

**Draft Environmental Assessment
Middlesex County Utilities Authority
Flood Mitigation and Permanent Restoration of the Sayreville Pump
Station
Sayreville, Middlesex County, New Jersey
4086-DR-NJ-PW 5061**

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LIST OF ACRONYMS

ABFE	Advisory Base Flood Elevation
ACO	Administrative Consent Order
ACOE	United States Army Corps of Engineers
APE	Area of Potential Effects
BMP	Best Management Practice
CAFRA	Coastal Area Facility Review Act
CWSRF	Clean Water State Revolving Fund
dB	Decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
El.	Elevation
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
HDPE	High-density polyethylene
HVAC	Heating, Ventilation, and Air Conditioning
JCP&L	Jersey Central Power and Light
kV	Kilovolts
KW	Kilowatt
Ldn	Day-Night Average Sound Level
MCUA	Middlesex County Utilities Authority
MGD	Million Gallons per Day
MMBTU/hr	Million British Thermal Units per Hour
MOU	Memorandum of Understanding
MTRS	Main Trunk Relief Sewer
MTS	Main Trunk Sewer
N.J.A.C.	New Jersey Administrative Code
NAAQS	National Ambient Air Quality Standards
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NGVD 29	National Geodetic Vertical Datum of 1929
NHPA	National Historic Preservation Act
NJCPA	New Jersey North Atlantic Coastal Plain Aquifer System
NJDEP	New Jersey Department of Environmental Protection
NJEIFP	New Jersey Environmental Infrastructure Financing Program
NJSHPO	New Jersey State Historic Preservation Office
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OSFM	Original Sayreville Force Main
OSHA	Occupational Safety and Health Administration
OSPS	Original Sayreville Pump Station

PCCP	Prestressed Concrete Cylinder Pipe
RCCP	Reinforced Concrete Cylinder Pipe
SAIL	Sandy Recovery Assistance Loan Program
SCADA	Supervisory Control and Data Acquisition
SPS	Sayreville Pump Station
SRF	State Revolving Funds
SRFM	Sayreville Relief Force Main
SRI	South River Interceptor
SRPS	Sayreville Relief Pump Station
SRRI	South River Relief Interceptor
SWEL	Stillwater Elevation
UPS	Uninterruptible Power Supply
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
V	Volt

1.0 INTRODUCTION

The Middlesex County Utilities Authority MCUA (Subgrantee) owns and operates the Sayreville Pump Station (SPS), which is a regional raw sewage pumping facility located at 56 Canal Street in Sayreville, New Jersey. It pumps approximately 70 to 75 million gallons per day (MGD) of average daily dry weather sanitary flow from 32 municipalities in Middlesex, Somerset, and Union counties to its Central Treatment Plant.

President Barack H. Obama declared Hurricane Sandy a major disaster on October 30, 2012. The declaration authorized federal public assistance to affected communities and certain nonprofit organizations per Federal Emergency Management Agency (FEMA) 4086-DR-NJ and in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5172), as amended; the Sandy Recovery Improvement Act (SRIA) of 2013; and the accompanying Disaster Relief Appropriations Act, 2013. The Subgrantee, through the New Jersey Office of Emergency Management (Grantee), has requested public assistance funding from the Department of Homeland Security, FEMA for the proposed project. The project worksheet is 4086-DR-NJ-PW-5061.

This Hazard Mitigation Proposal (HMP) under Section 406 funding, addresses pump station improvements and the construction of a floodwall for SPS as described in the following sections. This project is intended to maintain continuous operation of the SPS as required by regulations, thereby greatly reducing the potential for untreated sewage discharges from the SPS as a result of equipment failures, power outages, and flooding.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations Parts 1500-1508), and FEMA's regulations implementing NEPA (44 CFR Part 10). The purpose of this draft EA is to analyze the potential environmental impacts of Flood Mitigation and Permanent Restoration of the SPS. Measures must be taken to avoid, minimize, and/or mitigate adverse impacts from any proposed actions. FEMA will use the findings in this draft EA to determine whether to prepare an Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI).

2.0 PURPOSE AND NEED

FEMA's Public Assistance Grant Program fosters the protection of health, safety and welfare of citizens and reduces future losses resulting from natural disasters. The purpose of the proposed project is to reduce the impact that natural disasters like Hurricane Sandy could have on the facility in the future and to avoid loss of wastewater service. The proposed project is needed to incorporate resiliency to minimize future Facility failures, service interruptions and/or loss of service, and to minimize future damages to the critical facility's infrastructure, as well as decreasing the risk for release of untreated sewage into the environment, thereby protecting public health and natural resources.

Wastewater treatment is an essential service and its loss results in environmental damage and exposes citizens to health and safety risks when untreated sewage is released into the surrounding residential areas and waterways. There is a significant financial cost to repair the damaged infrastructure. The alternatives discussed in this document would support safe and reliable wastewater treatment, enhance resiliency of the Facility, reduce repetitive repair costs associated with flooding, and help ensure operational efficiency for the foreseeable future.

3.0 BACKGROUND

The SPS provides wastewater treatment services for approximately 700,000 people over three (3) counties, a majority of the population (80 percent) in the Subgrantee's 469,000-acre service area. The service area and Pump Station location are shown in Appendix A, Figure 1 and the municipalities served in Appendix B, Table 1.

The sewage collected at the Subgrantee's SPS represents the majority of all flows in the system. Sewage collected by the Subgrantee's system is transmitted to its Central Treatment Plant. The Central Plant is located at 2571 Main Street Extension in Sayreville, New Jersey 08872.

The Original Sayreville Pump Station (OSPS) and Sayreville Relief Pump Station (SRPS) share the same location and the buildings are connected. They are collectively referred to as the SPS. The OSPS was constructed around 1955 with four (4) 40 MGD pumps that discharge into a single 72-inch Reinforced Concrete Cylinder Pipe (RCCP) force main. The SRPS was constructed around 1980 with six (6) 50 MGD pumps that discharge into a 102-inch Prestressed Concrete Cylinder Pipe (PCCP). The location of the OSPS and SRPS are indicated in Appendix A, Figure 2.

The SPS was constructed along the tidal portions of the Washington Canal, which is located in the New Jersey Department of Environmental Protection (NJDEP) Watershed Management Area #9 (Lower Raritan, South River, and Lawrence). The site is located adjacent to the Washington Canal and across the Canal and Raritan River from the Middlesex County Landfill (Appendix A, Figure 3).

Hurricane Sandy completely disabled the SPS. At the time of the storm, the SRPS was operational and the OSPS was undergoing rehabilitation. The SRPS, which is a 320 MGD pumping facility, was completely disabled from the force of the storm surge of the Raritan River. The storm surge from Hurricane Sandy rose approximately four (4) feet above the Main Floor to El. 13.5. (All elevations in this report are referenced to North American Vertical Datum of 1988 (NAVD 88), a reference mark, unless otherwise noted.) As a result, the equipment in the intermediate and lower levels of the SRPS and the OSPS were completely submerged. Equipment on the Main (upper) Level of the station at or below El. 13.5 sustained damage from the force of the surge wave and was inundated with river water. Some of the damage was due to the impact of the debris carried by the flood waters. After the flood subsided, the SRPS and OSPS Lower and Intermediate levels remained submerged until November 5 (7 days submerged) and November 10 (12 days submerged), respectively, due to a slide gate that was displaced by the storm surge, directly connecting the raw sewage in the Pump Station to the tidal river waters.

The Subgrantee experienced intermittent Jersey Central Power and Light (JCP&L) power loss at the SPS on the evening of October 29, 2012 as Hurricane Sandy approached the area. Subgrantee personnel were operating the standby generator when the storm surge began approaching the site. Subgrantee personnel decided to shut down the generator and all operating equipment to prevent catastrophic loss due to flooding of energized equipment.

After October 29, 2012, the Borough of Sayreville did not regain power from JCP&L for approximately 10 days. Due to lack of power, the Subgrantee diverted all sanitary flows into the Raritan River. Power was not available to the Facility until approximately November 9, 2012 – however, this power could not be initially utilized due to extensive damage experienced with the switchgear and motors and all other electrical components in the SPS, including the existing standby 2 MW generator.

Operation was restored for the first six (6) pumps at the SPS in April 2013. All six (6) pumps in the SRPS were restored and functional as of December 5, 2013. The restoration work, however, was not complete after these pumps were operational - temporary systems need to still be removed and ancillary systems still need to be permanently repaired or replaced.

Temporary bypass pumping facilities were constructed on-site to pump approximately 70 MGD of sewage to the Central Treatment Plant. Contractors began constructing temporary bypass pumping facilities immediately after the storm passed. The bypass pumping systems pumped water out of the influent chambers and discharged the sewage into the force mains bypassing the pump stations. Due to physical limitations to accessing the Pump Station's influent chambers and force mains, the bypass systems were not able to match the dry weather pumping capacity of the SPS. From October 29, 2012 until January 2013, raw sewage was discharged directly to the local water way due to lack of pumping capacity.

