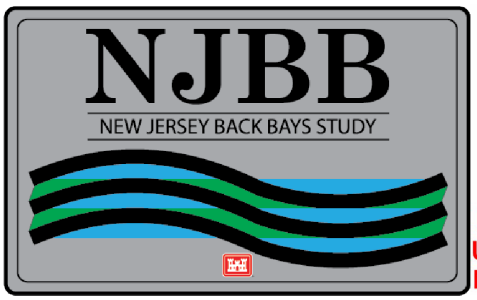
CULTURAL RESOURCES
PHASE IA INVESTIGATION & CORRESPONDENCE
APPENDIX

NEW JERSEY BACK BAYS
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY

PHILADELPHIA, PENNSYLVANIA

APPENDIX F.8

December 2024



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U.S Army Corps of Engineers
Philadelphia District

PHASE IA CULTURAL RESOURCE REPORT PREPARATION OF CULTURAL RESOURCES SECTIONS/APPENDIX FOR THE COMBINED FEASIBILITY STUDY AND NEPA DOCUMENT NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT PROJECT

PREPARED FOR:

U.S. Army Corps of Engineers
Philadelphia District

UNDER CONTRACT TO:

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EXECUTIVE SUMMARY

Tetra Tech, Inc. (Tetra Tech), under contract to the U.S. Army Corps of Engineers-Philadelphia District (USACE), has prepared this Phase IA cultural resources investigation report for the New Jersey Back Bays Coastal Storm Risk Management Project (the Project), to assist USACE in the management of potential Project impacts to recorded and previously undocumented cultural resources. The report will also serve as the primary source of information for the Cultural Resources Sections/Appendix for the Combined Feasibility Study and accompanying NEPA Document.

Tetra Tech obtained GIS information from state and federal agency databases on all recorded cultural resources (archaeological, standing structures, historic districts, and shipwrecks and submerged obstructions) within the four assigned Planning Regions: Shark River, North, Central, and South. The Planning Regions extend along the New Jersey coastal zone from the Borough of Sea Girt in Monmouth County in the north to Cape May Point in Cape May County in the south. In all, the four Planning Regions cover approximately 1,000 square miles, or slightly less than one-eighth of the state of New Jersey.

The acquired cultural resources data includes 1,363 archaeological sites, finds, and locales; 17,475 aboveground historic and architectural properties; 85 historic districts; and, 81 shipwrecks and 26 submerged obstructions. These data have been collated into deliverables in tabular form, shapefiles, and depicted on figures with aerial imagery base layer.

Tetra Tech recommends that the USACE continue to pursue consultations with stakeholders, interested parties, and local, state, and federal agencies. Tetra Tech further recommends that when the USACE has developed a Draft Plan from the Tentatively Selected Plan, the agency should undertake Phase IB terrestrial archaeology, marine archaeology, and historic architecture surveys, as appropriate.

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
amsl	Above Mean Sea Level
AWOIS	Automated Wreck and Obstruction Information System
CFR	Code of Federal Regulations
CWA	Clean Water Act
FEMA	Federal Emergency Management Agency
HPO	New Jersey Historic Preservation Office
LUCY	HPO's Online Historic Resources database
NHD	National Hydrologic Database
NHPA	National Historic Preservation Act
NJSM	New Jersey State Museum
NPS	National Park Service
NOAA	National Oceanographic and Atmospheric Administration
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
OCP	Outer Coastal Plain
TSP	Tentatively Selected Plan
USACE	U.S. Army Corps of Engineers
WMA	Wildlife Management Area

1.0 INTRODUCTION

1.1 PROJECT PURPOSE

Tetra Tech, Inc. (Tetra Tech) is under contract to the US Army Corps of Engineers-Philadelphia District (USACE) to conduct a Phase IA cultural resources investigation in support of the preparation of cultural resources sections/appendix for the Combined Feasibility Study and NEPA Document for the New Jersey Back Bays Coastal Storm Risk Management Project (the Project). The Project purpose is to implement comprehensive coastal storm risk management (CSRM) strategies to increase resilience and to reduce risk from future storms and compounding impacts of sea level change (SLC). It is expected that the Project may need a Section 404 Permit of the Clean Water Act (CWA) of 1972 (33 U.S.C. §1251 et seq.) for dredging or discharge into tidal wetlands, and a Section 10 Permit under the Rivers and Harbors Act of 1899 (33 U.S.C. 403) for construction of structures in navigable waters of the United States. Permit authorization would come from the Regulatory Branch of the Philadelphia District. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, this Project will undergo review by the New Jersey Historic Preservation Office (HPO) for evaluation of potential impacts to cultural resources that may be listed in or eligible to the National Register of Historic Places (NRHP).

This report is organized into the following sections: Section 1 – *Introduction* – presents the Project description, the investigations undertaken, personnel involved in the investigations and preparation of the report, and conformance to regulations and guidelines; Section 2 – *Research Methods* – provides the investigative strategy for the Study; Section 3 – *Cultural Contexts* – is a study of socio-cultural developments as they relate to precontact and historic periods; Section 4 – *Existing Conditions* – is an exploration of the varied environmental settings of the Project Area; Section 5 – *Cultural Resources Inventory* – presents the results of the data retrieval of recorded cultural resources within the Project Area; Section 6 – *Management Guidance and the Section 106 Process* – provides a guide to managing cultural resources identified during the ongoing Project tasks, within the context of the Section 106 process; Section 7 – *Summary and Recommendations* – concisely summarizes the Phase IA Investigation findings and presents Tetra Tech's recommendations for next steps; and Section 8 – *References Cited*. Three Appendices are included: Appendix A – *Mapbook of Recorded Aboveground Historic and Architectural Properties* within the Project Area; Appendix B – *Mapbook of Recorded Archaeological Sites* within the Project Area with archaeological sensitivity mapping; and Appendix C – *Resumes of Personnel*. Shapefiles of the various datasets (HPO-property; NJSM-archaeology; and NOAA-wrecks) will accompany the report as a separate submittal.

1.2 NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT PROJECT DESCRIPTION

The USACE is considering Project alternatives that include: 1) no action; 2) non-structural measures such as managed coastal retreat, building retrofitting, coastal storm preparedness planning, national flood insurance program initiatives, and zoning changes; 3) structural measures such as storm surge barriers, floodwalls, seawalls, revetments, and stormwater system improvement; and, 4) natural and nature-based features such as living shorelines, reefs, wetlands, submerged aquatic vegetation, and green stormwater management.

Preliminary evaluation by the USACE has generated a focused array of structural and non-structural alternatives that are termed the Tentatively Selected Plan (TSP). The TSP comprises the following elements:

- three storm surge barriers or inlet closures at Manasquan Inlet, Barnegat Inlet, and Great Egg Harbor Inlet;
- two cross-bay barriers at Absecon Boulevard and southern Ocean City;

- Elevation and floodproofing of 18,800 structures, concentrated in the Shark River region of Monmouth County, on Long Beach Island and the bayshore of Little Egg Harbor and Great Bay in Ocean County, the Mullica River/Wading River drainage basin in Ocean, Burlington, and Atlantic counties, Brigantine Island and Absecon bayshore in Atlantic County, and Ludlam Island, Seven Mile Island, and Five Mile Island, their back bay marshes and upland margins, and large sections of Cape May City, West Cape May, and Cape May Point, all in Cape May County.

In addition to the TSP, two alternatives have not been ruled out and are part of the Phase IA investigation; Alternative 4A includes Non-Structural Measures around Great Egg Harbor Bay, and Alternative 4D1, which includes non-structural measures surrounding Great Egg Harbor Bay plus two perimeter floodwalls.

USACE organized the Project into four planning regions, including from north to south, Shark River, North, Central, and South (Figure 1). The four planning regions comprise the Project Area. The Shark River Planning Region encompasses the Shark River Inlet and the Shark River upstream to within 0.5 miles (0.8 km) of the Garden State Parkway, comprising 5,875.8 acres entirely within Monmouth County.

The North Planning Region stretches from the Borough of Sea Girt to the Borough of Beach Haven along the Atlantic shoreline. It includes all of Barnegat Bay, Little Egg Harbor, and Great Bay plus their upland margins, and encompasses the Toms River and its major tributaries upstream approximately 10 miles from Barnegat Bay, the Wading River and its tributaries upstream to the hamlet of Jenkins, the Mullica River estuary and the drainage basin past Batsto Village to the hamlet of Lower Forge. Aside from a small sliver of Monmouth County, the North Planning Region is entirely in Ocean County.

The Central Planning Region includes the barrier islands of Brigantine and Absecon in Atlantic County and Pecks Beach in Cape May County, their back bay and upland margin components, and the Great Egg Harbor River/Tuckahoe River estuary and river courses to the hamlet of Weymouth Furnace on the Great Egg Harbor River and to the hamlet of Hunters Mill on the Tuckahoe River. The Great Egg Harbor River/Tuckahoe River drainage basin is shared by Atlantic, Burlington, and Cape May counties.

The South Planning Region, situated entirely in Cape May County, includes the barrier islands of Ludlam Island, Seven Mile Island, and Five Mile Beach, their back bay and upland margins to the peninsular drainage divide, plus the tip of Cape May south of the Cape May Canal, which includes Cape May City, West Cape May, and Cape May Point.

1.3 PHASE IA INVESTIGATION

This Phase IA investigation included four principal tasks: (1) background research and development of land use contexts for precontact and historic periods; (2) compilation, in tabular form and GIS files, of recorded cultural resources located within USACE-designated Planning Regions, obtained from the New Jersey Historic Preservation Office (HPO), New Jersey State Museum (NJSM), and the National Oceanographic and Atmospheric Administration (NOAA) databases, for aboveground historic and architectural properties, archaeological sites, and submerged wrecks and obstructions, respectively; (3) development of archaeological sensitivity modeling for the Planning Regions and assessment of Project impacts to recorded and undocumented cultural resources; and, (4) the development of guidance to USACE on how to identify and manage impacts to cultural resources for each focused array alternative of the Project.

1.4 REPORT PREPARATION AND PERSONNEL

Robert Jacoby, M.A., RPA conducted the literature review and the assessment of archaeological sensitivity, provided organizational planning for the investigation and is report author. Mr. Tom Hamill obtained the cultural resources

data from the state and federal agency databases, developed the GIS parameters for the sensitivity mapping, and generated the mapbooks of cultural resource locations and Project infrastructure. Sydne B. Marshall, Ph.D., RPA provided overall supervision of background research, data collection, and report preparation.

1.5 CONFORMANCE TO REGULATIONS AND GUIDELINES

This Phase IA investigation and report conforms to applicable regulations and guidelines, including 36 Code of Federal Regulations (CFR) 800 and HPO (2000). Supervisory personnel for this survey exceeded the professional qualifications listed in the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (National Park Service 1983) for principal investigators in archaeology. Key personnel have previous experience in coastal plain archaeology and are familiar with the archaeology of New Jersey. Resumes for key personnel are included in Appendix C.

2.0 RESEARCH METHODS

The Phase IA investigation employed a three-fold research strategy to identify potential Project impacts to recorded cultural resources within the four planning regions. First, a high-level literature review was undertaken to place into context the environmental settings vis-à-vis the history of land use across the four Planning Regions. Topics related to environmental settings included soils, regional geomorphology, shoreline and bayshore processes, sea level rise, and native flora and fauna. Pertinent resources regarding precontact land use included reviews of Section 106 survey reports, journal articles, and excavation monographs. The literature sources for historic period land use derived from Section 106 survey reports, nineteenth century and early twentieth century county histories, and professional accounts of settlement and development in the coastal zone in the fields of geography, history, and archaeology.

The second leg of the research strategy was the collection, collation, and synthesis of cultural resource information obtained from state and federal agency databases. Archaeological site data from NJSM, standing structure and historic district data from HPO's LUCY database, and submerged wreck and obstruction data from NOAA's Automated Wreck and Obstruction Information System (AWOIS) were acquired in the form of point and polygon shapefiles that were then converted to sortable excel spreadsheets for analysis.

The third leg of the research strategy was the development of sensitivity modeling for locations of undocumented precontact archaeological resources. Three levels of sensitivity, high, medium, and low, were modeled based on distance to water; high sensitivity was defined as fast land within 100 meters of mapped waterways; medium sensitivity from 100 meters to 300 meters; and low sensitivity exceeding 300 meters. All barrier islands and beach contexts were classified as low sensitivity. Further details of the rationale for the selected sensitivity modeling parameters are explored in Section 5.2.

3.0 CULTURAL CONTEXTS

3.1 PRECONTACT CONTEXT

Archaeologists have divided the 13,000-year record of precontact human habitation in New Jersey into four general periods: Paleoindian (11,000 to 8000 BC); Archaic (8000 to 1000 BC); Woodland (1000 BC to AD 1500); and Contact (AD 1500 to 1700). The first three subdivisions (Paleoindian, Archaic, and Woodland) represent broad patterns of Native American cultural adaptation to changing climatic conditions since the arrival of humans in the study area around 13,000 years ago. The Contact subdivision represents the period of interaction between Native Americans and European-Americans, from initial contact with European trappers and traders to the removal of most Native Americans in New Jersey by the beginning of the eighteenth century.

3.1.1 Paleoindian Period (11,000 to 8000 BC)

The earliest peopling of the study area occurred within a few thousand years after final retreat of the Laurentide ice sheet from the region, although precise timing of initial human settlement is uncertain. Varve counts from former Lake Hackensack deposits indicate that northern New Jersey was ice-free circa 16,000 BC (Stanford 2010:56-57), with the Hudson River valley near present-day Albany ice-free some four thousand years later (Stanford 2010:59). The earliest securely dated Paleoindian site in the region, the Shawnee-Minisink site on the upper Delaware River, was occupied around 10,900 BC [10,937±15 14C BP] (Gingerich 2013a:238-240). Cultural deposits dating up to several thousand years earlier than Clovis have been reported from the Meadowcroft site in western Pennsylvania and the Cactus Hill site in southeastern Virginia, although these early dates are rare and remain controversial.

Shawnee-Minisink contained well-made Clovis-type fluted projectile points, end scrapers and gravers, distinctive implements that characterize early Paleoindian toolkits. It was the discovery of a Clovis point in association with extinct paleofauna at the Blackwater Draw site in New Mexico in the 1920s that forced archaeologists to recognize the antiquity of this widely distributed point type. The Blackwater Draw find and others in the Great Plains provided direct evidence of big game hunting as a Paleoindian subsistence stratagem, and it was long assumed that eastern Clovis groups also practiced a specialized hunting adaptation to megafauna or herd animals, despite the absence of identified kill sites or large mammal faunal remains at eastern sites (Ritchie 1980:3). The belief that megafauna hunting was the focus of Clovis subsistence practices suggested that human predation and overkill was a causative agent of much of the genera extinction that occurred in North America at the close of the Pleistocene (Martin 1967). Both of these assumptions (specialized hunting adaptation and megafauna overkill) have been strongly challenged over the past few decades, and it is now generally conceded that Clovis and other Paleoindian groups resident in eastern North America relied on a broad range of subsistence resources, including fruiting seeds, fish, and small animals, as well as herd game (Dent 2007:127-129). Recent analysis suggests that megafauna had mostly vanished from the northeast by the time Paleoindians arrived (Boulanger and Lyman 2014).

A notable characteristic of the Paleoindian lithic toolkit was the preference for high quality stone, often traceable to sources great distances from its use. This consumer choice reveals two important implications for Paleoindian social organization and technology. First, Paleoindians operated within small, highly mobile bands employing a foraging strategy, moving frequently across large territories to exploit known or potential resources (Binford 1980). Movements were scheduled to exploit seasonally available resources across a wide spectrum of environment zones. And second, the preference for quality stone and the requisite skills to work it was probably related to their highly mobile lifestyle, ensuring that the life span and utility of tools was optimized while groups were far removed from new stone sources (Anderson 2013:918). Gardner (1977) suggested a possible range of mobility of 150-200 km (95-125 miles) for

Paleoindian subsistence foraging, allowing access for coastal plain groups to a variety of quarry sources, including Reading Prong jasper and Kittatinny chert from the Ridge and Valley and Highlands regions (Marshall 1982:23).

Aside from Shawnee-Minisink, there are no well-dated Paleoindian sites in the Middle Atlantic region. Nonetheless, Pagoulatos (2004) has identified 96 Paleoindian sites in New Jersey, with 300 to 400 individual fluted points found in the state (Kraft 1986:35; Gingerich 2103b:142). In Pagoulatos' (2004) survey, 52 percent of Paleoindian sites were located on terrace landforms, and 26 percent on periglacial features, the remaining sites occurring on flood plains, knolls, cuestas, upland divides, or rockshelters. Of the 96 identified Paleoindian sites within the state, 19 sites occur within the Outer Coastal Plain, and 7 sites are present within the TSP (Pagoulatos 2004:126-127). All the sites within the TSP are located on terraces.

The record of Paleoindian settlement pattern in the northeast is somewhat obscured by the submergence of the continental shelf due to sea level rise. The paleo-shoreline at the time of the last glacial maximum (circa 21,000 years ago) is estimated to have been 80 miles seaward of the current New Jersey shoreline, and between 25 to 30 miles seaward by the early Holocene, circa 8000 BC. Potential exploitation of terrestrial and marine resources at paleo-shoreline locations by Paleoindian groups is suggested by occasional finds of mammoth and mastodon teeth from scallop fishing at 25 to 30 meters below modern mean sea level, roughly paralleling the terminal-Pleistocene paleo-shoreline (Uchupi et al. 2001:124). Present-day near-shore locales of identified Paleoindian sites would have been well inland at the time of their occupation, and more akin to upland terraces and knolls than to estuarine or wetland settings. The A.C. Site (28AT105) on Absecon Creek is the largest concentration of Paleoindian finds in the Outer Coastal Plain, comprising over 100 artifacts. The site context was highly disturbed but contained several heavily resharpened Cumberland and Agate Basin points of high-quality Reading Prong jasper and Ohio chert. This classic Paleoindian toolkit included *pièces esquillées*, scrapers, gravers, and prismatic blades (Stanzeski 1998 and 2005). The Sam's Club Site (28OC100), located on Kettle Creek near Barnegat Bay, contained five identified artifact loci and is interpreted as a resource procurement and processing station (Grossman-Bailey 2001:177).

Biface technology during the final thousand-year interval of the Paleoindian period displays basic continuity with earlier forms; large lanceolate points, parallel flaking, and preference for high quality stone. Late Paleoindian points differed from their predecessors by generally lacking the channel flute, and sometimes exhibiting basal tangs. Toolkits from northeastern late Paleoindian sites show a striking absence of the formal endscrapers that characterized the Clovis and other fluted point assemblages. Expedient flake tools begin to appear among toolkits, leading some researchers to postulate that late Paleoindian groups were "settling in" to local environments resulting in reduced range mobility and greater reliance on local lithic sources (Lothrop et al. 2016:237-238).

3.1.2 Archaic Period (8000 to 1000 BC)

The Archaic period is marked by climate warming that gradually resulted in greater biodiversity in the resource base. Modification of tool technology, increased site size, and changing site distribution reflect utilization of a broader spectrum of resources and ecological zones. Archaeologists divide the period into three subperiods: Early (8000 to 6000 BC); Middle (6000 to 4000 BC); and Late (4000 to 1000 BC).

Early Archaic Period (8000 to 6000 BC)

The adaptive strategies of groups during the Early Archaic period was more a continuation of established late Paleoindian broad-spectrum subsistence practices than a dramatic shift to new routines. Bands remained nomadic but appear to have exploited more restricted territories than their Paleoindian predecessors, making more repetitive visits to fewer strategic locations (Anderson 2013). Biface technology shows significant modifications from Paleoindian forms, adding hafting notches to basal, corner or side positions, with blades often exhibiting serrated or beveled edges. Notched points, such as Thebes, Big Sandy, Palmer, and Kirk types, are found widely distributed east of the

Mississippi River (Justice 1987). The addition of ground-stone implements to toolkits suggests that nuts and seeds had become an important component of Early Archaic diets. These adaptive modifications in subsistence practices were probably responses to increasingly dry conditions throughout the period. Climatic warming led to forest closure after 8000 BC and increasing dominance of northern hardwoods over Boreal conifers, producing a more favorable habitat for such species as white-tailed deer and elk. (Davis 1983, Snow 1980).

Pagoulatos reports 151 Early Archaic sites within New Jersey, of which 23 sites (15 percent), are located in the outer coastal plain (2003:27, Table 1). The Project Planning Regions contain six reported Early Archaic occupations, and the period is poorly represented within the Abbott Farm Complex located in the middle Delaware River Valley, 38 miles (61 km) west of the New Jersey coast (Wall et al 1996a:24).

Sea level rise continued though the Early Archaic and it appears likely that many sites from this period have been inundated, as paleoshorelines circa 9000 BP ranged from 20-50 miles (32-80 km) east of the current beachfront (Merwin 2010: Figure 5). Early Archaic sites in the Outer Coastal Plain (OCP) typically exhibit low density artifact scatters with a limited range of tool types. The Steel Site (28CM42), on a low terrace near the Great Harbor Bay, was an acorn processing station yielding a radiocarbon assay of 9530±60 BP (Stanzeski 1998:45). Site tools included two Palmer points, a jasper *pièce esquillée*, a limace, and three hammerstones. Sites yielding Kirk points included a knoll along a tributary of the Manasquan River (28MO57), along Westecunk Creek near Little Egg Harbor (28OC45), and from the Steel Site (28CM42) on Great Egg Harbor Bay. Kirk points from 28MO57 were manufactured from high-quality Reading Prong jasper, while those from 28OC45 were made of local pebble cherts, suggesting that Early Archaic resource procurement was a mix of collecting and foraging strategies (Pagoulatos 2003:26).

Middle Archaic Period (6000 to 4000 BC)

The Middle Archaic period roughly corresponds with an extended warm and dry interval during the mid-Holocene. This climatic trend established the oak-chestnut forest as the dominant vegetational cover in the region, although excessive drought conditions probably introduced grassland prairies to some inter-drainage uplands (Sassaman 2010:23). Whether tied to this environmental shift or independent of it, biface technology markedly changed from notched to stemmed forms at the onset of the Middle Archaic and include Morrow Mountain and Stanley stemmed varieties from the southeast and Stark and Neville points from New England (Justice 1987). This change of form in bifacial tools may reflect stylistic variations introduced by in-migrating groups, or a technological adaptation to a shifting resource base, or both.

Fishing and shellfishing are seen in the archaeological record toward the latter part of the Middle Archaic, as sea level rise slowed, and estuaries and riverine habitats stabilized. In the lower Hudson River, early shell middens have radiocarbon dates of circa 5170 to 4900 BC, coeval with Neville point horizon (Schaper 1989:16; Claasen 1996:104). While it appears unlikely that shellfish (or fish) had become a specialized focus of Middle Archaic subsistence, resident populations were nonetheless aware of these resources, and capable of exploiting them. The Middle Archaic is poorly represented in the region. Deep soil horizons containing a Guilford-like point are attributable to the late-Middle Archaic from Site 28-Me-1-D (Area D) at the Abbott Farm Complex near Trenton, New Jersey (Wall et al 1996b:14). The Dogan Point site on the lower Hudson River in Westchester County, New York, contained a basal Middle Archaic deposit of Neville points, dating roughly to 5000 BC (Claasen 1995:131).

A survey of 136 Middle Archaic period sites in New Jersey reports that 30 sites (22 percent) are located within the outer coastal plain, with three sites occurring within the TSP (Pagoulatos 2002a). The Turkey Swamp Site, located approximately 14 miles west of the Shark River Planning Region in Monmouth County, yielded several unfluted, large triangular points that bore the hallmark of late-Paleoindian culture, according to the excavators (Cavallo 1981). Radiocarbon assays associated with these points, however, indicate an early Middle Archaic occupation c. 7660±325 BP to 8739±165 BP (Grossman-Bailey 2001:222).

