Tiered Environmental Assessment

Ottens Harbor Community Flood Mitigation

EMN-2020-FM-001-0014

Wildwood, Cape May County, New Jersey

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FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency Region 2
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TABLE OF CONTENTS

LIST OF TABLES

Figures

APPENDICES

LIST OF ACRONYMS

APE – Area of Potential Effects
BMP – Best Management Practice
BRIC – Building Resilient Infrastructure and Communities
CAFRA – Coastal Area Facilities Review Act
CCA – Chromated Copper Arsenate
CEQ – Council on Environmental Quality
CFR – Code of Federal Regulations
CO_2 – Carbon Dioxide
CWA – Clean Water Act
CZMA – Coastal Zone Management Act
CZMP – Coastal Zone Management Plan
dBA – A-Weighted Decibel
EFH – Essential Fish Habitat
EO – Executive Order
EPA – United States Environmental Protection Agency
ESA – Endangered Species Act
FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Map
FONSI – Finding of No Significant Impact
GHG – Greenhouse Gases
Ldn – Day-Night Noise Level
LSRP – Licensed Site Remediation Professional
MBTA – Migratory Bird Treaty Act
NAAQS – National Ambient Air Quality Standards
NAVD88 – North American Vertical Datum 1988
NEPA – National Environmental Protection Act
NHPA – National Historical Preservation Act
NJAC – New Jersey Administrative Code
NJDEP – New Jersey Department of Environmental Protection
NJDFW – New Jersey Department of Fish and Wildlife
NJHPO – New Jersey Historic Preservation Office
NMFS – National Marine Fisheries Service
NPDES – National Pollution Discharge Elimination System
NRHP – National Register of Historic Places
NWI – National Wetland Inventory
PEA – Programmatic Environmental Assessment
SHPO – State Historic Preservation Office
TEA – Tiered Environmental Assessment

U.S.C. – United States Code
USACE – United States Army Corps of Engineers
USFWS – United States Fish and Wildlife Service

1.0 INTRODUCTION

The City of Wildwood (City) proposes to implement flood-reduction measures along the northwestern edge of the city. The City applied to the Federal Emergency Management Agency (FEMA) through the New Jersey Office of Emergency Management for a Building Resilient Infrastructure and Communities (BRIC) grant. The BRIC Grant Program is authorized under Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 United States Code (U.S.C.) 5133, as amended by the Disaster Recovery Reform Act of 2018. Under the BRIC Grant Program, FEMA provides technical and financial assistance to states and local governments to assist in the implementation of hazard mitigation measures that are cost-effective and designed to reduce injuries, loss of life, and damage and destruction of property.

FEMA prepared this Tiered Environmental Assessment (TEA) in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; the Council on Environmental Quality regulations implementing NEPA (Title 40 Code of Federal Regulations [CFR] Sections 1500–1508). In accordance with the above referenced regulations, FEMA Directive 108-1, and FEMA Instruction 108-1-1; FEMA is required, during decision-making, to evaluate and consider the environmental consequences of major federal actions it funds or undertakes. FEMA prepared a Programmatic Environmental Assessment (PEA) to facilitate and streamline compliance with NEPA for streambank and shoreline stabilization projects in the states of New Jersey and New York. The scope of the Proposed Action exceeds the limits set within the PEA; therefore, FEMA is required to prepare a TEA. FEMA intends to use this TEA to analyze potential environmental impacts beyond the scope covered in the PEA of the Proposed Action and alternatives, including a No Action alternative, and to determine whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact (FONSI).

2.0 PURPOSE AND NEED

FEMA's BRIC program provides grants to eligible state, territory, and local governments and federally recognized tribes to implement natural hazard mitigation projects. The objective of the BRIC program is to shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience to reduce overall risk to the population and structures from future hazard events, which has the added benefit of reducing reliance on federal funding during future disasters. The purpose of the Proposed Action is to reduce future flood hazards associated with heavy rains and high tides along the bayside of the city of Wildwood. Objectives of the project include increasing access for emergency services, reducing exposure to flood-borne health hazards, and reducing flood-related property damage. The project is needed because the area is prone to flooding from heavy rain and tidal flood events owing to its low-lying topography. Flooding causes damage in and restricts access to the Ottens Harbor area, which includes approximately 1,500 residents, risking lives, public health, and property. Additionally, existing bulkheads and a drainage pipe used to reduce flood impacts within the area

are currently damaged, further increasing the risk of flooding. Flooding occasionally becomes severe enough to flood much of the city of Wildwood and close Rio Grande Avenue, a major access point to and from the city of Wildwood (Cape May 2016).

3.0 BACKGROUND

The proposed project is in the city of Wildwood, New Jersey, Cape May County, on the bayside of a barrier island on the Atlantic Ocean. The project area includes wetlands along Mediterranean Avenue and West Andrews Avenue, bulkheads along Ottens Harbor, Susquehanna Avenue starting from Ottens Harbor and ending at Youngs Avenue, and the wetlands northwest of Susquehanna Avenue. The area that is impacted by floodwaters in the project area includes, and is bordered by, Rio Grande Avenue, Park Boulevard, and West Garfield Avenue, which is approximately 16 percent of the land area of the city of Wildwood (**Appendix A, Map 1**). The affected area is predominately residential with a population of approximately 1,500 residents, many of which are low-income residents (see Section 5.14). During very heavy flood events, floodwaters have extended beyond this area and affect the entire city of Wildwood.

Because there are only 0 to 3 feet of elevation between the water's edge and Mediterranean Avenue and West Andrews Avenue, the wetlands in that area are unable to prevent inundation during periods of heavy rains and high tides (United States Geological Survey 2022). The street-end bulkheads along Ottens Harbor are currently failing because of age and do not meet the City's required elevation of 8 feet North American Vertical Datum 1988 (NAVD88) above mean sea level. Portions of a drainage pipe that traverses under Youngs Avenue and Susquehanna Avenue are crushed. The crushed pipe reduces the amount of floodwater that can be directed offshore.

According to the Cape May Hazard Mitigation Plans of 2016 and 2021, the city of Wildwood has experienced 16 major natural hazard events since 2008. Major events included coastal flooding during May 2008 that closed many of the city's roadways and downed power lines. In November 2009, similar impacts were caused by major coastal flooding that also caused structural damage throughout the city. Hurricane Irene, in August 2011, resulted in substantial flooding, increased needs for emergency and public works services, and required mandatory evacuation of the island. Hurricane Sandy, in October 2012, resulted in island evacuations, flood damage throughout the city, and beach facility damage (Cape May 2016). Coastal flooding within the project area and the city is expected to become more frequent and cover larger areas as a result of the effects of climate change and sea level rise.

4.0 ALTERNATIVES

FEMA and the City considered alternatives that could fulfill the purpose and need for this proposed project. This consideration was based upon engineering constraints, environmental impacts, and available property. Budgetary constraints are included but were not the controlling factor.

Additionally, a No Action alternative, also known as the "Future Without Federal Project Condition," is included in the analysis. This section describes the No Action alternative, feasible alternatives that would satisfy the purpose and need including the Proposed Action, and alternatives that were considered and dismissed from further analysis.

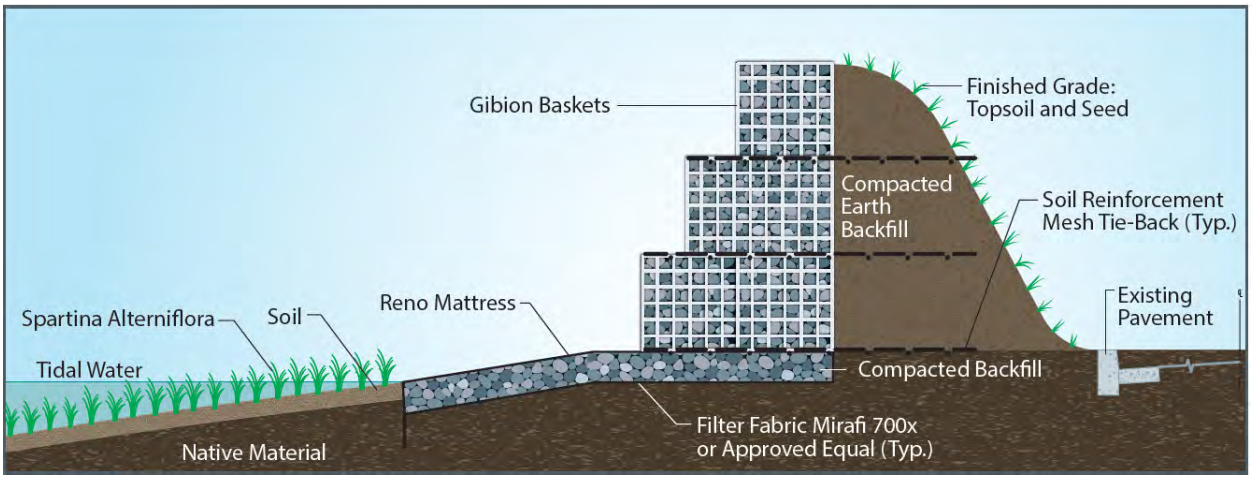
4.1 Alternative 1: No Action Alternative

Under the No Action alternative, there would be no federal financial assistance provided for flood mitigation in the project area. FEMA anticipates that, because of budgetary constraints within the state and the community, the flood mitigation work would remain unfunded or deferred for an unspecified period of time. The Ottens Harbor area and the city of Wildwood would continue to be at risk from heavy rain and tidal-related flooding from the bayside of the island. Flooding would continue to inundate streets, potentially necessitating road closures, which would affect emergency response times and close off evacuation routes. Water inundation would also flood buildings and other structures, potentially damaging property and infrastructure. The bulkheads and drainage pipe would continue to fall into disrepair and remain noncompliant with local ordinances, further reducing flood protection for the area. This alternative would not meet the overall purpose and need.

4.2 Alternative 2: Ottens Harbor Community Flood Mitigation – Proposed Action

The Proposed Action would consist of three project elements (**Appendix A, Map 1**) including a living shoreline restoration area, replacement bulkheads in Ottens Harbor, and a replacement drainage pipe. The first element would be approximately 1,100 feet of living shoreline that exceeds the 500-foot limit for bioengineering projects covered under the PEA. The living shoreline would be constructed adjacent to Mediterranean Avenue and West Andrews Avenue. The living shoreline would be composed of a Reno mattress footing, a gabion basket core, biologs, berms made of compacted backfill soils, and native plantings. A Reno mattress is a flexible wire mesh mat that is filled with rocks and allows water to filter through it while retaining soil and sediments, and a gabion basket is a wirework container filled with rocks used in construction of retaining walls. A biolog is a roll of wire netting or cord filled with biodegradable natural fibers that is used to prevent erosion and support soil development and plant growth. A 1-foot-deep Reno mattress with a filter fabric base would be constructed as the base for the living shoreline to provide stability. The mat would eventually fill with sediments and provide a foundation for plant establishment. On the bayside, the berms would be anchored by three rows of gabion baskets, each 3-feet high. The bottom row of gabion baskets would extend 6 feet from the berm edge; the middle row would extend 4.5 feet from the center, and the topmost row would extend 3 feet. The berms, located adjacent to the avenues, would be built to an elevation of 9 feet above mean sea level, composed of compacted earth fill on the landward side, finished with topsoil, and seeded with native grasses. Construction of the living shoreline would use a silt boom, barriers, and the installation of temporary silt fencing around areas of landward ground disturbance to prevent runoff from

entering the streets and storm drains (see **Figure 1**). The site would be accessed from Mediterranean Avenue and West Andrews Avenue. Both avenues would have half-road closures adjacent to the wetland and work would occur there and within the footprint of the living shoreline. A staging area would be established along the western end of Mediterranean Avenue west of Taylor Avenue.



Source: City of Wildwood Engineering Plans

Figure 1. Living Shoreline Design Concept

The second project element would include the installation of vinyl bulkheads with concrete caps at seven street ends along the Ottens Harbor shoreline where the current bulkheads are failing and/or are under 8 feet in elevation. Vinyl sheet piles, 25 feet long, would be installed to extend approximately 5 feet above the existing grade elevation for a final elevation of 8 feet above mean sea level. Anchor piles would be a minimum of 20 feet long and connect to the vertical piles by tie rods. Piles, guide timber, and drag planks would be made from southern yellow pine treated for marine environments with chromated copper arsenate (CCA). Upon completion of bulkhead construction, disturbed areas would be restored with topsoil and seeded. Equipment would be staged on the avenues located behind each bulkhead, either on existing asphalt or previously disturbed soils. Bulkhead installation would be conducted from the landside staging areas and barges in Ottens Harbor.

The third project element includes the replacement of approximately 1,700 feet of 18- to 24-inch-diameter drainage pipe that traverses under the West Youngs Avenue and Susquehanna Avenue rights-of-way. The drainage pipe would be replaced with an upsized 30-inch-diameter pipe at the same location of the current pipe. Trenches up to 8-feet wide and 10-feet deep would be excavated. Dense graded aggregate would be used to fill the trenches and the pavement would be restored to match the existing grade of the avenues. The wetlands at the Youngs Avenue right-of-way would be trenched and replaced with fill from an approved off-site borrow materials facility, with oversight by a licensed engineer or licensed site remediation professional (LSRP). Disturbed areas would be restored to pre-project conditions. At each end of this pipe, new check

valves would be installed, and the exiting bulkheads would be modified with a larger outflow hole to connect to the new 30-inch-diameter pipe. Staging for this project element would be located on the paved section of Roberts Avenue north of Susquehanna Avenue.

Equipment expected to be used to complete the Proposed Action would include a crane, an excavator with clamshell bucket, far-reach or long-arm excavating equipment, a concrete truck, and hand tools. Construction of all elements is expected to take 24 months. Where required, fill material would be obtained from an approved off-site borrow material facility and a licensed engineer or an LSRP would oversee the process. Stockpile yards for the material for all project elements would be located on Spicer Avenue and Cedar Avenue.

4.3 Alternatives Considered and Dismissed

Additional alternatives that were considered and dismissed included elevation of land and/or structures to an elevation of 8 feet NAVD88 and the installation of additional pump stations. Elevating land or structures would reduce flood damage; however, it would not prevent potential road closures and infrastructure damage. Therefore, elevation would not meet the purpose and need. Elevation was also deemed infeasible because of the number of private parcels that would need to be treated and the complexity of coordinating elevations across the entire area.

The construction of additional pump stations would only be effective with additional flood control infrastructure. Therefore, pump stations were dismissed from further consideration.

4.4 Summary of Alternatives

Four alternatives were considered by the City to address flood hazards in the Ottens Harbor area of the city of Wildwood. Two alternatives were eliminated based on infeasibility and cost. The remaining alternatives evaluated in this TEA are:

1) No Action alternative
2) Ottens Harbor Community Flood Mitigation – Proposed Action

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

The following sections discuss the potential environmental impacts and proposed mitigation measures associated with the No Action alternative and the Proposed Action. When possible, FEMA considers quantitative information to establish potential impacts; the significance of potential impacts are evaluated based on the criteria presented in **Table 5.1**. Potential cumulative environmental impacts are discussed in Section 5.22.

Table 5.1: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
No Impact	The resource area would not be affected and there would be no impact.
Negligible	Changes would either be nondetectable or, if detected, would have impacts that would be slight and local. Adverse impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Adverse impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse impacts.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts. Adverse impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse impacts.
Major	Changes to the resource would be readily measurable and would have substantial consequences on regional levels. Adverse impacts would exceed regulatory standards. Mitigation measures to offset the adverse impacts would be required to reduce impacts, though long-term changes to the resource would be expected.

The following resources would not be affected by either the No Action alternative or the Proposed Action because they do not exist in the project area, or the alternatives would have no effect on the resource (**Table 5.2**). These resources were removed from further consideration in this TEA.

Table 5.2: Eliminated Resource Topics

Topic	Reason
Coastal Barrier Resource Act	The closest Coastal Barrier Resource System unit is approximately 2 miles from the project area. No impacts on coastal barrier resource units would occur as a result of either alternative (U.S. Fish and Wildlife Service [USFWS] 2022a).
Wild and Scenic Rivers	The closest wild and scenic rivers are the Maurice and the Great Egg River; both are approximately 19.5 miles from the project area (National Park Service 2022). No impacts on wild and scenic rivers would occur from the alternatives.

5.1 Geology, Topography, and Soils

5.1.1 Existing Conditions

The project area is on a barrier island within the Coastal Plain physiographic region. The geology of this region consists of unconsolidated sand and gravel in beach, dune, and tidal delta settings with silt and clay deposited in saltmarsh and estuarine settings; no bedrock is present near the surface (New Jersey Department of Environmental Protection [NJDEP] 2016; Sugarman et al. 2016). In this part of New Jersey, the sediments are geologically recent, having been deposited

within the last 10,000 years (Sugarman et al. 2016). The project area is located at sea level with relatively flat topography (0 to 2 percent slopes).

The United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey classifies the soil types along Ottens Harbor as predominantly Urban land-Psamments, sulfidic substratum, and wet substratum, (**Appendix A, Map 2**) (U.S. Department of Agriculture 2022). In most locations, these soils have been previously disturbed by development in the city of Wildwood. The project area is within an incorporated municipal area and there are no farmland soils present; therefore, the Farmland Protection Policy Act does not apply.

5.1.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action alternative would not include construction impacts from flood-reduction measures and the risk of flooding would not be reduced. Continued flood events could result in periodic construction to repair storm damage, resulting in minor ground disturbances. Continued flood events would also continue to erode shoreline soils, resulting in topographic changes from soil loss. Soil loss and resultant topography changes could worsen because of increased storm surge and flooding, which is due to climate change related sea level rise and increased storm intensity. Therefore, the No Action alternative would have minor long-term adverse impacts on soils and topography from the continued risk of flooding.

