FINAL ENVIRONMENTAL ASSESSMENT: RESTORING THE WRECK POND INLET

Boroughs of Spring Lake and Sea Girt, Monmouth County, New Jersey

US Fish and Wildlife Service
New Jersey Field Office
Pleasantville, New Jersey

May 2015

The Draft Environmental Assessment (EA) was available for public review and comment on the Borough of Spring Lake website and the New Jersey Department of Environmental Protection (NJDEP) Wreck Pond website for 30 days. No comments were received and the Draft EA has been published as the Final EA. The United States Fish and Wildlife Service has determined that the proposed project does not have a significant effect on the human environment. Therefore an Environmental Impact Statement (EIS) will not be prepared and a Finding of No Significant Impact (FONSI) has been attached to the Final EA. All comments should be mailed or emailed to:

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1. INTRODUCTION

Wreck Pond is located at the eastern limit of the Wreck Pond Brook Watershed in Monmouth County, New Jersey (NJDEP Watershed Management Area 12). The watershed includes approximately 12.8 square miles (8,172 acres) of land. Wreck Pond is fed by several streams and the major tributaries are Hannabrand Brook, Wreck Pond Brook, and Black Creek. The main water body of Wreck Pond consists of approximately 84 acres. Water is discharged into the ocean through an outfall culvert that runs underneath the beach for 500 feet and extends approximately 350 feet into the ocean (see Appendix A-1 for Aerial Map, A-2 for USGS Quad Map, A-3 for Tax Block and Lot Map, and A-4 for Photos).

Federal funding for a Resiliency Project from the Disaster Relief Appropriations Act of 2013 (Public Law 113-2) was awarded by the U.S. Fish and Wildlife Service (Service) to the American Littoral Society (ALS) to construct a concrete box culvert in order to enhance fish passage, reduce flooding, and improve water quality. Other project partners contributing funds for construction include the Borough of Spring Lake and the NJDEP. The project is also supported by the surrounding municipalities of Spring Lake Heights and Sea Girt and Monmouth County.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 et seq.). The purpose of this EA is to analyze the potential environmental impacts of the proposed project and alternatives. The Service will use the findings in this EA to determine whether to prepare an EIS or a FONSI.

2. PURPOSE AND NEED

The proposed project would construct a secondary outfall consisting of a 600-foot-long concrete bypass box culvert (5.5 feet x 8 feet) just north and parallel to the existing 800-foot-long, 84-inch-diameter outfall culvert. The project's purpose is to improve diadromous fish passage;

support coastal resiliency for the communities of Spring Lake and Sea Girt; and improve Wreck Pond's water quality.

Historical runs of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) have been documented in Wreck Pond (Byrne, 1986). Currently, fish migrate up the existing outfall culvert to reach spawning grounds upstream. These species are listed by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) as Species of Concern, which means that there is concern regarding their status and threats, but there is insufficient information available to list the species under the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. Section 1531 et seq.). Monitoring efforts from 2006 to 2008 indicate that alewife runs have decreased and that there is no longer a viable run of blueback herring (ENSR/AECOM, 2008). River herring, the group of fish containing alewife and blueback herring, have been in decline worldwide due to loss and degradation of habitat and fishing pressure. Wreck Pond's diminishing water quality may be degrading preferred and suitable spawning habitat. Additionally, it is possible that the extension of the existing culvert has inhibited fish runs due to lack of light penetration and shadowing within the culvert. American eels (*Anguilla rostrata*) also use the existing culvert for passage. Juvenile eels enter freshwater systems to mature and then migrate to the Sargasso Sea to spawn. This species is being evaluated for possible listing under the ESA due to a decline in numbers and fishery landings throughout its range.

The Boroughs of Spring Lake, Spring Lake Heights, and Sea Girt currently experience flooding during major storm events. A 2005 storm consisting of 6 inches of rainfall in 24 hours cost Spring Lake approximately $9,000,000 in damages to homes and businesses and $245,000 to public facilities. During Tropical Storm Irene (August 26-27, 2011), a total of 7.3 inches of rain fell in the Borough of Spring Lake, which caused excessive flooding within the Federal Emergency Management Agency (FEMA) flood hazard area in Spring Lake and Spring Lake Heights. The flooding damaged homes and many roadways were impassible. Hurricane Sandy, also called Superstorm Sandy, took place on October 29-30, 2012. The stormwater and storm surge created by Hurricane Sandy uncovered the Wreck Pond culvert's emergency spillway; created a new inlet; and flooded the surrounding communities. As the surge receded, the floodwaters used the newly created inlet to drain. Eventually, the inlet filled in naturally with drifting sand. The new culvert will provide an additional outlet for waters to drain from Wreck Pond and reduce the risk of flooding for adjacent communities.

Wreck Pond's water quality has been decreasing due to an inflow of poor quality water from the watershed; intense development within the watershed; and tidal constriction due to the restricted outfall. Wreck Pond used to be a major recreational area, attracting fishers, boaters, and crabbers. Presently, poor water quality has limited recreational opportunities within the pond and on surrounding beaches. Beginning in 2002, Spring Lake and Sea Girt's beaches experienced periodic closings due to elevated fecal coliform levels from stormwater discharge. Because of this, the four beaches surrounding the Wreck Pond outfall have been automatically closed at 0.1 inch of rain for 24 hours and 2.8 inches of rain for 48 hours. Although this automatic precautionary beach closure was suspended in 2014, water quality continues to be an issue in Wreck Pond. Urbanization within the watershed creates more impervious surfaces, which causes a greater volume of water to reach Wreck Pond faster. The secondary culvert will improve water quality within the pond by increasing tidal exchange. Increasing the flow into and out of the

pond will increase dissolved oxygen, which is beneficial for aquatic life; and dilute bacteria within the pond, which have been responsible for beach closings.

The objectives of Service-funded Hurricane Sandy Resiliency projects are to provide technical and financial assistance to identify, protect, conserve, manage, enhance, or restore habitat and infrastructure on both public and private lands that have been negatively impacted by Hurricane Sandy. This project will enhance fish passage and water quality, while protecting the communities and the habitats surrounding Wreck Pond from flooding.

3. ALTERNATIVES

3.1. Alternate 1- No Action Alternative

As the No Action Alternative, the Service grant and other funding would not be used for the construction of this project. As a result of the No Action Alternative, project partners would not complete the proposed project. This would effectively result in the continued flooding of surrounding properties and fish passage and water quality would not be improved. This action does not fulfill the purpose and need of the project.

3.2. Alternate 2- Proposed Actions

The proposed action is to construct a secondary bypass concrete culvert. The concrete culvert will be designed to facilitate fish passage; reduce flooding of surrounding communities during major storm events; and improve tidal exchange. The culvert will be built north of the existing culvert in the Boroughs of Spring Lake and Sea Girt.

Summary of Actions:

The tentative construction start date will be September 8, 2015 and will be expected to last from four to six months. The last day of construction, due to endangered species restrictions, will be February 28, 2016. A stop log structure will be constructed at the upstream end of the culvert to allow for the ability to control the static elevation of the pond. A stainless steel sluice/knife gate will be installed behind the box culvert's first 10-foot-long section in order to control tidal inflow and stormwater outflow. The box culvert will be constructed on timber pilings and buried beneath the U.S. Army Corps of Engineers (USACE) beach fill sand elevation as shown on the construction plans (Appendix B). Exposed and damaged piles on the existing culvert will be replaced. The sand displaced by the culvert will be used to restore the dune over the existing culvert that was eroded by Hurricane Sandy. With the project in place, the Borough of Spring Lake will continue be able to excavate an emergency spillway in the event that a major storm is predicted to flood the surrounding communities. A warning marker will be placed at the end of the culvert in accordance to U.S. Coast Guard regulations. All components of the project will be constructed out of material that is resistant to salt water corrosion. A device to assist with eel passage will be installed within the first 50 feet of the culvert. The culvert will be monitored post-construction to determine whether the installation of roughness features, such as baffles, will be necessary to facilitate fish passage. The site will be accessed from a point south of the Borough's South End Pavilion. Staging areas will include the Brown Avenue Parking lot and the Spring Lake Department of Public Works (DPW) Yard. All construction will take place in the dry. Below is a more detailed description

of these features and construction methods. Refer to the plans in Appendix B for further detail.

Feature Descriptions:

1. Culvert- A 5.5-foot by 8-foot secondary concrete box culvert 600 feet long and 8 inches thick will be constructed with a pond discharge invert elevation of -3.0 feet (NAD88) located just north of the existing 84-inch-diameter, 800-foot-long outfall culvert (see Sheet 5 for details). The box culvert discharge elevation in the ocean will be at -6.0 feet (NAD88). The box culvert will be shipped to the site in prefabricated 10-foot-long sections of concrete. The sections will be installed using a combination of a crane and an excavator and will be connected with stainless steel hardware.
2. Air Pressure Release Manholes- Four 30-inch-diameter air pressure release manholes extending approximately 7 feet upwards will be installed on top of the box culvert at approximately 100-foot intervals (see Sheet 5 for details). A fifth 30-inch-diameter manhole will be placed approximately 50-100 feet before the ocean end of the culvert and will not extend above the water's surface (see Outfall Profile Plan Sheet 4).
3. Stop Log Structure- The stop log structure will be located at the Wreck Pond end of the culvert. Stop logs of various sizes will be used if necessary to adaptively manage the water level within the pond. A portable davit crane will be used to install and remove the stop logs. A stainless steel pedestal will be installed during construction to allow for the attachment of the davit (see Sheet 6 for details).
4. Sluice/Knife Gate Valve- The sluice gate will be installed after the first section of culvert on the Wreck Pond end. It will be manually operated and have an opening of 5.5 feet x 8 feet. All components of the sluice gate (frame, gate, and hardware) will be manufactured from stainless steel (see Sheet 6 for details).
5. Timber Piling- Timber piles will be installed according to the plans. The timber piles will be made from pressure-treated southern yellow pine. Deteriorated pilings on the existing culvert will be replaced. Timber piles will be stored on skids at least 12 inches above ground, in a manner that will prevent warping and allow shedding of water. A tarp will protect the piles from exposure to weather (see Sheet 5 for details).
6. Warning marker- A submerged culvert warning sign will be installed at the end of the culvert on the ocean side according to U.S. Coast Guard regulations. It will be attached to a timber pile that will extend at least 15 feet into the seafloor. The sign will be posted using stainless steel hardware on the pile 6 feet above Mean Higher High Water (MHHW) (see Sheet 6 for details).
7. Eel Passage- The eel passage device will be installed after construction is complete. It will extend from the Wreck Pond end of the culvert along the first 50 feet of the culvert. It will consist of a trawl net suspended between two stainless steel eye bolts drilled into the existing steel sheeting to the north of the Wreck Pond end of the culvert and at 50 feet along the inside of the culvert. The trawl net will be attached to the eye bolts by tying the trawl net through the eye bolt. The trawl net will be deployed year-round but will be removed and replaced if damage is observed.
8. Dune Reconstruction and Surface Grading- No new sand will be added to the site. The excess sand from the culvert installation (approximately 1,500 cubic yards) will be used to regrade the dune over the existing culvert. Hurricane Sandy washed out the dune and uncovered the timber cribbing of the emergency spillway, creating a steep drop-off that

could be hazardous for nesting piping plovers (*Charadrius melodus*) and chicks. Damaged pilings surrounding the existing culvert will be replaced. The project will restore the shorebird nesting area to its condition pre-Sandy by contouring the sand to cover the timber cribbing and creating a gentle slope that will not hinder shorebird movement. The remainder of the site will be restored to pre-construction grades. The majority of the culvert will be constructed below the beach profile. The top of the box structure will be at an average elevation of +2.0 feet, similar to the MHW elevation of +1.78 feet. The current beach profile elevation is approximately elevation +9.3 feet (see Sheets 3 and 4 for elevations).

9. Emergency Spillway- With the project in place, the Borough of Spring Lake will continue to be able to open cut a 20-foot-wide, 10-foot-deep emergency spillway channel approximately 20 feet north of the proposed bypass box culvert (see Sheet 3 for location).
10. Roughness Feature- Roughness features, such as baffles, may be installed post-construction in the first 50 feet of the culvert to make the culvert more conducive for fish passage. A possible design for a baffle is depicted on Sheet 6 of the plans and consists of stainless steel plates bolted into the sides of the culvert. If the flow rate is too strong within the culvert, fish may have trouble swimming against the current. Adding roughness features would slow down the water to facilitate fish passage. The flow rate will be monitored post-construction to determine whether a roughness feature is necessary. The roughness feature will be installed before March 1, 2016.

Construction Methods:

1. Site Access- The project site will be accessed through a beachfront access point just south of the Spring Lake Borough's South End Pavilion located across from Salem Avenue (see Appendix B, Sheet 7 Location Map). The Borough will temporarily remove a section of boardwalk to permit access.
2. Staging Areas- The primary staging area will be located in the Brown Avenue parking lot at the intersection of Brown Avenue and Ocean Avenue (see Appendix B, Sheet 7 Location Map). The secondary material storage area that will be used if necessary will be the Spring Lake DPW Yard at the intersection of Atlantic Avenue and 5th Avenue.
3. Dewatering- All construction will take place in the dry with the installation of cofferdams on the Wreck Pond and ocean ends of the culvert. Both sides of the excavation shall be supported in such a manner that water is kept out and no caving in will result from the excavations and so that no structure or property outside the project limits will be damaged. Sheathing, shoring, and pumping shall be used as required to support the sides of the excavation.

At the upstream end of the culvert near the pond, construction of the proposed box culvert will require the installation of a coffer dam to allow for cutting of the existing steel sheet piling and placing of the first box culvert section. A dewatering pump will be installed inside the coffer dammed area to lower the water table several feet below the bottom of the culvert. The contractor will be required to provide all machinery, pumps, piping, well points, and everything else necessary for the removal of water from the excavation. No water from the trench or coffer dam excavation shall be pumped directly into any body of water. Where silty soil is encountered, the contractor shall be required to dewater the trench and coffer dam using a pump or a well point system. If any fine sand or silt is suspended in the discharge

from the dewatering system, the contractor shall provide suitable silt and sand traps to remove such materials before the water is discharged into any drainage system or body of water.

Construction of the box culvert at the ocean end of the project will require the installation of approximately 300 feet of coffer dam along both sides and around the ocean end of the proposed box culvert in order to keep out the ocean and allow for the installation of piles, pile caps, box culvert, and all hardware required to secure the box culvert to the pile caps. This work will require the pumping of ocean water from within the coffer dam to maintain a dry work environment. The water pump at this end of the project is anticipated to be clean ocean water filtered through the existing beach sand and will be pumped directly back into the ocean.

3.3. Alternatives Considered and Dismissed

The other alternative that was investigated by the Service and project partners but dismissed was excavating a channel from Wreck Pond to the ocean. This option would require construction of a stone groin to provide stabilization of the existing and proposed beach sand to the north side of the channel at an elevation to match the proposed USACE beach nourishment sand elevation.

This option was dismissed because:

1. The height and length of the jetty would be substantial and beyond the budget of this project.
2. The channel would require considerable maintenance to keep open due to drifting sand and would erode the beaches north of the stone groin in Spring Lake.
3. The structures would affect a portion of protected endangered species habitat.
4. A permanent channel may compromise the integrity of the existing culvert.

4. AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

4.1. Physical Resources

4.1.1 Geology and Soils

The Wreck Pond Brook Watershed is located within the New Jersey Coastal Plain physiographic province. The Coastal Plain consists of unconsolidated sand and gravel formations inter-layered with clayey materials. According to the New Jersey Geologic Survey mapping, the site is underlain by the Kirkwood-Cohansey aquifer.

According to the National Resource Conservation Service (NRCS), Hooksan Sand (0 to 5% slopes) comprises the majority of the project area (see Appendix A-5 for NRCS Soil Survey map). Hooksan sand is a nearly level to gently sloping, excessively drained soil found on dunes adjacent to coastal beaches. Permeability of the soil is rapid in the subsoil and substratum. The available water capacity is very low. The seasonal high water table is greater than six feet. Runoff is very slow and water erosion is a slight hazard however wind erosion is a severe hazard.

The topography in the project location area ranges from an elevation of 2 to 14 feet above sea level (NAD88). The highest elevation of 14 feet is located in the easternmost section, on the beach. The existing dunes along the western edge of the beachfront account for the higher elevations and steep slope. The lowest elevations of 2 feet are located directly adjacent to Wreck Pond. With the exception of the dunes, the topography throughout the project area is gently to moderately sloping.

4.1.1.1. No Action Alternative

The No Action Alternative will have no impact on the geology or soils of the area.

4.1.1.2 Preferred Action

The construction of the proposed box culvert will have no impact on geology. The Hooksan sand displaced by the culvert during construction will be used to restore the beach to its condition pre-Sandy by covering the existing culvert's exposed timber cribbing and create a gentle slope from the dune over the existing dune down to the emergency spillway. The remainder of the site will be graded to USACE beach fill sand elevation guidelines. The culvert outfall will be located approximately 100 feet offshore so that the outflow from the culvert is not expected to affect the distribution of sand along the shore. There will be sufficient flow within the secondary culvert so that there will be no soil deposition within the culvert and it will be self-cleaning.

4.1.2 Air Quality

National Ambient Air Quality Standards (NAAQS) have been established for six pollutants: carbon monoxide, lead, nitrogen dioxide, 8-hour ozone, and particulate matter (PM-10 and PM-2.5). The three monitoring stations include: Monmouth University, Colliers Mills, and Freehold. Monmouth University and Colliers Mills monitor ozone and the Freehold station monitored carbon monoxide. The Freehold monitoring station was closed in 2011. Over the last ten years, air quality in this area of Monmouth County has remained relatively unchanged as the average yearly classification ranged from 79-91% of the year rated as "good," 8-13% as "moderate," and 0.1-8% as "unhealthy." In 2010, the Northern Coastal Pollutant Standards Index reporting region in which Spring Lake is located rated 299 days as "good," 48 days as "moderate," and 18 days as "unhealthy for sensitive groups."

According to the United States Environmental Protection Agency (EPA) records from 1992 to present, Monmouth County has been classified as a non-attainment area for particulate matter from 2005 to September 2013. Since September 2013, Monmouth has been designated an attainment area.

4.1.2.1 No Action Alternative

The No Action Alternative would have no effect on air quality.