The West Creek Site (28OC45), noted above for its Early Archaic component, also contained a Middle Archaic locus of Kanawha points and scrapers. Though sea level rise had slowed significantly by the start of the Middle Archaic (Stanley et al. 2004), the site locale would have been several miles west of the shoreline during this period, with site activities likely focused on terrestrial rather than estuarine resources.

Late Archaic Period (4000 to 1000 BC)

The Late Archaic period is characterized by increased population (as inferred by larger and more numerous sites), the onset of long-distance trade networks, and an increased focus on riverine settings for site locations. Ceremonialism grew in importance, with more elaborate, formalized burial practices and the presence of exotic raw materials as symbols of enhanced status and rank (Fiedel 1992).

Extensive shellfish middens appeared in the lower Hudson River and lower Delaware River during this period, and freshwater shellfish were probably exploited along the Raritan River and other inland drainages (Claasen 1996; Kraft 1986:78). Shell harvesting in the lower Hudson River was intensively practiced from around 3500 to 2000 BC (Claasen 1996:104). Claasen speculated that large shell middens, like those found along the lower Hudson Valley, may have fostered colonization by native plants that were of economic interest to local groups, including sumpweed, goosefoot, and gourd/squashes, encouraging scheduled visits to these locales (Claasen 1996:105). This type of scheduled visit to exploit certain high value resources may have involved forays of task groups from an aggregated base camp located nearby. Social aggregation is thought to have occurred during warmer weather along floodplains, and proximal to lakes, streams, and wetlands. Toolkits associated with base camps would have included grinding stones, hammerstones, axes, celts, and other heavy-duty items. In contrast, the performance of specialized activities at task sites would be reflected generally in low artifact density and low tool diversity (Kraft and Mounier 1982:61-68).

The manufacture and use of small notched point and narrow stemmed point types was common across the northeast, exemplified by Vosberg, Brewerton, Lamoka, and Bare Island varieties. Each of these point types is visible in the archaeological record for at least a millennium, and in the case of Brewerton varieties for more than 1,500 years (Wall et al. 1996a; Justice 1987). Toward the latter part of the Late Archaic period, a suite of large points collectively termed broadspears saw wide distribution throughout the southeast and Middle Atlantic regions. In New Jersey, broadspear types include Koens Crispin, Susquehanna Broadspear, Snook Kill, and Perkiomen points. While there is general consensus that broadspear use began in the southeast circa 2500 BC and followed into the Middle Atlantic by 1800 BC, there is substantial disagreement on what this means. One model is that the broadspear tradition is a distinct ethnic style borne by migrating groups from the southeast who settled along major rivers and exploited the runs of anadromous fish (Turnbaugh 1975). Others (e.g., Custer 1984) contend that the various broadspear point types represented a functional tool form rather than an ethnic style, while the notion itself that anadromous fish played a major role in subsistence and settlement patterning during the Broadspear Late Archaic has been challenged (Carlson 1988; Sassaman 2010:159-161).

Appearing around the same time as broadspears, cooking vessels carved from the mineral steatite (also called soapstone) were in wide use across the eastern seaboard. Steatite was quarried from outcroppings in the Ridge and Valley province extending from Alabama to Maine, and fashioned into rectangular, straightsided vessels. Steatite use peaked from between circa 2000 to 1000 BC, although it is present in dated contexts as early as 4300 BC (Truncer 2004:506). Steatite vessel distribution is closely mapped to the area of nut-producing deciduous forests, and may have functioned as stone-boiling containers for processing hickory, oak, and other nuts (Truncer 2004:507). Steatite quarries, though absent from New Jersey, were abundant in eastern Pennsylvania and northern Connecticut, and significant numbers of steatite vessels and vessel fragments have been collected in New Jersey, with special focus along the Delaware River.

Pagoulatos (2006) reports 161 Late Archaic period sites in New Jersey, of which 20 (12 percent) are located in the outer coastal plain, with 12 sites occurring within the TSP. Thirteen cremation burial loci have been recorded with associated Late Archaic period artifacts in New Jersey, none occurring within the OCP (Pagoulatos 2006:35).

The dramatic decrease in sea level rise during the preceding Middle Archaic period fostered stable environmental conditions by the start of the Late Archaic for the establishment of anadromous fish runs into the coastal rivers and for shellfish colonies to mature within the estuarine and riverine settings. A cluster of Late Archaic sites on the Great Egg Harbor River suggests that fishing shellfish collecting had become an important focus of resource procurement. The Gravelly Run Site (28AT21), located on a prominent river terrace about 10 river miles upstream of Great Egg Harbor Bay, exhibits serial occupation by Late Archaic groups, with Brewerton, Lackawaxen, and Orient-fishtail components identified. The site functioned as a micro-band base camp and resource processing station. The presence of large quantities of local pebble and cobble cherts among the lithic assemblage led Grossman-Bailey (2001:243) to interpret residential mobility during the Late Archaic to have been limited to the drainage basins.

Looking more broadly at the coastal region, Grossman-Bailey (2001:237) suggests that by the Late Archaic period group territories and adaptive strategies had been established within what she terms three sub-regions representing north and central coastal zones, and Cape May. The northern coastal sub-region comprised the Manasquan River, Toms River and Barnegat Bay; the central sub-region included the Mullica River and Great Egg Harbor River drainages; and the Cape May sub-region encompassed the peninsula. Mounier (1997:20) observed that on Cape May, streams are short, tidal for their full length, and lack the environmental diversity of Atlantic slope drainages on the main Jersey shorefront. He hypothesized that subsistence activities on Cape May were focused on the coast and not on the streams, an adaptation he termed the "coastwise model of settlement." Only after the stabilization of estuarine and wetland settings circa 4000 BP, was Cape May able to support human populations, and Mounier pointed to the absence of sites on Cape May prior to the Late Archaic period as confirmation of this idea.

3.1.3 Woodland Period (1000 BC to AD 1500)

The Woodland period was a time of increasing cultural complexity and social stratification; increased reliance on gathered plant resources in the diet; and an increased trend in territoriality, circumscribed mobility, and semi-sedentary settlement patterning. The period is usually divided into subperiods: Early Woodland (1000 BC to AD 250); Middle Woodland (AD 250 to 900); and Late Woodland (AD 900 to 1600).

Early Woodland Period (1000 BC to AD 250)

The Early Woodland period marks the inception of widespread ceramic vessel use amidst a general decline in site numbers and population density across the Eastern Woodlands. Population decline may have been in response to climatic cooling that adversely affected game numbers and flora availability, or to epidemic disease (Fiedel 2001). The shift from soapstone to clay for utilitarian vessels did not, at first, radically change subsistence strategies or practices. This is inferred by the earliest pottery in the Middle Atlantic region, the rectangular, flat-bottomed Marcey Creek ware (circa 1500 to 900 BC), made in open imitation of soapstone vessels. It is likely that the two served much the function, rendering nut fats or bone grease. In comparison with steatite, pottery exhibited poor thermal properties and was far more liable to break, traits that may have initially discouraged its use. Clay had the advantage, however, of being available almost anywhere. If populations did decline at the onset of the Early Woodland period, then it is likely that the trade and alliance networks established during the Late Archaic had fragmented, disrupting steatite supply lines, and fostering its replacement with more easily obtainable clay. Ceramic technology, known but dismissed for almost a millennium in the Middle Atlantic region, was seemingly adopted to continue Late Archaic lifeways during a period of demographic and cultural crisis. Only later, did pottery's advantages (its portability, storage capability, and capacity to be shaped into many forms and designs), begin to transform cultural patterns in important ways.

In the Early Woodland, biface technology abandoned broadspears in favor of narrower forms, including the Orient Fishtail (1200 to 700 BC) and Meadowood (1000 to 500 BC) during the early phase of the period, with Rossville points common toward the end of the period. Vinette I, an exterior- cordmarked, conical-shaped ceramic vessel is associated with Meadowood and Rossville points (Williams and Thomas 1982:113). Rossville points and Vinette I ceramics have been found in association on Long Island at the Bowman Brook site. Excavations at the Abbott Farm Complex near the Delaware River at Trenton revealed a cluster of Early Woodland hearths and stone-boiling features, interpreted to have functioned as fish processing stations. Associated with these features were Vinette I sherds (Wall et. al. 1996b:363-365). Early Woodland horizons at Abbott Farm also contained Marcey Creek wares.

The hypothesized population decline of the period correlates with a paucity of sites regionally; 11 Early Woodland sites have been identified within the OCP, with 4 sites occurring within the TSP (Pagoulatos 2002b). The Avalon Country Club Site (28CM25) occurs on a small tributary of Deep Creek adjacent to the tidal marsh that divides Great Sound and Stites Sound. Its Early Woodland component includes Rossville and Meadowood points, and a radiocarbon assay of 2740±70 BP (Grossman-Bailey 2001:275). Extensive excavation of the site was performed avocationally during the early twentieth century with little documentation of site context. The Cieba-Geigy Site (28OC190), on a terrace of the Toms River approximately 9 miles (14 km) upstream of Barnegat Bay, yielded two Meadowood points, one made of Onondaga chert. The presence of stone from northern New York suggests site inhabitants may have been involved in long-distance trade networks.

Middle Woodland Period (AD 400 to 900)

The Middle Woodland period marks the appearance of the first truly large shellfish middens in southern coastal New England and Long Island (Bernstein 1993). Cross noted that shellfishing along the New Jersey coast had become a major economic enterprise during this period (1956: 194). The expansion of the resource base is paralleled by an increase in the number of storage pits noted in the archeological record (DeBoer 1988, Snow 1980:282). During this period, settlement patterns have a decidedly riverine and coastal focus (Kraft 1986:105-107, Williams and Thomas 1982:122). Large lithic workshops and anadromous fish processing camps from this period were excavated at the Abbott Farm Complex near Trenton (Cavallo 1987, Wall et al. 1996b). Associated point types of this period include Fox Creek stemmed and lanceolate forms, found at sites in the middle Delaware River valley and tributary drainages, including Abbott Farm and Plenge.

Trade and exchange networks flourished during the Middle Woodland, especially in areas influenced by the Hopewell tradition in the Midwest and Ohio Valley. Some Hopewellian manifestations are visible in western New York in the form of mortuary practices and artifact types of the Squawkie Hill Phase (Ritchie 1980:214-227), and while there is little evidence of this in New Jersey, there are suggestions that Middle Woodland groups utilized down-the-line exchange in both directions; mid-Atlantic coast shells have been found in the Ohio Valley, and Hopewell-like platform pipes occasionally appear in the east (Stewart 1989:60-63; Stewart 1998:170-171). Stewart (1995) proposed that the Middle Woodland settlement territory in the lower-middle Delaware Valley encompassed the northern OCP, including the Shark River Planning Region and portions of the Northern Planning Region.

Presently, no evidence exists for maize horticulture in the northeast during the Middle Woodland period. Native, starchy seeds, including goosefoot (*Chenopodium berlandieri*), maygrass (*Phalaris caroliana*), knotweed (*Polygonum erectum*), sumpweed (*Iva annua*), and sunflower (*Helianthus annuus*), began to appear in site assemblages across eastern North America in the Late Archaic and Early Woodland periods, and with some frequency by AD 100 (Fritz 1990). The presence of these nutritious seeds suggests that people were collecting them, and perhaps fostering conditions for their production, even tending small garden plots. This small-scale practice of horticulture complemented the principal hunting, foraging, and fishing strategies that fed people, and importantly, it laid the framework for the types of social organization and technological requirements that would be needed when maize was eventually adopted as the primary (or at least important) food resource along the Susquehanna, Delaware, and Hudson River drainages.

A review of site data identified 19 Middle Woodland sites within the OCP, of which 15 occur within the TSP (Pagoulatos 2004b: Table 1). The majority of these sites are short-term resource procurement and hunting camps, and tend to cluster along the Manasquan River, Barnegat Bay, the Mullica River, and Great Egg Harbor Bay. Elsewhere within the Planning Regions, micro-band base camps are found on Great Sound and Little Egg Harbor. Site 28OC60, located near Great Sound, contained Fox Creek points with a wide diversity of chipped and ground tools, along with features and burials, and radiocarbon dates of AD 140 and 420. Near Little Egg Harbor, the Pennella Site (28OC80) contained pits and hearths with dated Fox Creek contexts of 1530±65 BP and 1810±50 BP (Grossman-Bailey 2001:305). The B.L. England Site (28CM32) near Little Egg Harbor yielded a radiocarbon date of 1670±50 BP, consistent with its Fox Creek points; Jack's Reef points were also recovered, indicating a late-Middle Woodland occupation (Pagoulatos 2004b:29). The Tuckerton Shell Mound (28OC4), near the outlet of Tuckerton Creek into Little Egg Harbor, was noted by Skinner and Schrabisch (1913) in the early twentieth century and later excavated by Dorothy Cross. When examined by Cross (1940) the mound measured 10 feet (3 meters) in height and consisted largely of quahog shell (hard-shell clam), with a minority of oyster found toward its base. Later excavations returned radiocarbon assay on quahog of 1530±55 BP (Grossman-Bailey 2001:303).

Late Woodland Period (AD 900 to 1600)

Important cultural adaptations during the Late Woodland period have been archeologically recognized on a wide scale in New Jersey, and include the tending of cultigens (maize, beans, and squash), decrease in residential mobility, and use of the bow and arrow as a new and highly efficient hunting (and warring) weapon. These adaptations are perhaps all related to the region's population rise, with increased competition for resources and an intensification of local ethnic identity.

Maize agriculture was adopted by many Eastern Woodlands groups as their principal subsistence strategy between AD 900 to 1100, but its adaptation was not uniform especially in the Middle Atlantic and New England regions (Fritz 1990). Colder climate and a shorter growing season in the northeast may have proven sub-optimal for the eight-row maize that was grown effectively in the southeast and lower Midwest. Abundant fish and shellfish resources along coastal and estuarine environments may have lessened the need and desire to shift to an unpredictable labor-intensive subsistence strategy based on maize cultivation. Although some evidence of maize production dating to circa AD 990 was identified in the mid-Hudson Valley and from AD 1250 on the Housatonic River in Connecticut (Cassedy and Webb 1999), most researchers suggest that maize was not cultivated in coastal New York until as late as AD 1500, or even after initial European contact (Ceci 1990; Lavin 1988). The Project Area is similar to these coastal zones, and likely supported minimal maize horticulture during the Late Woodland period. No preserved domesticates or village sites have been identified in the outer coastal plain of New Jersey (Pagoulatos (2001:220; Thomas et al. 1998:26).

Inhabitants of New Jersey, eastern Pennsylvania, and southeastern New York were members of the Lenape, an Algonquian language group, divided between Munsee dialect-speakers north of the Raritan River, and Unami-speakers to the south (Kraft 1986). In sharp contrast to neighboring groups that were hierarchically organized into tribes (Iroquois to the north and Susquehannocks to the west) or chiefdoms (the Powhatan in Tidewater Virginia), the Lenape were loosely organized into autonomous villages of several related families. The Lenape are often described as an egalitarian band-level social organization and refrained from fusing into higher-order associations typically headed by a powerful individual. Alliances between autonomous bands, when they existed, tended to be short-term coalitions (Grumet 1979:26-28).

The Unamis constructed conical-shaped vessels with cord-marked surface treatment, a trait shared with groups from the Delmarva Peninsula. Multiple Late Woodland-Unami occupations were recorded at the Sturgeon Pond Site (28-Me-114) near Trenton. Site ceramics include a range of tempers, surface treatments, and decorative styles; the prevalent vessel type consists of fine sand and grit temper, smoothed surface treatment, and a mixture of incised, punctated, and cord-wrapped decorations (Kraft 1986; Wall and Stewart 1996).

In his survey of 302 Late Woodland sites in New Jersey, Pagoulatos reported that 74 sites (25 percent) are located in the OCP, of which 49 sites occur within the TSP (2001:215). Late Woodland settlement in the OCP was clustered along back bays on the Atlantic coastline and along the Maurice and Cohansey rivers, on the Delaware Bay shore (Grossman-Bailey 2001:311). No evidence of permanent hamlets in the region has been identified, likely confirming the absence of maize horticulture as a subsistence pursuit.

The Avalon Country Club Site (28CM28) occurs on a knoll or terrace adjacent to Great Sound and comprises a shell mound and pit features containing pottery, bone, and shell. Fabric impressed pottery was associated with charcoal yielding a radiocarbon date of 710±70 BP. Nutshell within a pit suggests an autumn occupation. Two sites near the Tuckerton Shell Mound, Osborne Island (28OC76) and Wells Island (28OC101) contained burials and oyster middens, including some quahog and mussel shell. At Osborne Island, a human burial was interred with faunal remains of deer, otter, tuna, sea bass/bluefish, turtle, turkey and goose (Grossman-Bailey 2001:327). The variety of fauna suggests that the locale was environmentally rich, obviating the need for labor-intensive maize horticulture.

3.1.4 Contact Period (AD 1500 to 1700)

European mariners visited the New Jersey coast during the sixteenth century lured by furs, fish and other trade items. While employed by the Dutch East India Company to search for a northwest passage to Asia, the English mariner Henry Hudson sailed along the New Jersey coastline in 1609 and made the first reported contact with Native Americans in New Jersey. He noted friendly encounters with people living along the river but demonstrated an ambivalence toward them that came to characterize mutual relationships between Euro-Americans and Native Americans:

"They appear to be a friendly people, but have a great propensity to steal, and are exceeding adroit in carrying away whatever they take a fancy to" (Hudson cited in Johnson 1995:116).

In 1612 the Dutch established a fort on Manhattan Island to trade for furs with groups upriver. Two years later the Dutch established Fort Orange on the Hudson River near present day Albany, opening trade with the Mahican and Mohawk groups, and in 1621 formed the Dutch West India Company to regulate the increasingly profitable economic relations between settlers and Native Americans. During this period, French inroads to the St. Lawrence valley and English settlement of New England introduced intense trade competition among the three European powers in North America and exacerbated existing hostilities among Native American groups and between Euro-Americans and Native Americans (Taylor 2001).

Documentary evidence indicates that Lenape bands did not practice maize agriculture, but rather relied on a foraging strategy that included hunting, fishing, and the collection of starchy seeds (Becker 1999:47). Not until pressed by the mounting exchange between Europeans and the Susquehannocks, did Lenape cultivate maize in quantities beyond small garden plots.

Forty-four contact period sites are recorded in New Jersey (Pagoulatos 2007). Site size varies greatly, from the hundreds of burials and trade items at the Minisink Site on the upper Delaware River, to small scatters. The common element of early contact period sites is the mixture of chipped stone artifacts and/or native pottery with European trade items. The extensive nature of urban development along the Jersey shore certainly plays a role in the paucity of Contact period trade goods and sites from the region. A cluster of sites along the upper Delaware River (Miller Field, Harry's Farm, Minisink, and Pahaquarra), has yielded a number of Contact period artifacts, including brass, silver, and iron items, plus beads, gun flints, and glass bottle fragments (Kraft 1989:91-92). Twenty-three Contact period sites have been identified within the Project Planning Regions, of which five sites occur within the TSP, including the Brielle Site on the Shark River, the Mays Landing Site, Pennella Site (28OC 80), and West Creek Site (28OC45) on the margins of Little Egg Harbor, and the Steel Site (28CM42) near Great Egg Harbor Bay. The Mays Landing Site

contained stone triangle points, and a variety of European goods including iron axes, kaolin tobacco pipes, brass kettle fragments, gun flints, and Bellarmine stoneware sherds, indicating an early-mid seventeenth century occupation (Pagoulatos 2007:33). The Contact component of the West Creek Site consisted of a mix of Native American and European goods, including native pottery, pipe bowls, and stone tools, Westerwald and Rhenish stonewares, bottle glass, copper kettle fragments, and coins among other items (Fink 2011:59). Analysis of the spatial distribution of artifacts convinced the excavators of interaction between Native Americans and settlers, rather than non-contemporaneous site occupations (Fink 2011:62).

3.2 HISTORIC CONTEXT

Historic contexts are a useful tool for identifying and managing historic properties in the Project Area. These contexts track patterns and trends based on common cultural themes, geography, and chronology. The contexts relevant to this Phase IA investigation are drawn from the coastal zone of New Jersey and characterize water-oriented property types and subsistence activities. The history of coastal New Jersey can be divided into five overlapping periods: Exploration and Frontier Settlement (Seventeenth Century to 1780), American Independence and Early Industrialization (1776–1830), Coastal Trade (1780–1880), Tourism and Resorts (1850 to 1950), and Suburbanization and Man-Made Lagoons (1950-present).

3.2.1 Exploration and Frontier Settlement (Seventeenth Century to 1776)

Euroamerican colonization of coastal New Jersey began toward the end of the seventeenth century, several decades after the settlement of the Piedmont interior. The region was initially part of the hinterland between the Dutch colony of New Netherland, founded in 1626 along the Hudson Valley and the colony of New Sweden along the Delaware Valley, established in 1638. Shallow channels and ever-shifting shoals made the Jersey coast a less favorable anchorage for settlement and trade than those available on the Delaware and Hudson rivers. In 1655, the Dutch absorbed New Sweden into their realm and claimed jurisdiction to Long Island and land between the Connecticut, Hudson, and Delaware rivers, though settlement under the Dutch flag was never established along the New Jersey coast (Lurie and Mappen 2004:392, 525, 581).

The Dutch colony was effectively extinguished by the arrival of an English naval fleet in 1664, which was sent to enforce England's rival territorial claim to the region. Following the English takeover of New Netherland, the lands between the Hudson and Delaware rivers that today comprise New Jersey began a tortuous transfer of title from the Duke of York to Sir George Carteret and Lord John Berkeley, and thence to two groups of investors termed the Proprietors. The Proprietors gained control, respectively, of the eastern and western portions of the territory known as New Caesarea or New Jersey and established the separate provinces of East Jersey and West Jersey in 1676. Unsettled survey boundaries between the provinces resulted in many disputed land grants and overlapping claims of ownership. Following the death of Carteret in 1685, his land was sold off in pieces to pay off his debts. Adding to the confused issue of land ownership were parcels purchased (or taken) directly from the Lenape and beyond the Proprietors' control. A formally surveyed line running from Little Egg Harbor northwestward to the Delaware River, split the two territories in 1687, becoming known as the Keith Line (Snyder 1969:9). A portion of this line divided Monmouth County from Burlington County. Monmouth County ultimately shed its portion of Keith Line lands when the state legislature created Ocean County in 1850. The proprietors gave up their governance rights in 1702, and New Jersey became a royal colony. Its Provincial Congress declared the colony to be an independent state in 1776 (Lurie and Mappen 2004:29, 90, 123-124, 231, 375-376, 582, 863; Snyder 1969).

The first permanent European settlers in Monmouth County arrived soon after the transfer of power from Holland to England, and by 1670, English settlers from Long Island and Rhode Island had established the towns of Shrewsbury and Middletown through the purchase of the Monmouth (Navesink) Patent, a tract incorporating much of present-

day Monmouth County (Ellis 1885:63; Hodges 1997:3). Efforts to recruit Scottish settlers led, in the 1680s, to the establishment of Freehold, and was followed by the migration of New York Dutch to the county (Wacker 1982:199).

Counties within the Study Area that were established during the Colonial period include Burlington (1681), Monmouth (1683, and Cape May (1685); Atlantic County was formed out of Gloucester County in 1837, and Ocean County from Monmouth in 1850. The relative lateness of Atlantic and Ocean counties reflects their slower development and sparser populations than elsewhere in southern New Jersey. Settlement of the area south of present-day Monmouth County occurred slowly during the early eighteenth century, in part because coastal soils were nutrient deficient and not conducive to agriculture. In addition, the Atlantic slope rivers are short, shallow and tend to drain into the back bays rather than directly into the ocean, making them generally unsuitable for all but shallow draft boats.

