

**Environmental Assessment
Binghamton-Johnson City Joint Sewage Treatment Plant
Comprehensive Flood Risk Reduction Project
Town of Vestal, Broome County, New York**

4031-DR-NY-PW-02504

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FEMA

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LIST OF ACRONYMS

amsl	Above Mean Sea Level
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
BAF	Biological Aeration Filtration
BCA	Benefit Cost Analysis
BJCJSB	Binghamton-Johnson City Joint Sewage Board
BJCJSTP	Binghamton-Johnson City Joint Sewage Treatment Plant
BMP	Best Management Practices
BMTS	Binghamton Metropolitan Transportation Study
CAA	Clean Air Act
CEPT	Chemically-Enhanced Primary Treatment
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DAR	Division of Air Resources
dB or dBA	Decibel
DBH	Diameter at Breast Height
DFIRM	Digital Flood Insurance Rate Maps
EA	Environmental Assessment
EAB	Emerald Ash Borer
ECL	Environmental Conservation Law
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
EO	Executive Order
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
ft	Foot
HP	Horsepower
IPaC	Information, Planning and Conservation System
IMA	Inter-municipal Agreement
km	Kilometer
Ldn	Day Night Noise Level
Leq	Equivalent Noise Level
LF	Linear foot
m	Meter
MGD	Million Gallons per Day
NAAQS	National Ambient Air Quality Standards

NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHP	Natural Heritage Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYS DHSES	New York State Division of Homeland Security and Emergency Services
NYSECL	New York State Environmental Conservation Law
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OSHA	Occupational Safety and Health Administration
PA	Public Assistance
PAF	Public Archaeology Facility
PM	Particulate Matter
SEQRA	State Environmental Quality Review Act
SF	Square Foot
SHPO	State Historic Preservation Officer
SPDES	State Pollutant Discharge Elimination System
SPL	Sound Pressure Level
STP	Shovel Test Pit
SWPPP	Stormwater Pollution Prevention Plan
THPO	Tribal Historic Preservation Officer
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USDA-APHIS	United States Department of Agriculture-Animal and Plant Health Inspection
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

The Binghamton-Johnson City Joint Sewage Treatment Plant (BJCJSTP), hereinafter referred to as the “Subgrantee” or “Plant,” has requested Federal financial assistance from the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA), to construct flood barrier walls around the Plant and install dewatering measures within the flood barrier walls to prevent flooding from the adjacent Susquehanna River and interior flooding from influent flow overwhelming the Plant. The City of Binghamton in Broome County, New York, experienced storm damages and flooding from Tropical Storm Lee that occurred during the incident period of September 7, 2011 through September 11, 2011. The storm incident period was declared a major disaster by President Barack H. Obama on September 13, 2011 (amended September 23, 2011). Federal public assistance and hazard mitigation funds were made available to affected communities and certain nonprofit organizations per FEMA 4031-DR-NY and in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5172), as amended. The Grantee for the proposed action is the New York State Division of Homeland Security and Emergency Services (NYS DHSES). The FEMA project worksheet reference number is 4031-DR-NY PW#02504.

The Plant, located on the Susquehanna River and Fuller Hollow Creek at 4480 Vestal Road (also known as Old Vestal Road) in the Town of Vestal, Broome County, New York, experienced storm damage from the declared event. The Plant also suffered repetitive severe storm damage during major flooding disaster incidents. The facility is located in the 100-year floodplain (*See Appendix A Figures*). The Plant was stabilized post-storm and continues in use. The action of full restoration of the facilities operations and upgrade of the facility in the floodplain is considered a critical action as defined at 44 CFR 9.4 Definitions for Executive Order 11988 Floodplain Management. The risk of potential future loss of operability due to flooding would be considered too great, thus flood damage risk reduction to the 500-year floodplain elevation is targeted for the proposed project. FEMA’s Public Assistance Program 406 Hazard Mitigation funding would be applied towards construction of a floodwall and other mitigation features such as floodgates and stormwater pumping stations. The floodwall would be constructed around the northern and western perimeter of the plant to tie into high ground elevation. The flood damage risk reduction would greatly reduce the risk of operational disruptions during flood events and would help protect the surrounding community from wastewater overflows during these events.

The floodwall action evaluated in this Environmental Assessment (EA) is not the only financial assistance action to be funded or already funded for the facility’s disaster recovery from Tropical Storm Lee. Twenty-one (21) individual Project Worksheets (PW) were already reviewed for environmental and historic preservation compliance and did not require National Environmental Policy Act EA level evaluation. Twenty of PWs were for assorted damages and funded and one PW was for building contents that was deemed ineligible. Of those, eight PW’s were written to provide repairs as well as mitigation measures: 0FB7182 Building #4 Digester Complex, 0FB7198 Primary Power Distribution, 0FB7184 Primary Treatment and Solids, 0FB7183 Compost Facility, 0FB7186 BAF Facility, 0FB7177 SCADA Primary Treatment and Solids, 0FB7189 SCADA BAF Facility, 0FB7173 Valve Gearboxes. These PWs are referred to in the scope-of-work in PW 0FB7199 (#2504), which proposes plant-wide mitigation in the form of a floodwall.

As a Federal agency, FEMA is required to evaluate the potential environmental impacts of its proposed actions, and alternatives to proposed actions, in order to make an informed decision in defining a proposed project for implementation. FEMA must consider and incorporate to the extent practicable, measures to avoid, minimize, or mitigate adverse impacts to the human environment. The environmental analysis is conducted in compliance with the National Environmental Policy Act (NEPA), and its implementing regulations at 40 Code of Federal Regulation (CFR) Parts 1500-1508 as well as FEMA's regulations at 44 CFR Part 10. FEMA evaluates financial assistance projects prior to grant approval. This Environmental Assessment (EA) serves as documentation of FEMA's analysis of the potential environmental impacts of the proposed comprehensive flood damage risk reduction system project, including analysis of project alternatives, and identification of impact minimization measures. This document serves as written communication of the environmental evaluation for public and interested party comment. Public involvement is a component of NEPA to inform an agency's determination of whether to prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

2.0 PURPOSE AND NEED

The objective of the FEMA Public Assistance (PA) Grant Program is to provide assistance to State, Tribal, and local governments and certain types of private nonprofit organizations so that communities can quickly respond to, and recover from, major disasters or emergencies. The purpose of the proposed project is to fully restore the function of the Plant and to also implement structural or non-structural flood damage risk reduction features to enhance the resilience of the facility. The need for the project is to address the damages sustained during Tropical Storm Lee and the repetitive flood damages the facility has incurred during past major flooding events. The project will seek to minimize the risk of future damage to the Plant's infrastructure, to minimize future potential of operational disruptions during flood events and to minimize the potential for wastewater releases during flood events which are detrimental to public health and safety, as well as detrimental to the environment. Wastewater that is received at municipal wastewater treatment plants predominantly originates at household and industrial sources. When a wastewater treatment plant is breached, there is the potential that pathogens and pollutants may be introduced into the surrounding environment and receiving waters of the Susquehanna River and Fuller Hollow Creek.

3.0 BACKGROUND INFORMATION

The Plant originated as the Binghamton Sewage Disposal Plant, construction of which began in 1958 on a 10-acre parcel next to the Susquehanna River in the Town of Vestal, Broome County, New York. On July 14, 1965, the City of Binghamton and the Village of Johnson City entered into an Inter-Municipal Agreement (IMA) establishing a joint sewage treatment plant and related facilities to provide primary treatment and disinfection of wastewater in the Town of Vestal in Broome County. Plant ownership is shared by the City of Binghamton (54.8 percent) and the Village of Johnson City (45.2 percent). A six-member Board is responsible for the daily management and operation of the Plant. In the early 1970s, the Plant was improved through the addition of an activated sludge secondary treatment system. In mid-2004, the activated sludge process was discontinued in order to construct an enhanced nutrient removal Biological Aeration

Filtration (BAF) system. On an interim basis during construction of the BAF system, a chemically-enhanced primary treatment (CEPT) system was operated until September 2007. In April 2008, the new advanced secondary treatment systems for removal of carbonaceous material and breakdown of ammonia were placed on line and in June 2009, a tertiary treatment system for removal of nitrogen was placed into full-time operation.

The Plant currently occupies 11.23 acres and serves 89,790 residents, based on year-end 2012 U.S. Census Bureau data. The service area includes the City of Binghamton; the Village of Johnson City; the tributary portions of nine other Municipal Users and nine parcels in the Town of Chenango; various commercial and industrial users, including 22 “significant industrial users” permitted under the Plant’s Environmental Protection Agency (EPA)-required Industrial Wastewater Pretreatment Program, the largest of which (by volume of discharge) is Frito-Lay North America, Inc.; several septic haulers; and a number of transients (for example, commuters and visitors) who travel into the Plant’s Service Area.

The Plant is designed to provide primary, secondary, and tertiary treatment of domestic and industrial wastewater at peak hourly hydraulic flows up to 60 million gallons per day (MGD), discharging its treated and disinfected effluent into the Susquehanna River. Including new construction presently ongoing, the densely-packed Plant site contains a combined 235,441 gross square feet of floor space, equipment areas and the “footprint space” occupied by external tanks supporting the various treatment processes. The Plant includes 16 buildings (as defined under the National Flood Insurance Program [NFIP]) totaling 69,053 gross square feet of floor space, 34 other structures totaling 70,783 gross square feet of floor space and/or slab area, and 42 tanks with 95,605 planar gross square feet of tank bottom area, not counting tanks housed inside buildings or structures (*Appendix A*).

Conventionally, wastewater treatment facilities are situated near waterbodies that can accept their effluent and are therefore vulnerable to periodic flooding. The Plant is located on the Susquehanna River, bordered to the west by Fuller Hollow Creek. Over the years, the facility has sustained damages that hindered operations several times. Flood damage was sustained in January 1996 (FEMA DR-NY-1095), April 2005, and November 2006. In June 2006, the Plant suffered severe flood damage (FEMA —DR-NY-1650). In May 2011, part of a wall for four secondary treatment C-cell tanks adjacent to Fuller Hollow Creek collapsed, resulting in the discharge of partially treated wastewater and most of the filter media in three of the tanks onto adjacent property and into the creek, from which the partially-treated liquid flowed into the Susquehanna River. Although partial secondary treatment continued until Tropical Storm Lee hit in September 2011, the Plant’s tertiary treatment process was halted in June 2011 due to safety concerns. Flooding in the wake of Tropical Storm Lee caused approximately \$16.5 million in new FEMA eligible damage and is summarized in *Appendix I*. At that time, flooding inundated the Plant, resulting in a loss of wastewater treatment for three and one-half days. When primary treatment and disinfection were restarted at the Plant on September 11, 2011, temporary influent flow pumping limitations of 20 MGD on the Binghamton Flow Side and 6 MGD on the Johnson City Flow Side were necessary due to flood damage that could not be immediately repaired. By early June 2012, the Plant’s ability to provide primary treatment and disinfection at the Plant’s full wet-weather hydraulic capacity was restored (45 MGD on the Binghamton Flow Side and 15 MGD on the Johnson City Flow Side).

The Plant is designed to protect public health and the environment. As of December 29, 2011, the Plant is temporarily operating under Consent Order No. R7-20110628-59 approved by the New York State Department of Environmental Conservation (NYSDEC), which modifies State Pollutant Discharge Elimination System (SPDES) Permit NY-002-4414 while certain remedial and recovery repairs and reconstruction are designed and built, as outlined in Appendix B, the Consent Order also indicates that mitigation measures be incorporated into the Plant repairs. The Consent Order was modified by the NYSDEC on July 30, 2014 (Appendix B), The modified Consent Order states...”that for various reasons, the Respondents have withdrawn their proposed design plans for the Facility’s reconstruction and have asked to take alternate technology for such reconstruction. The Department (*NYSDEC*) and the Respondents are entering into a Modification Consent Order to modify the term of the 2012 Consent Order, as modified, so as to allow the use of an alternate biological aerated filter (BAF) technology while still meeting the current completion due date for restoring the Facility to full operation”.

4.0 DESCRIPTION OF ALTERNATIVES CONSIDERED

NEPA requires the analysis of practicable alternatives as part of the environmental review process for the proposed project. Inclusion of a No Action Alternative in the environmental analysis and documentation is also required under NEPA. The No Action Alternative is used to evaluate the effects of not providing eligible assistance for the proposed project, thus providing a benchmark against which “action alternatives” may be evaluated. Studies were conducted on alternatives to mitigating future damage following both the 2006 flood and the 2011 flood (*Appendix C*). In developing alternatives for the project, the Subgrantee considered engineering constraints, environmental impacts and available property. Budgetary constraints were also considered but were not the controlling factor in deciding on alternatives. As a result of this screening process, three alternatives were identified for screening level analysis as shown on chart and report in *Appendix C*: construction of a flood barrier wall; floodproofing existing structures; and relocating electrical equipment and installing submersible pump/equipment motors.