Alternative 2: Proposed Action

Potential adverse effects on geology, topography, and soils under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA. As stated in the PEA, construction activities for all project elements, including excavation and grading, would result in ground disturbance and topographic changes. As noted in the PEA, construction effects would be temporary, and the Subapplicant would implement a site-specific erosion control plan in accordance with the New Jersey Soil Erosion and Sediment Control Act. The living shoreline would not exceed a 3:1 slope, and it would be topped with 6 inches of native soil and planted with native saltmarsh cordgrass (*Spartina alterniflora*) to stabilize the soils and reduce the risk of erosion. Therefore, there would be a minor short-term effect on topography and soils from construction activity, similar to the effects described in the PEA.

In the long term, the risk of flooding and resultant erosion would be reduced. As noted in the PEA, planting of the living shoreline would reinforce the soil's cohesion and internal structure, decreasing both erosion and embankment failure risk. The replacement bulkheads would not result in additional erosion risks from wave reflection compared to the existing bulkheads and would further reduce erosion risks because of the increased height of the new bulkheads. The pipeline replacement would increase the capacity of the infrastructure to drain higher water flows from storms or rising sea levels. Therefore, the Proposed Action would have a minor, long-term, beneficial effect from the reduced risk of flooding and erosion.

5.2 Air Quality

The Clean Air Act of 1970 (42 U.S.C. 7401–7661 [2009]) requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for six pollutants harmful to human and environmental health, including lead, nitrogen dioxide, ozone, carbon monoxide, sulfur dioxide, and particulate matter (including both particulate matter less than 10 micrometers in diameter [PM_{10}], and fine particulate matter less than 2.5 micrometers in diameter [$PM_{2.5}$]). Air quality can also be affected by fugitive dust, which is considered a component of particulate matter. Fugitive dust is released into the air by wind or human activities, such as construction, and can have human and environmental health impacts. Federally funded actions in nonattainment and maintenance areas for these pollutants are subject to conformity regulations (40 CFR Parts 51 and 93) to ensure that emissions of air pollutants from planned federally funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone.

5.2.1 Existing Conditions

Nonattainment and maintenance areas are periodically updated through EPA's Green Book. As of September 2022, the Green Book has Cape May County classified as a marginal nonattainment area for 8-hour ozone under both the 2008 and 2015 rules. All other criteria pollutants (lead, nitrogen dioxide, carbon monoxide, sulfur dioxide, $PM_{2.5}$ and PM_{10}) are in attainment for Cape May County (EPA 2022a).

5.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, temporary construction emissions related to flood-reduction measures would not occur. However, there would be periodic flood events that could result in road closures, which would necessitate construction for repairs. Road closures would result in diversion of vehicles away from flooded areas, which could cause an increase in vehicle related emissions, especially if the detour route is longer than the original route. If the damage is severe enough to result in a permanent rerouting of traffic, the short-term changes in localized air quality may become long term. Additionally, construction equipment would be required to repair damage from the repeated flood events. Emissions from equipment used to repair flood damage and additional vehicle emissions generated by flood-related road detours could result in a negligible increase in emissions of criteria pollutants. However, these emissions would not result in a NAAQS exceedance or conflict with local air quality plans. Therefore, the No Action alternative would result in negligible adverse impacts on air quality. In the future, because the frequency and duration of flooding is expected to increase as a result of sea level rise and climate change, which would increase road detours and flood-related repairs, the No Action alternative would have an increased long-term negligible adverse impact on air quality.

Alternative 2: Proposed Action

The Proposed Action would be consistent with the scope of impacts evaluated in the PEA, resulting in temporary emissions due to construction activity. Construction of the Proposed Action may require the use of backhoes, loaders, cranes, trucks and diesel generators. These have the potential to produce airborne dust, a source of particulate matter, from ground-disturbing activities, as well as pollutants from diesel equipment emissions (EPA 2022b). Best management practices (BMPs) would be in place to manage any fugitive dust produced by construction activities, such as covering soils and truck beds, watering exposed soils, and tire washing. The diesel exhaust emissions from this equipment would include particulate matter, carbon monoxide and nitrogen oxides. Nitrogen oxides are a precursor for the production of ozone and therefore would contribute to the nonattainment status for ozone in the area (EPA 2004). However, construction activity would be temporary and follow all local, state and federal regulations. Construction activities would result in temporary road closures and would have a short-term minor impact on air quality because of the rerouting of traffic flow. This temporary impact would occur once during construction rather than the frequent road closures due to flooding and flood-related repairs. There would be a negligible long-term benefit under the Proposed Action with the reduction of flood-related roadway detours and use of construction equipment for flood-related repairs. Therefore, the Proposed Action would have minor, short-term adverse impacts on air quality from equipment and vehicle use and no long-term impacts on air quality, similar to the impacts described in the PEA.

5.3 Climate Change

Climate change refers to changes in the earth's climate caused by a general warming of the atmosphere. Changes in temperature are strongly correlated with changes in greenhouse gas (GHG) concentrations in the atmosphere. As GHG concentrations increase, more energy from the sun is retained in the atmosphere, increasing the earth's temperature (Horton et al. 2015). Because carbon dioxide (CO_2) constitutes an abundant amount of human-caused GHG emissions, CO_2 is used as the basis for calculating the equivalent global warming impact of other GHGs expressed in units of CO_2 (represented by CO_2 equivalent) (EPA 2016). Based on the 2020 New Jersey Scientific Report on Climate Change written by NJDEP, New Jersey is warming faster than the rest of the Northeastern United States and the world. A 2017 study projected that, depending on future GHG emissions, New Jersey's average annual temperature will increase by 1 to 6 degrees Fahrenheit by 2050 and 3 to 13 degrees by 2100 (NJDEP 2020). The most common climate change GHGs are water vapor, CO_2, fluorinated gases, nitrous oxide, methane, and ozone (Intergovernmental Panel on Climate Change 2022). Climate change can affect species distributions, temperature fluctuations and weather patterns, and it results in sea level rise. The Council on Environmental Quality's (CEQ's) *Final NEPA Guidance on Consideration of Greenhouse Gas Emissions and the Effects on Climate Change* suggests that a quantitative analysis should be done if an action would release more than 25,000 metric tons of GHGs per year (CEQ 2021).

5.3.1 Existing Conditions

The project area has a long history of inland and coastal flooding. Since 1900, a variety of factors, including climate change, have contributed to a 12-inch rise in sea level in the Northeast region compared to the global average sea level rise of 8 inches (Horton et al. 2014). According to NJDEP, it is likely that sea level rise will meet or exceed 2.1 feet by 2050, and tidal flooding, the temporary inundation of low-lying areas, will increase in frequency (NJDEP 2022). A 2020 NJDEP report on climate change concluded that, in addition to sea level rise, other climate change impacts in the New Jersey area would include an increase in annual precipitation from 4 percent to 11 percent by 2050. Additionally, the area is expected to experience more erratic rainfall resulting in both increased droughts and increased magnitude and frequency of flooding, along with heatwaves, stressed water supplies, ocean acidification, and potential saltwater inundation in wetlands (NJDEP 2020).

5.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

No construction of flood-reduction measures would occur under the No Action alternative. However, frequent construction-related emissions due to flood repairs and the potential for an increase in traffic-related emissions due to flood-related road closures would continue, resulting in an increase GHG emissions. Therefore, the No Action alternative would continue to have minor short-term, intermittent, adverse impacts on climate over the long term.

Precipitation events are anticipated to increase in frequency, intensity, and duration of flooding in the project area, compounded by sea level rise. These changes in flood events have the potential to contribute to greater property losses and possible loss of life. The No Action alternative would not effectively protect against the adverse effects of climate change in the project area. Therefore, there would be a minor to moderate impact from climate change–related storms and sea level rise from the No Action alternative.

Alternative 2: Proposed Action

The Proposed Action would result in temporary GHG emissions from the use of construction equipment and vehicles. There would also be a temporary increase in the localized area for GHG emissions due to lane closures for construction. These emissions would be temporary and would not increase GHGs to the extent that the Proposed Action would contribute to measurable levels of regional climate change. Therefore, the Proposed Action would have short-term negligible impacts on climate.

The Proposed Action would likely decrease the number of flood-related repairs and avoid changes in vehicle emissions from rerouting of traffic because of flood-related road closures. This would reduce the amount of GHG emissions from these sources, resulting in a negligible, long-term beneficial impacts.

5.4 Water Quality

The Clean Water Act (CWA) of 1977, as amended, regulates discharge of pollutants into water with sections falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and EPA. Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into waters of the United States. Under the National Pollution Discharge Elimination System (NPDES), EPA regulates both point and nonpoint pollutant sources, including stormwater and stormwater runoff and activities that disturb one or more acres of ground are required to have an NPDES permit through NJDEP.

Section 1424(e) of the Safe Drinking Water Act of 1974 [Public Law 93–523] authorizes EPA to designate an aquifer for special protection under the sole-source aquifer program if the aquifer is the sole or principal drinking water resource for an area and if its contamination would create a significant hazard to public health. The sole or principal source is defined as supplying 50 percent or more of the drinking water for a particular area. No commitment for federal financial assistance may be provided for any project that EPA determines may contaminate a sole-source aquifer such that a significant hazard to public health is created.

Relevant state regulations include the New Jersey Ground Water Quality Standards (New Jersey Administrative Code [NJAC] 7:9C), New Jersey Surface Water Quality Standards (NJAC 7:9B), and New Jersey Water Pollution Control Act (NJSA 58: 10A-1 et seq.).These regulations maintain the quality of ground and surface water by controlling pollution.

5.4.1 Existing Conditions

The project area is in the Cape May Bays and Tribs East watershed, hydrologic unit code 020403020405. There are two subwatersheds in and near the project area. These include the Cape May Harbor and Bays (02040302080090) and the Cape May Bays (02040302080070) (NJDEP 2021) (**Appendix A, Map 3**). There are four major waterbodies in and near the project area: Grassy Sounds Channel, Sunset Lake, Ottens Harbor, and Post Creek Basin. All four of these water bodies are considered to be impaired. Cape May Harbor and Bays are impaired because of bacteria and other microbes and low oxygen for aquatic life and fish and shellfish consumption. No probable sources for these impairments have been identified (EPA 2020). Cape May County is part of the Coastal Plain sole-source aquifer and provides most of the drinking water in the area (NJDEP 1999).

The project area includes the shorelines of Ottens Harbor and portions of Post Creek and Post Creek Basin shorelines, which are part of the New Jersey “back bays,” a set of interconnected tidal water bodies located behind the state’s barrier islands. Water depths in the back bays vary from very shallow areas (i.e., 3 to 6 feet) to deeper areas routinely dredged for navigation (USACE 2021).

5.4.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action alternative would not reduce the risk of flooding in the project area, which would continue to result in erosion and polluted runoff affecting water quality. Climate change is expected to increase the frequency and intensity of flooding, which could increase the amount of runoff entering the surrounding water bodies. Increased runoff from non–point sources of pollution could increase the amount of water that seeps into the Coastal Plain sole-source aquifer; however, the area is highly developed and the amount that could seep in would likely be negligible. Construction activities could increase in frequency from flood-related repairs, potentially adding additional construction-related runoff. Construction activities could also increase fill in nearby waters. Therefore, there would be a minor to moderate long-term adverse impacts on water quality.

Alternative 2: Proposed Action

The construction activities associated with the Proposed Action would be consistent with the scope of impacts evaluated in the PEA, having the potential to affect water quality in the short-term during construction, site preparation, and excavation. Construction could result in the accidental releases of hazardous waste from unknown underground sources or minor leaks from construction equipment (see Section 5.20) and could cause sediment mobilization, resulting in minor adverse impacts, if not managed properly.

Construction of shoreline components under the Proposed Action, including excavation for the earthen berm and replacement of bulkhead components, could result in increased turbidity (the degree of cloudiness in the water due to suspended sediment) and erosion. Increased turbidity and suspended solids can have a negative effect on aquatic health by clogging fish gills, hindering visibility for predators to find prey, decreasing light penetration in the water thus decreasing the ability of aquatic plants to photosynthesize and oxygenation in the water and can have impacts on egg and larval development (EPA 2021). In-water silt booms and barriers would be used to minimize sedimentation and all in-water work would be scheduled at or near slack low tide to minimize water quality impacts. Silt fencing would be installed in areas of upland ground disturbance to prevent sedimentation into stormwater drains.

Bulkhead replacement would require the use of barges in Ottens Harbor for installation of vinyl bulkheads and timber piles. Barges could release petrochemical fuels and lubricating oils directly into surface waters, resulting in temporary, minor adverse impacts on water quality.

Replacement of the drainage pipe could cause indirect, temporary, and minor impacts on water quality by releasing hazardous material from construction equipment into stormwater drains and causing erosion and sedimentation during excavation.

The Subapplicant would be required to obtain an NPDES permit that requires a Stormwater Pollution Prevention Plan for construction activities that would include BMPs to reduce impacts to water quality from construction related runoff. Therefore, there would be a short-term minor impact to water quality from construction-related activities as long as all required BMPs are followed.

In the long term, the living shoreline, new bulkheads, and larger drainage pipe would mitigate flooding in the area and reduce the amount of floodwater runoff that enters the surrounding water bodies. Stormwater runoff would be captured and discharged before it captures flood debris or stormwater would be filtered through the living shoreline, removing pollutants before discharge. Reestablishment of vegetation on the living shoreline would slow erosion of sediments into adjacent surface waters. Therefore, the Proposed Action would result in a long-term, minor beneficial impact on water quality.

5.5 Wetlands

Executive Order (EO) 11990, Wetlands Management, requires federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever there are practicable alternatives, and the Proposed Action must include all practicable measures to minimize harm to wetlands that may result from such use. FEMA uses the eight-step decision-making process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains in compliance with EO 11990 and 44 CFR Part 9. USACE and NJDEP regulate activities within wetlands in New Jersey. Section 404 of the CWA regulates the discharge of fill into the Waters of the United States, including wetlands.

5.5.1 Existing Conditions

According to the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (USFWS 2022b), estuarine intertidal emergent wetlands occur along portions of the shoreline within the project area, as shown in **Appendix A, Map 4.** The estuarine wetland is in the area proposed for construction of living shoreline.

Although not identified on the NWI maps, a wetland was identified by the City within the footprint of the proposed drainage pipe at its northern terminus approximately 500 feet beyond the northwest end of West Youngs Avenue (**Appendix A, Map 4**). This wetland is characterized as an estuarine intertidal wetland.

5.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would not be any construction related to flood-reduction measures; therefore, there would not be any direct construction-related impacts on wetlands in the project area. However, under the No Action alternative, the risk of flooding from storm surge and

high tides would not be reduced and flooding of upland areas and shoreline erosion would result in water quality impacts associated with sedimentation and pollutant inputs. Shoreline erosion, particularly along Mediterranean and West Andrews Avenues, could lead to a need for emergency repairs of the roadways and embankments. Emergency repairs could result in wetland fill. Therefore, the No Action alternative would have a long-term, moderate adverse impact on wetlands within and around the project area.

Alternative 2: Proposed Action

Under the Proposed Action, wetland impacts associated with construction of the living shoreline would be consistent with the scope of impacts evaluated in the PEA if the following were met: 1) the Subapplicant has complied with all state, federal, and local permit conditions, regulations, and authorizations, including CWA, state floodplain and wetland laws, and local floodplain codes; 2) the Proposed Action would not increase levels, frequency, or duration of floods and would not alter hydrological connectivity; and 3) FEMA has completed an eight-step decision-making process and has determined that the Proposed Action is the most practicable alternative. The result of the eight-step decision-making process for wetlands was that the implementation of the Proposed Action would be more beneficial than detrimental to wetlands and that there is no practicable alternative to conducting the project in wetlands (**Appendix B, Document 1).**

Construction of shoreline components under the Proposed Action, including the living shoreline and bulkhead replacements, could result in increased turbidity and there would be potential for accidental releases of hazardous materials associated with construction equipment. Construction activities below the high-tide line would require a CWA Section 404 permit from USACE. The CWA Section 404 permit would include a list of measures to avoid or minimize impacts on wetlands and waters, including but not limited to use of BMPs such as the use of upland silt fences and in-water sediment containment barriers. Therefore, with adherence to CWA Section 404 permit conditions, there would be short-term, negligible impacts on intertidal wetlands during construction of the shoreline components of the Proposed Action.

Replacement of the drainage pipe would fill wetlands at the northwest terminus of the drainage pipe. This would be a permanent impact. Temporary impacts could also occur if construction equipment were to disturb wetland vegetation, compact soils, or modify hydrology in an area outside of the permanent fill that would be restored following construction. Wetland impacts would require a CWA Section 404 permit from USACE and potentially compensatory mitigation to offset permanent impacts such that there is no net loss of wetland functions and values. With adherence to CWA Section 404 permit conditions, there would be negligible short-term and long-term impacts on wetlands.

Construction of the living shoreline would have long-term, minor beneficial impacts on intertidal wetland functions and services. Gabions and biologs would reduce shoreline erosion. Native wetland vegetation would be planted along the full extent of the living shoreline and would

increase over time. This vegetation would provide valuable habitat as well as increased shoreline stability and resiliency during storm surges and increasing high tides.

5.6 Floodplains

EO 11988, Floodplain Management, requires that federal agencies avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps (FIRM) to identify floodplains for the National Flood Insurance Program. Federal actions within the 100-year floodplain require the federal agency to conduct an eight-step process. This process, like NEPA, requires the evaluation of alternatives before finding the action. FEMA's regulations on conducting the eight-step process are contained in 44 CFR Part 9.

FEMA uses the 1-percent floodplain as the minimal area for floodplain impact evaluation. FEMA defines a 1-percent-annual-chance floodplain (i.e., 100-year floodplain) as an area subject to inundation from a flood that has a 1-percent chance of being equaled or exceeded in any given year. The elevation of the surface water resulting from a flood that has a 1-percent chance of equaling or exceeding that level in any given year is known as the Base Flood Elevation.