3.2.2 American Independence and Early Industrialization (Mid-Eighteenth Century to Mid-Nineteenth Century)

During the American War of Independence, Monmouth County was the scene of one major battle and numerous skirmishes. Although the county was not of great strategic value overall, it did lie in the path of the British army after its evacuation of Philadelphia and march to New York City. On June 28, 1778, Washington's forces attacked the British rearguard at Monmouth Courthouse, in the present town of Manalapan Township. Considered a tactical draw as the British were able to disengage and withdraw to Sandy Hook, the Battle of Monmouth represented the most sustained action of the war and the last major battle in the north (Coakley and Conn 1975:65-67; Munn 1976).

Loyalty to the British Crown ran high in Monmouth County and many residents joined the Royal Volunteers militia or provided British forces with aid. Skirmishes and raids on food stocks were common in the county especially around the towns of Shrewsbury and Middletown from the beginning of the war until 1780 (Ellis 1885:200-207).

The British naval blockade of the rebellious colonies cut off Americans from vital goods not available locally, including salt, iron, and cotton and woolen fabrics. Salt was used extensively for food preservation and curing animal skins, as well as an ingredient in medicines and fertilizers. With no domestic sources of salt, the Americans were entirely dependent on the British, importing more than 750,000 bushels in 1770. Recognizing the importance of salt to the war effort, the Continental Congress and several states financed or subsidized the construction of salt works along the coast. During the Revolutionary War, at least 17 salt works were built along the New Jersey shore. Pennsylvanian state authorities funded the Pennsylvania Salt Works on the Toms River; other major works included the Union Salt Works in Manasquan, the Shark River Salt Works in Belmar, and the Cooper-Little Salt Works in Little Egg Harbor. Salt production was beset by labor difficulties (the New Jersey Assembly refused to exempt salt workers from military duties), and by British actions against the works. In the Spring of 1778, British raiding parties destroyed the Shark River, Forked River, and Union works, and over the course of the war damaged or destroyed nine of the salt works in New Jersey (Adelberg 2013:227, 231; Salter 1890:84, 423). American efforts to build a salt industry during the war were the first large-scale developments along the New Jersey coast, and though salt consumption resumed its reliance on British imports after the war's conclusion, the infrastructure of warehouses, wharves, and roads remained and brought people to the coast in large numbers for the first time.

Modest quantities of iron ore, in the form of bog iron, had been identified in the OCP since the second half of the seventeenth century. Small forges and foundries utilized the available ore, lime for flux, charcoal, and water-power, satisfying some local demand for iron implements, still largely reliant on British imports. The British naval blockade of American ports created a great demand for local iron. Established in 1766, the furnace at Batsto, in Burlington County, thrived during the Revolutionary War, producing materiel for the Continental Army and employing up to 125 men. Iron production at Batsto was possible because of the proximity of ore, lime for flux, charcoal for fuel, and water-power from the Batsto River. The furnace and foundry remained active until the 1850s, and Batsto village supported a sawmill, gristmill, lime kiln, charcoal house, and worker

housing for 500 people. With the collapse of the bog iron industry due to competition from more abundant iron sources in the New Jersey Highlands and western Pennsylvania, glass making briefly replaced iron at Batsto. Abundant sand deposits throughout the OCP provided the principal ingredient for glass, and southern New Jersey became a major center for that industry. Locally, in addition to Batsto, glass manufacturing occurred in Green Bank on the Mullica River (Wilson 1970; Woodward and Hagerman 1883:449).

Aside from iron, other extractive industries in the region involved timber and charcoal. Water-powered sawmills were built on most streams and rivers, exploiting the abundant forests in the OCP, especially white cedar (*Thuja occidentalis*) found in the wetlands. In Ocean County, early sawmills were established on Cedar Creek (1740), Kettle Creek (1742), and the Toms River (1750). In Cape May County, 16 sawmills were recorded by 1830. When over-cutting had exhausted the supply of timber for structural lumber, the remaining wood was exploited for pitch tar and charcoal. Steamboats, introduced into the coasting trade in the 1840s, were powered by pine cut from available stands. Shell for lime kilns was "quarried" from the many middens and mounds left from Native American use of clams, oysters, and other shellfish (Harper 2013:306; Salter 1890:100; Stevens 1897:258; Willis and Balliett 1915:93).

Slaveholding in Monmouth County was a key factor in local farm and industrial economy from early colonial settlement through the 1820s. The 1738 provincial census enumerated 655 enslaved persons in the county accounting for 10.8 percent of the total population. A half-century later in the 1790 federal census, slave numbers had increased sharply to 1,596, or 8.2 percent of the county population. Important causes for slaveholding as an economic engine were the Monmouth Patent's grant to patentees of 60 additional acres per servant, New Jersey's elimination of tariffs on slaves, and the propensity for slave ownership among the Dutch who settled in sizeable numbers in the 1690s (Wacker 1975:251; Hodges 1997:15). Though in decline by the early nineteenth century, the 1,248 slaves counted in 1820 continued to be economically important to the county. Not until 1860, on the cusp of the Civil War, did the census record no slaves in Monmouth County (Wright 1989: Appendix 3).

3.2.3 Coastal Trade (Early Nineteenth Century to Early Twentieth Century)

New Jersey's 130 miles of Atlantic Ocean coastline presented opportunities and obstacles for settlement and trade. Its coastal resources of timber, iron, and fish were well situated between the major urban centers and ports of Boston, New York, and Philadelphia, yet the shallow inlets and intracoastal waterways of the New Jersey coast allowed only shallow draft boats of modest size to ply its waters. The dynamic nature of the coastal zone could close inlets permanently, as happened to the Cranbury Inlet opposite the Toms River in 1812, or shift the location and depth of off-shore shoals.

None of the outlets to the sea in Monmouth County are navigable by large ships, leaving the county without a sheltered deep-water port. Despite this disadvantage, northern Monmouth County conducted much trade in farm produce with the New York market, particularly eggs and butter (Wacker and Clemens 1995:210). Great quantities of cordwood were also supplied to New York from Monmouth County (Wacker and Clemens 1995:71). Shallow-draft sloops participating in this trade anchored at Red Bank, Oceanport, Branchport, Shark Island, and Manasquan along the Atlantic coast inland waterways. South of Bay Head in Ocean County, the nearly continuous presence of barrier islands to Cape May provides sheltered bays on their landward side but few direct routes to the inland rivers. The exception to this is the Great Egg Harbor River, where the river port of Mays Landing in Atlantic County is situated at the head-of-tide, approximately 12 miles from Great Egg Harbor Bay.

Despite its various navigational disadvantages, a substantial coastal trade flourished in the OCP, supplying raw materials (salt, iron, lumber, pitch tar) to seaboard urban centers, and consumer goods to the small ports and entrepôts that developed within the shore region. Shipwrights built hundreds of shallow-draft sloops for the coastal trade at Mays Landing (Atlantic County), Tuckahoe and Dennis (Cape May County), Tuckerton (Burlington County), and at Forked River and Toms River (Ocean County). These craft were designed to carry heavy cargo through the shallow inlets and channels of southern New Jersey and elsewhere along the eastern seaboard. Even well designed,

maritime travel was often perilous prior to radar, radio, and steel hulls, and shipwrecks were common. Since antiquity, lighthouses have been built as aids to maritime navigation. By the early 1900s, up to 40 light stations—lighthouses, lightships, and range lights were located along the New Jersey coastline, from Sandy Hook Lighthouse in the north to Cape May Lighthouse to the south (Claesson 1997:46; Salter 1890:lxii; Stevens 1897:258). Table 1 presents information on the extant lighthouses.

Table 1. Extant Lighthouses within Planning Regions along the New Jersey Atlantic Coast, north to south.

Name	Date Built	Operational Period	Beacon Range (nautical miles)	Planning Region	NRHP Status
Sea Girt Lighthouse	1896	1896-1954	15 nm	Coastal Lakes	Unevaluated
Barnegat Lighthouse	1857	1857-1944	22 nm	North	Listed
Absecon Lighthouse	1857	1857-1933	19.5 nm	Central	Listed
Hereford Inlet Lighthouse	1874	1874-present	13 nm	South	Listed
Cape May Lighthouse	1859	1859-present	24 nm	South	Listed

Sources: LUCY-data retrieved in 2021, NPS-data retrieved in 2021

The lighthouses and light stations were intended not to prevent, but to minimize, the loss of ships at sea. Between 1850 and 1900, more than 2,350 ships were lost off the coast of New Jersey, with a loss of life of 1,895 individuals, and estimated ship value of $26 million and cargo value of $15 million. In 1880 alone, 70 ships foundered. Acknowledging the cost in lives, the U.S. Congress appropriated funds for the construction of life saving stations along the New Jersey coast in 1848. In 1878, the U.S. Life Saving Service (USLSS) was established within the Department of the Treasury to create and staff saving stations along the coastlines of the Atlantic and Pacific Oceans, the Gulf of Mexico, and the Great Lakes. Forty stations were built along the New Jersey shoreline. In 1915, the USLSS and U.S. Revenue Cutter Service were merged to form the U.S. Coast Guard. Table 2 presents information on the 13 extant life-saving stations on the New Jersey Atlantic coast (NJ Maritime Museum 2021).

Table 2. Extant U.S. Life Saving Stations within Planning Regions along the New Jersey Atlantic Coast, north to south.

Name	Built	Operational Period	Planning Region	Within TSP	NRHP Status
Sta.#9/ Manasquan	1936	1936-present	North	No	Listed
Sta.#13/ Toms River	1872	1872-1964	North	No	Eligible
Sta.#14/ Island Beach State Park	1849	1849-1946	North	No	Listed
Sta.#16/ Forked River	1854	1854-1915	North	No	Eligible
Sta.#17/ Barnegat	1872	1872-present	North	No	Eligible
Sta.#20/ Ship Bottom	1872	N/A	North	Yes	Unevaluated
Sta.#21/ Beach Haven	1849	1849-1946	North	No	Unevaluated
Sta.#23/ Little Egg Harbor	c. 1856	c. 1856-1964	North	Yes	Eligible
Sta.#30/ Ocean City	1886	N/A	Central	No	Listed
Sta.#32/ Corson's Inlet	1899	N/A	South	Yes	Unevaluated
Sta.#34/ Townsend Inlet	c. 1872	c. 1872-1939	South	yes	Unevaluated
Sta. Avalon	1894	1894-1948	South	No	Listed
Sta. North Wildwood	N/A	N/A	South	Yes	Eligible

Sources: LUCY data retrieved in 2021, USCG data retrieved in 2021

Commercial fishing in New Jersey waters has had a close association with the coastal trade and with the settlement of the coastal region. The bayshore, tidal creek, and near-shore locales were rich environmental settings for fin fish and shellfish, and proximity to New York and Philadelphia markets ensured a substantial trade and spurred the development of a shipbuilding industry. Most nineteenth century inhabitants of bayshore towns such as Tuckerton, Absecon, Barnegat, Port Republic, and Waretown were involved with the fishing industry, as fishermen, processors, shippers, boatwrights, or shipchandlers. Oystering and clamming were particularly important to the town of Tuckerton, which supplied large quantities of hard clam to market. Pound fishing, or the use of weirs and nets to trap fish immediately offshore, was a common method of fishing during the nineteenth and first half of the twentieth centuries, and occurred near Manasquan, Point Pleasant, Mantoloking, Sea Isle City and Cape May. Commercial fishing remains important, contributing more than 2.5 billion dollars to New Jersey's economy (Mazzagetti 2018:213; NOAA 2021; Stevens 1897:258).

3.2.4 Tourism and the Jersey Shore (Early 1800s to Present)

From the early 1800s, wealthy Philadelphians traveled overland to the Jersey Shore for sea bathing and vacationing. With the introduction of rail service mid-century, large numbers of urban dwellers from across the New York and Philadelphia regions could easily travel to seaside towns, ranging from Sandy Hook to Cape May. Long Branch, Atlantic City, and Cape May City became some of the premier seaside resorts on the eastern seaboard, attracting the upper and middle classes to a diverse array of hotels, boarding houses, and eateries. By the late nineteenth century most of New Jersey's Atlantic shoreline had been developed as seaside communities catering to summer tourism. Much of the impetus in the growth of these shore communities was from real estate developers who purchased large tracts of the barrier islands, divided them into lots, built houses, hotels, and amusements, and vigorously marketed the Jersey shore as a resort and second-home destination. Boardwalks and amusements at Asbury Park (Monmouth County), Seaside Heights (Ocean County), Atlantic City (Atlantic County), and Wildwood (Cape May County) led to huge growth in these towns geared toward middle class visitors. Elsewhere on the shore, as at Allenhurst (Monmouth County), Bay Head (Ocean County), and Stone Harbor (Cape May County), expensive dwellings were built and marketed for the professional class seeking seaside homes set apart from the holiday crowds (Mazzagetti 2018:67-75; Stansfield 1998:237-242).

By the first decade of the twentieth century, access and cost of travel to the Jersey shore had come within reach of a vast section of the urban dwellers of the northeast, including much of the working class. The Pennsylvania Railroad recorded more than a million passengers to Atlantic City in 1904, and hundreds of thousands of people visited the other resort towns along the New Jersey coastline. Much of the coastal region reached full build-out by the end of the first quarter of the twentieth century as population shifted from the mainland to the shore area and tourism thrived. By 1950, all of the barrier islands, with the exception of the ten miles of Island Beach State Park on the Barnegat peninsula, were densely developed. After the Second World War, however, the conditions that had fostered the ascendence of the Jersey shore changed, and the large resort towns began a decline that accelerated into the 1970s. The causes for this decline included the shift from train to automobile and air travel which presented potential beach vacationers with a vastly wider choice of destinations, including the Caribbean and Florida. Equally important were the limits to new development on the narrow barrier islands; by 1930, much of the housing and hotel stock had become aged and worn, and less appealing to upper class clientele who by then had abandoned Atlantic City, Asbury Park and Cape May for more discerning locales. Compare this situation to that of Las Vegas, which when confronted with an aging "Strip" in the early 1980s simply expanded into the desert (Mazzagetti 2018:74, 250; Stansfield 1998:243-247).

Paralleling the development of seaside tourism was the growth of a Christian revivalist movement that encouraged the mass assembly of faithful at outdoor settings, called camp meetings. Largely spurred by Methodist preachers, these outdoor camp meetings became a highly popular summer destination for Christians interested in combining spiritual

salvation with the spirit of vacationing (Parker 1980:184). Perhaps the most famous and enduring camp meeting was established by Methodists at Ocean Grove, New Jersey, in 1869 (Ellis 1885:853). Other Methodist-inspired towns include Ocean City in Cape May County and Island Heights in Ocean County. Ocean City began in 1880 as a Methodist retreat, but soon disassociated itself from the church and became established as a destination resort (Willis and Balliett 1915:445).

3.2.5 Suburbanization and Man-Made Lagoons (1950 to Present)

The Suburbanization period (1950-present) of the New Jersey coast is characterized by the marked growth in vacation home and retirement communities. This growth coincided with the decline of the traditional resort-based destinations, such as Atlantic City, that had dominated the shore region since the mid-nineteenth century. While overall, New Jersey's population grew by 92 percent between 1950 and 2020 to almost nine million, the four shore counties of Atlantic, Cape May, Monmouth, and Ocean[1] registered a combined increase of 265 percent during the period, emerging as the state's "Sun Belt" (Table 3). The real engine of this population rise was Ocean County, which witnessed a greater than ten-fold increase, moving from the sixteenth to fifth most populous county in the state. Much of Ocean County's population increase occurred within the back bays of the North Planning Region, especially in the townships of Berkeley, Brick, Lakewood, and Toms River.

Table 3. Population Data for Atlantic, Cape May, Monmouth, and Ocean Counties, 1950-2020.

Year	County				
	Atlantic	Cape May	Monmouth	Ocean	New Jersey
1950	132,399	37,131	225,327	56,622	4,835,329
1960	160,880	48,555	334,401	108,241	6,066,782
1970	160,880	59,554	461,849	208,470	7,171,112
1980	194,119	82,266	503,173	346,038	7,365,011
1990	224,327	95,089	553,124	433,203	7,730,188
2000	252,552	102,326	615,301	510,916	8,414,350
2010	274,549	97,265	630,380	576,567	8,791,894
2020	269,534	95,263	643,615	637,229	9,288,994
% Increase 1950-2020	104	148	186	1,025	92

Source: NJ Dept of Labor 2001; US Census Bureau 2020

With the coastal barrier islands reaching full build-out by the early 1950s, developers looked to the back bays for areas to build single-family housing. By dredging waterways and filling land on the *spartina* marshes, developers created what has come to be called man-made lagoons:

"Man-made lagoon" means an artificially created linear waterway sometimes branched, ending in a dead end with no significant upland drainage. Lagoons have been created through dredging and filling of wetlands, bay bottom and other estuarine water areas for the purpose of creating waterfront lots for residential development adjacent to the lagoon (N.J. Admin. Code § 7:7-1.5).

These developments were popular because every house was accessible by automobile and boat. Ranging in size from several acres to more than one thousand acres, as many as 58 separate man-made lagoon developments, comprising some 7,000 acres, dot Ocean County within the North Planning Region, the great majority of them on the western margin of Barnegat Bay. Several more man-made lagoons are present in the Central and South Planning Regions,

1 Though partially within the North Planning Region, Burlington County's principal population centers are along the lower Delaware Valley.

encompassing approximately 7,400 acres in total and supporting around 35,000 dwellings. Work on these lagoon developments started in the 1950s and largely halted in the 1970s with the enactment of the Coastal Zone Management Act of 1972 (16 U.S.C. 1451) and the Coastal Areas Facility Review Act (N.J.S.A. 13:19), which applied stricter building regulations to coastal zones. Situated only a few feet above the high-water line in the back bays, the two largest lagoon developments, Mystic Island in Little Egg Harbor Township (760 acres) and Beach Haven West in Stafford Township (1,020 acres), together contain some 8,900 residential structures and are situated within the non-structural TSP.

4.0 EXISTING CONDITIONS

4.1 LANDFORMS AND SOILS

The Project Area consists of four Planning Regions--Shark River, North, Central, and South--extending across portions of five counties: Monmouth, Ocean, Burlington, Atlantic, and Cape May, from north to south. South of Bay Head in Monmouth County, the shoreline is fronted by a series of long, narrow barrier islands comprising sandy beaches with sand dunes on the ocean front to the east and backed by salt marshes facing shallow bays to the west. Inlets between the islands provide access to the back bays. On the coastal mainland, *spartina* salt marshes and tidal estuaries predominate the landscape. The entire Project Area is contained within the OCP physiographic province, a region characterized by low relief with elevations rarely exceeding 100 feet above mean sea level (amsl), sandy soils, and unconsolidated sediments. The major soil associations are: Fripp-Psamments and Urban Land on the barrier islands; Manahawkin-Atsion-Berryland sands on the mainland lowlands; and, Sulfaquents-Udothents-Psamments on the tidal flats and marshland. The suite of native soils derive from the Cohansey Formation, nutrient-poor beach and nearshore deposits of sand laid down during the Miocene epoch, around 10 to 15 million years ago during an extended episode of ocean transgression onto the continental margins. The coarse quartz sands of the Cohansey Formation are highly permeable, resulting in low available water capacity and droughty conditions. Cape May is characterized by truncated Cohansey Formation surfaces, as sands were alternately deposited during sea level transgressions and eroded during periods of sea level fall (Grossman-Bailey 2001:13, 30; Harper 2013:231, 306; Mounier 1999:98; NRCS 2021).

4.2 PROCESSES OF SHORELINE CHANGE

The Atlantic coast shoreline is a highly dynamic system subject to sea-level rise, land subsidence, wave effects, storm impacts, and human inputs. Sea levels worldwide have risen up to 130 meters since the onset of Wisconsinan deglaciation, circa 16,500 years BP, with most of this increase occurring prior to 6700 BP. Subsequently, although the rate of sea level rise has decreased, the volume of ocean water has continued to increase; worldwide measurements indicate an accelerating rate of sea level rise over the past 100–150 years (Lambeck 1990:205; Lambeck et al. 2014:15302). Sea level measurements taken at Atlantic City show a rise of 3.8 millimeters (mm)/year over the past 100 years, with a current trend (1992–2009) in Delaware Bay closer to 5 mm/year (Stanley et al. 2004:2; USFWS 2015:90). The local effects of sea level rise are amplified by the ongoing process of land subsidence in the Mid-Atlantic region, estimated to be approximately 1.7 mm/year in Delaware (Boon et al. 2010:18).

In the low-lying Atlantic Coastal Plain, sea level rise has caused marine transgression and the inundation of the continental shelf, with 3 to 4 miles of shoreline retreat on the Atlantic coast over the past 5,000 years (USFWS 2015:32). As the mid-Holocene rate of SLR slowed and the coastal environments stabilized, the effects upon the shoreline by wave energy, sediment circulation, and storm surges, increased. One of the products of these increases was the development of coastal barrier islands, caused by the erosion of sand and gravel from exposed Pleistocene headlands, and the littoral transport of these sediments by longshore swells (Cooper et al. 2007; Lewis et al. 2005). Typically, *Spartina* salt marshes fringed the landward sides of these barrier islands. The erosive effects of waves and storms combined with continued sea level rise have resulted in a steady landward migration of the barrier islands, estimated to be approximately 3 meters per year (Lewis et al. 2005:13 citing Pizzuto [1986]).

Storm effects on shoreline erosion can be devastating. The 1962 Ash Wednesday nor'easter eroded 100 feet of Atlantic coast beach in Delaware, and severe erosion on the bayshore (French 1990:133). Hurricane Sandy resulted in an average vertical loss of 2.7 meters on the sand dunes at Island Beach State Park, and a shoreline retreat ranging from 10 meters at Atlantic City to nearly 40 meters at Seaside Heights. Overall shoreline retreat for the period

1997/99 to post-Sandy measured 90.2 feet at Avon-by-the-Sea and 60.9 feet at Manasquan (Stockton 2012: Figure 19).[2]

4.3 WATERWAYS

New Jersey's coastal zone encompasses an intricate web of bays, estuaries, inlets, channels, tidal flats, and Atlantic slope rivers and streams that flow eastward into the back bays and ocean. The following presents a brief description of the various waterways present within each of the four Planning Regions, from north to south.

4.3.1 Shark River Planning Region

The smallest of the Project planning regions and the only one entirely north of the coastal barrier islands, the Shark River Planning Region, encapsulates the Shark River and its outlet to the ocean, the Shark River Inlet. The headwaters of the river drain the cuesta ridge and are approximately 10 miles upstream of its outfall to the ocean. The river (actually a narrow stream for most of its length) expands into a shallow tidal basin as it approaches the inlet. With little input of fresh water, the basin is largely brackish from its tidal inflow. Two narrow ponds, Sylvan lake to the north and Silver Lake to the south, bracket the river inlet before it flows into the ocean.

4.3.2 North Planning Region

The North Planning Region contains the most extensive section of back bays along the New Jersey coast, a continuous waterway fronted by the Barnegat Peninsula and Long Beach Island that includes, from north to south, Barnegat Bay, Manahawkin Bay, and Little Egg Harbor. North of Bay Head, the Manasquan River flows directly into the ocean from its headwaters in the Turkey Swamp Wildlife Management Area 26 miles upstream. The Point Pleasant Canal connects the northern end of Barnegat Bay with the Manasquan River, where the Manasquan Inlet becomes the northern terminus of the Intracoastal Waterway.

Considered as a continuous waterway, the Barnegat Bay-Manahawkin Bay-Little Egg Harbor back bay system extends 42 miles from Bay Head in the north to the Little Egg Inlet in the south. Principal drainages entering the combined back bays include, from north to south, the Metedeconk River, Kettle Creek, the Toms River, Cedar Creek, the Forked River, Mill Creek, Westecunck Creek, and Tuckerton Creek. The western margin of the back bays supports extensive *spartina* marshes, much of which have been filled-in to create man-made lagoons. A large expanse of marsh has been preserved as the Barnegat Division of the Edwin B. Forsythe National Wildlife Refuge (NWR) encompassing 20,928 acres in the townships of Stafford, Eagleswood, and Egg Harbor in Ocean County, and adjacent to the 3,498-acre Manahawkin Wildlife Management Area.