During wet weather events the flow to the SPS increases due to stormwater infiltration into the sewer lines. Temporary wet-weather overflow facilities were mobilized at the MCUA's landfill and the SPS as required in its Administrative Consent Order (ACO) with the NJDEP (Appendix C) while emergency repairs were performed to the SPS to temporarily restore operations and to reduce environmental impacts caused by the overflow and backup of untreated sewage. Until then during large wet weather events, raw sewage was discharged to the local waterways to prevent it from backing up into the streets or rate payers' basements.

The temporary wet-weather overflow system was removed prior to April 1, 2013. The temporary pumping systems were removed from service by November 1, 2013 as outlined in the ACO. The Subgrantee estimates that over 900 million gallons of raw sewage diluted with infiltration and inflow were discharged into local waterways while the disabled Pump Station was being restored.

Damages from Hurricane Sandy included, but were not limited to, pumps, motors and other mechanical equipment, electrical equipment, power distribution, control panels, and other equipment and appurtenances, and the loss of documentation stored at the SPS. Many of these damages required immediate temporary repair of equipment throughout the SPS to stop the overflow of raw sewage.

The Subgrantee had initiated work relating to the rehabilitation of the OSPS in July 2011; this work was interrupted during construction by Hurricane Sandy. The contract was funded with a loan through the NJEIFP as project #S340699-09. Portions of the emergency restoration work were authorized as an emergency change order to this contract. This included temporary emergency measures in the wake of the hurricane. It may therefore be eligible for funding under the current programs. The restoration and mitigation work outlined in this report is not intended as a duplication of work under the ongoing rehabilitation project. These measures

have already been completed by the Subgrantee to restore operations as quickly as possible in the wake of Hurricane Sandy and are not the subject of this study.

The satisfactory continuous operation of the SPS is a vital part of the Subgrantee's collection system. Any interruption of operations to this Facility would have severe impacts on the Subgrantee's resources and personnel. Therefore, the Subgrantee also seeks to permanently restore the SPS to pre-storm conditions by repairing or replacing equipment, components and controls (R3M Engineering, Inc., *Flood Mitigation and Permanent Restoration of the Sayreville Pump Station Engineering Design Report and Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.0 ALTERNATIVES

FEMA is required under 44 CFR Part 10.4 to consider reasonable alternatives to recommended courses of action in any proposal that involves conflicts concerning alternative uses of resources. In addition, because the Facility provides a public health function, for which even a slight chance of flooding would prevent too great a risk, alternatives must be evaluated as a critical action within the context of the 500-year floodplain (44 CFR Part 9.4).

Flood mitigation is intended to meet the proposed project needs and purpose to incorporate resiliency to minimize future Facility failures, service interruptions and/or loss of service, and to minimize future damages to the critical facility's infrastructure, as well as decreasing the risk for release of untreated sewage into the environment. Flood mitigation allows for protection of the SPS from future similar events in order to avoid the actions and costs associated with the emergency response for similar natural disasters. Several flood hazard mitigation alternatives were considered for the SPS, not all of which were considered practicable. Each of the alternatives will be addressed in the following sections: No Action, the Proposed Action (Perimeter Flood Wall with Standby Power Resiliency), the Other Action Alternative (Restore to Pre-disaster Conditions), Wet Flood-Proofing, Dry Flood-Proofing, and Relocation (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.1 No Action Alternative

Under this alternative, no federal action would be performed. The Pump Station equipment would continue to deteriorate from the inundation of river water, raw sewage, salt water, silts, materials and debris generated by Hurricane Sandy. Deterioration of the Facility would continue until a failure of major electrical and mechanical equipment occurred, requiring emergency repairs and/or replacements. The SPS would be left in the same level of flood protection it had prior to Hurricane Sandy. Exposing the vital portions of the SPS equipment to those conditions for several days did substantial and permanent damage to the equipment and jeopardized the reliability of the equipment. The damaged equipment would also pose a safety hazard for any employee working on or near the equipment.

The No Action Alternative would not support the purpose and need of the proposed project. As stated, the proposed project is needed to minimize future Facility failures, service interruptions and/or loss of service, and to minimize future damages to the critical facility's infrastructure, as well as decreasing the risk for release of untreated sewage into the environment to protect public health and natural resources. Under this No Action Alternative, future similar events would result in similar damages at the SPS, resulting in a loss of function for several months. The sewage would not be conveyed to the Central Treatment Plant. Raw sewage would back up in the gravity sewers and discharge into residents' basements, on to the streets, and into local waterways.

4.2 Proposed Alternative: Perimeter Flood Wall System with Standby Power Resiliency

Under this Alternative, a perimeter flood wall would be constructed along the SPS property boundary and encompass the entire 4.4-acre Facility. The perimeter flood wall would protect the SPS from damage caused by future flood events and would protect any restored equipment and systems. In addition, provisions for standby power resiliency would be made to ensure Facility would remain operational during storm events in which outside power is lost to the Facility.

The perimeter flood wall would protect the Facility from flooding, allowing the Pump Station to continue to operate during a flooding event. A flood wall door at the site entrance would be incorporated into the perimeter flood wall to allow access into the SPS site. All new hardened structures funded under FEMA's 406 mitigation grant program are required to be elevated to the 500-year flood elevation; a 500-year flood has a 0.2 percent annual chance of occurring. The 500-year flood elevation is also recommended by the NJDEP as an advisory for protection of critical infrastructure (New Jersey Environmental Infrastructure Finance Program).

The historical Advisory Base Flood Elevation (ABFE) map was used to determine the height of the perimeter flood wall, since this map includes the 500-foot flood elevation and accounts for wave run-up (FEMA "Advisory Base Flood Elevation South Amboy NW Map," Appendix A, Figure 4). The ABFE map indicates that, with wave action, the 500-foot flood elevation is 20 feet. The top of the perimeter flood wall would be set at El. 21.0 to account for one (1) foot of freeboard.

The permanent standby generator resiliency system would prevent another uncontrollable power loss and resulting shutdown of the SPS. A loss of power would lead to the discharge of raw sewage, even with the installation of the flood wall, due to backups in the system. Generators would need to be adequately sized to handle the maximum historic flows (up to 320 MGD) previously processed by the SPS during major storm events including Hurricanes Floyd and Irene.

The following components would be required for the installation of a perimeter flood wall and standby power resiliency system:

1. Influent Valves and associated chambers would be added to the four (4) gravity sewers that direct sanitary sewer flows to the SPS. This would prevent surcharge conditions from outside of the perimeter flood wall during flood events from entering the Pump Station and flooding the SPS with sewage and rendering the Facility inoperable.
2. A Stormwater Collection and Pumping System would pump storm water collected within the perimeter flood wall out of the site under flood conditions. A stormwater pumping station and stormwater overflow basin would be constructed and tide check valves added to existing stormwater outlets. Under normal, non-flooding conditions, the stormwater from the site would flow through a diversion chamber and to the existing stormwater outlets.

3. The proposed influent valve chambers and stormwater pumping station would require new electrical feed systems, standby power, instrumentation and control features to adequately protect the Facility during storm events.

The Proposed Alternative for mitigation of the Facility would be feasible since: it incorporates resiliency to minimize future Facility failures, service interruptions and/or loss of service, and minimizes future damages to the critical facility's infrastructure; and decreases the risk for release of untreated sewage into the environment. Considering the feasibility, logistics, and potential to prevent raw sewage discharges, the Proposed Alternative of a perimeter flood wall and standby power resiliency is the most practical alternative. This alternative allows the SPS to operate during flooding events, and would have the least impact on the normal operations of the Pump Station during construction (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.3 Other Action Alternative: Restore to Pre-disaster Conditions

Under this alternative, the SPS would be restored to pre-disaster, pre-Hurricane Sandy conditions. In addition to the items and equipment that were already authorized for restoration and repair under an emergency change order to an existing contract (NJEIFP project #S340699-09), the following items would be restored via federal action:

1. Grit removal;
2. Replacing of doors damaged by flooding;
3. SRPS cone valve repairs;
4. Repair of HVAC systems;
5. Repair of SCADA systems;
6. Restoration of paints and coatings; and,
7. Motor restoration.

Post restoration to pre-disaster conditions, the SPS would be left in the same level of flood protection it had prior to Hurricane Sandy, which would leave the SPS vulnerable to future flood events.

The Other Action Alternative would not support the purpose and need of the proposed project. The proposed project is needed to minimize future facility failures, service interruptions and/or loss of service, and to minimize future damages to the critical facility's infrastructure. The proposed project will decrease the risk for release of untreated sewage into the environment in order to protect public health and natural resources. Under this Other Action Alternative, future similar events may result in similar damages at the SPS, resulting in a loss of function for several months. During this time, sewage would not be conveyed to the Central Treatment Plant. Raw sewage would back up in the gravity sewers and discharge into

residents' basements, on to the streets, and into local waterways (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.4 Alternatives Considered and Dismissed

The alternatives of Wet Flood-Proofing, Dry Flood-Proofing, and Relocation were identified, but ultimately determined to be not practicable to meet the purpose and need of the project. These alternatives are discussed in the following subsections.