4.1.2.2 Preferred Action

Air quality issues from the proposed activities will include emissions from construction equipment. Construction is estimated to take approximately 4-6 months.

4.1.3 Climate Change

The climate of the Boroughs of Spring Lake and Sea Girt is classified as temperate humid and is distinguished by warm summers, moderate winters, and noticeable changes in season. The Atlantic Ocean has a moderating influence on temperature and generally limits the wide variation of climatic fluctuation that is associated with more interior locations. However, there are often large variations in temperature within these boroughs and the surrounding areas. According to the National Weather Service, the highest recorded temperature within Spring Lake was 106° F in 1936. The lowest recorded temperature was -12° F in 1934. On average, the warmest month in Spring Lake is July and the average coolest month is January. Typically, the most precipitation occurs in July.

Due to climate change, precipitation within New Jersey may increase by 20-30% by 2100 and most of this increase will be during extreme rain events (Sustainable Jersey Climate Change Adaptation Task Force 2011). The surrounding boroughs are already experiencing extensive flooding during 10-year storm events. It is likely that the surrounding boroughs will experience more flooding events in the future. The United States Department of Agriculture National Resource Conservation Service defines a 10-year storm event as 5.4 inches of rain in a 24-hour period. The NJDEP Technical Manual for Stream Encroachment Permits defines a10-year rainfall intensity as 2 inches of rain in a 1-hour period. According to historical rainfall data between the years 2002-2011, there have been a total of 28 days that rainfall amounts exceeded 2 inches in the Borough of Spring Lake. Of those times, 4 days exceeded 4 inches, the greatest amount being 6 inches on October 14, 2005. The 6-inch storm cost homeowners in Spring Lake $9,000,000 in damages to homes and businesses and $245,000 to public facilities.

4.1.3.1 No Action

The No Action Alternative will have no impact on climate.

4.1.3.2 Preferred Action

The proposed action may address potential increases in flooding associated with climate change. The secondary culvert will increase the amount of water and speed with which the water can flow out of Wreck Pond during a rainfall event, thereby decreasing the possibility of flooding. Since the secondary culvert is set at a lower elevation than the existing culvert, it will allow the Borough of Spring Lake to lower the pond level faster during low tide, which would increase stormwater storage within the pond in anticipation of a major rainfall event.

The components of the culvert will be designed to withstand the coastal environment. The culvert will be constructed from concrete and all hardware will be made from stainless steel.

4.2. Water Resources

4.2.1 Water Quality

Wreck Pond receives runoff from an 8,174-acre watershed, called the Wreck Pond Brook Watershed, as well as tidal exchange with the Atlantic Ocean. The Wreck Pond Brook Watershed includes several major streams and numerous ponds and small lakes.

All of the streams within the watershed are classified by NJDEP as FW2-NT; which are freshwater streams that are not within the Pinelands, into which anthropogenic wastewater is discharged, and do not support trout.

In all FW2 waters the designated uses are:
1. maintenance, migration, and propagation of the natural and established biota;
2. primary and secondary contact recreation;
3. industrial and agricultural water supply;
4. public potable water supply after conventional filtration treatment and disinfection; and
5. any other reasonable uses.

The other hydrologic features of the watershed are numerous lakes and ponds. These are all man-made structures.

The Kirkwood-Cohansey Aquifer system lies beneath the project area. This system is highly permeable due to the dominance of well sorted, medium to coarse grained sand. Groundwater in the Kirkwood-Cohansey Aquifer is typically fresh, acidic, highly corrosive, and low in dissolved solids.

The Wreck Pond Brook Watershed is designated a watershed of concern by the NJDEP. The Monmouth County Health Department (MCHD) in or around 2002 found that the bacteria levels in the vicinity of the outfall following storm events exceeded ocean bathing beach standards. In 2002, the MCHD instituted a 24-hour swimming ban that would be implemented whenever rainfall exceeded 0.1 inches in 24 hours and a 48-hour ban whenever rainfall exceeded 2.8 inches in 24 hours. This ban was the source of most of the swimming bans in New Jersey ocean beaches over the past several years (Wreck Pond Brook Watershed Technical Advisory Committee 2008). The automatic precautionary ban was recently lifted in 2014.

There are no known point source discharges in the watershed. The primarily non-point source of stormwater pollution is runoff from the mixed-use land surfaces within the watershed. The identified sources for excess nutrients are agricultural lands. Possible bacteria sources are development, manure management in farmlands, waterfowl, leaking infrastructure, wildlife, pets, and release from pond sediments. Possible sediment sources are developed lands, agricultural land, unvegetated uplands, construction sites, stream erosion, and re-suspension of pond sediments (Wreck Pond Brook Watershed Technical Advisory Committee 2008).

According to the NJDEP GIS database the project site is not listed as a known contaminated site (see Appendix A-6 for Contaminated Sites Map and A-7 for Groundwater Contamination Map).

4.2.1.1 No Action Alternative

If no action is taken, water quality will remain degraded because flooding will continue and tidal flushing of the pond will remain limited.

4.2.1.2 Preferred Action

The Kirkwood-Cohansey Aquifer will not be affected by this project.

The proposed culvert will improve water quality by increasing tidal exchange. Tidal exchange improves water quality by allowing more water to come in and go out of the pond, thereby raising dissolved oxygen levels through mixing, which is beneficial for aquatic life; and diluting bacteria, which have been responsible for beach closings on the surrounding beaches.

The culvert will remain open most of the year, especially during the fish migration season (March 1 to June 30). However, the culvert will be designed so that it can be closed and so that the amount of water going through the culvert can be controlled. The culvert may be closed if outflow from the pond demonstrates a negative impact on water quality. For example, the Borough of Spring Lake will close the culvert if there is a threat to water quality of the surrounding beaches during the summer season. Pre-construction water quality conditions can be restored by closing the culvert. Stop logs will be added to the front of the culvert if the water level within the pond is significantly affected by the culvert being completely open.

4.2.2 Floodplains/Executive Order 11988 Floodplain Management

Studies conducted for the Wreck Pond Brook Watershed Regional Stormwater Management Plan Committee have identified that during heavy rain weather events, the existing culvert does not have the capacity to dissipate the inflow. Model estimates in the Stormwater Management Plan for a 100-year flood (9 inches of rainfall) for upstream flood discharge would result in a peak discharge of 1,900 cubic feet per second. The existing culvert can discharge a maximum of approximately 600 cubic feet per second. This maximum discharge would only occur with 12 feet of water above the culvert. If these conditions occur, the lower elevations in the surrounding communities are would be flooded.

The area surrounding the pond is in a FEMA designated flood hazard area with approximately 650 acres of land located in the AE/VE zones. According to the Flood Insurance Rate Map (FIRM) 34025C0344F effective September 25, 2009, the project site is located within two zones: the Coastal Flood Zone with velocity hazard (elevations determined) area (Zone VE) with base flood elevations ranging from 10 to 12 feet and the Base Flood Elevations Determined Area (Zone AE) with base flood elevations of 8 and 9 feet National Geodetic Vertical Datum (NGVD) (see Appendix A-8 for the FIRM Map).

4.2.2.1 No Action Alternative

If no action is taken, the pond elevation will continue to rise during storm events, potentially causing flooding waters along the banks of the pond, adjacent properties, and roadways.

4.2.2.2 Preferred Action

The proposed action will reduce flooding potential by providing a secondary bypass culvert from which flood waters would pass. The construction will be designed to withstand impacts associated with a marine environment and to protect the natural resources to the greatest extent possible.

4.2.3 Wetlands Executive Order 11990 Protection of Wetlands

Freshwater wetlands are regulated by the NJDEP and the USACE. According to the Service's National Wetlands Inventory (NWI) database, the area in which the culvert will be located is not identified as wetlands (see Appendix A-9 for NWI Map). Half of the culvert will be located within an area classified as Lacustrine Marine Intertidal Unconsolidated Shore Sand, Irregularly Flooded. The culvert will discharge into Estuarine and Marine Deepwater.

4.2.3.1 No Action Alternative

The No Action Alternative would have no impact on wetlands.

4.2.3.2 Preferred Action

There are no freshwater wetlands within the project area; therefore the Preferred Action will have no negative impact to wetlands. The Service contacted the NJDEP and was informed that this project would not require a freshwater wetlands permit (see Appendix C-1 for the email correspondence).

4.3. Coastal Resources

The project is located within the State of New Jersey Coastal Area Facility Review Act (CAFRA) (N.J.S.A 13:19-1 et seq.) zone. CAFRA regulations are intended to protect coastal waters and the land adjacent to them. Coastal resources and special areas in the project area include: beaches, dunes, threatened/endangered species habitat, critical wildlife habitat, wetlands, coastal high hazard areas, flood hazard areas and public open space (see Appendix A-10 Land Use Map).

4.3.1 No Action Alternative

The No Action Alternative has shown to be ineffective at protecting property within this CAFRA zone from flooding waters. The No Action Alternative does not require additional permitting.

4.3.2 Preferred Action

The construction of an additional culvert is a project that would be regulated under CAFRA. The project will be designed to protect the existing coastal resources to the greatest extent possible. The Service has submitted a Federal Consistency Determination based on regulations established in the Rules on Coastal Zone Management (N.J.A.C. 7:7E) under the assumption that the proposed activity complies with New Jersey's approved Coastal Zone Management Program and will be conducted in a manner consistent with the program.

4.4. Biological Resources

4.4.1 Endangered and Threatened Species and Critical Habitat

Habitats for endangered and threatened animal species are located within the project area. The federally-listed (threatened) and State-listed (endangered) piping plover and the State-listed (endangered) least tern (*Sternula antillarum*) nest in the dunes and beach adjacent to Wreck Pond and the project area. The federally-listed (threatened) and State-listed (threatened) rufa red knot (*Calidris canutus rufa*) has been identified in the area as well.

The south end of the beach adjacent to Wreck Pond contains two rare plant species: the federally listed (threatened) and State-listed (endangered) seabeach amaranth (*Amaranthus pumilus*) and State-listed (endangered) seabeach knotweed (*Polygonum glaucum*). A portion of this area has been designated as a seabeach amaranth protective zone by the State.

Federally-listed marine endangered species that may be in the vicinity of the project area are Atlantic green sea turtle (*Chelonia mydas*), Atlantic hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta carreta*), and Atlantic sturgeon (*Acipenser oxyrhynchus*).

4.4.1.1 No Action Alternative

The No Action Alternative will negatively impact threatened or endangered species. The emergency spillway continues to be exposed and will provide an impediment for piping plover and least tern chicks to reach foraging grounds within Wreck Pond and north of the spillway.

4.4.1.2 Preferred Action

The Service received concurrence that the proposed project may affect, but is not likely to adversely affect, threatened and endangered species through Intra-Service Section 7 consultation (see Appendix C-2 for Intra-Service Section 7). The proposed project has been designed to create the least possible impact to threatened and endangered species as follows:

- **Seabeach Amaranth**: The seabeach amaranth protective zone will not be impacted by construction and will not be part of a staging, storage, or access area. If construction occurs during the seabeach amaranth growing season (May 15 to

November 30), the following Best Management Practices outlined by the Service's New Jersey Field Office will be followed:

- A qualified individual from the Service will conduct a thorough survey of the area of disturbance no earlier than one week prior to the start of work. The survey will be conducted by walking slowly and carefully in a zig-zag fashion from the high-water line (seaward limit of vegetation) to the dune, seawall, boardwalk, or other landward limit of the beach, ensuring complete survey coverage of the area of disturbance.
- Symbolic string-and-post fencing will be used to encircle each plant or group of plants, allowing a 10-foot buffer on all sides. The fencing will be marked with flagging and signs.
- All work crews will be instructed to avoid fenced areas (*e.g.*, do not enter on foot or via motor vehicle, do not stage or store materials or equipment in or near fencing, locate access routes away from fenced areas, do not grade sand in or near fencing).
- The Service will be notified of the survey results.
- Symbolic fencing will be removed upon completion of work.

- **Seabeach Knotweed:** Seabeach knotweed has only been found within the seabeach amaranth protective zone, which will not be impacted by construction and will not be part of a staging, storage, or access area.
- **Piping Plover**: The project will improve piping plover habitat by restoring the nesting area to its condition pre-Sandy. The storm washed out a dune and uncovered the timber cribbing of the emergency spillway, creating a steep drop-off that could be hazardous for nesting adult plovers and chicks. The project will restore the dune and contour the sand to cover the timber cribbing and to create a gentle slope that will not hinder piping plover movement. The Service and project partners will follow these practices in order to minimize effects to piping plover nesting.
  - Timing restriction: Construction will not take place from March 1 to September 8. The construction restriction for piping plover is usually March 15 to August 31, but since this project is directly affecting nesting habitat, the restricted period has been extended two weeks to the beginning of March. This project will restore the nesting area to its condition pre-Sandy.
  - Design: If not properly maintained, the proposed culvert's elevated manholes may negatively affect shorebirds by providing perches or hiding places for predators and shorebird legs may become caught in the grates. Sand will be placed around the grate to form a gentle slope from the ground to the manhole in order to cover the concrete collar, which extends eight inches above the constructed grade. In order to reduce the chance of shorebird's legs becoming caught in the grates, the manholes will be covered with a fine mesh. Before and after the nesting season, the manholes will be inspected to ensure that the mesh is still in place and that the manholes are at grade. Maintenance of the manholes during the nesting season (March 15 to August 31) is not anticipated because the culvert is designed to have constant flow, thereby flushing debris and sediment through the culvert. If maintenance is necessary, the New Jersey Endangered and Nongame Species Program (NJENSP) and the Service will be

notified before the site is accessed. These measures will be incorporated into a maintenance plan signed by the NJENSP and the Service.

- Maintenance activities: Stop log placement or sluice gate operation may result in increased human disturbance. These disturbances will be brief and will likely not adversely affect nesting birds. The NJENSP and the Service will be notified before the site is accessed. These measures will be incorporated into a maintenance plan signed by the NJENSP and the Service.

- **Least Tern**: The construction restriction for least tern is usually March 15 to September 1, but since this project is directly affecting nesting habitat, the restricted period has been extended one week in September and two weeks in March.
- **Rufa Red Knot:** The construction restriction period for the piping plover also includes the red knot's spring migration. Red knots primarily occur in the area during the spring migration, from May 1 to June 15. Only a few birds have been spotted in Wreck Pond within the past few years and these sightings were on the sand bar west of 1st Avenue, over 1,000 feet west of the proposed project area. It is possible that birds would stop around Wreck Pond during the fall migration. To determine whether there are birds using the area before construction, the project site and the sand bar west of the bridge over 1st Avenue will be surveyed with binoculars twice the first week of September (a week before construction begins). During construction these areas will be surveyed once a week.

Since all excavation will be conducted in the dry behind coffer dams, the Service has determined that this project will not likely affect any federally-listed marine species and has requested a letter of concurrence with NMFS.

4.4.2 Vegetative Communities

The project is located at the beach and consists of two distinct plant communities including: vegetated dune and freshwater wetlands. The plant community directly adjacent to the project area is deciduous brush shrubland. Dominant plant species in the vegetated dune community include: American beachgrass (*Ammophila breviligulata*), seaside goldenrod (*Solidago sepervirens*), common mugwort (*Artemisia vulgaris*) and Virginia creeper (*Parthenocissus quinquefolia*). Dominant plant species in the wetlands include Phragmites (*Phragmites australis*) and groundsel-bush (*Baccharis halimifolia*).

As previously stated, the south end of the beach adjacent to Wreck Pond contains two rare plants: seabeach amaranth and seabeach knotweed. This area has been designated as a Seabeach Amaranth protective zone. No construction is proposed within this protective zone.

The adjacent deciduous brush shrubland community contains herbaceous species such as short-leaved milkwort (*Polygala brevifolia*), common mugwort (*Artemisia vulgaris*), storksbill (*Erodium cicutarium*), seaside goldenrod (*Solidago sempervirens*), common mullein (*Verbascum thapsus*), field peppergrass (*Lepidium campestre*), white sweet clover (*Melilotus alba*), common ragweed (*Ambrosia artemisiifolia*); and shrub and sapling species such as: multiflora rose (*Rosa multiflora*), staghorn sumac (*Rhus*

typhina), tree of heaven (*Ailanthus altissima*) and eastern red cedar (*Juniperus virginiana*).

4.4.2.1 No Action Alternative

The No Action Alternative will have no impact on plant communities.

4.4.2.2 Preferred Action

Some existing vegetation will be removed during the construction of the culvert. No endangered or threatened species will be removed during construction.

4.4.3 Migratory Birds

The Migratory Bird Treaty Act (MBTA) (40 Stat; 755 as amended; 16 U.S.C. 703-712) is a federal law implemented to protect migratory birds. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed therein. The MBTA does not discriminate between live or dead birds and offers full protection to any bird parts, including feathers, eggs, and nests. The State of New Jersey is part of the Atlantic Migratory Flyway.

4.4.3.1 No Action Alternative

The No Action alternative will have no impact to migrating birds.

4.4.3.2 Preferred Action

The proposed project will have a minimal impact to migrating bird species. During construction, any birds that may rest over at the project site during migration would likely be disrupted; however, the project area is contained to only one small portion of Wreck Pond and beachfront. The migrating birds have opportunity to rest in numerous acres of similar adjacent habitat of beachfront, remaining portions of Wreck Pond and other nearby lakes adjacent to the beach. Construction will not occur during the majority of the spring migration season, which could begin as early as February 22, since the endangered species construction restriction for the project is from March 1 to September 1.

4.4.4 Wildlife and Fish

The project area contains common urban wildlife species. Mammals that occupy or frequent the site include: eastern cottontail rabbit (*Sylvilagus floridanus*), red fox (*Vupesfulva*), eastern chipmunk (*Tamias striatus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), white-footed mouse (*Peromyscus leucopus*), muskrat (*Ondatra zibethica*), little brown bat (*Myotis lucifugus*), and eastern gray squirrel (*Sciurus carolinensis*).

Common bird species that utilize the project area include: herring gulls (*Larus argentatus*), greater black-backed gull (*Larus marinus*), ring-billed gull (*Larus delawarensis*), mallard duck (*Anas platyrhyhchos*), black duck (*Anas rubripes*), fish crow

(*Corus ossifragus*), American crow (*Corvus brachyrhynchos*), red-winged blackbird (*Agelaius phoeniceus*), sanderling (*Calidris alba*), and common tern (*Sterna hirundo*).