At the southeastern end of the North Planning Region, a 5,982-acre mosaic of *spartina* marsh islands and sand bars, designated the Great Bay Boulevard Wildlife Management Area, separates Little Egg Harbor from Great Bay. The Great Bay is a broad tidal estuary straddling Ocean and Atlantic counties that provides direct access to the ocean for the Mullica River. At 50 miles in length, the Mullica River is the principal watershed of the New Jersey Pinelands into the Atlantic Ocean, draining an area measuring 570 square miles. Tidal up to the hamlet of Green Bank in Burlington County, the Mullica River's major tributaries include the southward flowing Batsto River, Wading River, and Bass River. The southwestern extent of the North Planning Region encompasses approximately 180 square miles of the Mullica River drainage basin, reaching 26 miles of the river upstream from its outlet into Great Bay.

[2] Measurements (metric v. English) are given as reported in the primary sources.

4.3.3 Central Planning Region

In contrast to the northern barrier island complex, those barrier islands south of the Little Egg Inlet tend to be shorter and enclose lagoonal systems of back bays that exhibit less open water and greater expanses of *spartina* salt marsh. South of Great Bay and landward of Brigantine Island and Absecon Island are a series of small bays (Little Bay, Reeds Bay, and Absecon Bay), several dozen salt marsh islands and a myriad of channels. Collectively managed as the Edwin B. Forsythe NWR-Brigantine Division and the state-level Absecon Wildlife Management Area (WMA), these preserved back bays include around 47,750 acres. Freshwater enters the lagoonal system via Daughty Creek and Absecon Creek, and outlets to the ocean are via Brigantine Inlet at the northern end of Brigantine Island, and the armored Absecon Inlet, which separates the cities of Brigantine and Atlantic City.

The lagoonal system landward of Absecon Island (Atlantic City, Ventnor City, and Margate City) includes marsh, channels, and open water (Lakes Bay, Scully Bay, and Steelman Bay), with outlet to the ocean via Great Egg Harbor Inlet, the widest inlet along the New Jersey coast. West of the inlet and Ocean City, the Great Egg Harbor Bay is a large tidal estuary fed by the Great Egg Harbor River, Middle River, Tuckahoe River, Great Cedar Swamp and extensive salt marshes. The Tuckahoe WMA encompasses 14,600 acres of this estuary and marshland.

4.3.4 South Planning Region

The back bay and lagoonal system of the South Planning Region is more brackish than those to the north owing to the short reach and tidal character of Cape May's Atlantic slope drainage. From north to south, open water in the lagoons includes Ludlam Bay, Townsend Sound, Great Sound, Jenkins Sound, Grassy Sound, Richardson Sound, Jarvis Sound, and Cape May Harbor. The four inlets to the back bays are Corson Inlet, Townsends Inlet, Hereford Inlet, and Cape May Inlet. Cape May Harbor shelters the largest US Coast Guard station along the New Jersey coast and a sizable commercial fishing industry.

4.4 MUNICIPALITIES

The Project extends across all or portions of 78 municipalities within five counties, including Atlantic, Burlington, Cape May, Monmouth, and Ocean. The municipalities are a mix of types and include urban centers (e.g., Atlantic City and Ocean City), large suburban townships (Berkeley Township in Ocean County encompasses 56 square miles), and small seaside boroughs on the barrier islands (Lavallette in Ocean County measures just under one square mile). Table 4 presents the list of municipalities by Planning Region, county, and TSP.

Table 4. Municipalities contained within the Project Planning Regions.

Planning Region	County	Town	Year Established	Within TSP
Shark River	Monmouth	Avon-by-the-Sea	1900	Yes
		Belmar Boro	1890	Yes
		Bradley Beach Boro	1893	Yes
		Neptune City	1881	Yes
		Wall Twp	1851	Yes
North	Monmouth	Brielle Boro	1919	No
		Howell Twp	1801	No
		Manasquan Boro	1887	No
		Sea Girt Boro	1917	No
		Wall Twp	1851	No

Planning Region	County	Town	Year Established	Within TSP
	Ocean	Barnegat Twp	1846 (renamed from Union Twp 1977)	No
		Barnegat Light Boro	1948 (renamed from Barnegat City 1948)	No
		Bay Head Boro	1886	No
		Beach Haven Boro	1890	Yes
		Beachwood Boro	1917	No
		Berkeley Twp	1875	No
		Brick Twp	1850	No
		Eagleswood Twp	1874	Yes
		Harvey Cedars Boro	1894	No
		Island Heights Boro	1887	No
		Lacey Twp	1871	No
		Lakewood Twp	1892	No
		Lavallette Boro	1887	No
		Little Egg Harbor Twp	1740	Yes
		Long Beach Twp	1899	Yes
		Manchester Twp	1865	No
		Mantoloking Twp	1911	No
		Ocean Gate Boro	1918	No
		Ocean Twp	1876	No
		Pine Beach Boro	1925	No
		Point Pleasant Boro	1920	No
		Point Pleasant Beach Boro	1886	No
		Seaside Heights Boro	1913	No
		Seaside Park Boro	1898	No
		Ship Bottom Boro	1925 (renamed from Ship Bottom-Beach Arlington Boro 1947)	Yes
		South Toms River Boro	1927	No
		Stafford Twp	1750	Yes
		Surf City Boro	1899	No
		Toms River Twp	1768 (renamed from Dover Twp 2006)	No
North	Ocean	Tuckerton Boro	1901	Yes
	Burlington	Bass River Twp	1864	Yes
		Shamong Twp	1852	No
		Washington Twp	1802	Yes
	Atlantic	Egg Harbor City	1858	Yes
		Galloway Twp	1774	Yes
		Hammonton Twp	1866	No
		Mullica Twp	1838	Yes
		Port Republic City	1905	Yes

Planning Region	County	Town	Year Established	Within TSP
Central	Atlantic	Absecon City	1872 (replaced Absecon Town)	Yes
		Atlantic City	1854	Yes
		Brigantine City	1897	Yes
		Corbin City	1922	No
		Egg Harbor Twp	1693	No
		Estell Manor City	1925	No
		Galloway Twp	1774	Yes
		Hamilton Twp	1813	No
		Linwood City	1889 (renamed from Linwood Boro 1931)	No
		Longport Boro	1898	No
		Margate City	1897 (renamed from South Atlantic City 1909)	No
		Northfield City	1905	No
		Pleasantville City	1889 (renamed from Pleasantville Boro 1914)	Yes
		Somers Point City	1902	No
		Ventnor City	1903	No
		Weymouth Twp	1798	No
	Cape May	Ocean City	1884	No
		Upper Twp	1723	Yes
South	Cape May	Avalon Boro	1892	Yes
		Cape May City	1848 (renamed from Cape Island City 1869; renamed from Cape Island Boro 1851)	Yes
		Cape May Point Boro	1878	Yes
		Dennis Twp	1827	Yes
		Lower Twp	1723	Yes
		Middle Twp	1723	Yes
		North Wildwood City	1885 (renamed from North Wildwood Boro 191; renamed from Angelsea Boro 1906)	Yes
		Sea Isle City	1882	Yes
		Stone Harbor Boro	1914	Yes
		West Cape May Boro	1884	Yes
	Cape May	Wildwood City	1912	Yes
		Wildwood Crest Boro	1920	Yes

5.0 CULTURAL RESOURCES INVENTORY

Cultural resources include buildings, structures, objects, districts, precontact and historic archaeological sites, locations of important historic events that lack material evidence of those events, and landscapes that convey cultural or traditional importance to social and ethnic groups. Cultural resources that are included or considered eligible for inclusion in the NHRP and maintained by the Secretary of the Interior are called historic properties. Aboveground properties that have not been evaluated for NRHP listing but that may satisfy the 50-year rule for NRHP eligibility, are herein called architectural properties.

5.1 CULTURAL IMPLICATIONS OF SEA LEVEL RISE

The expansion of ice sheets during late Wisconsinan time resulted in a global lowering of sea level, reaching approximately -130 meters relative to current mean sea level (Stanford 2010). Along the U.S. eastern seaboard, this lowstand paleoshoreline roughly corresponds with the outer margins of the continental shelf and would have extended approximately 90 miles seaward of the current New Jersey shoreline. As late Pleistocene warming initiated retreat from the last glacial maximum (LGM), vast amounts of ice melted, causing global sea levels to rise dramatically, resulting in a landward transgression of shorelines. Rates of sea level rise (SLR) and the position of shorelines were influenced by isostatic processes. The weight of an ice sheet deforms the earth's crust, depressing it locally, and lifting, or upwarping, it peripherally. Glacial retreat relieves the downward pressure of the ice on land, forcing the crust to return to a state of equilibrium; locally the earth will rebound and lift, while the upwarped zone will subside. Rates of rebound and subsidence are also influenced by the relative stresses of sediment and water loading on the near-shore continental shelf, and by the density, buoyancy, and thickness of the crust (Watts 2001:35-38).

In the Middle Atlantic region, rates of SLR since deglaciation have fluctuated and estimates of these rates vary, based upon methods of analysis and location of data points. There is overall agreement, however, that the rate of SLR was relatively high (10 to 12 millimeters per year) up to circa 7500 BP, slowing considerably for the next five millenia (3 to 4 millimeters per year), and reaching a minimum rate (0.9 millimeters per year) sometime between 2500 to 1000 BP (Englehart 2010:15-19; Miller et al. 2013:10; although Stanley et al. [2004] suggest the rate was steady at 2 millimeters per year post-7000 BP, and Kemp et al. [2013] report intervals of rising and falling sea level within the past 2500 years). Sea levels in New York Harbor were approximately -28 meters relative to modern levels circa 10,000 BP, corresponding to a paleoshoreline 10 to 15 miles seaward of the modern shoreline; approximately -15 meters around 6000 BP, corresponding to a paleoshoreline 2 to 4 miles seaward of the modern shoreline; and -3 meters around 2000 BP, putting the paleoshoreline in close correspondence with the modern shoreline (Merwin 2016).

Consideration of relative sea-level and paleoshoreline placement in New Jersey is somewhat complicated by the region's location astride the Wisconsinan terminal moraine. Acting as a sort of isostatic hinge, areas to the south of the moraine experience subsidence which amplifies the effect of SLR, while to the north, isostatic rebound tends to dampen this effect. Data collected from boreholes indicate that subsidence accounts for half the relative SLR along the southern New Jersey coast (Stanley et al. 2004:6). Coastal Delaware has an estimated modern subsidence rate of approximately 1.7 mm/year, equaling its eustatic SLR (Boon et al. 2010:18). However, Miller et al. (2009:16) concluded that isostatic effects near the terminal moraine are minor, and noted that eustatic SLR rates from Delaware to southern New England were comparable.

The mid-Holocene adjustment in sea level rise (Section 4.2) is considered an important factor in the establishment of stable riverine and estuarine environments, permitting the growth of shellfish communities, tidal marshes, and anadromous and catadromous fish runs (Custer 1984:93; Styles 2006:426-427; Turnbaugh 1975). Mesohaline river conditions supporting shellfish communities are documented for the lower Hudson River around 7000 BP (Claasen

1995); freshwater marsh is dated at 5800 BP in the Hackensack meadowlands (Thieme 2003:174). In turn, these productive habitats became attractive settings for hunter-gatherer groups. It is likely that Paleoindian and Archaic period peoples exploited similar habitats within now-submerged portions of the continental shelf. Accidental finds of prehistoric stone tools retrieved in fishing nets and scoops along New Jersey coastal waters suggest the former presence of Native Americans in these areas. The Corcionne Collection of projectile points and other stone implements was discovered on Sandy Hook, New Jersey, and is believed to have been dredged from a U.S. Army Corps of Engineers borrow zone located about three miles offshore at a depth of 14 meters (Merwin 2003:11). Datable points from this collection include Early Archaic period St. Albans bifurcates, Middle Archaic Morrow Mountain and Stanley stemmed varieties, and Late Archaic Bare Island and Lamoka-like points. The position of the dredge zone closely correlates with a paleoshoreline date of around 6000 BP.

5.2 RECORDED ARCHAEOLOGICAL SITES AND ARCHAEOLOGICAL SENSITIVITY

Tetra Tech obtained GIS records of reported archaeological sites within Atlantic, Burlington, Cape May, Monmouth, and Ocean counties from the New Jersey State Museum (NJSM). Project shapefiles were then employed to filter sites occurring outside the four planning regions within each county. The archaeological site records maintained by NJSM are a compendium of site investigations reported by Section 106 surveys, Pinelands Commission surveys, pre-NHPA research surveys, and avocational excavations and stray finds. Site records thus reflect the state of archaeological techniques and precision at the time of each find or survey and consequently there is a considerable amount of inconsistency in the degree and amount of information reported for each site. Of the 1,363 identified sites within the planning regions, only 117 sites possess sufficient information to ascribe a temporal period to, limited to the Central and South planning regions. Table 5 presents site data by Project Planning Region; mapped archaeological sites are depicted in Appendix B and provided in the accompanying shapefile.

Table 5. NJSM Archaeological Site Data by Project Planning Region.

Temporal Period	Planning Region				
	Shark River	North	Central	South	Total
Precontact	-	-	22	47	69
Historic	-	-	18	23	41
Precontact/ Contact	-	-	1	-	1
Precontact/ Historic	-	-	5	1	6
Unattributed	10	709	487	40	1,255
Total	10	709	533	111	1,363

The review of the NJSM database identified 297 archaeological sites within the TSP. Table 6 presents these TSP site data by planning region.

Table 6. NJSM Archaeological Site Data within TSP by Project Planning Region.

Temporal Period	Planning Region				
	Shark River	North	Central	South	Total
Precontact	-	-	-	31	31
Historic	-	-	-	9	9
Precontact/ Historic	-	-	-	1	1
Unattributed	3	216	13	24	256
Total	3	216	13	65	297

Archaeological sensitivity is defined as the relative potential of a given location to contain previously undocumented archaeological sites, based on sets of environmental parameters, such as distance to water, slope, well-drained soils, and others. Researchers in the Northeast and Middle Atlantic regions have looked at the question of distance to water as a principal factor in site location. In the Upper Susquehanna Valley Funk concluded that "…the great majority of archaeological sites are located within 100 meters of water" (1993:70). Other regional surveys in the Northeast/ lower Great Lakes regions have reported site-to-water distances as: an average of 280 meters in the Lake Erie lowlands (Keener et al. 2008:36); 80 percent of Ontario Iroquoian sites are located within 135 to 307 meters of water sources (Bellhouse et al. 1996:96); 80 percent of sites are located within 150 meters of water in the Passaic River basin (Hasenstab 1991); and, distances of 200 meters or less were defined as high probability zones in mid-peninsular Delaware (Lothrop et al. 1987:29).

For the current project, Tetra Tech modeled archaeological sensitivity of fast land (that is, landforms that are not classified as wetlands or tidal flats by the National Wetlands Inventory [NWI] or National Hydrologic Database [NHD]) into three zones: within 100 meters of water as high sensitivity; within 100 meters to 300 meters from water as medium sensitivity; and, greater than 300 meters from water as low sensitivity. All barrier islands and beach locales have been assigned to the low archaeological sensitivity category based upon the dynamic nature of these landforms, as described in Section 4.2. While it is clear that Native American groups very likely exploited food and plant resources on the barrier islands and beaches, the potential for the presence of intact archaeological deposits in these locales is considered to be very low. Table 7 presents calculated acreages of the modeled sensitivity zones by planning region. Mapped sensitivity zones are depicted in Appendix A, and in the accompanying shapefiles.

Table 7. Calculated Acreage of Archaeological Sensitivity Zones by Planning Region.

Sensitivity Zone	Planning Region				
	Shark River	North	Central	South	Total
High	1,259	52,409	31,807	12,500	97,975
Medium	1,649	42,819	23,157	10,335	77,960
Low	1,165	32,296	24,981	11,969	70,411
Total	4,073	127,524	79,945	34,804	246,346

5.2.1 Structural Alternatives of the TSP

Where temporal attributions have been assigned, site distribution shows a strong tendency for precontact period resources to be located on slight rises along streams and rivers in proximity to back bay marsh margins. This pattern is consistent with the areas modeled for high and medium archaeological sensitivity. The three storm surge barriers and two cross-bay barriers are concluded to pose no impacts to recorded archaeological sites. These structural alternatives are also unlikely to pose impacts to undocumented inundated sites because inlet locales are subject to high velocity

tidal and flood surges that would have severely disturbed archaeological resources that may have been deposited when the near-shore was exposed to subaerial environment during the early and middle Holocene.

The nonstructural alternatives of the TSP are anticipated to pose varying degrees of potential impacts to undocumented archaeological resources, as described below:

5.2.2 Non-structural Alternatives of the TSP - Shark River Planning Region

The high density of historic development within the residential and commercial districts of the Shark River Planning Region tends to preclude the presence of undocumented archaeological sites that would retain sufficient integrity to be determined eligible to the NRHP. The environmental setting of the non-structural TSP along Jumping Brook and the Shark River where these drainages exit the Shark River County Park west of NJ Route 18 suggests some potential for the presence of undocumented archaeological resources. These zones of archaeological sensitivity are undeveloped woodlot and open space that largely are lackingof buildings and structures. It is likely that the non-structural TSP referenced here would consist of green stormwater management or a similar alternative.

Tetra Tech concludes that Phase IB archaeological survey or, at a minimum, archaeological monitoring during construction of the TSP, would be warranted in the Shark River County Park section of the Shark River Planning Region.

5.2.3 Non-structural Alternatives of the TSP – North Planning Region

The non-structural TSP on Long Beach Island is considered to possess low potential for impacts to significant archaeological resources due to barrier island dynamics and their tendency to disturb native soil stratigraphy. The bayshore components of the alternative lie eastward of US Route 9 and encompass the *spartina* marsh of the Edwin B. Forsythe NWR-Barnegat Division, portions of the Great Bay Boulevard WMA, and the man-made lagoon developments of Beach Haven West, Tuckerton Beach, and Mystic Islands. If precontact period archaeological resources are present within the marshes, they are likely to represent Archaic period or older occupations when the paleoshoreline was eastward of its current position and the marshes were dry uplands overlooking one or more of the many streams draining the Atlantic slope; preferred site locations would be expected on the slightly higher and better drained soils of the drainage divides. Archaeological sites of this type would be difficult to identify within the marsh given standard Phase IB survey methods.

The non-structural TSP within the Mullica River-Wading River drainage basin[3] possesses substantial zones of high and medium archaeological sensitivity for sites from all precontact periods according to Tetra Tech's archaeological site sensitivity model. Anadromous fish and catadromous eels likely entered the river systems by the late Middle Archaic to early Late Archaic period, circa 6000 BP, as sea level rise moderated, and estuarine and riverine habitats stabilized. Attracted by these abundant food resources, and the appearance of shellfish reefs and colonies around the same period, hunter-gatherer groups on the OCP would have sought well-drained locations on low uplands adjacent to the rivers and streams. As salinity of the Great Egg Harbor estuary increased from rising sea level through the Woodland period, the locations of microband base camps moved northward and westward, upriver, to be close to fresh water sources.

If present, historic period archaeological resources from the vicinity of Port Republic and Bass River, upriver to Batsto, and including the hamlets of Lower Bank, Green Bank, and Washington, would likely represent mill sites with associated water races, river wharves, outbuildings and dwellings. Downstream of Lower Bank, the banks of the Mullica River are too marshy to effectively set up and operate water-powered mills. On the Wading River, the hamlets

[3] Largely managed by the Port Republic WMA, Swan Bay WMA, Bass River State Forest, and the Green Bank State Forest.

of Wading River and Harrisville are known to have supported mill operations and river landings, with their attendant structures and features. Small dams on the Wading River tributaries, Ives Branch and Merrygold Branch, were built to impound water for cranberry bogs, an important industry in southern New Jersey. These dams, weirs, and other appurtenances of the cranberry industry are cultural resources that should be documented if present.

5.2.4 Non-structural Alternatives of the TSP – Central Planning Region

The non-structural TSP proposed on Brigantine Island is considered to pose no impacts to undocumented archaeological resources due to the nature of barrier island dynamics. Westward, across the bay, the non-structural TSP intersects the Edwin B. Forsythe NWR and the Absecon State WMA, comprising *spartina* marsh and upland margins proximal to US Route 9. As elsewhere in the New Jersey coastal zone, undocumented archaeological resources may be contained within buried deposits dating to the early-Late Archaic period and older, when the paleoshoreline was seaward of its current position and the marsh locales were fastland adjacent to narrow channels and streams. The upland margins, eastward of US Route 9 and in the vicinity of the Galloway National Golf Club and the Seaview Golf Club, possess potential for the presence of undocumented precontact archaeological sites. Much of these golf courses, including the fairways, greens, and hazards, have been extensively graded and/or filled to create the eighteen holes, but sections of each course where small drainages flow into the marsh should be considered to possess medium to high sensitivity for the presence of precontact archaeological resources.

The marshland that conveys US Route 30, from the Home Depot store at 421 East Absecon Boulevard in Absecon south toward Atlantic City, is considered to possess low archaeological sensitivity resulting from construction of the highway, several motels, and drainage channels dredged from the marsh. Non-structural TSP along Absecon Creek incorporates upland margins in the vicinity of West California Avenue and Mill Road in Absecon that are modeled as medium to high sensitivity for precontact archaeological resources. The confluence of Absecon Creek and its tributaries, Ables Run and Ingersolls Branch, bear the hallmark of one or more mill seats, as evidenced by the naming of Mill Road.

5.2.5 Non-structural Alternatives of the TSP – South Planning Region

The non-structural TSP proposed for the barrier islands from Corsons Inlet south to Cape May Inlet, and incorporating the communities of Strathmere, Sea Isle City, Townsends Inlet, Avalon, Stone Harbor, and the Wildwoods, are concluded to pose no impacts to cultural resources due to barrier island dynamics and the high degree of development that these islands have withstood. The TSP alternative within the bayshore marsh is considered to possess a low potential for the presence of undocumented archaeological deposits, largely owing to the short reach of streams draining seaward from the peninsular divide. The alternative does, however, extend slightly westward of the Garden State Parkway onto the upland margins where there is high potential for the presence of archaeological resources from all precontact periods. These zones of sensitivity are especially high on the short rises overlooking Devauls Creek at the border of Upper Township and Dennis Township, Mill Creek in Dennis Township, Unce Aarons Creek on the border of Dennis Township and Middle Township, Deep Creek, Holmes Creek, and Cresse Creek in Middle Township, and Jones Creek, Warren Creek, Mill Creek, and Cape Island Creek in Lower Township. These creek locales also represent areas that may have supported mill seats.

The city of Cape May retains much of its Victorian era building stock, including rear yards that may contain privies, cisterns, and other residential features common to mid and late-nineteenth century American urban settings. The non-structural TSP covers a few dozen blocks of the heart of Cape May City which possesses medium sensitivity for the presence of historic period archaeological features and resources. A mile and a half to the west, the TSP encompasses much of Cape May State Park, which comprises undeveloped wetlands, small ponds, and woodlots on a headland at the point of the peninsula. This portion of the TSP possesses high sensitivity for both precontact and historic period

archaeological resources. About a mile north of the state park, the TSP encapsulates much of Higbee Beach WMA, an area of wetlands, small ponds, and Sassafras Island, a peninsular upland that juts into the wetland. Low rises surround the wetlands to the south, east, and north. On the Delaware Bayshore this southwestern corner of the South Planning Region is believed to possess high sensitivity for the presence of undocumented precontact archaeological sites.