Ultimately, it was decided that the flood barrier wall would offer the highest level of protection and reliability and is the Proposed Action Alternative. FEMA reviewed all applicable Federal, State, and local laws and Executive Orders (EOs) for the No Action Alternative and the Proposed Action Alternative as presented in this document.

Relocation or partial relocation of the Plant’s infrastructure outside the floodplain or further away from the water’s edge were considered but dismissed as cost-prohibitive alternatives. Partial relocation of infrastructure away from the water’s edge would have involved maintaining a wider buffer between the floodwall alignment and the riverbank and creek bank to preserve existing riparian habitat and to minimize risk of damage to the floodwall from potential scour and undermining.

4.1 No Action Alternative

The No Action Alternative would be to not provide Federal funding for the proposed mitigation measures at the facility. Under the No Action Alternative, it is anticipated that absent Federal

financial assistance, the Subgrantee would conduct required repairs under non-Federal funding sources and not pursue additional hazard mitigation measures. The no action alternative would result in the strong likelihood that flooding would damage the Plant again during subsequent major storm events. This alternative would also subject the town and community to future risk of service disruptions and create potential adverse public health and safety impacts as occurred during Tropical Storm Lee. This alternative would not address the project's purpose and need as the plant would still be subject to current level of flood damage risk during flooding events.

4.2 Proposed Action Alternative

The Subgrantee proposes to construct flood barrier walls around the Plant and implement dewatering measures within the flood barrier walls to allow the Plant to remain in limited operation during a flood disaster, and return to full operation more quickly after flood waters subside, thereby protecting the health and safety of the public. The majority of the floodwall design utilizes a reinforced concrete inverted T-type floodwall. Typical wall sections include sheet piling and stone fill (rip rap). See sections in *Appendix C*. A partial depth steel sheet piling cut-off wall would be installed behind the base foundation heel, which faces the river, to help control groundwater seepage rates and to provide scour protection. Some areas of the site would be integrally protected by existing reinforced concrete structures modified as required to withstand the hydraulic forces sustained during a flood event, as part of a separate, non-FEMA funded project.

The flood barrier wall would be constructed in 3 locations as shown in the plans in *Appendix C*:

- Susquehanna River T-Wall Floodwall: 1,058.68 feet (includes one 12 foot wide vehicular flood gate);
- Fuller Hollow Creek T-Wall Floodwall: 79.00 feet (no flood gates proposed); and
- Vestal Road T-Wall Floodwall: 288.83 feet (includes one 52 foot wide roadway flood gate)

The flood barrier wall would be designed in accordance with United States Army Corps of Engineers (USACE) *EM 1110-2-2502 Retaining and Flood Walls* and other applicable engineering and design guidelines from USACE. The flood barrier wall would be constructed to at/above the 500-year flood elevation of 842.9 feet (NAVD 1988) using reinforced concrete T-walls with two flood gates. The original concept examined the use of sheet pile walls, but geotechnical engineering, constructability, numerous buried utilities, and USACE design standards have required the evolution of the floodwall project to incorporate the reinforced concrete (ACI 350-06 Code Requirements for Environmental Engineering Concrete Structures) T-wall design. No state or local floodplain management standards, such as the 10 States Standards for Wastewater Facilities, New York State Environmental Conservation Law (ECL) and Town of Vestal Zoning Code, require a higher level of design elevation for the flood damage risk reduction.

The top of the floodwall elevation is currently designed at 845 feet (NAVD 1988), accommodating freeboard above the design flood elevation. This elevation results in a barrier wall that would extend around approximately three-fourths of the site perimeter, ranging

between four and 12 feet above ground level. Existing grades are higher at the southeast corner of the site and a barrier wall will not be needed in these areas, as the project ties into high ground.

One section of the flood mitigation barrier to protect the plant would be constructed as part of the BAF replacement project. The cell walls previously containing this process that collapsed are being replaced as part of the BAF reconstruction under a design by GHD of Cazenovia, New York. The reconstructed cells would be designed to act as floodwalls to mitigate flooding from Fuller Hollow Creek. Connections to allow one seamless, structurally sound barrier are being coordinated in the design of both projects. Design items being coordinated include water stop barrier, reinforcing steel, keyways, and other design elements including structural, seepage control and phasing. The GHD design will provide the same level of protection as the components being designed under this federal grant project. The Limits of the proposed work by others are subject to vary depending upon final design of the treatment process. All work by others will be designed and constructed to act as a fully functioning component of the overall flood mitigation system.

Where required, openings will be provided in the flood wall to minimize impact on vehicular and pedestrian traffic flow during normal operation of the facility. These openings will be protected with automatic passive closing gates and redundant aluminum lagging during a flood event. Modifications will have to be made to the 84" effluent outfall pipe to avoid a conflict with the new floodwall footings. A precast drop structure 4' x 14' in plan and 20 ft deep will be constructed to lower the 84" effluent pipe below the new floodwall footings. A new concrete vault will be constructed just outboard of the flood wall to house a new inline check valve for the 84" effluent outfall pipe. Storm and sanitary sewers will also be protected with redundant manual closure devices. All groundwater seepage and interior stormwater will be diverted to stormwater pumping stations during flood events.

The Plant will use four stormwater effluent pump systems consisting of twin centrifugal pumps (100 horsepower [HP], 100HP, 5 HP, and 150 HP for Pump Stations 1, 2, 3 & 4, respectively) to allow stormwater to be pumped from within the walls. The pump station construction includes two new discharge outfalls at the Susquehanna River and one discharge outfall in Fuller Creek. The new outfalls at the Susquehanna River are an 18" and 12" RCP discharge pipes at pump stations 1 and 2 respectively. The new outfall at Fuller Hollow Creek is a 12" polyethylene pipe at pump station 3. Although not part of the FEMA funded hazard mitigation, a new outfall for the 54" RCP plant bypass pipe will be constructed at the Susquehanna River. The terminal ends of these outfalls are at the banks of the rivers, and have concrete headwalls with automatic flap valve drainage gates to prevent the river from backing up into the outfall pipes. The headwalls have 7' long integral concrete wing walls on each side skewed 45 degrees from the headwall. Both the concrete head and wing walls have 1.5' deep x 6.5' wide concrete spread footings located 6 ft minimum below the outfall pipe invert elevation. The toe area below the pipe outlets are protected with a 2 ft minimum section of rip rap and geotextile fabric. The terminal ends of the outfall and the headwall structures are below the normal water surface elevations at the Susquehanna River with pipe invert elevations of 825' and 820.5' at pump stations 1 and 2 respectively, and at 816.5' at the plant bypass outfall pipe. The outfall at Fuller Hollow Creek is above normal water surface elevations with a pipe invert elevation of 827.5'. The construction

of pump station 2 and the modifications to the 84” effluent outfall pipe will require demolition and reconstruction of 250 ft of a 20 ft wide bituminous road and concrete curbs.

A portion of the project would cross the County-owned roadway and include work on private property across the street from the Plant, which would require easements. Easements will be required for the final phase of the wall construction. They would include temporary easements for construction and permanent easements in order to locate flood mitigation facilities on the parcels. The locations include the Miller Auto Property and a section of Vestal Rd. maintained by Broome County. The easement ROW Team is assembled and would operate under Griffiths Engineering and includes Congdon Appraisal and Acquisition Services, Williams and Edsal Lan Surveying, with legal services would be handled by Hinman, Howard, and Kattell Law Offices.

Work on Vestal Road includes the addition of a floodwall road gate, while the floodwall would continue on the south side of Vestal Road on private property. An existing sanitary sewer line would also be rerouted on the private property (*Appendix C*). A meeting occurred with the City of Binghamton and the Town of Vestal Engineer on 11/17/2014 where the existing Vestal sanitary line was reviewed along with the proposed modification. The Town expressed no concern because the proposed relocation site would remain within the existing easement.

4.3 Alternatives Considered and Dismissed from Further Analysis in this EA

Early in the review process, it was determined that relocation of the facility outside of the 500-year floodplain was not a practicable alternative due to cost factor and other considerations. New site construction impacts would have been dependent upon the sensitivity of the landscape at that undetermined location. The Subgrantee considered building a floodwall that would encompass the entire Plant, following the contour of the riverbank and the north edge of Vestal Road. This alternative was discarded because it would add an additional wall and floodgates and remove access to the Plant during flooding. It was also found financially not feasible because it was estimated to cost several million dollars more than the preferred project. Partial relocation of the infrastructure that is currently located closest to the Susquehanna and Fuller Hollow Creek (and at greatest risk of flood damage) would help avoid fill in the floodway and minimize impact to riparian corridor habitat with a floodwall alignment situated further inland. However, this alternative was determined not to be cost feasible and was determined to be impractical due to space constraints for relocation of structural elements on/adjacent to the existing property.

Another alternative considered and dismissed involved floodproofing the individual structures at the facility to make them watertight. American Society of Civil Engineers (ASCE) 7, Section 5.3.4.3 requires that the walls and other openings of structures located below the flood elevation shall be substantially impermeable to the passage of water in order to be considered watertight. Floodproofing would be accomplished through such measures as the installation of watertight doors, waterproofing concrete and masonry, and sealing and/or relocating penetrations for piping, conduit, and ductwork. The extent of work at each structure depends on the level of exposure for each building and the extent of openings in the existing building envelope. This alternative was dismissed because it required dependency on installing the gates in the case of a flood and restricted access to structures once they were installed. Relocating electrical equipment and installing submersible pump/equipment motors would not provide the site-wide flood

Table 1. Summary of Potential Environmental Impacts and Mitigation

Resource	Potential Impacts		Agency Coordination/ Permits	Mitigation
	No Action Alternative	Proposed Action Alternative		
Topography, Geology and Soils	No impact.	No significant impact. Disturbance of soils during construction.	USDA NRCS, NYSDEC	Best management practices.
Land Use and Zoning	No impact.	No impact. Consistent with Broome County Comprehensive Plan.	N/A	N/A
Contaminated Materials	No impact.	No impact with conditions.	N/A	Best management practices.
Air Quality	No impact.	Short-term negative impact during construction; no long-term impact.	N/A	Best management practices.
Water Resources and Water Quality	Negative impact during flood event.	No significant impact with SWPPP implementation. Positive long-term benefits to water quality during flood events.	NYSDEC, USACE	Compliance with SWPPP and SPDES Permit.
Wetlands	Negative impact during flood event.	No significant impact. Less than 0.1 acre of wetland disturbance	USACE, NYSDEC	Comply with all permit conditions. Restore all wetland and other riparian corridor habitat through replanting of native woody species and native plant seed material, as appropriate.
Floodplains	Potential negative impact.	Positive impact of flood damage risk reduction for facility.	Local Floodplain Administrator	N/A
Vegetation	No impact.	Adverse impact to riparian corridor vegetation.	N/A	Native plant species are recommended for site landscape plantings. Tree removal must comply with NYSDEC invasive species requirements for Emerald Ash Borer quarantine.
Wildlife and Fisheries Habitat	No impact.	No significant impact. Permanent and temporary disturbance to riparian corridor habitat in floodwall alignment.	N/A	N/A
Threatened and Endangered Species	No impact.	No listed species in project area. No jeopardy finding for proposed species. No known bald eagle nests in project area.	USFWS, NYSDEC NHP	Recommended tree removal window for proposed bat species. Bald eagle nest buffer for construction activities.
Cultural Resources	No impact.	No adverse impacts.	NYSHPO/THPO's	N/A
Visual Resources	No impact.	Minor impact.	N/A	N/A
Socioeconomic Resources	Potential negative impacts.	Positive impact.	N/A	N/A
Environmental Justice	No impact.	No impact.	N/A	N/A
Noise	No impact.	Short-term negative impact during construction; no long-term impact.	N/A	N/A
Traffic	Negative impact during flood event.	Short-term negative impact during construction; no long-term impact.	Broome County Right of Way agreement	Crossing and installing in County right of way
Infrastructure	No impact.	Positive impact since it is protecting public infrastructure.	Town of Vestal Building Permit	N/A
Public Health and Safety	Potential negative impact from future flood damage.	Positive impact.	N/A	
Climate Change	Potential negative impact from future flood event.	No impact.	N/A	N/A
Cumulative Impacts	No cumulative impacts	No cumulative impacts	N/A	N/A

damage risk reduction that the preferred alternative would provide, thus dismissed from further consideration.