The NJDEP Division of Land Use Regulation, under authority of the Flood Hazard Area Control Act (NJSA 58:16A: -50 et seq.) and others, has adopted rules, regulations, and minimum standards concerning development and use of land within the floodplain, including drainage improvements and flood protection measures.

5.6.1 Existing Conditions

The project area is in FEMA Coastal High Hazard Area Flood Zone VE (base flood elevation of 10 feet) and Special Flood Hazard Area Zone AE (base flood elevation of 9 and 10 feet), as shown on FIRM map panels 34009C0302F and 34009C0306F. Flood Zones AE are areas with a 1 percent chance of being inundated within any given year and flood zones VE are flood zones with additional hazards associated with storm waves. According to the Cape May Hazard Mitigation Plans of 2016 and 2021, the city of Wildwood has experienced 16 major natural hazard events since 2008. Coastal flooding and hurricanes that bring heavy precipitation are the most common sources of flooding in the city.

5.6.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action alternative would have a minimal impact on floodplains because no flood-reduction measures would be implemented. However, structures and residences surrounding the project area would continue to be at risk of loss of life and property damage during future storm events. There would also be continued road closures and impacts to harbor access with continued flooding. Because flooding occurrence is expected to increase due to climate change and sea level rise, this

alternative would have a moderate long-term adverse impact on people and property within the floodplain. The amount of land subject to inland flooding in and around the project area would likely increase because of increased storm frequency, intensity, and duration, as well as from sea level rise (Section 5.3).

Alternative 2: Proposed Action

Construction of the Proposed Action would be consistent with the scope of impacts evaluated in the PEA, affecting the floodplain through the potential release of sediments and with temporary fills. Construction could result in accidental releases of hazardous waste from previously unknown underground sources or minor leaks from construction equipment. Ground disturbance could cause sediment to run off into the floodplain and result in minor adverse impacts on water quality and aquatic life. The Subapplicant would implement a Stormwater Pollution Prevention Plan in accordance with the general stormwater permit for construction activities and a site-specific Erosion and Sediment Control Plan (see Section 5.3). These measures required by state and local permits for construction would avoid and minimize potential impacts. Therefore, construction of the Proposed Action would have negligible short-term adverse impacts on the floodplain.

The Proposed Action would result in a more stable shoreline, which would reduce erosion and movement of the floodplain inland. The gabions and biologs of the proposed living shoreline would contribute to a reduction of shoreline erosion. Installation of native shoreline vegetation would increase shoreline stability and result in a more resilient shoreline during high tides and storm surges. The installation of the higher bulkheads along the shoreline of Ottens Harbor would help prevent coastal erosion. The proposed drainage improvements to the northeast of Ottens Harbor would aid in stormwater management during large storm and flooding events; the proposed check valve system on the storm drain pipeline would ensure that floodwaters to do not flow back into the project area once they are removed from the area. The systems combined would reduce the amount of inland flooding and would therefore have a moderate long-term impact from flood-related risks.

FEMA completed an eight-step checklist for the Proposed Action, which concluded that implementation of this project would have more beneficial than detrimental impacts on floodplains and that there is no practicable alternative to conducting the project within the floodplain. The eight-step checklist is provided in **Appendix B, Document 1**.

5.7 Coastal Resources

The Coastal Zone Management Act (CZMA) is administered by states with coastal shorelines to manage coastal development with a Coastal Zone Management Plan (CZMP). Federal agencies must evaluate actions within designated coastal zones to ensure they are consistent with the CZMP. Projects receiving federal assistance must follow the procedures outlined in 15 CFR 930.90–930.101 for federal coastal zone consistency determinations. The State of New Jersey adopted the

Coastal Area Facilities Review Act (CAFRA) to manage development in the coastal zone. The Coastal Permit Program Rules (NJAC Section 7:7) and the Coastal Zone Management Rules (NJAC Section 7:7E) are the implementing rules and regulations for the CAFRA. Nearly all development located within 150 feet of the mean high-water line of a tidal water body is subject to these regulations.

5.7.1 Existing Conditions

The proposed project is located within the CAFRA area and consultation with the NJDEP for CZMA consistency for the proposed project was completed by the City with submittal of an NJDEP Coastal Applicability Determination Checklist.

5.7.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction and therefore no impacts related to compliance with the CZMA or state rules and regulations for CAFRA. The No Action alternative would not be consistent with the CZMP because it would not advance the New Jersey Coastal Management Program goals and supplemental policies. In particular, the No Action alternative would not promote the CZMP goal of safe, healthy, and well-planned coastal communities and regions because flood risk and associated risks of loss of life and property damage within the project area would not be reduced. In addition, the No Action alternative would not promote the CZMP goal of healthy coastal ecosystems because continued flooding of upland areas and shoreline erosion would result in water quality impacts associated with sedimentation and pollutant inputs that would have moderate adverse impacts on intertidal wetlands (see Section 5.5). Therefore, there would be a moderate long-term adverse impact on coastal resources.

Alternative 2: Proposed Action

The Proposed Action would comply with the CZMA and CAFRA as documented in the CZMA consistency determination (i.e., NJDEP Coastal Applicability Determination Checklist) (**Appendix B, Document 2**). Where the proposed living shoreline, bulkheads, and drainage pipe replacement would be constructed, there would be moderate impacts on coastal resources in the short term. The Proposed Action would advance the CZMP goal of safe, healthy, and well-planned coastal communities and regions by addressing flood risks and reducing the associated risks of loss of life and property damage within the project area. The Proposed Action would also promote the CZMP goal of healthy coastal ecosystems through establishment of native marsh habitat that is resilient to storm surges and other erosive forces. Therefore, there would be a moderate long-term beneficial impact on coastal resources.

5.8 Vegetation

5.8.1 Existing Conditions

The project area consists of developed areas associated with residential, commercial, light industrial, recreation and transportation land uses. Vegetation within these areas consists of landscaped trees, shrubs, and lawn. Some areas of shoreline support scrub/shrub habitats, which likely include switchgrass (*Panicum virgatum*), groundsel tree (*Baccharis halimifolia*), bayberry (*Myrica* sp.), eastern red cedar (*Juniperus virginiana*), hightide bush (*Iva frutescens*), seaside rose (*Rosa rugosa*), and poison ivy (*Toxicodendron radicans*). Shoreline areas may support intertidal low saltmarsh communities dominated by saltmarsh cordgrass (*Spartina alterniflora*). High saltmarsh habitats are generally dominated by saltmarsh hay (*Spartina patens*), seashore saltgrass (*Distichlis spicata*), and glasswort (*Salicornia* sp.) (USACE 2021).

EO 13112, Invasive Species, requires federal agencies, to the extent practicable, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species prefer disturbed habitats and generally possess high dispersal abilities, enabling them to outcompete native species. Invasive plant species in the project area include the European subspecies of common reed (*Phragmites australis* ssp. *australis*), which dominates some coastal areas forming monotypic stands that outcompete other vegetation (USACE 2021). The high marsh habitat along the proposed alignment of the living shoreline currently supports stands of common reed.

5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction of flood-reduction measures and therefore no vegetation removal or creation of living shoreline with native plants. Flooding and coastal erosion would continue, along with short-term measures to repair damaged areas, which could entail vegetation removal or disturbance. Coastal erosion would likely degrade shoreline vegetation from loss of soils, and the resulting sedimentation would continue to adversely affect tidal marsh areas by increasing the turbidity of the water and smothering aquatic substrates. Continued flooding could spread invasive species such as common reed that degrade native marsh habitats. Therefore, under the No Action alternative, continued flooding and erosion would have a long-term minor adverse impact on vegetation within the project area.

Alternative 2: Proposed Action

Impacts on vegetation under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA. Under the Proposed Action, existing vegetation along some shoreline areas would be removed to access and construct the living shoreline and terrestrial vegetation would likely be removed in some areas for construction of the drainage pipe. Where the living shoreline is constructed, there would be moderate impacts on vegetation until it becomes reestablished. As

described in the PEA, living shorelines have minor to moderate adverse impacts on established habitats in coastal areas because they can result in localized habitat conversion.

In the long term, the Proposed Action would have a beneficial moderate effect on vegetation because it would increase native vegetative cover in the project area and reduce sedimentation to aquatic habitats by reducing coastal erosion. Specifically, as shown on design drawings, the full extent of the living shoreline would be planted with smooth cordgrass (*Spartina arterniflora*), which has a dense root/rhizome system that would be expected to stabilize sediments and decrease wave action.

5.9 Wildlife and Fish

Several laws and regulations pertain to the protection of wildlife and fish in the project area, including the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act, and the Magnuson-Stevens Fishery Conservation and Management Act. Potential impacts on common terrestrial and aquatic wildlife species are evaluated in Section 5.9. The evaluation of potential impacts on threatened and endangered species is presented in Section 5.10. The evaluation of potential impacts on migratory birds and eagles is presented in Section 5.11. The evaluation of potential impacts on essential fish habitat (EFH) is presented in Section 5.12.

5.9.1 Existing Conditions

The project area is located within the Atlantic Coastal Landscape Region of New Jersey, which supports important habitats for colonial nesting birds, beach-nesting birds, and large concentrations of migrating birds and wintering waterfowl (New Jersey Department of Fish and Wildlife [NJDFW] 2017). Shoreline portions of the project area support most of the biological resources described in this section.

Terrestrial Species

As described in Section 5.8, the project area is predominantly urbanized; however, terrestrial habitats are present along the shoreline portions of the project area, including ruderal ("old fields" with less than 25 percent brush cover) and mixed deciduous/conifer brush/shrubland (NJDFW 2017). Terrestrial wildlife present in the project area include many species of migratory birds that use shrubland habitats, as described in Section 5.11. Mammals present in the project area include those species common to suburban and/or disturbed environments, including eastern gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), meadow vole (*Microtus pennsylvanicus*), white-tailed deer (*Odocoileus virginianus*), and Virginia opossum (*Didelphis virginiana*) (USACE 2021).

Aquatic Species

The project area shoreline provides intertidal and subtidal habitats that support many aquatic species. Fish commonly found in estuarine waters of the back bay include bay anchovy (*Anchoa mitchilli*), sheepshead minnow (*Cyprinodon variegatus*), mummichog (*Fundulus heteroclitus*), striped killifish (*Fundulus majalis*), Atlantic silverside (*Menidia menidia*), tidewater silverside (*Menidia beryllina*), northern pipefish (*Syngnathus fuscus*), black sea bass (*Centropristis striata*), bluefish (*Pomatomus saltatrix*), spot (*Leiostomus xanthurus*), white mullet (*Mugil curema*), smallmouth flounder (*Etropus microstomus*), summer flounder (*Paralichthys dentatus*), windowpane (*Scophthalmus aquosus*), and winter flounder (*Pseudopleuronectes americanus*). Tidal marshes provide important rearing habitat for larval and juvenile stages of numerous fish species such as herring (*Clupidae*), white perch (*Morone americana*), striped bass (*Morone saxatilis*), menhaden (*Brevoortia tyrannus*), and winter flounder (USACE 2021).

Estuarine habitats support marine mammals including harbor seal (*Phoca vitulina*) and occasionally bottlenose dolphin (*Tursiops truncatus*) and harbor porpoise (*Phocoena phocoena*) (USACE 2021). Semiaquatic mammals that would likely inhabit saltmarshes along the back bay include common muskrat (*Ondatra zibethicus*) and river otter (*Lutra canadensis*). Small mammals that could also use the upper saltmarsh and marsh transition areas include the meadow vole, meadow jumping mouse (*Zapus hudsonius*), and white-footed mouse (*Peromyscus leucopus*) (USACE 2021).

The many species of birds that use aquatic and shoreline habitats in the project area are discussed in Section 5.11.

5.9.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no direct impacts on terrestrial or aquatic wildlife in the project area associated with construction of flood-reduction and shoreline-stabilization measures. However, there would likely be periodic construction impacts associated with flood damage repairs, which would be similar to maintenance activities that would regularly occur in this developed area. Erosion along shorelines would continue to adversely affect shoreline and aquatic habitats that support fish and wildlife through loss of soils in areas where the bank is failing. Sedimentation, because of erosion, would continue to adversely affect tidal marsh areas by increasing the turbidity of the water and smothering aquatic substrates. Therefore, under the No Action alternative, continued flooding and erosion would have a long-term minor impact on fish and wildlife within the project area.

Alternative 2: Proposed Action

Impacts on fish and wildlife under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA. Under the Proposed Action, aquatic and terrestrial species would

be directly affected by construction of bulkheads and the living shoreline. There is a potential for direct harm to terrestrial and aquatic species from the use of heavy equipment for construction. As stated in the PEA, projects that require dewatering and temporary placement of fill in wetlands or bodies of water have the potential to impact resident and transient terrestrial wildlife that use shorelines and riparian areas. Removal of vegetation and construction disturbance along shorelines would cause wildlife to leave these habitats in search of refuge, which could make them vulnerable to injury, predation, and competition with other species. Fish and marine mammals would be expected to readily move away from in-water construction areas on the shoreline; however, they could be harmed by temporary underwater noise and vibration during construction of bulkheads that require pile driving, especially with the use of an impact hammer. Construction BMPs would likely include seasonal restrictions on pile driving to avoid times when vulnerable life stages of aquatic wildlife would be present. The Proposed Action would implement BMPs and avoidance and minimization measures in accordance with the CWA Section 404 permit conditions to avoid or minimize effects on fish and wildlife. Therefore, there would be minor short-term adverse impacts on fish and wildlife during construction.

In the long term, the Proposed Action would have a minor beneficial effect on fish and wildlife with the creation of the living shoreline. The living shoreline would (1) enhance and restore native marsh habitats that would support a greater abundance and diversity of fish and wildlife species and (2) reduce erosion and sedimentation within their habitats.

5.10 Threatened and Endangered Species

The ESA of 1973 provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are USFWS and the National Marine Fisheries Service (NMFS). The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a 'taking' of any listed species.

5.10.1 Existing Conditions

Information on the presence of threatened and endangered species was obtained from the USFWS Information for Planning and Consultation system, accessed June 8, 2022, and the NMFS ESA mapper, accessed June 8, 2022. In addition, information on the presence of threatened and endangered species was obtained from other studies applicable to the project area, including the *New Jersey Back Bays Coastal Storm Risk Management Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement* (USACE 2021). Based on this review, the following federally listed threatened and endangered species were identified as potentially present in the general area:

- Eastern black rail (*Laterallus jamaicensis* ssp. *jamaicensis*), threatened
- Northern long-eared bat (*Myotis septentrionalis*), endangered
- Tricolored bat (*Perimyotis subflavus*), proposed endangered
- Red knot (*Calidris conautus rufa*), threatened
- American chaffseed (*Schwalbea americana*), endangered
- Swamp pink (*Helonias bullata*), threatened
- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), endangered
- Green sea turtle (*Chelonia mydas*), threatened
- Kemp's ridley sea turtle (*Lepidochelys kempii*), endangered
- Leatherback sea turtle (*Dermochelys coriacea*), endangered
- Loggerhead sea turtle (*Caretta caretta*), threatened

Critical habitat has not been designated for any species in the project area. The back bay is designated as EFH, as discussed in Section 5.12.

Of the species listed above, red knot, American chaffseed, and swamp pink are not likely to occur in the project area because of lack of habitat. The red knot uses sandy beaches for foraging and resting. This habitat is limited in the project area and would not be affected by construction. American chaffseed requires sandy soils in open moist pine flatwoods and fire-maintained savannas, and swamp pink requires forested wetland (USACE 2021). Neither of these habitats occur in the project area. Therefore, no impacts on these threatened and endangered species would be expected from the Proposed Action. Potential impacts on the remaining six species listed above are described below.

A variety of state-listed species may also occur in the project area, including but not limited to least tern (*Sternula antillarum*), black skimmer (*Rynchops niger*), northern harrier (*Circus cyaneus*), short-eared owl (*Asio flammeus*), osprey (*Pandion haliaetus*), and sedge wren (*Cistothorus platensis*) (USACE 2021). Habitat for these species is limited within the project area; however, these species may occur in suitable habitat to the north and west of the project area.

5.10.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no direct impacts on threatened and endangered species in the project area associated with construction of flood-reduction and shoreline-stabilization measures. However, there would likely be periodic construction impacts associated with flood damage repairs. Erosion along shorelines would continue to adversely affect shoreline and aquatic habitats that support these species through loss of soils that results in reduced shoreline

habitats. Sedimentation, as a result of erosion, would continue to adversely affect tidal marsh areas by increasing the turbidity of the water and smothering aquatic substrates. Therefore, under the No Action alternative, continued flooding and erosion would have a long-term minor adverse impact on threatened and endangered species within and adjacent to the project area.

Alternative 2: Proposed Action

Potential adverse effects on threatened and endangered species under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA. As stated in the PEA, FEMA consults with USFWS and/or NMFS, depending on the listed species potentially present, for all actions that do not result in a "no effect" determination. This section discusses potential effects on the threatened and endangered species that may occur in the project area, including eastern black rail, Atlantic sturgeon, green sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, and loggerhead sea turtle.

The eastern black rail is typically found in salt and brackish marshes with dense cover. As such, habitat for the species in the project area may be present along some portions of the shoreline. Construction during the nesting season could have a major adverse impact on the species, if nesting black rails are directly harmed or disturbed by construction activities. However, based on the small parcel size of wetlands and proximity to high development, adverse effects are not anticipated for the eastern black rail. The northern long-eared bat and tricolored bat require forests or woodland areas during the spring, summer, and fall seasons. During the winter the bats species hibernate in caves and mines. Under the Proposed Action, no trees would be removed. While construction activities may create temporary disturbance, no long-term effects on northern long-eared bat or tricolored bat are anticipated.

USACE consulted with USFWS on December 20, 2022 for the Proposed Action to evaluate potential effects on federally listed species. In a letter dated January 30, 2023, USFWS concurred that the Proposed Action would be "not likely to adversely affect" federally listed species (**Appendix B, Document 3)**.