Reptiles that may occasionally occupy the project area include: diamondback terrapin (*Malaclemys terrapin*), snapping turtle (*Chelydra serpentina*), and garter snake (*Thamniophis sirtalis sirtalis*). No amphibians are known to inhabit the project site due to its salt environment.

The Magnusson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801-1882) is the primary law governing marine fisheries management in the United States. The primary objective of this act is to protect federally managed fisheries by life stage and protect essential fish habitats (EFH).

A post-Hurricane Sandy river herring assessment was performed within Wreck Pond in 2014 to determine whether there was still a viable river herring run and to collect baseline data (Modjeski, 2014). A copy of the study is available on the NJDEP website: http://www.nj.gov/dep/wreckpond/docs/2014-wreck-pond-supplemental-herring-report-als-122014-w-appendices.pdf. Results were compared to pre-Hurricane Sandy surveys completed in 2006 and 2007 (ENSR/AECOM, 2008). During the 2014 spring study, a total of 103 adult alewives were captured, but no blueback herring were found. The number of alewives caught is approximately half of what was collected in 2006 and more than double what was collected in 2007. Only one blueback herring was caught in 2006 and two in 2007. This study concluded that within the Wreck Pond Brook Watershed there no longer is a viable blueback herring run and that the 103 alewives could be indicative of a viable alewife run. A fall survey was conducted in 2014 to determine whether there were juvenile river herring emigrating from the watershed. This survey was the first survey within the watershed to target juvenile river herring. On October 10, one juvenile alewife was caught running with bay anchovies (*Anchoa mitchilli*), verifying that alewives were successfully spawning within Wreck Pond. The dominant fish species collected during the 2014 fall seine survey adjacent to the proposed culvert within Wreck Pond include: banded killifish (*Fundulus diaphanus*), mummichog (*Fundulus heteroclitus*), and Atlantic silverside (*Menidia menidia*).

According to the NJDEP, Wreck Pond is a migratory pathway for anadromous fish with a confirmed river herring run up to the Old Mill Pond Dam. Additionally the NMFS has designated the area as EFH for winter flounder.

Other wildlife typical of suburban and forested lands in the coastal region of New Jersey would be expected to use the watershed.

4.4.3.1 No Action Alternative

If no action is taken, flooding along Wreck Pond's banks will continue during storm events, which may temporarily displace wildlife species.

4.4.3.2 Preferred Alternative

The proposed project will have a minimal impact on wildlife species during construction. Any wildlife species that may occupy the project site would likely be

temporarily displaced; however, the project area is contained to only one small portion of Wreck Pond and the beachfront.

All construction activities conducted on the Wreck Pond and the ocean ends of the culvert will be constructed in the dry, therefore, no impact is anticipated to local fish species or winter flounder EFH.

Once construction has been completed, the project should have a positive effect on local wildlife by increasing connectivity between Wreck Pond and the ocean, and improving the overall health of the Pond. The new culvert will be specifically designed for fish passage, thereby improving accessibility to spawning grounds and potentially increasing the number of spawning river herring. Restoring the dune system will benefit beach nesting birds by removing hazards such as exposed timber cribbing and steep slopes.

4.5. Cultural Resources

4.5.1 Historic Properties

The Service has searched the New Jersey and National Registers of Historic Places and has determined that no historic properties are located in or adjacent to the project area.

4.5.1.1 No Action Alternative

The No Action Alternative will have no impact on historic properties.

4.5.1.2 Preferred Action

Since the project site is not listed as a historic property and there are no adjacent historic properties, the project will not impact a historic property. The Service has received a concurrence letter from the New Jersey State Historic Preservation Office (SHPO) pursuant to requirements under Section 106 of the National Historic Preservation Act of 1966 that the project will have no effect on historic resources (see Appendix C-3 for the SHPO concurrence letter).

4.5.2 American Indian Religious Sites

There are no American Indian religious sites within or surrounding the project area.

4.5.2.1 No Action Alternative

The No Action Alternative will have no impact on American Indian religious sites.

4.5.2.2 Preferred Alternative

Since the site is not listed as an American Indian Religious Site and there are no American Indian religious sites in the vicinity, the project will not impact an American Indian religious site.

Since the project is within the historic Lenape territory, the Service has sent out requests for comment to all Federally-recognized tribes: Delaware Nation of

Oklahoma, Delaware Tribe of Indians, and Stockbridge Munsee. The Service has received letters from all entities to proceed with the project and will resume contact only if archaeological sites or objects are uncovered during construction (see Appendix C-4 for received letters from the tribes).

4.6 Socioeconomic Concerns

4.6.1 Environmental Justice

In 1994, Executive Order 12898 was signed to focus federal attention on environmental and human health conditions of minority and low income populations with the goal of achieving environmental protection for all communities. This Order was intended to promote nondiscrimination in federal programs that substantially affect human health and the environment and provides minorities and low income populations with public information and offers public participation in matters relating to human health and the environment. The project location is not in an area of low income or within an area of high minority population. According to the 2007 Borough of Spring Lake demographics, the Borough of Spring Lake is comprised of 98.8% Caucasian residents.

4.6.1.1 No Action Alternative

The No Action Alternative will have no impact on low income or minority populations.

4.6.1.2 Preferred Action

The site is not located in an area of low income or within an area of high minority populations. Therefore, the project will not impact low income or minority populations.

4.6.2 Noise

Currently noise factors at the project location include the surf, local traffic, occasional airplanes, local animal sounds, residential activities, and seasonal tourism.

4.6.2.1 No Action Alternative

The No Action Alternative has no impact on noise.

4.6.2.2 Preferred Action

Noise levels at the site will be slightly elevated during construction due to site equipment and trucks supplying materials. These elevated noise levels will cease upon completion of construction and be limited to daylight hours.

4.6.3 Traffic

The Borough of Spring Lake has a New Jersey Transit train station and Monmouth County bus service along with a seasonal trolley service. All municipal roads provide sidewalks for pedestrian access. Major thoroughfares in this area include State Highway

Route 71 and Ocean Avenue, County Road 18. Traffic congestion is a minor issue in the summer months due to the visiting tourists.

4.6.3.1 No Action Alternative

The No Action Alternative results in flooding of adjacent roadways during and after intense storm events.

4.6.3.2 Preferred Action

There will be a slight increase in traffic at the site during construction. However, the proposed project will improve traffic issues as one of the objectives of the project design is to help reduce flooding of roadways and adjacent properties during and after intense storm events, which render many of the roads impassable during and after the storm. Construction will occur only during the time period from September 8, 2015 to February 28, 2016 and not during peak summer season when the area is frequented by tourists and out of town beachgoers.

4.6.4 Public Service and Utilities

The existing sanitary sewer infrastructure is owned and maintained by the Borough of Spring Lake. It consists of a gravity piping system draining to three sewage pump stations located within the Borough. A sanitary sewer line is located within Brown Avenue and Ocean Avenue. The sanitary sewer drains to the Pennsylvania Avenue pump station which ultimately pumps sewage through a force main to the South Monmouth Regional Sewerage Authority. There is a stormwater discharge culvert located within Ocean Avenue that discharges through a manufactured stormwater treatment device that discharges into a drainage ditch, then discharges into Wreck Pond and ultimately into the ocean. Electric service is provided by Jersey Central Power and Light, a First Energy company. Electric distribution wires are located above ground in this location.

4.6.4.1 No Action Alternative

The No Action Alternative continues the flooding of the local residents and deteriorates the local municipal and county improvements.

4.6.4.2 Preferred Action

The proposed design alternatives will have a positive impact on the existing stormwater system because it will increase the volume of stormwater runoff capacity of the current culvert and reduce the chance of flooding in the surrounding communities. The proposed project will improve public service by reducing flooding of public property and infrastructure, such as the sanitary sewer system, during major storm events.

4.6.5 Public Health and Safety

There is an imminent threat of flooding to Spring Lake and the surrounding communities of Sea Girt and Spring Lake Heights during severe storm events. A storm in 2005 cost Spring Lake approximately $9,000,000 in damages to homes and businesses and

approximately $245,000 to public facilities. During Tropical Storm Irene (August 26 to 27, 2011), a total of 7.3 inches of rain fell in the Borough of Spring Lake, which caused excessive flooding within the FEMA flood hazard area in Spring Lake and Spring Lake Heights. Homeowners had flood damage and many roadways were impassible. The storm surge and stormwater generated by Hurricane Sandy uncovered the culvert's emergency spillway and flooded the surrounding communities. As the surge receded, the flood waters used the newly created inlet to drain. The inlet filled in naturally with drifting sand. The construction of an additional culvert would allow stormwater to recede more easily and reduce the chance of future flooding events.

4.6.5.1 No Action Alternative

The No Action Alternative will not reduce the flooding of the surrounding communities during intense storm events.

4.6.5.2 The Preferred Alternative

The purpose of this project is to protect public health, safety and property as well as provide fish passage. The proposed project is intended to reduce the flooding of Wreck Pond during and following intense storm events.

No hazardous materials will be utilized during construction or operation of the proposed project. All waste materials generated during construction will be disposed of offsite in an appropriately licensed landfill. There is no anticipation of solid waste being generated by construction.

5. AGENCY COORDINATION, PUBLIC INVOLVEMENT AND PERMITS

The Service has a cooperative agreement with ALS to manage the construction of the proposed culvert and additional funds from the Borough of Spring Lake and NJDEP will be used for construction. The project is also supported by Monmouth County and the adjacent municipalities: the Borough of Sea Girt and the Borough of Spring Lake Heights.

The Wreck Pond Brook Watershed Regional Stormwater Management Plan Committee (RSMPC) is undertaking a public education campaign designed to inform the public regarding the conditions in Wreck Pond and the watershed and to provide steps the public can take to minimize pollutant loadings. The RSMPC holds monthly open meetings to discuss topics pertaining to the health and activities at Wreck Pond, and encourages public participation.

Permits required to construct the proposed culvert include:

- Intra-Service Section 7 Concurrence: May affect, but is not likely to adversely affect. Dated February 3, 2015. See Appendix C-2 for concurrence.
- SHPO and Tribe Consultation: No effect. See Appendix C-3 and C-4 for letters received.
- USACE- NWP #7: Submitted by ALS on February 9, 2015. Dated April 9, 2015. See Appendix C-5 for permit.
- Federal Consistency Determination: Submitted by the Service on February 9, 2015. Dated April 30, 2015. See Appendix C-6 for the determination.
- NMFS EFH: Submitted by ALS on January 23, 2015 (Not yet received).

- NMFS Section-7: Submitted by the Service on March 11, 2015 (Not yet received).

6. CONCLUSION

After a thorough evaluation of all actions and alternatives considered, as presented in this EA, the proposed action is the construction of a secondary concrete culvert. This project will not have a significant effect on the human environment. Below is a summary of the project components.

The culvert will be a secondary concrete box culvert (5.5 feet x 8 feet) and will be 600 feet long and 8 inches thick. The culvert will be located just north of the existing 84-inch-diameter 800-foot-long outfall culvert. A stop log structure will be constructed at the upstream end of the culvert to allow the ability to control the static elevation of the pond. A stainless steel sluice/knife gate will be installed behind the box culvert's first section in order to control tidal inflow and stormwater outflow. The box culvert will be constructed on timber pilings and buried beneath the USACE beach fill sand elevations as shown on the construction plans. Exposed and damaged piles on the existing culvert will be replaced. The sand displaced by the culvert will be used to restore the dune over the existing culvert that was destroyed by Sandy. With the project in place, the Borough of Spring Lake will still be able to excavate an emergency spillway in the event of a major storm that would cause flooding within the surrounding communities. A warning marker will be placed at the end of the culvert in accordance to U.S. Coast Guard regulations. All components of the project will be constructed out of material that is resistant to salt water corrosion. An eel passage device will be installed within the first 50 feet of the culvert. The culvert will be monitored post-construction to determine whether the installation of roughness features, such as baffles, will be necessary to facilitate fish passage.

If no action is taken, minor to severe flooding of roadways and adjacent properties will continue to occur, fish passage will not be enhanced, and water quality will remain degraded.

7. LIST OF PREPARERS

Katie Conrad, Fish and Wildlife Biologist, United States Fish and Wildlife Service

Eric Schrading, Field Supervisor, United States Fish and Wildlife Service

8. REFERENCES

Byrne, Donald. 1986. Anadromous herring run restoration: annual report. New Jersey Division of Fish, Game, and Wildlife, Trenton, NJ.

ENSR/AECOM. 2008. 2008 Wreck Pond river herring field monitoring and assessment final report: Wreck Pond, Monmouth County, New Jersey. Prepared for NJDEP Bureau of Coastal Engineering, Toms River, New Jersey. 06352-003. 18 pp.

Modjeski, Aleksandr. 2014. 2014 Wreck Pond fish inventory study with emphasis on field monitoring of alewife and blueback herring final report: Wreck Pond, Monmouth County, New Jersey. Prepared for NJDEP Bureau of Marine Water Monitoring, Leeds Point, New Jersey, and Monmouth County Division of Engineering, Freehold, New Jersey. WP-Fish-001-FR. American Littoral Society. 101 pp.

Sustainable Jersey Climate Change Adaptation Task Force. 2011. New Jersey Climate Change Trends and Projections Summary. 12 pp.

Wreck Pond Brook Watershed Technical Advisory Committee. 2008. Wreck Pond Brook Watershed Regional Stormwater Management Plan. Monmouth County Planning Board, Freehold, New Jersey. 253 pp.

9. APPENDICES

A. Project Maps and Photos

1. Aerial Project Location Map
2. USGS Topographic Map
3. Tax Map
4. Photos of Site
5. Soils Map
6. Known Contaminated Sites Map
7. Groundwater Contamination Area Map
8. FEMA Flood Map
9. NWI Map
10. Land Use Map

B. Project Designs

C. Public Agency Letters of Response

1. NJDEP Land Use Program- Freshwater Wetlands
2. U.S. Fish and Wildlife- Intraservice Section 7
3. State Historic Preservation Office
4. Tribal Notifications

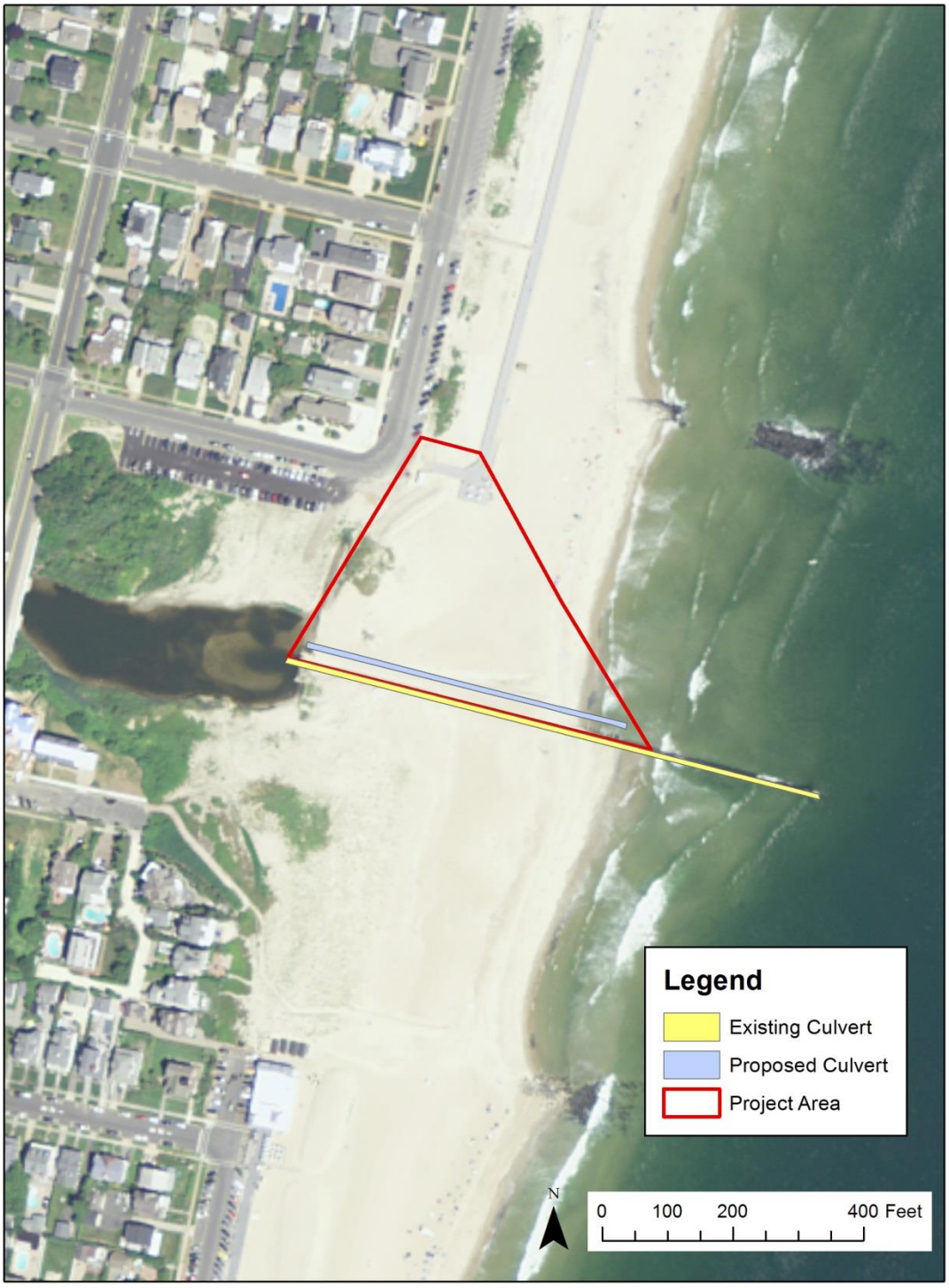
Appendix A- Maps & Photos

NEPA Environmental Assessment
Restoring Wreck Pond Inlet
Boroughs of Spring Lake and Sea Girt
Monmouth County, New Jersey

