>	Rose
<i>Rhus copallinum</i>	Winged sumac
<i>Rubus allegheniensis</i>	Allegheny blackberry
<i>Salix sp.</i>	Willow
<i>Sassafras albidum</i>	Sassafras
<i>Ulmus sp.</i>	Elm
<i>Ulmus alata</i>	Winged elm
<i>Vaccinium sp.</i>	Highbush blueberry
<i>Viburnum prunifolium</i>	Blackhaw
<i>Viburnum rufidulum</i>	Rusty Blackhaw

Vines

<i>Campsis radicans</i>	Trumpet creeper
<i>Gelsemium sempervirens</i>	Carolina jessamine
<i>Mitchella repens</i>	Partridge berry
<i>Parthenocissus quinquefolia</i>	Virginia creeper
<i>Smilax spp.</i>	Greenbriar
<i>Toxicodendron radicans</i>	Poison ivy
<i>Vitis spp.</i>	Muscadine grape

Ferns

Asplenium platyneuron
Athyrium filix femina
Botrychium sp.
Polystichum acrostichoides
Thelypteris noveboracensis

Ebony spleenwort
Southern lady fern
Grape fern
Christmas fern
New York fern

Herbacious Plants

Ambrosia artemisifolia
Andropogon virginicus
Antennaria plantaginifolia
Aponycum cannabinum
Arundinacea gigantea
Bidens sp.
Boehmeria cylindrica
Carex sp.
Chimaphila maculata
Cinna arundinacea
Commelina erecta
Desmodium sp.
Elephantopus tomentosa
Eupatorium capillifolium
Eupatorium sp.
Houstonia caerulea
Hypericum perforatum
Hypoxis hirsuta
Iris cristata
Ludwigia sp.
Lycopus virginicus
Mitchella repens
Monarda sp.
Parthenium integrifolium
Persicaria spp.
Persicaria sagittata
Phytolacca americana
Potentilla simplex
Pseudognaphalium obtusifolium
Ranunculus recurvatus
Scirpus sp.
Solidago spp.
Symphyotrichum pilosum
Symphyotrichum spp.
Tipularia discolor
Typha latifolia
Viola sp.
Xanthorhiza simplicissima

Ragweed
Broomsedge bluestem
Pussytoes
Indianhemp
Giant cane
Beggartick
False nettle
Sedge
Pipsissewa
Sweet woodreed
Whitemouth dayflower
Tick-trefoil
Elephant's foot
Dogfennel
Eupatorium
Bluets
St. John's wort
Yellow star grass
Dwarf crested iris
Seedbox
Water hoarhound
Partridgeberry
Beebalm
Wild quinine
Smartweeds
Tearthumb
Pokeweed
Common cinquefoil
Rabbit tobaco
Hooked buttercup
Bulrush
Goldenrods
Frost aster
Asters
Crane fly orchid
Broad-leaved cattail
Violet
Yellowroot

Invasives

Albizia julibrissen
Arundodonax variegata

Silktree/ Mimosa
Giant reed grass

Appendix G

Fauna Resources

Barwell Road Community Park

Inventory of Fauna Observed on Barwell Road Community Park



Vertebrates - Birds

Vertebrates - Reptiles and Amphibians

Vertebrates - Mammals

Odocoileus virginianus White-tailed deer

Barwell Road Community Park
System Integration Plan
Comments and Records

Barwell Road Community Park
System Integration Plan
Work Progression and Updates