

November 19, 2018

Mr. Robert Rosenberger
Karins & Associates
128 West Market Street
Georgetown, DE 19947

**RE: Delineation of State & Federally Regulated Wetlands
Proposed Fishers Cove Residential Community
Tax Map Parcel 335-4.00-15.00
Town of Lewes, Sussex County, Delaware**

Dear Mr. Rosenberger,

Environmental Resources, Inc. (ERI) is writing to you to provide our findings regarding the extent of state and federally regulated wetlands present on lands being considered for the proposed Fishers Cove Residential Community in the Town of Lewes, Sussex County, Delaware.

INTRODUCTION- The property is identified in the land records of Sussex County as Tax Map Parcel 335-4.00-15.00, consisting of 10.83 acres of land. The physical address is 624 Pilottown Road where a narrow strip of the subject property touches upon that road. However, primary access to the property is from the terminus of Rodney Avenue. The property borders existing residential lots along Rodney Avenue to the south and west. It borders other residential lots to the north which front upon Pilottown Road. The western boundary of the site borders land which is largely developed as part of the University of Delaware, College of Marine Studies campus.

A total of 3.18 acres of the site consists of mowed upland fields located within the central portion of the property. Approximately 7.04 acres of the site is currently wooded. The remaining 0.61 acre portion of the property consists of tidal influenced emergent saltmarsh which is found centrally in a cove found along the southerly property line. These wetlands abut a tributary of Canary Creek which drains to Roosevelt Inlet, a tidally flowed traditionally navigable water, however no streams or other waters were not identified within the physical site boundaries of this property.

Woodlands on the property consists of a mixed age relatively immature forest. A review of historic aerial photography indicated, most of the wooded portion of the site was actively farmed until at least the mid 1990's. Only a narrow fringe of forest edge bordering the tidal emergent wetlands and a few scattered trees were present at that time.

ERI's investigation identified a total of 1.22 acres of federally regulated wetlands on the property subject to the Corps of Engineers Regulatory Program. Most of these wetlands are regulated under Section 404 of the Clean Water Act of 1972 (CWA). This includes all the wooded wetlands.

Some of the most low-lying portions of the tidal emergent saltmarsh wetlands on the site lying below the elevation of local mean high waters will be federally regulated by the Corps under authority of Section 10 of the River and Harbors Act of 1899.

The Delaware Department of Natural Resources and Environmental Control (DNREC) regulates a portion of the tidal emergent wetlands on the property which are dominated by *Spartina sp.* (salt marsh grasses). The boundary of state regulated wetlands was identified from official DNREC Maps, in this case, DNREC Tidal Wetlands Map No DNR-087. A total of 0.26 acres of state regulated tidal emergent wetlands are mapped on this property.

The results of ERI's delineation of state and federally regulated wetlands are identified on a plan entitled "*Wetland Survey Plan for Fishers Cove*" Sheet 1 of 1, prepared by Karins and Associates, last revised November 19, 2018.

INVESTIGATION METHODS

This investigation consisted of a review of available agency resource mapping and on-site investigations to determine the extent of waters of the United States, including wetlands, for the purposes of Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899.

Routine level field investigations were conducted within the subject parcel by Edward Launay (Corps Certification #: WDCP93MD0510036B, Professional Wetland Scientist (PWS) #: 875) during August 2018 to observe hydrology conditions and subsequently delineate Waters of the United States boundaries, including wetlands. The delineation was conducted in accordance with the 1987 *Corps of Engineers Wetland Delineation Manual* in conjunction with the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region; Version 2.0* (November 2010) and supplemental guidance.

For the purposes of Section 404 of the CWA, wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Positive evidence of hydrophytic vegetation, hydric soils, and wetland hydrology is needed for an area to be classified as wetlands. The boundary between wetlands and

non-wetlands is defined as the location where positive indicators of one of the three parameters are no longer present.

Data Sampling Points were established on the property within representative landscape positions to describe existing site conditions, with information regarding hydrology, vegetation, and soils recorded on Wetland Determination Data Forms. The hydrology parameter was evaluated by visual observation of hydrology indicators made during the on-site investigations. Water table levels were measured within un-lined hand auger boring holes at the established Data Sampling Points. The vegetation parameter was evaluated using visual estimates to determine the absolute percent cover of all dominant species within each of the Data Sampling Points. The wetland indicator status of observed plant species was determined using the *U.S. Army Corps of Engineers Atlantic and Gulf Coastal Plain 2016 Regional Wetland Plant List*. Soils were evaluated in accordance with the *U.S. Department of Agriculture Natural Resource Conservation Service Field Indicators of Hydric Soils in the United States (Version 8.1, 2017)*.

Jurisdiction supporting documents considered during this investigation includes the *Memorandum of Clean Water Act Jurisdiction Following the U.S. Supreme Court Decision in Rapanos v. United States & Carabell v. United States* (June 5, 2007 and December 2, 2008 revisions); and the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (May 30, 2007).

Wetland boundaries in the field were identified by a numbered series of flags. The flagged wetland boundary was then surveyed by Karins and Associates who prepared the Wetland Survey Plan.

EXISTING RESOURCE GUIDANCE MAPPING

TOPOGRAPHY AND DRAINAGE- The United States Geological Survey (USGS) Lewes Quadrangle identifies nearly level to gently sloping topography within the subject parcel, with site elevations ranging from approximately 0 feet to 10 feet above mean sea level.