Appendix A-1

Restoring Wreck Pond Inlet Project- Aerial

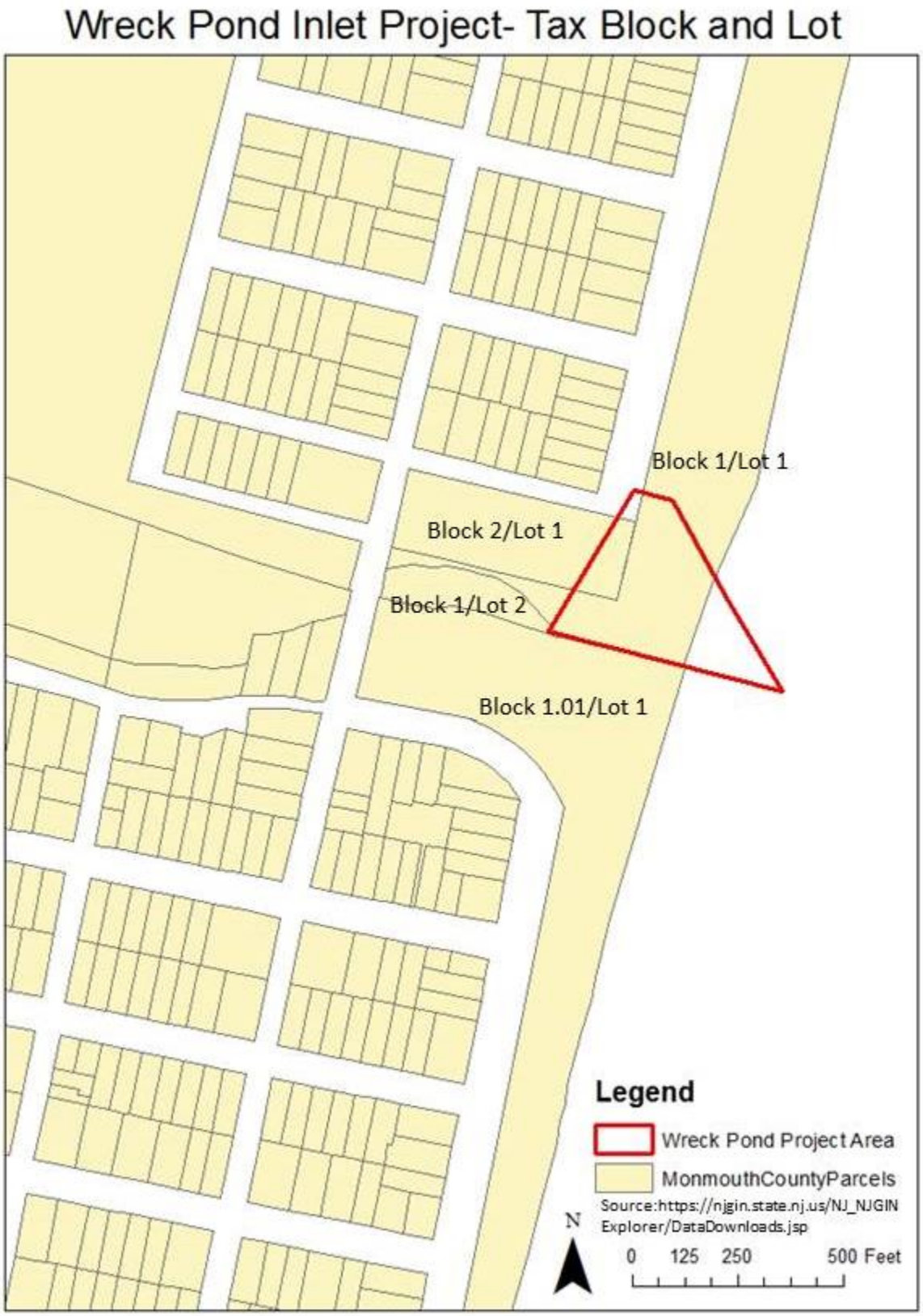
(2013 Aerial, NJDEP)



Appendix A-2

Wreck Pond Inlet Project- USGS Topographic Map

Appendix A-3


Wreck Pond Inlet Project- Tax Block and Lot
Block 1/Lot 1
Block 2/Lot 1
Block 1/Lot 2
Block 1.01/Lot 1
Legend
Wreck Pond Project Area
MonmouthCountyParcels
Source:https://njgin.state.nj.us/NJ_NJGIN Explorer/DataDownloads.jsp
N
0 125 250 500 Feet

Appendix A-4

Restoring Wreck Pond Inlet Project- Aerial

(2013 Aerial, NJDEP)

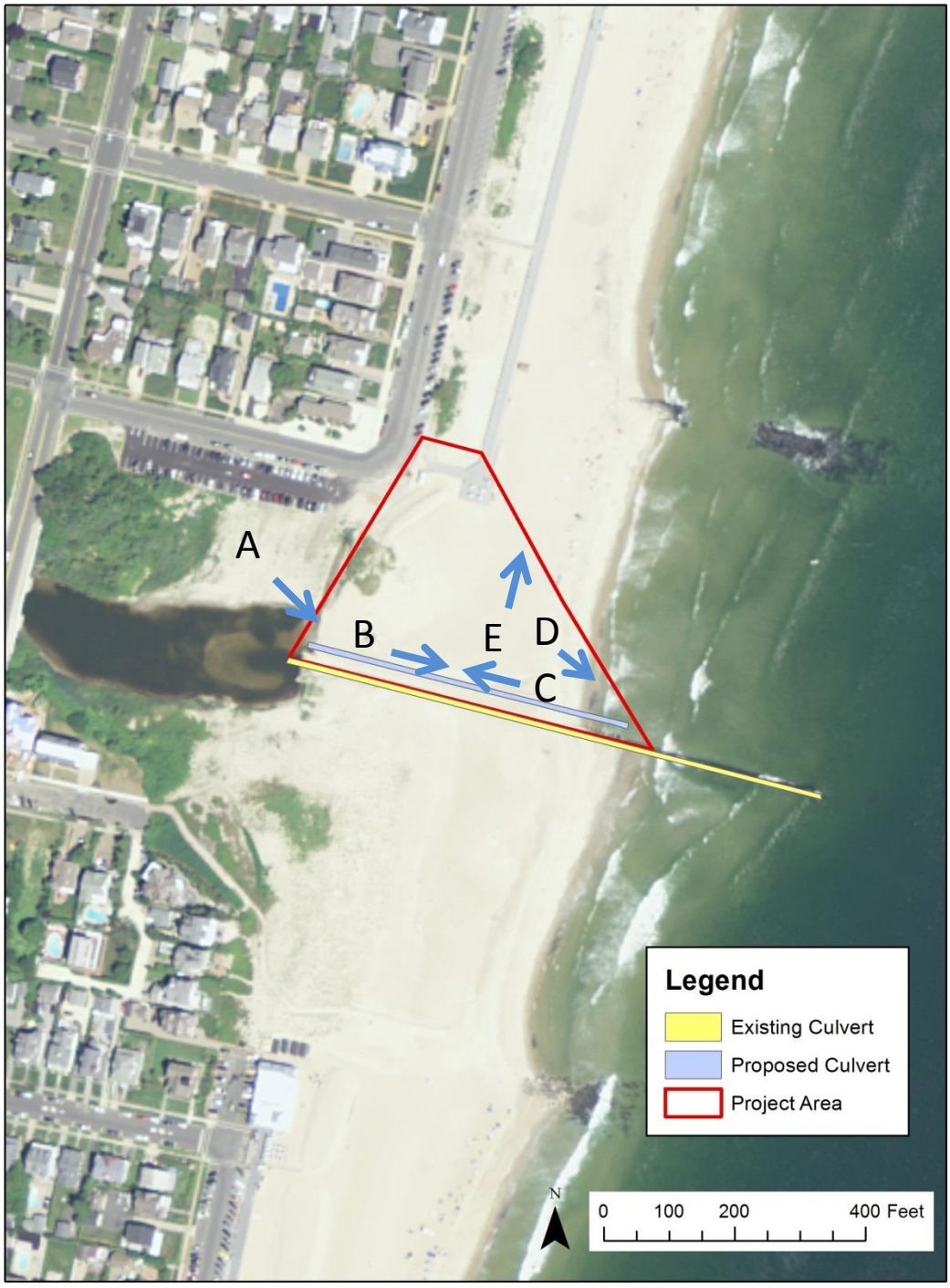


Photo A. Existing outfall pipe and location of proposed pipe (11/08/2013).

Photo B. Existing emergency spillway and location of proposed pipe (11/08/2013).

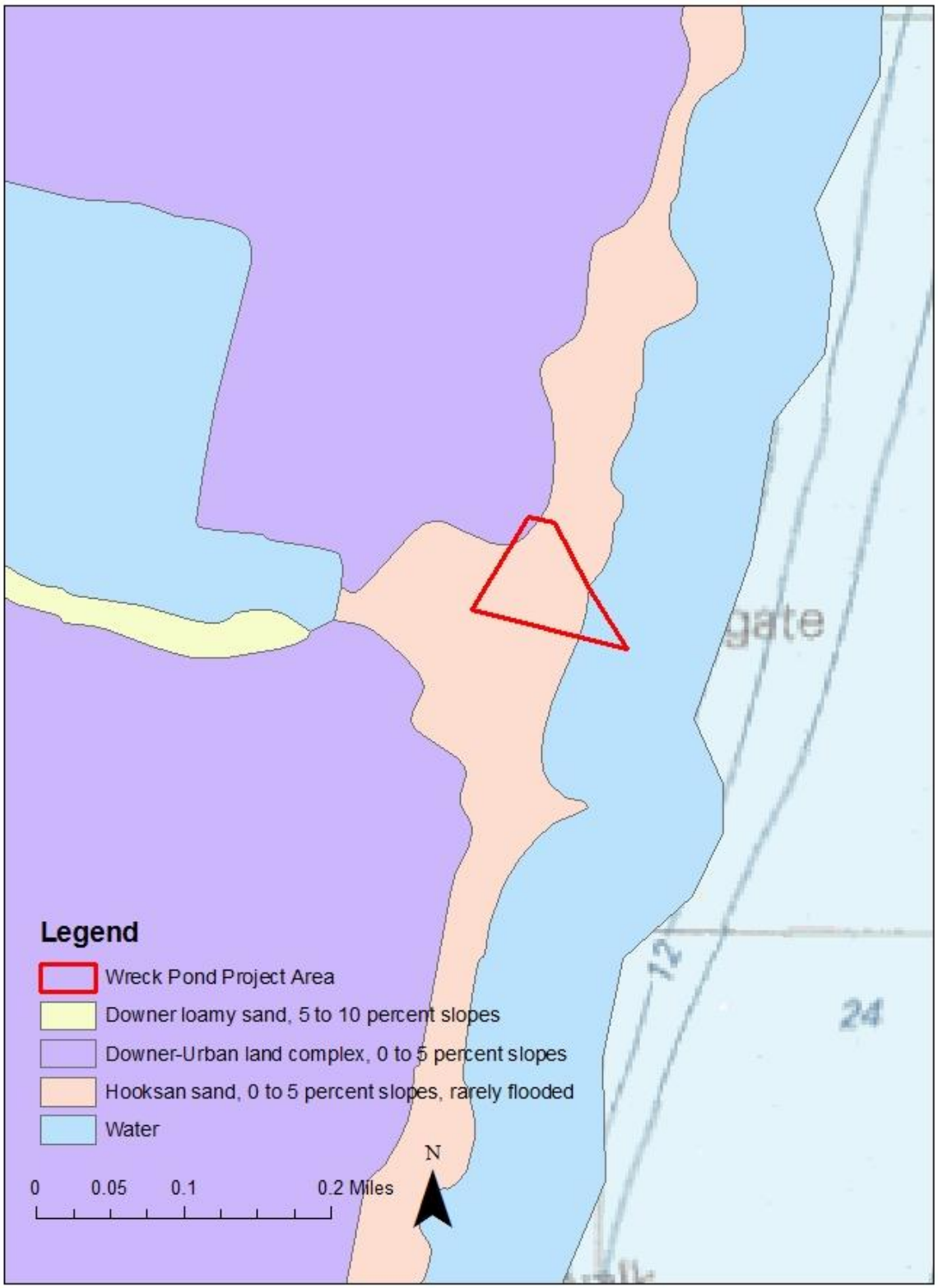
Photo C. Existing emergency spillway and location of proposed pipe (11/08/2013).

Photo D. Where the proposed pipe will connect to the ocean (11/08/2013).

Photo E. Spring Lake Beach (11/08/2013).

Appendix A-5

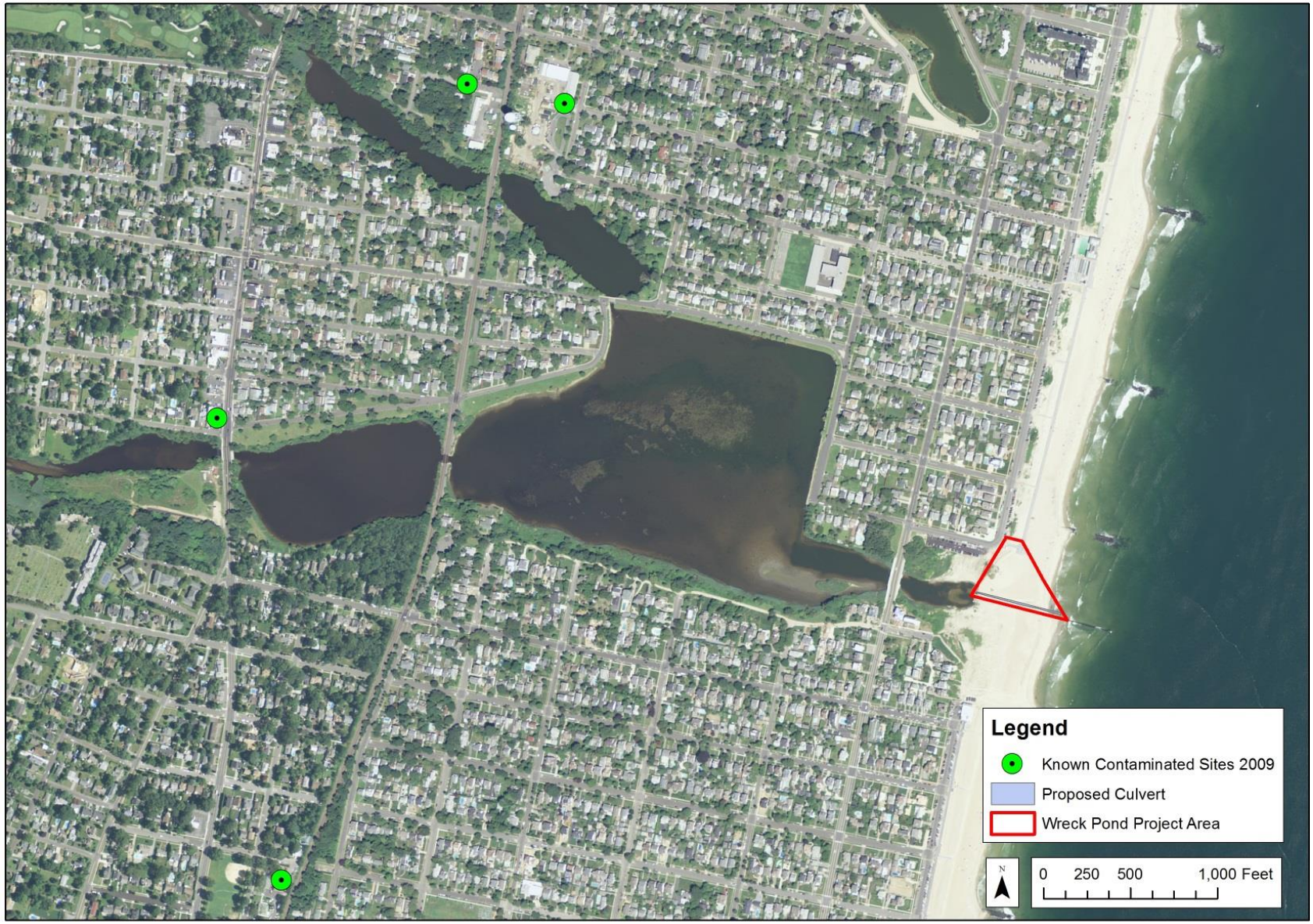
Wreck Pond Inlet Project Map- NRCS Soil Survey 2008



Appendix A-6

Restoring Wreck Pond Inlet Project- Known Contaminated Sites

(2013 Aerial, NJDEP)



Appendix A-7

Restoring Wreck Pond Inlet Project- Groundwater Contamination

(2013 Aerial, NJDEP)

Appendix A-8

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was New Jersey State Plane FIPSZONE 2900. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the State of New Jersey Office of Information Technology. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated April 2002.