As described in Section 5.11.2, vegetation removal and disturbance in marsh habitats where state-listed bird species, including northern harrier and sedge wren, could nest would be conducted outside of the nesting season, or preconstruction surveys for nesting activity would be implemented. . Therefore, the Proposed Action would have a minor short-term adverse impact on state-listed bird species.

Atlantic sturgeon adults and juveniles may be present in or near subtidal estuarine habitats of the project area. Because there would be no construction equipment used within subtidal areas, direct harm from contact with construction equipment would not be expected. However, construction noise and activity could disturb migration and foraging behavior and there could be indirect impacts from disruptions in available food if construction resulted in turbidity or other water

quality impacts. Individual Atlantic sturgeon could move away from construction disturbances. In the long term, leaching of metals from CCA-treated wood pilings could occur; however, the release of toxic metals would not be expected to be pervasive or reach levels in the marine environment that would result in effects on Atlantic sturgeon or other aquatic species. In accordance with the CWA Section 404 permit conditions, avoidance and minimization measures for in-water construction would include BMPs to avoid or minimize water quality impacts such as in-water sediment containment barriers and water quality monitoring. Therefore, there would be short-term, minor adverse impacts on Atlantic sturgeon during construction.

Green, Kemp's ridley, leatherback, and loggerhead sea turtles may use open estuarine waters of the project area. As discussed for Atlantic sturgeon, direct construction impacts would not be expected; however, indirect impacts on sea turtles present in the project area could result from construction noise and activity and degraded water quality. In accordance with the CWA Section 404 permit conditions, avoidance and minimization measures for in-water construction would include BMPs to avoid or minimize water quality impacts such as in-water sediment containment barriers and water quality monitoring. Therefore, there would be short-term, minor adverse impacts on sea turtles during construction.

In the long term, the Proposed Action would have a minor beneficial effect on threatened and endangered species with the creation of the living shoreline, which would enhance and restore native marsh habitats used by some of these species.

5.11 Migratory Birds

The MBTA of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. USFWS is the lead federal agency for implementing the MBTA. The law makes it unlawful at any time, by any means, or in any manner to take any part, nest, or egg of migratory birds. The Bald and Golden Eagle Protection Act (16 U.S.C. 668), enacted in 1940, provides for the protection of bald and golden eagles by prohibiting the take, possession, sale, purchase, barter, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit. This Act requires consultation with the USFWS to ensure that proposed federal actions do not adversely affect bald or golden eagles.

5.11.1 Existing Conditions

Estuarine and shoreline habitats in the project area provide important habitat for many types of migratory birds. Shorebirds likely to use shoreline habitats include semipalmated plover (*Charadrius semipalmatus*), sanderling (*Calidris alba*), least sandpiper (*Calidris minutilla*), greater yellowlegs (*Tringa melanoleuca*), willet (*Tringa semipalmatus*), spotted sandpiper (*Actitis macularia*), and ruddy turnstone (*Arenaria interpres*). Wading birds that occur within the project area include great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), and great egret (*Casmerodius albus*). Many species of gulls and

terns use shoreline and open water habitats, including great black-backed gull (*Larus marinus*), herring gull (*Larus argentatus),* laughing gull (*Larus atricilla*), Forster's tern (*Sterna forsteri*), and common tern (*Sterna hirundo).* Diving birds that forage in estuarine waters include common loon (*Gavia immer*), red-throated loon (*Gavia stellata),* and double-crested cormorant (*Nannopterum auritum*).

Estuarine marshes, bays, and channels within the area are important resting and feeding areas for migratory waterfowl on the Atlantic Flyway. The bays and associated coves within the area provide habitat for tundra swan (*Cygnus columbianus*), Canada goose (*Branta canadensis*), Atlantic brant (*Branta bernicla*), American black duck (*Anas rubripes*), gadwall (*Anas strepera*), American wigeon (*Mareca americana*), northern pintail (*Anas acuta*), and many other species of waterfowl (USACE 2021). Golden eagles are known to migrate through New Jersey; however, there is no suitable golden eagle habitat for resting or foraging within or near the project area. Bald eagles are known to use the project area for foraging (USACE 2021). The nearest known bald eagle nest is located over 5 miles north of the project area (NJDFW 2021).

5.11.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, the project area would continue to support important habitats for migratory birds. There would be no construction of flood-reduction measures and therefore no associated impacts on nesting migratory birds because of vegetation removal and construction noise. However, continued flooding, erosion, and sedimentation would have a minor adverse impact on migratory birds within the project area during repairs to damaged areas, which could disturb nesting birds if vegetation is removed during the nesting season.

Alternative 2: Proposed Action

Potential adverse effects on migratory birds under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA, which directs FEMA to consult with USFWS if FEMA finds that impacts on migratory birds would occur. Under the Proposed Action, habitats that support migratory birds, including shoreline shrubland habitats and tidal marsh habitats, would be removed or disturbed by construction of the shoreline improvements. Birds are mobile and can readily fly away from construction noise and disturbance. However, if construction activity occurs during the migratory bird breeding season, construction activities could result in moderate adverse impacts on migratory bird species protected by the MBTA because vegetation removal and construction noise could result in the loss of nests, eggs, and young.

Under the Proposed Action, vegetation removal and disturbance would be conducted outside of the nesting season, or preconstruction surveys for nesting activity would be implemented. A preconstruction survey would identify any nests that would then be avoided. Therefore, the Proposed Action would have a minor short-term adverse impact on migratory birds. In the long

term, the Proposed Action would have a minor beneficial effect on migratory birds with the creation of the living shoreline, which would enhance and restore native marsh habitats and reduce erosion and sedimentation.

No known bald eagle nests exist in or near the project area (NJDFW 2021) and no suitable habitat (e.g., large trees) exists that would support a bald eagle nest; thus, there would be no impact on bald eagles under the Proposed Action. If a bald eagle nest is discovered within 660 feet of construction activity, work must stop, and the City would be required to coordinate with FEMA and the USFWS New Jersey Field Office to identify measures to avoid or minimize effects on the eagles.

5.12 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act is the primary law governing marine fisheries management in U.S. federal waters and designates NMFS as the lead federal agency responsible for its implementation. The act fosters the long-term biological and economic sustainability of our nation's marine fisheries. EFH is defined by the Act as "those waters and substrate necessary for federally managed species to spawn, breed, feed, and/or grow to maturity." One primary provision of the act is the designation of EFH for all species managed under the act. All federal agencies are required to assess the potential effects of proposed actions and alternatives on EFH, and federal agencies are to consult on any actions that could adversely affect EFH.

5.12.1 Existing Conditions

The project area includes shorelines of the back bay, which is designated EFH for winter flounder, little skate, Atlantic herring (*Clupea harengus*), red hake (*Urophycis chuss*), silver hake (*Merluccius bilinearis*), yellowtail flounder (*Limanda ferruginea*), monkfish (*Lophius americanus*), windowpane flounder (*Scophthalmus aquosus*), winter skate (*Leucoraja ocellata*),witch flounder (*Glyptocephalus cynoglossus*), clearnose skate (*Raja eglanteria*), common thresher shark (*Alopias vulpinus*), dusky shark (*Carcharhinus obscurus*), sandbar shark (*Carcharhinus plumbeus*), skipjack tuna (*Katsuwonus pelamis*), tiger shark (*Galeocerdo cuvier*), smoothhound shark complex (*Mustelus* sp.), longfin inshore squid (*Loligo pealeii*), bluefish (*Pomatomus saltatrix),* Atlantic butterfish (*Peprilus triacanthus*), spiny dogfish (*Squalus acanthias*), Atlantic surfclam (*Spisula solidissima*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), and black sea bass (*Centropristis striata*).

5.12.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no direct impacts on EFH in the project area from construction of flood-reduction measures. Erosion along shorelines would continue to adversely affect the physical and biological features and functions of EFH from loss of soils in areas where shorelines are disturbed and where the bulkheads are failing, resulting in sedimentation of

intertidal and subtidal habitats. Sedimentation would adversely affect area aquatic species by increasing the turbidity of the water and smothering aquatic substrates. Continued flooding could spread invasive species such as common reed that degrade native marsh habitats. Therefore, under the No Action alternative, continued flooding and erosion would have a long-term minor impact on EFH within the project area.

Alternative 2: Proposed Action

Potential adverse effects on EFH under the Proposed Action would be consistent with the scope of impacts evaluated in the PEA. Construction of the Proposed Action would have minor short-term impacts on EFH from construction of the bulkheads and living shoreline, which would temporarily increase noise and activity and degrade water quality. The PEA directs FEMA to consult with NMFS if an action would cause physical, chemical, or biological changes to EFH. For the Proposed Action, USACE will conduct consultation with NMFS for effects on EFH under the Proposed Action due to the construction of bulkheads and living shoreline directly within designated EFH. The Proposed Action would implement BMPs and avoidance and minimization measures in accordance with the CWA Section 404 permit conditions to avoid or minimize adverse effects on EFH. In the long term, the Proposed Action would have a minor beneficial effect on EFH with the shoreline stabilization from repaired bulkheads. In addition, the creation of the living shoreline would enhance and restore physical and biological features and functions of EFH.

5.13 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, requires that activities using federal funds be reviewed to consider potential effects on historic properties that are listed in or may be eligible for listing in the National Register of Historic Places (NRHP). The NHPA defines a historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register." Eligibility criteria for listing a property in the NRHP are detailed in 36 CFR Part 60.

Pursuant to 36 CFR 800.16(d), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. FEMA evaluates impacts on cultural resources before the undertaking for both standing structures (aboveground resources) and archaeology (belowground resources) within the APE.

Section 106 Consultations

On November 16, 2020, Rutela Associates, serving as an engineering consultant to the City, submitted to the New Jersey Historic Preservation Office (NJHPO) an email submittal form with details about the project, requesting comments. In email correspondence dated December 16, 2020, the NJHPO summarized their technical review of the project plans. Although there are some structures within the vicinity of the project area older than 50 years, NJHPO commented that it is unlikely the project would affect those resources and an architectural survey would likely not be

requested. The NJHPO also noted that based on review of information in their files, the existing degree of ground disturbance, and the low-impact nature of the proposed work, the project has low potential to affect archaeological resources and an archaeological survey would not be required. The NJHPO further stated that if the project receives FEMA funding, formal consultation under Section 106 of the NHPA, pursuant to 36 CFR 800.3, would be required.

Since the December 16, 2020 technical review by NJHPO, FEMA has determined that this project falls within Programmatic Allowances identified in Appendix B of the *Amendment to Programmatic Agreement among FEMA, the New Jersey State Office of Emergency Management, Advisory Council on Historic Preservation, the Delaware Nation, the Delaware Tribe of Indians, the Shawnee Tribe of Oklahoma, and the Stockbridge-Munsee Community of Mohicans as a result of Hurricane Sandy* dated November 14, 2022 (Programmatic Agreement). Therefore, no consultation with the NJHPO or Indian tribes is necessary.

5.13.1 Existing Conditions: Historic Standing Structures and Archaeological Sites

Based on a review of the NJHPO's online cultural resources geographic information system viewer, there are no historic properties listed in or eligible for the NRHP within or adjacent to the project limits of disturbance or direct APE. No archaeological resources have been identified within or adjacent to the project direct APE. According to Appendix B of the Amendment to the Programmatic Agreement, New Jersey's Barrier Islands are considered to have low potential for archaeological sites. The closest NRHP-eligible property is the George A. Redding Bridge (SI&A # 0506150) (State Historic Preservation Officer [SHPO] Opinion: April 12, 2018), which is located approximately 650 feet northwest of the proposed living shoreline at its closest point. The bridge is eligible for listing under Criterion C and has a period of significance from 1948 to 1950. The NRHP-eligible Wildwood Municipal Building (Wildwood City Hall) (SHPO Opinion: July 26, 2017) is located approximately 1,000 feet southeast of the proposed Hudson Avenue bulkheads. The property is eligible under Criterion C with a period of significance limited to 1963. Additional nearby historic properties include the NRHP-eligible Wildwoods Shore Resort Historic District (SHPO Opinion: July 23, 2003), approximately 2,750 feet southeast of the Hudson Avenue bulkheads at its closest point, and a contributing resource to the Atlantic City Railroad Cape May Division Historic District (SHPO Opinion: June 23, 2005). The Atlantic City Railroad Westbound Trestle over Post Creek Basin is located approximately 2,500 feet northeast of the proposed drainage pipe at its northern terminus on West Youngs Avenue.

5.13.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no effect on historic standing structures or archaeological sites as there would be no construction activity related to flood-reduction measures. However, continued coastal erosion and flooding during storm events under the No Action

alternative are expected to increase in severity because of sea level rise, which could impact known cultural resources near the project area. Cultural resources that could be at risk from storm events and associated flooding beyond the limits of the project APE include archaeological sites and historic structures over 50 years old. Flooding could result in exposure or the complete removal of subterranean archaeological materials and features. Flooding could also undermine the stability of historic architectural resources located in coastal settings and could result in direct impacts to the integrity of historic buildings. Direct effects caused by floodwaters could include damage or complete destruction of buildings or particular elements of buildings (foundations, facades, interior features, etc.), associated historic landscapes, and infrastructure. Depending on the scale and intensity, future flooding in the project area would be expected to have minor to major impacts on archaeological resources or historic period built environment resources.

Alternative 2: Proposed Action

Prior to FEMA's involvement with this project, consultation with the NJHPO determined that it is unlikely that the project would affect archaeological resources or historic standing structures eligible for or listed on the NRHP within the APE. In technical review comments from December 2020, the NJHPO did not identify near-shore submerged cultural resources within or near the APE. Therefore, the Proposed Action would result in no adverse effects to historic properties within the APE. During construction, the City would notify FEMA of all inadvertent discoveries, in accordance with the Programmatic Agreement I.A.III.B, and follow the unexpected discoveries protocol outlined therein. Therefore, construction of the Proposed Action would have negligible short-term impacts on archaeological and historic period built environment resources.

By reducing the flood risk for this portion of the city, potential adverse effects to historic properties beyond the APE that contain elevated landforms with archaeological sensitivity would be reduced. The Proposed Action would reduce the risk of exposure or removal of archaeological resources from erosion caused by floodwaters, and inundation of aboveground resources that could result in the entire loss of a structure or compromise the integrity of architectural resources and historic landscapes. Therefore, the Proposed Action would have a minor, long-term benefit on archaeological and historic period built environment resources.

5.14 Environmental Justice

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires agencies to identify and address the disproportionately high and adverse human health or environmental effects its activities may have on minority or low-income populations. The EPA's Environmental Justice Screening and Mapping Tool (EJScreen) was used to evaluate the demographic characteristics of the project area and surrounding community. The EJScreen analysis is based on the U.S. Census Bureau 2016 to 2020 American Community Survey 5-year summary data at the census block group level (EPA 2022c). The following definitions are used in this evaluation:

Overburdened communities are defined as those that meet any of the following criteria:

- Populations within 0.5 mile of the project area contain 50 percent or more minority persons or more low-income persons. CEQ (1997) defines the term "minority" as persons from any of the following groups: Black, Asian or Pacific Islander, American Indian or Alaskan Native, and Hispanic.
- Percentage of minority or low-income population within 0.5 mile of the project area is more than 10 percent greater than the average of the surrounding borough. Low-income populations are households where the income is less than or equal to twice the federal

5.14.1 Existing Conditions

The city of Wildwood, New Jersey, encompasses a total of ten census block groups. Two of the census blocks are directly in the project area (340090215004 and 340090215003) and two would be affected by the Proposed Action (340090215001 and 340090215002) (**Appendix A, Map 5**). The other six census blocks would not be directly affected by the project and are not considered in this analysis. The percentage of burdened communities (data from the U.S. Census Bureau's American Community Survey on the EPA EJScreen) are used as indicators to determine whether the community is disproportionately burdened by environmental hazards and considered to be an environmental justice community.

Table 5.3 depicts the percentage of low-income and minority populations for the affected census blocks in the city of Wildwood and the demographics of the surrounding area. Two census blocks have a percent minority population around 50 percent and one census block also has a low income population of 78 percent.

Because some of the impacted census blocks have a high number of minority and low-income populations and higher unemployment rates than the surrounding city, the project area is considered to be an environmental justice community and these considerations need to be addressed throughout the project lifecycle.

Table 5.3: Environmental Justice Demographics

Census Block Area	Percent Minority Population	Percent Low-Income Population	Unemployment Rate	Population over 64
Southwest (340090215004)	2%	26%	27%	14%
Centerwest (340090215003)	48%	17%	3%	12%
Southwest Center (340090215001)	34%	47%	15%	17%
Centerwest Center (340090215002)	51%	78%	0%	8%
City of Wildwood	31%	40%	11%	14%

Census Block Area	Percent Minority Population	Percent Low-Income Population	Unemployment Rate	Population over 64
Cape May County	15%	23%	7%	27%
New Jersey	45%	22%	6%	16%

Source: EPA 2022c

5.14.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, construction for repair of periodic flood damage would result in impacts such as noise or temporary reductions of air quality that would impact environmental justice communities. In the long term, environmental justice populations would also continue to be at risk of flooding. Flooding could result in the damage or loss of homes and property or necessitate evacuations during flood events, placing a disproportionate burden on environmental justice populations who would be unlikely to have the same capacity to protect themselves or recover from flood events as compared to other populations. Frequent flooding and road closures are also likely to increase commute times and distances and may exacerbate barriers to accessing services for environmental justice populations. Therefore, disproportionately high and adverse impacts could occur with the No Action alternative on environmental justice populations and would likely be a minor impact.

Alternative 2: Proposed Action

Under the Proposed Action, construction activities would result in minor short-term, localized, adverse impacts including increased noise levels and reductions in air quality that could directly cause a minor impact on the environmental justice households near the project area. In the long term, the Proposed Action would reduce the risk of flooding and associated impacts on transportation, public services, public health, and damage to property. All populations in proximity to the project area, including environmental justice populations, would be less likely to experience flood damage to or loss of property, disruptions in transportation, or temporary disruption of utility services. Thus, there would be a long-term minor beneficial impact on environmental justice populations from the reduced risk of flooding with no disproportionately high and adverse impacts.