5.0 AFFECTED ENVIRONMENTS AND ENVIRONMENTAL CONSEQUENCES

Table 1 on Page 8 summarizes potential impacts of the No Action and Proposed Action alternatives. The following sections provide a more detailed description of the affected environment and potential environmental impacts of the No Action and Proposed Action alternatives.

5.1 Topography, Soils and Geology

5.1.1 Existing Conditions

Topography

The project area is located on a portion of the Fuller Hollow Creek floodplain in the Town of Vestal, Broome County, New York. The elevation of the project area is approximately 256 m (840 ft) amsl. The site is located on the south bank of the Susquehanna River on Vestal Road, east of the confluence with Fuller Hollow Creek and west of the confluence of the Susquehanna and Chenango Rivers. The proposed floodwall would be located along the perimeter of the Plant on Vestal Road. The area can be found on Binghamton West (42075-A8) United States Geological Survey (USGS) Quadrangle Map, 1976. Latitude (North): 42.0961000 (42° 5' 45.96''), Longitude (West): 75.9622000 (-75° 57' 43.92). The site slopes from Vestal Road towards the Susquehanna River and to portions of Fuller Hollow Creek. The site is more than 75% impervious consisting of buildings, pavements, structures, and treatment chambers. Onsite drainage includes sheet flow, pump stations, sump catch basins, manholes, and a closed drainage system that outlets along the banks of the Susquehanna River and Fuller Hollow Creek.

Soils

The U.S. Department of Agriculture's (USDA)-Natural Resources Conservation Service (NRCS) operates the Web Soil Survey, which includes the soils of Broome County (USDA NRCS 2014). The Web Soil Survey maps exhibit soils on the site as being composed of an array of soil types and slope characteristics. Primarily, the property consists of Dalton silt loam (DaB), 2-8% slopes, with Chenango and Howard gravelly loams (ChC), 5 to 15% slopes, encompassing the southeast portion of the lot and Tioga silt loam (Ta) along the river's edge. A sliver of Wayland soils complex (Wd), 0 to 3% slopes, extends along the bank of Fuller Hollow Creek (*Appendix A*). The soil survey indicates a depth to the water table in the vicinity of the floodwall to be constructed and adjacent to the river and creek for the Ta at 36 to 72 inches, and the Wd at 0 to 6 inches, respectively.

The Farmland Protection Policy Act (FPPA) requires Federal agencies to minimize the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural use and to assess potential conversion of farmland to developed property. Ta soils are categorized as prime farmland, while DaB, and ChC soils are classified as farmland of state importance. Wd soils are not prime farmland. Due to the existing developed nature of the site, there is no potential for the conversion of farmland to non-agricultural use and no consultation for FPPA is needed.

Soil test borings were conducted by Haley & Aldrich to analyze the project area soils for engineering and construction purposes. Borings HA-03, 04, 05, 06, 07, 12, 13, 25 and 26 were made around the perimeter of the project area. Two borings, HA-25 and 26, located near the east side of the project area encountered fill with buried topsoil at a depth of 13.6 feet below the surface and 4.1 feet below the surface, respectively. On the north perimeter of the facility, borings HA-06, 07, 12 and 13 were conducted. HA-12 identified fill to a depth of 7 feet and alluvial deposits between 7 and 12 feet. HA-07 and 13 appeared to have intact soil profiles. HA-06 consisted of fill to a depth of 10 feet. HA-03 and 05 had fill to depths between 9 and 14 feet. In general, the area on the north side of the facility next to the Susquehanna River showed at least some sections of intact soils, although there were some areas of deep fill. On the west side of the facility, there was fill to depths between 9 and 14 feet.

Geology

The Allegheny Plateau is the dominant geologic province in Broome County. The plateau ranges in elevation from 244 to 610 m (800-2,000 ft.) amsl, and is cross-cut by streams and steep river valleys (USDA 1971). The region has been shaped by several periods of glacial advance and retreat that continuously eroded and re-deposited underlying material. The present geologic configuration of the Susquehanna River Basin is underlain by marine shales, siltstones, and fine grained sandstones of Upper Devonian. The bedrock has a gentle regional dip of ten to forty feet (10 - 40') per mile in a southerly direction. Superimposed on the regional dip are minor anticlinal and synclinal flexes. Their axes trend east-west. Two prominent sets of joints, striking north-south and east-west, and having basically vertical dips, exist throughout the area.

During the Pleistocene epoch, glaciation caused pronounced effects on the regional topography. The region was covered by thick continental ice sheets which scoured and widened preexisting valley areas. As the glacier advanced, major amounts of agglomerated debris (till) were deposited over the underlying bedrock valleys. Kame terraces were formed between the ice and the valley walls. Interglacial lakes, underlain by clay, silt and fine sand were produced by stagnating tongues of glacial ice.

During the latter stages of glaciation, meltwaters heavily laden with silt, sand, and gravel deposited this material as stratified outwash plains above the bedrock and till. Glacial drift deposits now exceed two-hundred feet (200') in thickness along the river valley axis, tapering to negligible thicknesses towards the valley walls. The glacial sediments of major hydrologic significance comprising the aquifer system are outwash, kame sand, and gravel.

The 2014 U.S. Geological Survey (USGS) National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy. Broome County is mapped with low to moderate two-percent probability (2-4 and 4-6%g) of exceedance in 50 years of peak ground acceleration.

5.1.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would have no impacts to topography, geology, or soils.

Proposed Action Alternative

The Proposed Action Alternative would have minor impacts to the physical features of the project site, including ground disturbance during construction to provide equipment access and construction of the floodwall. Some impacts to soils and topography (ground disturbance) during construction would also occur from tree removal. The area of disturbance would be approximately 1,427 linear feet (LF) of T-wall and gates and 1,467 LF of sheet pile cut-off wall. The Plant drawings indicate that the range of subsurface and surface site disturbance is from 6' deep by 30' wide to 15' deep by 55' wide. Excavations for the four stormwater pump stations range between 15' and 20' below ground surface. Best management practices (BMPs) would be utilized to minimize erosion and control sediment, including use of filter fabric adjacent to all areas of soil disturbances to reduce transport of dislodged soils into nearby streams and seeding/mulching of disturbed soils to help establish a vegetative cover and stabilize disturbed areas. The project requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP) developed in accordance with the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity General Permit Number GP-0-10-002, effective January 29, 2015 through January 28, 2020. The SWPPP and accompanying plans identify and detail stormwater management, pollution prevention, and erosion and sediment control measures necessary during and following completion of construction. The seismic hazard of the area would be taken into account during final design planning in accordance with federal, state and local codes in order to minimize risk of the floodwall's potential structural damage or failure due to potential earthquakes.

5.2 Land Use and Zoning

5.2.1 Existing Conditions

The Plant is owned by the City of Binghamton and Village of Johnson City, and is located in the Town of Vestal. The town has zoned the BJCJSTP property as Industrial Development; while the adjacent properties to the west are zoned Industrial and the properties to the south and east are zoned as Community Business. No documentation concerning pending easements or building permits were available for this review.

5.2.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact land use or local zoning.

Proposed Action Alternative

The Proposed Action Alternative would not change or impact land use and zoning. The proposed project would be consistent with existing site usage and with the Broome County Comprehensive Plan (Broome County 2013).

5.3 Contaminated Materials

5.3.1 Existing Conditions

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR) in accordance with the EPA's *Standards and Practices for All Appropriate Inquiries* (40 CFR Part 312) and the American Society for Testing and Materials (ASTM) *Standard*

Practice for Environmental Site Assessments (E 1527-13). This Phase I Records search uncovered 21 spills within 1/8 mile of subject project site, with two of these spills located on the target property. According to records, an 800-gallon petroleum spill of #6 Fuel Oil occurred on the property on 3/30/1989. Cleanup included Vac-Truck oil removal and the pumping out of the pump station well. Cleanup was reported to meet the regulatory standards. Other records include leaking tanks of chemical and petroleum bulk storage, manifests, and waste generators in the vicinity. A 275-gallon spill of Polymer product occurred on the target property when a forklift punctured a tote. The product was contained, did not enter any drains, and was cleaned up. Other spill data included spills off site that were also closed out and a narrative of a complaint related to a structural failure that resulted in the release of raw sewage. All of these previous recognized environmental conditions were closed out to meet NYSDEC standards (EDR, Inc. 2014).

After review of the information in the data search and numerous site visits no recognized environmental conditions were noted associated with the target property. The full report is attached as *Appendix D*.

5.3.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact contaminated materials. No evidence of significant contamination to site structures, soils, or surface/groundwater from hazardous materials has been identified. However, without additional floodproofing, the property remains vulnerable to future damages that may result in the release of raw sewage and contaminants.

Proposed Action Alternative

The Proposed Action Alternative would not impact or be impacted by contaminated materials. The continued occupancy at this site would not adversely impact the risk to the human environment from contaminated materials and the addition of a floodwall may prevent future contamination resulting from damages sustained in floods. However, if hidden and/or unknown hazardous materials are discovered during excavation and/or construction activities, additional testing and/or remediation may be necessary. BMPs should be implemented in the event that petroleum or other hazardous material leaks occur during construction. These practices include requiring all contractors to keep materials on hand to control and contain a petroleum spill. All spills are required to be reported to the NYSDEC. Contractors are responsible for ensuring responsible action on the part of construction personnel.

5.4 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 NYS for carbon monoxide (CO), nitrogen dioxide (NO₂), total suspended particulate (TSP), sulfur dioxide (SO₂) and lead (pb). NYS standards 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. The EPA implements the 2008 ozone standards as required by the CAA and meets the standards to provide public and environmental health benefits.

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.

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. Certain actions and activities are exempted from General Conformity review, including the following:

- Stationary source emissions regulated under major or minor New Source Review (air permitting) programs;
- Alteration and additions of existing structures as specifically required by new or existing applicable environmental legislations are not reasonably foreseeable;
- Actions where the emissions are not reasonably foreseeable;
- Actions that have been defined by the federal agency or by the state as “presumed to conform;”
- Activities with total direct or indirect emissions (not including stationary source emissions regulated under New Source Review programs) below *de minimis* levels. For the New York area, the applicable *de minimis* levels are as follows:
 - NO_x < 40 tons per year
 - VOC < 40 tons per year
 - CO < 100 tons per year
 - PM_{2.5} < 25 tons per year
 - SO₂ (PM_{2.5} precursor) < 40 tons per year

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.

New York's air permitting program is required by the CAA and under New York State law and regulation, most notably 6 NYCRR Part 201. The program is administered by NYSDEC's Division of Air Resources (DAR) (NYSDEC DAR 2014) and identifies and controls sources of air pollution. Air sources range in size from large industrial facilities and power plants to small commercial operations, such as dry cleaners. Most large sources require full air pollution permits, while smaller sources are covered by NYSDEC's air source registration program under Subpart 201-4.

5.4.1 Existing Conditions

The proposed project area, as depicted on EPA Environmental Justice (EJ) View Tool, is not located in a non-attainment area for Ozone 8-Hour, Lead 2008 Standard, Particulate Matter (PM) 2.5 Annual, or PM 2.5 24-Hour Standard.

The existing background ambient air quality of the project site is based on the air quality monitoring data collected by the NYSDEC Region 7. The Plant has the potential to emit air contaminants from existing equipment, including three process boiler exhaust points, two digester gas flares, two emergency and backup generators, sewage processing, and odor control systems. The facility's emissions points do not have annual actual emissions of regulated air contaminants that exceed the corresponding thresholds listed under in 6 NYCRR §201-4.5(a), regardless of the facility's potential to emit for each such contaminant. As such, the Plant is a "non-major facility" that is not required to obtain either a Title V Facility Permit or a State Facility Permit. Additionally, the NYSDEC has never notified the Subgrantee of any determination that would require the Plant to apply for either a Title V Facility Permit or a State Facility Permit. Instead, because the Plant meets the criteria of 6 NYCRR Subpart 201-4, the facility is registered under the NYSDEC Air Facility Registration Program (*Appendix E*). According to the NYSDEC, registrations are ministerial in nature and have no formal notice requirements

5.4.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact air quality.

Proposed Action Alternative

The Proposed Action Alternative would have a temporary, minimal impact on air quality during construction activities; no long-term impacts are expected as power and backup power are not being provided through this project. Construction activities on the project site may have a potential impact on the local air quality through the generation of fugitive dust or airborne dust. Fugitive dust is generated during ground breaking and excavation activities. Emissions from diesel construction vehicles are also a potential source of air pollution. The use of BMPs would help minimize dust and vehicle emissions.

