

## **Appendix P – Historic Properties Assessment**



**HISTORIC PROPERTIES SURVEY REPORT**  
**Virginia Offshore Wind Technology**  
**Advancement Project**  
**(VOWTAP)**  
**VDHR File No. 2013-0452**

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## ABSTRACT

Tetra Tech, Inc. (Tetra Tech) conducted a survey of historic properties to assist Virginia Electric and Power Company, a wholly-owned subsidiary of Dominion Resources, Inc. (Dominion) in complying with its regulatory obligations for the permitting of the Virginia Offshore Wind Technology Advancement Project (VOWTAP or Project), a 12 megawatt (MW), two-turbine offshore wind demonstration project located approximately 24 nautical miles (27 statute miles [mi], 43 kilometers [km]) offshore of Virginia Beach, Virginia. This survey was undertaken in Virginia Beach, Virginia, during early October 2013. The historic properties survey described in this document supports the National Environmental Policy Act (NEPA) review process required by the Department of Interior's Bureau of Ocean Energy Management (BOEM) as well as state and federal regulatory permitting that require reviews by the Virginia Department of Historic Resources (VDHR).

In consultation with the staff of the VDHR, the Area of Potential Effects (APE) for the Project was defined as the following: a 25-mi (40-km) circle around the offshore Project elements, a 0.5-mi (0.8-km) ring around the onshore Project elements, and the National Register of Historic Places (NRHP) listed Properties, within 0.25 mi (0.4-km) of shoreline 10 mi (16.1 km) to north and south of the onshore, aboveground facilities. The staff of the VDHR conducted a site file review within 2 mi (3.2 km) of the terrestrial portions of the Project. In addition, Tetra Tech used online resources from the National Park Service (NPS) to identify additional NRHP listed properties along the coastline outside of the area of the VDHR files search. The two searches identified five NRHP-listed properties (four buildings and one district) within the area of potential effect (APE) for the Project. Field work and additional archival research conducted by Tetra Tech identified one additional building that is recommended as potentially eligible to the NRHP under Criterion C; the VDHR concurred with this recommendation.

Tetra Tech recommends that a finding of no adverse effect be made for all the historic properties discussed herein, as the presence of the Project will not change the attributes of the historic properties that have qualified them to be listed in the NRHP or to be recommended as NRHP eligible.

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2</b>	<b>PROJECT DESCRIPTION .....</b>	<b>3</b>
<b>3</b>	<b>HISTORIC CONTEXT .....</b>	<b>3</b>
3.1	Settlement to Society (1607-1750) .....	3
3.2	Colony to Nation (1751-1789) .....	4
3.3	Early National Period (1790-1829) .....	5
3.4	Antebellum Period (1830-1860).....	5
3.5	Civil War (1861-1865).....	5
3.6	Reconstruction and Growth (1866-1916) .....	6
3.7	World War I to World War II (1917-1945) .....	6
3.8	The New Dominion (1946 to the present).....	7
<b>4</b>	<b>RESEARCH DESIGN .....</b>	<b>7</b>
4.1	Objectives.....	7
4.2	Methods.....	7
4.2.1	The Area of Potential Effect .....	8
4.2.1.1	The Offshore APE .....	8
4.2.1.2	The Onshore APE .....	8
4.2.1.3	The Shoreline APE .....	8
4.2.2	Background Research.....	12
4.2.3	Field Work .....	12
4.3	Expected Results.....	12
<b>5</b>	<b>SURVEY FINDINGS.....</b>	<b>13</b>
5.1	Results of Files Search.....	13
5.2	Results of Field Work .....	13
5.2.1	Previously Identified Historic Properties within the Offshore APE .....	13
5.2.2	Newly Identified Historic Properties within the Offshore APE.....	13
5.2.3	Previously Identified Historic Properties within the Shoreline APE .....	15
5.2.3.1	Cape Henry Lighthouse.....	15
5.2.3.2	Cape Henry Light Station .....	15
5.2.3.3	DeWitt Cottage .....	16
5.2.3.4	U.S. Coast Guard Station .....	17
5.2.4	Previously Identified Historic Properties within the Shoreline APE .....	18
5.2.5	Newly Identified Historic Properties within the Onshore APE.....	18
<b>6</b>	<b>RECOMMENDATIONS.....</b>	<b>22</b>
6.1	Chesapeake Light.....	22
6.2	Cape Henry Lighthouse.....	22
6.3	Cape Henry Light Station .....	23
6.4	DeWitt Cottage .....	23
6.5	U.S. Coast Guard Station .....	23

6.6 Camp Pendleton/State Military Reservation Historic District .....24

**7 REFERENCES .....25**

**TABLES**

Table 1. Summary of Findings.....25

**FIGURES**

Figure 1. Project Location .....2

Figure 2. Location of the Offshore APE .....9

Figure 3. Location of the Shoreline APE.....10

Figure 4. Location of the Onshore APE .....11

Figure 5. The Viewshed Model Overlaid on the 1965 USGS Map for the Area .....20

**PHOTOGRAPHS**

Photo 1. An undated photograph of the Chesapeake Light (USCG n.d.).....14

Photo 2. Looking south at the Cape Henry Lights. The earlier Cape Henry Lighthouse (1792) is on the right and the Cape Henry (Second Tower) Light Station is on the left. ....15

Photo 3. Looking northwest at de Witt Cottage from Virginia Beach (James Sexton, Tetra Tech, October 10, 2013) .....16

Photo 4. Looking southwest at the U.S. Coast Guard Station (James Sexton, Tetra Tech, October 10, 2013) .....17

Photo 5. Looking toward the Project area from the Picnic and Grill Area/Viewing Platform on Camp Pendleton .....18

Photo 6. Looking south along South Atlantic Avenue toward the location of the Alternative 2 Switch Cabinet location. The cabinet was proposed for the parking lot behind the berm at the end of the street on the right hand side of the photograph. (James Sexton, Tetra Tech, October 11, 2013).....21

Photo 7. Looking southeast along Vanderbilt Avenue toward the Alternative 2 Switch Cabinet Location. The cabinet was planned for the area behind the fence and foliage at the center of the photograph. (James Sexton, Tetra Tech, October 11, 2013) .....21

**ATTACHMENTS**

- Attachment A – Agency Correspondence
- Attachment B – Photo Simulations for selected viewpoints
- Attachment C – Curriculum Vitae

## ACRONYMS AND ABBREVIATIONS

Acronym	Definition
APE	Area of Potential Effects
BOEM	Bureau of Ocean Energy Management
Dominion	Virginia Electric and Power Company, a wholly-owned subsidiary of Dominion Resources, Inc.
FAA	Federal Aviation Administration
ft	feet
HDD	horizontal directional drill
km	kilometer
m	meter
mi	statute mile
MW	megawatt
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
nm	Nautical mile
NRHP	National Register of Historic Places
USCG	United States Coast Guard
USGS	United States Geological Survey
VDHR	Virginia Department of Historic Resources
VOWTAP	Virginia Offshore Wind Technology Advancement Project
WTG	wind turbine generator

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## 1 INTRODUCTION

Virginia Electric and Power Company, a wholly-owned subsidiary of Dominion Resources, Inc. (Dominion) is proposing the Virginia Offshore Wind Technology Advancement Project (VOWTAP or Project), a 12 megawatt (MW), two-turbine offshore wind demonstration project located approximately 24 nautical miles (nm) (27 statute miles [mi], 43 kilometers [km]) offshore of Virginia Beach, Virginia (Figure 1). The historic properties survey described in this document supports the National Environmental Policy Act (NEPA) review process required by the Department of Interior's Bureau of Ocean Energy Management (BOEM), as well as state and federal regulatory permitting that require reviews by the Virginia Department of Historic Resources (VDHR) under Section 106 of National Historic Protection Act (NHPA) of 1966, as amended.

Prior to initiating the historic properties survey, Tetra Tech requested that the staff of the VDHR conduct a site file review within 2 mi (3.2 km) of the terrestrial portions of the Project. In addition, Tetra Tech used online resources from the National Park Service to identify additional National Register of Historic Places (NRHP) listed properties within 0.25 mi (0.4-km) of the coast line and 10 mi (16.1 km) to the north and south of the terrestrial portions of the Project. The two searches identified five NRHP-listed properties within the Area of Potential Effects (APE) for the Project. Fieldwork was then initiated to confirm the continued existence of these properties and to identify any additional properties which might lie within the Project APE.

This report presents the results and recommendations of background research and field investigation. Underground and underwater resources are addressed in the appropriate archeological reports (Tetra Tech 2013; RCG&A 2013).

Jennifer Daniels serves as Tetra Tech Project Manager. Sydne Marshall, Ph.D., RPA, serves as Tetra Tech Cultural Resources Discipline Lead. James Sexton, Ph. D., Tetra Tech Architectural Historian developed the research design, undertook the fieldwork, and authored this report. Dr. Sexton meets the Secretary of the Interior's Professional Qualification Standards for Architectural History.

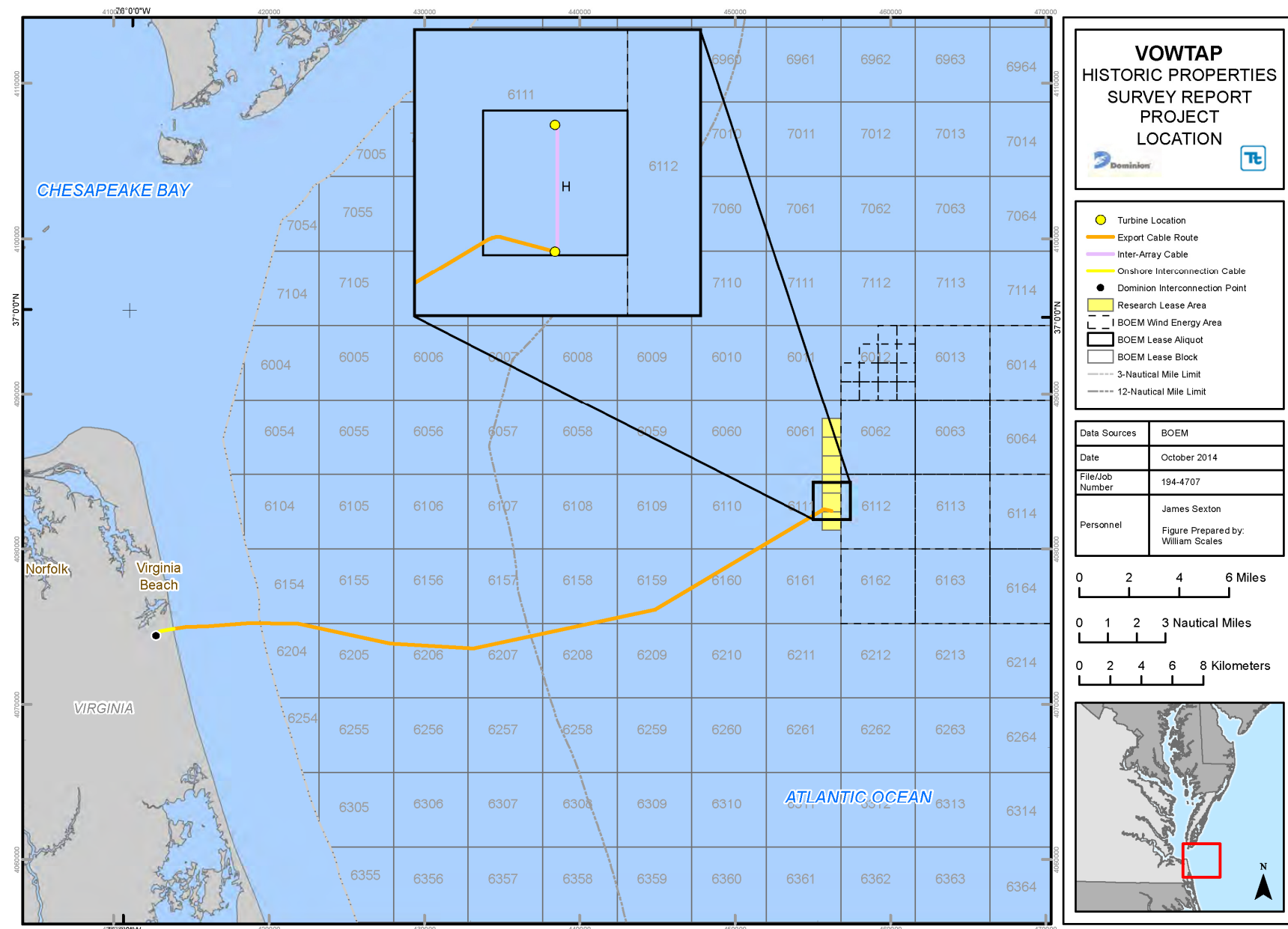


Figure 1. Project Location

## 2 PROJECT DESCRIPTION

This section describes the proposed location and infrastructure currently under consideration for the Project that are applicable for review of potential effects to historic properties, as follows:

The VOWTAP facilities will include two 6 MW Alstom Haliade 150 wind turbine generators (WTGs), to be located within Federal Lease Block 6111 Aliquot H, approximately 24 nm [27 mi, 43 km] offshore of Virginia Beach, Virginia. The maximum height of each turbine is 584 ft (178 meters [m]), measured from mean sea level to rotor tip. The WTGs will be sited approximately 3,445 ft (1,050 m) apart in a north-south orientation. In compliance with Federal Aviation Administration (FAA) and U.S. Coast Guard (USCG) regulations, the WTGs will have nighttime lighting. FAA lighting will consist of an L-864 medium intensity aeronautical light with a flash rate of 20 flashes per minute (FPM) atop each WTG nacelle. USCG lighting will consist of two (2) quick flashing, amber lights with 4 nm (7.4 km) 360 degree visibility placed on the foundation of each WTG at a height of not more than 50 ft (15 m) above the highest astronomical tide.