The USGS topographic survey illustrates upland similar to that delineated by ERI which are bordered to the south by tidal wetlands associated with a tributary to Canary Creek,

WEB SOIL SURVEY- The U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (Figure 1) identifies the area delineated as uplands by ERI consisting of soils in the Downer (DoA, DoB) and Ingleside (IeB) Series. These series are considered moderately well drained to well drained upland soil types.

Areas of the property delineated as state regulated wetlands are mapped as Transquaking and Mispillion Soils (TP). This soil type is in a very poorly drained drainage class and is considered a hydric soil. This peaty soil types is also associated with tidally influenced coastal marshes.

The results of ERI's wetland delineation are highly consistent with the USDA Soil Survey mapping, however, hydric (wetlands) soils were identified within more low-lying areas of the

site bordering the area of state regulated wetland. As a result, ERI's delineation determined that somewhat more wetlands were present on the property than that indicated by the USDA Soil Survey.

NATIONAL WETLANDS INVENTORY MAPPING- The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory Map (NWI) Figure 2. identified the entire site to be uplands except for the wetland area delineated proximate to the boundary of DNREC regulated tidal emergent wetlands. The NWI maps this area as Estuarine / Marine Wetlands (E2EM1Nd).

ERI's delineation is relatively consistent with the NWI mapping. However, ERI identified a fringe of palustrine forest wetlands within more low-lying portions of the site bordering and abutting the estuarine wetlands mapped by the NWI. These palustrine forested wetlands met the soil, hydrology and vegetative parameters for classification as federally regulated wetlands.

INVESTIGATION RESULTS

UPLANDS- A total of 9.61 acres of the subject site were determined to be uplands consisting of primarily moderately well drained to well drained soils mapped by the USDA as within the Downer and Ingleside Series. Of this amount 3.18 acres are mowed fields consisting of upland grasses.

The wooded portion of this site is 6.43 acres vegetated by a relatively young forest stand. The wooded portion of the property was farmed until the mid-1990's. Loblolly pine, sweet gum, southern red oak and white oak are the dominant woody species in uplands with occasional red maple. In areas transitioning toward the boundary of palustrine forested wetlands delineated by ERI, facultative wetland species become more common as exemplified by black gum and bayberry.

WETLANDS- A total of 1.22 acres of the subject site was determined to be wetlands. Of that amount approximately 0.61 acres can be classified as palustrine forested wetlands. These areas were determined to have soil characteristics meeting the criteria for hydric (wetland) soils exhibiting dark and low chroma colors with redox features present within the upper soil horizon.

The vegetative community within the delineated forested wetland was absent of upland species. Sweet gum, black gum red maple and an understory of bayberry and other coastal shrubs including high tide bush were present. Evidence of standing water was present in the most low-lying parts of the forested wetland.

Approximately 0.61 acres of the site were determined to be emergent wetlands consisting of emergent salt marshes with a fringe of *Phragmites australis* and coastal shrubs at the landward edges. Of this area 0.26 acres were determined to be DNREC state regulated wetlands dominated by *Spartina* sp. such as salt marsh cordgrass and salt meadowgrass. These marshes lie upon very poorly drained peaty soils of the Transquaking and Mispillian Series.

CONCLUSION

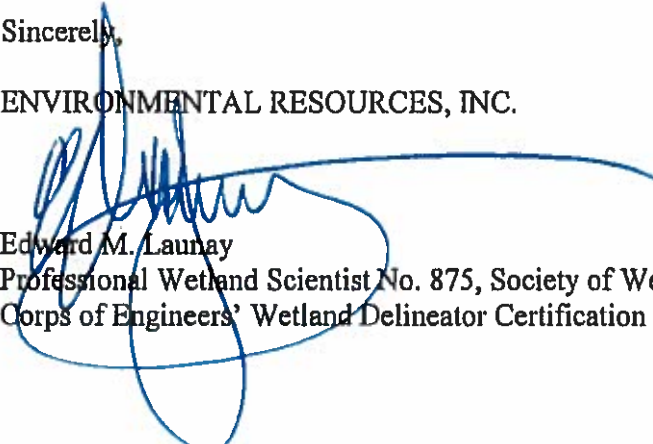
ERI's investigation of Tax Map Parcel 334-4.00-18 determined that 9.61 acres of the site are uplands and 1.22 acres of the site are federally regulated waters and wetlands. Of that wetland area, 0.26 acres are state regulated wetlands subject to the jurisdiction of the Delaware Department of Natural Resources and Environmental Control (DNREC). All of the wetlands on this site abut Canal Creek. Canary Creek is a tidal water body draining into the traditionally navigable water of the Roosevelt Inlet and Delaware Bay. No isolated wetlands are present on this property.

ERI's delineation of waters and wetlands on this property is generally consistent with the existing resource mapping provided by the USDA Soil Survey of Sussex County and the USFWS NWI Mapping.

Upon your review of these findings please let me know if you have any questions.

Sincerely,

ENVIRONMENTAL RESOURCES, INC.



Edward M. Launay
Professional Wetland Scientist No. 875, Society of Wetland Scientists
Corps of Engineers' Wetland Delineator Certification No. WDCP93MD0510036B