4.4.1 Wet Flood-Proofing Alternative

Wet flood-proofing is the method of mitigation by which flood waters are allowed to enter the structure, but equipment and other contents within the structure are protected from damage. This method is differentiated from the no-action alternatives because wet-flood-proofing indicates that work would be performed to protect specific equipment or aspects of a structure. Protection can be established through equipment replacement, relocation, or other methods. Wet flood-proofing implies that the structure remains in its current location for mitigation; however, alterations are made within or outside the building to protect the essential equipment and materials. The design flood elevation for this alternative would be El. 15, which represents one (1) foot above the 100-year preliminary base flood elevation (BFE), established as AE14 by FEMA (FEMA "Middlesex County Preliminary Work Map Panel 0151" and Appendix A, Figure 5). The 100-year BFE is based on a flood level of one percent chance occurrence.

This alternative would require:

1. Replacement of all pumping equipment with dry-pit submersible pumping units which are larger in size and smaller in capacity when compared to the existing pumps;
2. Rearrangement of suction and discharge piping (including valves) to match the new pump orientation;
3. Relocation and/or replacement of pump control valves, instruments and other components currently located in the lower levels for the Pump Room;
4. Relocation and/or replacement of exterior electrical equipment below the design flood elevation;
5. Relocation and elevation of the back-up generator;
6. Elevating all equipment interior and exterior to the building that would be damaged by submergence to the design flood elevation accomplished by:
 - a. Adding a floor to the SRPS above the existing Motor Room floor and relocating essential equipment to the new level in the SRPS; and,

- b. Converting the Control Room roof to an operating floor and constructing a new roof.

Wet Flood-Proofing the Pump Station offers a reasonable level of flood protection, but is not a viable or practicable alternative. Much of the improvements that are necessary would interfere with the daily operation of the SPS, and this alternative would not eliminate discharges of raw sewage to the local waterways. The Wet Flood-Proofing Alternative has been deemed *not a practicable alternative* for mitigation of the Facility since it would not support the purpose and need of the proposed project. As stated, the proposed project is needed to decrease the risk for release of untreated sewage into the environment to protect public health and natural resources. This alternative would result in reduction of pumping capacity of the Facility, rendering the SPS unable to prevent raw sewage releases into the environment during a major flood or storm event. In order to meet the current pumping capacity of the SPS and prevent untreated sewage releases, the Subgrantee would be required to expand the footprint of the existing building; however the Subgrantee does not own the land required to expand the footprint of the SPS. In addition, the Wet Flood-Proofing Alternative would be cost prohibitive, as new submersible pumps would not be capable of pumping the same rate as the existing pumps and the operating efficiency would be lower, requiring greater energy for operation at an additional cost. Therefore this alternative was eliminated from further consideration (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.4.2 Dry Flood-Proofing Alternative

Dry flood-proofing is a method of mitigation by which a structure or element is protected to withstand flood water penetration up to a design flood elevation for the protection of equipment and contents within the structure. To attain the objectives for proper dry flood-proofing, the structures require an impervious barrier to be placed around the structure up to the design flood elevation plus one (1) foot. This method also requires that the structure remain stationary at its current location. For example, it doesn't float up due to buoyant forces from hydrostatic pressure during the period of flooding.

The Dry flood-proofing has been evaluated based on a minimum flood protection level equal to or higher than the post-Sandy 100-year flood elevation plus one (1) foot, which is consistent with NJDEP rules and regulations (N.J.A.C. 7:13). Dry flood-proofing methods include:

1. Waterproofing membranes;
2. Concrete walls; and,
3. Sheet piling walls.

The OSPS and SRPS structures were analyzed for buoyancy and uplift of the lowest level slab to ensure that each structure could withstand the hydrostatic forces of a flood event up to the design flood elevation. The vertical wall sections below grade were also evaluated for resistance from the combined soil and hydrostatic loads at the revised design flood elevations.

Based on these preliminary evaluations, the OSPS structure appears to be insufficient to prevent uplift and to prevent wall failure without additional reinforcement. The SRPS structure appears to be sufficient to withstand uplift forces, but may be insufficient to prevent wall failure without additional reinforcement.

Resisting uplift forces in the OSPS may require additional ballast on the dry well bottom floor, and additional reinforcement to prevent failure of the existing floor slab. This would require the pumps and piping to be elevated, which may impact pump operations and capacity. An internal bracing system may be required to withstand lateral forces on the walls of the OSPS and parts of the SRPS.

An alternate consideration is to allow the OSPS dry well to flood, which would require the replacement of existing pumps and piping with dry-pit submersible units and replacement of existing piping and valves.

Dry Flood-Proofing is not feasible due to the limitations of the OSPS and SRPS structures. The Dry Flood-proofing Alternative is also ***not a practicable alternative*** for mitigation of the Facility since it would not support the purpose and need of the proposed project. This alternative would not minimize future damages to the critical facility's infrastructure, as Dry flood-proofing would result in uplift of portions of the SPS and failure of foundation walls. Furthermore, this alternative would result in reduction of pumping capacity of the Facility, rendering the SPS unable to prevent raw sewage releases into the environment during a major flood or storm event. This would be due to risk of structural failure in the OSPS requiring the demolition of the OSPS and abandonment of four (4) existing pumps, and therefore the reduction of hydraulic capacity. Furthermore the remaining existing pumps capacity would be reduced due to the need to raise the pump level to facilitate the addition of ballast on the Pump Room floors. Therefore this alternative was eliminated from further consideration (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

4.4.3 Relocation Alternative

The Subgrantee has considered the option to replace the SPS with a new tunnel system and pump station located at the Central Treatment Plant. The pump station would be located at a higher elevation where flooding from future similar storm events would not be a concern. All the equipment would be placed on the ground floor of the new facility and not on a floor elevated above the ground. The new pump station would have the same pumping capacity but use modern, more energy-efficient equipment, and possibly have a smaller footprint than the existing Facility.

Construction of a new pump station would likely require extensive environmental approvals. The construction of the tunnel would require several environmental reviews and approvals from the NJDEP and from the Army Corps of Engineers (ACOE). Regulatory coordination would include wetlands, flood plains, flood hazard areas, and waterfront development. Subsurface construction would need to consider the location within aquifer recharge areas and through an existing basalt fault line extending across the Raritan River. The permitting process for this alternative would take two (2) to five (5) years to complete, including the development of additional NEPA documents. Therefore additional temporary flood protection

measures would be required at the SPS prior to completing construction of the new tunnels and pump station.

The Relocation of the Sayreville Pump Station is ***not a practicable alternative*** for mitigation. The Relocation alternative offers significant flood protection, but the time required for permitting and construction and the cost of the work prevents it from being a feasible alternative. During the approximate seven (7) year permitting, connection, and construction period for the new Facility, taking no action at the existing SPS would not minimize Facility failures, service interruptions and/or loss of service. During this time, there would also be risk for release of untreated sewage into the environment during this time period. The Subgrantee would be required to obtain significant property and easement acquisitions in both residential and environmentally sensitive areas to construct the new pump station and connecting tunnels; the Subgrantee does not own the land required at this time. Therefore, this option has been removed from consideration (R3M Engineering, Inc., *Project Report and Level 1 Environmental Review for Restoration and Flood Mitigation Projects at the Sayreville Pump Station*).

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

5.1 Physical Resources

5.1.1 Geology and Soils

5.1.1.1 Existing Conditions

A United States Department of Agriculture (USDA) soil survey indicates the following soil types are present on the SPS property (Appendix E):

1. Udorthents, clayey substratum, 0 to 8 percent slopes; and,
2. Psamments, sulfidic substratum, 0 to 3 percent slopes.

A majority of the proposed site (approximately 75 percent) is comprised of udorthents clayey substratum, which is a nearly level, somewhat poorly drained soil type comprised of clayey estuarine deposits and loamy earth spread deposits. Psamments sulfidic substratum is a nearly level, moderately well drained soil type comprised of sandy fluvial deposits over organic material. Both soil types' farmland classification is "Not prime farmland," (USDA Soil Survey, Appendix E). Therefore, the SPS site does not fall under the Farmland Protection Policy Act.

5.1.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no impact to geology or soils with implementation of the No Action Alternative.

Proposed Alternative

There would be no significant impact to geology, soils or seismicity with implementation of the Proposed Alternative. The entire 4.4-acre SPS site is previously disturbed and the soils are not classified as farmland soils, as mentioned above. The perimeter flood wall would be located at the site of the Facility's existing chain-link fence. It is estimated that 2.5 acres of soil disturbance would be needed complete all restoration and mitigation, including construction of the perimeter flood wall, at the Facility. Best management practices (BMPs) and proper sediment and erosion control practices would be used to control any disturbance of soil during construction and excavation. A Soil Erosion and Sediment Control Plan Certification would be required from the Freehold Soil Conservation District (N.J.S.A. 4:24-39) and the Stormwater Management Rules (N.J.A.C. 7:8) would be abided by.

Other Action Alternative

There would be no impact to geology or soils with implementation of the Other Action Alternative.