The two turbines will be interconnected with an Inter-Array Cable. Because the voltage of the Inter-Array Cable will be the same as the grid connection voltage (34.5 kilovolts [kV]), no offshore substation is required for the Project. The energy produced by the VOWTAP will be conveyed to shore via an additional 34.5 kV submarine cable, referred to as the Export Cable.

The onshore components of the VOWTAP are located entirely within land owned by the Camp Pendleton State Military Reserve (Camp Pendleton) in Virginia Beach, Virginia, and will comprise the following facilities:

- A Switch Cabinet that will serve as the transition point where the Export Cable will be spliced with the Onshore Interconnection Cable and separate Fiber Optic Cable. The Switch Cabinet will be located at an existing parking area for Camp Pendleton Beach;
- An underground Onshore Interconnection Cable, using the right-of-way for Rifle Range Road and the Gate 10 Access Road; and
- An Interconnection Station, located at the southeast side of the Gate 10 Access Road.

## 3 HISTORIC CONTEXT

While human occupation of the area around Virginia Beach, Virginia extends up to 10,000 years ago, there are no above-ground resources from the years prior to European contact. Consequently, this document will focus on the eras that retain some context with remaining above ground resources in the APE. Virginia Beach and its coastal waters have a rich Euro-American history. The architectural resources in the APE highlight the following thematic contexts: Transportation/Communication, Military/Defense, and Settlement Patterns. These contexts occur in several eras: Settlement to Society (1607-17500, Colony to Nation (1751-1789), Early National (1790-1829), Reconstruction and Growth (1866-1916), and World War I to World War II (1917-1945) (VDHR 2011).

### 3.1 Settlement to Society (1607-1750)

European settlement in Virginia began with establishment of the first permanent English colony at Jamestown in 1607. From that starting point, the population spread to the south side of the James River;

the first settlements in Princess Anne County were located along the Lynnhaven River. By the mid-1630s settlement in Virginia was dense enough that the settled area was divided into eight separate counties. The southeastern portion of the colony, flanking the James River, was designated as Elizabeth City County. As settlement continued, Elizabeth City County was further subdivided, first with Lower Norfolk County being created in the southeast corner and then Princess Anne County being formed from the eastern half of Lower Norfolk (Billings 1975). This is the area of present-day Virginia Beach and the location of the onshore portions of the Project and its APE.

Settlement of Princess Anne County was generally divided in two parts: the northern half became an area of tobacco plantation while the south remained relatively unsettled do to poorly drained and less fertile soil for agriculture. In addition, the area was inaccessible as it lay beyond the navigable portions of the Lynnhaven and Elizabeth Rivers (Mansfield 1988). The lack of access to navigable rivers meant that the access to market for the farmers was limited, as produce was normally shipped to Norfolk where it was transferred to ocean going ships for delivery to European and West Indian Markets.

Tobacco cultivation drove the economy of Virginia throughout the period. Because of the nature of the land in southern Princess Anne County, tobacco did not thrive there. The region's settlers lived on small farms, in contrast to the larger tobacco plantations elsewhere in the colony, and relied on subsistence farming and the raising of livestock. By the beginning of the eighteenth century, farms were enlarged and production expanded to include the cultivation of orchards (RCG&A 2013).

Commercial shipping was an important component of the local economy. With a location at the mouth of the Chesapeake, Princess Anne County's coastal waters were frequently traversed by both coastal and transoceanic ships. The area was, as David Stick states (Stick 1952), an important waypoint in the trade among the South, the cities located along the Chesapeake, and the urban centers in the Mid-Atlantic and New England Colonies.

### **3.2 Colony to Nation (1751-1789)**

As the eighteenth century progressed, the agriculturally-based economy of Princess Anne County began a shift to diversify their production beyond tobacco to include wheat and other grains. Trees in the southern part of the county were harvested for lumber, pitch, tar, and turpentine; these products were transported to the nearby shipbuilding centers of Norfolk and Portsmouth (RCG&A 2013; Parramore 1994).

Princess Anne County played a relatively minor role in the Revolution; no significant battles took place within its borders. When he fled Williamsburg with the colony's supply of gunpowder, Royal Governor Lord Dunmore decamped to Norfolk, where he raised a band of supporters and fought off patriot forces at the Battle of Kemp's Landing (also known as the Skirmish of Kempsville) (Russell 2000). Subsequently, the Americans engaged Lord Dunmore and his forces at Great Bridge in Lower Norfolk County and forced him to retreat to Norfolk (Russell 2000).

The Hampton Roads area and the offshore waters of Princess Anne County grew in importance to commercial shipping during this period. The proximity of VOWTAP to the mouth of Chesapeake Bay, suggests that much of the traffic entering and exiting the Bay would have passed close to the Project Area. As in the previous period, shipping would have connected the area with England, the West Indies and ports in the other coastal colonies. Originally the focus would have been on tobacco as the main freight, but later

“wheat, corn, lumber products, and naval stores” were the products most frequently exported. This trade also spurred the growth of the nearby shipbuilding centers of Norfolk and Portsmouth (RCG&A 2013).

### 3.3 Early National Period (1790-1829)

While Virginia as a whole moved from “a colonial society almost exclusively agrarian, containing counties with only very small villages or none at all, to a new state gradually beginning to accommodate urban centers,” Princess Anne County remained a rural area with no large population centers (VDHR 2011). This lack of development was especially true in the southern half of the county, which remained politically and economically isolated (RCG&A 2013). The nearby city of Norfolk remained the urban center for the county, with its market and port driving much of the development in Princess Anne County, and much of the commerce for the area traversed the offshore waters of the county.

The importance of the area to shipping led Congress to provide funds for the first federally funded lighthouse at Cape Henry. The lighthouse was completed in 1792. This was the first of a series of aids to navigation and other measures to improve the safety of shipping in the area.

### 3.4 Antebellum Period (1830-1860)

The period prior to the Civil War saw Princess Anne County in decline. Population decreased from roughly 9,110 in 1830 to just under 7,300 in 1840 (U.S. Census 1830 and U.S. Census 1840). By the end of the period, it had only rebounded to a little over 7,700 residents (U.S. Census 1860). RCG&A (2013) describes the causes of population decline in the following way:

*By the nineteenth century, due to soil depletion resulting from intensive tobacco cultivation, the subdivision of formerly large estates, and the disintegration of the once profitable commercial fishing region, young residents of Princess Anne joined a general exodus from the tobacco-growing states in the East to richer farmland in the West.*

The remaining farmers continued the cultivation of grain, while forest products continued to be sent to the regional center of Norfolk.

The period also saw changes in the volume and means of transporting goods by sea. The coastal trade and trade with the West Indies grew, and a large variety of vessels were employed, including steam-powered packets starting in the 1830s (RCG&A 2013).

### 3.5 Civil War (1861-1865)

Princess Anne County played a relatively small part in the Civil War; no major battles were fought within its confines. Early in the war, Princess Anne County was occupied by Federal troops, who travelled across the region in an attempt to deter smugglers and blockade runners, and to control guerillas based in nearby North Carolina. The offshore waters of the area played a greater part in the war. The famous battle between the ironclad warships the USS *Monitor* and the CSS *Virginia* took place in the nearby Hampton Roads. In addition, RCG&A (2013) notes:

*However, three Federal flotillas sailed south from the Hampton Roads area to support campaigns against Confederate positions in the coastal waters of the Carolinas. Their route took them immediately by and through the waters of the Project Area. The mission of the first fleet was to*

*support the Federal attempt to capture the Confederate fort at Hatteras Inlet. Two of the vessels of the second fleet, composed of approximately 75 vessels bound for Port Royal, South Carolina, foundered off Cape Hatteras. The third fleet, an odd assortment of ferry boats, side-wheel steamers, and river craft, supported the successful Federal takeover of Roanoke Island. ... In addition, the U.S. Navy blockaded the Virginia coastline in an effort to prevent supplies from reaching Confederate forces. The Navy's North Atlantic Blockading Squadron effectively closed the ports of Norfolk and Richmond by exercising control of the Chesapeake Bay.*

### **3.6 Reconstruction and Growth (1866-1916)**

The Civil War and the defeat of the South greatly affected Virginia. The period of rebuilding after the war led the state and the region into the twentieth century (VDHR 2011). In Princess Anne County, several roughly concurrent developments began to change the face of the landscape. Local farmers began to grow fresh fruits and vegetables for transport to Norfolk with subsequent shipping to other east coast cities. Food producers in the region also took advantage of advances in preservation technologies to process oysters, vegetables, and fruit for longer term storage and shipping (RCG&A 2013). The Reconstruction period also saw an increase in use of the area for recreational hunting and fishing. Wealthy patrons came to the shoreline and adjacent marsh areas for hunting and fishing. One of these hunters, Norfolk-businessman Marshall Parks, saw a development opportunity in the area where he hunted. He established the Seaside Hotel and Land Company in 1880 and began purchasing the undeveloped agricultural land in the area, ultimately amassing property along roughly 5 mi of coastline (VBPL n.d.). In 1883, Parks created a narrow gauge railroad from Norfolk to the coast to facilitate the trip to Virginia Beach for his patrons.. This railroad, along with the hotel, pavilion, cottages, and other facilities, marked the beginning of the Virginia Beach community (Hilton 1990).

This period also saw the establishment of the United States Life Saving Service in 1878. The new federal agency created a network of lifesaving stations along the east coast, including one at Virginia Beach (USCG n.d.).

### **3.7 World War I to World War II (1917-1945)**

The period leading up to World War I saw continued growth in Princess Anne County. Virginia Beach's role as a thriving resort was joined by a new presence in the area, the military. Starting with the establishment of the State Rifle Range (laid out in 1911 and constructed in 1912; the facility was later re-named Camp Pendleton), Princess Anne County became home to several significant military installations (NRHP 2005). The State Rifle Range was followed in 1914 by Fort Story, located at Cape Henry. The fort, created as part of the Coast Defenses of the Chesapeake Bay, was ultimately described as "the most strategic heavy artillery fortification on the Atlantic Coast" (RCG&A 2013). Oceana Naval Air Station was established in 1940 as an auxiliary air field; it has subsequently been upgraded to serve as the home of the Navy's fighter-attack jet fleet. These bases were joined by the Fleet Combat Training Center at Dam Neck Annex to Oceana Naval Air Station, originally created as an anti-aircraft range during World War II, and the Little Creek Amphibious Base.

### 3.8 The New Dominion (1946 to the present)

In the post-World War II period, the area has continued to grow. In 1963, Princess Anne County and the resort town of Virginia Beach merged to form the City of Virginia Beach. Further development and growth followed the creation of the city. New resort communities such as Croatan Beach were developed, and the military maintained, and in some cases increased, their presence in the area.

## 4 RESEARCH DESIGN

The Project has the potential to result in visual effects on sites that are listed or eligible for listing in the NRHP. Evaluation of these resources is required under both Section 106 of the NHPA and for NEPA compliance.