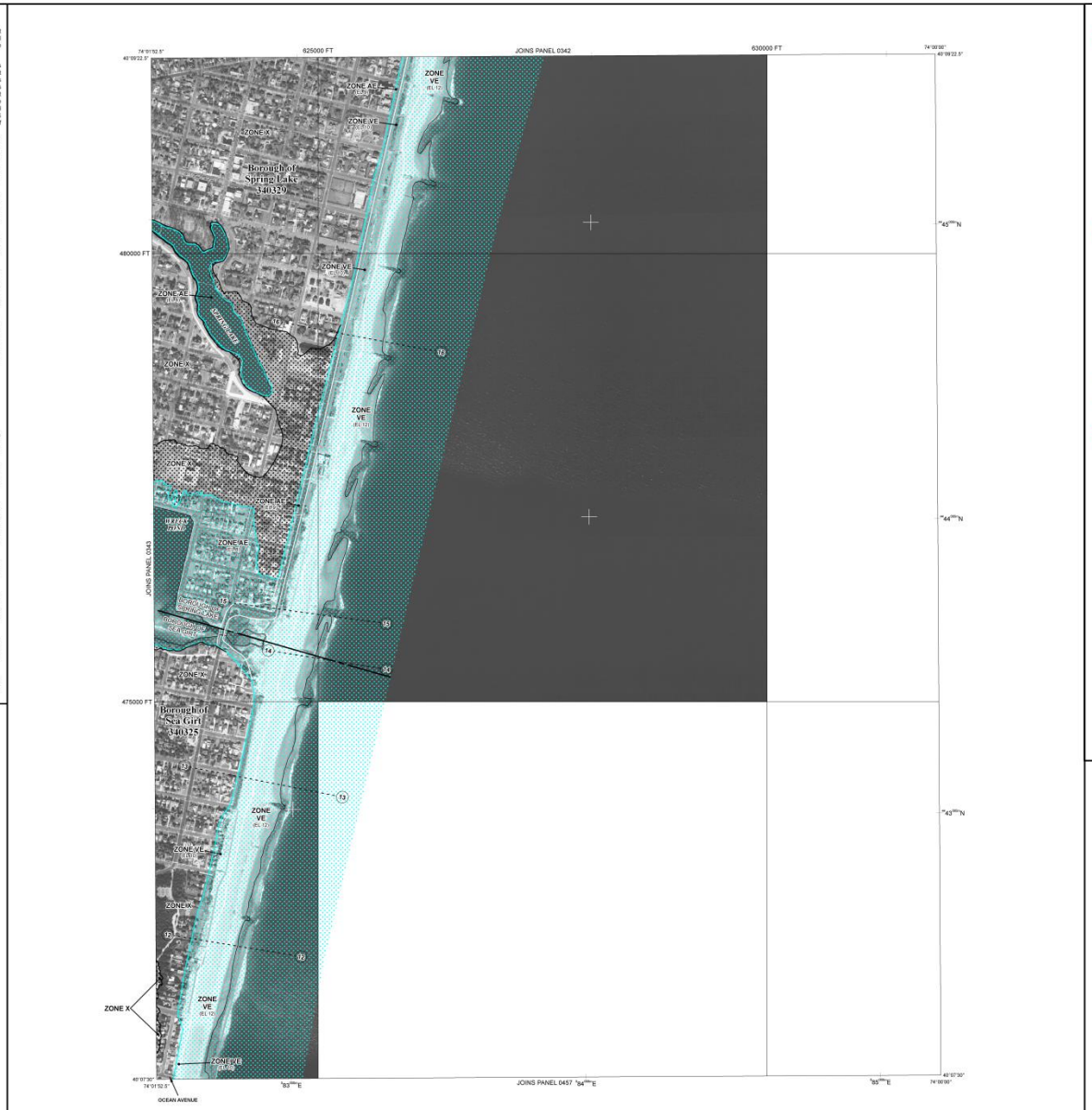
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AR/A, AR/AE, AR/AH, AR/AO, AR/A1-A30, AR/AE, AR/AH, AR/AO, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL. 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4276000mN — 1000-meter Universal Transverse Mercator grid values, zone 18N
- 600000 FT — 5000-foot grid ticks: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 25, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0344F

FIRM
FLOOD INSURANCE RATE MAP

MONMOUTH COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

PANEL 344 OF 457
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
SEA GIRT, BOROUGH OF	340325	0344	F
SPRING LAKE, BOROUGH OF	340329	0344	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
34025C0344F

EFFECTIVE DATE
SEPTEMBER 25, 2009

Federal Emergency Management Agency

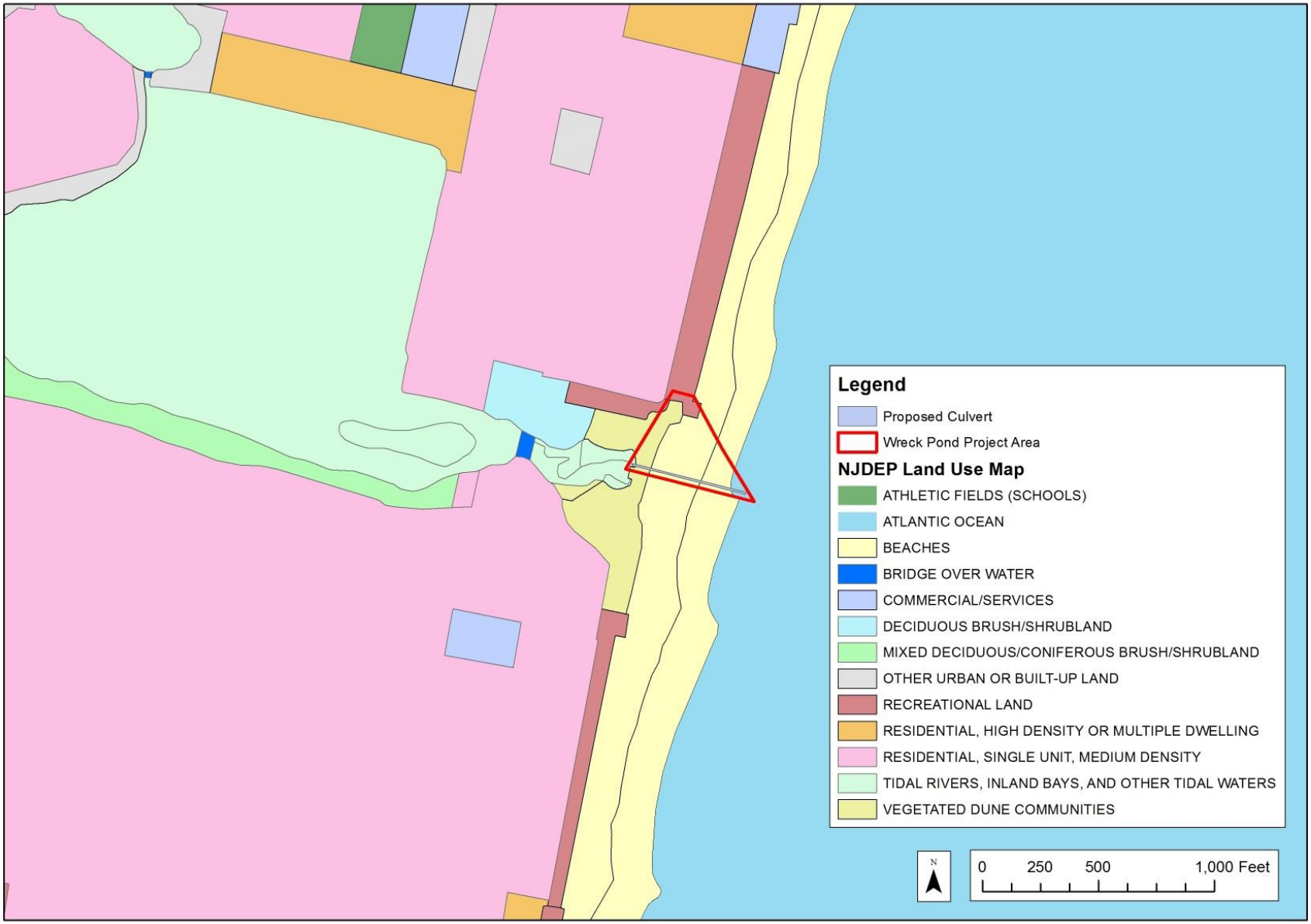
Appendix A-9

Restoring Wreck Pond Inlet Project- NWI Map

(2013 Aerial, NJDEP)

Appendix A-10

Restoring Wreck Pond Inlet Project- NJDEP Land Use Map



Appendix B- Designs

NEPA Environmental Assessment

Restoring Wreck Pond Inlet

Boroughs of Spring Lake and Sea Girt

Monmouth County, New Jersey

PROPOSED BYPASS BOX CULVERT

AT

WRECK POND OUTFALL

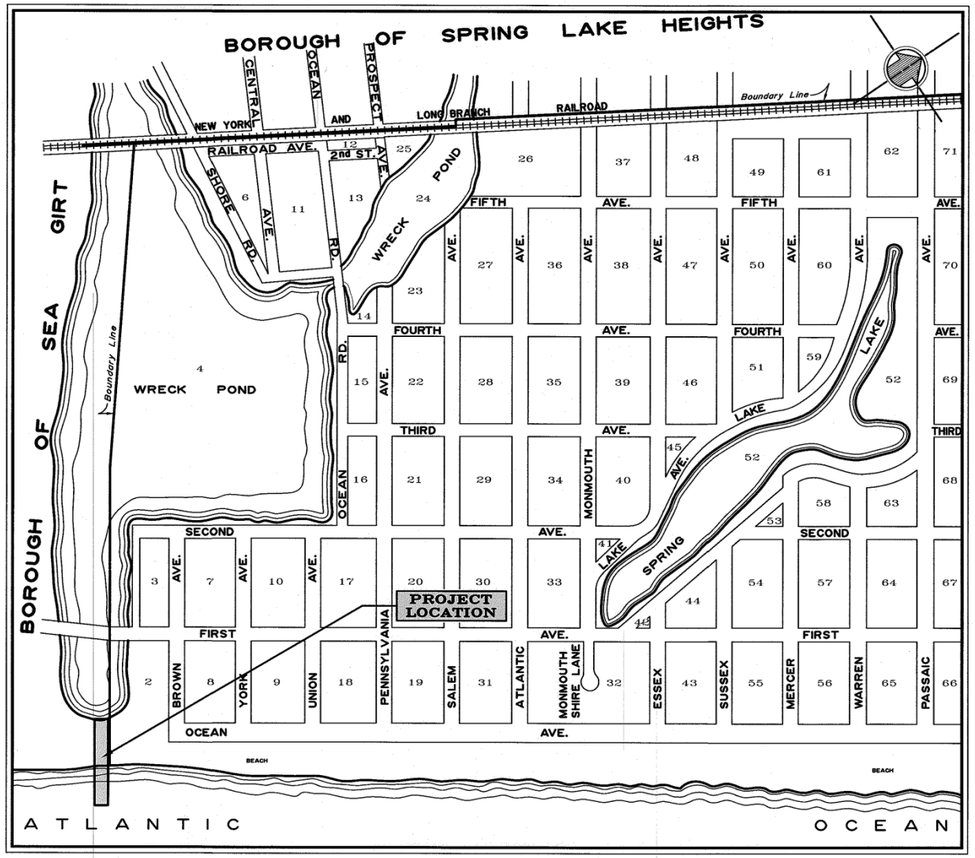
IN THE

BOROUGH OF SPRING LAKE

MONMOUTH COUNTY , NEW JERSEY

PROJECT PARTNERS:

AMERICAN LITTORAL SOCIETY
U.S. FISH AND WILDLIFE SERVICE
BOROUGH OF SPRING LAKE
N.J. DEPT. OF ENVIRONMENTAL PROTECTION
U.S. ARMY CORPS OF ENGINEERS
COUNTY OF MONMOUTH
LEON S. AVAKIAN, INC.



LOCATION PLAN

Graphic Scale
400 0 200 400 800 1600
(IN FEET)
1 Inch = 400 ft

LIST OF DRAWINGS	
NUMBER	DESCRIPTION
1	COVER SHEET
2	OUTFALL CONSTRUCTION PLAN
3	OUTFALL CROSS SECTION PLAN
4	OUTFALL PROFILE PLAN
5-6	CONSTRUCTION DETAILS
7	SITE ACCESS AND LOCATION MAP

FILE# NAN-
LOCATION: OCEAN AVE/BROWN AVE.
PROPOSED PROJECT: WRECK POND OUTFALL
APPLICANT: AMERICAN LITTORAL SOCIETY
LAT/LONG: 40.138291 / 74.026122
IN: ATLANTIC OCEAN
ADJACENT PROPERTY OWNERS:
NEAR/AT: SPRING LAKE
1. BOROUGH OF SEA GIRT
COUNTY: MONMOUTH
2. BOROUGH OF SPRING LAKE
SHEET 1 OF 7 DATE: 1-30-15
STATE: NEW JERSEY

REV.	DESCRIPTION	BY	CHK.	DATE

LEON S. AVAKIAN, INC.
Consulting Engineers
798 WAYSIDE ROAD
NEPTUNE , NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1.30.15
DATE

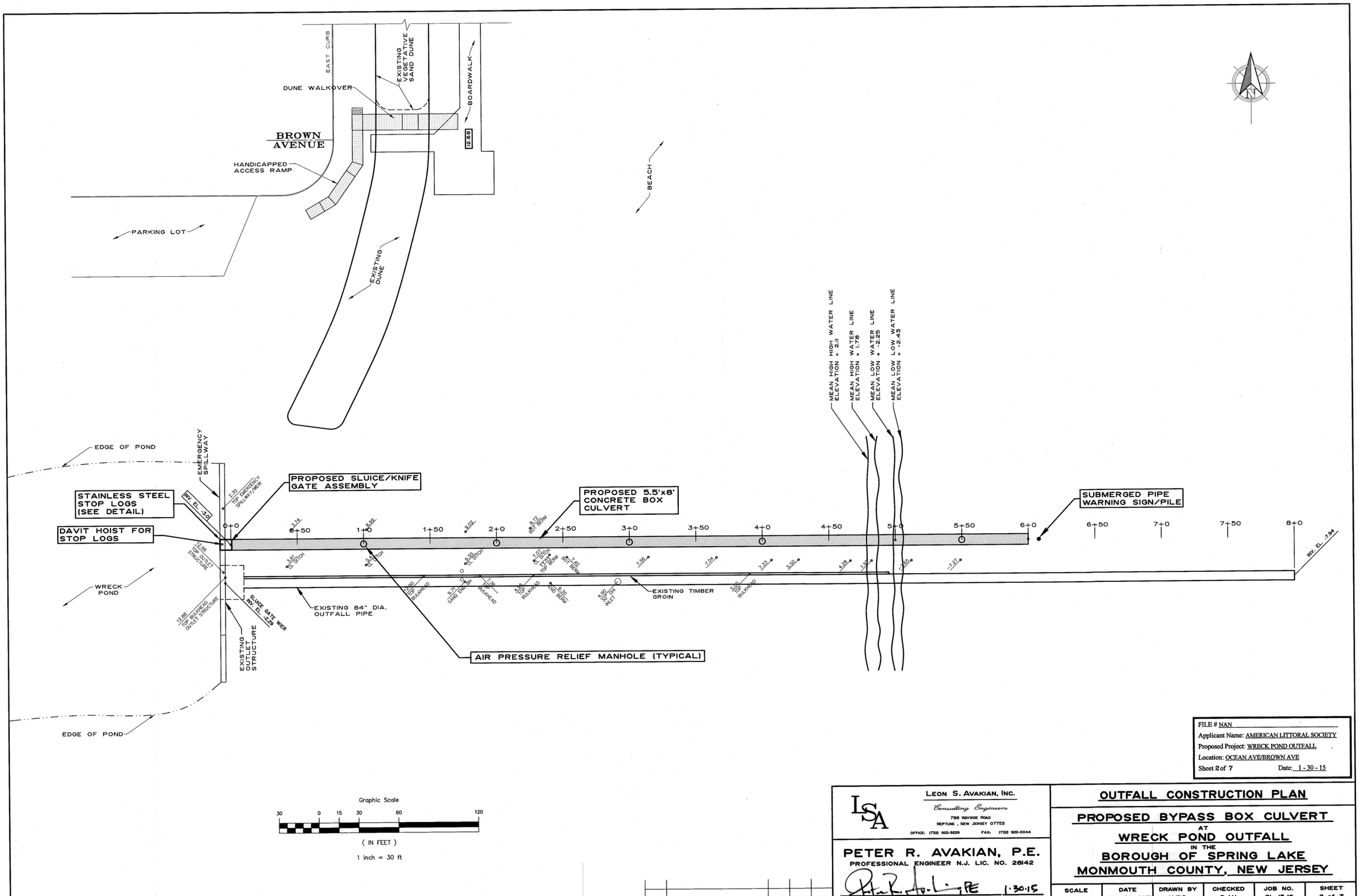
COVER SHEET

PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	1 of 7

REF. SL-13-16-COV

Appendix B- Sheet 2



FILE # NAN
Applicant Name: AMERICAN LITTORAL SOCIETY
Proposed Project: WRECK POND OUTFALL
Location: OCEAN AVE/BROWN AVE
Sheet 2 of 7 Date: 1 - 30 - 15

LEON S. AVAKIAN, INC.
Consulting Engineers
788 WAYSIDE ROAD
NEPTUNE, NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1.30.15
DATE

OUTFALL CONSTRUCTION PLAN

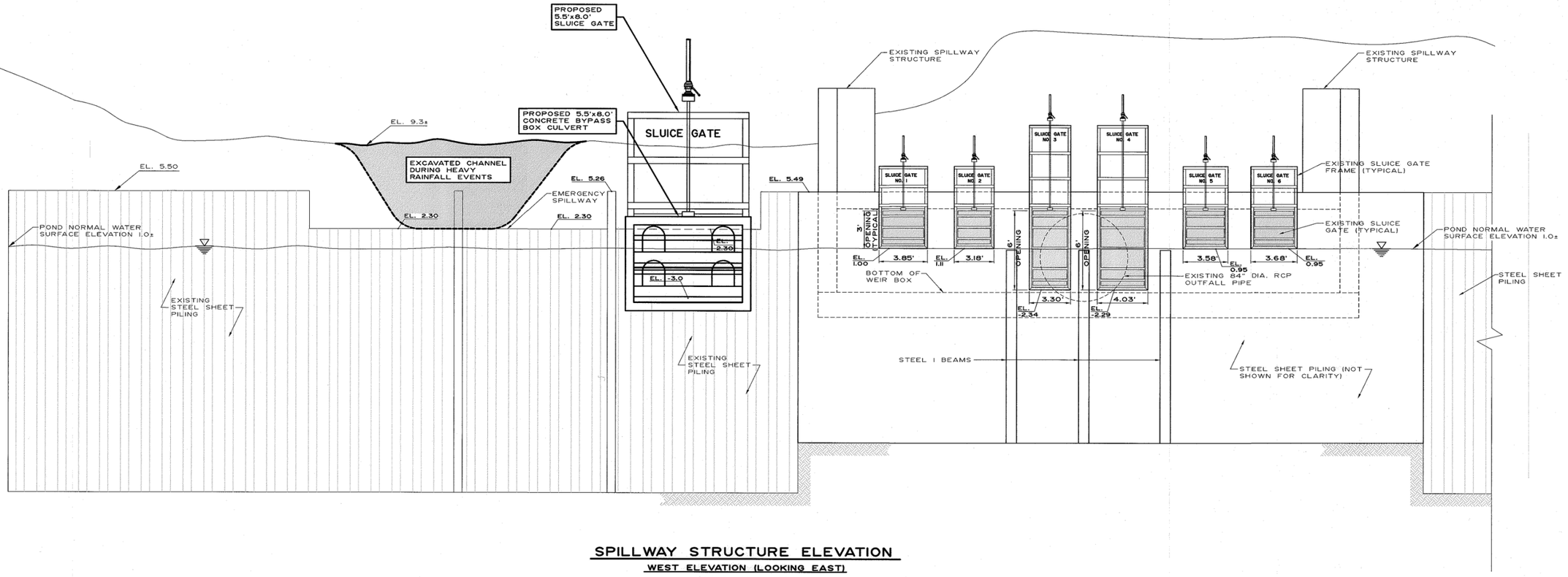
PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