5.15 Land Use and Planning

5.15.1 Existing Conditions

Existing land uses within the proposed project area includes commercial, residential, community services, parks and open space, and transportation uses. The project area also encompasses a portion of the Bayside Redevelopment area (see Section 5.21). A community center and recreation,

entertainment, and retail facilities, including private enterprises such as restaurants and grocery stores are within the vicinity of the project area (City of Wildwood 2018a).

Land uses at the project areas currently include a wetland open space area, residential and commercial areas, mooring for boats, roadways, and an undeveloped area previously used for the Wildwood Landfill. The wetland is undeveloped and acts as to filter stormwater and as a buffer between the Back Bay and residential structures and infrastructure surrounding it. Ottens Harbor is used for boat storage and mooring as well as stormwater and flood drainage. There are residential structures lining Susquehanna Avenue, West Montgomery Avenue, Mediterranean Avenue, and West Andrews Avenue (**Appendix A, Map 6**).

5.15.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, construction of flood-reduction measures would not occur and there would be no change to current land uses. Thus, there would be no short-term impact on land use and planning. In the long term, climate change could increase the frequency and severity of flood events. Repetitive flood events would reduce the ability of property owners to use their land for its intended purpose and could result in the abandonment of structures. Therefore, the No Action alternative would result in a minor, long-term, adverse impacts on land use and planning from the continued risk of flooding that could alter the intended land use of the area.

Alternative 2: Proposed Action

The PEA does not directly address impacts on land use. Under the Proposed Action, construction activity would not require temporary or permanent easements and no changes to land use or zoning would occur. Roadway closures would be required during construction (see Section 5.17) that would reduce access to adjacent land; however, adjacent homes and businesses would remain open during construction. Therefore, there would be no short-term impact on land use in the project area.

In the long term, the Proposed Action would provide existing and future land uses in the project area with increased protection against flooding. The Proposed Action would not change the land use zoning in the area and would not hindrance the land from functioning as intended. Therefore, there would be no long-term impact on land use.

5.16 Noise

The Noise Control Act of 1972 required EPA to create a set of noise criteria. In response, EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974, which explains the impact of noise on humans. The EPA report's conclusion was that keeping the maximum 24-hour day-night noise level (Ldn) value below 70 A-weighted decibels (dBA) would protect most people from hearing loss. The EPA

recommends an outdoor Ldn of 55 dBA. According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA and can cause immediate irreparable damage at 140 dBA. The Occupational Safety and Health Administration has adopted a standard of 140 dBA for maximum impulse noise exposure for workers in a noisy environment. This regulation does not apply to adjacent properties or their occupants.

Sounds that disrupt normal activities or otherwise diminish the quality of the environment are considered noise. Assessment of noise impacts includes the proximity of the Proposed Action to sensitive receptors. A sensitive receptor is defined as an area of frequent human use that would benefit from a lowered noise level. Typical sensitive receptors include residences, schools, churches, hospitals, nursing homes, and libraries. The city of Wildwood Noise Ordinance allows construction work to occur between the hours of 7:00 a.m. and 8:00 p.m. on weekdays; work on weekends, holidays, or at night would require a permit from the City (City of Wildwood Ordinance No. 604-04 Section 3A-1).

5.16.1 Existing Conditions

Sensitive noise receptors near the project area predominantly consist of residences. The Glenwood Elementary School is located approximately 1,600 feet south of the closest point of the project area. The dominant sources of ambient noise in the vicinity are vehicular traffic along residential streets and main artillery roadways. The West Rio Grande Avenue is the primary route for traffic entering and exiting the city of Wildwood, resulting in increased ambient noise in the immediate vicinity of the roadway. Other contributors to noise levels include occasional air traffic from the Cape May Airport, which is approximately 4 miles west of the project area, and boat traffic in Ottens Harbor.

5.16.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no increase in noise levels from construction for flood-reduction measures. Because the risk of flooding would not be reduced in the long term, periodic construction activities to repair flood damage would be needed and would temporarily increase noise levels in the immediate vicinity of the work. Any construction activities that may occur would be required to comply with local construction noise ordinances. Therefore, over the long term, there would be minor, reoccurring, short-term, construction noise impacts from flood repair work.

Alternative 2: Proposed Action

The PEA does not directly address impacts related to noise. The Proposed Action would result in temporarily increased noise levels in the project area from the use of construction equipment for all project components. Surrounding residences may experience increased levels of noise during these work periods, particularly residences located near bulkhead replacements where vertical and

anchor pile installation would occur. However, potential impacts on noise levels from construction activities would be temporary and the City would conform to the local noise ordinances for the time of day that construction noise is allowed. Construction is expected to take 24 months to complete. There would be no effect on Greenwood Elementary School because construction noise would attenuate to background levels before reaching the school property. Therefore, there would be a minor short-term effect on receptors related to noise from construction activity. In the long term, the risk of flooding would be reduced, thereby reducing occasional increases in noise from flood-related repairs. Accordingly, the Proposed Action would have a negligible, long-term, beneficial impact related to construction noise impacts.

5.17 Transportation

5.17.1 Existing Conditions

The city of Wildwood is primarily accessible by Wildwood Boulevard and West Rio Grande Avenue from the mainland of New Jersey. The annual average daily traffic count for this segment of Wildwood Boulevard and West Rio Grande Avenue is 17,173 vehicles per day (New Jersey Department of Transportation 2018). Access to the project area is from Mediterranean Avenue, West Andrews Avenue, West Youngs Avenue, Susquehanna Avenue, Hudson Avenue, Niagara Avenue, and Montgomery Street. Public transportation in Wildwood includes a shuttle service from Diamond Beach to Olde New Jersey Avenue and bus service through New Jersey Transit lines 313, 315, and 316. The city is a tourist destination between the months of June and August, resulting in increased demands on transportation-related infrastructure.

5.17.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, road closures related to construction of flood-reduction measures would not occur. However, roads in the project area would continue to be flooded during storms that could become more frequent because of climate change, and the flooding may become more severe because of sea level rise. Flooded roadways would require detours and closures until flood waters recede. Therefore, under the No Action alternative, there would be a minor long-term adverse impact on transportation from periodic flooding that could worsen over time from climate change and sea level rise.

Alternative 2: Proposed Action

The PEA does not directly address impacts on transportation. The Proposed Action alternative would require closure of roadways or lanes within each proposed project area for construction activities and staging of equipment and materials. The City would reduce roadways to single lane along Mediterranean Avenue and West Andrews Avenue during construction of the living shoreline. The roadway would be reduced to one lane and/or closed completely along Susquehanna Avenue during the drainage pipe replacement work. The street ends where the new vinyl bulkheads

would be installed would be closed during construction. Staging areas would be located on the western end of Mediterranean Avenue west of Taylor Avenue and the paved section of Roberts Avenue north of Susquehanna Avenue. Some equipment and materials would also be staged on barges in Ottens Harbor. Construction activities would occur between the months of October and June, when traffic counts are lowest, to reduce impacts on transportation. No detours would be required for public transportation. Therefore, there would be minor, temporary adverse impacts on transportation during implementation of the Proposed Action.

In the long term, the risk of flooding and resultant need for roadway closures and detours would be reduced. Therefore, there would be a minor long-term beneficial effect on transportation from the reduced risk of flooding.

5.18 Public Services and Utilities

5.18.1 Existing Conditions

The project area is in a developed urban area and is served by major utilities and infrastructure including electric, natural gas, and water and sewer lines. The New Jersey Board of Public Utilities oversees all public utilities in Cape May County (New Jersey Board of Public Utilities 2022). Utility company Atlantic City Electric provides electricity to the city of Wildwood; gas is provided by South Jersey Gas (Atlantic City Electric 2022, South Jersey Gas 2022). NJDEP's Division of Water Supply and Geosciences oversees water systems in New Jersey; Wildwood Water Utility provides water for the city of Wildwood (City of Wildwood 2022a).

5.18.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction related to the installation of flood-reduction measures that could disrupt or increase demand on electric, gas, water, or wastewater services. Flooding during storms that could become more frequent because of sea level rise would continue to disrupt public services and utilities such as water, sewer, gas, and electric. Flood waters could damage electrical and gas lines and could infiltrate and contaminate water systems. Erosion caused by flooding could undermine the substrate supporting utility pipelines and cables, potentially causing breakage of those lines, leaving residents of the area without power and water utilities. Therefore, the No Action alternative would have minor adverse effects on public services and utilities.

Alternative 2: Proposed Action

The PEA does not directly address impacts on public services and utilities. The Proposed Action would require construction-related ground disturbance that could potentially disrupt existing utility services. During construction, the City would be responsible for temporarily supporting or relocating any utilities affected by the work. With these measures in place, construction activities

associated with the Proposed Action would result in negligible, short-term adverse impacts on utilities. In the long term, the risk of flooding and associated disruption or loss of public services and utilities would be reduced. Therefore, there would be a minor long-term beneficial effect on public services and utilities from the reduced risk of flooding.

5.19 Public Health and Safety

5.19.1 Existing Conditions

The city of Wildwood Police Department and various agencies within Cape May County are responsible for the general protection of public health and safety near the proposed project area. The city of Wildwood Fire Department provides fire protection services to the project area. Both the police department and fire department are located at 4400 New Jersey Avenue, southeast of the project area. The city of Wildwood Emergency Management Office provides education and coordinates with fire and emergency medical responders. Cape Regional Medical Center is the nearest hospital relative to the project area.

5.19.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction of flood-reduction measures. Climate change is expected to increase the frequency and intensity of storms and sea level rise that would result in increased flooding, which would continue to damage infrastructure and roads that could increase the risk that police, fire stations, and medical centers from responding in a timely manner to emergencies. As discussed in Section 5.17, Transportation, flooded roadways would require detours and closures until flood waters recede, which could block emergency access routes. Flooding could also cause public health and safety concerns including the backup of sewer systems, disruption of utilities, and the need to evacuate the area. Therefore, the No Action alternative would have minor adverse effects on public health and safety.

Alternative 2: Proposed Action

All construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions, to minimize risks to safety and human health. All activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Administration regulations. The City would place appropriate signage and barriers prior to construction activities to alert pedestrians and motorists of project activities. Work on the proposed living shoreline would occur mostly off-road, with some in-water work, in an area that is not used by the public. The City expects to close one lane on Mediterranean Avenue and West Andrews Avenue to complete the construction work. Replacement of the drainage pipe would occur in the roadway; Susquehanna Avenue would be reduced to one lane of traffic during construction. Bulkhead improvements would occur on City-owned property that would be closed to the public during construction. The City would ensure

emergency access through the work zones. With these measures in place, construction activities associated with the Proposed Action would result in minor short-term adverse impacts on public health and safety.

The Proposed Action would reduce the risk of flooding and associated public health and safety concerns such as the backup of sewer systems, disruption of utilities, and the need to evacuate. Critical services, such as fire, police, and first responders, would experience improved accessibility and emergency response times during storm events compared to existing conditions because fewer roadways would be flooded or flooded to a lesser depth and duration. Therefore, there would be a minor, long-term, beneficial effect from the reduced flooding and associated public health and safety concerns.

5.20 Hazardous Materials

Hazardous materials and wastes are regulated under a variety of federal and state laws, including 40 CFR Part 260, the Resource Conservation and Recovery Act of 1976 (42 U.S.C. 6901 et seq.); the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.); the Solid Waste Act; and the Toxic Substances Control Act. Occupational Safety and Health Administration standards under the Occupational Safety and Health Act are intended to minimize adverse effects on worker health and safety (29 CFR 1926). Evaluations of hazardous materials and wastes must consider whether any hazardous wastes would be generated by the proposed activity and/or already exists at or in the general vicinity of the site (40 CFR 312.10). NJDEP issues permits for transportation and disposal of hazardous waste.

5.20.1 Existing Conditions

A review of the EPA NEPAssist database was conducted in August 2022 to identify potential sources of hazardous or contaminated materials within 0.5 mile of the project area. Potential areas of environmental concern were identified based on the known or suspected presence of hazardous wastes. Twenty-four potential areas of concern were identified within the vicinity of the project (EPA 2022d). One site, the capped Wildwood Landfill, encompasses the proposed pipeline replacement alignment. This site is an undeveloped 18-acre site that lies between Susquehanna Avenue and Post Creek Basin to the north and West Baker Avenue to the east. There are no known bulk storage or remediation sites within the vicinity.

5.20.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action alternative, there would be no construction of flood-reduction measures and thus no short-term potential to generate construction-related hazardous wastes or expose contaminated soils. However, the risk of flooding would not be reduced and periodic flooding could disturb contaminated wastes within or adjacent to the project area if facilities containing hazardous materials are damaged or if the ground is eroded, exposing sources of hazardous

materials or wastes. Construction conducted to repair flood-damaged infrastructure and facilities would pose the risk of leaks and spills of hazardous materials, such as fuels and lubricants. Therefore, there would be minor long-term adverse impacts from hazardous materials or wastes.

Alternative 2: Proposed Action

As described in the PEA, the use of construction equipment would pose the risk of leaks and spills of hazardous materials, such as fuels and lubricants. In accordance with the PEA, the City would ensure that all equipment and project activities adhere to state and local regulations to reduce the risk of hazardous leaks and spills. Any spills that occur during construction would be contained and cleaned. Trenching for the pipeline replacement component would occur through the landfill site along the alignment of Youngs Avenue. Trenching along Susquehanna Avenue may also be in or adjacent to the edge of the landfill. However, the replacement pipeline would be in the same alignment as the existing pipeline and trenching would be filled with a dense graded aggregate once the pipe is replaced to match the existing pavement. The project areas occur in areas containing historic fill, which is composed of unknown material that could be contaminated. Under NJDEP's Site Remediation Program (NJAC 7:26E-3.12), prior to starting excavation, the City would be required to either remediate the historic fill under the assumption that it is contaminated or conduct soil testing to demonstrate that the fill is not contaminated above NJDEP's residential soil remediation standards (NJAC 7:26D-4). All fill required for the Proposed Action would be from sources from an approved off-site borrow materials facility, with oversight by a licensed engineer or LSRP, as described in the PEA.

The Proposed Action could pose a risk to the environment and human health, as hazardous materials or wastes could be encountered through direct contact or inhalation during ground-disturbing activities. If hazardous wastes are encountered in any part of the project area, the City would implement precautions and procedures to safely identify, manage, and dispose of hazardous wastes in accordance with applicable local, state (NJAC 7:26G), and federal regulations and in alignment with the PEA. Thus, the Proposed Action would have negligible short-term adverse impacts related to hazardous materials or wastes.

In the long term, the Proposed Action would reduce the risk of flooding and associated erosion of potentially contaminated materials from hazardous material sites. Reduced flooding would reduce the need for flood-related repairs that require construction and the associated risk of leaks and spills of hazardous materials. The CCA within the treated yellow pine could leach and contaminate the water, but would dilute within a few days of installation (NOAA 2009). Therefore, there would be a minor long-term beneficial effect related to hazardous materials from the reduced risk of flooding.

5.21 Cumulative Impacts

This TEA considers the overall cumulative impact of the Proposed Action and other actions that are related in terms of time or proximity. Cumulative effects represent the "impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.1).

In addition to NEPA, other statutes require federal agencies to consider cumulative effects. These include the CWA Section 404(b)(1) guidelines and the regulations implementing the conformity provisions of the Clean Air Act, Section 106 of the NHPA, and Section 7 of the ESA.

Independent of the Proposed Action, multiple projects are anticipated within the city of Wildwood, with two projects proposed in or near the project area. These projects are described in more detail below.

Bayside Area Redevelopment Plan – The city of Wildwood is currently planning on redeveloping the area known as the Bayside Area into a mixed-use residential area of single-family homes and duplexes, local commercial use that would include retail and restaurants, a commercial marina, and public access to the waterfront including a new public boardwalk and bulkhead. The area is located on the city's former landfill between Susquehanna Avenue and the Bay and between Baker Avenue and the northwestern end of West Lincoln Avenue (City of Wildwood 2018b).

Reconstruction of Taylor Avenue Phase 2 – The city of Wildwood is currently improving Taylor Avenue between Park Boulevard and New Jersey Avenue. The work started October 2022 and is scheduled to conclude April 1, 2023 and includes the following elements:

- Construction of a new storm sewer main and associated structures
- The installation of new water services and fire hydrants
- The replacement of the sanitary sewer main under Taylor Avenue, which includes new manhole structures and roadway reconstruction between Pacific Avenue and Ocean Avenue
- Road resurfacing between Park Boulevard and New Jersey Avenue
- The construction of Americans with Disabilities Act–compliant curb ramps, grass and landscape restoration, brick paver sidewalks, and the installation of traffic striping (City of Wildwood 2022b)

5.21.1 Conclusion

The projects described above, in combination with the Proposed Action, would likely not have any short-term minor cumulative construction-related impacts, as the projects would likely not occur at the same time. However, cumulative impacts may occur following construction of the Proposed

Action and the Bayside Area Redevelopment project. The replacement of the drainage pipe under the Proposed Action is located through the Bayside Area under Susquehanna Avenue and within the Youngs Avenue right-of-way to the back bay. There may be increased drainage into the pipe once the Bayside Area Redevelopment project is complete, as there would be more impermeable surfaces in the area that would increase storm drainage from the area. However, storm drain improvements are included in the Bayside Area Redevelopment Plan that would likely augment the capacity of the drainage pipe proposed under the Proposed Action (Wildwood 2018b).