### 4.1 Objectives

The purpose of the historic properties survey is to identify all above-ground cultural resources, including districts, buildings, structures, objects, and sites, within the APE for the Project that appear to be 50 years old or older and assess the Project's potential impacts to these resources. The survey was conducted in accordance with the following guidelines:

- The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, as amended (48 FR 44716);
- The VDHR's Guidelines for Conducting Historic Resources Survey in Virginia (VDHR 2011);
- The National Park Service's NPS National Register Bulletin No. 24, Guidelines for Local Survey: A Basis for Preservation Planning (NPS 1985); and
- The NPS's National Register Bulletin No. 15, How to Apply the National Register Criteria for Evaluation (NPS 1997).

VDHR concurred with the Project survey plan. Their letter of October 9, 2013, is included in Attachment A.

### 4.2 Methods

To be determined eligible for the NRHP, properties must meet at least one of the following National Register Criteria for Evaluation.

Properties must be ones:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded, or may be likely to yield, information important in prehistory or history. (NPS, 1997)

#### 4.2.1 The Area of Potential Effect

The APE was established in consultation with VDHR Staff, via a meeting on September 4, 2013. The survey for the Project was undertaken within an APE defined as follows:

- **Offshore APE** – 25 mi (40-km) from the offshore WTGs (Figure 2);
- **Shoreline APE** – NRHP-Listed Properties, within 0.25 mi (0.4 km) of shoreline and 10 mi (16.1 km) to north and south of aboveground facilities (Figure 3); and
- **Onshore APE** – 0.5 mi (0.8 km) from aboveground facilities (Figure 4).

##### 4.2.1.1 The Offshore APE

The Offshore APE is based on a recent study undertaken for BOEM that suggests that small to moderately sized wind facilities (wind farms with turbine hub [nacelle] heights ranging from approximately 219 ft to 295 ft [66.8 m to 90 m] above mean sea level [MSL]) “were noticeable to casual observers at distances of almost 18 mi (29 km); and were visible with extended or concentrated viewing at distances beyond 25 mi (40 km),” (Sullivan et al. 2011). As the offshore APE does not make landfall, the two onshore APEs were included to account for resources potentially affected by the offshore turbines or onshore above-ground Project components.

##### 4.2.1.2 The Onshore APE

The Onshore APE was used to account for architectural resources potentially affected by the proposed onshore facilities (Figure 4). Based on visual impact studies, including a computer-generated viewshed model, Tetra Tech examined those areas that will potentially have a view of the onshore Project elements in order to ground-truth properties listed in or determined eligible for the NRHP, and to assess previously undocumented properties that are 50 years old or older for NRHP eligibility (Tetra Tech 2013a).

##### 4.2.1.3 The Shoreline APE

The Shoreline APE was used to account for four NRHP-listed resources that are located within 0.25 mi (0.4 km) of the shoreline within 10 mi (16 km) to the north and south of the Project Area, but which lie outside of the 25 mi (40 km) APE (Figure 4).<sup>1</sup> These NRHP-listed properties were reviewed to provide a sense of how the Project will affect historic resources near the shoreline. The standard for inclusion of these properties comes from a recent BOEM study, “Evaluation of Visual Impact on Cultural Resources/Historic Properties: North Atlantic, Mid-Atlantic, South Atlantic, and Florida Straits” (Klein et al. 2012).

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<sup>1</sup> The work plan for this survey had initially identified 5 NRHP-listed properties that would be included in the Shoreline APE. Subsequent research indicated that the Seashore State Park Historic District fell outside of this APE, so it was not investigated for this report.