5.1.2 Air Quality

The Clean Air Act (CAA) of 1963 (amended 1970, 1977, and 1990) requires each state to attain and maintain specified air quality standards. National Ambient Air Quality Standards

(NAAQS) have been promulgated by the Federal government and by New Jersey for carbon monoxide (CO), nitrogen dioxide (NO₂), total suspended particulate (TSP), sulfur dioxide (SO₂) and lead (pb). New Jersey standards are set in the September 2014 State Implementation Plan (SIP) Revision and are generally the same as the Federal standards for these pollutants. Primary air quality standards are set to protect human health and secondary standards are set to protect human welfare.

Federally-funded actions are subject to General Conformity under Subpart B of 40 CFR Part 93, unless otherwise exempted or related to highway or transit projects regulated under Subpart A. Other types of Federally-funded actions are subject to General Conformity under Subpart B, unless exempted. The air conformity analysis process ensures that emissions of air pollutants from planned Federally-funded activities would not affect the state's ability to achieve the CAA goal of meeting the NAAQS. Section 176(c) of the CAA requires that Federally-funded projects conform to the purpose of the State Implementation Plan (SIP), meaning that Federally-funded activities would not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. The emissions from construction activities are subject to air conformity review for non-attainment areas, unless they are shown to be below the applicable de minimis levels.

5.1.2.1 Exiting Conditions

According to the USEPA's EJView mapping tool, the Sayreville Pump Station is in a non-attainment area for Ozone 8-hour (1997 standard), meaning it exceeds 0.075 ppm over an eight (8) hour averaging time. The SPS is also in a nonattainment area for Particulate Matter 2.5 Annual (1997 standard) since it exceeds 12 µg/m³ annual mean averaged over three (3) years, and Particulate Matter 2.5 24-hour (2006 standard) since it exceeds 35 µg/m³ 98th percentile averaged over three (3) years ("Environmental Justice View (EJView)" and "National Ambient Air Quality Standards (NAAQS)").

In regards to particulate matter, the size of particles is directly linked to their potential for causing health problems. The EPA is concerned about particles that are 10 micrometers in diameter or smaller, as these sizes of particles can generally pass through the throat and nose and can enter the lungs. Once inhaled, these particles can cause adverse health effects. EPA groups particle pollution into two (2) categories:

1. Inhalable coarse particles: particles larger than 2.5 micrometers and smaller than 10 micrometers in diameter, typically found near roadways and dusty industries.
2. Fine particles: particles 2.5 micrometers in diameter and smaller, typically found in smoke and haze. These particles can be directly emitted from sources such as forest fires, or can form when gases emitted from a source react in the air ("Particulate Matter").

5.1.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no significant impact to air quality with implementation of the No Action alternative. If a flood event occurred or the Facility failed and sewage would back up in the gravity sewers and discharge into residents' basements, onto the street and into local water ways, odors would be expected.

Proposed Alternative

Construction activities to build the perimeter flood wall and standby power resiliency are expected to temporarily generate particulate matter and point source emissions. Dust generated by construction activities would be controlled by best management practices. Construction vehicles and equipment would comply with all applicable standards and regulations. Given the extent and magnitude of the construction activities, it is therefore anticipated that there will be no long term adverse effect on existing ozone and particulate concentrations which would contribute to exceedance of the prescribed exposure limit standard for ozone

The Proposed Action Alternative would have a temporary, minimal impact on air quality during construction activities; insignificant long-term impacts are expected from the four (4) 2,750 KW standby generators that would be installed at the SPS. The standby generators would be used to maintain power supply to support operation of approximately six (6) pumps to handle the historic maximum flow into the SPS to prevent the backup of sewage. The new generators are designed to meet the current USEPA regulations. The exercise and standby operation of these generators would require a Preconstruction Permit and Operating Certificate from NJDEP's Air Quality Permitting Program. Any impacts to air quality would be monitored and controlled under permitting and via the operating certificate. As the potential operational and construction emissions are expected to be below the applicable *de minimis* levels, no general conformity analysis is required, and the Proposed Alternative would not result in adverse effects on air quality.

Other Action Alternative

There would be no significant impact to air quality with implementation of the Other Action Alternative. Restoration activities may increase local traffic to the proposed project site, and temporarily increase levels of nitrogen oxides and particulate matter associated with the traffic. If a flood event occurred and sewage would back up in the gravity sewers and discharge into residents' basements, onto the street and into local water ways, odors would be expected.

5.2 Water Resources

5.2.1 Surface/Groundwater Quality, Quantity and Hydrology

5.2.1.1 Existing Conditions

The SPS site is located at the confluence of the Raritan River and Washington Canal. The flood hazard limit on this portion of the Raritan River has been delineated by the NJDEP and is tidal. The Washington Canal is a man-made canal; it was dug in the 1820s to aid river

traffic in accessing the South River. The ACOE has been studying this area for years with regard to the installation of flood control structures to reduce impacts during flood events.

The South River experiences diurnal tidal fluctuations, even though it is sheltered from direct ocean waves. The South River is mostly tidal, with brackish water extending upstream to the Duhernal Dam. The National Oceanic and Atmospheric Administration (NOAA) established a tidal station at the confluence of the Raritan River and Washington Canal. At this station, “The mean spring tide range is 6.1 to 7.4 feet National Geodetic Vertical Datum of 1929 (NGVD 29) and the mean tide level is 3.5 feet NGVD 29...Tide stages in excess of 5.0 feet NGVD 29...occur several times a year,” (United States Army Corps of Engineers). At this location, a datum shift from NAVD 88 to NGVD 29 represents a difference of -1.01 feet.

Hurricanes and other storms have a history of causing severe flooding along the South and Raritan Rivers. Flooding along the South River is primarily associated with storm surges. Tidal flooding typically occurs during hurricanes and nor’easters when sustained onshore winds push storm surges inland up tidal channels. In the Boroughs of Sayreville and South River, the ACOE reports the water surface elevations in excess of 5 feet NGVD 29 inundate developed areas and cause significant damage. During Hurricane Sandy, a nearby High Water Mark was taken at El. 13.34 feet NAVD 88.

The Sayreville area has experienced severe flooding from storms and hurricanes in the last 50 years:

1. **Nor’easter of March 1962:** Significant damages occurred during the nor’easter of March 1962. Tidal backwater flooding from the Raritan River resulted in severe damage to residential, commercial, and industrial properties in the Borough of Sayreville and caused the Route 535 causeway (between South River and Sayreville) to become impassable to vehicular traffic. Damages from this storm were estimated to be in excess of \$5.6 million dollars.
2. **20-year Storm of May 1968:** Flooding associated with this 20-year storm occurred as a result of tidal backwater flooding. Damages were estimated at \$11.8 million with significant structural damage to over 80 dwellings and 20 commercial buildings in the area.
3. **Hurricane Doria, August and September 1971:** Hurricane Doria caused minor flooding in the area with estimated damages of \$1.87 million (2001 dollars) in Sayreville. Fluvial flooding resulting from over eight inches of rain in the South River watershed was exacerbated by storm surge associated with this storm.
4. **Storm of April 1984:** A fluvial event, the storm caused minor flooding above Duhernal Lake.
5. **Nor’easter of December 1992:** This northeaster coastal storm (a 25-year storm event) stalled over the New York metropolitan area for three (3) days. With heavy rain (four (4) to five (5) inches total), unusually high tides (over four (4) feet above normal), and high winds (gusts of 90 miles per hour), this storm produced severe coastal flooding. More than 200 people were evacuated from the flooded areas within Sayreville and

South River. The bridge over the South River, which connects the Boroughs of South River and Sayreville, was closed for several days, and rail movement within the area was halted.

- **Nor'easter of March 1993:** This storm (a 25-year event) resulted in over \$23.4 million damage and closed the highway bridge connecting the Boroughs of South River and Sayreville. Appendix A, Figure 7 shows a photograph of the flooding from this storm along Frances Street in Sayreville, facing Weber Avenue (United States Army Corps of Engineers). This location is down the street from the SPS site.
- 6. **Hurricane Floyd, September 1999:** The SPS site was partially submerged by the storm surge.
- 7. **Hurricane Irene, August 2011.** Heavy rain from this event caused a failure of the Duhernal Lake Dam and downstream flooding.
- 8. **Hurricane Sandy, October 2012.** The SPS had to be evacuated as a surge wave inundated the entire site.

At the site, stormwater collection and runoff is a passive system. The entire site drains in a general east to west direction toward the Washington Canal. Grass areas flow overland along the edges or into the paved areas. Stormwater is collected from rooftops and paved areas in an existing storm sewer system. The stormwater system has two (2) discharge points to the Washington Canal. These discharge points do not currently have tide control valves on them.

The site is located in the New Jersey North Atlantic Coastal Plain (NJCPA) aquifer system. This system consists of four (4) regional aquifers: the Kirkwood-Cohansey aquifer, lower "800" foot sand of the Kirkwood formation, Wenonah-Mount Laurel aquifer, Englishtown aquifer, and the Potomac-Raritan-Magothy aquifer system. The NJCPA system includes Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Monmouth, Ocean, Salem and portions of Mercer and Middlesex Counties. Three (3) million people in the New Jersey Coastal Plain area depend on the NJCPA for 75 percent of their drinking water.

