



October 23, 2015

Ms. Joanna Helms  
Economic Development Director  
Town of Apex  
73 Hunter Street  
P.O. Box 250  
Apex, North Carolina 27502

Reference: Report of Wetland Determination  
Cash Perkins Site  
Pristine Water Drive  
Apex, Wake County, North Carolina  
ECS Project No: 06-23000

Dear Ms. Helms:

ECS Carolinas, LLP (ECS) is pleased to submit this report of the wetland determination performed for the Cash Perkins Site located on Pristine Water Drive in Apex, Wake County, North Carolina. This report summarizes our findings for the site.

### **Background**

The site is located on Pristine Water Drive in Apex, Wake County, North Carolina. The site consists of two contiguous parcels which total approximately 121 acres. According to the Wake County Online GIS Database, the Parcel Identification Numbers (PINs) are Parcel 1 - 0751234512 (60.65 acres) and Parcel 2 - 0751130961 (60.65 acres). The site consists mostly of undeveloped, wooded land. Based on the United States Geological Survey (USGS) Topographic Map, two unnamed tributaries to Middle Creek are depicted on the central and eastern portions of the site. Additionally, several drainage swales are depicted throughout the site. A 50-foot Colonial Pipeline easement is depicted along the northern portion of the site.

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (EPA) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions." In order for an area to be classified as wetland, hydrophytic vegetation, hydric soils, and wetland hydrology indicators must be present described in the 1987 "Corps of Engineers Wetlands Delineation Manual" and the Appropriate Regional Supplement.

### **Literature Review**

ECS reviewed the USGS Topographic Map, the United States Department of Agriculture (USDA) Soil Survey of Wake County, the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), and the Geologic Map of North Carolina to obtain information regarding the site.

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- The USGS Topographic Map (Figure 1), Apex, North Carolina Quadrangle (dated 1999), depicts two unnamed tributaries to Middle Creek on the central and eastern portions of the site. Additionally, several drainage swales are depicted throughout the site.
- The USDA Soil Survey of Wake County (Figure 2) depicts several streams on the western, central, and eastern portions of the site. Soils on-site have been mapped as Appling sandy loam (ApD and AsC2), Augusta fine sandy loam (Au), Cecil gravelly sandy loam (CgB2 and CgC2), Creedmoor sandy loam (CrC2), Chewacla sandy loam (Cm), Georgeville silt loam (GeB2, GeC, GeC2, and GeD2), and Worsham sandy loam (Wy). Appling sandy loam is well drained and occurs on hillslopes of ridges. Augusta fine sandy loam is somewhat poorly drained and occurs on stream terraces. Cecil gravelly sandy loam is well drained and occurs on interfluves. Creedmoor sandy loam is moderately well drained and occurs on hillslopes of ridges. Chewacla sandy loam is somewhat poorly drained and occurs on floodplains. Georgeville silt loam is well drained and occurs on interfluves. Worsham sandy loam is poorly drained and occurs in depressions. Augusta sandy loam, Chewacla sandy loam, and Worsham sandy loam soils are identified on the North Carolina Hydric Soils List.
- ECS reviewed the USFWS NWI Map of the site (Figure 3). The map does not depict surface waters on-site.
- ECS reviewed the FEMA-Firm Service Center Website. The site is depicted on the FEMA FIRM Map as panel 3720075100J (Figure 4). The map indicates that the site is located in Zone X, which are areas determined to be outside the 0.2% annual chance floodplain. However, located along the southern, central portion of the site is Zone A which is special flood hazard areas (SFHAs) subject to inundation by the 1% annual chance flood event.
- The Geologic Map of North Carolina indicates that the site is located in the Piedmont Physiographic Province. The Piedmont Province lies between the Coastal Plain Province and the Blue Ridge Mountains. Elevations range from 300 to 600 feet above sea level east of the Piedmont. To the west, elevations gradually rise to about 1,500 feet above sea level. The Piedmont is characterized by gently rolling, well rounded hills and long low ridges with a few hundred feet of elevation difference between the hills and valleys. In general, shallow unconfined groundwater movement with the overlying soils is controlled largely by topographic gradients. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the water table is transient and can vary with seasonal fluctuation in precipitation. Movement in this water table is generally from higher to lower elevations. As such, shallow groundwater would be expected to flow beneath the site to south towards Middle Creek.

### **Site Reconnaissance**

ECS performed the site reconnaissance on October 16, 2015. The site consists mostly of undeveloped, wooded land. A Colonial Pipeline easement transects the northwestern

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portion of the site. Surrounding properties consist of commercial developments and undeveloped, wooded land. Ponds were not observed on site.