The reconstruction of Taylor Avenue would not increase the amount of impermeable surfaces or stormwater drainage in the area and would not change the level of traffic in the area. Therefore, the Taylor Avenue project would not contribute to long-term cumulative impacts from increased runoff or traffic. Reconstruction work would also occur during a different time frame from the Proposed Action, resulting in no cumulative impact from construction-related impacts. In addition, the Taylor Avenue improvements start at approximately 1,800 feet southeast of the living shoreline portion of the Proposed Action and approximately 1,000 feet to the southwest of the closest bulkhead replacement. Because of the distance between the two projects and the separation in construction timing, there would be no long-term cumulative effects from the Taylor Avenue project and the Proposed Action.

6.0 PERMITS AND PROJECT CONDITIONS

The City is responsible for obtaining all applicable federal, state, and local permits and other authorizations for project implementation prior to construction and adherence to all permit conditions. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other laws and EOs. The City must also adhere to the following conditions during project implementation. Failure to comply with grant conditions may jeopardize federal funds:

6.1 Federal

- The Subapplicant must obtain an NPDES General Permit for Stormwater Discharges from Construction Activity/Stormwater Pollution Prevention Plan from EPA and comply with all permit conditions.
- Prior to construction, the Subapplicant must obtain any required CWA Section 404 and 401 permits from USACE and NJDEP and comply with permit conditions.
- If USACE requires wetland mitigation in compliance with the CWA and USACE permit conditions, the Subapplicant will provide documentation of compliance with the mitigation requirements to FEMA.
- The Subapplicant will notify FEMA of all inadvertent discoveries, in accordance with the Programmatic Agreement I.A.III.B (*Amendment to Programmatic Agreement Among the*

FEMA, The New Jersey State Office of Emergency Management, Advisory Council on Historic Preservation and Participating Tribes as a Result of Hurricane Sandy, dated November 14, 2022), and follow the unexpected discoveries protocol outlined therein.

6.2 State

- Prior to starting excavation at the Wildwood Landfill site, the City would be required to either remediate the historic fill under the assumption that it is contaminated or conduct soil testing to demonstrate that the fill is not contaminated above NJDEP's residential soil remediation standards.

6.3 Local

- The Subapplicant will develop and implement a site-specific Soil Erosion and Sediment Control Plan that is reviewed and certified by the Cape Atlantic Soil Conservation District.

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This TEA is available for agency and public review and comment for a period of 30 days. The public information process includes a public notice with information about the Proposed Action in the Cape May County Herald. The TEA is available for download at https://www.fema.gov/emergency-managers/practitioners/environmental-historic/nepa-repository and https://www.wildwoodnj.org. A hard copy of the TEA will be available for review at:

City Hall
City Clerk's Bulletin Board
4400 New Jersey Avenue
Wildwood, NJ 08260

Interested parties may request an electronic copy of the EA by emailing FEMA at FEMAR2COMMENT@fema.dhs.gov. This EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will consider comments submitted during the public review period. The public is invited to submit written comments by emailing FEMAR2COMMENT@fema.dhs.gov or via mail to:

Federal Emergency Management Agency, Region 2
Environmental Planning and Historic Preservation
One World Trade Center, Suite 53 (285 Fulton Street)
New York, NY 10007
Attn: Wildwood, NJ: Ottens Harbor Community Flood Mitigation EA Comments

If FEMA receives no substantive comments from the public or agency reviewers, FEMA will adopt the EA as final and will issue a FONSI. If FEMA receives substantive comments, it will evaluate and address comments as part of the FONSI documentation or in a Final EA.

8.0 LIST OF PREPARERS

CDM Smith:

- Megan Regel (Environmental Planner)
- Breanna Moak (Environmental Planner)
- Annamarie Weddle (Environmental Planner)
- Jennifer Jones (Biologist)
- Mary Lynne Rainey (Historic Preservation Specialist)
- Brandon Webb (Lead Environmental Planner)
- Malena Foster (GIS Specialist)
- Kate Stenberg, PhD (Senior NEPA Specialist, Quality Assurance/Quality Control Reviewer)

FEMA:

- John McKee (Regional Environmental Officer, Region 2)
- David Conrad (Environmental Planning and Historic Preservation Lead, Region 2)
- John Dawson (Regional Unified Federal Review Coordinator, Region 2)

9.0 SUMMARY OF IMPACTS

Table 9.1. Summary of Impacts

EA Section	Topic	No Action Alternative	Proposed Action: Short-Term/ Temporary Impacts	Proposed Action: Long-Term/ Permanent Impacts
5.1	Geology	No Impact	No Impact	No Impact
5.1	Topography and Soils	Minor Adverse	Minor Adverse	Minor Beneficial
5.2	Air Quality	Negligible Adverse	Minor Adverse	No Impact
5.3	Climate Change	Minor Adverse	Negligible Adverse	Negligible Beneficial
5.4	Water Quality	Minor to Moderate Adverse	Minor Adverse	Minor Beneficial
5.5	Wetlands	Moderate Adverse	Negligible Adverse	Minor Beneficial
5.6	Floodplains	Minor to Moderate Adverse	Negligible Adverse	Moderate Beneficial
5.7	Coastal Resources	Moderate Adverse	Moderate Adverse	Moderate Beneficial
5.8	Vegetation	Minor Adverse	Minor to Moderate Adverse	Moderate Beneficial
5.9	Wildlife and Fish	Minor Adverse	Minor Adverse	Minor Beneficial
5.10	Threatened and Endangered Species	Minor Adverse	Minor Adverse	Minor Beneficial
5.11	Migratory Birds	Minor Adverse	Minor Adverse	Minor Beneficial
5.12	Essential Fish Habitat	Minor Adverse	Minor Adverse	Minor Beneficial
5.13	Cultural Resources	Minor to Moderate Adverse	Negligible Adverse	Minor Beneficial
5.14	Environmental Justice	Minor Adverse	Minor Adverse	Minor Beneficial
5.15	Land Use and Planning	Minor adverse	No Impact	No Impact
5.16	Noise	Minor Adverse	Minor Adverse	Negligible Beneficial

EA Section	Topic	No Action Alternative	Proposed Action: Short-Term/ Temporary Impacts	Proposed Action: Long-Term/ Permanent Impacts
5.17	Transportation	Minor Adverse	Minor Adverse	Minor Beneficial
5.18	Public Services and Utilities	Minor Adverse	Negligible Adverse	Minor Beneficial
5.19	Public Health and Safety	Minor Adverse	Minor Adverse	Minor Beneficial
5.20	Hazardous Materials	Minor Adverse	Negligible Adverse	Minor Beneficial

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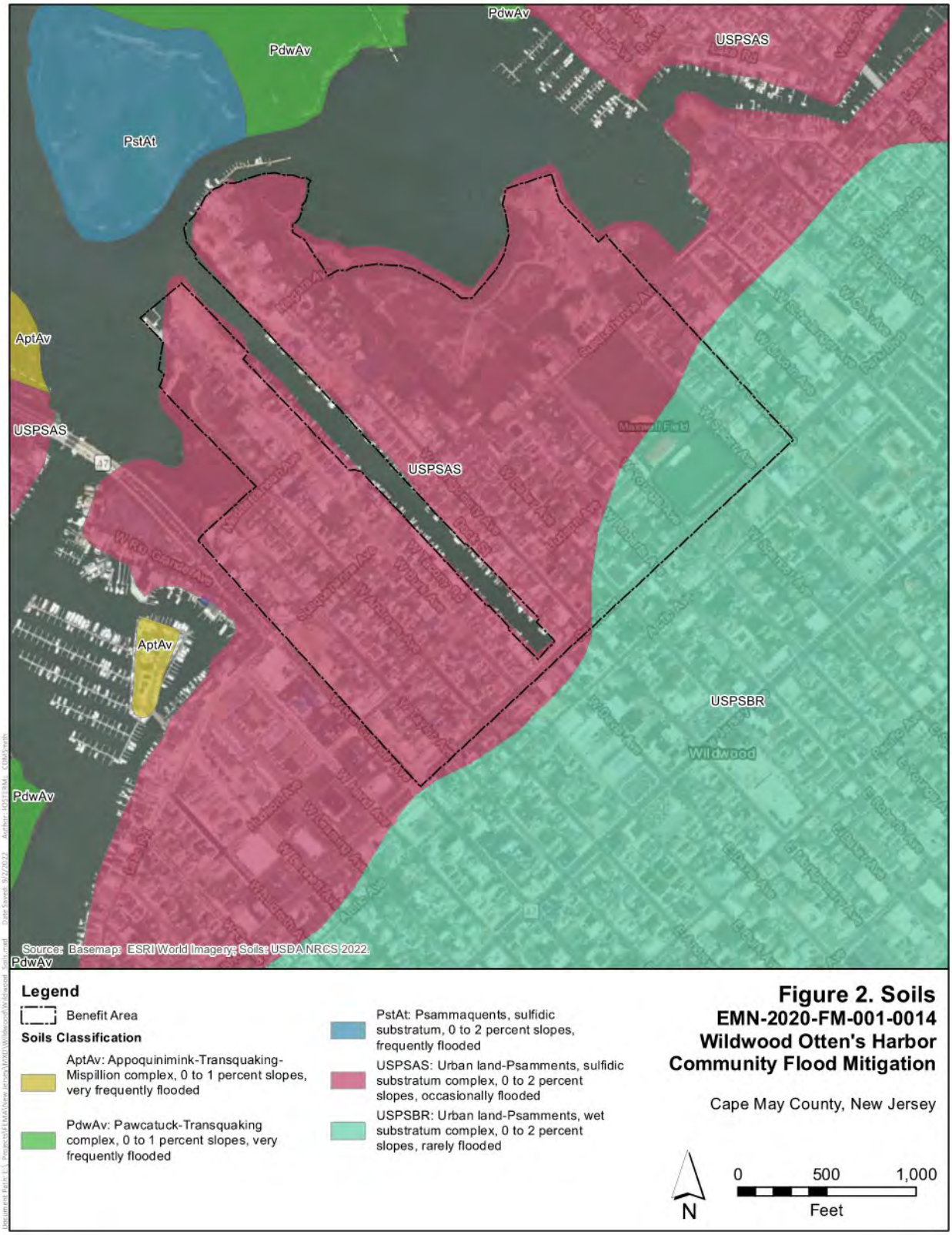
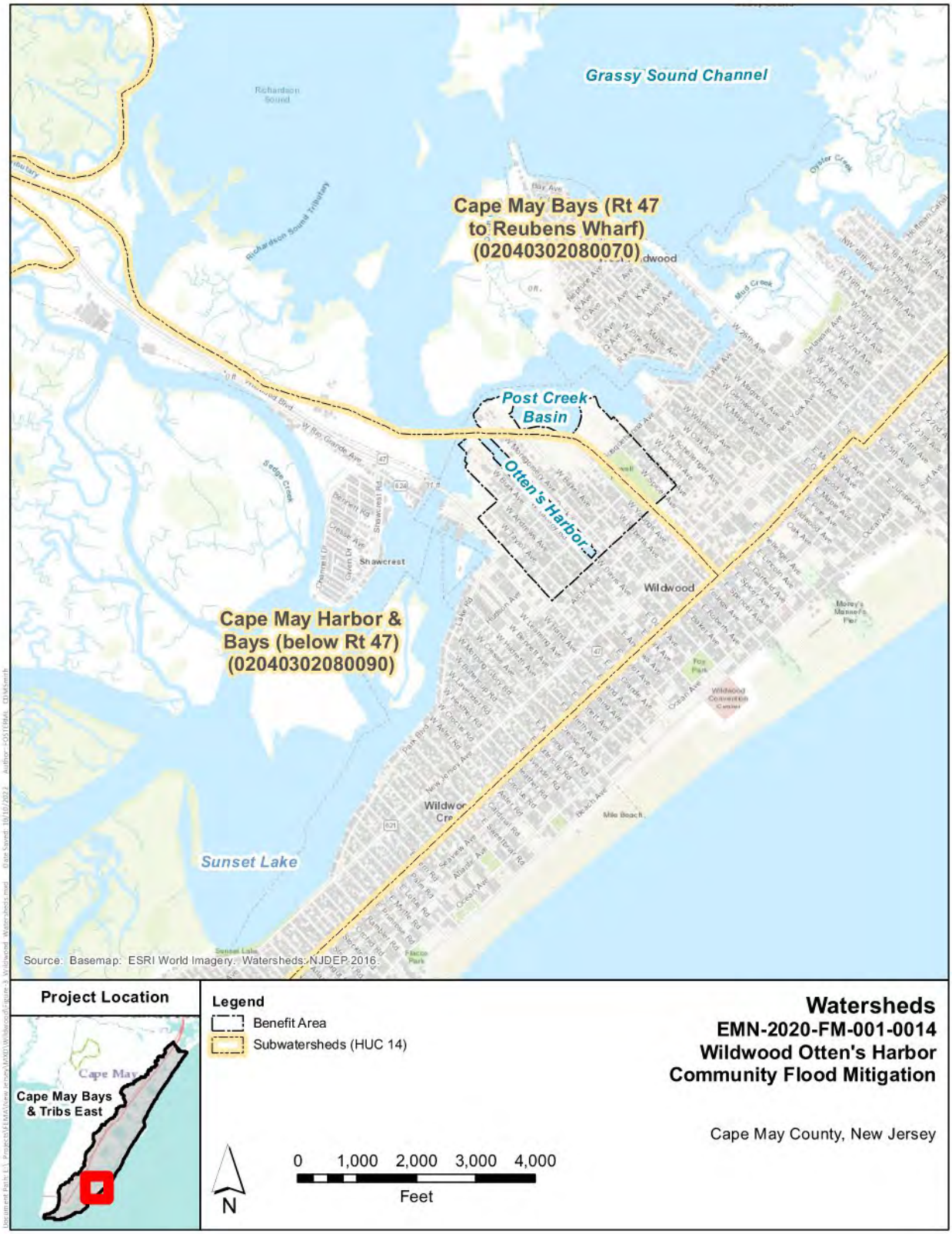
Appendix A Maps

Map 1: Project Location



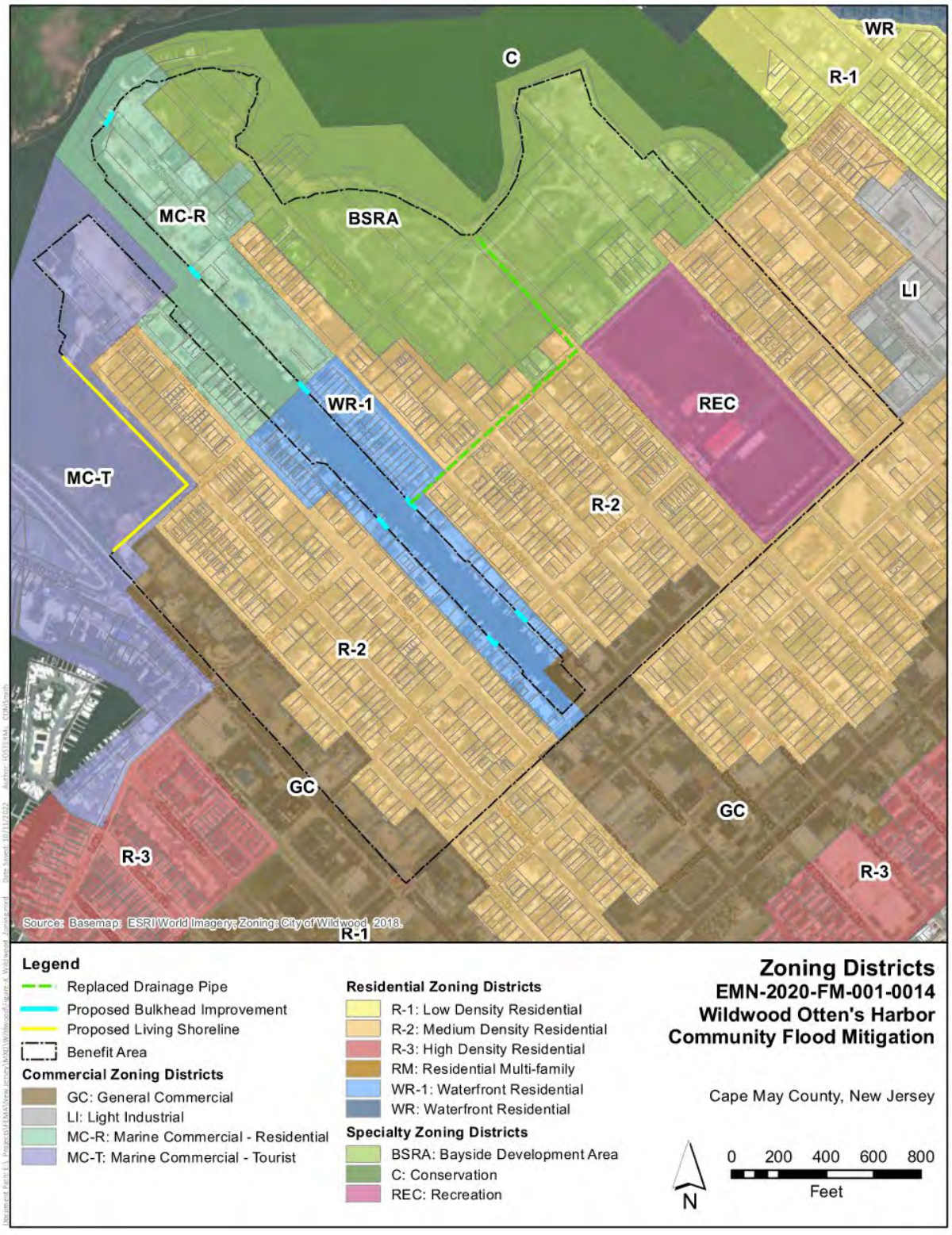
Map 2: USGS Soil Map



Map 3: Watershed Map

Map 4: Wetlands Map

Map 5: Census Block Map



Map 6: Zoning Map

Appendix B Documents

Document 1 – Eight-Step Floodplain Review

City of Wildwood, NJ: Otten's Harbor Community Flood Mitigation
Wildwood, Cape May County, New Jersey
EMN-2020-FM-001-0014

Executive Order 11988 – FLOODPLAIN MANAGEMENTExecutive Order 11990 – WETLAND PROTECTION

8-STEP PROCESS SUMMARY

Project: The City of Wildwood (Subapplicant) proposes to replace and improve existing flood protection infrastructure around Otten Harbor. The Proposed Action includes three elements that will all be built on city property or within public right-of-way; 1. Construction of a living shoreline with a gabion core and bio logs, berms, and native plantings. 2. A vinyl bulkhead with concrete caps, footing, and fill for wall extensions to be constructed at select locations. The existing bulkheads in these areas are failing and are below the city required level of protection. 3. drainage improvements at Susquehanna Avenue. A drainage pipe that drains portions of the impact area is structurally compromised and will be replaced, enlarged, and enhanced by the installation of check valves. The benefitting area is about 150 acres of the town, generally bounded by Garfield Avenue, Park Avenue, Rio Grande Avenue, and the back bay.