5.3 RECORDED ABOVEGROUND CULTURAL RESOURCES

GIS data of aboveground historic and architectural properties was acquired from the public access LUCY database, maintained by the New Jersey HPO. Aboveground historic properties are defined as buildings, structures, or objects, generally at least 50 years old or older, that are NRHP-listed or determined eligible; architectural properties are buildings, structures, or objects that have been style-dated to at least 50 years of age and that have not been evaluated for their NRHP eligibility. The review of LUCY data identified 13,987 aboveground cultural resources within the four planning regions, of which 1,585 occur within the TSP. Mapped locations of these historic resources are depicted in Appendix A, and the accompanying shapefile.

After Hurricane Sandy came ashore in New Jersey on October 31, 2012, the Federal Emergency Management Agency (FEMA) and NJ HPO identified blocks of properties within the storm-affected area as being unlikely to satisfy NRHP eligibility requirements, and termed these areas,the Green Zone. Tetra Tech filtered the LUCY database to remove potential historic resources from the set of identified LUCY resources for the current project. As a result of filtering out Green Zone properties, there are 1,353 aboveground cultural resources identified within the TSP. Table 8 presents the number of these cultural resources by planning region.

Table 8. Recorded Aboveground Cultural Resources within Planning Regions and Non-Structural TSP.

Aboveground Cultural Resources	Planning Regions				
	Shark River	North	Central	South	Total
Total Recorded	108	5,571	7,103	4,693	17,475
Within TSP	9	607	49	2,361	3,026
Within TSP and Outside HPO/FEMA Green Zone	7	574	34	2,138	2,753

The 2,753 identified aboveground cultural resources occurring within the non-structural TSP and outside the HPO/FEMA Green Zone are classified by their NRHP status in Table 9.

Table 9. Recorded Aboveground Cultural Resources by Planning Region and NRHP Status.

Aboveground Cultural Resources NRHP Status	Planning Regions				
	Shark River	North	Central	South	Total
National Historic Landmark (NHL)	-	-	-	1,405	1,405
NHRP-Listed Historic District (HD)	-	340	-	204	544
NRHP-Listed Individual	-	3	1	10	14
NRHP-Eligible HD	-	97	9	126	232
NRHP-Eligible Individual	-	7	-	8	15
Locally designated HD	-	77	-	-	77
Unevaluated	7	50	24	385	466
Total	7	574	34	2,138	2,753

A large percentage of the NRHP-listed and eligible properties are classified as contributing resources within one or more historic districts. Within the North Planning Region, historic properties include:

- 295 Listed/contributing properties within the Beach Haven Historic District;
- 45 Listed/contributing properties within the Port Republic Historic District;
- 79 Eligible/contributing properties within the Tuckerton Historic District;
- 14 Eligible/contributing properties within the West Creek Historic District; and
- 4 Eligible/contributing properties within the Green Bank Historic District.

Within the Central Planning Region, historic properties include:

- 4 Eligible/contributing properties within the South Shore Road Historic District;
- 3 Eligible/contributing properties within the North Shore Road Historic District;
- 1 Eligible/contributing property within the Conovertown Historic District; and,
- 1 Eligible/contributing property within the Oceanville/Leeds Point/Moss Hill Historic District.

Within the South Planning Region, historic properties include:

- 1,405 NHL/contributing properties within the Cape May Historic District;
- 203 Listed/contributing properties within the Cape May Historic District;
- 1 Listed/contributing property within the Historic Cold Spring Village Historic District;
- 76 Eligible/contributing properties within the Wildwoods Shore Resort Historic District;
- 47 Eligible/contributing properties within the Grassy Sound Historic District; and,
- 3 Eligible/contributing properties within the Atlantic City Railroad-Cape May Division Historic District.

The review of LUCY-derived data has identified 85 historic districts within the four planning regions:

- Shark River 2 historic districts
- North 34 historic districts
- Central 36 historic districts
- South 13 historic districts

Tables 10 to 13 present information on these historic districts by planning region, and includes districts that are designated NHL, listed, eligible, locally designated, not eligible, and unevaluated. Identified historic districts are depicted in Appendix A and provided in the accompanying shapefile.

Table 10. Recorded Historic Districts in the Shark River Planning Region.

Historic District	NRHP Status	Within TSP
Camp Evans	NHL	No
Old Corlies Avenue	Unevaluated	No

Table 11. Recorded Historic Districts in the North Planning Region.

Historic District	NRHP Status	Within TSP
Admiral Farragut Academy	Eligible	No
Barnegat	Eligible	No
Bartlett Lane	Unevaluated	No
Bass River State Forest	Eligible	No
Batsto Village	Listed	No
Bay Head	Listed	No
Beach Haven	Listed	Yes
Bed & Breakfast Overlay Zone	Locally designated	Yes
Blansingburg School	Eligible	No
Brown-Bennett Orchards	Eligible	No
Camp Osborn	Not Eligible	No
Crab Island	Unevaluated	No
Deserted Village of Allaire	Listed	No
Dock Road	Unevaluated	Yes
Greater Beach Haven	Locally designated	Yes
Green Bank	Eligible	No
Independent Fishery	Unevaluated	No
Manahawkin Village	Eligible	No
Manasquan Main Street	Eligible	No
Mantoloking	Eligible	No
Mantoloking Marine	Eligible	No
Midway Camps	Eligible	No
Murray Grove	Unevaluated	No
Ocean Beach	Eligible	No
Port Republic	Listed	No
Ship Bottom	Unevaluated	Yes
South Bay Avenue Streetscape	Unevaluated	Yes
Toms River Main Street	Eligible	No
Toms River/Dover Township Central Business	Unevaluated	No
Tuckerton	Eligible	Yes
US Route 9	Unevaluated	Yes
Wanamaker Camp/Borough Complex	Unevaluated	No
West Creek	Eligible	Yes
Woodmansee Estate	Unevaluated	No

Table 12. Recorded Historic Districts in the Central Planning Region.

Historic District	NRHP Status	Within TSP
Ann Dover Gardens	Eligible	No
Atlantic City Beautiful	Eligible	No
Atlantic City Boardwalk	Unevaluated	No
Atlantic City Railroad-Cape May Division	Eligible	No
Bay Front	Listed	No
Carson Avenue Boathouses	Not Eligible	No
Conovertown	Eligible	No
English Creek	Unevaluated	No
Estellville Glassworks Industrial	Listed	No
Estellville	Unevaluated	No
John Stafford	Listed	No
Linwood	Listed	No
Lower Bridge	Unevaluated	No
Marshallville	Listed	No
Marven Gardens	Listed	No
Mays Landing	Listed	No
Mays Landing Mill	Unevaluated	No
Morris Beach	Eligible	No
Municipal Airport	Unevaluated	No
North and South Tuckahoe	Eligible	No
North Shore Road	Eligible	No
Northside Institutional	Listed	No
Ocean City	Locally designated	No
Ocean City Residential	Listed	No
Old Tuckahoe Road	Unevaluated	No
Petersburg	Unevaluated	No
Saint Leonard's Tract	Eligible	No
Scullville	Unevaluated	No
Shore Road	Unevaluated	No
South Maine Avenue	Eligible	No
South Shore Road	Eligible	No
South Tuckahoe	Listed	No
Sugar Hill	Unevaluated	No
US Route 40 Motel	Unevaluated	No
Ventnor Avenue Residential	Eligible	No
Ventnor Parkway	Unevaluated	No

Table 13. Recorded Historic Districts in the South Planning Region.

Historic District	NRHP Status	Within TSP
Cape May Courthouse	Eligible	No
Cape May	NHL	No
Cape May Local	Locally designated	Yes
Cold Spring	Eligible	No
Downtown Commercial	Unevaluated	Yes
Grassy Sound	Eligible	No
Historic Cold Spring Village	Listed	No
Sea Grove	Unevaluated	Yes
Shoreham Hotel	Unevaluated	Yes
The Bungalow Colony	Unevaluated	Yes
West Cape May	Eligible	No
Whitesboro	Unevaluated	No
Wildwoods Shore Resort	Eligible	No

5.4 RECORDED MARINE SHIPWRECKS AND OBSTRUCTIONS

The National Oceanic and Atmospheric Administration (NOAA) maintains databases on recorded submerged shipwrecks and obstructions on their Automated Wreck and Obstruction Information System (AWOIS). The Project search radius for AWOIS data extended 0.5 miles (0.8 km) from the TSP and identified 81 wrecks and 26 obstructions. The AWOIS database does not provide NRHP status of individual submerged resources. Table 14 presents data on the AWOIS data by planning region and TSP; submerged resources are depicted in Appendix B and provided in the accompanying shapefile.

Table 14. Recorded Shipwreck and Marine Obstructions by Planning Regions.

Submerged Resources	Planning Region				
	Shark River	North	Central	South	Total
Wrecks	1	43	28	9	81
Obstructions	0	6	14	6	26
Total	1	49	42	15	107

A review of mapped shipwrecks and obstructions indicates that the proposed locations of bay and inlet closures are largely clear of recorded submerged resources. There is one recorded wreck at Clam Creek, off Absecon Inlet, in proximity to the Absecon Bay Closure. Numerous ocean wrecks are also identified in the shipping lanes and approaches to Absecon Inlet, Barnegat Inlet, and Manasquan Inlet (Appendix B:37, 84, 87, 105).

6.0 MANAGEMENT GUIDANCE AND THE SECTION 106 PROCESS

Section 106 of the NHPA requires each federal agency to identify and assess the effects its actions may have on cultural resources listed in or eligible to the NRHP. After a federal undertaking is identified, the relevant federal agency follows four steps to fulfill its Section 106 requirements. A federal undertaking is defined in 36 Code of Federal Regulations (CFR) 800.16(y) as "…a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval."

The four recommended steps are described below.

6.1 INITIATE CONSULTATION

As early in the process as is reasonable, the federal agency responsible for an undertaking initiates consultation with stakeholders, interested parties, and state and local agencies that may have an interest in the project. Stakeholders include the municipalities and counties in which the undertaking is proposed to occur, property owners who may be affected by the undertaking, and federal, state, and local agencies with management responsibilities for parks, forests, wildlife management areas, and river basins, among other entities, within the areas of potential effects (APE) resulting from the undertaking. Interested parties are persons or organization who may be directly or indirectly affected by an undertaking on an economic, social or cultural level, even if not holding title to property or having a management role in an entity within the APE. Interested parties may include but are not limited to, local historical societies, schools, religious organizations, and home-owner associations. The implementing regulations of the NHPA (36 CFR 800) direct federal agencies to initiate consultation with Native American tribes that may have a historical or cultural tie to the Project Area whether or not a tribe is resident in the Project vicinity or state. The lead federal agency also gives the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the Project.

Consultation with stakeholders and interested parties is meant to engender a consideration of their concerns and comments relating to the undertaking.

6.2 IDENTIFY CULTURAL RESOURCES

Upon definition of an APE for the undertaking, the federal agency is required to conduct file reviews to identify cultural resources within the APE that may satisfy eligibility requirements for the National Register. This may include resources that are already NRHP-listed, determined eligible for listing, or that previously have not been evaluated for eligibility to the NRHP. Cultural resources include historic and archaeological resources in the form of districts, sites, buildings, structures, and objects and can include cemeteries, landscapes, historic viewsheds, and scared places. Cultural resources that qualify as historic properties may also be listed in the Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) and may be designated as National Historic Landmarks (NHL) or traditional cultural properties. Depending on the accessibility of the data, these reviews may consist of high-level desktop searches or examination of physical files, maps, or reports maintained by the pertinent federal, state, or local agencies.

Beyond identifying previously recorded cultural resources, the USACE will be responsible for conducting field surveys, in both terrestrial and marine contexts, to identify previously undocumented cultural resources that may be present within the direct and indirect APE and to determine whether any newly identified cultural resources may qualify for NRHP eligibility.

The criteria applied to determine if a cultural resource may be eligible to the NHP are specified in 36 CFR 60.4:

> *The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, setting, materials, workmanship, feeling, and association and*
>
> *(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.*
>
> *Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:*
>
> *(a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or*
>
> *(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or*
>
> *(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or*
>
> *(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or*
>
> *(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or*
>
> *(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or*
>
> *(g) A property achieving significance within the past 50 years if it is of exceptional importance.*

To demonstrate compliance with Section 106, the USACE will consider the results of studies related to the identification of cultural resources in terrestrial archaeological contexts, aboveground resource contexts, and underwater archaeological contexts. The surveys, intended to identify cultural resources that may be eligible for the NRHP, may include one or more or the following tasks:

- A terrestrial archaeology survey to identify terrestrial archaeological resources located within the direct effects APE that may be subject to Project impact;
- An aboveground cultural resources inventory to identify above-ground cultural resources (also referred to as historic architectural properties) including, buildings, structures, objects, districts, and landscapes that may be

NRHP-eligible and subject to Project impacts. The APE for aboveground cultural resources generally reflects indirect visual effects and will be defined separately from the direct effects archaeological APE; and

- A marine archaeology survey to identify submerged archaeological resources that may be present within the APE and that may be subject to Project impacts and eligible for the NRHP.. The marine archaeological APE will be defined by locations that will undergo direct effects to the ocean bottom, and estuarine and riverine bottoms.

6.3 ASSESSMENT OF EFFECTS

After cultural resources within the APE have been identified and their NRHP status established, the USACE will be required to assess the effects of the undertaking on the resources, and to determine if these effects, if any, are adverse. The implementing regulations at 36 CFR 800.5 define an effect as adverse "…when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

In the event that an adverse effect(s) is found, the agency is responsible for making information available to the public about the undertaking, its effects on historic properties, and alternatives to resolve the adverse effects, to provide an opportunity for the public to express their views on the subject.

6.4 RESOLVE ADVERSE EFFECTS

To resolve adverse effects, the agency must develop and evaluate alternatives that could avoid, minimize, or mitigate the impacts to historic properties. Part of this process is to continue consultation and to consider the views of stakeholders, interested parties, the Historic Preservation Office and interested Tribal Historic Preservation Offices, and the public. The result of consultation and public comments is to develop an agreed-upon mitigation plan that will be described within a Memorandum of Agreement or Programmatic Agreement, that will be signed, adopted, and implemented.

7.0 SUMMARY AND RECOMMENDATIONS

7.1 SUMMARY

Tetra Tech collected and collated information of recorded cultural resources within the USACE's four Planning Regions from NJSM (archaeological sites), HPO (aboveground historic and architectural properties), and NOAA (submerged wrecks and obstructions). The review identified 1,363 archaeological sites, 17,475 aboveground cultural resources, 85 historic districts, and 107 submerged wrecks and obstructions within the Planning Regions. Table 15 summarizes the resource types from each Planning Region:

Table 15. Summary of Recorded Cultural Resources by Planning Region.

Shark River Planning Region ▪ Archaeological Sites: 10 ▪ Buildings/ Structures: 108 ▪ Historic Districts: 2 ▪ Submerged Wrecks/ Obstructions: 1	*North Planning Region* ▪ Archaeological Sites: 709 ▪ Buildings/ Structures: 5,571 ▪ Historic Districts: 34 ▪ Submerged Wrecks/ Obstructions: 49
Central Planning Region ▪ Archaeological Sites: 533 ▪ Buildings/ Structures: 7,103 ▪ Historic Districts: 36 ▪ Submerged Wrecks/ Obstructions: 42	*South Planning Region* ▪ Archaeological Sites: 111 ▪ Buildings/ Structures: 4,693 ▪ Historic Districts: 13 ▪ Submerged Wrecks/ Obstructions: 15

The TSP includes three inlet closures at Manasquan Inlet, Barnegat Inlet, and Great Egg Harbor Inlet, two bay closures at Absecon Boulevard and southern Ocean City, and non-structural measures that may include elevation and floodproofing of 18,800 buildings. In addition to the TSP, two alternatives have not been ruled out and are part of the Phase IA investigation; Alternative 4A includes non-structural measures around Great Egg Harbor Bay, and Alternative 4D1, which includes non-structural measures surrounding Great Egg Harbor Bay plus two perimeter floodwalls.

A summary of recorded cultural resources and archaeological sensitivity is presented for each TSP Component:

Manasquan Inlet Closure

The file review identified one unattributed archaeological site located about 500 feet (150 meters) west of the proposed closure, between 1st Avenue and the Boardwalk. Archaeological sensitivity for the Manasquan Inlet Closure is concluded to be low. Property parcels adjacent to the proposed inlet closure in Manasquan and Point Pleasant are within the HPO/FEMA Green Zone. Submerged wrecks and obstructions are not recorded within 2,000 feet (610 meters) of the inlet.

Barnegat Inlet Closure

Four unattributed archaeological sites are located at the north end of Long Beach Island in a zone ranging from 500 feet (150 meters) to 1,000 feet (300 meters) from the proposed Barnegat Inlet Closure. No information about these sites is available from the NJSM database. The Barnegat Inlet Closure is situated on barrier islands characterized as

possessing low sensitivity for the presence of undocumented precontact archaeological resources. The southern wing of the proposed closure will be within approximately 175 feet (50 meters) of a residential community near the intersection of West 4th Street and Central Avenue in Barnegat Light Borough, Ocean County. The nearest NRHP historic property is Barnegat Lighthouse, located some 850 feet (260 meters) west of the Alternative. The northern wing of the proposed closure is within Island Beach State Park. There are no recorded shipwrecks or submerged obstructions within 4,000 feet (1,220 meters) of the inlet.

Great Egg Harbor Inlet Closure

The reviewed databases contain no recorded cultural resources within the APE or immediate vicinity of the proposed Great Egg Harbor Inlet Closure. The barrier islands at either end of the inlet, Absecon and Peck Beach, are characterized as possessing low archaeological sensitivity. Building parcels at the proximal end of Absecon Island are classified within the HPO/FEMA Green Zone. The nearest recorded shipwreck is approximately 2,000 feet (610 meters) seaward of the inlet.

Southern Ocean City Bay Closure

Within the Southern Ocean City Bay Closure APE and immediate vicinity, recorded cultural resources are limited to the NRHP-eligible Atlantic City Railroad-Cape May Division Historic District and its associated bridges over Edwards Creek and Lots Creek. The closure Southern Ocean City Bay Closure encompasses *spartina* marsh and the highly developed bayshore margins of southwestern Ocean City, considered to have low potential for containing undisturbed archaeological resources.

Absecon Boulevard Bay Closure

The Absecon Boulevard Bay Closure follows the bulkheaded shoreline of Atlantic City, including a portion of Absecon Inlet, Clam Creek and the State Marina, and Clam Thorofare, and parallels the northern edge of Absecon Boulevard (US Route 30) westward. Located along the northeastern edge of Absecon Island (northern Atlantic City) and adjacent to the proposed closure, Site 28AT105 is an archaeological resource containing late-Paleoindian period (ca. 9000 to 8000 BC) tool assemblages, including Cumberland fluted points and an Agate Basin lanceolate point (Stanzeski 1998, 2005). The site represents an important expression of early Holocene land use on the OCP and includes high quality cherts from New York State and Ohio, indicating the expansive home range of these early hunter-gatherer groups. Despite its clear importance to precontact research in the region, the archaeologists who reported the site interpret it as a secondary deposit, possibly included in dredge spoils that were used to make land and expand Atlantic City in the early twentieth century. Based on review of historical USGS quadrangle sheets, this section of the Abescon Boulevard Bay Closure appears to be situated entirely on made land, and therefore is concluded to possess low sensitivity for the presence of archaeological deposits that might be NRHP-eligible.

The extant US Coast Guard Station Atlantic City is a NRHP-eligible historic property located between Clam Creek and North Rhode Island Avenue, and is adjacent to Abescon Boulevard Bay Closure. The major portion of property parcels within the Clam Creek neighborhood is part of the HPO/FEMA Green Zone, and therefore considered to be not eligible to the NRHP. AWOIS records a shipwreck, of unknown NRHP status, in Clam Creek proximal to the proposed closure.

Non-Structural Measures

The area of Non-Structural Measures portions of the TSP comprises 128.2 square miles, or approximately 12.8 percent of the total Project area. Table 16 presents the numbers of recorded cultural resources within the Non-Structural TSP, by Planning Region.

Table 16. Area and Recorded Cultural Resources within Non-Structural TSP, by Planning Region.

Non Structural TSP	Planning Region				
	Shark River	North	Central	South	Total
Acreage (Sq. Mi.)	670.33 (1.05)	50,757.65 (79.31)	6,462.12 (10.1)	24,165.87 (37.76)	82,055.97 (128.21)
Archaeological Sites	3	216	13	65	297
Historic Architecture	7	574	34	2,138	2,753
Historic Districts	-	11	-	6	17
Shipwrecks/ Obstructions	1	6	16	7	30

Note: The number of historic architectural properties reflects those outside the HPO/FEMA Green Zone.

The majority of identified archaeological sites are located on the margins of the back bay tidal estuaries and on low rises along the larger river basins, such as the Toms, Mullica, and Great Egg Harbor rivers. The high number of historic architectural properties in the TSP within the South Planning Region reflect the density and expansive character of the Cape May Historic District, a National Historic Landmark.

Non-TSP Alternatives

Alternative 4A, comprising non-structural measures around Great Egg Harbor Bay, and Alternative 4D1, consisting of non-structural measures around Great Egg Harbor Bay plus flood walls, would encompass portions of the densely developed cities of Ocean City and Somers Point, and the unincorporated community of Beesley's Point. The bayshore margin of Ocean City has been extensively filled for made-land since the turn of the twentieth century, and is characterized as possessing low sensitivity for the presence of undocumented archaeological resources. Somers Point is a headland jutting into the bay and was the place of earliest European settlement in what would become Atlantic County, dating to circa 1700. The city's waterfront is densely developed apart from John F. Kennedy Park, located on a spit west of NJ Route 52. The park possesses medium sensitivity for the presence of precontact and historic period archaeological resources. Beesley's Point is a headland near the confluence of the Tuckahoe River and the bay. Its bayshore includes the recently decommissioned B.L. England Generating Station, and small commercial and residential developments along Harbor Road. Numerous precontact period archaeological sites have been recorded at Beesley's Point (Grossman-Bailey 2001:270) and the Alternative 4D1 has a high potential to contain previously unreported archaeological resources within the Project Area.

7.2 RECOMMENDATIONS

Tetra Tech recommends that the USACE should:

- Continue Section 106 consultations with Stakeholders, Interested Parties including Tribal Nations, and the NJ HPO; and
- Conduct Phase IB cultural resources surveys for terrestrial archaeological resources, marine archaeological resources, and aboveground historic and architectural properties to assess the impacts of the Project on the recorded cultural resources identified within the Project Area and TSP in this Phase IA Investigation.

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APPENDIX A: MAPBOOK OF RECORDED ABOVEGROUND HISTORIC AND ARCHITECTURAL PROPERTIES

APPENDIX B: MAPBOOK OF RECORDED ARCHAEOLOGICAL SITES

APPENDIX C: RESUMES

CULTURAL RESOURCES CORRESPONDENCE APPENDIX

NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

PHILADELPHIA, PENNSYLVANIA

APPENDIX F.8

December 2024

NJBB
NEW JERSEY BACK BAYS STUDY

U.S. Army Corps of Engineers
Philadelphia District

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
100 PENN SQUARE EAST, 7th FLOOR WANAMAKER BUILDING
PHILADELPHIA, PENNSYLVANIA 19107-3390

HPO Project # 16-2157-5
HPO-J2022-021

Environmental Resources Branch

April 25, 2022

Katherine Marcopul, PhD
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Dear Dr. Marcopul:

The U.S. Army Corps of Engineers, Philadelphia District (USACE), in partnership with the New Jersey Department of Environmental Protection (NJDEP), Bureau of Coastal Engineering, has completed a Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement (Draft Integrated Report) to identify coastal storm risk management (CSRM) strategies to increase resilience and to reduce the risk from future storms and compounding impacts of sea level change (SLC) for the New Jersey Back Bay (NJBB) region.