In 1986, the NJDEP designated two (2) Critical Water Supply Management Areas in the New Jersey Coastal Plain. The SPS site is located in Critical Area 1. These critical areas were established to promote the use of surface water and reduce withdrawal from wells as over pumping was causing saltwater intrusion into the aquifers. The primary source or recharge (directly or indirectly) to the aquifers in this area is through precipitation. Recharge may occur through direct infiltration of precipitation on outcrop areas, seepage through overlying surface waters, and vertical seepage from adjacent aquifers.

Construction of the Washington Canal removed a portion of the clay lens which protected the NJCPA aquifers in this area from saltwater intrusion. As a result, salt water in the canal can infiltrate into the upper aquifer system (United States Army Corps of Engineers).

5.2.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

As the No Action Alternative would not take any steps to provide protection against future flood events, it is likely that if a flood event occurred, or the Facility failed given its current condition, raw sewage would be released into local water ways. This would degrade the surface water quality and is a potential health concern to the public and the environment. Discharges of untreated sewage into the environment could also lead to contamination of the aquifers and drinking water resources, as the SPS is located in Critical Water Supply Management Area 1, where the aquifers recharge through infiltration.

Proposed Alternative

Since the Proposed Alternative would allow the Pump Station to operate during flooding events, the risk of releasing untreated sewage into the environment is greatly reduced, thereby protecting local water resources. The groundwater recharge area is protected since untreated sewage would not be released and would not contaminate the aquifers.

The Proposed Alternative would not allow stormwater runoff to simply drain from the site into the Washington Canal; stormwater would be passively collected through diversion chambers and then allowed to flow to the Washington Canal through the wall. However, during a major flood event resulting in high flood waters in the Washington Canal and Raritan River, stormwater would not be allowed to leave the site by gravity. In these instances, the water would be diverted from the diversion chambers to two (2) stormwater pumping stations and then pumped into the Washington Canal. A swale system would also be installed within the inside of the perimeter flood wall to collect stormwater across portions of the site.

A minimal amount of impervious surface would be added to the site for the standby generators and the perimeter flood wall; therefore no impact is expected.

The perimeter flood wall portion which would extend below grade may affect groundwater flow. The direction of flow on the site is from the upland (eastern side) to the river (western side). However, this would only have a localized effect on the site and as the site is adjacent to the River, there may be temporary impacts on groundwater during construction dewatering purposes. However, there are no wells included in this project which would cause a permanent impact to groundwater on-site. The subgrade extension of the perimeter flood wall is required to prevent floodwaters outside of the wall from seeping beneath the flood wall and inundating the site, thereby flooding the Pump Station.

Other Action Alternative

The Other Action Alternative does not reduce the impact that future natural disasters could have on the Facility to avoid loss of wastewater service. Should another flood event occur, it would be likely that raw sewage would be released into local water ways. This would degrade the surface water quality and is a potential health concern to the public and the environment. Discharges of untreated sewage into the environment could also lead to contamination of the aquifers and drinking water resources, as the SPS is located in Critical Water Supply Management Area 1, where the aquifers recharge through infiltration.

5.2.2 Floodplains

5.2.2.1 Existing Conditions

Executive Order (E.O.) 11988 requires Federal agencies to avoid adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Activities within the floodplain require the agency to conduct an assessment, such as this report, to evaluate proposed investments in floodplain locations.

The majority of the Facility is located within the FEMA 100-year floodplain (AE14 zone) (FEMA “Middlesex County Preliminary Work Map Panel 0151” and Appendix A, Figure 5). However, a portion of the site is also located within the 500-year tidal flood area (0.2% chance of flooding annually), and is therefore subject to the standards of the 500-year floodplain since the entire site would flood during a 500-year storm event.

The flood hazard area for the project area is tidal, and therefore significant flood events are the result of storm surges and tides rather than rainfall impacts. This also indicates that the impact by storm water runoff on receiving waters and during flood events is negligible, based on FEMA’s Flood Risk Map studies. Therefore, a hydraulic analysis of the impact of the proposed construction on the receiving waters is not required. The federal 8-Step Floodplain Analysis is included in the Appendix M.

5.2.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would promote continued floodplain occupancy, and, since no flood mitigation would be performed, it is likely that the SPS would fail given the Facility’s current condition or once again flood, causing raw sewage releases that are harmful to public health and the environment.

Proposed Alternative

The Proposed Alternative would promote continued floodplain occupancy and development; however, the Proposed Alternative wall would minimize the risk of future flood damage to the Facility as stated in the Purpose and Need. As the site lies within a 500-year floodplain, the perimeter flood wall would encompass the entire site to ensure it is properly protected from an event of this magnitude. Ultimately, the project’s benefits to human health, safety and welfare and environment outweigh the minor or negligible adverse effects of the Proposed Alternative.

Other Action Alternative

The Other Action Alternative would promote continued floodplain occupancy, and, since no flood mitigation would be performed, it is likely that the SPS would once again flood, causing raw sewage releases that are harmful to public health and the environment.

5.2.3 Wetlands

5.2.3.1 Existing Conditions

Executive Order 11990 Wetlands Management requires Federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands whenever there are practicable alternatives (Exec. Order No. 11990). FEMA uses the National Wetlands Inventory, state specific mapping tools and on-site surveys to identify wetlands. A previous Coastal Jurisdictional Determination from the NJDEP stated that there are no coastal wetlands on the SPS site (Appendix F). A recent wetlands delineation confirmed the presence of tidal wetlands on the southwest corner of the proposed project site near the Washington Canal, and freshwater wetlands on the adjacent property to the southeast of the site (Appendix A, Figure 6). MCUA has applied for Tidal and Wetlands permits from NJDEP.

5.2.3.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be a potential for an adverse impact to wetlands with implementation of the No Action Alternative if the SPS is allowed to flood or fail and release untreated sewage into the surrounding wetlands. The raw sewage would act as a source of pollution to the wetlands and alter the input and cycling of nutrients, ultimately degrading their quality.

Proposed Alternative

The Proposed Alternative would construct a perimeter flood wall at the location of the existing SPS fence. The perimeter flood wall would not directly impact any wetlands; however, the flood wall would be within the 50-foot transition area of a delineated tidal wetland near the Washington Canal. The area that would be encompassed by the flood wall (and is currently within the boundaries of the fence) is used for onsite storage, is partially stone (where the substation is located), and is mowed and maintained. The wetlands located beyond the flood wall location would be protected during construction and would remain protected once the wall is in place with a Conservation Easement that restricts access and prohibits development. The Proposed Alternative would impact less than a tenth of an acre of transition area. A Freshwater Wetlands Averaging Plan Transition Area Waiver (N.J.A.C. 7:7A-6.3) would be applied for in this area.

The wetland to the southeast of the site and its associated transition area would not be impacted by the construction of the perimeter flood wall. Provisions would be made to protect the transition area and wetlands during construction and a Conservation Easement would also protect this area.

Other Action Alternative

There would be a potential for an adverse impact to wetlands with implementation of the Other Action Alternative. Should the SPS be allowed to flood and release untreated sewage into the surrounding wetlands, it would act as a source of pollution to the wetlands and alter the input and cycling of nutrients, ultimately degrading their quality.

5.3 Biological Resources

5.3.1 Vegetation

5.3.1.1 Existing Conditions

The existing site is 4.4 acres and consists of the pump station building, paved drive and parking areas and grass areas. The site is encompassed by a barbed wire chain-link fence at the property extents. Existing impervious cover on the project site is 1.41 acres (32 percent) and consists of a large brick pump station building, asphalt access ways and parking areas, an electric substation, and other industrial features. The remainder of the site is maintained lawn areas and a few small growth trees.

5.3.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no impacts to vegetation with implementation of the No Action alternative.

Proposed Alternative

There would be no significant impacts to vegetation with the implementation of the Proposed Alternative. Little new impervious surface area would be added for the perimeter flood wall and the standby generators. Some scrub shrub and small trees may be cleared around the outside perimeter of the existing chain link fence to construct the perimeter flood wall; however, trees would be replanted to hide the perimeter flood wall from neighbors as addressed in Section 5.4.2 and to meet permit requirements.

Other Action Alternative

There would be no impacts to vegetation with implementation of the Other Action alternative.

5.3.2 Wildlife and Fish

5.3.2.1 Existing Conditions

The SPS is a developed municipal property within a residential neighborhood and adjacent to the Washington Canal. The majority of the SPS site is covered by existing structures, development and impervious surfaces consisting of a large brick pump station building, asphalt access ways and parking areas, electric substation, maintained lawn, and other industrial features. The existing impervious cover on the site is 1.41 acres (32 percent of the site). There is little vegetation on the property. The site is not conducive to supporting significant shelter, nesting, or foraging habitat for wildlife or fish due to the nature of the site.