5.5 Water Resources and Water Quality

Congress enacted the Federal Water Pollution Control Act in 1948 which was reorganized and expanded in 1972 and became known as the Clean Water Act (CWA) of 1977, as amended. The CWA regulates discharge of pollutants into waterbodies with sections falling under the jurisdiction of the USACE and the EPA. Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into Waters of the United States and traditional navigable waterways. The USACE regulates activities within navigable waters, as authorized under the 1899 Rivers and Harbors Act. Under National Point Discharge Elimination System (NPDES), the EPA regulates both point and non-point pollutant sources, including stormwater. The EPA has arranged for the NYSDEC to oversee and enforce the NPDES within NYS. Activities that disturb one (1) acre of ground or more are required to apply for a SPDES permit administered through the NYSDEC.

5.5.1 Existing Conditions

The proposed project site is located on the Susquehanna River, a "Fourth Order Stream" (Strahler 1952). The Susquehanna Watershed encompasses a 20 square mile area of the Town of Vestal in Broome County, New York. The Susquehanna River watershed discharges to the

Chesapeake Bay. Fuller Hollow Creek flows along the western edge of the project area and converges with the Susquehanna River to the north. An additional stream, Bunn Hill Creek, merges with the Susquehanna River 330 m (1,000 ft.) west of the project area. Historic USGS quadrangle maps indicate that the Fuller Hollow Creek once went through the middle of the current treatment plant complex and that the channel has been redirected to its current location.

5.5.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action alternative would not minimize the risk of future discharge of untreated wastewater to the surrounding bodies of water in the event of another storm's impact on treatment operations. Discharge of untreated sewage would have a negative impact on water quality.

Proposed Action Alternative

The Proposed Action Alternative would not impact Susquehanna River water quality. The project disturbance for the floodwall project is expected to be less than one acre; however due to the proximity to Fuller Hollow Creek and the Susquehanna River, coverage under the NYDEC's SPDES Permit for Construction Disturbances is anticipated. A SWPPP would be prepared for the project to address runoff during construction. Process discharges from the Plant are regulated under a municipal SPDES Permit (#NY0024414) which is issued by the NYSDEC. Because project runoff would be directed directly into the Susquehanna River, a Fourth Order Stream, water quality control is not required. Permit information available to date is included in Appendix E.

5.6 Wetlands

EO 11990 "Wetlands Protection" requires that Federal agencies take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the beneficial effects of wetlands. Compliance with this EO is ensured through the process of identifying whether the action would be located within or would potentially affect wetlands. Federal actions within wetlands require the Federal agency to conduct an Eight-Step Review Process. This process, like NEPA, requires the evaluation of alternatives to avoid, minimize or mitigation impacts to wetlands prior to funding the action. FEMA's regulations for conducting the Eight-Step Review process are contained in 44 CFR Part 9. The wetland definition at 44 CFR 9.4 is broader than the three-parameter USACE approach to wetland delineation. Only one of the three parameters (wetland soils, wetland plants or wetland hydrology) is required for an area to be defined as a wetland per FEMA's regulation consistent with the United States Fish and Wildlife Service (USFWS) Cowardin Classification System. Federal regulation of wetlands under Section 404 of the Clean Water Act is in the permit jurisdiction USACE. EPA also has a policy and guidance role for wetland protection under Section 404. NYSDEC regulates and protects freshwater wetlands at the state-level as defined by NYS' Environmental Conservation Law (NYSECL) Article 24. The Eight-Step Review Process Summary for this project can be found in *Appendix F*.

5.6.1 Existing Conditions

The USFWS National Wetlands Inventory (NWI) website maps identify two wetlands within the project area: R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded) and PUBHh (Palustrine, Unconsolidated Bottom, Permanently Flooded, Diked/Impounded) wetland (*Appendix A*). The R2UBH generally represents the Susquehanna River, which extends along the northeastern project boundary. A wetlands screening was conducted by Griffiths Engineering, LLC and their wetland professional, which revealed that the PUBHh wetland had been filled during previous construction of the facility. Screening results also indicated no other wetlands depicted on the NYS Freshwater Wetlands Regulatory Maps as applied to the project site and no other wetland resources were observed on the property (*Appendix D*). Riparian corridor vegetation includes sycamore, box elder, and ash trees along with an assortment of vines and ground cover, including Japanese Knotweed, which is an invasive species.

5.6.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative may have a negative impact on wetlands. If the existing facility is not protected, there is potential for pollutant releases during and/or following future floods or over time in wetlands.

Proposed Action Alternative

The Proposed Action Alternative would have a minor impact to wetlands during construction where the sheet-pile cut-off wall and rip-rap portion of the floodwall system is to be installed either in or adjacent to wetlands. Based on the currently proposed layout (*Appendix C*), the proposed project is expected to impact less than 0.1 acre of riverine wetland, which may require a permit and/or pre-construction notification to obtain permit authorization from the USACE and may also require a permit from NYSDEC. The Subgrantee submitted a Joint Application Form to NYSDEC and USACE to apply for necessary permits (*Appendix E*). It is requested that the Subgrantee replant riparian corridor vegetation along the approximate 850 linear foot disturbance area along the Susquehanna River to restore riparian habitat character on-site. A variety of native species could be seeded or planted and live willow or red-osier dogwood stakes could potentially be incorporated into the rip-rap/rock reaches of the design.

FEMA and the Grantee/Subgrantee determined that it was not practicable to locate the floodwall alignment entirely outside the wetland and upland riparian habitat areas due to site space constraints. Once the floodwall system is constructed, the floodwall would minimize risk of future release of untreated sewage into wetlands in the event of a future flooding event; therefore, the permanent and temporary impacts to the wetland areas with floodwall construction would be outweighed by the public benefits and long-term wetland benefits of the proposed action. The construction activities could potentially cause sedimentation and erosion into surrounding wetlands via stormwater runoff that could flow into the Susquehanna River and Fuller Hollow Creek. The Contractor would prepare a SWPPP that would include the necessary erosion and sediment controls to prevent contamination of wetlands.

5.7 Floodplains

EO 11988 “Floodplain Management” requires that Federal agencies avoid funding activities that directly or indirectly support occupancy, modification, or development of the 100-year floodplain whenever there are practicable alternatives. FEMA uses Flood Insurance Rate Maps (FIRMs) to identify floodplains and flood risks for the NFIP. Federal actions within the 100-year floodplain, or 500-year floodplain for critical actions, require the Federal agency to conduct an Eight-Step Review process. This process, like NEPA, requires the evaluation of alternatives prior to funding the action. FEMA’s regulations for conducting the Eight-Step Review process are contained in 44 CFR Part 9. The Eight-Step Review Process conducted for this project can be found in *Appendix F*. Because FEMA determined the proposed action is a critical action, the project has been reviewed against the 500-year floodplain.

5.7.1 Existing Conditions

According to FIRM Community Panel Number 3600570015D, revised September 5, 1984, the parcel is located in Zones A12 and B and is within the 100-year and 500-year floodplains. FEMA’s EO 11988 assessment is based on Preliminary FIRM Map 36007C0352F, dated February 5, 2010 and the parcel is identified in Zone AE (*Appendix A*). The Preliminary map is not a published FIRM, and has not been adopted by the Town of Vestal. However, this Preliminary FIRM Map is used by FEMA as best available data for this 44 CFR Part 9 evaluation. A portion of the project area would be located within the estimated floodways of the Susquehanna River and Fuller Hollow Creek (*Appendix C*).

5.7.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative may have a negative impact on the floodplain. If the existing facility is not protected, there is potential for pollutant releases during and/or following future floods or over time in the floodplain. The facility infrastructure would remain at risk to repetitive flood damage similar to that experienced during Tropical Storm Lee and prior events.

Proposed Action Alternative

The Proposed Action Alternative would have beneficial floodplain management impacts for the facility. Early in the review process, it was determined that relocation of the facility outside of the 500-year floodplain was not a practicable alternative due to cost factors and other infrastructure relocation considerations. However, the proposed alternative would provide flood damage risk reduction at or above the 500-year flood elevation for the Plant through installation of the proposed floodwall and associated infrastructure for the flood damage risk reduction structural alternative. The full Eight-Step Review Decision-Making Process was applied and the Proposed Action was determined to be a practicable alternative (*Appendix F*). The facility would be more resilient with the structural protections and would have less risk of disruption of the public services it provides in the future.

As shown on design plans in *Appendix C*, the Subgrantee would plan to construct the floodwall to a design elevation of 845’ (NAVD 1988), providing for freeboard above the 500-Year floodplain elevation, which is 842.9’ (NAVD 1988), as depicted at the facilities highest point along the Susquehanna River profile included in the FEMA Preliminary Flood Insurance Study

for the Broome County, New York (All Jurisdictions) dated February 5, 2010. Per the USGS/Department of Interior Floods of 2011 in New York, Scientific Investigation Report 2014-5058, Tropical Storm Lee was the flood of record with a Peak Surface Water Discharge (September 8-9, 2011) of approximately 833.98' (NAVD 1988) at Vestal, which was less than a 200-Year level event and the facility was submerged as shown in the photo in *Appendix H*.

The proposed project would adversely impact riparian habitat in the floodplain due to permanent development of the undeveloped vegetated riverbank area (approximately 850 linear feet and approximately 0.1 acres) for floodwall construction and due to floodway encroachments along the Susquehanna River and Fuller Hollow Creek for floodwall construction; however, it was determined that there were no practicable alternatives to the proposed floodwall alignment and permanent displacement of this acreage due to site space constraints and prohibitive costs to relocate existing wastewater treatment infrastructure. The loss of a small acreage of riparian habitat would be outweighed by the overall public benefits of the proposed project, including long-term benefits for the floodplain environment due to minimization of risk of wastewater releases into the watercourses and surrounding area during flood events.

The proposed project would be designed to comply with the National Flood Insurance Program. Specifically, 44 CFR 60.3(d)(3) requires that a hydrologic and hydraulic analysis be performed in accordance with standard engineering practices to demonstrate that the proposed floodway encroachments would not result in any increase in flood levels within the community during the occurrence of a base flood discharge. A hydraulic and hydrologic study was completed by Woidt Engineering dated January 24, 2014 (*Appendix C*), to assess the hydraulic effects of the flood damage risk reduction system on the water surface elevations and velocities of the Susquehanna River. The Preliminary New Digital Flood Insurance Rate Maps (DFIRMS) were available for the project area and the HEC-RAS computer model used to create the DFIRMS was obtained to create the Duplicative Effective Model. The HEC-RAS model was augmented following published FEMA protocol to create the Corrected Effective Model using geometric data obtained throughout the project area. The proposed conditions model was then developed using the proposed floodwall geometry. The findings of the study show that the proposed condition's water surface elevations are the same or slightly lower than the existing conditions. There is a slight increase (maximum increase 0.06 ft./sec) in velocity due the displacement of flow area in the extreme limit of the 100 and 500-year floodplain of the Susquehanna River. Since there is "zero rise" in water surface elevations and only minimal increase in channel velocities, the proposed concrete T-Wall floodwall system would comply with all local, state and Federal floodplain ordinances and regulations. The Subgrantee would be responsible to coordinate the project with the local floodplain management administrator/code official and obtain all applicable permits for project implementation.

Riprap and steel sheet piling cut off walls would be incorporated into the design for floodwall alignment areas closest to the river and for an area along Fuller Hollow Creek as scour risk reduction for the floodwall, as shown on the site plans. Flap gates would be installed on outfalls to minimize risk of backflow. The stormwater pump stations would have the capacity to pump the surface runoff within the floodwall barrier from a 500-year rainfall event, nominal seepage through the flood wall, and inadvertent overtopping of the floodwall from waves and non-bypassed influent inflows that exceed the plant capacity. The Plant would prepare an operations

and maintenance plan for the facility to detail how closure gates, pumps, other floodplain management control devices were operated and to identify the plan in the event that the floodwall were overtopped. Other reasonably foreseeable future projects on the Fuller Hollow Creek and/or at the confluence with the Susquehanna River, as proposed by the Subgrantee or others would potentially minimize risk of future flood impacts and/or help address water quality concerns for the facility's operations in the future. As mentioned in 5.1.2, the Subgrantee would be responsible to a Stormwater Pollution Prevention Plan (SWPPP) and would be expected to install silt fences and turbidity barriers for erosion control and to minimize potential sedimentation into adjacent watercourses during construction.