The feasibility study consisted of the formulation and evaluation of alternative plans to address the identified water resources issues, as well as the selection of Tentatively Selected Plan (TSP). In accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the preparation of a draft Environmental Impact Statement (EIS) was completed and circulated to the public as part of this feasibility study. A copy of the Draft Integrated Report can be found at the following link: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/

The Draft Integrated Report has evaluated a focused array of alternatives and has identified the TSP. The TSP is the plan that reasonably maximizes national economic development (NED) benefits. It was selected based on a number of decision criteria including the NED benefits, environmental acceptability, residual risk, life safety risk, long-term performance, and sea level change adaptability.

The TSP includes:

- Storm surge barriers (SSB) or inlet closures at Manasquan Inlet, Barnegat Inlet, and Great Egg Harbor Inlet;
- Cross-bay barriers (CBB) or interior bay closures at Absecon Boulevard, and southern Ocean City; and
- Elevation and floodproofing of 18,800 structures. These nonstructural solutions

are considered for 11% of the study area and are concentrated in the vicinity of the Shark River Inlet and in southern Ocean County, specifically along the mainland shoreline south of Beach Haven West and on Long Beach Island. Nonstructural solutions are also concentrated in northern Atlantic County on the mainland shoreline and on Brigantine, and in large portions of Cape May County.

The Area of Potential Effect (APE) is the geographic extent to which an Undertaking may directly or indirectly cause changes in the character or use of historic properties (NHPA, 36 CFR 800.16[d]) (40 CFR 1508.8). The TSP elements, both structural and nonstructural will be considered a tentative Area of Potential Effect (APE). The actual APE will be refined and defined through further assessments and in consultation with the NJSHPO, the Tribes and other Consulting Parties as the project develops.

The USACE contracted Tetra Tech, Inc. (Tetra Tech) to prepare a Phase IA cultural resources investigation report for the New Jersey Back Bays Coastal Storm Risk Management Project (the Undertaking), to assist USACE in the management of potential Project impacts to recorded and previously undocumented cultural resources. The report will also serve as the primary source of information for the Cultural Resources Sections/Appendix for the Combined Feasibility Study and accompanying NEPA Document.

Tetra Tech obtained GIS information from state and federal agency databases on all recorded cultural resources (archaeological, standing structures, historic districts, and shipwrecks and submerged obstructions) within the four assigned Planning Regions: Shark River, North, Central, and South. The Planning Regions extend along the New Jersey coastal zone from the Borough of Sea Girt in Monmouth County in the north to Cape May Point in Cape May County in the south. In all, the four Planning Regions cover approximately 1,000 square miles, or slightly less than one-eighth of the state of New Jersey.

The acquired cultural resources data includes 1,363 archaeological sites, finds, and locales; 17,475 aboveground historic and architectural properties; 85 historic districts; and 81 shipwrecks and 26 submerged obstructions. These data have been collated into deliverables in tabular form, shapefiles, and depicted on figures with aerial imagery base layer.

Tetra Tech recommends that the USACE continue to pursue consultations with stakeholders, interested parties, and local, state, and federal agencies. Tetra Tech further recommends that when the USACE has developed a Draft Plan from the Tentatively Selected Plan, the agency should undertake Phase IB terrestrial archaeology, marine archaeology, and historic architecture surveys, as appropriate. A copy of the Phase IA report and associated GIS data in the form of a PDF map book will be provided to you via our DoD SAFE file sharing interface.

We request your review of the Phase IA Report and supporting documentation titled, *Phase IA Cultural Resource Report Preparation of Cultural Resources sections/Appendix for the Combined Feasibility Study and NEPA Document, New Jersey Back Bays Coastal Storm Risk Management Project* prepared for the USACE by Tetra Tech, Inc. draft dated January 2022.

As the study progresses, the tentative APE may change and/or adapt. In order to better focus our Section 106 process on the TSP during the Pre-Construction Engineering and Design (PED) phase of the Undertaking, the USACE are proposing the negotiation and execution of a programmatic agreement (PA) in accordance with 36 CFR § 800.6 and § 800.14 (b)(1)(ii).

The USACE has identified sixty-six (66) potential Consulting Parties to be invited into the Section 106 process with the USACE, the ACHP, the NJSHPO and the Tribal Nations. A spreadsheet of potential Consulting Parties is attached for your review. Please let us know of any other potential Consulting Party that may choose to participate in the Section 106 process.

If you have any questions, please feel free to contact Ms. Nicole Cooper Minnichbach, Cultural Resource Specialist and Tribal Liaison at 215-834-1065 or via email at Nicole.c.minnichbach@usace.army.mil.

Sincerely,

LEARY.ADRIAN.1384973384

Digitally signed by LEARY.ADRIAN.1384973384
Date: 2022.04.26 14:46:05 -04'00'

FOR Peter R. Blum, P.E.
Chief, Planning Division

CONCUR

Katherine J. Marcopul — 10/6/2022

Katherine J. Marcopul
Date
Deputy State Historic Preservation Officer

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Katlyn Lucas
Tribal Historic Preservation Office
Delaware Nation
P.O. Box 825
31064 SH 281
Anadarko, OK 73005

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Ms. Lucas,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and

floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022 the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

Based upon this review, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties listed in or eligible for listing in the National Register of Historic Places. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize and/or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In

addition to local, county and state historical societies, the District has also provided the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

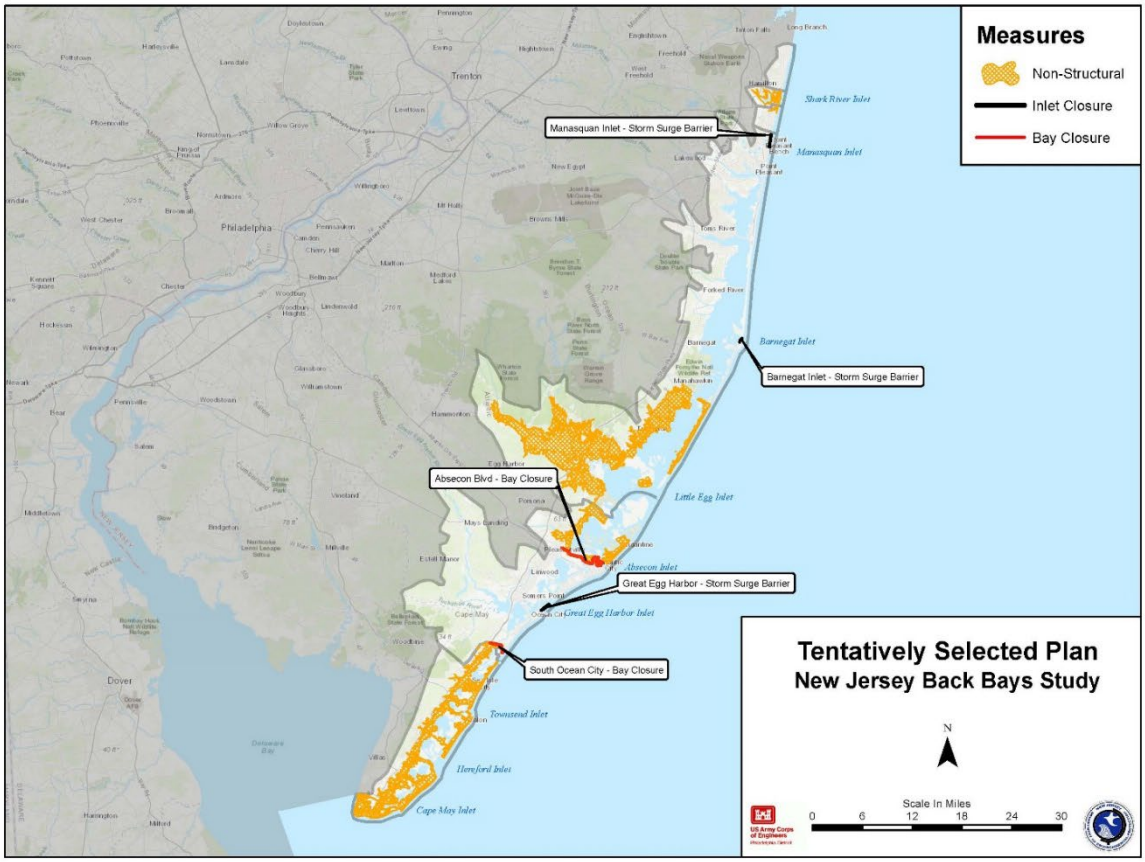
In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project.

Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreement

Enclosure 1: Tentatively Selected Plan



From: Katelyn Lucas <klucas@delawarenation-nsn.gov>
Sent: Thursday, January 12, 2023 1:58 PM
To: Minnichbach, Nicole C CIV USARMY CENAP (USA) <Nicole.C.Minnichbach@usace.army.mil>; Carissa Speck <cspeck@delawarenation-nsn.gov>
Cc: Loughran, Kailey R CIV USARMY CENAN (USA) <Kailey.R.Loughran@usace.army.mil>; Smith, J B CIV USARMY CENAP (USA) <Jay.B.Smith@usace.army.mil>
Subject: [Non-DoD Source] RE: New Jersey Back Bay Project Draft Programmatic Agreement for Review and Comment

Hello,

Delaware Nation would like to be a consulting tribal nation on this project and PA, however, since Delaware Nation is a federally recognized tribe, we cannot and will not consult at the same table as non federally recognized groups claiming tribal identity, as it disrespects and undermines our tribal sovereignty. Therefore, our primary issue with the PA draft is that Delaware Nation and other fed rec tribes are listed alongside non fed rec tribes or state groups. It is Delaware Nation's official governmental resolution that we do not acknowledge any non fed rec groups claiming Lenape identity as Lenape people, and we do not work with any non fed rec groups. We request that the PA language be altered to appropriately indicate which fed rec tribal nations are officially government-to-government consulting tribes, and if necessary, separately list other non fed rec groups as consulting parties only. We would also want to ensure that only fed rec tribal nations are being consulted regarding any Native American human remains and/or artifacts found. Thank you.

Sincerely,

Katelyn Lucas
Delaware Nation Tribal Historic Preservation Officer
PhD Candidate
405-544-8115
klucas@delawarenation-nsn.gov

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Susan Bachor
Tribal Historic Preservation Office
Delaware Tribe of Indians
126 University Circle
Stroud Hall, Rm. 437
East Stroudsburg, PA 18301

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Ms. Bachor,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022 the District provided your office with a copy of the Draft Phase IA Cultural Resources

Report for the New Jersey Back Bays Coastal Storm Risk Management Project prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

Based upon this review, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties listed in or eligible for listing in the National Register of Historic Places. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize and/or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In addition to local, county and state historical societies, the District has also provided the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and

participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

Thank you for agreeing to participate in the Section 106 process for this Study. In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project.

Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Study Area Location Map
Enclosure 2: Programmatic Agreement

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Rhonda Barnes
Tribal Historic Preservation Office
Eastern Shawnee Tribe of Oklahoma
P.O. Box 189
Miami, OK 74355

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Ms. Barnes,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022 the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project

prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

Based upon this review, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties listed in or eligible for listing in the National Register of Historic Places. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize and/or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In addition to local, county and state historical societies, the District has also provided the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their

participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project.

Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreement

EASTERN SHAWNEE
CULTURAL PRESERVATION DEPARTMENT
70500 East 128 Road, Wyandotte, OK 74370

January 9, 2023
USACE Philadelphia
100 Penn Square East
Philadelphia, PA 19107

RE: ***New Jersey Back Bays Coastal Storm Risk Management Study Subject 16-2157, Multiple County, Multiple***

Dear Ms. Minnichbach,

The Eastern Shawnee Tribe has received your letter regarding the above referenced project(s) within Multiple County, Multiple. The Eastern Shawnee Tribe is committed to protecting sites important to Tribal Heritage, Culture and Religion. Furthermore, the Tribe is particularly concerned with historical sites that may contain but not limited to the burial(s) of human remains and associated funerary objects.

As described in your correspondence, and upon research of our database(s) and files, we find our people occupied these areas historically and/or prehistorically. However, the project proposes **NO Adverse Effect** or endangerment to known sites of interest to the Eastern Shawnee Tribe. Please continue project as planned. However, should this project inadvertently discover an archeological site or object(s) we request that you immediately contact the Eastern Shawnee Tribe, as well as the appropriate state agencies (within 24 hours). We also ask that all ground disturbing activity stop until the Tribe and State agencies are consulted. Please note that any future changes to this project will require additional consultation.

In accordance with the NHPA of 1966 (16 U.S.C. § 470-470w-6), federally funded, licensed, or permitted undertakings that are subject to the Section 106 review process must determine effects to significant historic properties. As clarified in Section 101(d)(6)(A-B), historic properties may have religious and/or cultural significance to Indian Tribes. Section 106 of NHPA requires Federal agencies to consider the effects of their actions on all significant historic properties (36 CFR Part 800) as does the National Environmental Policy Act of 1969 (43 U.S.C. § 4321-4347 and 40 CFR § 1501.7(a). This letter evidences NHPA and NEPA historic properties compliance pertaining to consultation with this Tribe regarding the referenced proposed projects.

Thank you, for contacting the Eastern Shawnee Tribe, we appreciate your cooperation. Should you have any further questions or comments please contact our Office.
Sincerely,

Paul Barton, Tribal Historic Preservation Officer (THPO)
Eastern Shawnee Tribe of Oklahoma
(918) 666-5151 Ext:1833
THPO@estoo.net

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Jesse Bergevin
Tribal Historic Preservation Office
Oneida Indian Nation
1256 Union Street
PO Box 662
Oneida, NY 13421

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Mr. Bergevin,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

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the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

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Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

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Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreement

From: Jesse Bergevin <jbergevin@oneida-nation.org>
Sent: Wednesday, December 28, 2022 9:42 AM
To: Minnichbach, Nicole C CIV USARMY CENAP (USA) <Nicole.C.Minnichbach@usace.army.mil>
Cc: Loughran, Kailey R CIV USARMY CENAN (USA) <Kailey.R.Loughran@usace.army.mil>; Smith, J B CIV USARMY CENAP (USA) <Jay.B.Smith@usace.army.mil>
Subject: [URL Verdict: Neutral] [Non-DoD Source] RE: New Jerseey Back Bay Project Draft Programmatic Agreement for Review and Comment

Nicole,

The Oneida Indian Nation has no comments regarding the draft programmatic agreement.

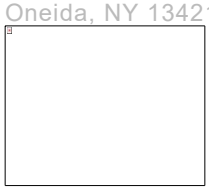
Please let me know if there are any questions.

Best Regards,

JESSE BERGEVIN
Historical Resources Specialist

ONEIDA INDIAN NATION

P: 315.829.8463
2037 Dream Catcher Plaza
Oneida, NY 13421



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Paul Lepsch
Tribal Historic Preservation Office
Seneca Nation of Indians
90 Ohi yo' Way
Salamanca, NY 14779

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Mr. Lepsch,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022 the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project

prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

Based upon this review, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties listed in or eligible for listing in the National Register of Historic Places. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize and/or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In addition to local, county and state historical societies, the District has also provided the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their

participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project.

Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreement

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Darren Bonaparte
Tribal Historic Preservation Office
Saint Regis Mohawk Tribe
412 State Route 37
Akwesasne, NY 13655

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Mr. Bonaparte,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022 the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project

prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

Based upon this review, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties listed in or eligible for listing in the National Register of Historic Places. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize and/or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In addition to local, county and state historical societies, the District has also provided the Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their

participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project

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Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreement

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, MARINE DESIGN CENTER
100 SOUTH INDEPENDENCE MALL WEST
PHILADELPHIA PA 19106-3400

Nov 28, 2022

Reply to:
Environmental Analysis Branch
Planning Division

Jeffrey Bendremer
Tribal Historic Preservation Office
Stockbridge Munsee Community
New York Office
65 1st Street
Troy, NY 12180

Subject: NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
Subject: 16-2157

Dear Dr. Bendremer,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District), in cooperation with the New Jersey State Department of Environmental Protection (NJDEP) and the New Jersey State Historic Preservation Office (NJSHPO), has conducted further review and prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) strategy for the New Jersey Back Bay (NJBB) study area, one of several areas severely impacted by Hurricane Sandy, to reduce flood damages experienced by those vulnerable coastal communities. This consultation is being coordinated in accordance with the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality regulations, Section 106 (54 U.S.C. Section 306108) of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation 36 Code of Federal Regulations (CFR) Part 800 (Protection of Historic Properties). This letter serves to request your review of the Draft PA and provide you with an opportunity to comment on the proposed project which is available at: https://www.nap.usace.army.mil/Missions/Civil-Works/New-Jersey-Back-Bays-Study/.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement for the Study which recommended the Tentatively Selected Plan (TSP). The TSP consists of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area (Enclosure 1). In June of 2022

the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project prepared by Tetra Tech, Inc. In October of 2022 the NJ SHPO concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our agency's intention to prepare a PA.

To evaluate the potential effects of the proposed undertaking on cultural resources under the NHPA and the NEPA, the District consulted local and regional histories, gathered available histories and cultural resources survey reports, and utilized available geospatial data and cultural resource databases. Of particular use to the assessment was the New Jersey Historic Preservation Office (HPO) LUCY database, which identified previously recorded historic properties (buildings and districts) and archaeologically sensitive areas within the Study Area. The District's Phase IA Cultural Resources Report for this Study identified cultural resources that exist within the direct and indirect APE for each proposed alternative. Based on the District's review of available information, 1,434 structures identified to be elevated or dry flood-proofed in accordance with the TSP are eligible or listed or may be eligible for listing in the National Register of Historic Places, and additional historic properties overlap with other project features.

The District recognizes its responsibilities under Section 110(f) of the NHPA (54 U.S.C. 306107), which requires the agency, through its planning and actions, to minimize harm to cultural resources within the APE to the maximum extent possible. The District will continue to coordinate with the SHPO and other consulting parties during the planning phase of the Study to prioritize the avoidance and minimization of adverse effects to cultural resources. As the features of the Study are further designed, the APE may be further refined and cultural resources surveys to be conducted may identify additional historic properties within the APEs, so effects on historic properties may be further identified.

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The District has initiated consultation with the New Jersey State Historic Preservation Office (NJSHPO) and has identified a list of interested parties and invited them to participate in the Section 106 consultation process and study planning. Among those identified are the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Indian Nation, the Stockbridge-Munsee Mohican Tribe, the St. Regis Mohawk Tribe, and the Seneca Nation of Indians. In addition to local, county and state historical societies, the District has also provided the

Advisory Council on Historic Preservation (ACHP) the opportunity to comment and participate in accordance with 36 CFR Part 800 and the ACHP has yet to confirm their participation at this time. The New Jersey SHPO and the Delaware Tribe of Indians have elected to participate at this time.

In accordance with 36 CFR § 800.4(b)(1), the District invites you to review the enclosed draft PA and provide comments on the development of the District's preliminary APE and the determination of the TSP's potential to adversely affect cultural resources pursuant to 36 C.F.R. § 800.14(b)(3). We also invite you to participate in the PA as an Invited Signatory. Please provide any written response within 30 calendar days to the Project Archaeologist, Nicole Minnichbach, via email at Nicole.C.Minnichbach@usace.army.mil. Should you have any questions or wish to discuss this project further, please contact Ms. Minnichbach via phone at 215-656-6556. Thank you for your assistance with this project.

Sincerely,

FOR Peter Blum
Chief, Planning Division

Enclosure 1: Tentatively Selected Plan
Enclosure 2: Programmatic Agreeme

November 15, 2023

Ms. Nicole Cooper Minnichbach
Cultural Resource Specialist and Tribal Liaison
Philadelphia District
US Army Corps of Engineers
Philadelphia District
1650 Arch Street
Philadelphia, PA 19103-2004

Ref: *New Jersey Back Bays Coastal Storm Risk Management Integrated Feasibility Study and Environmental Impact Statement*
Atlantic, Cape May, Monmouth, and Ocean Counties, New Jersey
ACHP Project Number: 020242

Dear Ms. Minnichbach:

On November 2, 2023, the Advisory Council on Historic Preservation (ACHP) received your notification and supporting documentation regarding the potential adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information you provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe our participation in the consultation to resolve adverse effects is needed.

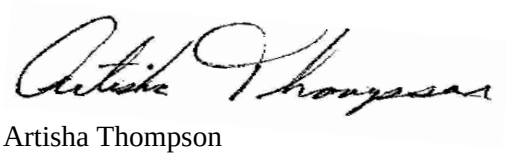
However, if we receive a request for participation from the New Jersey State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer, affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Should the undertaking's circumstances change, consulting parties cannot come to consensus, or you need further advisory assistance to conclude the consultation process, please contact us.

Pursuant to 36 CFR § 800.6(b)(1)(iv), you will need to file the final Section 106 agreement document (Agreement), developed in consultation with the New Jersey SHPO and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the Agreement and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the NHPA.

Thank you for providing us with your notification of adverse effect. If you have any questions or require our further assistance, please contact Christopher Daniel at (202) 517-0223 or by e-mail at

cdaniel@achp.gov and reference the ACHP Project Number above.

Sincerely,



Artisha Thompson
Historic Preservation Technician
Office of Federal Agency Programs

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT
1650 ARCH STREET
PHILADELPHIA PA 19103-2004

Environmental Resources Branch 10 December 2024

Dr. Katherine J. Marcopul
Deputy State Historic Preservation Officer
State of New Jersey Department of Environmental Protection
Historic Preservation Office
P.O. Box 420
Trenton, NJ 08625-0420

Project Reference: HPO # 16-2157

Dear Dr. Marcopul,

This letter is to inform you that the U.S. Army Corps of Engineers, Philadelphia District (District) has prepared a draft Programmatic Agreement (PA) in association with the New Jersey Back Bays (NJBB) Coastal Storm Risk Management Feasibility Study (Study). The purpose of the Study is to develop a comprehensive coastal storm risk management (CSRM) framework for the New Jersey Back Bays - one of several areas severely impacted by Hurricane Sandy – that will reduce flood risk to vulnerable coastal populations in the Study Area (Enclosure 1).

The Atlantic Coast of New Jersey is protected by a series of federal CSRM projects that consist of dunes, berms and seawalls that reduce damage to limited sections of barrier islands along the coastline, but do not protect communities along the bay side of the barrier islands. As a result, the back bay region experienced major impacts and devastation during Hurricane Sandy and subsequent coastal events that damaged property and disrupted millions of lives owing to the low elevation areas and highly developed residential and commercial infrastructure along the back bay coastline. The purpose of this Study is to develop a plan that reduces impacts to the NJBB Study Area and accounts for current storms, future storms, and anticipated level of future sea level change.

The Philadelphia District initiated consultation with your office under Section 106 of the National Historic Preservation Act (NHPA) of 1966 (54 United States Code (USC) § 306108) in 2018. In August of 2021 the Philadelphia District released the *Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement* for the Study which recommended the Tentatively Selected Plan (TSP). The report evaluated alternatives to reduce storm damage in the Study Area, and recommended storm surge barriers, cross bay barriers and other features that would not meet environmental compliance based on their environmental impacts and complexity. At the time, the TSP consisted of three storm surge barriers or inlet closures, two cross-bay barriers, and the elevation and floodproofing of 18,800 structures within the Study Area. The TSP has

since been reduced to elevations for 6,421 residential structures, floodproofing for 279 critical structures, and Nature Based Solutions (NBS) with dredged material to restore degraded salt marsh habitat at approximately 7 locations in the Study Area. The District has also identified 6 Confined Disposal Facilities (CDF) as potential sediment sources for the NBS sites (Enclosure 2). This recommendation is considered an interim response to the study authority and can be supplemented by additional studies in the future, if warranted; however, any future studies would be considered separate from this action and would be subject to their own review under Section 106.