STEP 1 - Determine whether the proposed actions are located in a wetland and/or the 100-year floodplain (500-year floodplain for critical action [44 CFR 9.4]) or whether they havethe potential to affect or be affected by a floodplain or a wetland (44 CFR 9.7).

__X__ The project site is located in relation to the floodplains as mapped by:

The Project Area is located entirely within Flood Insurance Rate Map (FIRM) panel number 34009C0302F, effective on 10/05/2017, in flood Zone AE (el. 9 ft).

__X__ The Project is located in the wetland as identified by:

Per the National Wetlands Inventory (NWI) Mapper, the Living shoreline component abuts a Riverine and Marine Wetland habitat (E2EM1N).

STEP 2 - Notify the public at the earliest possible time of the intent to carry out an action in a floodplain or wetland and involve the affected and interested public in the decision- making process (see 44 CFR 9.8).

_____ Not applicable - Project is not located in a floodplain or wetland.

__X__ Applicable - Notice will be or has been provided by:

Public notice will be provided in the public comment period for the Environmental Assessment for this project.

STEP 3 - Identify and evaluate practicable alternatives to locating the proposed action in a floodplain or wetland (including alternative sites, actions, and the "No Action" option) [see44 CFR 9.9]. If a practicable alternative exists outside of the floodplain or wetland, FEMAmust locate the action at the alternative site.

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Alternative identified in the EA Document or as described below:

Alternative 1: No Action Alternative - Under the No Action alternative, there would be no federal financial assistance provided for flood mitigation in the project area. FEMA anticipates that, because of budgetary constraints within the state and the community, the flood mitigation work would remain unfunded or deferred for a unspecified period of time. The Ottens Harbor area and the City of Wildwood would continue to be at risk from heavy rain and tidal-related flooding from the bayside of the island. Flooding would continue to inundate streets, potentially necessitating road closures, which would affect emergency response times and close off evacuation routes. Water inundation would also flood buildings and other structures, potentially damaging property and infrastructure. The bulkheads and drainage pipe would continue to fall into be in disrepair and remain in noncompliance with local ordinances, further reducing flood protection for the area. This alternative would not meet the overall need of the community.

Alternative 2: Ottens Harbor Community Flood Mitigation - The Proposed Action would consist of three project elements including a living shoreline restoration area, replacement bulkheads in Ottens Harbor, and a replacement drainage pipe. The first element would be approximately 1,100 feet of living shoreline that would be constructed adjacent to Mediterranean Avenue and West Andrews Avenue. The living shoreline would be composed of a Reno mattress footing, a gabion basket core, berms made of compacted backfill, and native plantings. A Reno mattress is a flexible wire mesh mat that is filled with rocks and allows water to filter through it while retaining soil and sediments. A 1-foot-deep Reno mattress with a filter fabric base would be constructed as the base for the living shoreline to provide stability. The mat would eventually fill with sediments and provide a foundation for plant establishment. On the bayside, the berms would be anchored by three rows of gabion baskets, each 3 feet high. The bottom row of gabion baskets would extend 6 feet from the berm edge; the middle row would extend 4.5 feet from the center, and the topmost row would extend 3 feet. The berms, located adjacent to the avenues, would be built to an elevation of 9 feet above the adjacent pavement and would be composed of compacted earth fill on the landward side and finished with topsoil and seeded with native grasses. Construction of the living shoreline would use a silt boom, barriers, and the installation of temporary silt fencing around areas of landward ground disturbance to prevent runoff from entering the streets and storm drains. The site would be accessed from Mediterranean Avenue and West Andrews Avenue. Both avenues would have half-road closures adjacent to the wetland and work would occur there and within the footprint of the living shoreline. A staging area would be established along the western end of Mediterranean Avenue west of Taylor Avenue.

The second project element would include the installation of vinyl bulkheads with concrete caps at seven street ends along Ottens Harbor shoreline where the current bulkheads are failing and/or under 8 feet in elevation. Vinyl sheet piles, 25 feet long, would be installed to extend approximately 5 feet above the

existing grade elevation for a final elevation of 8 feet above mean sea level. Anchor piles would be a minimum of 20 feet long and connect to the vertical piles by tie rods. Piles, guide timber, and drag planks would be made from southern yellow pine treated for marine environments. Upon completion of bulkhead construction, disturbed areas would be restored with topsoil and seeded. Equipment would be staged on the avenues located behind each bulkhead, either on existing asphalt or previously disturbed soils. Bulkhead installation would be conducted from the landside staging areas and barges in Ottens Harbor.

The third project element includes the replacement of approximately 1,700 feet of 18- to 24 inch diameter drainage pipe that traverses under the West Youngs Avenue and Susquehanna Avenue rights-of-way. The drainage pipe would be replaced with an upsized 30-inch-diameter pipe at the same location of the current pipe. Trenches up to 8 feet wide and 10 feet deep would be excavated. Dense graded aggregate would be used to fill the trenches and the pavement would be restored to match the existing grade under the avenues. The wetlands at the Youngs Avenue right-of-way would be trenched and replaced with fill from an approved off-site borrow materials facility, with oversight by a licensed engineer or licensed site remediation professional (LSRP). Disturbed areas would be restored to pre-project conditions. At each end of this pipe, new check valves would be installed, and the exiting bulkheads would be modified with a larger outflow hole to connect to the new 30-inch-diameter pipe. Staging for this project element would be located on the paved section of Roberts Avenue north of Susquehanna Avenue

STEP 4 - Identify the full range of potential direct or indirect impacts occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the proposed action (see 44 CFR 9.10).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Alternative identified in the EA document or as described below:

Additional alternatives that were considered and dismissed included elevation of land and/or structures to an elevation of 8 feet NAVD88 and the installation of additional pump stations. Elevating land or structures would reduce flood damage; however, it would not prevent potential road closures and infrastructure damage. Therefore, elevation would not meet the purpose and need. Elevation was also deemed infeasible because of the number of private parcels that would need to be treated and the complexity of coordinating elevations across the entire area.

The construction of additional pump stations would only be effective with additional flood control infrastructure. Therefore, pump stations were dismissed from further consideration.

For a full list of project resource impacts, please see associated Environmental Assessment document.

STEP 5 - Minimize the potential adverse impacts and support to or within floodplains and wetlands to be identified under Step # 4, restore, and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands (see 44 CFR 9.11).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Mitigation measures identified in the EA document or as described below:

Project design elements of such as the selection of a living shoreline, were selected to preserve and enhance natural resources. Equipment expected to be used to complete the project would include a crane, an excavator with clamshell bucket, far-reach equipment, a concrete truck, and hand tools. Where required, fill material would be obtained from an approved off-site borrow materials facility and a licensed engineer or an LSRP would oversee the process. Staging for the material for all project elements would be located on Spicer Avenue and Cedar Avenue, outside of the wetland and on impervious surfaces. All construction would be conducted in accordance with Federal and State permits, and any conditions specified therein. During construction, impacts to surface water flow, water quality, and sediment transport; wetland area, functions, and values, would be addressed via Best Management Practices (BMPs) (e.g., silt curtains, turbidity barriers, silt fencing, and hay bales).

STEP 6 - Re-evaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others and its potential to disrupt floodplain and wetland values, and second, if alternatives preliminarily rejected at Step #3 are practicable in light of the information gained in Steps#4 and #5. FEMA shall not act in a floodplain or wetland unless it is the only practicable location.

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Action proposed is located in the only practicable location as described below:

The Proposed Action is the chosen practicable alternative based upon a review of possible adverse effects on the floodplain.

STEP 7 - Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative (see 44 CFR 9.12).

_____ Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Finding is or will be prepared as described below:

Step 7 requires that the FEMA provide the public with an explanation of any final decisions that the Proposed Action in a floodplain is the only practicable alternative, potential impacts of the Proposed Action on floodplains, and associated mitigation measures. In accordance with 44 CFR 9.12, FEMA will provide this notice with the notice of availability of the draft Environmental Assessment for public review and comment.

STEP 8 - Review the implementation and post-implementation phases of the proposed action to ensure the requirements of the Order are fully implemented. Oversight responsibility shall be integrated into the existing process.

_____ Not applicable – Project is not located in a floodplain or in a wetland.

X Applicable – Approval is conditioned on review of implementation and post-implementation phases to ensure compliance with the order(s).

The implementation and post-implementation phase of the proposed action will be reviewed to ensure that the requirement(s) stated in 44 CFR 9.11 are fully implemented.

Document 2 – Coastal Applicability Determination Checklist

State of New Jersey
Department of Environmental Protection

COASTAL APPLICABILITY DETERMINATION CHECKLIST

Revised: March 2019 **Website: www.nj.gov/dep/landuse**

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

This checklist applies to applicability determinations under CAFRA, the Waterfront Development Law, and Wetlands Act of 1970. Please complete this form and submit it along with the below information to:

Regular mail

NJ Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625-
Attn: Application Support

For hand delivery, courier service and overnight mail

NJ Department of Environmental Protection
Division of Land Use Regulation
501 East State Street
Station Plaza 5, Second Floor
Trenton, New Jersey, 08609
Attn: Application Support

1. Complete the following:

Applicant Name: City of Wildwood _____

Address: 4400 New Jersey Avenue _____

City: Wildwood _____ State: NJ _____Zip: 08260 _____

Agent: Jim Rutala, Rutala Associates _____

Address: 717 River Drive _____

City: Linwood _____ State: NJ _____Zip: 08221 _____

Daytime Phone #: 609.743.0354 _____ E:Mail: jmrutala@comcast.net_____

Project Location: Block(s); NA _____ Lot(s) NA_____

County: Cape May _____ Municipality: Wildwood _____

Site Address: Public Rights of Way _____
(or nearest crossroads)

Project Description: See Attached _____

_____

2. Submit the following information along with a completed copy of this form:

A. A written description of the:

i. Site and the proposed development including the dimensions, number, and uses of any proposed structures;

ii. Length of any proposed linear development; and

iii. Number of any parking spaces proposed;

B A copy of the site plan and/or survey for the proposed project; and

C. A copy of a USGS quad map or local street map with the project site clearly indicated.

D. Color Photos of the site with photo location.

PI #: _____ Activity #: _____

Narrative – Otten's Harbor Flood Mitigation Project Wildwood, NJ

Project Description – Otten's Harbor Flood Mitigation Project includes three elements that will all be constructed on City property or public right-of-way:

1. A living shoreline will be constructed along Mediterranean Avenue and W Andrews Avenue to protect the nearby neighborhood. The proposal is to construct the living shoreline with a gabion core and bio logs, berms, and native plantings and will stretch 1,100 lf.
2. Vinyl bulkhead with concrete caps will be constructed at the following locations along Otten's Harbor:
    - Susquehanna Avenue, south side of Otten's Harbor, 50 lf.
    - Susquehanna Avenue, north side of Otten's Harbor, 50 lf.
    - Hudson Avenue, south side of Otten's Harbor, 55 lf.
    - Hudson Avenue, north side of Otten's Harbor, 50 lf.

    The existing bulkheads in these areas are failing and are being the City required 8 feet NAVD88 elevation. In addition, drainage improvements at Susquehanna Avenue on the north side of Otten's Harbor will be completed. Concrete cap, footing, and fill for existing bulkheads at Mediterranean Avenue, 55 lf. (north side of Otten's Harbor); Niagara Avenue, 50 lf. (north side of Otten's Harbor); and Montgomery Street (west), 65 lf.
3. A drainage pipe that drains portions of the impact area is crushed and it will be replaced as part of the application. The pipe traverses the W Youngs Avenue right of way and Susquehanna Avenue right of way. The lines provide flood management for Maxwell Field athletic complex and the neighborhood to the south of this complex. This is currently an 18 to 24-inch line and it will be upgraded to a 30-inch line to provide adequate service. This system extends almost 1,700 lf. Check valves will be installed on either end of the system.

Google Maps

Wildwood

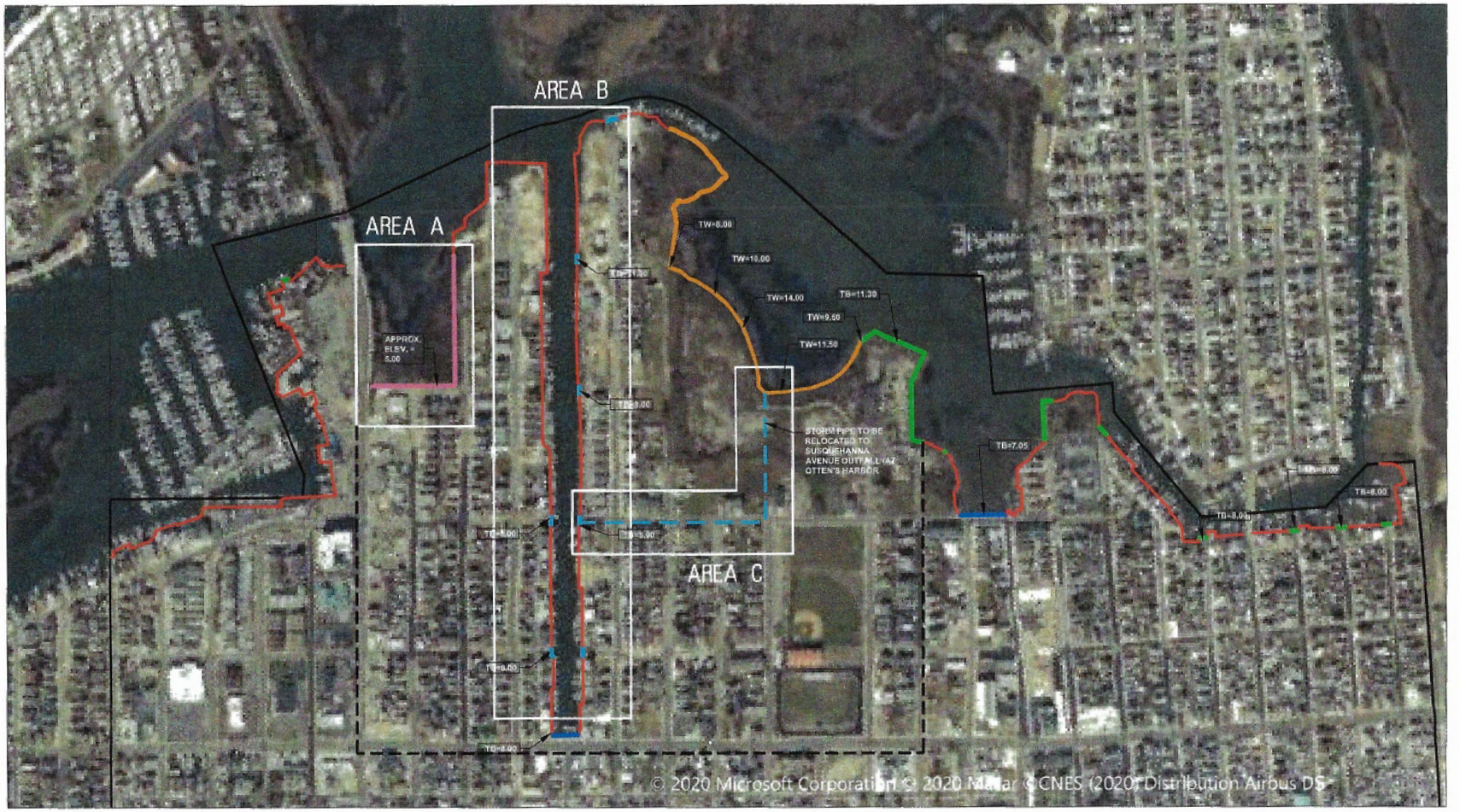
Otten's Harbor Flood Mitigation Project

Map data ©2020 200 ft

Measure distance

Total distance: 1,692.01 ft (515.73 m)

CITY OF WILDWOOD COASTAL STRUCTURES



LEGEND

- MUNICIPAL BORDER
- AFFECTED AREA

PRIVATE PROPERTY
- BULKHEAD UNKNOWN CONSTRUCTION DATE

CITY OWNED PROPERTY
- BULKHEAD PROPOSED FOR 2020 APPLICATION
- LIVING SHORELINE PROPOSED FOR 2020 APPLICATION
- DRAINAGE PIPE FOR 2020 APPLICATION
- BULKHEAD FOR CONSIDERATION OF FUTURE APPLICATIONS
- BULKHEAD N/A FOR FUTURE APPLICATIONS
- GABION WALL FOR CONSIDERATION OF FUTURE APPLICATIONS

GRAPHIC SCALE

(IN FEET)
1 inch = 200ft.