5.8 Vegetation

5.8.1 Existing Conditions

The property consists of more than 75% improved impervious areas consisting of pavement, buildings and treatments facilities. Vegetated areas are limited to isolated lawn areas, river bank vegetation and trees along the river. Riparian corridor vegetation includes sycamore, box elder, and ash trees along with an assortment of vines and ground cover, including Japanese Knotweed, which is an invasive species.

Broome County is identified as an Emerald Ash Borer (EAB) (*Agrilus planipennis*) quarantined county by the NYSDEC and U.S. Department of Agriculture-Animal and Plant Health Inspection (USDA-APHIS). The EAB was accidentally introduced from Asia and has killed millions of ash trees in forested and urban areas. EAB larvae hatch inside boreholes in the tree and feed on the phloem and cambium, disrupting the ability of the tree to transport water and nutrients (Herms & McCullough, 2014). Executive Order 13122; Invasive Species mandated that federal agencies not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States.

5.8.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action alternative would have no direct impact on vegetation. Potential sewage overflow from the Plant during a flood event could potentially damage vegetation.

Proposed Action Alternative

The Proposed Action Alternative would have adverse impact to vegetation along the proposed floodwall alignment parallel to the Susquehanna River, due to required permanent removal of trees and shrubs in the floodwall corridor. As much of the rest of the site is previously developed and without vegetation, impacts to vegetation elsewhere in the project area would be negligible. Approximately 30 mature trees on approximately 0.1-acre will likely need to be removed from the floodwall alignment adjacent to the river. The linear footage along the Susquehanna River is approximately 850 linear feet. Mature trees are classified as any tree over 3" in diameter at breast height (DBH). As practicable and as voluntary conservation recommendation, tree removal would be seasonally phased outside June and July to avoid potential impacts to the Northern Long-eared bat as further described in Section 5.10. The Subgrantee would also manage any trees removed in accordance with EAB quarantine protocols. In order to adhere with EO13112 Invasive Species, woody tree and shrub material to be removed

for the proposed action would be chipped on site to chips of less than one inch in two dimensions or would not be transported whole outside the community. Japanese Knotweed required to be removed would be done by methods that are in accordance with the best management practices for avoiding or minimizing spread of the invasive plant.

Undeveloped areas disturbed during construction would be restored, planted with native seed, and/or plant species to minimize soil erosion and sedimentation, as well as enhance environmental habitat quality of the proposed project area. 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. Riparian corridor vegetation would be re-established to the extent practicable. Native shrub species such as red osier dogwood (*Cornus sericea*) and willow species (*Salix sp.*) could be incorporated into rip rap/rock areas as live stakes. USDA-NRCS and NYSDEC both have streambank/shoreline stabilization guidance available as reference for design and plant selection. However, it is recommended that a 15' foot buffer from the floodwall be maintained as a woody species free zone to maintain the structural integrity of the floodwall, and that the design and construction implementation adhere to the USACE ETL 1110-2-583 (2014) *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures*.

5.9 Wildlife and Fisheries Habitat

5.9.1 Existing Conditions

The Susquehanna River, the nation's 16th largest river, supports an enormous wildlife and migratory waterfowl population, as well as a commercial fishery that annually produces millions of pounds of fish and shellfish for East Coast markets. Near Binghamton/Vestal, the Susquehanna River is a medium to large-sized river that flows across a sand, mud, and stone bottom. Throughout a 20-mile stretch between Binghamton and Owego, the river is pocked with riffles, rapids, and runs connected by long, relatively shallow pools that provide safe harbor to both fish and wildlife. The fishery is dominated primarily by smallmouth bass and walleye along with rock bass. Yellow perch, sunfish, and bullhead are present but generally not in great numbers. A nearby wildlife area is home to deer, beaver, fox, mink, muskrat, porcupines and other mammals, a diverse amphibian and reptilian population, and numerous bird species. However, wildlife utilization of the property is limited by the intense development, high levels of human activity, and low habitat diversity.

Evaluation of potential impacts to migratory bird habitat per the Migratory Bird Treaty Act revealed that while the site lies within the Atlantic Flyway, there is no sensitive migratory bird habitat at the proposed project site.

5.9.2 Potential Impacts and Proposed Mitigation

No Action Alternative

No Action Alternative would not directly impact wildlife, birds (including sensitive migratory bird habitat), or fisheries habitat. However, if the existing facility is not protected, there is potential for pollutant releases during and/or following future floods. Potential impacts of

untreated sewage release on fish and wildlife species could range from stress on species, degradation of food sources, destruction of breeding grounds, and physical harm.

Proposed Action Alternative

The Proposed Action Alternative would not have a significant adverse impact on wildlife, birds (including sensitive migratory bird habitat) or fisheries habitat. The removal of woody vegetation from the floodwall corridor along the Susquehanna, including a small portion closest to the water at the Building # 3A and 3B sludge tanks, would permanently and temporarily disturb riparian habitat that provides predominantly shelter and some shade cover/foraging habitat for aquatic species and other wildlife. The noise and activity of construction would temporarily displace passerine birds and small mammals in the project vicinity. Sedimentation could temporarily adversely impact the river and creek waters and habitat for aquatic species, thus turbidity barriers and silt fences will be used to avoid or minimize sedimentation and erosion into the surrounding watercourses.

5.10 Threatened and Endangered Species and Critical Habitat

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing ESA are the United States Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NMFS). The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a “taking” of any listed species of endangered fish or wildlife.

5.10.1 Existing Conditions

Threatened and endangered species and critical habitat within the project site were reviewed through analysis of existing data sources, on-site field observations, and correspondence received from the NYSDEC New York Natural Heritage Program (NHP). According to correspondence from the NHP dated February 19, 2014 (*Appendix D*), the NHP has no records of rare or state listed animals or plants or significant natural communities on or in the immediate vicinity of the project site.

The USFWS Information, Planning and Conservation System (IPaC) website provides a list of federally-listed species by location. There are no listed species in Broome County as of February 2015. However, the project area serves as potential summer roosting habitat for the Northern long-eared bat (*Myotis septentrionalis*), a species proposed for listing as a threatened or endangered species on/about April 2, 2015, as to be determined by USFWS (*Appendix D*).

The bald eagle (*Haliaeetus leucocephalus*) is a delisted species identified in Broome County, yet it continues to receive protection under the Bald and Golden Eagle Protection Act amendment of 1972 (16 USC Part 668), the Migratory Bird Treaty Act of 1918, and the Migratory Bird Treaty Reform Act of 1998, which were enacted to prohibit the taking or attempt to take migratory game birds for the protection of the species. The bald eagle typically requires old-growth and

mature stands of coniferous or hardwood trees for perching, roosting, and nesting. Tree species reportedly is less important to the eagle pair than the tree's height, composition and location. Because of the existing site characteristics and Plant activities, it was determined that the trees to be removed would not provide suitable nesting habitat for the bald eagle. Eagles that may potentially perch on project site/vicinity trees for foraging along the river would be displaced and use other riparian corridor habitat during times of construction noise and disturbance. There are no known bald eagle nests within or adjacent to the project site; however, work is conditioned to avoid impacts to potential nesting bald eagles by maintaining a 660-foot construction buffer from any bald eagle nests during October through late August.

5.10.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action alternative would have no direct impact on state or Federally listed threatened and endangered species or migratory birds.

Proposed Action Alternative

Based upon the review of Federal and State sources, the proposed action would not affect endangered, threatened or rare species, or any critical habitat. FEMA consulted with USFWS in December 2014 regarding the proposed action and determined that the project may affect but is not likely to adversely affect the Northern long-eared bat if trees greater than 3" diameter-at-breast-height were removed during the window of October 1-March 31st (outside the potential roosting period for the Northern long-eared bat). USFWS concurred with FEMA's findings (February 17, 2015; *Appendix D*). Pursuant to section 7(a)(4) of the ESA and implementing regulations at 50 CFR §402.02 and 50CFR §402.10, FEMA determined that the proposed action would not be likely to jeopardize the proposed species, or destroy or adversely modify proposed critical habitat for the proposed species, as the site is more than 0.25 miles from a hibernaculum and the removal of approximately 30 trees would not represent a significant loss of potential roosting habitat that would jeopardize the regional population. The Subgrantee is requested, as a conservation recommendation, to schedule the removal of trees that are greater than 3" diameter-at-breast-height minimally outside of the months of June and July, the roosting or pup period of the Northern Long-Eared bat as identified in the January 16, 2015 proposed rule. The August-May tree removal window is consistent with the proposed rule that was issued by USFWS on January 16, 2015 after FEMA initiated consultation with the USFWS. If finalized, the rule issued by USFWS under section 4(d) of the ESA, would apply only in the event the Service lists the bat as "threatened". It is not known yet whether the species will be listed as "threatened" or "endangered". Therefore, preferably, the Subgrantee is requested to adhere to the more conservative tree removal window from the project specific consultation, which was to remove trees during October 1-March 31st, or to be prepared to re-initiate ESA consultation through FEMA if construction work is not initiated before April 2, 2015 and the more conservative tree removal window is consistent with final listing information at that time.

5.11 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800 requires Federal agencies to consider the effects of their actions on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to

comment on Federal projects that would have an effect on historic properties. These actions must take place prior to the expenditure of Federal funds. Historic properties include districts, buildings, structures, objects, landscapes, archaeological sites and traditional cultural properties that are listed in or eligible for listing in the National Register of Historic Places (NRHP).

5.11.1 Existing Conditions

The Area of Potential Effects (APE) includes the area of disturbance located within the property at 4480 Vestal Road as well as within the proposed easement along the south side of Vestal Road, across from the west end of the Plant.

There are no aboveground historic resources in the vicinity of the project area that would be affected by the project either directly or indirectly. While construction of the facility began in 1958, most of the buildings were added within the last 40 years as the plant adopted new technologies and expanded capabilities. The property lacks the historic significance and integrity necessary to be determined eligible for listing in the NRHP.

According to the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) website, a portion of the project site is located within an archeologically sensitive area. A Phase IA Cultural Resource Screening (July 2013) and a Phase 1B Archeological Survey (January 2014) were conducted by Public Archaeology Facility (PAF). The full report is included in *Appendix G*. The Phase 1A revealed that the APE had a moderate to high probability for the presence of large residential prehistoric sites but a low probability for historic archaeological sites. The Phase 1A identified areas with potential for intact soil horizons and areas where manual archaeological testing is possible. As part of the Phase 1B, shovel test pits (STPs) were placed along the facility perimeter on the north side near the Susquehanna River and on the south side of Old Vestal Road. Backhoe trenches were dug along the east perimeter of the property where fill was identified between 4 and 13 feet. No cultural material was encountered either in the STPs or in the backhoe trenches and no prehistoric or historic sites were identified. No further archaeological work was recommended.

Plans for a floodplain mitigation area were incomplete at the time of the Phase 1 survey, and it was noted that Phase 1B testing would be required in a mitigation area if the depth of soil exceeds the depth of fill and/or disturbance. It was later determined by PAF that the mitigation area was not required and no further studies are recommended.

5.11.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact cultural resources. There are no aboveground historic resources located within the project area and this alternative would not include any ground disturbance.

Proposed Action Alternative

There are no historic resources on the property and the review by the NYS Historic Preservation Office (NYSHPO) noted no historic structure concerns. The Phase 1A and 1B studies revealed the presence of no archeological resources in the APE. FEMA finds and NYSHPO concurred in

a letter dated November 3, 2014 reference number 14PR00526, that the proposed action alternative would have no effect on historic properties.

FEMA also consulted with the Oneida Nation of New York, Onondaga Nation, Tuscarora Indian Nation, Delaware Tribe of Indians, Delaware Nation, and the Stockbridge-Munsee Community Band of the Mohicans; provided information regarding the undertaking and its potential effects to historic properties and afforded the Tribes the opportunity to participate in the consultation. No response was received from the Onondaga Nation, Tuscarora Indian Nation or the Delaware Nation. The Oneida Indian Nation responded but had no further interest in the project as it is outside of their Nation's aboriginal territory. The Delaware Tribe responded with concurrence with the survey findings and no objections to the project. They also requested to be contacted in the case of inadvertent discoveries of human remains. The Stockbridge-Munsee Community Band of the Mohicans responded with no concerns within the APE and requested further consultation with the Tribe should plans for additional disturbance develop. All cultural resource consultations can be found in *Appendix G*.