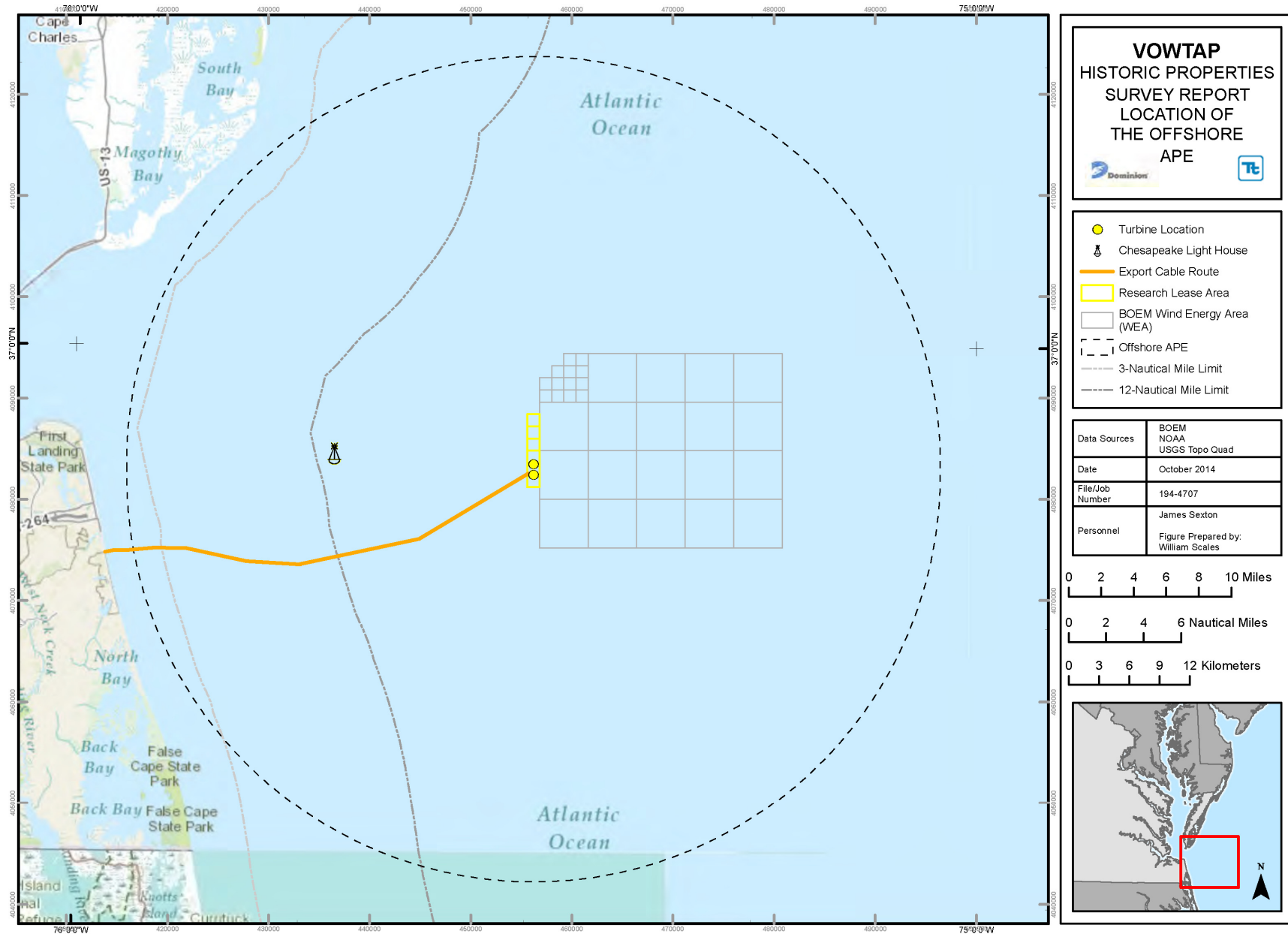


Figure 2. Location of the Offshore APE

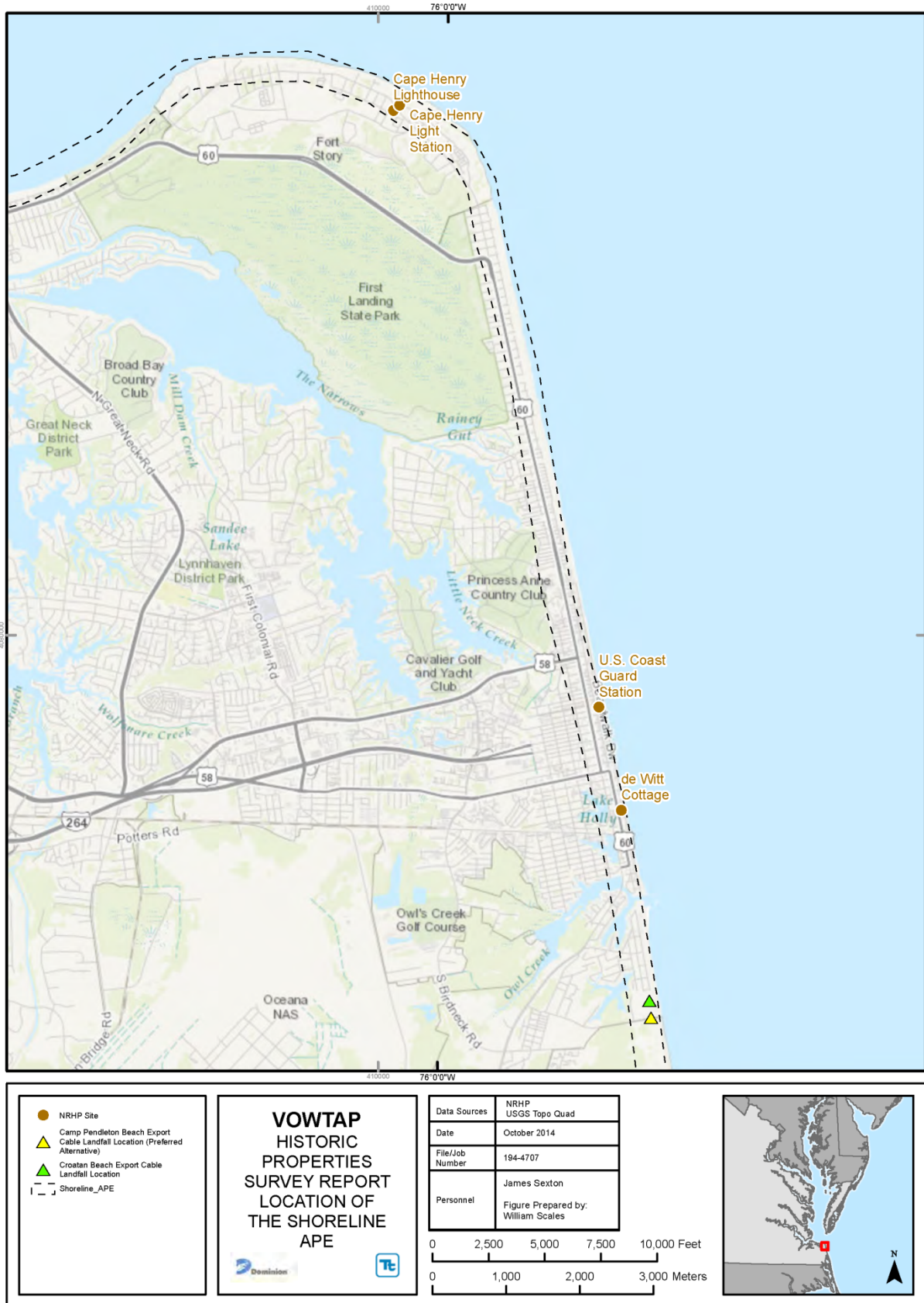


Figure 3. Location of the Shoreline APE

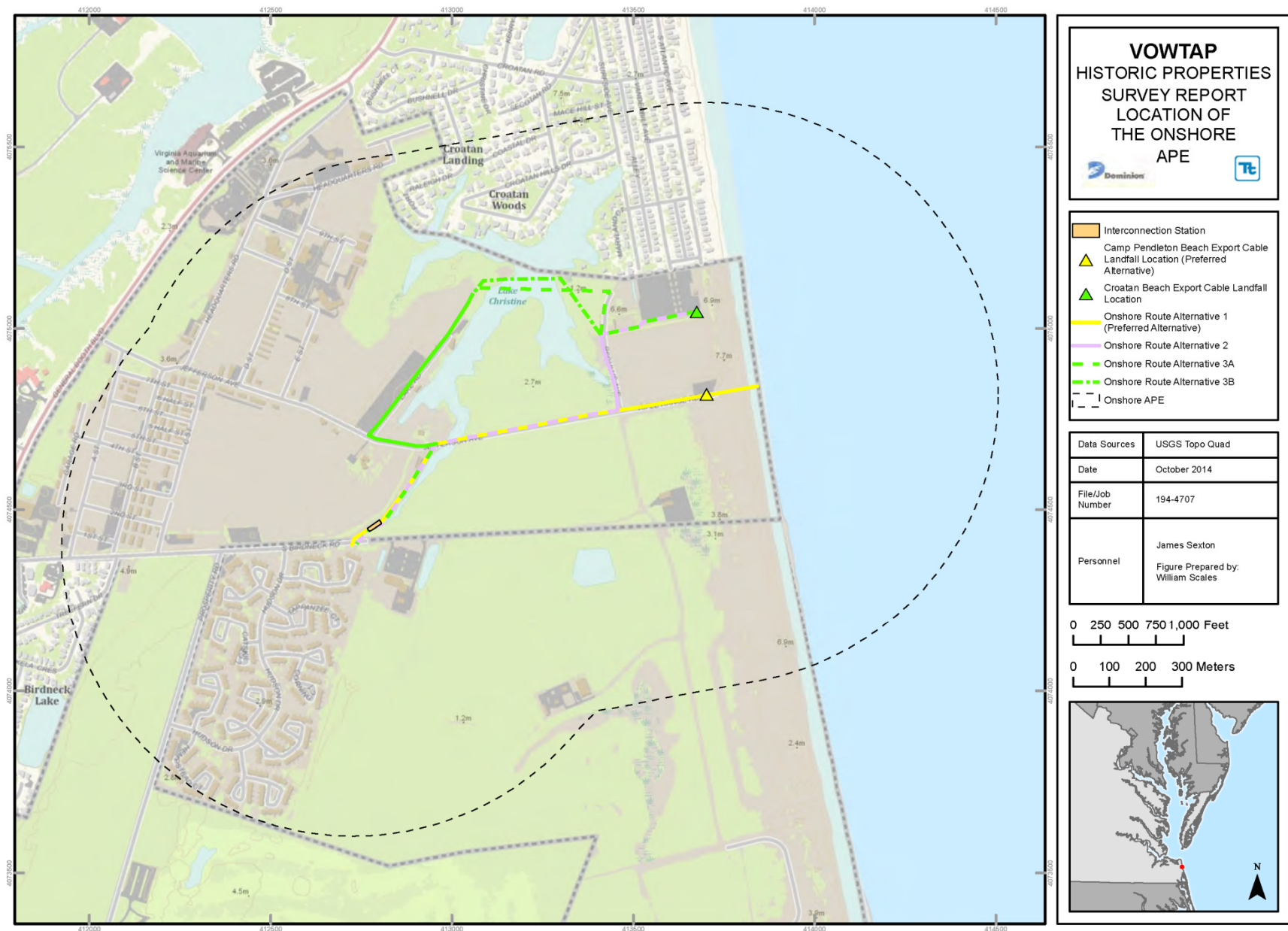


Figure 4. Location of the Onshore APE

#### 4.2.2 Background Research

Background material to support the Historic Properties Survey was obtained from the following sources. An architectural files search was undertaken for an area within 2 mi (3.3 km) of the Project by VDHR staff. In addition, online research in both the National Park Service and VDHR files allowed for the acquisition of relevant National Historic Landmark (NHL) and NRHP reports. Additional resources, obtained from local, regional, and national repositories provided supplementary material for understanding the historic context of the study area.

#### 4.2.3 Field Work

A Department of the Interior-qualified cultural resources consultant, architectural historian James Sexton, Ph. D. (Tetra Tech) performed site visits on October 10 to 12, 2013. Site visits included an assessment of NRHP eligibility where appropriate, and an assessment of effect for each historical resource that fell within the Project APE

In addition, previously unrecorded sites were evaluated to determine if they retained enough integrity in seven categories defined by the National Parks Service (NPS) that their significance is evident (NPS 1997). These aspects of integrity are the following:

- Location;
- Design;
- Setting;
- Materials;
- Workmanship;
- Feeling; and
- Association.

Based on the data collected in the field, and using the standards established by NPS, preliminary recommendations about the potential eligibility of each newly-identified property to the NRHP were made. Digital photographs of each resource were taken to demonstrate the current conditions of each previously documented resource.

#### 4.3 Expected Results

Background research indicated that one NHL, the Cape Henry Lighthouse, and four NRHP-listed properties—Camp Pendleton State Military Reservation, Cape Henry (Second Tower) Light Station, De Witt Cottage, and U.S. Coast Guard Station—are known to exist within the Project APE. In addition to these previously listed resources, one offshore aid to navigation, a Texas Tower-style light built in 1965 (referred to as the Chesapeake Light), is known to exist within 13 mi (20.9 km) of the Project. It is also expected that at most a small number of buildings 50 years old or older related to the development of Virginia Beach as a resort community may be located within the APE to the north of the onshore components of the Project. The rest of the APE was undeveloped prior to 1963; these above-ground resources would likely not be NRHP-eligible.

## 5 SURVEY FINDINGS

### 5.1 Results of Files Search

The file search undertaken by VDHR staff located one resource within the Onshore APE, the Camp Pendleton State Military Reservation Historic District (DLR Inventory number 134-0413). Portions of this NRHP historic district fell within the areas of the computer generated viewshed model that indicated a potential view of Project elements.

In addition, the Shoreline APE included four additional properties listed in the NRHP:

- Cape Henry Lighthouse (DLR Inventory number 134-0007),
- Cape Henry (Second Tower) Light Station (DLR Inventory number 134-00079),
- De Witt Cottage (DLR Inventory number 134-0066),
- U.S. Coast Guard Station (DLR Inventory number 134-0047),

These five resources were examined during field work to document their current condition and to assess the potential effect of the Project on them.

### 5.2 Results of Field Work

#### 5.2.1 Previously Identified Historic Properties within the Offshore APE

The offshore portion of the Project, and the attendant APE, is located entirely within the Atlantic Ocean. There are no previously identified historic properties within the offshore APE.

#### 5.2.2 Newly Identified Historic Properties within the Offshore APE

The Chesapeake Light (Photo 1) is a Texas Tower-style light constructed in 1965 to replace the Lightship 116 *Chesapeake* (Historic Ships Baltimore n.d.). It is located approximately 14.5 mi (23.3 km) off the Cape Henry shore near Virginia Beach and approximately 12 mi (19.3 km) from the proposed VOWTAP WTGs.



Photo 1. An undated photograph of the Chesapeake Light (USCG n.d.)

## 5.2.3 Previously Identified Historic Properties within the Shoreline APE

### 5.2.3.1 Cape Henry Lighthouse

The Cape Henry Lighthouse (Photo 2) is a masonry lighthouse constructed in 1792. It is the first federally funded lighthouse in the United States. It is located on Cape Henry, south of the entrance to Chesapeake Bay (NRHP 1965).

### 5.2.3.2 Cape Henry Light Station

The Cape Henry (Second Tower) Light Station is a NRHP Historic District with eight contributing resources located on Cape Henry south of the entrance to Chesapeake Bay. The light is housed in a 163-ft (49.7-m) tall cast-iron tower on a granite base. The associated resources include three keeper's dwellings (ca. 1881), a brick fog signal building (1881), a brick oil house (1892), a coal house (1905) and a fog signal testing laboratory(1935) (NRHP 2002).



Photo 2. Looking south at the Cape Henry Lights. The earlier Cape Henry Lighthouse (1792) is on the right and the Cape Henry (Second Tower) Light Station is on the left.

### 5.2.3.3 DeWitt Cottage

De Witt Cottage (Photo 3) is a two story brick house with a hipped roof, wrap-around porch, and dormers. It is listed in the NRHP as a locally significant resource under Criteria A and C for its role in the history of the development of Virginia Beach and as an example of Victorian/Queen Anne beach architecture (NRHP 1988).



Photo 3. Looking northwest at de Witt Cottage from Virginia Beach (James Sexton, Tetra Tech, October 10, 2013)



#### 5.2.3.4 U.S. Coast Guard Station

The Virginia Beach Coast Guard Station (Photo 4) is a two-and-one-half story, gable roof, wood-frame building with dormers, a wrap-around porch, and a tall lookout tower. It is listed in the NRHP as a resource with state-wide significance under criteria A and C for its role in the maritime history of the area, as an unusual surviving example of a lifesaving station, and for its design (NRHP 1979).



Photo 4. Looking southwest at the U.S. Coast Guard Station (James Sexton, Tetra Tech, October 10, 2013)

#### 5.2.4 Previously Identified Historic Properties within the Shoreline APE

The onshore portion of the Project, and its attendant APE, includes one historic resource, the NRHP-listed Camp Pendleton State Military Reservation Historic District (NRHP 2005). The 328-acre (132.7 hectare) Camp Pendleton (Photo 5), with 159 above-ground resources, is listed in the NRHP under criteria A and C for its association with the military training and build-up associated with both world wars and for its collection of exemplary military architecture.



Photo 5. Looking toward the Project Area from the Picnic and Grill Area/Viewing Platform on Camp Pendleton

#### 5.2.5 Newly Identified Historic Properties within the Onshore APE

In addition to documenting previously identified resources within the APE, an architectural survey was undertaken for those areas that fell within the APE and that had not previously been surveyed. The purpose of the survey was to identify resources that were potentially eligible to the NRHP. The computer viewshed model identified areas both north and south of the Project where there was the potential for Project elements to be visible. The viewshed model was overlaid on United States Geological Survey maps from 1965 for the onshore APE to determine the presence of structures of sufficient age to be NRHP eligible. Aboveground structures with potential views of the Project include the Wadsworth Shores military housing development on South Birdneck Road and the facilities on the Fleet Combat Training Center at Dam Neck; however, all such structures were constructed after 1965 (USGS 1965).

The viewshed model and USGS maps suggested that five buildings that might have a view of elements once the Project is constructed, were constructed in the Croatan Beach area by 1965 (Figure 5). The

viewshed model was further refined during fieldwork by the Tetra Tech visual impact assessment team (Tetra Tech, 2013a). They conclude in their report:

*Weak contrast would be created by onshore Project components located in the Croatan Beach parking lot north of the Camp Pendleton Rifle Range. The onshore Project Area (Alternative 2 Offshore Cable Landing) is located in the foreground for high sensitivity residential viewers north of the parking lot. Views of the Switch Cabinet would be partially to completely screened by existing vegetation, topography (i.e., sand dunes), and/or an existing restroom structure located just north of the switch cabinet which has already introduced vertical elements into the landscape. Portions of the Switch Cabinet that would be visible would be seen in the context of the existing restroom facility which is similar in form and line.*

This fieldwork-based observation is demonstrated by a view along South Atlantic Avenue in the direction of the Switch Cabinet for Alternative 2 (which was not selected as the preferred location for the cable landfall) from the vicinity of South Maryland Avenue (Photo 6). The Switch Cabinet location for this alternative is to the south of a restroom building in the Croatan Beach parking lot. This much larger building is not visible in the photograph. The same is true for the view from in front of 801 Vanderbilt Avenue (Photo 7). Fieldwork indicates that the Switch Cabinet for Alternative 2 would not be visible from any Croatan Beach residence except those closest to the location of the element. None of the potentially-historic structures (i.e., those that appear on the 1965 USGS map) were located this close to the proposed Project element. Therefore, the result of the fieldwork-based refinement of the viewshed indicates that no newly identified historic properties were identified in Croatan Beach or elsewhere in the onshore APE.