RVE 1901
REMINGTON & VERNICK ENGINEERS
4907 NEW JERSEY AVENUE
WILDWOOD CITY, NJ 08260
(609) 522-5150, FAX (609) 522-5313
WEB SITE ADDRESS : WWW.RVE.COM
Certification of Authorization: 24GA 28001300
~ENGINEERING EXCELLENCE~

NO.	REVISION	BY	DATE

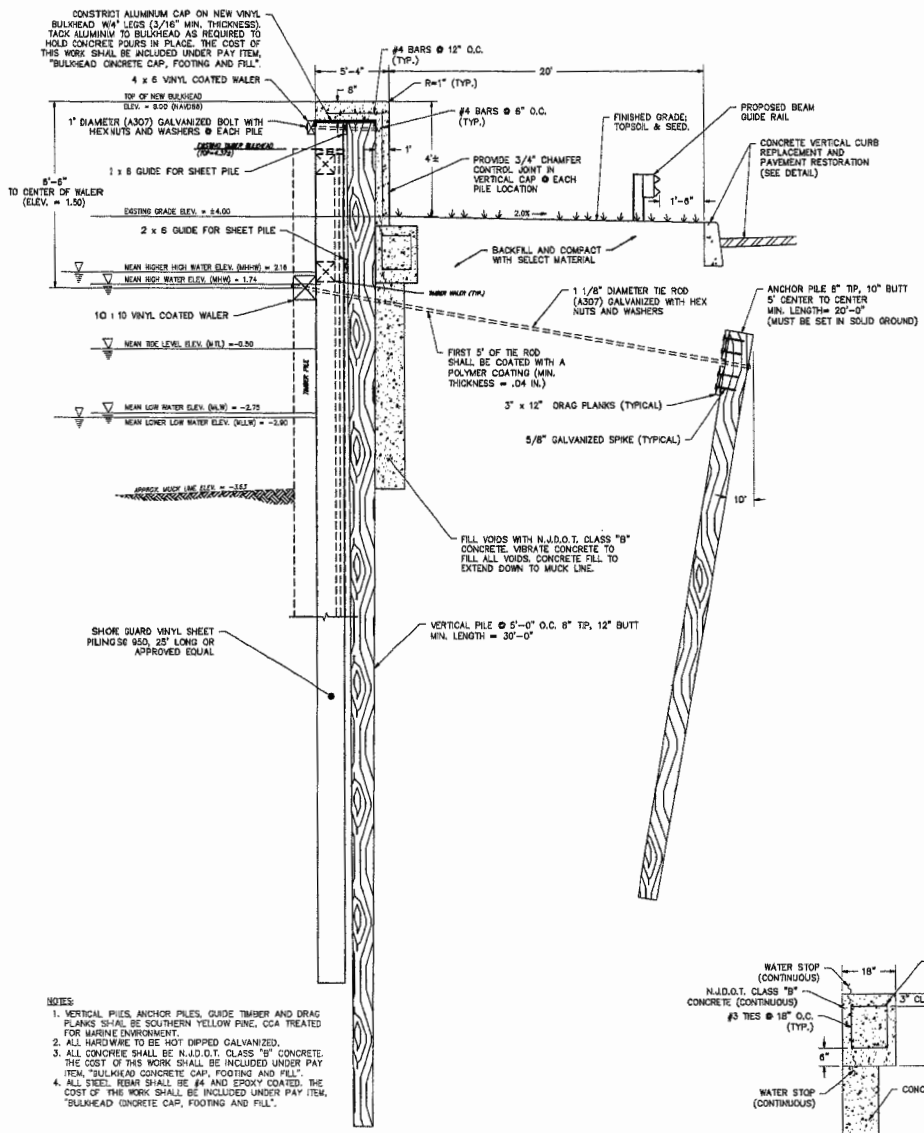
CONSTRUCTION PLAN

CITY OF WILDWOOD

REPLACEMENT OF VARIOUS BULKHEADS

CITY OF WILDWOOD — CAPE MAY COUNTY — NEW JERSEY

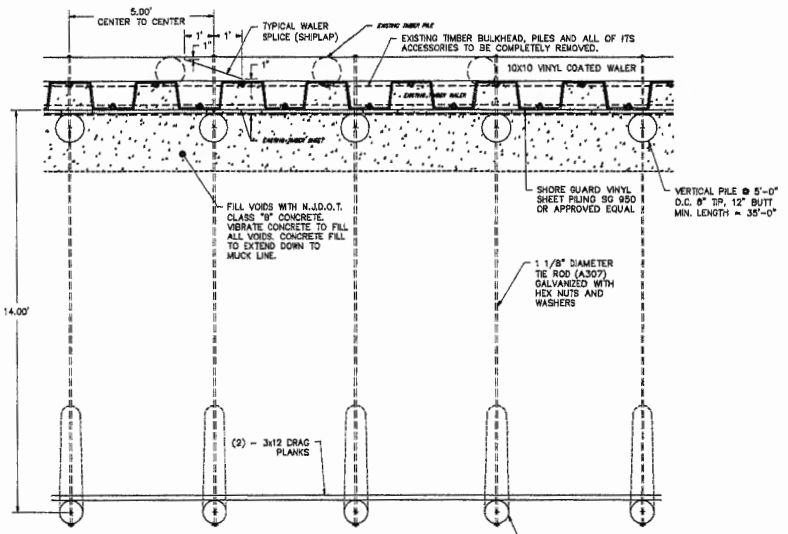
DRAWN BY: LJD	DESIGN BY: LJD	CHECKED BY: MNR	SCALE: AS NOTED
DATE: 10/8/2020		SHEET No.: 1 of 3	
JOB No.: 0514T274			



NOTES:
1. VERTICAL PILES, ANCHOR PILES, GUIDE TIMBER AND DRAG PLANKS SHALL BE SOUTHERN YELLOW PINE, CCA TREATED FOR MARINE ENVIRONMENT.
2. ALL HARDWARE TO BE HOT DIPPED GALVANIZED.
3. ALL CONCRETE SHALL BE N.J.D.O.T. CLASS "B" CONCRETE. THE COST OF THIS WORK SHALL BE INCLUDED UNDER PAY ITEM, "BULKHEAD CONCRETE CAP, FOOTING AND FILL".
4. ALL STEEL, REBAR SHALL BE #4 AND EPOXY COATED. THE COST OF THE WORK SHALL BE INCLUDED UNDER PAY ITEM, "BULKHEAD CONCRETE CAP, FOOTING AND FILL".

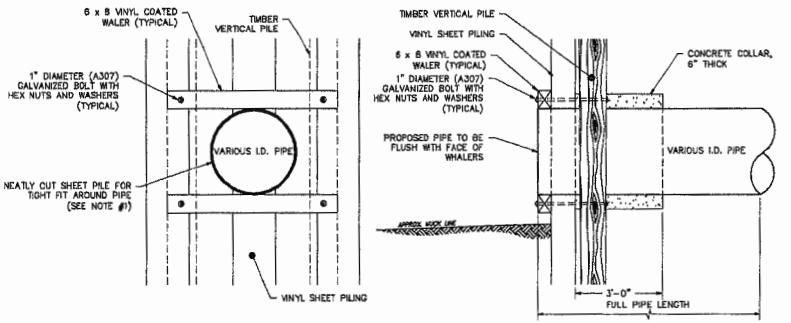
TYPICAL BULKHEAD SECTION

(ELEVATIONS BASED UPON NAVD 1988)
SCALE: 1/2" = 1'-0"



TYPICAL BULKHEAD PLAN

SCALE: 1/2" = 1'-0"



ELEVATION

SECTION

NOTES:
1. AS REQUIRED TO FILL ALL VOIDS, CONTRACTOR SHALL INSTALL 8 POUND TWO PART LIQUID POLYURETHANE EXPANDING FOAM AS MANUFACTURED BY U.S. COMPOSITES OR APPROVED EQUAL.
2. PAYMENT FOR WALERS, CUTTING OF VINYL SHEET PILING, HARDWARE, EXPANDING FOAM AND CONCRETE SHALL BE INCLUDED UNDER PAY ITEM, "VINYL BULKHEAD - COMPLETE".

TYPICAL STORM SEWER BULKHEAD PENETRATION DETAIL

N.T.S.

NOTES:
1. WATER STOP AND/OR APPROVED BOND AGENT SHALL BE APPLIED BETWEEN CONCRETE POURS (TYPICAL).
2. THE COST OF THIS WORK SHALL BE INCLUDED UNDER PAY ITEM, "BULKHEAD CONCRETE CAP, FOOTING AND FILL".

DETAIL "A"

N.T.S.

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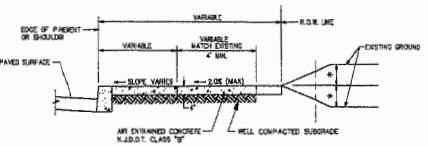
Certificate of Authorization: 24GA 28001200
-ENGINEERING EXCELLENCE-

NO.	DATE	BY	REVISION

CONSTRUCTION DETAILS

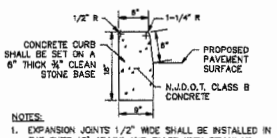
REPLACEMENT OF VARIOUS BULKHEADS
CITY OF WILDWOOD
CITY OF WILDWOOD — CAPE MAY COUNTY — NEW JERSEY

DRAWN BY:	DESIGNED:	CHECKED:	SCALE:
L.J.D	L.J.D	R.M.R	AS NOTED
DATE: 10/8/2020		SHEET No.	2 of 3
JOB No.: 2514T274			



* MAXIMUM SLOPE = 3 HORIZONTAL TO 1 VERTICAL. MAXIMUM DESIRABLE HEIGHT OF CUT OR FILL = 1 FOOT. METHOD OF SLOPE STABILIZATION SHALL BE INDICATED ON PLANS.

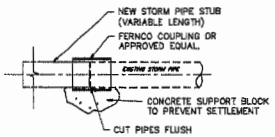
CONCRETE SIDEWALK DETAIL



NOTES:
1. EXPANSION JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 10' APART AND FILLED WITH CELLULAR COMPRESSION MATERIAL AS SPECIFIED, AND RECESSED 1/4" FROM FACE AND TOP OF CURB.

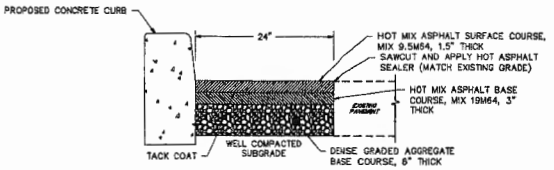
9"x18" CONCRETE VERTICAL CURB

N.T.S.



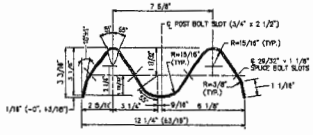
CONNECTION TO EXISTING STORM PIPE DETAIL

N.T.S.

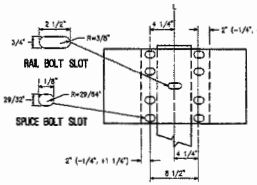


PAVEMENT RESTORATION DETAIL

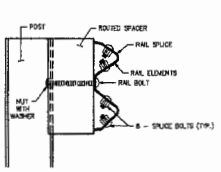
N.T.S.



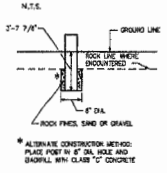
W-BEAM RAIL ELEMENT



RAIL SPLICE

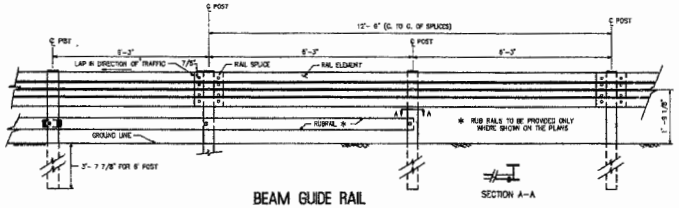


BEAM GUIDE RAIL POST ASSEMBLY

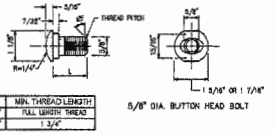


* ALTERNATE CONSTRUCTION METHOD: PLACE POST IN 6" DIA. HOLE AND BACKFILL WITH CLASS "C" CONCRETE

GUIDE RAIL POST INSTALLATION IN ROCK

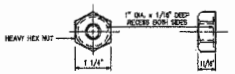


BEAM GUIDE RAIL



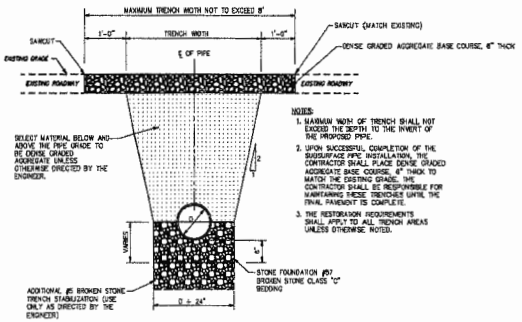
TYPE	L	MIN. THREAD LENGTH
SPLICE	1 1/4"	FULL WIDTH THREAD
RAIL	1 1/2"	1 3/4"

5/8" DIA. BUTTON HEAD BOLT



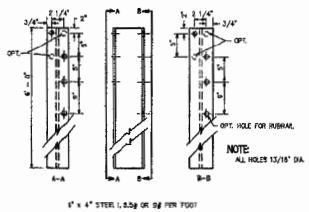
5/8" DIA. RECESS NUT

SPLICE & RAIL NUT & BOLT



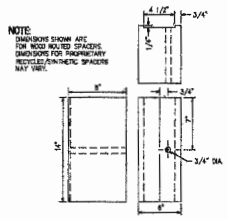
TYPICAL TRENCH DETAIL

N.T.S.



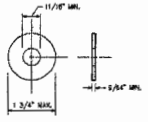
6" x 4" STEEL I, 8.5# OR 9# PER FOOT

6' POST



WOOD OR APPROVED RECYCLED/ SYNTHETIC MATERIALS

14" ROUTED SPACER



STEEL WASHER

GENERAL NOTES:
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
2. RAIL ELEMENTS SHALL BE FURNISHED SHOP-CURVED, CONCAVE OR CONVEX, FOR RUNS LESS THAN 250 FEET.
3. THE STEEL FOR RAIL ELEMENTS AND BOLTS SHALL CONFORM TO NJDOT STANDARD SPECIFICATIONS AND ITS AMENDMENTS.

BEAM GUIDE RAIL

N.T.S.

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Certification of Authorization: NJ GA 28003300
~ENGINEERING EXCELLENCE~

PLANS WHICH DO NOT BEAR AN EMBOSSED SEAL ARE NOT VALID.

NO.	REVISION	DATE	BY

CONSTRUCTION DETAILS

CITY OF WILDWOOD

REPLACEMENT OF VARIOUS BULKHEADS

CITY OF WILDWOOD — CAPE MAY COUNTY — NEW JERSEY

DRAWN BY:	DESIGNED:	CHECKED:	SCALE:
LJD	LJD	RMR	AS NOTED

DATE: 10/8/2020

JOB NO.: 0514T274

SHEET NO.: 3 of 3

Document 3 – Endangered Species Consultation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 East Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205
(609) 646-9310

In Reply Refer To:
2023-0029080

January 30, 2023

Mindy Yang
FEMA Region 2
285 Fulton Street
New York, New York 10007
Email: Mindy.yang@fema.dhs.gov

Reference: Ottens Habor Flood Mitigation, Wildwood City, Cape May County, New Jersey

The U.S. Fish and Wildlife Service (Service) has reviewed the above-referenced proposed project pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure the protection of federally listed endangered and threatened species. The following comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comment by the Service as afforded by other applicable environmental legislation.

A known occurrence or potential habitat for the following federally listed or proposed listed species is located on or near the project's action area. However, the Service concurs that the proposed project is not likely to adversely affect federally listed or proposed listed species for the reasons listed below.

Species	**Basis for Determination**
Northern long-eared bat (*Myotis septentrionalis*), threatened	The proposed project does not require tree removal; therefore, no impacts to northern long-eared bat summer roosting habitat or commuting areas are anticipated.
Swamp pink (*Helonias bullata*), threatened	The project area is approximately 5 miles from the nearest extant swamp pink occurrence. The project area does not contain forested wetlands and the Species Distribution Model (SDM) is mapped to have no suitable habitat for swamp pink within or adjacent to the proposed project area. Based on the lack of suitable habitat, no adverse effects are anticipated for swamp pink.
Red knot (*Calidris canutus rufa*), threatened	The nearest concentration area of red knot is approximately 0.5 mile from the proposed project area. The marshes proposed for impact are predominantly vegetated and do not represent

	suitable habitat for red knot. Additionally, the proposed project area is in proximity to development and the disturbance likely precludes red knot usage. Based on the lack of suitable habitat and active disturbance, no adverse effects are anticipated for red knot.
Eastern black rail (*Laterallus jamaicensis ssp. jamaicensis*), threatened	The nearest occurrence of eastern black rail is approximately 7 miles from the proposed project area. The surrounding wetlands are mapped as interspersed with high marsh, low marsh, mudflat, and *Phragmites australis*. Although the patches of high marsh may represent suitable habitat for eastern black rail, the wetland parcels are small, approximately less than 4 hectares in total, and surrounded by high development. Per the email correspondence between Rebecca Klee and Christina Davis of the New Jersey Fish and Wildlife, dated January 12, 2023, eastern black rails do not usually occur in small parcels in the barrier islands. Based on the small parcel size of wetlands and proximity to high development, adverse effects are not anticipated for eastern black rail.

Except for the above-mentioned species, no other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the proposed project's impact area. Therefore, no further consultation pursuant to the ESA is required. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Please refer to this office's web site at https://www.fws.gov/office/new-jersey-ecological-services/ for further information including federally listed and candidate species lists, procedures for requesting ESA review, the National Bald Eagle Management Guidelines, and contacts for obtaining information from the New Jersey Natural Heritage and Endangered and Nongame Species Programs regarding State-listed and other species of concern.

Reviewing Biologist: REBECCA KLEE Digitally signed by REBECCA KLEE Date: 2023.01.30 13:18:37 -05'00'

Rebecca Klee

Authorizing Supervisor: ERIC SCHRADING Digitally signed by ERIC SCHRADING Date: 2023.01.30 13:20:53 -05'00'

Eric Schrading