In April of 2022, while the District was still advancing the larger plan, the District provided your office with a copy of the Draft Phase IA Cultural Resources Report for the New Jersey Back Bays Coastal Storm Risk Management Project prepared by Tetra Tech, Inc. In a letter dated 6 October 2022 your office concurred with our agency's conclusion that additional architectural and archaeological evaluations are necessary, as well as our intention to develop a PA to address the potential for adverse effects to cultural resources.

In November of 2022 the District provided the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee of Oklahoma, the Oneida Nation, the Seneca Nation of Indians, the St. Regis Mohawk, and the Stockbridge-Munsee Community with a copy of a draft PA in accordance with Section 106 of the NHPA. The Oneida Nation responded that they have no comments on the draft PA. The Delaware Nation elected to participate as a Consulting Tribal Nation at this time, provided that the state-recognized Nanticoke Lenni-Lenape Tribal Nation remain separate from federally recognized tribes during consultation. The District also sought comments on the PA from potential Consulting Parties (CPs) located in the Study Area (PA Appendix C). No comments were received from any of the CPs.

The District is currently preparing to release a report entitled the *New Jersey Back Bays (NJBB) Coastal Storm Risk Management (CSRM) Supplemental Draft Integrated Feasibility Report and Environmental Impact Statement* (Draft Integrated Report) that details the reduced TSP and the potential environmental impacts of that plan. Based upon the cultural resources assessment performed for the Study, it is the opinion of the District that the proposed undertaking has the potential to adversely affect cultural resources and historic properties eligible for or listed on the National Register of Historic Places (NRHP) and that additional investigations are needed when the project plans are further developed to complete identification of historic properties. The enclosed PA is intended to serve as a binding agreement between the District and your office outlining the activities that must be carried out to conclude identification of significant cultural resources, determine adverse effects, and consult to avoid, minimize, or mitigate for adverse effects at the appropriate time and in advance of any construction activities.

In accordance with Section 106 of the NHPA, the District is requesting your office's review and concurrence with the revised draft PA (Enclosure 3). Please review the enclosed materials and provide a response within thirty days of receipt of this letter.

Should you have any questions or wish to discuss this project further, please contact Kailey Loughran, Project Archaeologist, at Kailey.R.Loughran@usace.army.mil or (917) 790-8706. Thank you for your assistance with this project.

Sincerely,

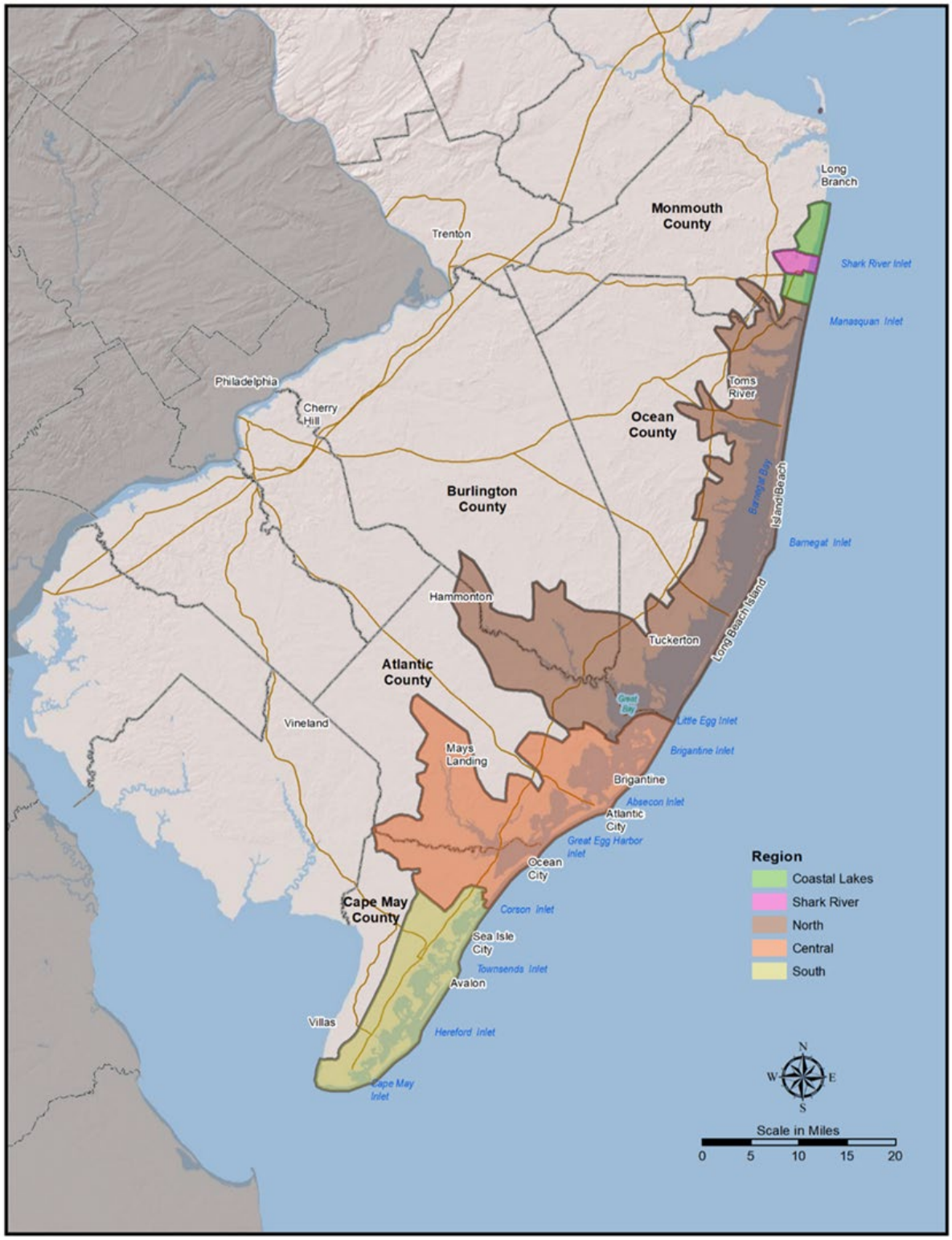
FOR

Adrian Leary
Chief, Planning Division

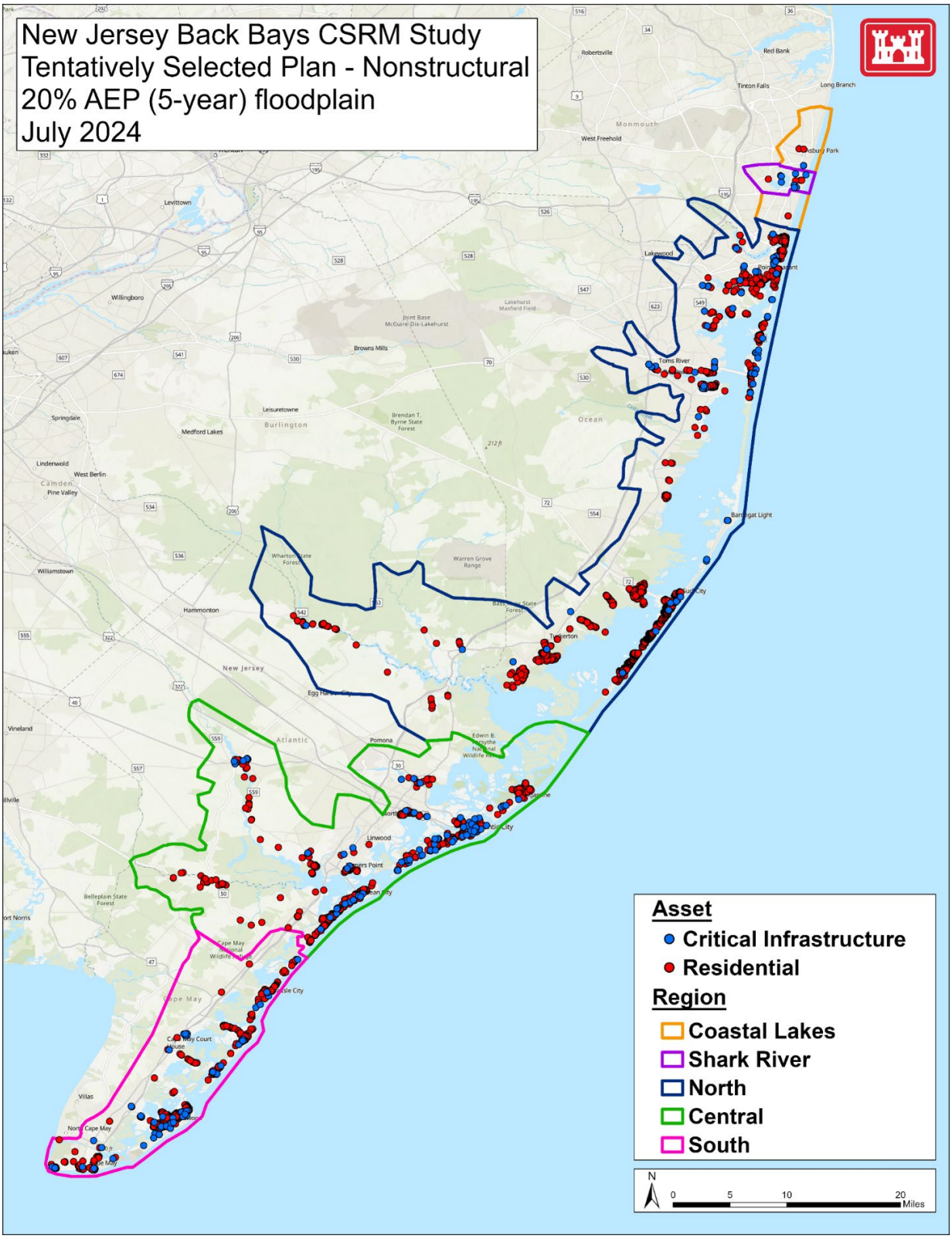
Enclosures

Enclosure 1: New Jersey Back Bays (NJBB) Study Area
Enclosure 2: Tentatively Selected Plan (TSP)
Enclosure 3: Programmatic Agreement (PA) (*attached*)

Enclosure 1: New Jersey Back Bays (NJBB) Study Area



Enclosure 2: Tentatively Selected Plan (TSP) Nonstructural Features



DRAFT

PROGRAMMATIC AGREEMENT REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT FOR THE NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY AMONG THE U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT, AND THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE

WHEREAS, the U.S. Army Corps of Engineers, Philadelphia District (District) is proposing to undertake measures to increase resilience and to reduce risk from future storms and compounding impacts of sea level change (SLC) for the New Jersey Back Bay (NJBB) Study Area; and

WHEREAS, the New Jersey Back Bays Coastal Storm Risk Management Study (Study) was authorized by the New Jersey Shore Protection Authority of 1987 and further included in the Second Interim Report to Congress pursuant to Disaster Relief Appropriations Act of 2013 (Public Law 113-2); and

WHEREAS, the Tentatively Selected Plan (TSP) identified by the Study (Undertaking) is the NJBB 5-year Nonstructural Plan, which consists of elevations of 6,421 residential structures, floodproofing of 279 critical structures (Police, Fire, ambulance, hospital, pharmacy), and Nature Based Solutions (NBS) with dredged material to restore degraded salt marsh habitat at approximately 7 locations in the NJBB Study Area (Appendix A); and

WHEREAS, the New Jersey Department of Environmental Protection, Bureau of Coastal Engineering (NJDEP) is the non-federal sponsor of the Study and will provide all lands, easements, rights-of-way, and other areas needed for implementation of the Undertaking after it is authorized for construction; and

WHEREAS, the District, in consultation with the New Jersey Historic Preservation Office (NJHPO), has determined the Area of Potential Effect (APE) to include all areas within which the effects of the Undertaking may directly or indirectly alter the character defining features of historic properties, if any such properties exist, including the mainland locations for non-structural measures for residential/non-residential structures; and

WHEREAS, the District carried out a cultural resources survey to support an assessment of affects and initially identified 85 historic districts and approximately 20,000 aboveground historic properties in the Study Area that are listed or eligible for listing in the National Register of Historic Places (NRHP); and

WHEREAS, the District has determined that approximately 1,000 historic properties and 32 historic districts (Appendix B) are within the APE for nonstructural and NBS measures in accordance with the Tentatively Selected Plan (TSP); and

WHEREAS, pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C § 306108), the District has determined that implementation of the TSP, which will entail nonstructural measures (elevations and flood-proofing) and Nature Based Solutions (NBS), has the potential to have adverse effects to properties or districts that are listed or eligible for listing on the National Register of Historic Places (NRHP); and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), the District has notified the Advisory Council on Historic Preservation (ACHP) of the potential for the Undertaking to adversely affect historic properties and that a Programmatic Agreement (PA) will be prepared and the ACHP has chosen to not participate at this time; and

WHEREAS, the District is inviting the NJHPO, the Delaware Nation, the Delaware Tribe of Indians, the Eastern Shawnee Tribe of Oklahoma, the Oneida Nation, the Seneca Nation of Indians, the St. Regis Mohawk, and the Stockbridge-Munsee Community to participate in the process for taking into consideration the effects of the Undertaking on historic properties; and

WHEREAS, the District has also invited 65 other potential Consulting Parties (CPs) (Appendix C) to participate in the process for taking into consideration the effects of the Undertaking on historic properties; and

WHEREAS, the District, in consultation with the NJHPO, the Tribes, and other CPs as appropriate, has identified the need for additional work as plans for the Undertaking are further developed to identify significant resources in the APE and to consult to determine the effects of the Undertaking on those resources in order to develop treatment plans and mitigation plans, if necessary, for the proposed Undertaking, will carry out such work to avoid, minimize, or mitigate for adverse effects to significant historic properties and archaeological sites; and

WHEREAS, the District, the NJHPO, and the Tribes agree that it is advisable to accomplish compliance with Section 106 of the NHPA through the development and execution of this PA in accordance with 36 CFR § 800.6 and § 800.14 (b)(1)(ii); and

WHEREAS, the District involved the general public through public scoping and review periods through the National Environmental Policy Act (NEPA), which affords all persons, organizations, and government agencies the right to review and comment on proposed major federal actions that are evaluated by a NEPA document and participate in public meetings during the review of the feasibility report; and

NOW, THEREFORE, the District and the NJHPO agree that the proposed Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties and to satisfy the USACE Section 106 responsibilities for all individual aspects of the Undertaking.

Stipulation I

Identification, Evaluation, Effect Determination and Resolution

A. *Scope of Undertaking*. This PA shall be applicable to all construction activities related to the proposed Undertaking. The Area of Potential Effects (APE) shall be established by the USACE in consultation with the NJHPO and shall include all areas within which the Undertaking may directly or indirectly alter the character defining features of historic properties, if any such properties exist.

B. *Qualifications and Standard*s. The USACE shall ensure that all work conducted in conjunction with this PA is performed in a manner consistent with the Secretary of Interior's "Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register 44716-44740; September 23, 1983), as amended, or the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR § 68), as appropriate. The USACE shall ensure that all cultural resource investigations and reviews carried out pursuant to this agreement are carried out by or under the direct supervision of a person or persons meeting at a minimum, the appropriate standards set forth in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739).

C. *Definitions.* The definitions set forth in § 800.16 are incorporated herein by reference and apply throughout this PA.

D. *Identification of Historic Properties*. Prior to the initiation of any irretrievable commitment of construction funds, the USACE shall make a reasonable and good faith effort to identify historic properties located within the APE. These steps may include, but are not limited to, background research, consultation, oral history interviews, sample field investigation, field survey, phased archaeological survey, and intensive level architectural survey. The level of effort for these activities shall be determined in consultation with the NJHPO and any Tribe that attaches religious and cultural significance to identified properties. If no historic properties are identified within the APE, the USACE shall document this finding pursuant to § 800.11(d) and retain this documentation in USACE files for at least seven (7) years.

E. *Evaluation of National Register Eligibility*. If potential historic properties are identified within the APE, the USACE shall determine their eligibility for listing on the National Register of Historic Places in accordance with the process described in § 800.4(c) and criteria established in 36 CFR § 60.4. The determination of cultural significance shall be conducted in consultation with the NJHPO and Tribes that attach religious and cultural significance to identified properties. Should the USACE and the NJHPO agree that a property is or is not eligible; such consensus shall be deemed conclusive for the purpose of the PA. Should the USACE and NJHPO not agree regarding the eligibility of a property, the USACE shall obtain a determination of eligibility from the Keeper of the National Register pursuant to 36 CFR § 63.

F. *No Historic Properties Affected*. The USACE shall make a reasonable and good faith effort to evaluate the effect of each Undertaking on historic properties within the APE. The

USACE through consultation may conclude that no historic properties are affected by an Undertaking if no historic properties are present in the APE, or the Undertaking will have no effect as defined in §800.16(i). This finding shall be documented in compliance with § 800.11(d) and the documentation shall be retained by the USACE for at least seven (7) years and provided to the NJHPO upon request. The USACE shall provide information on the finding to the public upon request, consistent with the confidentiality requirements of § 800.11(c).

G. *Assessment of Effects*

1. *Finding of No Adverse Effect*. The USACE, in consultation with the NJHPO and Tribes that attach religious and cultural significance to identified historic properties, shall apply the criteria of adverse effect to historic properties within the APE in accordance with § 800.5. The USACE may propose a finding of no adverse effect if the Undertaking's effects do not meet the criteria of § 800.5(a)(1) or the Undertaking is modified to avoid adverse effects in accordance with 36 CFR § 68. The USACE shall provide to the NJHPO documentation of this finding meeting the requirements of § 800.11(e). The NJHPO shall have 30 calendar days in which to review the findings and provide a written response to the USACE. The USACE may proceed upon receipt of written concurrence from the NJHPO. Failure of the NJHPO to respond within 30 days of receipt of the finding shall be considered agreement with the finding. The USACE shall maintain a record of the finding and provide information on the finding to the public upon request, consistent with the confidentiality requirements of § 800.11(c).

2. *Resolution of Adverse Effect***.** If the USACE determines that the Undertaking will have an adverse effect on historic properties as measured by criteria in § 800.5.(a)(1), the agency shall consult with the NJHPO, the Tribes, and other CPs as appropriate to resolve adverse effects in accordance with § 800.6.

   a. For historic properties that the USACE and NJHPO agree will be adversely affected, the USACE shall:

      1) Consult with the NJHPO to identify other individuals or organizations to be invited to become CPs. If additional CPs are identified, the USACE shall provide them copies of documentation specified in § 800.11(e) subject to confidentiality provisions of § 800.11(c).

      2) Afford the public and interested parties an opportunity to express their views on resolving adverse effects in a manner appropriate to the magnitude of the project and its likely effects on historic properties.

      3) Consult with the NJHPO, the NJDEP, the Tribes, and other CPs which have indicated an interest in the Undertaking to seek ways to avoid, minimize, or mitigate adverse effects.

4) The USACE, in consultation with NJHPO, the Tribes, and other CPs as appropriate, shall prepare an historic property treatment plan which describes mitigation measures the USACE proposes to resolve the Undertaking's adverse effects and provide this plan for review and comment to the NJHPO, the Tribes and other CPs that have indicated an interest in the Undertaking. All parties shall have 30 calendar days in which to provide a written response to the USACE.

b. When designing treatments for historic properties affected by nonstructural measures, the USACE will reference the Secretary of the Interior's (SOI) Standards for Rehabilitation and Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (2017), the NJHPO's Elevation Design Guidelines for Historic Properties (2019), the National Park Service's (NPS) Guidelines on Flood Adaptation for Rehabilitating Historic Buildings (2021), and the ACHP's Climate Change and Historic Preservation Policy Statement (2023).

c. If the USACE and NJHPO fail to agree on how adverse effects will be resolved, the USACE shall request that the Council join the consultation and provide the Council with documentation pursuant to § 800.11(g).

1) If the Council agrees to join the consultation, the USACE shall proceed in accordance with § 800.9.

2) If, after consulting to resolve adverse effects pursuant to Stipulations I or II of this PA, the Council, USACE, NJHPO or Tribes determines that further consultation will not be productive, then any party may terminate consultation in accordance with the notification requirement and process prescribed by § 800.7.

Stipulation II

Post Review Changes and Discoveries

A. *Changes in the Undertaking*. If construction on the Undertaking has not commenced and the USACE determines that it will not conduct the Undertaking as originally coordinated, the USACE shall reopen consultation pursuant to Stipulation I D – G.

B. *Unanticipated Discoveries or Effects*. Pursuant to § 800.13(a)(2), if historic properties are discovered or unanticipated effects on historic properties are found after construction on an Undertaking has commenced, the USACE shall ensure that all operations with the potential to affect an historic property are immediately ceased, develop a treatment plan to resolve adverse effects, and notify the NJHPO and the Tribes within 48 hours of the discovery. The notification shall include the USACE assessment of National Register eligibility of affected properties and proposed actions to resolve the adverse effects. Comments received from the NJHPO and Tribes which have expressed an interest in the Undertaking within 48 business hours of the notification shall be taken into account by the

USACE in carrying out the proposed treatment plan. The USACE may assume NJHPO concurrence in its eligibility assessment unless otherwise notified by the NJHPO. The USACE shall provide the NJHPO and the Tribes which have expressed an interest in the Undertaking a report of the USACE actions when they are completed.

C. *Treatment of Human Remains*.

1. If any human remains and/or grave-associated artifacts are encountered, the USACE, the NJHPO and the Tribes shall consult to develop a treatment plan that is responsive to the ACHP's "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (23 February 2007), the Native American Grave Protection and Repatriation Act, as amended (PL 101-601, 25 U.S.C. 3001 et seq.), the USACE Tribal Consultation Policy (4 October 2012).

2. Human remains must be treated with the utmost respect and dignity. All work must stop in the vicinity of the find and the site will be secured.

3. The medical examiner/coroner, local law enforcement, the NJHPO and the Tribes will be notified immediately. The coroner and local law enforcement will determine if the remains are forensic or archaeological in nature.

4. If the remains are determined to be archaeological in nature, a forensic/physical anthropologist will be employed to determine whether the remains are Native American or of other origin.

5. If the human remains are determined to be Native American, they shall be left in place and protected from further disturbance until a treatment plan has been developed and approved by the USACE, the NJHPO and the Tribes.

6. If human remains are determined to be non-Native American, the remains will be left in place and protected from further disturbance until a plan for avoidance or removal is developed and approved by the USACE, the NJHPO, the Tribes and other parties, as appropriate.

Stipulation III

Coordination of Reviews for Study Activities

A. All plans, documents, reports, and materials shall be submitted by the USACE to the NJHPO, the Tribes, and other CPs as appropriate by e-mail for a 30-day review period unless otherwise stipulated in this PA. If the NJHPO and other parties fail to comment within the specified time the USACE shall assume the agencies concurrence.

B. The USACE shall ensure that all submissions to the NJHPO, the Tribes, and other CPs as appropriate include all the relevant information required to facilitate their review. The USACE shall provide all additional information requested within a timely manner unless the signatories to this PA agree otherwise.

C. The USACE shall ensure that all draft and final reports resulting from actions pursuant to the Stipulations of this PA will be provided to the NJHPO, the Tribes, and other CPs as appropriate and will identify the Principal Investigator responsible for the report. All reports will be responsible to contemporary standards and to NJHPO report standards.

Stipulation IV

Curation and Disposition of Artifacts and Records

The USACE shall ensure that all archaeological materials and associated records owned by the State which are recovered and conserved as a result of the identification, evaluation, and treatment efforts conducted under this PA, shall be transported and accessioned into a suitable university, museum, or other scientific or educational institution that meets the standards of 36 CFR § 79. Copies of associated archaeological records and data shall be made available to the NJHPO and the Tribes upon request. Archeological items and materials from privately-owned lands shall be returned to their owners upon completion of analyses required for Section 106 compliance under this PA.

Stipulation V

PA Amendments, Disputes and Termination

A. *Amendments*. Any party to this PA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with § 800.6(c)(7) to consider such an amendment.