5.3.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be an adverse impact to wildlife and fish with implementation of the No Action alternative if the SPS is allowed to flood or in event of facility failure and release untreated sewage into the environment, including the adjacent Washington Canal and adjoining Raritan River. While the SPS site itself is not conducive to supporting significant shelter, nesting, or foraging habitat for wildlife, untreated sewage can travel via waterways and over ground surfaces into areas that do offer habitable areas for fish and wildlife. The raw sewage may negatively affect the habitat and/or fish or wildlife directly.

Proposed Alternative

The Proposed Alternative would not impact any fish and wildlife habitat. The proposed project site is not conducive to supporting significant shelter, nesting, or foraging habitat for wildlife or fish, due to the nature of the Facility, impervious surfaces, and lack of vegetation. Measures would be taken to ensure that impacts of construction are not experienced at adjacent locations.

Other Action Alternative

The Other Action Alternative provides no means to prevent future flood events that can cause the release of untreated sewage. A release of raw sewage would be an adverse impact to wildlife and fish. While the SPS site itself is not conducive to supporting significant shelter, nesting, or foraging habitat for wildlife, untreated sewage can travel via waterways and over ground surfaces into areas that do offer habitable areas for fish and wildlife. The raw sewage may negatively affect the habitat and/or fish or wildlife directly.

5.3.3 Threatened and Endangered Species and Critical Habitat

5.3.3.1 Existing Conditions

Per NJDEP's Natural Heritage Program several state endangered or threatened bird species may be found within one (1) mile of the SPS site, including the endangered bald eagle (*Haliaeetus leucocephalus*-foraging), northern harrier (*Circus cyaneus*-breeding sighting, non-breeding sighting, and nest), osprey (*Pandion halieatus*-foraging and nest) and yellow-crowned night heron (*Nyctanassa violacea*-foraging). No rare plants or habitats were determined to be present on the site (Cartica, Robert J, Appendix B, Table 2 and Appendix H).

NJDEP's NJ-GeoWeb mapping program was also consulted for potential state threatened and endangered species on the project site. NJ-GeoWeb indicated that only osprey (nest) with one (1) species occurrence area count was in the vicinity of the project site (Appendix B Table 3). The last single known osprey siting was in 2007 ("NJDEP - NJ GeoWeb").

Per the U.S. Fish and Wildlife Service's IPaC mapping system, there are no Federal listed endangered or threatened species or critical habitats found within the vicinity of the site ("Information, Planning, and Conservation System," Appendix I).

If suitable habitat is present at the project site, the identified species have the potential to be present. As previously mentioned in Section 5.3.2.1, the site is fully developed and is not conducive to supporting significant shelter, nesting, or foraging habitat due to the nature of the Facility, impervious surfaces, and lack of vegetation. It is unlikely that the SPS site supports these threatened and endangered species, though they may occasionally pass through the site. Furthermore, there are no critical habitats on the site.

5.3.3.2 Potential Impacts and Proposed Mitigation

No Action Alternative

While the SPS site itself does not have significant shelter, nesting, or foraging habitat for threatened and endangered species, untreated sewage released from a flood event or from Facility failure can travel via waterways and over ground surfaces into areas that do offer habitable areas which may affect threatened and endangered species and/or their habitat.

Proposed Alternative

There would be no impacts to threatened or endangered species or critical habitats with implementation of the Proposed Alternative. The proposed project site is not conducive to supporting significant shelter, nesting, or foraging habitat for endangered or threatened species due to the nature of the Facility, impervious surfaces, and lack of vegetation. Measures would be taken to ensure that impacts of construction are not experienced at adjacent locations.

Other Action Alternative

While the SPS site itself does not have significant shelter, nesting, or foraging habitat for threatened and endangered species, untreated sewage released from a flood event can travel via waterways and over ground surfaces into areas that do offer habitable areas which may affect threatened and endangered species and/or their habitat.

5.3.4 Cultural Resources

As a Federal agency, FEMA must consider the potential effects funded actions may have on cultural resources prior to engaging in an undertaking. This obligation is defined in Section 106 of the National Historic Preservation Act (NHPA). The NHPA of 1966 as Amended defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are found at 36 C.F.R. Part 60.

The firm Richard Grubb & Associates was hired by the sub-grantee to conduct a Stage IA Archaeological Survey which included an Intensive-Level New Jersey Historic Architectural Survey, and a Stage I Archaeological Survey. The *Stage IA, Flood Mitigation Permanent Restoration of the Sayreville Pump Station*, included an archaeological field reconnaissance, and a cultural resources sensitivity assessment dated June 12, 2014. The *Stage I, Flood Mitigation Permanent Restoration of the Sayreville Pump Station*, included an archaeological field reconnaissance and a cultural resources sensitivity assessment, subsurface testing, and a geomorphological assessment dated November 13, 2014. The *National Register of Historic Places Eligibility Assessment of the Sayreville Pumping Station, Middlesex County Utilities*

Authority, *Flood Mitigation Permanent Restoration of the Sayreville Pump Station*, included an historic resources eligibility assessment, dated August 6, 2014. The resulting comprehensive reports listed, have been reviewed by and are on file at the New Jersey Historic Preservation Office (NJ-HPO). In consideration of the reports' findings, the NJ-HPO concurred with FEMA's determination of No Historic Properties Effected in a letter dated March 27, 2015. All FEMA-NJHPO correspondence can be found in Appendix J.

5.3.4.1 Existing Conditions

The Sayreville Pump Station (the facility) is located 160 feet east of the Washington Canal (Lower Raritan River drainage) on land that has been extensively altered throughout the mid-nineteenth and twentieth centuries. To the north and west are large tracts of marsh and to the south and east is an area that is highly developed both above and below ground and consists of fairly level ground as well as man-made and natural waterways.

Below Ground Resources

Research at the New Jersey State Museum (NJSM) and NJ-HPO found that there are no registered prehistoric archaeological sites within a one-mile radius of the APE. However, there are six registered historic archaeological sites within one-mile of the APE. Five of the historic archaeological sites are associated with brick manufacturing and the sixth site was a pottery site. The absence of registered prehistoric archaeological sites in the APE could be attributed to extensive ground disturbance attributed to historic cutting, mining, filling, and grading, which would have displaced prehistoric sites.

The Sayreville Pump Station is located within one-half mile of two historic archaeological sites listed as on the National Register of Historic Places, the Price Pottery Site (28-Mi-152) and the Sayre and Fisher Brick Company Site (28-Mi-163).

Extensive clay mining on uplands located within and surrounding the APE occurred during the mid-nineteenth century; these mining activities removed approximately 15 feet of the ground surface. During the construction of the Sayreville Pump Station facility large portions of the APE were excavated up to 35 feet below ground surface. Due to the impact of Hurricane Sandy, emergency repairs were conducted which included additional ground disturbance associated with trenching for pipes and bypass pumps to prevent further discharge of raw sewage into the Washington Canal (White 2014).

A Stage IA and a Stage I archaeological survey conducted by Richard Grubb & Associates, indicates that the site has been subjected to extensive ground disturbance over the past 50 years and has a low potential for intact prehistoric or historic archeological resources.

The surveys resulted in no discovery of intact archaeological deposits at the two historic archaeological sites, and it was further determined to be unlikely that any such deposits would be present within the APE. No further archaeological work was recommended (Appendix I).

Above Ground Resources

The Sayreville Pump Station is a utilitarian brick building that was originally constructed in 1956 as part of a statewide effort to mitigate pollution to the Raritan River Watershed. Two

additional building campaigns have occurred, one in 1975 and the other within the last seven years.

The Sayreville Pump Station plays an important role in a tri-state collaboration to clean the Raritan River watershed and provide local communities with clean water. The construction of the Sayreville Pump Station not only helped to achieve this goal, but also promoted development throughout the Raritan Valley. As demands increased so did the size of the facility as is evidenced by two additions to the structure. Due to the extensive flooding associated with Hurricane Sandy, much of the equipment located at the pump station was damaged, which further compromised the original design of the facility (Burger, 2014).

Richard Grubb & Associates conducted a *Stage IA* archaeological survey in June, 2014 and Intensive-Level New Jersey Historic Architectural Survey. The survey concluded that due to the 1975 addition and the 2012 Hurricane Sandy repairs; the Sayreville Pump Station no longer possesses sufficient integrity to be eligible for listing on the National Register of Historic Places and therefore there are no direct impacts to culturally significant structures. In addition, and to address potential view shed impacts, the Washington Canal was included in the survey as it runs adjacent to the Sayreville Pump Station. Results of their evaluation showed that the Canal no longer retains integrity and thus is not eligible for listing on the National Register of Historic Places.

5.3.4.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action alternative would not reduce the current risk from storm surge and flooding. There are no above ground historic resources located within the APE and the No Action alternative would not include any ground disturbing activities.