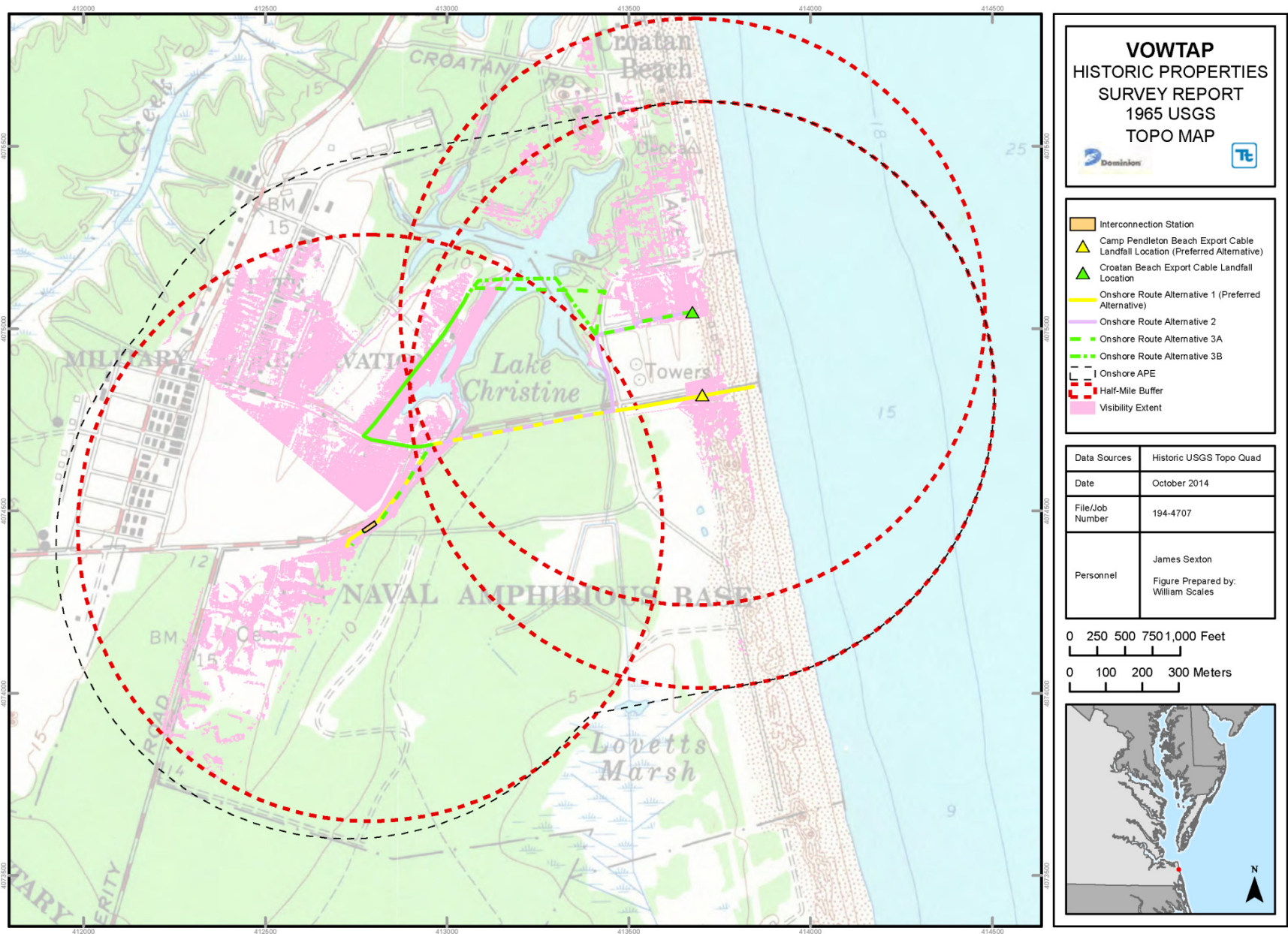


Figure 5. The Viewshed Model Overlaid on the 1965 USGS Map for the Area



Photo 6. Looking south along South Atlantic Avenue toward the location of the Alternative 2 Switch Cabinet location. The cabinet was proposed for the parking lot behind the berm at the end of the street on the right hand side of the photograph. (James Sexton, Tetra Tech, October 11, 2013)



Photo 7. Looking southeast along Vanderbilt Avenue toward the Alternative 2 Switch Cabinet location. The cabinet was planned for the area behind the fence and foliage at the center of the photograph. (James Sexton, Tetra Tech, October 11, 2013)

## 6 RECOMMENDATIONS

The Historic Properties Survey undertaken for VOWTAP identified five previously identified resources and one newly-documented resource that is recommended as potentially NRHP-eligible.

### 6.1 Chesapeake Light

Based on communication with the VDHR, the Chesapeake Light is being treated as potentially eligible under Criterion C – as a resource that “embodies the distinctive characteristics of a type, period, or method of construction” – as the last Texas Tower-style light still in active use (see Attachment A). The designs of Texas Tower lights were based on advancements in technology in the construction of offshore oil-drilling platforms to create an alternative to lightships as an offshore aid to navigation (NRHP 2002). Seven Texas Tower lights were constructed in the 1960s: Ambrose (placed in operation 1967; damaged in collision with tanker and dismantled 1996); Brenton Reef (placed in operation 1962; dismantled 1992); Buzzards Bay Entrance (placed in operation 1961; dismantled 1996); Chesapeake (placed in operation 1965; still operational); Diamond Shoals (placed in operation 1966; dismantled after 2001); Frying Pan Shoals (placed in operation 1964; currently being restored for use as a Bed and Breakfast); Savannah (placed in operation 1964; damaged in collision with a freighter and dismantled 1996) (USCG n.d.a-d). The Chesapeake Light is the only Texas Tower still in use as an aid to navigation.

The aspects of the Chesapeake Light which led to it being recommended as potentially eligible to the NRHP (i.e., its role as the sole functioning example of a Texas Tower light) will not be affected by the introduction of the Project into its viewshed. Additionally, the introduction of the Project into the viewshed will not dramatically change the resource’s character defining features. Of the NPS’ seven aspects of integrity – location, design, setting, materials, workmanship, feeling and association – only one, setting, is likely to be affected by the construction of the Project. As the light is eligible under Criterion C, setting is not central to its eligibility. The introduction of WTGs at approximately 12 mi (19.3 km) from the light will introduce a slight alteration to its setting. However, as the area is currently heavily used by large ocean-going vessels, the WTGs would be added to a viewshed that already contains modern, kinetic components. This minor change in one aspect of the resource’s integrity will not adversely affect the characteristics of the Chesapeake Light that qualify it for the NRHP.

### 6.2 Cape Henry Lighthouse

The Cape Henry Lighthouse is listed in the NRHP, because it was “the first structure authorized and completed by the newly organized Federal Government in 1789” and because it symbolized the “advantages of a strong national authority” (NRHP 1966). The Visual Impact Assessment developed for the Project (Tetra Tech 2013a) describes the potential impact of the Project on viewers at the Cape Henry Lighthouse:

*Viewers with a superior viewing position, such as recreational visitors at the Cape Henry Lighthouse, would have unobstructed views toward the offshore Project Area. The WTGs would create weak contrast because at a distance of 29 mi (47 km) from the WTGs, 501 ft (153 m) of the 584 ft (178 m) turbines (or 86 percent of the total height of the WTGs) would be above the visible horizon. In the photographic simulation from the Cape Henry Lighthouse (see Simulation 2, Exhibit C), the simulation was created so that it is true to scale when viewed at a distance of 18 in (457 mm). Under those conditions, the theoretically visible portion of the turbine would amount to 0.06*

*in (1.52 mm) when measured on the simulation graphic. The resulting size of the turbine that is visible in the simulation is due to the superior viewing location at the top of the lighthouse (approximately 134 ft (40.8 m) above MSL). In addition, visible portions of the WTGs would be seen in the context of existing vessels within the bay and along the coast. The WTGs may begin to attract a viewer's attention but would not dominate the characteristic landscape.*

The addition of the Project at a distance of more than 29 mi (46.7 km) offshore will not adversely affect the characteristics of the Cape Henry Lighthouse that qualify it for the NRHP.

### **6.3 Cape Henry Light Station**

The Cape Henry (Second Tower) Light Station is listed in the NRHP as part of the Light Stations of the United States Multiple Property Survey under criteria A and C for its locally significant roles in maritime history, transportation, and architecture. Unlike the nearby Cape Henry Lighthouse, the Cape Henry Light Station is not open to the public. Because of this, the elevated view available from the top of the Lighthouse, which increases the potential visibility of the Project, is not available. The Project will be less visible from the property, except to the rare employee who may enter the lantern of the Light Station. As with the Lighthouse, the addition of Project at a distance of more than 29 mi (46.7 km) offshore from the Light Station will not adversely affect its significant characteristics.

### **6.4 DeWitt Cottage**

De Witt Cottage is listed in the NRHP as a locally significant resource under Criteria A and C for its role in the history of the development of Virginia Beach and as an example of Victorian/Queen Anne beach architecture. The Project's Visual Impact Assessment (Tetra Tech 2013a) describes the visibility of the Project from Virginia Beach in the following way:

*Potential viewers located along the Virginia Beach coastline (which is outside of the 25 mi [40 km] Project Study Area) would have limited visibility of the WTGs. .... For viewers associated with Virginia Beach, Croatan Beach, and the Camp Pendleton Beach, at a distance of 27 mi (43km) from the WTGs, 177 ft (54 m) of the 584 (178) (MSL to tip of blades) turbines (or 30 percent of the total height of the WTGs) would be above the visible horizon. In the photographic simulation from the picnic area at Camp Pendleton Beach (see Simulation 1, Exhibit C), the simulation was created so that it is true to scale when viewed at a distance of 18 in (457 mm). Under those conditions, the theoretically visible portion of the turbine would amount to 0.02 in (0.508 mm) when measured on the simulation graphic.*

In addition, the building is currently surrounded by modern high-rise hotels and beach front development; the addition of the Project at 27 mi (43 km) offshore from the resource will not affect the characteristics that qualified it for listing in the NRHP.

### **6.5 U.S. Coast Guard Station**

The Virginia Beach Coast Guard Station is listed in the NRHP as a resource with state-wide significance under criteria A and C for its role in the maritime history of the area and for its design. The visibility of the Project from Virginia Beach, as described above for DeWitt Cottage, also applies to the U.S. Coast Guard Station.

The building is currently surrounded by modern high-rise hotels and beach front development; the addition of the Project at 27 mi (43 km) offshore from the resource will not affect the characteristics that qualified it for listing in the NRHP.

## **6.6 Camp Pendleton/State Military Reservation Historic District**

The 328-acre (132.7 hectare) Camp Pendleton (with 159 above-ground resources) is listed in the NRHP under criteria A and C for its association with the military training and build-up associated with both world wars, and for its collection of exemplary military architecture. As the majority of the onshore Project elements will be subterranean, this report will only consider the potential effect of the aboveground elements on the NRHP-listed historic district. The Switch Cabinet at the landfall at Camp Pendleton Beach and associated facilities are located within the boundaries of the historic district. As the Switch Cabinet will be approximately 6 ft (1.8 m) tall, the computer model suggests that this height and topographical screening will limit its visibility to the undeveloped portions of Camp Pendleton, and parts of the non-contributing Picnic and Grill Area/Viewing Platforms (Building Numbers 119 and 120). The addition of the Switch Cabinet to the Camp Pendleton grounds will not affect the characteristics that qualified it for listing in the NRHP.

The computer model suggests that the Interconnection Station located at the end of the Gate 10 Access Road will also be visible from a portion of Camp Pendleton. A line of trees to the west partially screens the Interconnection Station from viewers to the west and northwest. The model suggests that the buildings along Jefferson Avenue (between C Street and just east of the Gate 10 Access Road), D Street, E Street, Lake Road, and the Gate 10 Access Road may have a view of portions of the Interconnection Station. However, the computer model indicates that outside of a small portion of the Gate 10 Access Road corridor, parts of only one or two of the cabinets will be visible. This area of limited visibility includes all of the buildings with potential views of the Interconnection Station. The view from the buildings will be partially screened, both by existing vegetation in the vicinity of the Interconnection Station as well as, in many cases, by other buildings (e.g., Buildings 412-14 and 434 will screen the view for viewers to the north and east. The model does not incorporate data about the buildings or the potential screening that they may provide). Additionally, the utilitarian character of the Interconnection Station is in keeping with the nature of the buildings on Camp Pendleton; it will not add a jarring visual element to the landscape. The Interconnection Station is also located on the perimeter of Camp Pendleton, so it does not disrupt the integrity of its planned and developed areas. The most significant factor is that the introduction of the Interconnection Station to the Camp Pendleton grounds alters neither the history of its use nor the planning and design aspects that have made it significant. The addition of the Interconnection Station to the Camp Pendleton grounds will not adversely affect the characteristics that qualified it for listing in the NRHP.