B. *Disputes.* Disputes regarding the completion of the terms of this agreement shall be resolved by the signatories. If the signatories cannot agree regarding a dispute, any one of the signatories may request the participation of the ACHP in resolving the dispute in accordance with the procedures outlined in § 800.9.

C. *Termination of PA*. Any party to this PA may terminate it by providing sixty (60) days' notice to the other parties, provided that the parties will consult during the period prior to the termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination of this PA by the NJHPO, the USACE shall comply with the provisions of § 800 Subpart B.

D. *Anti-Deficiency Act.* All requirements set forth in this PA requiring expenditure of funds by the USACE are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. 1341). No obligation undertaken by the USACE under the terms of this PA shall require or be interpreted to require a commitment to expend funds not appropriated for a particular purpose. If the USACE cannot perform any obligation set forth in this PA because of unavailability of funds that obligation must be renegotiated among the USACE and the signatories as necessary.

Stipulation VI
Termination of Consultation

If, after consulting to resolve adverse effects pursuant to Stipulation I or II of this PA, the USACE or NJHPO determines that further consultation will not be productive, then either party may terminate consultation in accordance with the notification requirements and process prescribed by § 800.7

Stipulation VII
Term of this Agreement

After a period of seven (7) years from execution of the PA, unless the Project has been completed, it did not receive Congressional authorization, or its authorization was rescinded, the signatories will coordinate to decide whether to extend the agreement as it is written or to update it provided all signatories concur.

Execution and implementation of this PA evidences that the USACE has satisfied its Section 106 responsibilities for all individual Undertakings of the Project, and that the USACE has afforded the ACHP an opportunity to comment on the Undertaking and its effects on historic properties.

DRAFT

PROGRAMMATIC AGREEMENT
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT
FOR THE
NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA DISTRICT,
AND
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE

U.S. ARMY CORPS OF ENGINEERS, PHILADELPHIA

Jeffrey Beeman, Lieutenant Colonel, District Commander **Date**

DRAFT

PROGRAMMATIC AGREEMENT
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT
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NEW JERSEY BACK BAYS COASTAL STORM RISK MANAGEMENT STUDY
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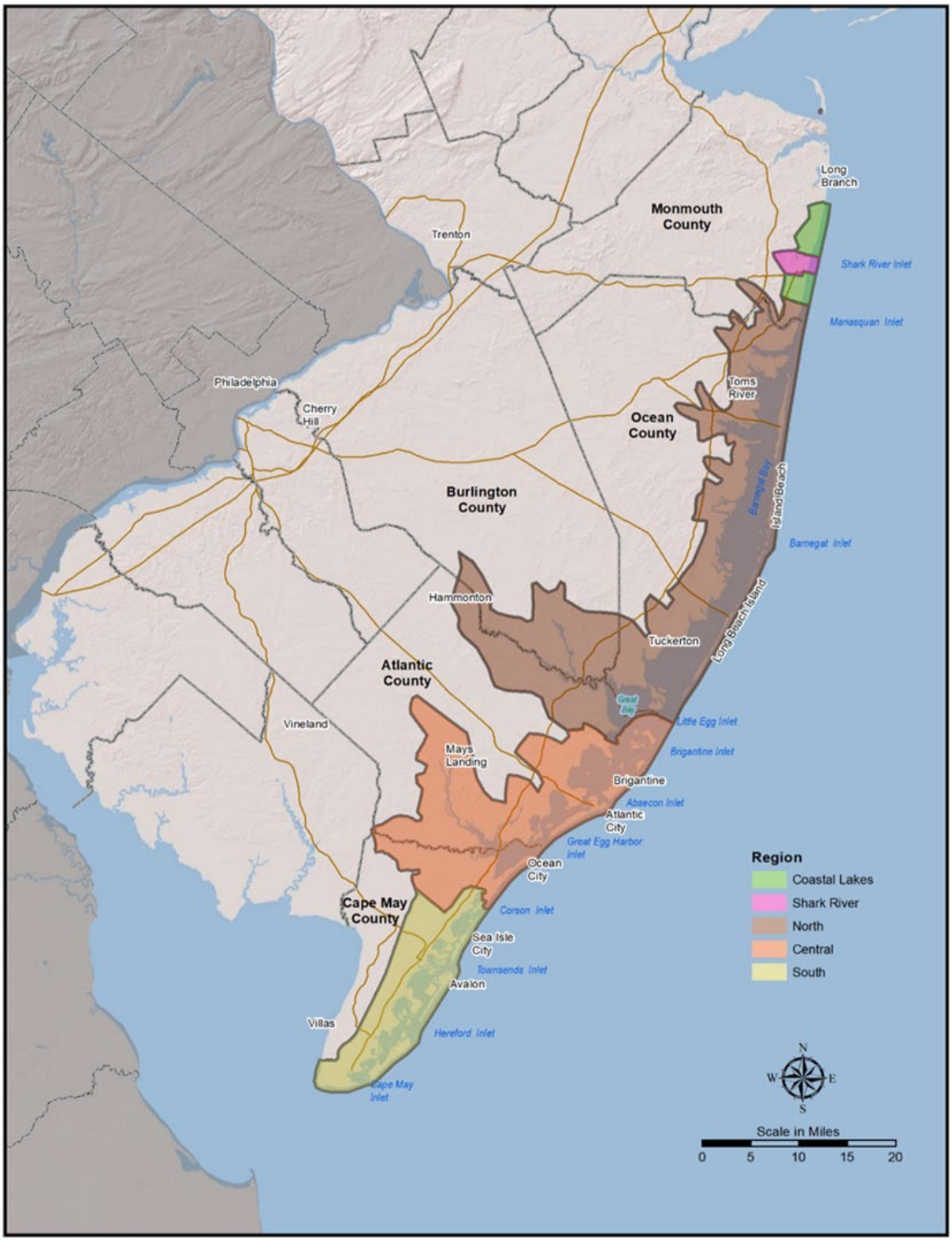
AND
THE NEW JERSEY STATE HISTORIC PRESERVATION OFFICE

NEW JERSEY STATE HISTORIC PRESERVATION OFFICER

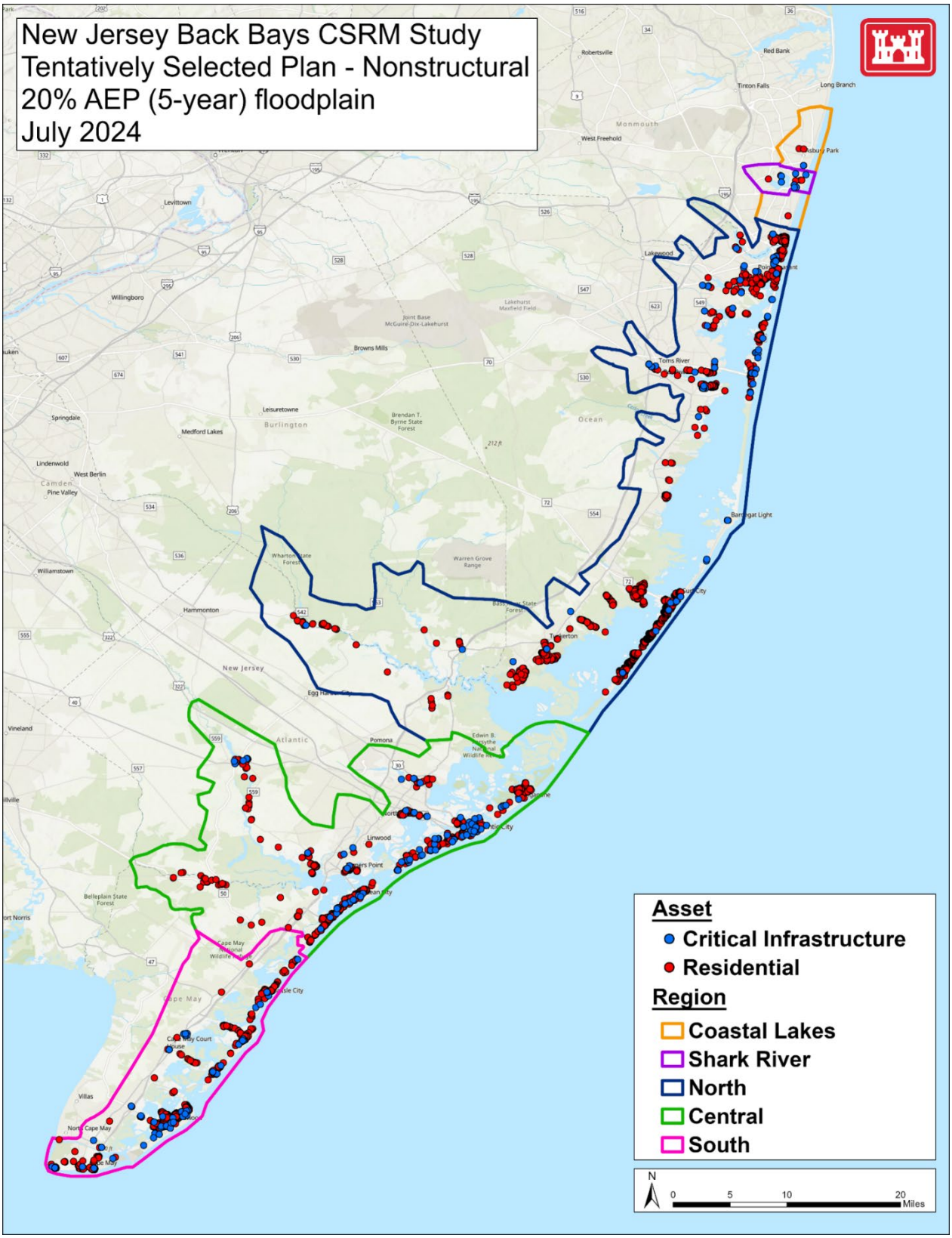
Katherine J. Marcopul, Deputy State Historic Preservation Officer **Date**

Appendix A: Maps

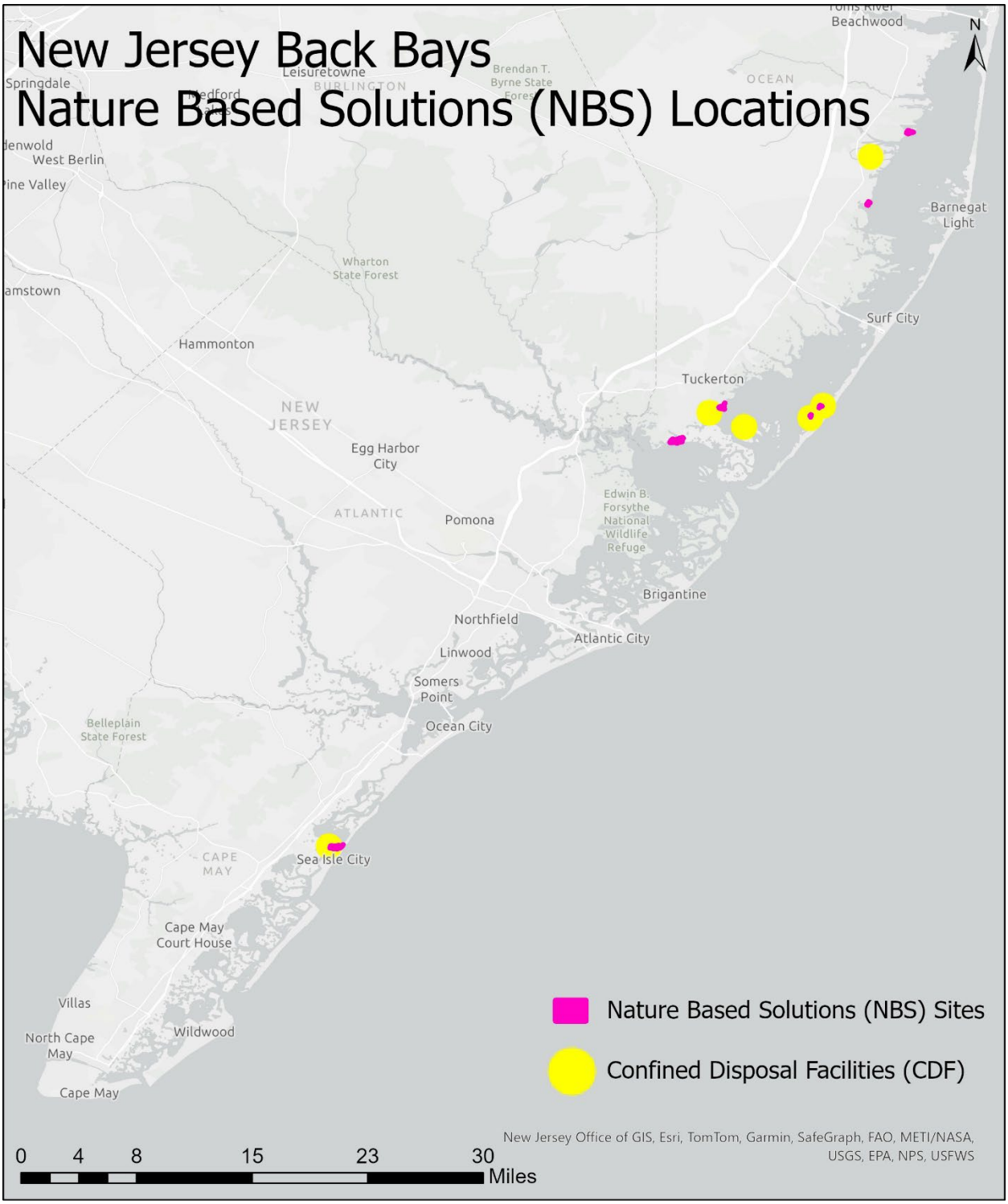
A.1: Map of New Jersey Back Bays (NJBB) Study Area



A.2: Map of NJBB Tentatively Selected Plan (TSP)



A.3: Map of NJBB Nature Based Solutions (NBS) Locations



Appendix B: Historic Districts Located in the Area of Potential Effect (APE) for the TSP

District Name	Status	APE
Atlantic City Beautiful Historic District	Eligible	Elevations of Residential Structures
Atlantic City Boardwalk Historic District	Not yet evaluated	Elevations
Atlantic City Railroad Cape May Division Historic District	Eligible	Floodproofing of Critical Structures
Batso Village	Listed	Elevations
Bay Front Historic District	Listed	Elevations
Bay Head Historic District	Listed	Elevations and Floodproofing
Beach Haven Historic District	Listed	Elevations
Bed and Breakfast Overlay Zone	Locally Designated	Elevations
The Bungalow Colony	Not yet evaluated	Elevations
Cape May Historic District	National Historic Landmark (NHL) & NRHP-Listed	Elevations and Floodproofing
Dock Road Historic District	Not yet evaluated	Elevations
Downtown Commercial Block	Not yet evaluated	Elevations
Grassy Sound Historic District	Eligible	Elevations
Greater Beach Haven Historic District	Locally Designated	Elevations
Manasquan Main Street Historic District	Eligible	Elevations and Floodproofing
Mantoloking Historic District	Eligible	Elevations and Floodproofing
Marshallville Historic District	Listed	Elevations
Mays Landing Historic District	Listed	Elevations and Floodproofing
Morris Beach Historic District	Eligible	Elevations
North and South Tuckahoe Historic District	Eligible	Elevations
Northside Institutional Historic District	Listed	Floodproofing
Ocean Beach Historic District (Units 1, 2, and 3)	Eligible	Elevations
Ocean City Residential Historic District	Listed	Floodproofing
Ocean Grove Camp Meeting Association Historic District	Listed	Floodproofing
Port Republic Historic District	Listed	Elevations
Saint Leonard's Tract Historic District	Eligible	Elevations
Sea Grove Historic District	Not yet evaluated	Floodproofing
Ship Bottom Historic District	Not yet evaluated	Elevations
South Shore Road Historic District	Eligible	Elevations
Tuckerton Historic District	Eligible	Elevations and Floodproofing
U.S. Route 40 Motel Historic District	Not yet evaluated	Elevations
Woodmansee Estate Historic District	Not yet evaluated	Nature Based Solutions (NBS)

Appendix C: List of Consulting Parties

Organization	Address	Contact
Absecon Historical Society	PO Box 1422 Absecon NJ 08201	abseconhistory@gmail.com
Asbury Park Historical Society	508 4th Street, Asbury Park, NJ 07712	info@aphistoricalsociety.org
Atlantic County Historical Society	907 Shore Road, Somers Point NJ 08244	achsinfo@comcast.net
Atlantic Highlands Historical Society	PO Box 108, Atlantic Highlands, NJ 07716	ahhistoricalinfo@gmail.com
Avon-by-the-Sea Historical Society	PO Box 23, Avon by the Sea, NJ 07717	avonhsnj@gmail.com
Barnegat Historical Society and Museum	PO Box 386, 501 Central Ave, Barnegat NJ 08006	klarson767@aol.com
Bay Head Historical Society	PO Box 127, Bay Head NJ 08724	https://bayheadhistoricalsociety.com
Belmar Historical Society	900 E Street, Belmar, NJ 07719	info@belmarhistoricalsociety.org
Berkeley Township Historical Society	759 Atlantic City Blvd, Berkeley NJ 08721	mayor@twp.berkeley.nj.us
Bradley Beach Historical Society	719 Main Street, Bradley Beach, NJ 07720	info@bbhistory.org
Borough of Allenhurst	Borough Hall, 125 Corlies Ave, Allenhurst, NJ 07711	http://www.allenhurstnj.org
Borough of Lake Como	1740 Main Street, Lake Como NJ 07719	lmekosh@boro.lake-como.nj.us
Borough of Roosevelt	PO Box 128, Roosevelt NJ 08555	mayor@rooseveltnj.us
Borough of Union Beach	650 Poole Ave, Union Beach NJ 07735	charlie@unionbeachnj.gov
Brick Township Historical Society	PO Box 160, Brick NJ 08723	https://bricktownshiphistoricalsociety.com
Brielle Union Landing Historical Society	601 Union Lane, Brielle, NJ 08730	https://ulhs.worldpress.com
Brigantine Historical Society	3607 Brigantine Blvd, Brigantine NJ 08203	info@brigantinebeachnj.com
Buena Vista Historical Society	PO Box 605, Buena NJ 08310	info@buenavistanj.com
Chicken Bone Beach Historical Association	1721 McKinley Ave, Atlantic City NJ 08401	chickenbonebeach@comcast.net
Colts Neck Historical Preservation Committee	124 Cedar Drive, Colts Neck, NJ 07722	https://coltsneck.org/historic-preservation/
Corbin City Historical Survey	City Hall. 513 Maple Ave, Corbin City NJ 08270	http://ci.corbincity.nj.us
Eagleswood Historical Society	247 Main Street, West Creek NJ 08092	kwells@eagleswoodtwpnj.us
Eatontown Historical Committee	47 Broad Street, Eatontown, NJ 07724	admin@eatontownnj.com
Egg Harbor City Historical Society	533 London Ave, Egg Harbor City NJ 08215	https://ehchs.com/
Estell Manor Historical Society	134 Cape May Ave, Estell Manor NJ 08319	estellmanorhistoricalsociety@aol.com

Fair Haven Historical Commission	748 River Road, Fair Haven, NJ 07704	crodriguez@fhboro.net
Farmingdale Historical Society	13 Ashbury Ave, Farmingdale, NJ 07727	farmingdalehistoricalsocietynj@gmail.com
Freehold Township Heritage Society	1 Municipal Plaza, Freehold, NJ 07728	ftheritagesociety@gmail.com
Friends of Millstone Township Historic Registered Properties	24 Baird Road, Millstone Township NJ 08535	info@savinghistorywithfriends@gmail.com
Friends of Monmouth County Battlefield	PO Box 122, Tennent NJ 07763	dmartin@peddie.org
Great Egg Harbor Township Historical Society	6647 West Jersey Ave, Egg Harbor Township, NJ 08234	GEHTHSMuseum@aol.com
Hamilton Historical Society	PO Box 482, 49 Mill Street Mays Landing NJ 08330	hamiltonhistorical@comcast.net
The Historic Village of Allentown	PO Box 432, Allentown, NJ 08501	https://allentownnj.com
Historical Society of Galloway Township	300 East Jimmie Leeds Road Galloway NJ 08205	gallowayhistory@gmail.com
Historical Society of Hammonton	PO Box 876, Hammonton NJ 08037	info@historicalsocietyofhammonton.org
Historical Society of Highlands	PO Box 13, Highlands, NJ 07732	historicalhighlands@gmail.com
Historical Society of Ocean Grove	50 Pitman Ave, Ocean Grove, NJ 07756	info@historicalsocietyofoceangrove.org
Holmdel Historical Society	PO Box 282, Holmdel, NJ 07733	holmdelhistoricalsociety@gmail.com
Keyport Historical Society	PO Box 312, Keyport, NJ 07735	https://keyporthistoricalsociety.com
Lakehurst Historical Society	300 Center Street, Lakehurst NJ 08733	lakehursthistoricalsociety@gmail.com
Nanticoke Lenni-Lenape Tribal Nation	18 E Commerce St, Bridgeton, NJ 08302	https://www.nlltribalnation.org/
Linwood Historical Society	16 W Poplar Ave, Linwood NJ 08221	https://www.linwoodnj.org/
Little Silver Historical Society	480 Prospect Ave, Little Silver NJ 07739	kjungfer@littlesilver.org
Long Branch Historical Association	229 Lewis Street, Oakhurst, NJ 07755	https://longbranchhistory.org
Long Beach Island Historical Society	129 Engleside Ave, Beach Haven NJ 08008	lbimarr@aol.com
Margate City Historical Society	PO Box 3001, 1 S Washington Ave, Margate NJ 08402	margatehistory@outlook.com
Marlboro Historical Commission	1979 Township Drive, Marlboro NJ 07746	history1848@marlboro-nj-gov
Matawan Historical Society	PO Box 41, Matawan NJ 07747	info@matawanhistoricalsociety.org
Middletown Township Historical Society	PO Box 180 Middletown, NJ 07748	middletownhistory@gmail.com
Monmouth Museum	765 Newman Springs Road, Lincroft NJ 07738	info@monmouthmuseum.org
New Egypt Historical Society	125 New Egypt Allentown Rod, New Egypt NJ 08533	https://newegypthistoricalsociety.org/

Ocean County Historical Society	26 Hadley Ave, Toms River NJ 08753	ochs_research@verizon.net
Old Wall Historical Society	2700 Allaire Road, Wall NJ 07719	administration@townshipofwall.com
Point Pleasant Historical Society	416 New Jersey Ave, Point Pleasant Beach NJ 08742	ppbhistoricalsociety@gmail.com
Sea Bright Historical Society	PO Box 3347, Sea Bright NJ 07760	kbirdsall@seabrightnj.org
Shrewsbury Historical Society	PO Box 333, Shrewsbury NJ 07702	shrewsburyhistoricalsociety@gmail.com
Somers Point historical Society	PO Box 517, Somers Point NJ 08244	coupe1956@aol.com
Spring Lake Historical Society	423 Warren Ave, Spring Lake NJ 07762	slhs703@optimum.net
Squan Village Historical Society	105 South Street, Manasquan NJ 08736	info@squanvillagehistoricalsociety.org
Stafford Township Historical Society	120 N Main Street, Manahawkin NJ 08050	comments@staffordhistory.org
Township of Ocean Historical Society	182 Wells Mills Road, Waretown NJ 08758	lmbleeke@gmail.com
Tuckerton Historical Society	35 Leitz Blvd, Little Egg Harbor NJ 08087	http://www.tuckertonhistoricalsociety.org
Ventnor City Historical Society	3 S Oxford Ave, Ventnor City NJ 08406	ventnorhistory@gmail.com
Village of Loch Arbour Planning Board	550 Main Street, Loch Arbour, NJ 07711	http://www.locharbornj.us
Upper Freehold Township	314 Route 539, Cream Ridge NJ 08514	ufnjadmin@uftnj.com
West Long Branch Historical Society	46 Mount Drive, West Long Branch NJ 07764	https://www.westlongbranch.org/