REV.	DESCRIPTION	BY	CHK.	DATE

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
1" = 30'	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	2 of 7

SL-13-16-BYPASS BYPASS CONST PLAN SHT 2

Appendix B- Sheet 3



SPILLWAY STRUCTURE ELEVATION

WEST ELEVATION (LOOKING EAST)

SCALE : 1/4" = 1'-0"

Graphic Scale

4' 0 2' 4' 8' 16'

(IN FEET)

1 inch = 4 ft

FILE # NAN
Applicant Name: AMERICAN LITTORAL SOCIETY
Proposed Project: WRECK POND OUTFALL
Location: OCEAN AVE/BROWN AVE
Sheet 3 of 7 Date: 1 - 30 - 15

LEON S. AVAKIAN, INC.
Consulting Engineers
788 WAYSIDE ROAD
NEPTUNE , NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1.30.15
DATE

REV.	DESCRIPTION	BY	CHK.	DATE

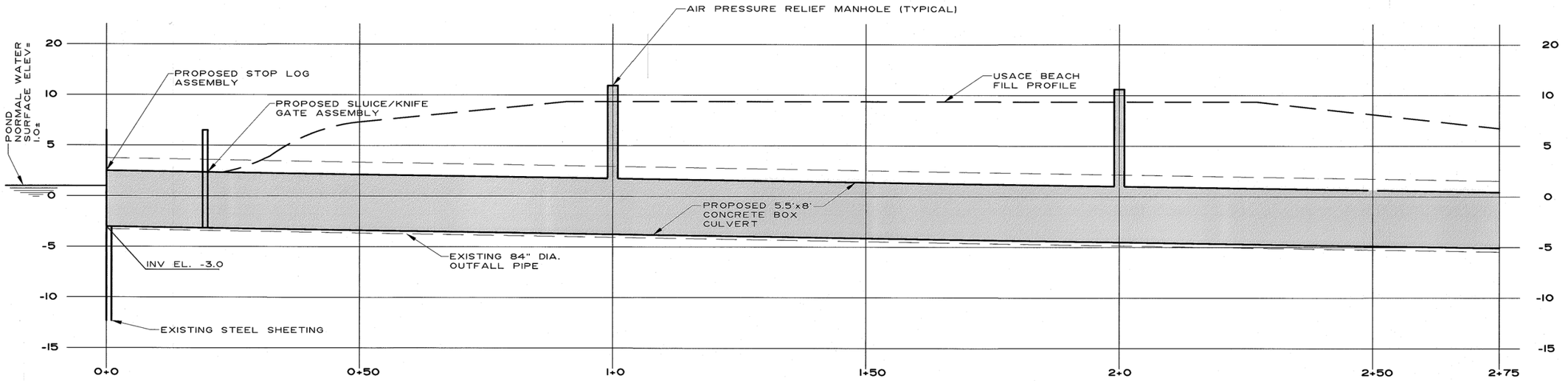
OUTFALL CROSS SECTION PLAN

PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	3 of 7

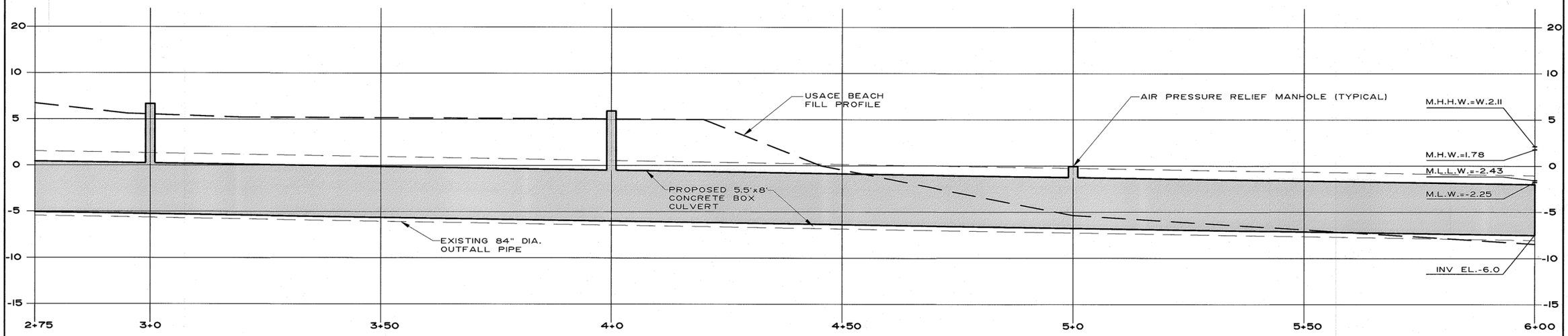
SL-14-12-BYPASS X-SECTION PLAN SHT 3

Appendix B- Sheet 4



PROFILE STA. 0+0 TO 2+75

SCALE : HORIZ. 1" = 10'
VERT. 1" = 5'



PROFILE STA. 2+75 TO 5+50

SCALE : HORIZ. 1" = 10'
VERT. 1" = 5'

Graphic Scale
10 0 5 10 20
(IN FEET)
1 inch = 10 ft (Horiz.)

Graphic Scale
5 0 2.5 5 10
(IN FEET)
1 inch = 5 ft (Vert.)

REF: SL-13-16-PROFILE SHT 4

REV.	DESCRIPTION	BY	CHK.	DATE

FILE # NAN
Applicant Name: AMERICAN LITTORAL SOCIETY
Proposed Project: WRECK POND OUTFALL
Location: OCEAN AVE/BROWN AVE
Sheet 4 of 7 Date: 1-30-15

LSA
LEON S. AVAKIAN, INC.
Consulting Engineers
788 WAYSIDE ROAD
NEPTUNE, NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

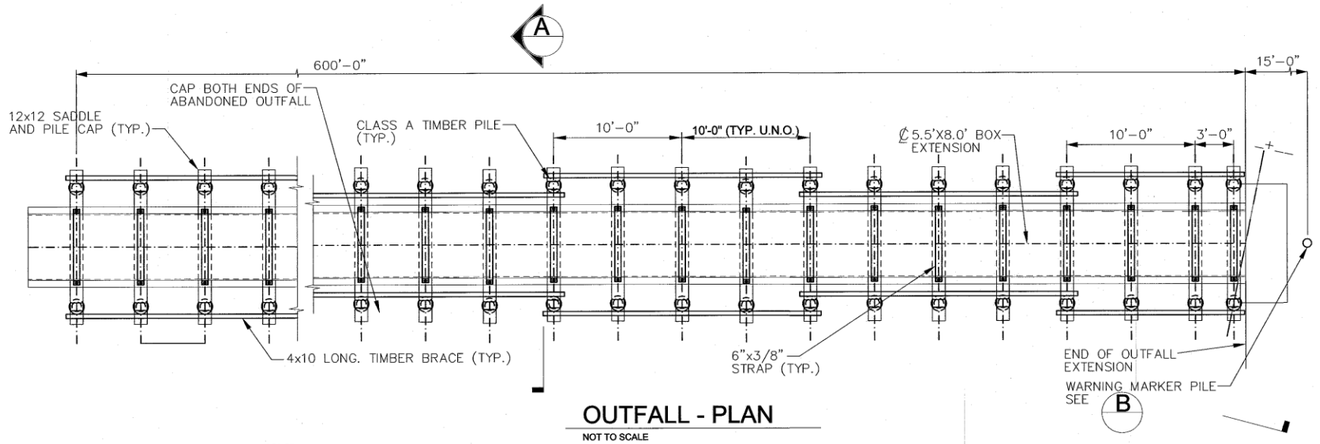
PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1-30-15
DATE

OUTFALL PROFILE PLAN

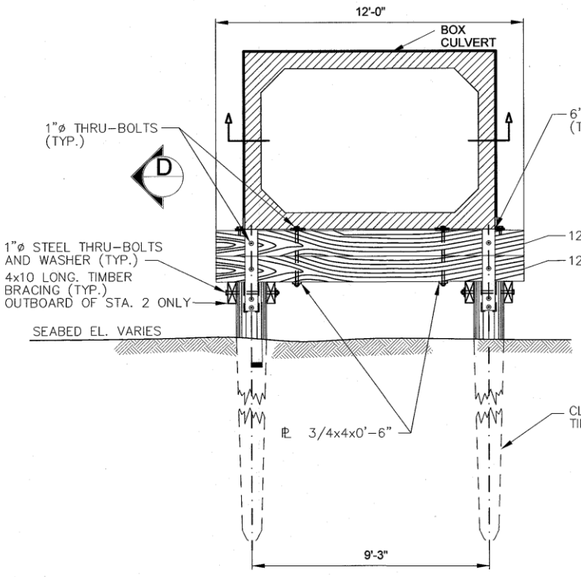
PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	4 of 7

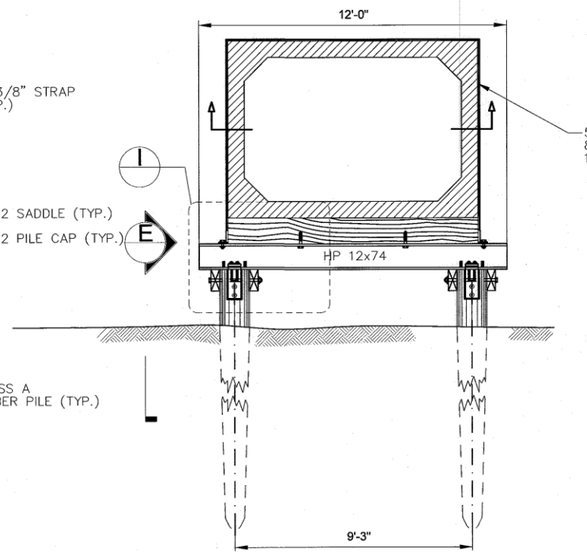
Appendix B- Sheet 5



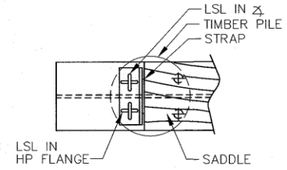
OUTFALL - PLAN
NOT TO SCALE



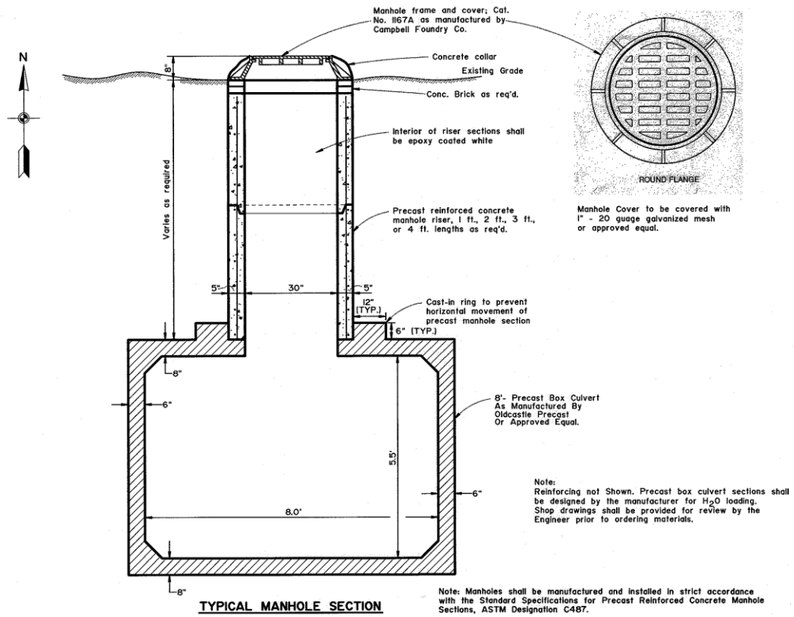
OUTFALL - TYPICAL SECTION OUTBOARD OF STATION 4+00
A NOT TO SCALE



OUTFALL - TYPICAL SECTION INBOARD OF STATION 4+00
B NOT TO SCALE



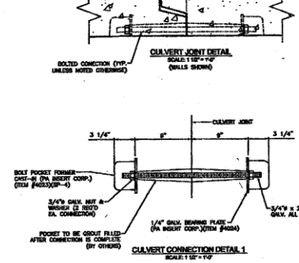
F SECTIONAL PLAN
NOT TO SCALE

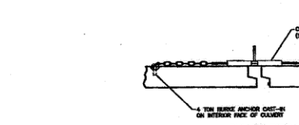


TYPICAL MANHOLE SECTION

Note: Manholes shall be manufactured and installed in strict accordance with the Standard Specifications for Precast Reinforced Concrete Manhole Sections, ASTM Designation C487.

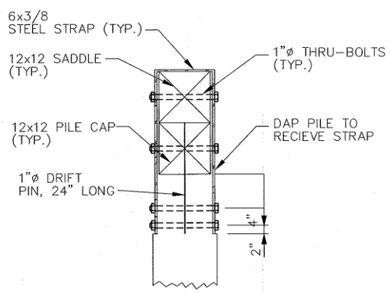
AIR PRESSURE RELIEF MANHOLE AND BOX CULVERT DETAIL
Not to Scale



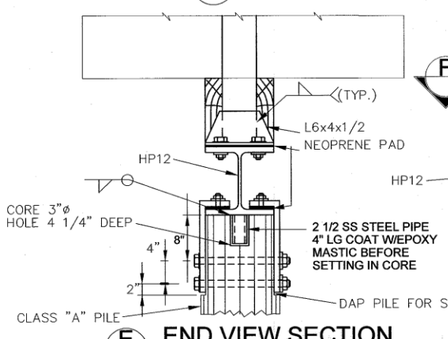


CULVERT DESIGN NOTES:

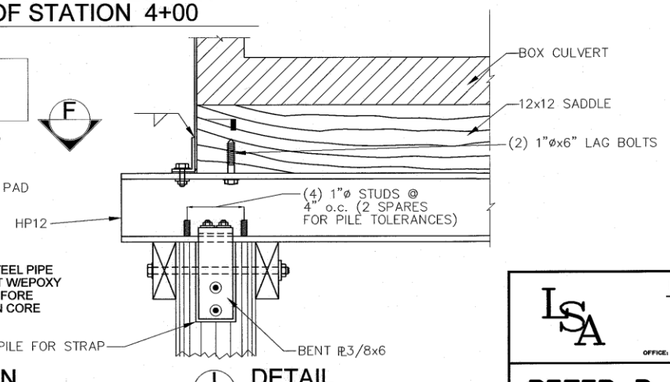
CULVERT JOINT CONNECTION DETAIL
Not to Scale



D SECTION
NOT TO SCALE



E END VIEW SECTION
NOT TO SCALE



I DETAIL
NOT TO SCALE

NOTE:
ALL HARDWARE, PLATES AND STRAPS TO BE TYPE 316L STAINLESS STEEL.

REV.	DESCRIPTION	BY	CHK.	DATE

FILE # NAN
Applicant Name: AMERICAN LITTORAL SOCIETY
Proposed Project: WRECK POND OUTFALL
Location: OCEAN AVE/BROWN AVE
Sheet 5 of 7 Date: 1 - 30 - 15

LEON S. AVAKIAN, INC.
Consulting Engineers
788 WAYSIDE ROAD
NEPTUNE, NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1.30.15
DATE

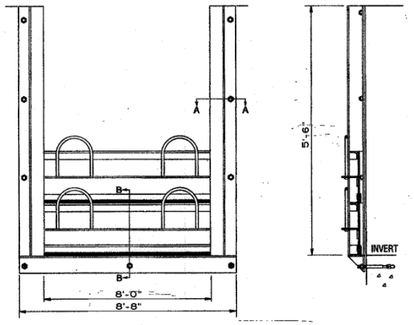
CONSTRUCTION DETAILS

PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

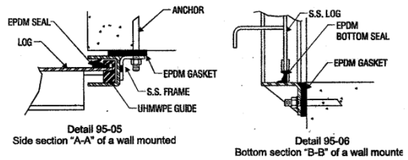
SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	5 of 7

REF. SL-13-16-DETAILS SHT 5

Appendix B- Sheet 6



Wall mounted arrangement of a set of stop logs and frame (CW)

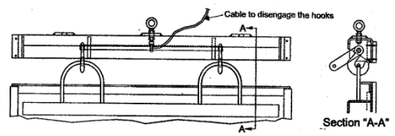


Detail 95-05
Side section "A-A" of a wall mounted

Detail 95-06
Bottom section "B-B" of a wall mounte

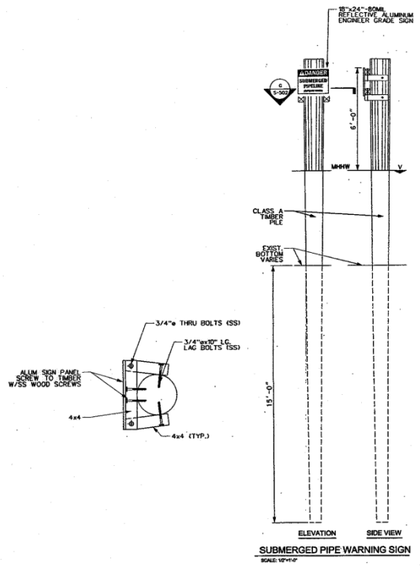
STAINLESS STEEL STOP LOG DETAIL

Not to Scale



STAINLESS STEEL LIFTING DEVICE DETAIL

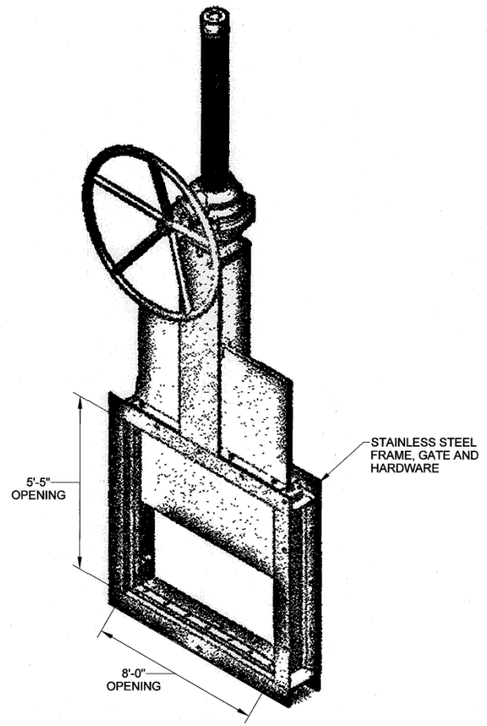
Not to Scale



SUBMERGED PIPE WARNING SIGN

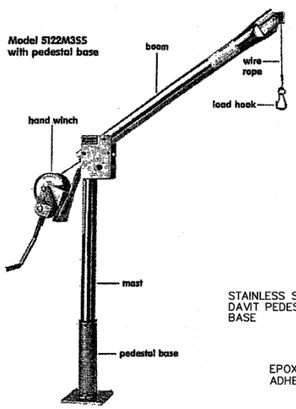
SUBMERGED PIPE WARNING SIGN DETAIL

Not to Scale

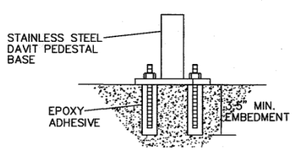


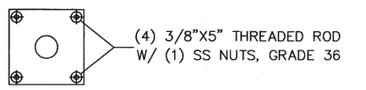
KNIFE GATE VALVE DETAIL

Not to Scale



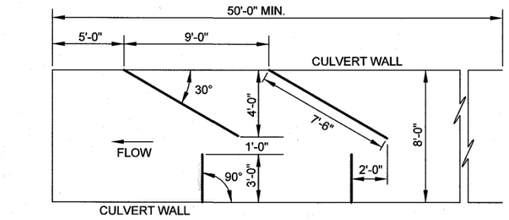
Portable Davit Cranes
Hand Winch Operation
Up to 500 lb capacity



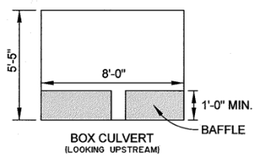


DAVIT HOIST DETAIL

Not to Scale



NOTE:
ALL BAFFLES 1'-0" HIGH-3/8" STAINLESS STEEL PLATE.