Several streams are located along the western, central, and eastern portions of the site. The streams had well-defined bed and banks, moderate to strong sinuosity, moderate baseflow, well sorted substrate, and contained macrobenthos. The streams varied in width from two to eight feet and one to five feet in depth.

Wetland hydrology indicators (including inundation and saturated soils), hydrophytic vegetation, and hydric soils were observed along the stream channels on the western and eastern portions of the site. Figure 5 depicts the approximate locations of the wetland and streams on the site.

### **General Discussion**

Section 404 of the Clean Water Act regulates the discharge of dredge and fill materials into waters of the United States (lakes, rivers, ponds, streams, etc.), including wetlands. Waters of the United States include the territorial seas, navigable coastal and inland lakes, rivers and streams, intermittent streams, and wetlands. Activities that could be regulated under Section 404 include the placement of fill for construction of roadways; residential, commercial or industrial structures; and the construction of water retention ponds along tributaries. The EPA and the USACE jointly administer the Section 404 program. Section 401 of the Clean Water Act grants each state the authority to approve, condition, or deny Federal permits that could result in a discharge to State waters.

Streams located on the site are regulated by the United States Army Corps of Engineers (USACE) and the North Carolina Department of Environmental Quality (NCDEQ). ECS recommends that the stream and wetlands on the site be delineated, verified, and surveyed to determine their exact locations and extent. Permits are required prior to impacting open waters, including perennial or intermittent streams. Mitigation and stormwater management plans will be a condition of permits issued for the site. Buffers may be required adjacent to the ponds and streams.

For impacts to one-half acre or more of wetlands/waters or to 300 linear feet or more of perennial stream channel, an individual permit (IP) may be required. According to the FIRM, floodplains are located on the southern, central portion of the site. An IP may be required to authorize impacts if wetlands are located in a floodplain.

An IP requires a habitat analysis, alternative site analysis, project justification, plans to avoid and minimize impacts, and a proposed mitigation plan. Depending on the habitat analysis and the extent of impacts, an Environmental Impact Statement may be required by the USACE. An IP allows for a public comment period and may require 4 to 18 months to obtain depending on conditions arising during the USACE review and public comment period.

## **Watershed Classification/ State Buffers**

### **State Riparian Buffer Requirements**

The site is located in the Neuse River Basin. Therefore, a 50-foot riparian buffer zone is required for the streams on the site. Riparian buffers exist on both sides of surface waters, including intermittent and perennial streams, lakes and ponds, as determined by the most recent USGS Topographic Map and/or last published soil survey, and must be protected and maintained in accordance with the NCDEQ rules. A variance must be obtained prior to impacting these buffers for non-exempt activities.

### **Stormwater Requirements**

Several unnamed tributaries to Middle Creek transect the site. According to the NCDEQ, surface waters located on site flow south towards Middle Creek which is classified as C; Nutrient Sensitive Waters. ECS reviewed the NCDWR online stormwater permitting map to determine jurisdiction of NCDEQ stormwater regulations. According to the online permitting map, it appears the site is located in an area designated as local permitting authority. ECS recommends consultation with a civil engineer to determine if mandatory vegetative buffers and/or regulated development (impervious surfaces) setbacks are required for the site in addition to those mentioned above.

## **Findings**

ECS conducted a jurisdictional waters/wetland determination on the site. Based on our background research and field observations, jurisdictional waters are located on site. ECS recommends that prior to site development activities, a full wetland and stream delineation be performed on the site. ECS recommends those findings be confirmed by a representative of the USACE and the NCDEQ to verify the jurisdictional boundaries and to classify waters on site.

After the jurisdictional boundaries have been verified by the agencies, a metes-and-bounds survey should be conducted by a registered surveyor to accurately determine the extent of the jurisdictional waters and wetlands on the project site.

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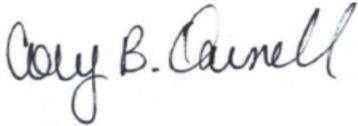
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**Closure**

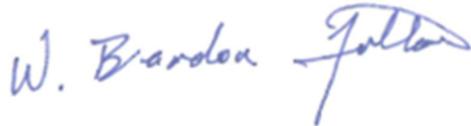
ECS appreciates the opportunity to provide wetland and stream determination services for your project. Please contact us at (919) 861-9910 if you have any questions concerning this report.

Sincerely,

**ECS CAROLINAS, LLP**



Cory Darnell  
Environmental Project Manager



W. Brandon Fulton, LSS, PSC, PWS  
Environmental Department Manager

Attachments:            Figure 1 – Site Location Map  
                                 Figure 2 – USDA-NRCS Soil Map  
                                 Figure 3 – National Wetland Inventory Map  
                                 Figure 4 – FEMA FIRM Map  
                                 Figure 5 – Wetland Determination Map  
                                 Site Photographs