5.12 Aesthetics and Visual Resources

5.12.1 Existing Conditions

The project site consists of the existing Plant, which is primarily made up of brick utilitarian buildings and metal tank structures. See *Appendix A* for full Building Inventory and *Appendix H* for photographs. The project area is municipal/industrial in nature, and includes the Plant and similar nearby uses, such as a public utility facility owned by New York State Electric and Gas. A car retail operation is located to the south across Vestal Road. The Susquehanna River borders the property to the north, with residential and institutional development across the river that is screened by mature vegetation.

5.12.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not affect the aesthetics of the project area.

Proposed Action Alternative

The Proposed Action Alternative would not significantly impact the aesthetics within the project area. While the new flood barrier wall would be constructed in 3 locations, it would largely be located on the side and rear of the property, out of the public viewshed. The floodwall would be in character with the industrial nature of the area. Form lined cast in place concrete treatments for the floodwall are being considered for those sections adjacent to the car dealership to minimize visual impacts to the property.

5.13 Socioeconomic Resources

5.13.1 Existing Conditions

According to the US Census Bureau website, the 2010 population for the Town of Vestal included 28,043 people, 8,938 households, and 5,700 families. The median household income in the town was \$62,998 and the median family income was \$78,704. The per capita income for the town was \$27,414. About 2.8% of families and 5.5% of the population were below the poverty

line, including 3.4% of those under age 18 and 3.8% of those ages 65 or over (US Census Bureau 2010 and 2013).

According to the 2010 census, Broome County’s population is 200,600, with 82,167 households. The median income for a household in the county was \$45,856. The median household income in the county was \$35,347 and the median income for a family was \$59,317. The per capita income for the county was \$24,872. About 11.1% of families and 16.5% of the population were below the poverty line, including 23.6% of those under age 18 and 8.5% of those ages 65 or over (US Census Bureau 2010 and 2013).

5.13.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative may have adverse impacts to the socioeconomic resources of the Town of Vestal and surrounding communities because it leaves the Town susceptible to the threat of flooding and loss of service.

Proposed Action Alternative

The Proposed Action Alternative would have a positive impact on the Town of Vestal and the surrounding communities by ensuring the health and safety of the community served. Additionally, a number of construction, construction supply, and construction support-related jobs will be created in the community during the period of construction, which can be expected to have a “multiplier effect” positive impact on the local economy.

5.14 Environmental Justice

EO 12898, entitled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” guides Federal agencies to “make environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations” (EPA 1994).

5.14.1 Existing Conditions

According to 2010 census data the population for the Town of Vestal, the town is comprised of 15.5% minority populations and about 5.5% of the population is below the poverty line. According to the EPA EJ Mapper using 2000 and 2010 census data, the project location is not delineated as an Environmental Justice community. However, the service area of the Plant includes several concentrations of low-income populations.

5.14.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not have a disproportionately high adverse impact on human health and human environment of minority or low income populations.

Proposed Action Alternative

The Proposed Action Alternative would not have a disproportionately high adverse impact on human health and human environment of minority or low income populations. The Proposed

Action Alternative would have a positive impact on the Town of Vestal and the surrounding communities overall by ensuring the health and safety of the community served.

5.15 Noise

The Noise Control Act of 1972 required the EPA to create a set of noise criteria. In response, the EPA published *Information On Levels Of Environmental Noise Requisite To Protect Public Health and Welfare With An Adequate Margin Of Safety* in 1974 which explains the impact of noise on humans.

Sound pressure level (SPL) is used to measure the magnitude of sound and is expressed in decibels (dB or dBA), with the threshold of human hearing defined as 0 dBA. The SPL increases logarithmically, so that when the intensity of a sound is increased by a factor of 10, its SPL rises by 10 dB, while a 100-fold increase in the intensity of a sound increases the SPL by 20 dB.

Equivalent noise level (Leq) is the average of sound energy over time, so that one sound occurring for 2 minutes would have the same Leq of a sound twice as loud occurring for 1 minute. The day night noise level (Ldn) is based on the Leq and is used to measure the average sound impacts for the purpose of guidance for compatible land use. It weighs the impact of sound as it is perceived at night against the impact of the same sound heard during the day. This is done by adding 10 dBA to all noise levels measured between 10:00 pm and 7:00 am. For instance, the sound of a car on a rural highway may have an SPL of 50 dBA when measured from the front porch of a house. If the measurement were taken at night, a value of 60 dBA would be recorded and incorporated into the 24-hour Ldn.

Leq and Ldn are useful measures when they are used to determine levels of constant or regular sounds (such as road traffic or noise from a ventilation system). However, neither represents the sound level as it is perceived during a discrete event, such as a fire siren or other impulse noise. They are averages that express the equivalent SPL over a given period of time. Because the decibel scale is logarithmic, louder sounds (higher SPL) are weighted more heavily; however, loud infrequent noises (such as fire sirens) with short durations do not significantly increase Leq or Ldn over the course of a day.

The EPA report found that keeping the maximum 24-hour Ldn value below 70 dBA would protect the majority of people from hearing loss. The EPA recommends an outdoor Ldn of 55 dBA. According to published lists of noise sources, sound levels and their effects, sound causes pain starting at approximately 120 to 125 dBA (depending on the individual) and can cause immediate irreparable damage at 140 dBA. The Occupational Safety and Health Administration (OSHA) has adopted a standard of 140 dBA for maximum impulse noise exposure.

5.15.1 Existing Conditions

The Town of Vestal Noise Ordinance Section 24-726 states that “a building permit shall carry an automatic increase in the noise limit of 75 dBA for all activities directly involved with the permitted construction for the hours between 7:00 am and 10:00 pm.” The sound measurements should be determined by the standards prescribed by the American National Standards Institute. The town has determined that for construction in industrial districts there is a 70 dBA limit for

daytime and nighttime work. As stated by the NYSDEC, the range of decibel levels for construction equipment ranges from 65-90 dBA at 50ft (http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf).

The project site is located on the bank of the Susquehanna River in an industrial area bordered by a commercial zone adjacent to a busy suburban thoroughfare. The ambient noise level in such industrial/commercial/highway environments is typically between 70 and 75 dBA.

5.15.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not impact ambient noise levels.

Proposed Action Alternative

The Proposed Action Alternative would have a temporary impact to ambient noise level during construction; no long-term impacts are expected. Avoidance of construction related noise impacts can be mitigated by implementing a typical work-day schedule, such as limiting heavy machinery use to the hours noted in the Town of Vestal's Noise Ordinance.

5.16 Traffic

5.16.1 Existing Conditions

Vestal Road is a busy suburban thoroughfare used by all types of traffic from single passenger cars, Broome County transit buses, school buses, commercial truck traffic and bicycles. According to the Binghamton Metropolitan Transportation Study (BMTS), over 10,000 vehicles a day travel the segment of Vestal Road on which the Plant is located (BMTS 2012). A significant amount of traffic utilizes Vestal Road to access Route 201, which connects Binghamton University with Route 17 (future I-86), as well as connecting the Town of Vestal to the Town of Union and Village of Johnson City. Vestal Road has also served as a detour route during construction on Route 434, which parallels Vestal Road and also connects to Route 201.

5.16.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would continue to have a negative impact on traffic during flood events.

Proposed Action Alternative

Under the Proposed Action Alternative, traffic would be temporarily impacted during construction due to increased traffic and installation of a flood gate across the road. As a component of the proposed floodwall, a FloodBreak roadway type floodgate would be installed across Vestal Road on the east side of Fuller Hollow Creek, which will necessitate temporary road closures. The floodgate would also block access along the roadway during flood events. The passively automated gate would rise with the buoyancy of flood waters and lock into place with the concrete floodwalls on either side. Redundant conventional floodgate logging would then be erected behind the floodgate as a secondary measure of flood protection. The floodgate system would span the entire width of Vestal Road, thus not allowing any traffic to pass while deployed. In order for the first wave of flood protection to deploy, Fuller Hollow Creek would have already risen above the banks of the creek and covered the roadway, making the road impassable. When

this has occurred in past flood events, it created a dangerous situation as waters began to rise, and motorists had to either detour or cross the flooded roadway.

The County Emergency Services have been fully briefed on the operation of the proposed floodgate and they expressed no concerns. Operations procedures for the manual deployment of the floodgate would include notification to Emergency Services and local authorities prior to deployment of floodgate. In addition, the floodgate would include high visibility reflectors to alert vehicles of the obstruction. In cases of automatic deployment due to flooding, local authorities would then erect barricades to prevent traffic from entering flooded roadways.

5.17 Infrastructure

5.17.1 Existing Conditions

The facility provides wastewater treatment services to population of approximately 89,790 people. The property is an existing facility served by all major utilities and will continue to use existing infrastructure. Electrical power is provided by New York State Electric & Gas (NYSEG); however, the treatment plant also has its own backup on-site emergency power generation capabilities. Natural gas is also provided to the plant by NYSEG. Underground utilities at the treatment plant and surrounding area include electric, natural gas, fire protection, and city water and sewer lines. All Plant utilities are detailed and located on plans, maps and surveys (*Appendix B*).

5.17.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would not directly impact the existing infrastructure. If the existing facility is not protected, there is potential for interruption of services at the Plant during and/or following future floods.

Proposed Action Alternative

The Proposed Project would result in temporary impacts to infrastructure during construction, but in the long term there would be a positive impact on existing infrastructure. The T-wall construction will intersect a number of utilities around the plant. All existing utilities serving the site would be maintained during and after construction. Proposed improvements to the facility would include redundant check valves on sanitary and stormwater piping to prevent backflow and stormwater pumping that would allow the facility to continue to operate at least at some level throughout various stages of flooding and return to full operation in a timely manner as floodwaters recede. Work also includes the realignment and replacement of a sewer line along Vestal Road. An easement would be required for providing access and physical alterations and improvements during the construction phase. A permanent easement would be required for the siting of a portion of the floodwall on private lands as well to allow for long term maintenance. Planned alterations and improvements to the private lands would include the rerouting of an existing sewer line, construction of the floodwall and a guiderail.

5.18 Public Health and Safety

5.18.1 Existing Conditions

The Town of Vestal and the surrounding area's public health and safety were negatively impacted by Tropical Storm Lee. The Plant experienced extensive flood damage and was rendered inoperable for a period of three and one-half days. Thereafter, as detailed in Section 3.0, above, the Plant was limited in its ability to accept and treat peak wet-weather hydraulic flows for nearly nine months and continues to be unable to provide secondary treatment pending completion of long-term repairs and renovations.

Sewage treatment is the process of removing contaminants and pollutants from household/domestic sewage and commercial, institutional, and industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants, bacteria, and pollutants. NPDES limits for potential pollutants are established to promote acceptable water quality standards and protect public health and safety. When a wastewater treatment plant fails, discharge of biochemical oxygen demand material, nutrients, settleable and suspended solids, trace metals, pollutants, bacteria, and other contaminants in excess of established NPDES permit limits could occur. A wastewater release could adversely impact public health due to potential human exposure to the bacteria-laden wastewater and could adversely impact the safety of downstream water supplies due to contamination of those waters. Release of pollutants or nutrients could also disrupt the ecological balance of wetland areas and potentially cause algal blooms or also could cause contamination of wetland or upland soils used by wildlife or by humans for farming. Presently the NYSDEC Consent Order requires the Plant to remedy any environmental, natural resource, or public health damage resulting from the violations. It also requires a detailed compliance schedule that provides milestone dates to correct all violations leading to full regulatory compliance by the soonest feasible date. The Consent Order also requires the use of effective and feasible controls to minimize any environmental threat or damage during the interval between the execution of the Consent Order and the date of final compliance in the Compliance Schedule.

5.18.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action Alternative would negatively impact public health and safety by leaving the facility vulnerable to repetitive flood damage. If the existing facility is not protected, there is potential for pollutant releases during and/or following future floods.

Proposed Action Alternative

The Proposed Action Alternative would have a positive, beneficial impact on the overall community public health and safety, as well as the safety of downstream water supplies. The Plant would be made more stable and sustainable in terms of its ability to continue at least limited operation during a flood emergency and return to full operation much more quickly after floodwaters recede than is presently possible.

5.19 Climate Change

EO 13514 “Federal Leadership in Environmental, Energy and Economic Performance” sets sustainability goals for Federal agencies and focuses on making improvements in their environmental, energy and economic performance. EO 13653 “Preparing the United States for the Impacts of Climate Change” sets standards to prepare the United States for the impacts on climate change by undertaking actions to enhance climate preparedness and resilience. FEMA is required, under these EOs, to implement climate change adaptability and green infrastructure in FEMA funded projects when feasible.