BOX CULVERT BAFFLE DETAIL

Not to Scale

ALTERNATE BID ITEM

FILE # NAN
Applicant Name: AMERICAN LITTORAL SOCIETY
Proposed Project: WRECK POND OUTFALL
Location: OCEAN AVE/BROWN AVE
Sheet 6 of 7 Date: 1 - 30 - 15

REV.	DESCRIPTION	BY	CHK.	DATE

LEON S. AVAKIAN, INC.
Consulting Engineers
768 WAYSIDE ROAD
NEPTUNE, NEW JERSEY 07753
OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.
PROFESSIONAL ENGINEER N.J. LIC. NO. 28142
1.30.15
DATE

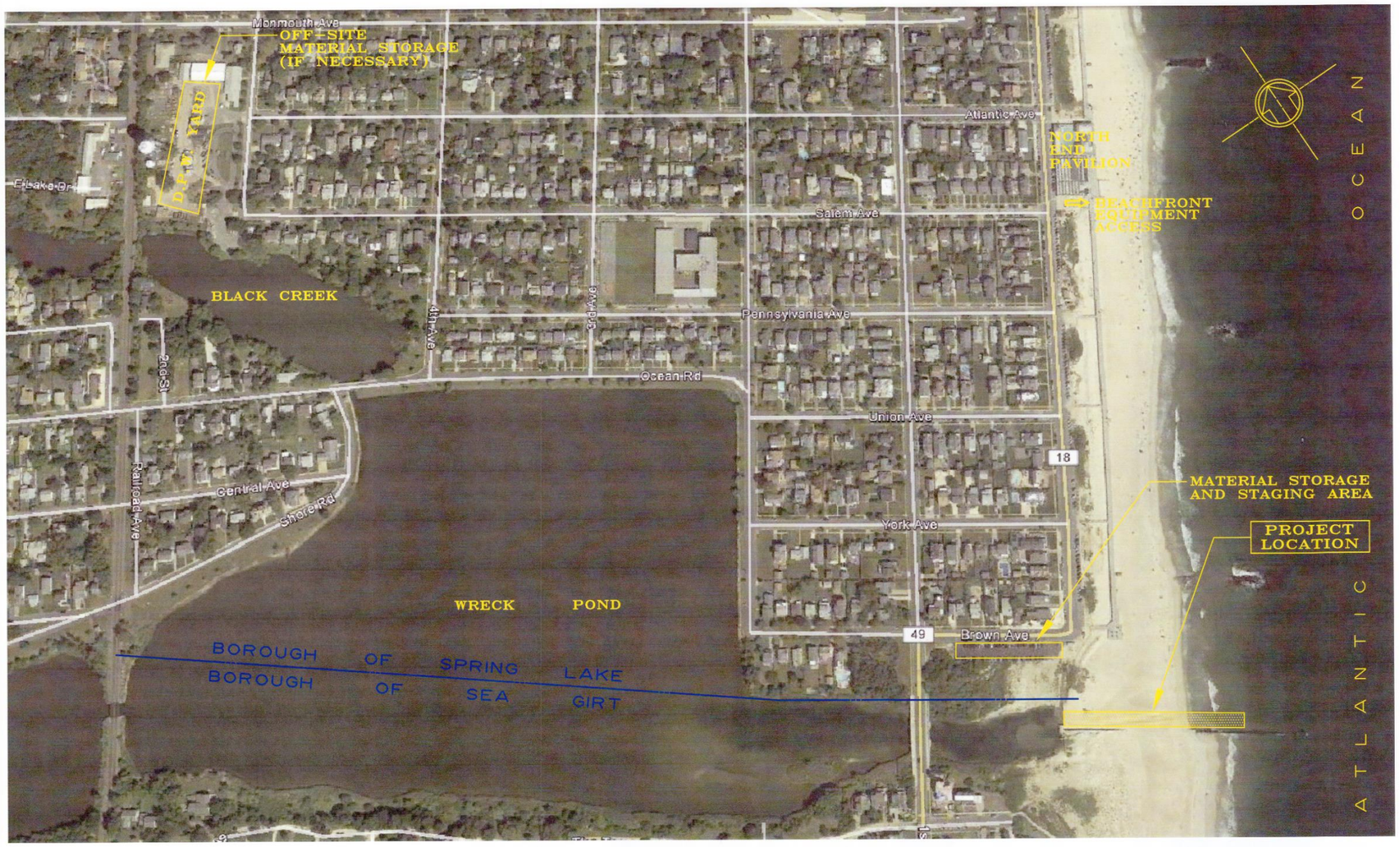
CONSTRUCTION DETAILS

PROPOSED BYPASS BOX CULVERT AT WRECK POND OUTFALL IN THE BOROUGH OF SPRING LAKE MONMOUTH COUNTY, NEW JERSEY

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	6 of 7

REF. SL-13-16-DETAILS SHT 6

Appendix B- Sheet 7



LOCATION MAP

Graphic Scale

200 0 100 200 400 800

(IN FEET)

1 Inch = 200 ft

FILE # NAN

Applicant Name: AMERICAN LITTORAL SOCIETY

Proposed Project: WRECK POND OUTFALL

Location: OCEAN AVE/BROWN AVE

Sheet 7 of 7 Date: 1 - 30 - 15

LSA

LEON S. AVAKIAN, INC.

Consulting Engineers

768 WAYSIDE ROAD

NEPTUNE , NEW JERSEY 07753

OFFICE: (732) 922-9229 FAX: (732) 922-0044

PETER R. AVAKIAN, P.E.

PROFESSIONAL ENGINEER N.J. LIC. NO. 28142

1.30.15

DATE

REV.	DESCRIPTION	BY	CHK.	DATE

SITE ACCESS AND LOCATION MAP

PROPOSED BYPASS BOX CULVERT

AT

WRECK POND OUTFALL

IN THE

BOROUGH OF SPRING LAKE

MONMOUTH COUNTY, NEW JERSEY

SCALE	DATE	DRAWN BY	CHECKED	JOB NO.	SHEET
AS SHOWN	JAN. 30, 2015	M.T.B.	D.J.H.	SL 13-16	7 of 7

REF. SL-13-16-SITE ACCESS AND LOCATION MAP

Appendix C- Public Agency Letters of Response

NEPA Environmental Assessment

Restoring Wreck Pond Inlet

Boroughs of Spring Lake and Sea Girt

Monmouth County, New Jersey

Appendix C-1 NJDEP Correspondence

BISON CONNECT

Wreck Pond

Schrading, Eric <eric_schrading@fws.gov> Wed, Feb 5, 2014 at 10:58 AM
To: Dave Fanz <Dave.Fanz@dep.state.nj.us>
Cc: Chris Dolphin <chris.dolphin@dep.state.nj.us>

Dave,

The USFWS received funding for Hurricane Sandy to work on fish passage and aquatic connectivity at Wreck Pond. Currently this coastal lake has one 84-inch-diameter pipe connecting it to the Atlantic Ocean. The pipe provides very limited fish passage. The USFWS interest is to increase fish passage into Wreck Pond as well as improve tidal flushing in the pond to improve ecological functions in the pond (which has long suffered a list of water quality problems). The Borough and County are interested in having additional connections to provide some relief of flood control associated with large storm events.

The Borough engineer put together a conceptual plan for a second connection between Wreck Pond and the Atlantic Ocean that we are considering (see attached).

In terms of permitting the USFWS was considering permitting the project through a federal consistency determination (FCD). Since Wreck Pond is currently tidally flowed, I don't think that any FWWPA permits are required. I was wondering what other permits besides FCD would be needed for the project?

Everything is very conceptual at this point and I'm still not sure we will move forward with this alternative, I just wanted your feedback generally regarding permit requirements. Any info you can provide would be appreciated.

Thanks!

--
Eric Schrading, CWB
Field Supervisor
U.S. Fish and Wildlife Service
New Jersey Field Office
927 North Main Street, Building D
Pleasantville, New Jersey 08232
P: (609) 383-3938 x31
Fax: (609) 646-1456
cell: (609) 576-3400

2 attachments

Wreck Pond 2nd Pipe Drawings.pdf
99K

Wreck Pond 2nd Pipe Proposal.pdf
178K

Dolphin, Chris <Chris.Dolphin@dep.state.nj.us> Thu, Feb 6, 2014 at 9:01 AM
To: "Schrading, Eric" <eric_schrading@fws.gov>, "Fanz, Dave" <Dave.Fanz@dep.state.nj.us>

Appendix C-1 NJDEP Correspondence

Eric,

If USFWS is the applicant, then it seems the only permitting required would be the Federal Consistency. The Water Quality Certificate would be handled with the FC.

All the best

Chris

From: Schrading, Eric [mailto:eric_schrading@fws.gov]
Sent: Wednesday, February 05, 2014 10:58 AM
To: Fanz, Dave
Cc: Dolphin, Chris
Subject: Wreck Pond

[Quoted text hidden]

Schrading, Eric <eric_schrading@fws.gov> Fri, Feb 7, 2014 at 4:58 PM
To: "Dolphin, Chris" <Chris.Dolphin@dep.state.nj.us>

Thanks...have a great weekend.
[Quoted text hidden]

Appendix C-2 Intra-Service Section 7

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Project Name: Wreck Pond Inlet Project **Originating Person:** Katie Conrad
Township: Spring Lake **Telephone Number:** 609-383-3938 ext. 39
County: Monmouth **Date:** 2015 (rev. 2/2)
Shape file at: G:\user\Katie\Intra-Section_7\Wreck_Pond
Distance to nearest town: within the Borough of Spring Lake

I. Region: 5

II. Service Activity (Program)

U.S. Fish and Wildlife Service (Service), Region 5, Ecological Services, New Jersey Field Office (NJFO) and project partners propose to construct an additional culvert at Wreck Pond.

III. Pertinent Species and Habitat:

A. Listed species and/or their critical habitat within the action area:

Piping plover (*Charadrius melodus*) and seabeach amaranth (*Amaranthus pumilus*).

B. Proposed species and/or proposed critical habitat within the action area:

Rufa Red knot (*Calidris canutus rufa*).

C. Candidate species within the action area:

None.

D. Include species/habitat occurrences on a map.

See attached.

IV. Description of proposed action (attach additional pages as needed):

We propose to construct an additional 600-foot concrete box culvert (5.5 by 8 feet) north of the existing outfall pipe (See Location Map and Outfall Construction Plan). The head of the pipe will contain a stop log structure (see Stop Log Detail) and behind the first section of pipe will be a knife gate valve (see Knife Gate Valve Detail). Both of these structures will be operated by hand. Pressure release manholes will be placed along the pipe approximately every hundred feet (see Outfall Profile Plan and Manhole Detail). The manholes are necessary to release air and water pressure and maintain the integrity of the pipe during major storm events. The manholes will also benefit fish passage by

Appendix C-2 Intra-Service Section 7

providing natural light, which would make the pipe more attractive for migrating fish. The four manholes located on the beach will contain towers extending up through the sand from the pipe. The bottom of the manhole's concrete collar will be constructed at grade and will extend 8 inches above grade.

The project will promote resiliency of the communities of Spring Lake and Sea Girt; improve Wreck Pond's water quality without affecting the area's beaches; and enhance fish passage. Spring Lake, Spring Lake Heights, and Sea Girt currently experience flooding during major storm events, such as during Hurricane Sandy and Tropical Storm Irene. The new culvert will provide an additional outlet for waters to drain from Wreck pond and reduce the chance of flooding. Wreck Pond's water quality will be improved by increasing tidal flushing. Spring Lake and Sea Girt's beaches experience periodic closings due to elevated fecal coliform levels from stormwater input into the Wreck Pond watershed. The pipe will be closed when the outflow from the pond is expected to negatively affect water quality during the beach season, but will be open as much as possible during the fish migration season. The additional pipe will enhance fish passage along two miles of historic spawning and nursery habitat. Diadromous fish species that would benefit from the proposed project include alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and American eel (*Anguilla rostrata*).

VII. Determination of effects:

A. Explanation of effects of the action on species and critical habitats in items III. A, B, and C (attach additional pages as needed):

The project area contains nesting habitat for piping plovers (*Charadrius melodus*), potential foraging habitat for the rufa red knot (*Calidris canutus rufa*), and seabeach amaranth (*Amaranthus pumilus*) habitat. Construction will not occur during the piping plover nesting season or red knot spring migration. Since construction will occur during the red knot's fall migration, surveys will be conducted twice during the week prior to construction and once a week until the end of October. Surveys will be conducted by the Service or the American Littoral Society (ALS). The survey area will include the project area and adjacent potential foraging habitat. The manholes may adversely affect birds by providing a hiding place or perch for predators and shorebirds legs may become caught in the grates. The placement of stop logs or the operation of the sluice gate may cause disturbance to nesting birds if conducted during the nesting season.

The construction of a secondary pipe will be beneficial to beach nesting birds because it will reduce the chance that the emergency spillway would need to be opened, which would cause a greater disturbance since construction equipment would be deployed and nesting and foraging habitat destroyed. The pipe will also increase flushing of salt water and create a greater tidal range within the pond, which will improve the quality of foraging habitat for migrating and nesting birds.

Since construction will occur during the seabeach amaranth growing season, a survey will be conducted by the Service no more than one week prior to the start of construction

Appendix C-2 Intra-Service Section 7

to determine whether there are plants within the project area. The south end of the beach below the existing culvert has been designated a Seabeach Amaranth Protective Zone. No construction will occur within this zone and it will not be used for staging or access to the site.

B. Explanation of actions to be implemented to reduce adverse effects:

Construction will occur between September 8th, 2014 and March 1st, 2015.

No construction will occur from March 1st and September 8th, which encompasses both the piping plover and least tern nesting seasons. Both species nest adjacent and within the proposed project area most years. The construction restriction for piping plovers is usually from March 15th to August 31st, but since this project is directly affecting nesting habitat, the restricted period has been extended two weeks to the beginning of March. The construction restriction for least terns is March 15th to September 1st. Construction will commence after Labor Day in order to avoid negatively impacting both beach nesting bird species and beachgoers.

The project will restore the nesting area to its condition pre-Sandy. The storm washed out a dune and uncovered the timber cribbing of the emergency spillway, creating a steep drop-off that could be hazardous for nesting birds and chicks. The project will restore the dune and contour the sand to cover the timber cribbing and create a gentle grading slope that will not hinder shorebird movement.

If not properly maintained, the elevated manholes may negatively affect shorebirds by providing perches or hiding places for predators and shorebird's legs may become caught in the grates. Sand will be placed around the grate to form a gentle slope from the ground to the manhole in order to cover the concrete collar, which extends 8 inches above the constructed grade. In order to reduce the chance of shorebird legs becoming caught in the grates, the manholes will be covered with a fine mesh. Before and after the nesting season, the manholes will be inspected to ensure that the mesh is still in place and that the manholes are at grade. Maintenance of the manholes during the nesting season (March 15th-August 31st) is not anticipated because the pipe is designed to be self-cleaning. If maintenance is necessary, the Conserve Wildlife Foundation and the Service will be notified before the site is accessed. These measures will be incorporated into a maintenance plan signed by the Conserve Wildlife Foundation and the Service.

Stop log placement or sluice gate operation may result in increased human disturbance. These disturbances will be brief and will likely not adversely affect nesting birds. The Conserve Wildlife Foundation and the Service will be notified before the site is accessed. These measures will be incorporated into a maintenance plan signed by the Conserve Wildlife Foundation and the Service.

The beach nesting bird restriction encompasses the spring rufa red knot migration. Red knots primarily occur in the area during the spring migration, from May 1st to June 15th. Only a few birds have been spotted in Wreck Pond within the past few years and these

Appendix C-2 Intra-Service Section 7

sightings were on the sand bar west of 1st Avenue, over 1,000 feet west of the proposed project area. It is possible that birds would stop around Wreck Pond during the fall migration. To determine whether there are birds using the area before construction, the project site and the sand bar west of the bridge over 1st Avenue will be surveyed with binoculars twice the first week of September (a week before construction begins). During construction these areas will be surveyed once a week.