Proposed Alternative - Floodwall and Restoration

The Stage IA and Stage I archaeological surveys resulted in no identification of intact archaeological deposits and therefore no further archaeological surveys were recommended. The Intensive-Level New Jersey Historic Architectural Survey evaluated the Sayreville Pump Station and the adjacent Washington Canal. Both were found to no longer retain integrity and thus were determined not eligible for listing on the National Register of Historic Places finds. The adjacent neighborhood is located within in an area of no above-ground properties as identified by a joint survey between FEMA and NJ-HPO. Thus the Proposed Alternative would not affect historic properties.

Other Action Alternative

The Other Action Alternative would also have no effect since the surveys resulted in no identification of intact archeological deposits.

5.4 Socioeconomic Resources

5.4.1 Environmental Justice

5.4.1.1 Existing Conditions

The goal of Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) is to, “Identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations,” (Exec. Order No. 12898). The USEPA Environmental Justice Mapper indicates there are no Environmental Justice communities near the SPS site. The area surrounding the site has a population of 50 percent minorities, with a per capita income of \$40,860. The percentage of those below poverty in the area is 2.9 percent (“Environmental Justice View (EJView),” Appendix B, Table 4).

5.4.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There could be a disproportionately high adverse human health or environmental effects on minority or low-income populations with implementation of the No Action Alternative. Minority and low-income populations are located downstream from the SPS and could be affected by a release of untreated sewage into waterways should the SPS flood or fail. Modeling has not been completed to determine the extent of these effects on downstream populations.

Proposed Alternative

The Proposed Alternative would not have a high or adverse human health or environmental effects on minority or low-income populations. The project site is not located in a minority or low-income population area. The Proposed Alternative would not adversely impact minority and/or low-income populations located downstream from the SPS.

Other Action Alternative

There could be a disproportionately high adverse human health or environmental effects on minority or low-income populations with implementation of the Other Action Alternative. Minority and low-income populations are located downstream from the SPS and could be affected by a release of untreated sewage into waterways should the SPS flood. Modeling has not been completed to determine the extent of these effects on downstream populations.

5.4.2 Aesthetic Resources

5.4.2.1 Existing Conditions

The SPS is located along the site of the Washington Canal. The Washington Canal is currently a viewshed from the proposed project site. While the Canal is viewable from the site, it is inaccessible from the site due to the chain-link site fence. The site is not publicly assessable as the Facility is protected as a matter of homeland security.

5.4.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no impact to aesthetic resources with implementation of the No Action Alternative.

Proposed Alternative

The Proposed Alternative would have minor to moderately adverse impacts on residential neighborhood character and the viewshed. The flood wall would be designed to Elevation 21.0 NAVD, and would range from 6 to 15 feet high from the existing grade along the perimeter of the site. Due to the nature of the flood wall, no open view corridor could be provided, and still be capable of protecting the SPS from future flood events; the views of the Washington Canal would be blocked from the site. Landscaping and vegetation would be utilized to assist in improving the aesthetics of the wall. Public input on color and material would also be incorporated to enhance the aesthetics of the proposed perimeter flood wall.

Other Action Alternative

There would be no impact to aesthetic resources with implementation of the Other Action Alternative.

5.4.3 Hazardous Material

5.4.3.1 Existing Conditions

There are no known uncontrolled hazardous materials at the SPS site. Testing for priority pollutants plus would be completed during a site investigations. The site is not a known Area of Concern, which is defined by the NJDEP as, “Any existing or former distinct location or environmental medium where any hazardous substance, hazardous waste, or pollutant is known or suspected to have been discharged, generated, manufactured, refined, transported, stored, handled, treated, or disposed, or where any hazardous substance, hazardous waste, or pollutant has or may have migrated,” (N.J.A.C. 7:26E-1.8).

5.4.3.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no impact to hazardous materials with implementation of the No Action Alternative.

Proposed Alternative

Materials that may be classified as hazardous, such as petroleum, may be present on-site during construction. In addition, Diesel fuel would be stored on-site in secondary containment for the standby generators. In the unlikely event of a diesel fuel or other hazardous material spill or leak, best management practices would be utilized. Such practices include having procedures in place and materials on hand to control and contain spills. Incidents would be reported in accordance with NJDEP regulations.

It is unlikely that any construction and or demolition debris generated during implementation of this alternative would be classified as hazardous waste under RCRA; however, in the event

that they would be, proper procedures for generating, storing, transporting, or disposing of the waste would be followed.

There would be minimal amount of hazardous materials on-site primarily associated with petroleum products for fuel and lubricants. The implementation of best management practices, spill prevention and control practices, and proper procedures for the handling hazardous waste would be followed in the event they are encountered. Therefore, the Proposed Alternative would not be expected to have an adverse impact associated with hazardous materials.

Other Action Alternative

There would be minimal amount of hazardous materials on-site primarily associated with petroleum products for fuel and lubricants. The implementation of best management practices, spill prevention and control practices, and proper procedures for the handling hazardous waste would be followed in the event they are encountered. Therefore, the Proposed Alternative would not be expected to have an adverse impact associated with hazardous materials. Therefore, the Other Action Alternative would not be expected to have an adverse impact associated with hazardous materials.

5.4.4 Noise

5.4.4.1 Existing Conditions

Noise and sound-level standards applicable to the project site are specified in the New Jersey State Noise Code and the Borough of Sayreville Noise Control Ordinance. The day-night average sound level (Ldn) is used to measure the average sound impacts for a 24 hour period. The State Noise Code specifies that continuous airborne sound from any industrial, commercial, or community service facility, when measured at the property line or on the property of any other commercial or community service facility, shall not exceed 65 dB during daytime or nighttime hours. The Borough of Sayreville specifies a sound-level standard of 65 dB at a commercial facility, public service facility, non-residential portion of a multi-use property, or community service facility for a 24 hour period (N.J.A.C. 7:29, Sayreville Borough).

5.4.4.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be no significant impact with implementation of the No Action Alternative. In the event of another major flood event, noise levels would temporarily increase with the use of emergency equipment.

Proposed Alternative

It is anticipated that construction would cause temporary impacts to ambient noise levels with implementation of the Proposed Alternative. The noise levels would vary by the construction equipment being used, work being performed, and proximity to the other sites. It is expected that construction noise levels would be less than 100 dB, and sound levels would decrease with increasing distance from the project site. The construction contractor would adhere to construction hours (7 AM – 6 PM) per Borough ordinance (Sayreville Borough). The contract documents would also require construction generated noise be in accordance with all local ordinances.

In addition, it is expected that the standby generators would produce noise. The perimeter flood wall would block some of the sound and the generators are to be enclosed in a building and are built within sound dampening enclosures to provide critical silencing.

Other Action Alternative

There would be no significant impacts to ambient noise levels with implementation of the Other Action alternative, as no significant construction or outdoor work would take place at the proposed project site. In the event of another major flood event, noise levels would temporarily increase with the use of emergency equipment.

5.4.5 Traffic

5.4.5.1 Existing Conditions

The SPS is situated in a residential area. While the site does generate some local and truck traffic associated with operations and maintenance of the Facility, a majority of the traffic in the area is local residential traffic.

5.4.5.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not normally generate additional traffic. In the event that the a failure or flood event occurred at the Facility, there would be a temporary increase in traffic due to emergency mobilization of vehicles to the SPS site and subsequent emergency repairs to get the SPS operational again.

Proposed Alternative

The Proposed Alternative would cause a temporary impact to traffic due to an increase in construction vehicles.

Other Action Alternative

The Other Action Alternative would initially cause a temporary increase in traffic due to an increase in restoration vehicles at the site. In the event that a flood event occurred at the Facility, there would also be a temporary increase in traffic due to emergency mobilization of vehicles to the SPS site and subsequent emergency repairs to get the SPS operational again.

5.4.6 Public Service and Utilities

5.4.6.1 Existing Conditions

The SPS provides approximately 70 MGD of the 120 MGD of wastewater that the Subgrantee's Central Treatment Plant processes on a typical day. The SPS does, however, have a maximum flow of 320 MGD. The SPS service population lives within 32 member municipalities in Middlesex County and portions of Somerset and Union Counties, and services approximately 701,328 people.

5.4.6.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative could cause the SPS to either fail or flood in the future, which would adversely affect operations and disrupt sewage collection service. A failure or flood would cause raw sewage to back up in the gravity sewers and discharge into residents' basements, on to the street and into local water ways.

Proposed Alternative

The Proposed Alternative would reduce the risk of future flood events at the SPS and improve operational capabilities; this would ensure sewage collection service and minimize the chance of releasing untreated sewage into the environment.

No Action Alternative

The Other Action Alternative could cause the SPS flood in the future, which would adversely affect operations and disrupt sewage collection service. A flood would cause raw sewage to back up in the gravity sewers and discharge into residents' basements, on to the street and into local water ways.

5.4.7 Public Health and Safety

5.4.7.1 Existing Conditions

The SPS is a critical facility which provides wastewater treatment services that serve to protect both the public health and safety. The Subgrantee estimates that over 900 million gallons of raw sewage diluted with infiltration and inflow were discharged into local waterways while the SPS was disabled and being restored to an operable condition.

The project site is served by the Borough of Sayreville Police Department and Borough of Sayreville Fire Department.