Table 1. Summary of Findings

Inv. #	Name	Type	Potential Significance	Potential Effect	Recommend.
134-0413	Camp Pendleton/State Military Reservation Historic District	Military District	Yes	Visual	NRHP-listed
134-0007	Cape Henry Lighthouse	Lighthouse	Yes	Visual	NRHP-listed
134-00079	Cape Henry (Second Tower) Light Station	Lighthouse Complex/District	Yes	Visual	NRHP-listed
134-0066	De Witt Cottage	Dom./Dwell	Yes	Visual	NRHP-listed
134-0047	U.S. Coast Guard Station	Lifesaving Station	Yes	Visual	NRHP-listed
	Chesapeake Light	Lighthouse	Yes	Visual	Potentially NRHP-eligible

The historic properties survey undertaken for VOWTAP examined five previously-identified historic resources and one newly-identified resource. While the resources demonstrated high levels of significance and integrity, it is Tetra Tech's recommendation that the Project should be found to have no adverse effect on any of the identified resources. Should the Project design change from its current configuration, then the assessment of effect will need to be reviewed for potential corresponding changes.

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## Attachment A – Agency Correspondence



# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Douglas W. Domenech  
*Secretary of Natural Resources*

Kathleen S. Kilpatrick  
*Director*

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October 9, 2013

Mr. Robert M. Bisha  
Dominion Resources, Inc.  
5000 Dominion Blvd  
Glen Allen, VA 23060

Re: Request for Permit to Conduct Archaeological Investigations on State-Controlled Land  
Virginia Offshore Wind Technology Advancement Project (VOWTAP)  
Camp Pendleton State Military Reservation, Virginia Beach, VA  
DHR File No. 2013-0452

Dear Mr. Bisha:

Thank you for your request for permission to conduct field investigations on state-controlled lands. Find enclosed the requested permit. This permit is valid for the investigations within Camp Pendleton State Military Reservation as described in the approved research design. Please be aware that there are several conditions that must be met to satisfy the permit requirements, and these are listed in the permit.

The permit is valid for a period of one year dating from October 9, 2013. According to the stipulations of the permit, a final report of all investigations is due in the Department by October 9, 2014. This report should thoroughly document the findings of this archaeological work and provide recommendations on the need for and scope of additional work.

Should there be extenuating circumstances that make you unable to meet the conditions of this permit, please contact the Department. If you have any questions concerning the stipulations of the permit, or if we may provide any further assistance, please do not hesitate to contact me at [roger.kirchen@dhr.virginia.gov](mailto:roger.kirchen@dhr.virginia.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Roger W. Kirchen".

Roger W. Kirchen, Manager  
Office of Review and Compliance

Encl.

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# COMMONWEALTH of VIRGINIA

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October 9, 2013

Mr. Robert M. Bisha  
Dominion Resources, Inc.  
5000 Dominion Blvd  
Glen Allen, VA 23060

Re: Permit to Conduct Archaeological Investigations on State-Controlled Land  
Virginia Offshore Wind Technology Advancement Project (VOWTAP)  
Camp Pendleton State Military Reservation, Virginia Beach, VA  
DHR File No. 2013-0452

Dear Mr. Bisha:

Thank you for your request for permission to conduct field investigations on state-controlled lands. In accordance with §10.1-2300 of the *Code of Virginia*, the Virginia Antiquities Act, effective July 1, 1989, the Department of Historic Resources ("Department") on this 9<sup>th</sup> day of October, 2013 hereby grants to Robert M. Bisha ("Permittee") of Dominion Resources, Inc. permission to conduct archaeological survey within Camp Pendleton State Military Reservation in support of the Virginia Offshore Wind Technology Advancement Project (VOWTAP). This permit is to be considered effective as of today's date.

### The granting of this permit signifies that:

1. The Department finds that granting the permit is in the best interests of the Commonwealth;
2. The Department finds that the archeologist selected to perform the work is qualified pursuant to §10.1-2302(B) of the *Code of Virginia* to conduct these investigations;
3. The Department has received from the Permittee acknowledgement that all materials resulting from the study, including artifacts, field records and photographs, are the property of the Commonwealth of Virginia in accordance with §10.1-2302(C); and
4. The Department has received from the Permittee and has approved, pursuant to §10.1-2302(D), a statement detailing the goals and objectives of the project and the proposed research strategy.

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**This permit is granted subject to the following conditions:**

1. The Permittee shall ensure that the proposed field investigations are carried out in strict accordance with the approved research statement referred to in Item 4 above, or shall obtain the prior written approval of the Department for any change;
2. The Permittee shall ensure that the Department is informed in writing of the initiation and completion of field work, and allow inspections by representatives or designees of the Department as determined necessary by the Department;
3. The Permittee shall ensure that, at the conclusion of the project, a Virginia State Archaeological Site Inventory form is completed for any identified site or updated for existing sites. All inventory forms shall be submitted to the Department in an electronic format consistent with the Department's Data Sharing System (DSS) at the end of the field investigations and prior to submission of any technical reports. A site plan and a copy of the pertinent portion of the USGS map showing the location must still be submitted in hard copy format;
4. The Permittee shall ensure that a technical report of the investigations is prepared upon completion of all field investigations under this permit. The report shall meet the federal standards entitled *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* (48 FR 44716-44742, September 29, 1983) and the Department's *Guidelines for Conducting Historic Resources Survey in Virginia* (rev. 2011). Two bound hardcopies and one digital copy of the report shall be submitted to the Department for review and comment;
5. All artifacts recovered as a consequence of the investigations conducted under this permit shall be placed in the collections of the Department upon completion of the study and shall be curated (with the exception of any items used for appropriate exhibit purposes) in accordance with the Department's *State Curation Standards*;
6. The archeologist selected to perform the work shall carry a copy of the permit during all fieldwork;
7. The Permittee shall consult with the Department in the event that human remains are identified during work performed under this permit;
8. The Department reserves the right to revoke this permit upon the initiative of the Director, or upon the request of any interested party for violations of any of the above conditions, or if good cause is demonstrated; and
9. This permit shall be valid for one year from the date of issuance. This permit is not transferable.

If you have any questions regarding this permit and its conditions, or if you require any further assistance, please do not hesitate to contact Roger Kirchen of our project review division at email [roger.kirchen@dhr.virginia.gov](mailto:roger.kirchen@dhr.virginia.gov).

Sincerely,



Kathleen S. Kilpatrick  
Director





# COMMONWEALTH of VIRGINIA

Molly Joseph Ward  
Secretary of Natural Resources

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September 11, 2014

Ms. Brandi M. Carrier, M.A., RPA  
Bureau of Ocean Energy Management  
Office of Renewable Energy  
381 Elden Street, HM1328  
Herndon, VA 20170

Re: Virginia Offshore Wind Technology Advancement Project (VOWTAP)  
DHR File No. 2013-0452

Dear Ms. Carrier:

Thank you for convening the consulting parties meeting on August 27<sup>th</sup>, 2014 to discuss the Virginia Offshore Wind Technology Advancement Project (VOWTAP). We have received and reviewed as part of the Research Activities Plan (RAP) the following reports, *Terrestrial Archaeology Survey Report*, *Marine Archaeological Resources Assessment*, *Historic Properties Survey Report*, and *Visual Impact Assessment Report*, prepared by Tetra Tech, Inc. and R. Christopher Goodwin & Associates, Inc. The project involves the construction of two 12 megawatt (MW) wind turbines located approximately 24 nautical miles off shore of Virginia Beach. The turbines will be 574 feet tall measured from mean sea level to rotor tip, and will have nighttime lighting. A submarine cable will convey the energy from the VOWTAP to shore, where it will connect to a new Switch Cabinet and underground onshore transmission line. Our comments are provided to BOEM as assistance in meeting your responsibilities under Section 106 of the National Historic Preservation Act.

The *Terrestrial Archaeology Survey Report* was completed under a Permit to Conduct Archaeological Investigations on State-Controlled Land issued to Robert Bisha of Dominion Resources, Inc. on October 9, 2013. The study considered two landfall alternatives and three transmission line route alternatives. Three isolated lithic artifacts were identified within Alternative 3. The isolated artifacts are, by definition, not eligible for listing in the National Register of Historic Places (NRHP) and no further consideration of these resources is warranted. Furthermore, Alternative 3 has been removed from consideration. We concur that no further study is warranted for the terrestrial portion of the project unless changes are made to the impact area.

The *Marine Archaeological Resources Assessment* consisted of geophysical remote sensing survey and geotechnical investigations within the research lease area and submerged transmission cable corridor. The study identified three cultural anomalies – Targets CR001, CR002, and LA001 – which, based on their geophysical signatures, may be historic period shipwrecks. We request that these resources be formally recorded with DHR as archaeological sites to aid in their future management. It is our opinion that these

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Tidewater Region Office  
14415 Old Courthouse Way  
2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Western Region Office  
962 Kime Lane  
Salem, VA 24153  
Tel: (540) 387-5428  
Fax: (540) 387-5446

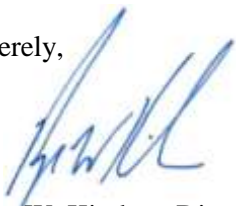
Northern Region Office  
5357 Main Street  
P.O. Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7029  
Fax: (540) 868-7033

resources are *potentially eligible* for listing in the NRHP and should be avoided or subjected to further evaluation. We understand that BOEM intends to condition its approval of the RAP to require avoidance of these three resources. The marine assessment also included the consideration of paleochannels that may represent high potential areas for submerged pre-contact archaeological resources. Eight paleochannels were identified within the cable corridor. Due to extensive erosion and other destructive natural processes, it is recommended that seven of the eight paleochannels do not retain integrity and are unlikely to contain intact archaeological deposits. The study finds that Paleochannel P-1 may contain intact levee sediments, but, due to their age, are unlikely to contain evidence of human occupation. DHR concurs with the recommendations regarding the paleo-environmental assessment.

Regarding the *Historic Properties Survey Report*, the survey identified five previously surveyed resources and one newly recorded resource within the three Areas of Potential Effects (APE) – Offshore, Shoreline, and Onshore. All of the five previously surveyed resources are listed in the NRHP – Camp Pendleton (DHR ID #134-0413), Cape Henry Lighthouse Historic District (DHR ID #134-0007), Cape Henry Light Station (DHR ID #134-0079), DeWitt Cottage (DHR ID #134-0066), and the US Coast Guard Station (DHR ID #134-00047). We concur that the one newly recorded resource, the Chesapeake Light Station (no DHR File No.) is *potentially eligible* for listing in the NRHP under Criterion C and recommend that BOEM treat this resource as eligible for the purposes of Section 106. We request that the Chesapeake Light Station be formally recorded with DHR as an architectural resource to aid in its future management and that the existing survey forms be updated for the remaining NRHP-listed resources.

Based upon a review of the *Visual Impact Assessment Report*, we concur that Camp Pendleton (DHR ID #134-0413), Cape Henry Lighthouse Historic District (DHR ID #134-0007), Cape Henry Light Station (DHR ID #134-0079), DeWitt Cottage (DHR ID #134-0066), and the US Coast Guard Station (DHR ID #134-00047) will not be adversely visually affected by the proposed project; however, consistent with the consultant’s statement in the *Historic Properties Survey Report*, we recommend a visual effects assessment for the Chesapeake Light Station.

We appreciate BOEM’s consideration of historic properties during the planning and implementation of this important project. Please provide the requested additional information when available. If you have any questions regarding these comments or our review of this project, please do not hesitate to contact me at [roger.kirchen@dhr.virginia.gov](mailto:roger.kirchen@dhr.virginia.gov).