Since the anticipated start of work is September 8th, construction will occur during the seabeach amaranth growing season (May 15th - November 30th). The south end of the beach below the existing culvert has been designated a Seabeach Amaranth Protective Zone. No construction will occur within this zone and it will not be used for staging or access to the site. Seabeach amaranth has not been found within the proposed project area the existing culvert since 2008. To minimize potential impact on seabeach amaranth, the Service and project partners will follow the BMPs outlined by the Service's NJFO:

- A qualified individual from the Service will conduct a thorough survey of the area of disturbance no earlier than 1 week prior to the start of work. The survey will be conducted by walking slowly and carefully in a zig-zag fashion from the high-water line (seaward limit of vegetation) to the dune, seawall, boardwalk, or other landward limit of the beach, ensuring complete survey coverage of the area of disturbance.
- Symbolic string-and-post fencing will be used to encircle each plant or group of plants, allowing a 10-foot buffer on all sides. Do NOT use snow fence. Mark the fencing with flagging and signs.
- All work crews will be instructed to avoid fenced areas (*e.g.*, do not enter on foot or via motor vehicle, do not stage or store materials or equipment in or near fencing, locate access routes away from fenced areas, do not grade sand in or near fencing).
- The Service will be notified of the survey results.
- Symbolic fencing will be removed upon completion of work.

Appendix C-2 Intra-Service Section 7

VIII. Effect determination and response requested: [* = optional]

A. Listed species/designated critical habitat:

Determination	**Response requested**
no effect/no adverse modification (_____)	__ *Concurrence
may affect, but is not likely to adversely affect species/adversely modify critical habitat species: (piping plovers, rufa red knot, seabeach amaranth)	_x_ Concurrence
may affect, and is likely to adversely affect species/adversely modify critical habitat (species:_____)	____ Formal Consultation

Project Biologist (Requestor), New Jersey Field Office — **(rev. 2/2)** Date

IX. Reviewing ESFO Evaluation:

A. Concurrence X **Nonconcurrence**_____

B. Formal consultation required_____

C. Conference required_____

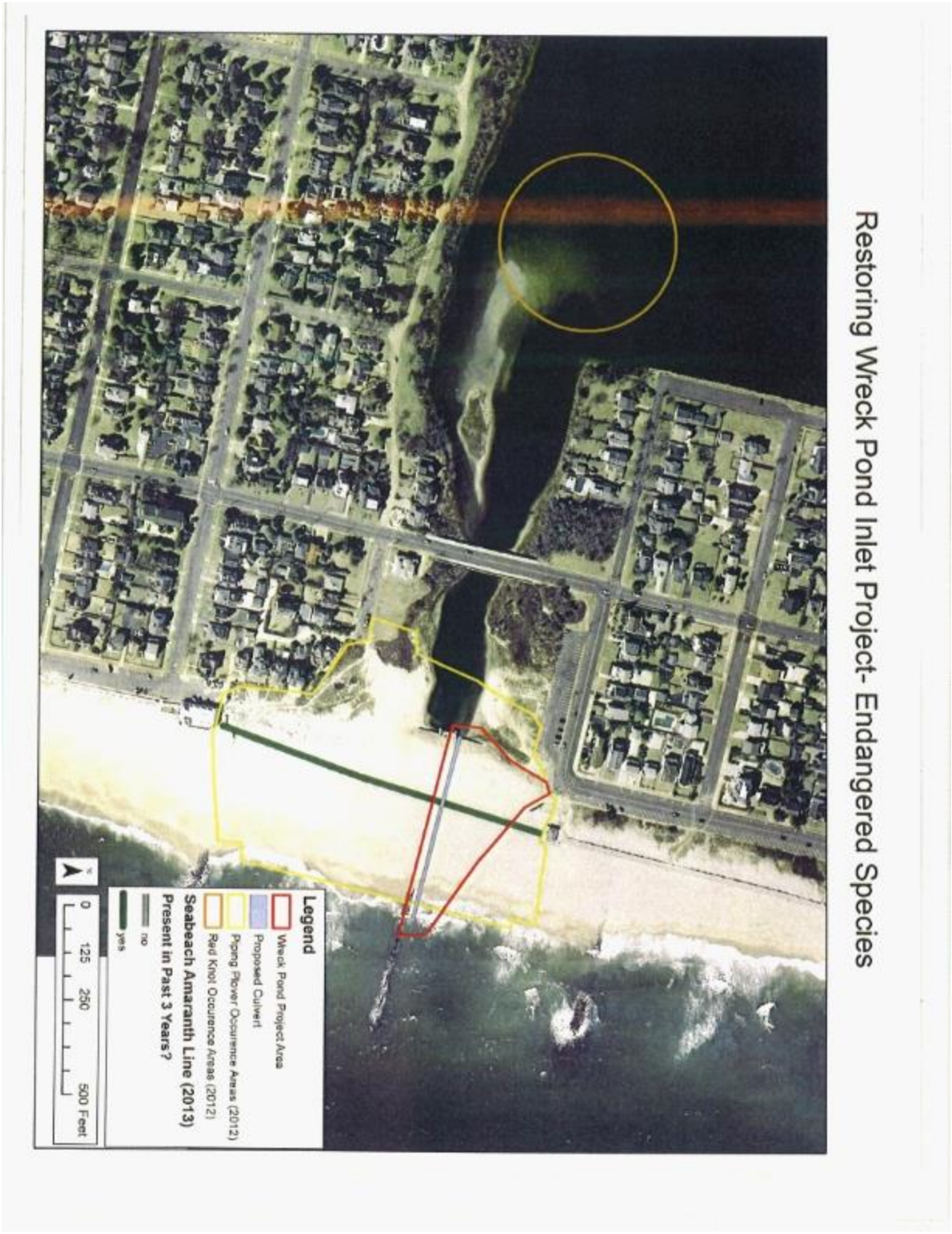
D. Informal conference required_____

E. Remarks (attach additional pages as needed):

Endangered Species Biologist (Reviewer), New Jersey Field Office — 2-3-15 Date

Assistant Supervisor, New Jersey Field Office — 3 Feb 15 Date

Appendix C-2 Intra-Service Section 7



Appendix C-3 SHPO Concurrence

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://www.fws.gov/northeast/njfieldoffice/

14-4581-1VM.
HPO-I2014-538
AUG 26 2014

Daniel Saunders
State Historic Preservation Officer
New Jersey Department of Environmental Protection
Historic Preservation Office
P.O. Box 420
501 East State Street
Trenton, New Jersey 08625

RECEIVED
AUG 28 2014
HISTORIC PRESERVATION OFFICE

Re: Section 106 Review for Wreck Pond Inlet Project, Monmouth County, New Jersey

Dear Mr. Saunders:

The U.S. Fish and Wildlife Service (Service) and its partners propose to install a box culvert at Wreck Pond in the Borough of Spring Lake, Monmouth County, New Jersey. The project site is located north of the existing outfall pipe that discharges into the ocean. Partners include the Borough of Spring Lake, Monmouth County, the American Littoral Society, and the New Jersey Department of Environmental Protection. The Service has searched the New Jersey and National Registers of Historic Places and has determined that no historic properties are located in or adjacent to the project area. The Service is requesting consultation with the New Jersey State Historic Preservation Office (SHPO) pursuant to requirements under Section 106 of the National Historic Preservation Act of 1966.

The proposed project would construct an additional 500-foot concrete box culvert (approximately 5.5 by 8 feet) next to the existing outfall pipe. The project will promote resiliency of the communities of Spring Lake and Sea Girt, improve Wreck Pond's water quality without affecting the area's beaches, and enhance fish passage. Spring Lake, Spring Lake Heights, and Sea Girt currently experience flooding during major storm events, such as during Hurricane Sandy and Tropical Storm Irene. The new culvert will provide an additional outlet for waters to drain from Wreck pond and reduce the chance of flooding. Wreck Pond's water quality will be improved by increasing tidal flushing. Spring Lake and Sea Girt's beaches experience periodic closings due to elevated fecal coliform levels due to stormwater discharge from the pond. The pipe will be closed when outflow from the pond is expected to negatively affect water quality, but will be open during the fish migration season. The additional pipe will enhance fish passage along 2 miles of historic spawning and nursery habitat. Diadromous fish

Appendix C-3 SHPO Concurrence

14-4581-1 VM
HPO-I2014-538

species that would benefit from the proposed project include alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and American eel (*Anguilla rostrata*).

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. Section 470-470w-6), the Service is requesting consultation from the SHPO for the subject project. The Service's determination, based on the proposed activities, is that the subject project will not adversely affect properties eligible for the National Register or other historic or archaeological deposits.

If the Service does not receive a response from the SHPO within 30 days of receiving this request, it will be assumed that the proposed project will have "no effect" on archeological or historical resources. If you have any further questions or need additional information regarding our request, please contact Katie Conrad at (609) 383-3938 x 39.

Sincerely,

Eric Schrading
Field Supervisor

Enclosure 1 -- Topographic quadrangle map showing the project area location.

Enclosure 2 -- NRCS Soil Survey 2008 Map showing the project area location.

Enclosure 3 -- Conceptual designs of the proposed culvert.

Enclosure 4 – Photos of the project area.

cc: Capt. Aleksandr Modjeski
Habitat Restoration Program Director
American Littoral Society
18 Hartshorne Drive, Suite #1
Highlands, NJ 07732

Concur with your findings: there are no historic properties affected within the project's area of potential effects. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consideration is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

DS /KM 9/28/2014
DANIEL D. SAUNDERS Date
Deputy State Historic Preservation Officer
NP

2

Appendix C-4 Letters from Tribes

The Delaware Nation
Cultural Preservation Office
P.O. Box 825 - 31064 State Highway 281- Anadarko, OK 73005
Phone: 405/247-2448 – Fax: 405/247-8905

NAGPRA ext. 1403
Section 106 ext. 1181
Museum ext. 1181
Library ext. 1196
Clerk ext. 1182

September 22, 2014

RE: Propose to install an additional box culvert at Wreck Pond in the Borough of Spring Lake, Monmouth County, NJ

Dear Ms. Conrad,

The Delaware Nation Cultural Preservation Department received correspondence regarding the above referenced project. Our office is committed to protecting sites important to tribal heritage, culture and religion. Furthermore, the tribe is particularly concerned with archaeological sites that may contain human burials or remains, and associated funerary objects.

As described in your correspondence and upon research of our database(s) and files, we find that the Lenape people occupied this area either prehistorically or historically. However, the location of the project does not endanger cultural or religious sites of interest to the Delaware Nation. Please continue with the project as planned. However, should this project inadvertently uncover an archaeological site or object(s), we request that you halt all construction and ground disturbance activities and immediately contact the appropriate state agencies, as well as our office (within 24 hours).

Please Note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions regarding this email or future consultation feel free to contact our offices at 405-247-2448 or by email nalligood@delawarenation.com.

Sincerely,

Nekole Alligood
Director

Appendix C-4 Letters from Tribes

Delaware Tribe Historic Preservation Representatives
Department of Anthropology
Gladfelter Hall
Temple University
1115 W. Polett Walk
Philadelphia, PA 19122
temple@delawaretribe.org

October 29, 2014

United States Department of the Interior
Fish and Wildlife Service
New Jersey Field Office, Ecological Services
Attn: Katie Conrad
927 North Main Street, Building D
Pleasantville, New Jersey 08232

Re: Wreck Pond Culvert Project, Borough of Spring Lake, Monmouth County

Dear Katie Conrad,

Thank you for notifying the Delaware Tribe of the plans for the above referenced project. Our review indicates that there are no religious or culturally significant sites within the selected project area, and we have no objection to the proposed project. We defer further comment to your office.

We ask that if any archaeological remains (artifacts, subsurface features, etc.) are discovered during the construction process that construction be halted until an archaeologist can view and assess the finds. Furthermore, we ask that if any human remains are accidentally unearthed during the course of the project that you cease development immediately and inform the Delaware Tribe of Indians of the inadvertent discovery. If you have any questions, feel free to contact this office by phone at (609) 220-1047 or by e-mail at temple@delawaretribe.org.

Sincerely,

Blair Fink

Blair Fink
Delaware Tribe Historic Preservation Representatives
Department of Anthropology
Gladfelter Hall
Temple University
1115 W. Polett Walk
Philadelphia, PA 19122

Appendix C-4 Letters from Tribes

Stockbridge-Munsee Tribal Historic Preservation Office

Sherry White - Tribal Historic Preservation Officer
W13447 Camp 14 Road
P.O. Box 70
Bowler, WI 54416

Date 09-02-14
Project Number Culvert - Wreck Pond
TCNS Number Borough of Spring Lake - Monmouth Co. - NJ
Company Name Dept. of the Interior - Fish & Wildlife

We have received your letter for the above listed project. Before we can process the request we need more information. The additional items needed are checked below.

Additional Information Required:

___ Site visit by Tribal Historic Preservation Officer
___ Archeological survey, Phase 1
___ Colored maps
___ Pictures of the site
___ Any reports the State Historic Preservation Office may have
___ Review fee of $300.00 must be included with letter
___ Has site been previously disturbed, please explain what the use was and when it was disturbed

After reviewing your letter:

___ We are in the process of gathering more information on this site and will respond to your project request once all information has been gathered.
___ This project has the potential to affect a Mohican cultural site, please contact us
X This project is not within Mohican area of interest
___ This project is within Mohican territory, but we are not aware of any cultural site within the project area.

Additional comments

Should this project inadvertently uncover a Native American site, we require you to halt all construction and notify the Stockbridge-Munsee Tribe immediately.

Please do not resubmit projects for changes that are not ground disturbance

Sherry White 9/3
Sherry White, Tribal Historic Preservation Officer

(715) 793-3970 Email: sherry.white@mohican-nsn.gov

FINDING OF NO SIGNIFICANT IMPACT
RESTORING WRECK POND INLET PROJECT
THE BOROUGHS OF SPRING LAKE AND SEA GIRT,
MONMOUTH COUNTY, NEW JERSEY

The US Fish and Wildlife Service (Service) is proposing to construct a secondary outfall culvert consisting of a 600-foot-long concrete bypass box culvert (5.5 feet x 8 feet) just north and parallel to the existing 800-foot-long, 84-inch-diameter outfall culvert. The project will be located in the Boroughs of Spring Lake and Sea Girt, Monmouth County, New Jersey. The project's purpose is to improve diadromous fish passage; support coastal resiliency for the communities of Spring Lake and Sea Girt; and improve Wreck Pond's water quality.

An Environmental Assessment (EA) was prepared which addressed the impacts of the proposed project and the no-action alternative. Additional alternative analysis was not necessary because previous Environmental Assessments completed for the project area had determined other alternatives would not meet project goals. An alternative that was considered and dismissed was excavating a channel from Wreck Pond to the ocean and stabilizing it with a jetty. This option was dismissed because the height and length of the jetty would have to be substantial and would be beyond the budget of this project. In addition, this option would require considerable maintenance; affect a portion of protected endangered species habitat; and compromise the integrity of the existing culvert.

The Draft EA was posted on the New Jersey Department of Environmental Protection (NJDEP) Wreck Pond website (http://www.nj.gov/dep/wreckpond/) from March 27, 2015 to April 28, 2015 and the Borough of Spring Lake's website (http://www.springlakeboro.org) from April 14, 2015 to April 28, 2015. Local community members were notified that the Draft EA was available for public comment at the April 15, 2015 monthly Wreck Pond Brook Regional Stormwater Management Plan Committee Meeting. No comments were received and the Draft EA has been published as the Final EA. The FONSI and Final EA will be available to the public on the NJDEP Wreck Pond and Borough of Spring Lake websites for 30 days before construction begins. Construction is expected to begin in September, 2015 and will continue for approximately 4-6 months.

The culvert is designed to withstand impacts associated with a marine environment and to protect natural resources to the greatest extent possible. The project will repair damage to the timber cribbing on the existing culvert and surrounding beach caused by Hurricane Sandy. Damaged timber cribbing will be replaced and covered with sand. The beach will be restored to its condition pre-Sandy by using the sand displaced by the proposed pipe to reconstruct a dune that had been washed out. The culvert outfall will be located approximately 100 feet offshore so the outflow from the culvert is not expected to affect the distribution of sand along the shore. There will be sufficient flow within the secondary culvert so that there will be no soil deposition within the culvert and it will be self-cleaning.

The Service has determined through Section 7 consultation that the proposed project may affect, but is not likely to adversely affect, threatened and endangered species. The federally listed (threatened) and State-listed (endangered) piping plover (*Charadrius melodus*) and the State-

listed (endangered) least tern (*Sternula antillarum*) nest in the dunes and beach adjacent to Wreck Pond and the project area. The federally listed (threatened) and State-listed (threatened) rufa red knot (*Calidris canutus rufa*) has been identified in the area as well. The south end of the beach adjacent to Wreck Pond contains two rare plant species: the federally listed (threatened) and State-listed (endangered) seabeach amaranth (*Amaranthus pumilus*) and State-listed (endangered) seabeach knotweed (*Polygonum glaucum*). A portion of this area has been designated as a seabeach amaranth protective zone by the State. Federally listed marine endangered species that may be in the vicinity of the project area are Atlantic green sea turtle (*Chelonia mydas*), Atlantic hawksbill sea turtle (*Eretmochelys imbricata*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta carreta*), and Atlantic sturgeon (*Acipenser oxyrhynchus*). The Service will adhere to all permitted conditions in order to limit the impact of the proposed project on these species.

Any project-caused wetland and floodplain impacts will be minor. The culvert is designed so that it can be closed and pre-construction conditions would be restored. The proposed action will reduce flooding potential by providing a secondary bypass culvert from which flood waters would pass. Since the secondary culvert is set at a lower elevation than the existing culvert, it will allow the Borough of Spring Lake to lower the pond level faster during low tide, which would increase stormwater storage within the pond in anticipation of a major rainfall event. The culvert will remain open most of the year, especially during the fish migration season (March 1 to June 30). Stop logs will be added to the front of the culvert if the water level within the pond is significantly affected by the culvert being completely open. The project complies with the provisions of Executive Orders 11988 and 11990.

Based on my review and evaluation of the enclosed Environmental Assessment and other supporting documentation, I have determined that the proposed project is not a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969. Accordingly, preparation of an environmental impact statement on the proposed action is not required.

Field Supervisor

5/20/15

Date