5.4.7.2 Potential Impacts and Proposed Mitigation

No Action Alternative

There would be a potential for an adverse impact to public health and safety with implementation of the No Action Alternative if the SPS were to either flood or fail. Failure or flooding of the SPS would interrupt wastewater treatment and would cause sewage to back up in the gravity sewers and discharge into residents' basements, streets, and into local water ways, exposing the public to health and safety risks. The purpose of the proposed project is to reduce the impact that natural disasters, like Hurricane Sandy, would have on the Facility in the future and to avoid loss of wastewater service and decrease the risk for release of untreated sewage into the environment.

Proposed Alternative

The Proposed Alternative would protect public health and safety as it would ensure reliable sewer service and reduce the risk of loss of service due to future flood events at the SPS. It would enhance the Facility's ability to provide continuous operation and wastewater treatment services during severe weather. Maintaining operations would reduce the risk of releasing untreated sewage into the surrounding community and environment.

Other Action Alternative

The Other Action Alternative would have potential for an adverse impact to public health and safety. The loss of wastewater service would expose the public to health and safety risks during a flood event at the SPS. Flooding would cause untreated sewage to be released into the surrounding residential areas and waterways. The purpose of the proposed project is to reduce the impact that future natural disasters could have on the Facility and to avoid loss of wastewater service, thus decreasing the risk for the release of untreated sewage.

5.5 Cumulative Impacts

Cumulative effects are defined by the Council on Environmental Quality as, "The impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person takes such actions."

No Action Alternative

The No Action Alternative would have significant adverse effects from repeated flooding of the Facility, loss of service, and releasing of raw, untreated sewage into the environment. Repeated flood events and temporary fixes would permanently wear down the useful life and operability of the SPS. The temporary emergency measures do not represent long-term solutions for storm repair, and many of these temporary measures would continue to operate for only a limited period of time. Not implementing the permanent restoration throughout the Subgrantee facilities would result in the eventual failure of the temporary emergency measures and ultimately the entire Facility, resulting in raw sewage discharges to the wetlands and Raritan Bay.

Proposed Action Alternative

The Proposed Action Alternative would not have cumulative impacts nor have significant adverse effects because it would improve the ability of SPS to prevent sewage discharges in the event of future disasters.

Other Action Alternative

The Other Action Alternative would restore the SPS to pre-disaster conditions. During restoration activities, minor impact may be experienced due to increased traffic activity, however, no significant impacts would be experienced. The Other Action Alternative would not protect the Facility from future flood events. Should a flood event occur, the effects would have the same significant adverse impacts as the No Action Alternative.

Appendix B, Table 5 summarizes the potential impacts of the alternatives.

6.0 PERMITS AND PROJECT CONDITIONS

6.1 Permits

The Subgrantee is responsible for obtaining all applicable Federal, State, and local permits and other authorizations prior to construction and must adhere to all permit conditions. All applicable Federal, State and local permits must be applied prior to project implementation. The following permits are expected to be required:

Waterfront Development Permit—NJDEP Division of Land Use
Submitted to Land use Development March 6, 2015. Awaiting Completeness Review.

Freshwater Wetlands Permit—NJDEP Division of Land Use.
Submitted to Land Use Development March 6, 2015. Awaiting Completeness Review.

Flood Hazard Area Permit—NJDEP Division of Land Use
Submitted to Land Use Development March 6, 2015. Awaiting completeness review.

Preconstruction Permit and Operating Certificate-NJDEP Air Quality Permitting Program
Coordinating with NJDEP.

Treatment Works Approval—NJDEP Division of Water Quality
Coordinating with NJDEP to see if required.

Soil Erosion and Sediment Control Certification-Freehold Soil Conservation District
In process of completing for submittal.

Green Acres (NJ Statehouse Approval) for Temporary Construction Easements
Approval received. In process of coordinating with Borough of Sayreville.

Borough of Sayreville Zoning Approval
In process of coordinating with Borough of Sayreville

Borough of Sayreville Tree Removal Permit
In process of coordinating with Borough of Sayreville.

6.2 Project Conditions

Any substantive change to the approved scope of work would require re-evaluation by FEMA and the NJEIFP for compliance with NEPA and other laws and executive orders. The Subgrantee shall not initiate construction activities until 15 days after the date that the FONSI has been signed as “APPROVED.” Failure to comply with the following conditions, during project implementation, may jeopardize Federal funding:

1. The perimeter flood wall must be designed at an elevation at or above the 500-year floodplain elevation plus one (1) foot vertical height in accordance with EO 11988, implementing regulations at 44 CFR Part 9 and the National Flood Insurance Program.

The best available flood elevation data is available at FEMA's Region II Coastal Analysis and Mapping webpage: <http://www.region2coastal.com/preliminaryfirms>.

2. Any proposed construction in the floodplain must be coordinated with the local floodplain administrator and must comply with Federal, State, and local floodplain laws and regulations.
3. Excavated soil and waste materials must be managed and disposed of in accordance with applicable Federal, State, and local regulations.
4. In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the Subgrantee and its contractors will immediately halt construction activities in the vicinity of the discovery, secure the site, and take reasonable measures to avoid or minimize harm to the finds. The Subgrantee will inform the New Jersey Office of Emergency Management (Grantee), New Jersey State Historic Preservation Office (NJSHPO) and FEMA immediately. The Subgrantee must secure all archaeological findings and restrict access to the area. Work in sensitive areas may not resume until consultations are completed or until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historical significance of the discovery. Work may not resume at or around the delineated archaeological deposit until the Subgrantee is notified by the Grantee to proceed.
5. The Subgrantee must submit to Grantee and FEMA a copy of the wetland mitigation plan for review and comment concurrent with its submission to NJDEP.
6. The Subgrantee must submit copies of all obtained permits to the Grantee/FEMA at or prior to final closeout of the public assistance grant.
7. Occupational Safety and Health Administration (OSHA) standards must be followed during construction to avoid adverse impacts to worker health and safety.
8. It is expected that the Subgrantee and its construction contractor(s) will conduct construction utilizing best management practices to limit noise, dust, sedimentation, and erosion during construction.
9. It is recommended that the Subgrantee restore disturbed construction areas of the site with native seed and/or plant species to minimize soil erosion and sedimentation, as well as enhance environmental habitat quality of project site. It is recommended that disturbed soil areas be planted with native plant material, as soon as practicable after exposure, to avoid or minimize growth of undesired and potentially invasive plant species that can potentially take hold without competition of native plant materials. Local landscape plant nurseries and soil conservation offices can assist with identification of suitable native plants for site location type. The following websites may assist in identification of native plant material for the proposed project site:
 - a. <http://plants.usda.gov/java/>

- b. www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/plants/
- c. www.fs.fed.us/wildflowers/nativeplantmaterials/rightmaterials.shtml

10. The Subgrantee must meet the following conditions to comply with State House Commission approval and the Green Acres Program to construct a gravel roadway on adjacent Open Space Block 169.21, Lot 2 and utilize the property for temporary construction (Appendix M):

- a. No formal access easement may be recorded against the title of the parkland. A formal Memorandum of Understanding (MOU) between the Subgrantee and the Borough of Sayreville may be obtained to construct and utilize a gravel roadway on the property.
- b. The public shall have use of the gravel roadway to enter the open space for passive recreational purposes.
- c. A buffer of trees between the proposed roadway and the residential homes will remain or will be replanted equal to or better than the existing conditions.
- d. A temporary, non-recreational use of parkland is allowed for a maximum of 24 months.

7.0 PUBLIC INVOLVEMENT

7.1 FEMA Requirements

In accordance with NEPA, this EA will be released for a 15-day public review and comment period. Availability of the report for comment will be advertised in The Courier, Home News, and Star Ledger newspapers. A hard copy of the draft report will be available for review at the Subgrantee's Administration office located at 2571 Main Street Extension, Sayreville, NJ 08872. The office is open weekdays between 9:00 a.m. and 4:00 p.m. An electronic copy of the EA may be requested by emailing FEMA4086COMMENT@fema.dhs.gov.

The EA will also be made available for download from the FEMA website at www.fema.gov/resource-document-library. This EA reflects the evaluation and assessment requirements of the Federal government, the decision-maker for the Federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by mail to FEMA Region 2, Office of Environmental Planning & Historic Preservation, 13 Floor, 26 Federal Plaza New York, NY 10278, or email to: FEMA4086COMMENT@fema.dhs.gov.

If no significant comments are received from the public and/or agency reviewers, the Environmental Assessment will be adopted as final and a FONSI will be issued by FEMA. If significant comments are received, the comments will be evaluated and addressed as part of a Final Environmental Assessment documentation.

7.2 Sent Copies of the Report

Copies of this report will be sent to the following:

Middlesex County Section Chief
New Jersey Department of Environmental Protection
Land Use Regulating Program
PO Box 439, 501 East State Street
Trenton, New Jersey 08625-0439

Attention: Theresa Farbaniec
Municipal Clerk
167 Main Street
Sayreville, NJ 08872

8.0 LIST OF PREPARERS

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