Sincerely,  


Roger W. Kirchen, Director  
Review and Compliance Division

## Attachment B – Visual Simulations





Existing Conditions



Photographic Simulation

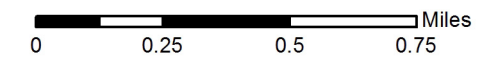
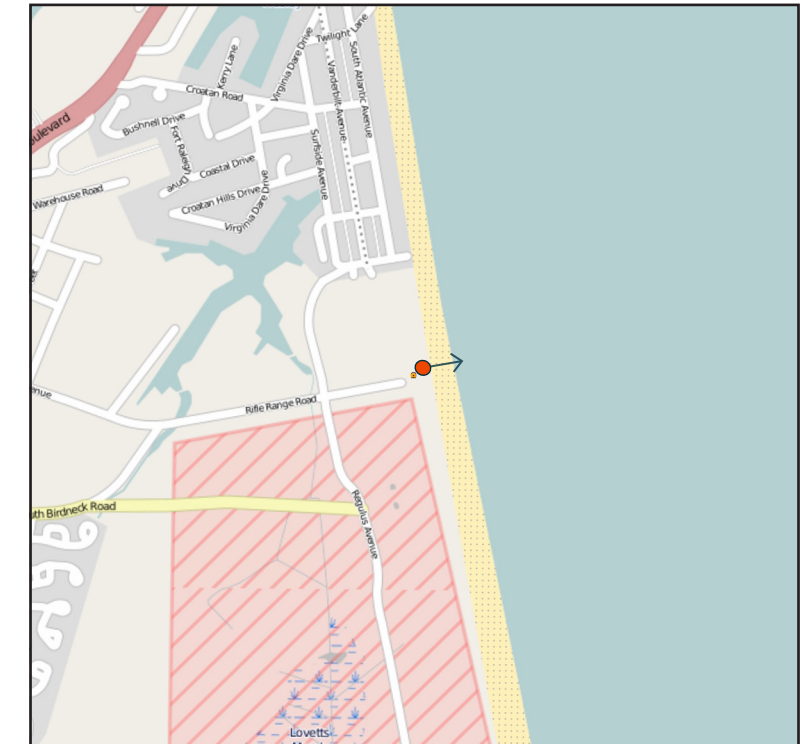
8x Zoom

Visible horizon line

Portion of the turbine below the horizon line is not visible.

Above photograph is intended to be viewed 18 inches from viewer's eyes when printed on 11"x17" paper. White brackets indicate project area.

Simulation 1  
Camp Pendleton Picnic Area - Offshore Components

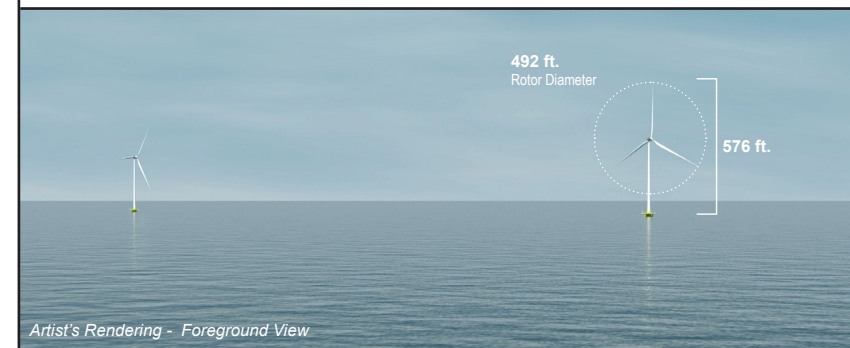


LEGEND

Photo Point Location

Photograph Information

- Photo Point Number:
- Date of Photograph: 7/30/2013
- Time of Photograph: 08:22 AM
- Weather Condition: Light Overcast
- Viewing Direction: East/northeast
- Distance to Project Site: 26.79 miles
- Latitude: 36°48'56.182"N
- Longitude: 75°58'1.241"W
- Photo Location: View from Camp Pendleton Beach at the end of Rifle Range Rd.



Artist's Rendering - Foreground View

VIRGINIA OFFSHORE WIND TECHNOLOGY  
ADVANCEMENT PROJECT

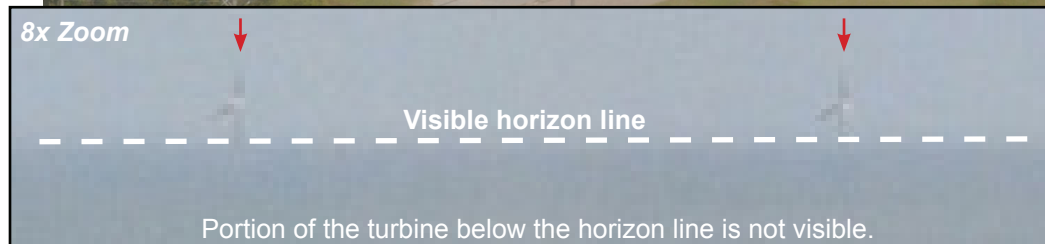




Existing Conditions



Photographic Simulation



Above photograph is intended to be viewed 18 inches from viewer's eyes when printed on 11"x17" paper. White brackets indicate project area.

### Simulation 2 Old Cape Henry Lighthouse

Miles  
0 0.25 0.5 0.75

**LEGEND**

Photo Point Location

**Photograph Information**

• Photo Point Number: 10	• Distance to Project Site: 28.65 miles
• Date of Photograph: 10/16/2013	• Latitude: 36°55'32.848"N
• Time of Photograph: 01:37 PM	• Longitude: 76°0'28.724"W
• Weather Condition: Overcast	• Photo Location: View from the top of Old Cape Henry Lighthouse
• Viewing Direction: East/southeast	

Artist's Rendering - Foreground View

### VIRGINIA OFFSHORE WIND TECHNOLOGY ADVANCEMENT PROJECT



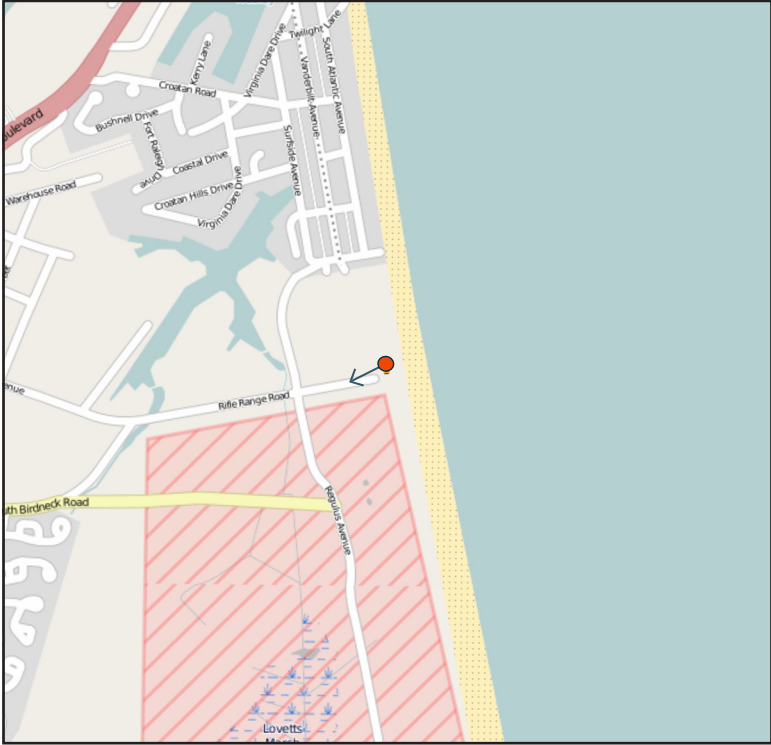
Existing Conditions



Photographic Simulation

Above photograph is intended to be viewed 18 inches from viewer's eyes when printed on 11"x17" paper.

Simulation 3  
Camp Pendleton Picnic Area - Onshore Components



0 0.25 0.5 0.75 Miles

LEGEND

Photo Point Location

Photograph Information

- Photo Point Number: 02
- Date of Photograph: 10/16/2013
- Time of Photograph: 10:12 AM
- Weather Condition: Cloudy
- Viewing Direction: Southwest
- Distance to Project Site: 315 ft.
- Latitude: 36°48'56.182"N
- Longitude: 75°58'1.241"W
- Photo Location: View from Camp Pendleton Picnic Area at the end of Rifle Range Rd.



Artist's Rendering

**VIRGINIA OFFSHORE WIND TECHNOLOGY  
ADVANCEMENT PROJECT**





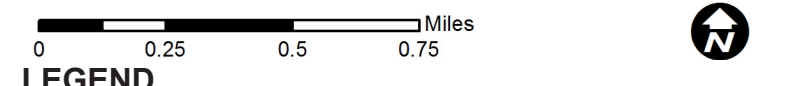
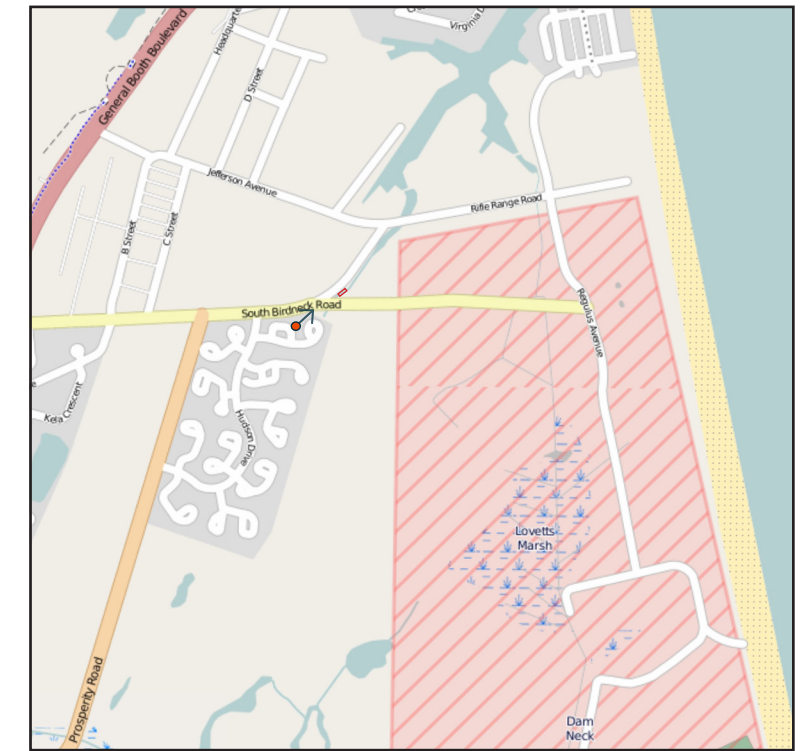
Existing Conditions




Photographic Simulation

Above photograph is intended to be viewed 18 inches from viewer's eyes when printed on 11"x17" paper.

Simulation 4  
Residences South of Camp Pendelton

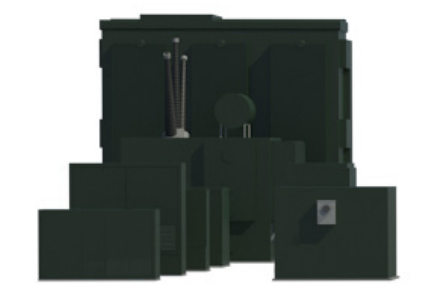


LEGEND

-  Photo Point Location
-  Interconnect Station Location

Photograph Information

- Photo Point Number: 15
- Date of Photograph: 10/16/2013
- Time of Photograph: 12:35 PM
- Weather Condition: Cloudy
- Viewing Direction: Northeast
- Distance to Project Site: 428 ft.
- Latitude: 36°48'39.756"N
- Longitude: 75°58'45.436"W
- Photo Location: View from the Residences south of Camp Pendelton off South Birdneck Road



Artist's Rendering

**VIRGINIA OFFSHORE WIND TECHNOLOGY  
ADVANCEMENT PROJECT**





Existing Conditions



Photographic Simulation

**8x Zoom**

Visible horizon line

Portion of the turbine below the horizon line is not visible.

Above photograph is intended to be viewed 18 inches from viewer's eyes when printed on 11"x17" paper. White brackets indicate project area.

### Simulation 5 Virginia Beach

0 0.25 0.5 0.75 Miles

**LEGEND**

Photo Point Location

**Photograph Information**

- Photo Point Number: 15
- Date of Photograph: 10/16/2013
- Time of Photograph: 06:59 PM
- Weather Condition: Cloudy
- Viewing Direction: East
- Distance to Project Site: 26.75 miles
- Latitude: 36°50'21.82"N
- Longitude: 75°58'15.51"W
- Photo Location: View from the beach between 10th St and 11th Street in front of the Hampton Inn

492 ft. Rotor Diameter

576 ft.

Artist's Rendering - Foreground View

### VIRGINIA OFFSHORE WIND TECHNOLOGY ADVANCEMENT PROJECT



## Attachment C – Curriculum Vitae



## **Experience Summary**

Twenty years' experience in the investigation and documentation of historic structures. Responsibilities have included designing and implementing field investigations and surveys, researching and writing Historic Structure Reports for culturally and historically significant properties, preparing National Register of Historic Places and National Historic Landmark nominations for significant historic properties and districts, and providing research for proposed Local Historic Districts. Clients have included state and municipal agencies as well as cultural institutions and private interests. Funding sources have included federal, state and local programs.