According to EPA, climate change “...refers to any significant change in the measures of climate lasting for an extended period of time” (EPA 2014). This includes major variations in precipitation, sea surface temperatures and levels, atmospheric temperature, wind patterns, and other variables resulting over several decades or longer. This is dubbed “abrupt climate change” which occurs over decades and distinguishes it from natural variability that occurs gradually over centuries or millennia. The EPA identifies and regulates human actions that may affect climate change. Embodied energy measures sustainability by accounting for the energy used by structures or to create materials. Another measure of sustainability is life-cycle or cradle-to-grave analysis, which accounts for the extraction, manufacture, distribution, use, and disposal of materials. While resources exist to quantify embodied energy and life cycle analysis, no such calculations were required to be prepared by the Subgrantee for the options presented in this EA.

5.19.1 Existing Conditions

Climate change could potentially increase temperatures in the northeast United States; could potentially cause more severe weather incidents to occur; and could potentially cause sea levels to rise.

5.19.2 Potential Impacts and Proposed Mitigation

No Action Alternative

The No Action alternative would not provide for flood damage risk reduction and other hazard mitigation measures; therefore, the facility would be subject to greater risk of damage and operational disruption in the future. The risk of the flood damage to the facility and the environmental and public health impacts associated with potential flood-related wastewater releases would increase over time due to anticipated storm and rainfall frequency increases associated with climate change.

Proposed Action Alternative

The Proposed Action Alternative would provide for flood damage risk reduction and other hazard mitigation measures that are relevant to facility resilience for present and future climate change conditions. The flood damage risk reduction measures planned would also minimize risk flood-related wastewater releases that would impact the environment and public health. As noted in Section 5.4.1, the project is not located in a nonattainment area for air quality; therefore, construction emissions and future operational use emissions would not be exacerbating air quality attainment concerns. Modeling was conducted for the proposed project to determine that the floodwall would not induce flooding onto neighboring properties and would not increase the

surface water elevation of the base flood more than one foot in the community. Therefore, the Proposed Action Alternative would not adversely exacerbate factors related to climate change.

5.20 Cumulative Impacts

In accordance with NEPA, this EA considers the overall cumulative impact of the Proposed Action and other actions that are related in terms of time or proximity. According to the Council of Environmental Quality (CEQ) regulations, cumulative impacts represent the “impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what federal agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

To address cumulative impacts, this section examines FEMA actions as well as non-FEMA actions occurring or proposed in the vicinity of the proposed project. The combined effects of these actions are evaluated to determine if they could result in any cumulative impacts. In addition to the FEMA action involved with the construction of the floodwall, several other repairs and improvements are being made to the property and surrounding area. Currently, the Subgrantee has 21 additional project worksheets submitted to FEMA (*Appendix I*) to address various facility repairs, mitigation, and/or alternate projects.

Concurrent and reasonably foreseeable future actions within the project vicinity include reconstruction of the Plant damaged elements, proposed alternate project at the Compost Building, Terminal Pump Building site improvements, and proposed sediment removal at the Fuller Hollow Creek confluence with the Susquehanna River.

Emergency generators would be installed to facilitate continued ability to power pumps and other treatment process equipment in the event of power failure during a disaster as well as to comply with the requirements under the Recommended Standards for Wastewater Facilities of the Wastewater Committee of the Great Lakes – Mississippi River Board of State and Provincial Public Health and Environmental Managers (2004 edition), commonly referred to as the “Ten States Standards”.

Although not funded by FEMA, the removal of gravel deposits from the Susquehanna River in the vicinity of the Plant’s outfall and at the mouth of Fuller Hollow Creek is also proposed, to improve Plant effluent discharge and mixing into the river as well as to partially restore the Susquehanna’s main stem flow path.

The potential impacts from the proposed project in combination with the identified concurrent and reasonably foreseeable future projects would not cumulatively have a significant adverse impact on the human environment. It is expected that the implementation of the Proposed Alternative in association with other construction activities would have an overall positive impact on human health and the environment as compared with the No Action, as it will limit

future risk of damages to a critical facility and human environment and/or enhance operations of the critical facility.

6.0 PERMITS AND PROJECT CONDITIONS

The Subgrantee is responsible to obtain all applicable Federal, state, and local permits for project implementation prior to construction, and to adhere to all permit conditions. The Subgrantee has already completed a New York State Environmental Quality Review Act (SEQRA) documentation process, which includes the forms provided in *Appendix C*. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other laws and executive orders. The Subgrantee must also adhere to the following conditions during project implementation. Failure to comply with these conditions may jeopardize Federal funds:

1. The Proposed Action is to floodproof the facility through installation of a floodwall with a design elevation at/above the 500-year floodplain elevation utilizing the Best Available Data (Preliminary FIRM dated February 5, 2010) consistent with the National Flood Insurance Program (NFIP) and in accordance with 44 CFR Part 9. The Subgrantee must submit a floodproofing certification to the Grantee/FEMA prior to or at project closeout for the proposed project consistent with 44 CFR 65.10.
2. The Subgrantee must coordinate with the local floodplain administrator or code enforcement official prior to taking actions within regulated floodplain areas and must comply with Federal, state, and local floodplain laws, regulations and codes/ordinances. The Subgrantee shall submit a copy of the obtained floodplain management permit to NYSDHSES/FEMA prior to or with final closeout grant paperwork for the public assistance grant.
3. Excavated soil and waste materials will be managed and disposed of in accordance with applicable Federal, state, and local regulations.
4. The Subgrantee shall be responsible to comply with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) permit for stormwater discharge from construction activity or other applicable SPDES permit, in accordance with NYS Environmental Conservation Law. If the NYSDEC General Permit for Stormwater Discharges is determined to cover the proposed action, the Subgrantee shall provide NYSDHSES/FEMA a copy of the Stormwater Pollution Prevention Plan (SWPPP) and a copy of the Notice of Intent Form at grant project close-out or other time identified by NYSDHSES/FEMA per grant administrative documentation guidance requirements. If an individual SPDES permit is determined to be required, the Subgrantee shall provide a copy of the obtained permit, as well as supporting SWPPP to NYSDHSES/FEMA at grant project close-out or other times identified by NYSDHSES/FEMA per grant administrative documentation guidance requirements. For more information regarding SPDES, visit the following website: <http://www.dec.ny.gov/chemical/43133.html>. It is expected that the Subgrantee and its construction contractor(s) will conduct construction utilizing best management practices to limit noise, dust and sedimentation, and erosion during construction. Turbidity barriers will be used for sedimentation control for construction work conducted directly adjacent to the Susquehanna River or Fuller Hollow Creek.

5. In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the Subgrantee will immediately stop construction activities in the vicinity of the discovery, and take all reasonable measures to avoid or minimize harm to the property until FEMA has completed consultation with the SHPO, Participating Tribes, and any other consulting parties. As soon as possible, the Subgrantee will contact: local law enforcement and the county coroner/medical examiner (for human remains), NYSDHSES, SHPO, and FEMA. FEMA will immediately coordinate with the SHPO, notify Participating Tribe(s)/Nation(s) and any other consulting parties that may have an interest in the discovery, and consult to evaluate the discovery for National Register eligibility. FEMA will consult with the consulting parties in accordance with the review process outlined in Stipulation II, Project Review, of FEMA's New York Statewide Programmatic Agreement executed on November 24, 2014 to develop a mutually agreeable action plan with timeframes to identify the discovery, take into account the effects of the Undertaking, resolve adverse effects if necessary, and ensure compliance with applicable Federal and State statutes. In cases where discovered human remains are determined to be American Indian, FEMA shall consult with the appropriate Tribal representatives and SHPO. In addition, FEMA shall follow the guidelines outlined in the ACHP's *Policy Statement Regarding the Treatment of Burial Sites, Human Remains, and Funerary Objects* (2007). FEMA will coordinate with DHSES and the Subgrantee regarding any needed modification to the scope of work for the Undertaking necessary to implement recommendations of the consultation and facilitate proceeding with the Undertaking.
6. The United States Army Corps of Engineers (USACE) may require a permit for the proposed project. The work may be authorized by a general permit (i.e. nationwide permit). The Subgrantee shall be responsible for obtaining all necessary permits and complying with all conditions of the permit including but not limited to notification and signature requirements to insure validation of permits. The project may likely require an Article 15 permit from NYSDEC for stream disturbance, excavation and fill in navigable waters and freshwater wetlands. The Subgrantee shall submit copies of all obtained permits and/or notifications to the Grantee/FEMA at or prior to final closeout of the public assistance grant. The Subgrantee shall include a brief narrative with close-out submission to explain the permits obtained and/or complied with for the proposed project.
7. Occupational Safety and Health Administration (OSHA) standards must be followed during construction to avoid adverse impacts to worker health and safety.
8. The proposed project area serves as potential summer roosting habitat for the Northern long-eared bat (*Myotis septentrionalis*), a proposed species for the federal threatened and endangered species list. It is to be determined if the species will be listed as threatened or listed as endangered. Pursuant to section 7(a)(4) of the Endangered Species Act (ESA) and implementing regulations at 50 CFR §402.02 and 50 CFR §402.10, FEMA determined that the proposed action would not be likely to jeopardize the proposed species, or destroy or adversely modify proposed critical habitat. The Subgrantee is requested, as a voluntary conservation recommendation, to avoid cutting or destroying known, occupied maternity roost trees during the pup season (June 1-July 31) for the Northern long-eared bat and preferably schedule tree removal during October 1-March 31st do adhere to the conservation window that FEMA consulted

with USFWS about prior to the proposed rule that was issued by USFWS on January 16, 2015. The January 16, 2015 proposed rule identified the narrower June 1-July 31st protection window per section 4(d) of the ESA and would apply only in the event the Service lists the bat as “threatened”. If the Northern long-eared bat is listed, and if project activities are expected to continue afterwards, this concurrence will serve to satisfy consultation requirements pursuant to Section 7 of the ESA, provided that: (1) the project scope and activities remain unchanged; (2) any proposed conservation recommendations are implemented as conservation measures consistent with final listing conservation measure requirements; and (3) there are no other changes (e.g., to the landscape, habitat, etc.) that may affect the newly-listed species and that have not already been analyzed in this consultation. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of federally-listed and proposed endangered and threatened species in New York is available for your information. Until the proposed project is complete, the Grantee and Subgrantee are recommended to check the USFWS website every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current. The U.S. Fish & Wildlife Service (USFWS) New York Field Office website provides general information about species. The Information, Planning and Conservation System (IPaC) website can be utilized for site specific information. The proposed species could be listed as endangered as early as April 2, 2015, although it is to-be-determined. If the proposed construction action has not been initiated by April 2, 2015 and the species is listed at that time, the Grantee/Subgrantee must contact FEMA to re-open project federal agency environmental compliance review and ESA consultation if the Grantee/Subgrantee cannot adhere to the tree removal window of October 1-March 31st (or adhere to the tree removal window identified in the final listing of the species if identified as narrower pup season window of June-July). If the tree window can be adhered to, the Grantee/Subgrantee will be in compliance with ESA and no further consultation through FEMA will be required at that time. If the Grantee/Subgrantee has any questions concerning this conservation recommendation that is voluntary at this time, please feel free to contact FEMA Region 2 at 212.680.3600. Additional general information about the Northern long-eared bat is available at: www.fws.gov/Midwest/endangered/mammals/nlba/index.html. Please include a brief narrative in the project closeout submission that explains the timing (dates of duration) when mature trees were removed.

9. The Subgrantee (and its contractors) must not conduct construction actions within 660 feet of a known Bald Eagle nest from late October through late August.
10. Broome County is currently identified as a quarantine zone for the invasive insect Emerald Ash Borer (EAB). Since this is an EAB quarantine county, any woody tree and shrub material to be removed for the proposed action is required to be chipped on site to chips of less than one inch in two dimensions and must not be transported whole outside the community in order to adhere with EO 13112 Invasive Species, Federal regulations at 7 CFR Parts 301.53-1 through 301.53-9 and state regulations at 1 NYCRR Part 141. Invasive insects can devastate the forests of the northeast and it is recommended that communities in the northeast treat or handle wood materials in

place to minimize the spread of these non-native insects. For more information concerning this environmental stewardship requirement, visit U.S. Department of Agriculture- Animal and Plant Health Inspection, New York State Department of Agriculture and Markets, and other websites concerning EAB:

- www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/
- www.agriculture.ny.gov/PI/eab.html
- www.nyis.info/?action=news_detail&event_id=306

Please include a brief narrative in the project closeout submission that explains how the quarantine protocol was adhered for tree removal activities.