## **Education**

PhD, History of Art, , Yale University, 1999  
MA, History of Art, Yale University, 1999  
BA, History of Art, Yale University, 1988

## **Registrations/Certifications**

NPS Standards for Professional Practice, Number Architectural Historian/Historian (36 CFR 61)

## **Training**

Cultural Architectural Resource Management Archive; Maine Historic Preservation Commission  
Cultural Architectural Resource Management Archive; Maine Historic Preservation Commission  
Project Review (Section 106): Architectural Historian Continuing Education; New Hampshire  
Department of Historic Resources

## **Corporation Project Experience**

### **Architectural Historian, 2010 – 2011**

**Cimarron Wind Farm, CPV, Mitigation Plan/National Register of Historic Places Nomination Form, KS**  
Performed research and fieldwork for a Historic Architectural Resource Investigation to identify historic resources within a 0.5 mile Area of Potential Effect. These resources were documented in a report approved by the Kansas SHPO. Prepared a mitigation plan for the client to submit to the Lead Federal Agency. As part of the approved Memorandum of Agreement that resulted from the Mitigation Plan, completed a National Register of Historic Places nomination form for a farmstead within the study area, using guidelines put forth in the Historic Agriculture-Related Outbuildings of Kansas MPDF.

### **Architectural Historian, 2010 – 2011**

#### **Ashley Wind Farm, CPV, Historic Architecture Reconnaissance Survey, ND**

Research and fieldwork for a Historic Architecture Reconnaissance Survey Study in compliance with guidelines of the State Historical Society of North Dakota. Served as client representative and GPS technician during Traditional Cultural Properties Survey. Provided GPS support and guidance to a Native American team looking for TCPs while ensuring that the survey remained within the project area.

### **Architectural Historian, 2010**

#### **Baldwin Wind Farm, Nextera, Historic Architecture Reconnaissance Survey, ND**

Research and fieldwork for a Historic Architecture Reconnaissance Survey Study in compliance with guidelines of the State Historical Society of North Dakota. In response to a request from the National Park Service, undertook research and fieldwork for a Visual Impact Analysis of the effect of nearby wind farms, including the proposed Baldwin Wind Farm, on the Lewis and Clark National Historic Trail.

**Architectural Historian, 2009-present**

**Hardin Wind Farm, Invenergy, Historic Architecture Reconnaissance Survey, OH**

Research and fieldwork for a Historic Architecture Reconnaissance Survey Study in compliance with Ohio Power Siting Board regulations. Documented 194 resources using a stratified, multi-phase approach agreed upon with the Ohio Historic Preservation Office. Submitted Ohio Historic Inventory forms using on-line IForms. Contributed to the drafting of the Memorandum of Agreement which was subsequently approved by all parties. In process.

**Architectural Historian, 2009-2011**

**Saddleback Ridge Wind Farm, Patriot Renewables, Historic Architecture Reconnaissance Survey, ME**

Research and fieldwork for a Historic Architecture Reconnaissance Survey Study in compliance with Maine Historic Preservation Commission's Above Ground Cultural Resources Survey Manual, Guidelines for Identification: Architecture and Cultural Landscapes, Section 106 Specific. Surveyed more than 190 buildings within a preliminary five-mile Area of Potential Effect. Received concurrence of the Maine Historic Preservation Commission.

**Architectural Historian, 2009-2010**

**Spruce Mountain Wind Farm, Patriot Renewables, Historic Architecture Reconnaissance Survey, ME**

Research and fieldwork for a Historic Architecture Reconnaissance Survey Study in compliance with Maine Historic Preservation Commission's Above Ground Cultural Resources Survey Manual, Guidelines for Identification: Architecture and Cultural Landscapes, Section 106 Specific. Surveyed more than 300 buildings within an eight-mile Area of Potential Effect. Received concurrence of the Maine Historic Preservation Commission.

**Architectural Historian, 2008-2010**

**Arkwright Summit Wind Farm, Horizon Energy, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation 5-mile Ring Area of Potential Effect Study in compliance with New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work. Surveyed more than 6,000 buildings and documented nearly 300 resources. Researched and prepared Mitigation Report for submission to lead agency. Received concurrence of the New York State Historic Preservation Office.

**Architectural Historian, 2007-2008**

**Jericho Rise Wind Farm, Horizon Energy, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation 5-mile Ring Area of Potential Effect Study in compliance with New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work. Documented 22 resources and incorporated data from three previous studies. Received concurrence of the New York State Historic Preservation Office.

**Architectural Historian, 2007-2008**

**WM Transmission Line Rebuild, Central Hudson Gas & Electric, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation that includes a 1-mile Ring Area of Potential Effect Study. Surveyed and documented 90 resources and prepared report summarizing fieldwork, providing historical background, and assessing the potential impact of the proposed project. Implemented a new approach to defining the APE and defended this to the New York State Historic Preservation Office.

**Architectural Historian, 2006-2008**

**CL Transmission Line Rebuild, Central Hudson Gas & Electric, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation that includes a 1-mile Ring Area of Potential Effect Study. Surveyed and documented 22 resources and prepared report summarizing fieldwork, providing historical background, and assessing the potential impact of the proposed project. Received concurrence of the New York State Historic Preservation Office.

**Architectural Historian, 2006-2007**

**St. Lawrence Wind Energy Project, St. Lawrence Windpower, LLC, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation that includes a 1-mile Ring Area of Potential Effect Study and a 5-mile Ring Area of Potential Effect Study in compliance with New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work. Surveyed and documented more than 500 resources. Received concurrence of the New York State Historic Preservation Office.

**Architectural Historian, 2006-Present**

**Alabama Ledge Wind Farm, Horizon Energy, Historic Architectural Resource Investigation, NY**

Research and fieldwork for a Historic Architectural Resource Investigation 1-mile Ring Area of Potential Effect Study and a 5-mile Ring Area of Potential Effect Study in compliance with New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work. Surveyed and documented more than 450 resources. Received concurrence of the New York State Historic Preservation Office.

**Previous Experience**

**2006**

**Trinity-on-Main, New Britain, CT**

Prepared National Register nomination for historic church. Listed.

**2006**

**Fodor Farm Local Historic District Study Committee**

Prepared background material for Study Committee Report.

**2006**

**Madison Historical Society**

Provide site visits and architectural interpretation for house plaque program.

**2005-2007**

**Darien Historical Society**

Consultant on reinterpretation of the Bates-Scofield House and Barn.

**2005-2008**

**The City of Norwalk, CT**

National Register nomination for the Wall Street Historic District. Listed.

**2005**

**The Noah Webster House and Museum of West Hartford History, West Hartford, CT**

Consultant on stabilization and renovation of the historic house in conjunction with Paul B. Bailey Architect, LLC.

**2005**

**Coalition for Preservation of the Abel Bradley House, Westport, CT**

Retained as expert witness in litigation to prevent the demolition of a historic house in Westport.

**Lead Historian, 2005**

**The Connecticut Trust for Historic Preservation Barns Survey, Hamden, CT**

Lead Historian on a documentation survey of historic barns throughout Connecticut.

**Lead Historian, 2005**

**Webb-Deane-Stevens Museum, Wethersfield, CT**

Lead historian on Historic Structures Report for Webb House prepared with Building Conservation Associates.

**2005**

**Alliance to Conserve Old Richmond Neighborhoods, Richmond, VA**

Performed documentary research on the Hotel Richmond as part of an effort to preserve the building.

**2005**

**Rowayton Historical Society, Rowayton, CT**

Prepared National Register nomination for the Five Mile River Landing Historic District.

**2005**

**Clara Barton Birthplace Museum, North Oxford, MA**

Prepared Historic Structures Report.

**2004**

**Historical Society of the Town of Greenwich, Greenwich, CT**

Prepared feasibility study for re-use of the Thomas Lyon House in conjunction with Paul B. Bailey Architect, LLC.

**2004**

**New London County Historical Society, New London, CT**

Wrote Historic Structures Report for the 18th century Shaw Mansion.

**2004-2006**

**Westport Historical Society, Westport, CT**

Speaker in Old House School program.

**2004**

**Madison Historical Society, Madison, CT**

Re-surveyed town to examine changes since Historic Resources Inventory compiled in 1980.

**2004**

**Private Client, New York, NY**

Worked with client and their architect to create period appropriate trim package for Colonial Revival townhouse.

**2004**

**Madison Green Local Historic District Study Committee, Madison, CT**

Provided research for LHD Study Committee report.

Expert Reader, Historic Houses of the Hudson River Valley (NY: Rizzoli Books).

**Photographer, 2003-Present**

**The Connecticut Trust for Historic Preservation, Hamden, CT**  
Contributing photographer to Connecticut Preservation News.

**2003**

**New Haven Colony Historical Society, New Haven, CT**  
Researched exhibition on Margaret Brewster and Edgerton, the estate she and her husband, Frederick Foster Brewster, created in New Haven.

**2003**

**Connecticut Trust for Historic Preservation, Hamden, CT**  
Researched and wrote reports on threatened structures.

**2003-Present**

**New Canaan Historical Society, New Canaan, CT**  
Provided architectural research for house dating program.

**2003**

**Private Client, Cheshire, CT**  
Analyzed structures for developer so that historic material could be preserved.

**2003**

**Israel Putnam House Association, Greenwich, CT**  
Researched and wrote Interpretive Plan for Putnam Cottage.

**2002-2003**

**Israel Putnam House Association, Greenwich, CT**  
Created Historic Structures Report for Putnam Cottage.

**2002**

**New Haven Colony Historical Society, New Haven, CT**  
Researched and wrote Historic Structures Report for the Pardee-Morris House.

**2002**

**Connecticut Trust for Historic Preservation, Hamden, CT**  
Speaker at the Annual Preservation Conference.

**2002**

**Town of Enfield, CT**  
Established a date of construction for the Terry House, 3-5 Elm Street, for the Town Planning Department.

**2001-Present**

**Connecticut Trust for Historic Preservation, Hamden, CT**  
Provided documentation for historic easements.

**2001-Present**

**Norwalk Historical Society, Norwalk, CT**  
Research Consultant for the Society's House Dating Program.

**2001-Present**

**Connecticut Trust for Historic Preservation, Hamden, CT**  
Panelist for House Talk programs.

**2001-2002**

**Historical Society of the Town of Greenwich, Greenwich, CT**

Provided Restoration assessment for the Back Kitchen Chamber at Bush-Holley House.

**2001**

**The Connecticut Trust for Historic Preservation, Hamden, CT**

Prepared brief history of Trinity United Methodist Church, New Britain.

**2001**

**The Bridgeport Conservancy, Bridgeport, CT**

Helped to establish a date of construction for the Tom Thumb House.

**2001**

**Holy Apostles College and Seminary, Cromwell, CT**

Researched and wrote Restoration Assessment Report for the Ranney house.

**2001**

**Friends of Boothe Park, Stratford, CT**

Prepared preservation suggestions for early 20th century house.

"Case Histories," Connecticut Preservation News, Volume XXIII, No. 4 (July/August 2000).

**2000**

**Historical Society of the Town of Greenwich, Greenwich, CT**

Prepared "Bush-Holley House: A Historic Structure Report."

**2000**

**Connecticut Trust for Historic Preservation, Hamden, CT**

Wrote six case studies and guide to researching town greens.

**CPTV, Research Consultant for "The Green" episode of the Connecticut Experience.**

**CPTV, On-camera expert for "The Green" episode of the Connecticut Experience.**

**Photographer, 1999-2003**

The Fairfield County Times and The Westchester County Times

**Contributor/Photographer, AIA Guide to New York City (4th edition), 1999**

**Research Consultant, 1992-1999**

The Society of Architectural Historians' Buildings of the United States, Connecticut Volume.

## **Discipline Codes**

**Archeologist, Primary**

## **Related Company Information**

Payroll Number: 521004

Employment Status: P-6

Preferred First Name: James

Office Location: Morris Plains

Hire Date: 11/27/06

Years with Other Firms: 0

Years with Current Firm: 5

Total Years' Experience: 5

Supervisor:



Office Phone: (914) 527-6416

Cell Phone:

Fax:

E-mail Address: [james.sexton@tetratech.com](mailto:james.sexton@tetratech.com)

Other E-mail Address (if any): [Jmbjcs@hotmail.com](mailto:Jmbjcs@hotmail.com)

Resume Last Revised: 2011-12-09