11. Existing site woody vegetation should be maintained to the extent practicable. Trees to be preserved should be flagged or otherwise delineated for protection during construction. Trees to be preserved that are greater than 3” diameter-at-breast-height should be protected with standard tree protection structures (i.e. fencing) during construction operations. The Subgrantee must replant disturbed riparian and wetland habitat areas with native shrub species and/or native seed material, as practicable. Bioengineering stakes such of red osier dogwood and native willow species are options for replanting areas of proposed riprap. It is recommended for all other undeveloped site areas 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 area. 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 material. Local landscape plant nurseries and soil conservation offices can assist with identification of suitable native plants for site location type. The following websites may also be useful to identification of native plant material for the proposed project site:

- <http://plants.usda.gov/java/>
- www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/plants/
- www.fs.fed.us/wildflowers/nativeplantmaterials/rightmaterials.shtml

For bioengineering design information visit: www.dec.ny.gov/permits/50534.html or <http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17553.wba>.

As knotweed is found on the site and may need to be removed for the proposed project, the Subgrantee must follow protocols to avoid or minimize the spread of this invasive plant. The plant should not be mowed or weed-trimmed and plant debris should be properly bagged and disposed of for removal. For more information, visit www.nyis.info/index.php?action=invasive_detail&id=43.

12. It is recommended that the design and construction implementation adhere to the USACE ETL 1110-2-583 (2014) *Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures*.
13. If the Grantee and Subgrantee obtain site fill for construction, the fill must be from a permitted commercial supplier or locally municipally owned soil/gravel borrow area permitted for mining/excavation as fill material. If the Grantee and/or Subgrantee plan to obtain soil or gravel from a non-commercial source or site that is not permitted, the details of the proposed source location must be submitted to FEMA for approval as a

scope of work change prior to construction implementation. FEMA would need to conduct a federal agency environmental and historic preservation compliance review of non-permitted/non-commercial sources prior to construction implementation. The environmental concerns would be potential impacts to cultural resources or habitat areas at an excavation site not previously reviewed, permitted and otherwise cleared for use as a borrow area.

14. Equipment and materials staging must be sited on impervious cover (i.e. parking lot). If the Subgrantee proposes to stage equipment and materials off-property, the staging location should be coordinated with NYSDHSES/FEMA to ensure that the staging would not adversely impact natural and cultural resources. The Subgrantee should also develop a contingency plan for construction implementation to move equipment and materials, as practicable, in the event of a flood during phases of an incomplete floodwall structure.
15. Subgrantee shall not initiate construction activities until fifteen (15) days after the date that the Finding of No Significant Impact (FONSI) has been signed as "APPROVED."

7.0 PUBLIC INVOLVEMENT

In accordance with NEPA, this EA Report will be released for a 30-day public review and comment period. Availability of the document for comment will be advertised via public notices in the *Binghamton Press & Sun-Bulletin*. A hard copy of the EA will be made available for review at the Town of Vestal Town Hall (Town Clerk's Office), 605 Vestal Pkwy W, Vestal, NY 13850; at the City of Binghamton City Hall, 38 Hawley Street, Binghamton, NY 13901, and at the Town of Johnson City Town Hall, 243 Main Street, Johnson City, NY 13790. An electronic copy of the EA will be available for download from the FEMA website at <http://www.fema.gov/resource-document-library>.

This EA reflects the evaluation and assessment 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, Office of Environmental Planning & Historic Preservation, Leo O'Brien Federal Building, 11A Clinton Avenue, Suite 742, Albany, New York 12207, or E-mail to: FEMA4020-4031Comment@fema.dhs.gov.

The EA evaluation resulted in the identification of no significant impacts to the human environment. Obtaining and implementing permit requirements along with appropriate best management practices would avoid or minimize potential adverse effects associated with the alternatives considered in this EA to below the level of a significant impact. If no substantive comments are received as a result of the public review and comment period, FEMA will adopt the EA as Final and issue the Finding of No Significant Impact (FONSI). If substantive comments are received, FEMA will evaluate and address comments as part of the FONSI or prepare a Final Environmental Assessment to document comments and responses and any changes to the proposed action in response to input from the public.

Copies of the EA will be sent to:

BJCJSTP (Subgrantee)

NYSDHSES

1220 Washington Avenue, Suite 101, Building 22
Albany, NY 12226-2251

NYSDEC Region 7

Syracuse- Main Office

615 Erie Blvd. West

Syracuse, NY 13204

Notifications of the EA's availability will be sent to:

U.S. Army Corps of Engineers, Buffalo District – Regulatory Program

U.S. Environmental Protection Agency Region II, Regional Administrator Ms. Judith Enck

U.S. Environmental Protection Agency Region II - Strategic Planning and Multi-Media Programs, Ms. Grace Musumeci.

New York State Office of Parks, Recreation, and Historic Preservation, Mr. John Bonafide

New York State Department of Environmental Conservation - Division of Waters, Floodplain Management, Mr. William Nechamen

Onondaga Nation, Mr. Irving Powless, Chief

Onondaga Nation, Mr. Anthony Gonyea, Faithkeeper-Beaver Clan

Tuscarora Chiefs Council

Tuscarora Indian Nation, Mr. Neil Patterson, Environmental Program Director

Delaware Tribe of Indians, Chief Chet Brooks

Delaware Tribe Historic Preservation Representative, Ms. Blair Fink

Delaware Nation, Mr. Clifford Peacock, President

Delaware Nation, Ms. Nekole Alligood, Cultural Preservation Director

Stockbridge-Munsee Community Band of Mohicans, Mr. Wallace Miller, President,

Stockbridge-Munsee Community Band of Mohicans, Ms. Bonney Hartley, Tribal
Historic Preservation Assistant

City of Binghamton Engineering Department

Village of Johnson City Department of Public Works

Upper Susquehanna Coalition

Susquehanna River Basin Commission

8.0 CONCLUSION

FEMA through NEPA and the Subgrantee through the State Environmental Quality Review Act (SEQRA) have found that the Proposed Action Alternative to build a floodwall and implement dewatering measures would not significantly adversely impact the human environment. During construction of the proposed facility, short-term impacts to soils, surface water, transportation, air quality, and noise are anticipated. Short-term impacts would be mitigated utilizing BMPs, such as turbidity barriers, silt fences, proper equipment maintenance, and appropriate signage. Environmental impacts of construction would also be minimized per adherence to the required Stormwater Pollution Prevention Plan (SWPPP) and conditions of issued permits. In the event that contamination is encountered during site development, it would be handled and disposed of properly and in compliance with applicable regulations. The project would adversely impact riparian corridor habitat, including wetland habitat; however, it was determined that it was not practicable to avoid those natural resource areas and that the overall environmental and public benefits of the proposed action would outweigh minor wetland and riparian corridor habitat permanent and temporary disturbances. The project would have a beneficial effect on flood damage risk reduction for the facility's infrastructure and the operational resilience of the facility. The potential future releases of wastewater during flooding events would also be minimized due to the proposed structural floodproofing measures. It was determined that relocation of the critical facility outside the 500-year floodplain was not a practicable alternative for the critical action; and the risk of continued floodplain occupancy would be minimized to the extent practicable and is outweighed by the public benefits of the proposed action.

9.0 LIST OF PREPARERS

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Griffiths Engineering, 13 S. Washington Street, Binghamton, NY 13903

FEMA Region II, 26 Federal Plaza, New York, New York 10278

10.0 REFERENCES

Recommended Standards for Wastewater Facilities of the Wastewater Committee of the Great Lakes – Mississippi River Board of State and Provincial Public Health and Environmental Managers (2004 edition), Retrieved <http://10statesstandards.com/wastewaterstandards.html>

ACI 350-06 Code Requirements for Environmental Engineering Concrete Structures. Retrieved <http://www.concrete.org/store/productdetail.aspx?ItemID=35006>

Binghamton Metropolitan Transportation Study (BMTS). (2012). *BMTS Annual average daily traffic (AADT)*. Retrieved <http://www.bmtsonline.com/bmts/traffic-counts>.

Broome County (2013) *Broome County Comprehensive Plan - Building our Future*. Retrieved <http://gobroomecounty.com/comprehensiveplan>.

Environmental Data Resources (EDR), Inc. (January 13, 2014) *The EDR Radius Map Report with GeoCheck*. BJCJSTP Floodwall Project Site.

Environmental Protection Agency (EPA). (No Date). *Climate Change*. Retrieved <http://www.epa.gov/climatechange/>

Environmental Protection Agency (EPA). (1994). *Executive Order 12898, entitled "Federal actions to address environmental justice in minority populations and low-income populations"*. Retrieved www.epa.gov/environmentaljustice.

Environmental Protection Agency (EPA). (2008). *Area designations for 2008 ground-level ozone standards*. Retrieved www.epa.gov

Environmental Protection Agency (EPA). (2014). *EJView*. Retrieved <http://epamap14.epa.gov/ejmap/entry.html>

Environmental Protection Agency (EPA). (1974). *Information On Levels Of Environmental Noise Requisite To Protect Public Health and Welfare With An Adequate Margin Of Safety*.

Environmental Protection Agency (EPA). EPA843-F-04-001 Fact Sheet on *Wetland Regulatory Authority*. http://water.epa.gov/type/wetlands/outreach/upload/reg_authority.pdf

Federal Emergency Management Agency (FEMA). (2010). *Executive Order 11988: Floodplain management*. Retrieved www.fema.gov/plan/ehp/ehplaws/eo11988.shtm

Federal Emergency Management Agency (FEMA). (No Date). *FEMA Map Service Center*. Retrieved msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Hermes, Daniel A. and McCullough, Deborah G. (2014). *Emerald Ash Borer Invasion of North America: History, Biology, Ecology, Impacts, and Management*. *Annual Review of Entomology* 2014. 59:13–30

New York State Department of Environmental Conservation (NYSDEC). (2008). *Environmental Resource Mapper*. Retrieved www.dec.ny.gov/animals/38801.html.

New York State Department of Environmental Conservation (NYSDEC). (No Date). New York Natural Heritage Program: State threatened and endangered species. Retrieved www.dec.ny.gov/imsmaps/ERM/viewer.htm.

NYSDEC Division of Air Resources (DAR) (No Date). *Air Facility Permits and Registrations*. Retrieved <http://www.dec.ny.gov/chemical/8569.html>

Public Archaeology Facility. (2014) *Phase IB Archaeological Survey, Binghamton-Johnson Sewer Treatment Plant Project*. Prepared for Griffiths Engineering, LLC, Binghamton, New York.

State Preservation Historical Information Network Exchange (SPHINX). (2014). *State and National Register Listing*. Retrieved <http://pwa.parks.ny.gov/SPHINX/>

Strahler, A. N. (1952), "Hypsometric (area-altitude) analysis of erosional topology", *Geological Society of America Bulletin* 63 (11): 1117–1142., Retrieved http://usgs.mrs.cr.usgs.gov/NHDHelp/WebHelp/NHD_Help/Introduction_to_the_NHD/Feature_Attribution/Stream_Order.htm.

United States Army Corps of Engineers (USACE). (1989). *EM 1110-2-2502 Retaining and Flood Walls*.

United States Census Bureau. (2010). *2010 Population Finder*. Retrieved www.census.gov.

United States Census Bureau. (2013). *American Community Survey 2008-2012*. Retrieved www.census.gov

United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) *Custom Soil Survey of Broome County, New York*. (2014).

United States Fish and Wildlife Service (USFWS). (No Date). *Endangered species program*. Retrieved www.fws.gov/endangered

United States Fish and Wildlife Service (USFWS). (No Date). *National Wetlands Inventory (NWI)*. Retrieved www.fws.gov/wetlands/

United States Fish and Wildlife Service (USFWS). (1977). National Environmental Policy Act (NEPA) Reference Handbook. *Executive Order 11990: Wetlands Protection*. Retrieved www.fws.gov/r9esnepa/NEPA_Handbook/EO_11990.pdf

United States Fish and Wildlife Service (USFWS). (2005). *Federally Threatened and Endangered Species*. Retrieved www.fws.gov/northeast/nyfo/es/list.htm

United States Fish and Wildlife Service (USFWS). (2014). The Information, Planning and Consultation System (IPaC). Retrieved http://www.fws.gov/ipac/ipac_Details.html

United States Geological Survey. (1976). Binghamton West Quadrangle Map.

United States Geological Survey/Department of Interior. (2014). *Floods of 2011 in New York, Scientific Investigation Report 2014-5058*.

United States Geological Survey. (2014). Natural Hazard Seismic Map for New York State.
<http://earthquake.usgs.gov/hazards/products/conterminous/>.