



EAST POINT ENERGY CENTER

Case No. 17-F-0599

Wetland Functions and Values Assessment

September 2019

Contents

| | | |
|------|---|----|
| 1.0 | Introduction and Purpose..... | 1 |
| 2.0 | Assessment Methodology..... | 2 |
| 3.0 | Wetland Functions..... | 4 |
| 3.1 | Wetland Values | 6 |
| 3.2 | Results | 7 |
| 3.3 | Groundwater Recharge/Discharge | 24 |
| 3.4 | Flood-flow Alteration..... | 24 |
| 3.5 | Fish and Shellfish Habitat | 25 |
| 3.6 | Sediment/Toxicant/Pathogen Retention..... | 26 |
| 3.7 | Nutrient Removal/Retention/Transformation | 26 |
| 3.8 | Production Export..... | 27 |
| 3.9 | Sediment/Shoreline Stabilization | 28 |
| 3.10 | Wildlife Habitat | 28 |
| 3.11 | Recreation..... | 29 |
| 3.12 | Educational/Scientific Value | 29 |
| 3.13 | Uniqueness/Heritage | 30 |
| 3.14 | Visual Quality/Aesthetics | 30 |
| 3.15 | Threatened or Endangered Species Habitat..... | 30 |
| 3.16 | Conclusions..... | 30 |
| 3.17 | References..... | 31 |

Tables

| | | |
|----------|---|---|
| Table 1. | Qualifier Assignment Table..... | 8 |
| Table 2. | Functions and Values of Delineated Wetlands | 9 |

1.0 Introduction and Purpose

This report has been prepared by TRC Environmental Corporation, Inc. (TRC) on behalf of East Point Energy Center, LLC (a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC [NEER]), and provides a functional assessment of the freshwater wetland resources, which may or may not be impacted by construction and/or operation of a proposed solar-powered wholesale generating facility with associated infrastructure located in the Town of Sharon, Schoharie County, New York (the Project).

The boundaries of wetlands that are deemed Waters of the United States are federally regulated by the United States Army Corps of Engineers (USACE) under the Clean Water Act of 1972 (Section 404, CWA). Originating in 1987, *The Highway Methodology Workbook* (the Workbook), was created by the USACE New England District and was intended to provide a useful way to integrate highway planning, design, and development with the requirements of USACE permit regulations, the National Environmental Policy Act (NEPA), and the Federal Highway Administration (FHWA) funding approvals (USACE, 1993). More specifically, a joint memorandum of agreement conducted between the Environmental Protection Agency (EPA) and USACE dated February 7, 1990 was appended to the workbook and recognized a stepwise process of avoidance, minimization, and compensation of adverse impacts to an established set of functions and values of wetlands. Subsequently, *Wetlands Functions and Values: A Descriptive Approach*, was created by the USACE New England District and acts as a supplement to the Workbook (the Supplement). Within the Supplement, a “Descriptive Approach” was presented as a method that any project, outside of the scope of highway development, could adopt in order to characterize wetland resources necessary for Section 404 permit requirements.

Recognizing the limitations of wetland assessment in only the aspect of numerical weightings and averages, stresses the need for a qualitative description of the physical, chemical, biological, and geological characteristics of wetlands in order to identify and measure exhibited functions and values. In the past, efforts to utilize best professional judgments to interpret functions and values would often be unorganized, unpredictable, and legally difficult to defend and document (USACE, 1999). In response, the USACE developed a format in the Supplement to collect and display this information and describe the functions and values assessment of wetlands in a measurable and un-biased perspective. It is for these reasons that TRC elects to specifically follow the USACE Highway Methodology and processes outlined in the Supplement.

East Point Energy Center, LLC hired TRC to survey, identify, and document all wetlands at a minimum distance from predetermined limits of disturbances (LOD) placed onto facility infrastructure. This boundary is referred to as the Project Area in the Wetland Delineation Report and will also be adopted and referred to by the same nomenclature within this Functions and Values Assessment. There are approximately 1,313 acres of leased private lands within the Project Area. TRC delineated a total of 41 freshwater wetlands within the Project Area, totaling approximately 81.46 acres. Permanent and temporary wetland impacts are proposed to occur as a result of the construction and operations phase of the Project. This Functions and Values Assessment is intended to aid in determining the wetland functions and values that may be impacted and/or altered as a result of the Project's construction and operation.

The functions and values of wetlands are the favorable roles that a wetland provides to its surrounding environment and also towards the benefit of human society. Functions and values are a result of specific biological, chemical, and physical characteristics within the wetland and many complex relationships maintained by the wetland within its watershed, local environment, and also with the general public. The assessment of the functions and values for wetlands have been used to categorize wetland features based on their level of significance, which might ensure that wetlands with higher functions or values receive proper vindication.

The 13 functions and values that are considered by the Supplement and by the USACE are listed further on (Sections 3.0 and 4.0). The list includes eight functions and five values. It should be noted that these functions and values are not the only wetland functions and values possible. However, these functions and values do represent the current working suite of descriptors provided by the USACE, which will be used to provide an objective representation of the wetland resources associated with the Project.

2.0 Assessment Methodology

This functional assessment was conducted in accordance with the *Wetlands Functions and Values: A Descriptive Approach*, described in the supplement to *The Highway Methodology Workbook* (the Supplement) by the New England Division of the USACE (1999). The method was designed to provide a flexible approach that incorporates wetland science obtained through data collection of wetland characteristics in the field to support a functions analysis, along with professional judgment and application regarding the assignment of a more subjective value measurement for each delineated wetland. As part of this method, the evaluator took into account

a number of predetermined “Qualifiers” that would be utilized as indicators or descriptors of particular functions and values. Based on the descriptions outlined in this Supplement, TRC developed a spreadsheet that displays several qualifiers, which when attributed, and in some instances combined with other qualifiers, identified the primary functions and values that could potentially be provided by the wetland. This data was tabulated and titled as the Qualifier Assignment Table (Table 1). These considerations included observed vegetation conditions, hydrologic conditions, size, adjacent area conditions, and the availability of public access, among other characteristics. These specific conditions within each of these consideration areas were strategically defined to allow each wetland’s functions and values to be evaluated based on data collected during field surveys.

Functions and values were then evaluated for all wetlands that were observed during the growing seasons of 2017, 2018, and 2019. Data on qualifiers of functions and values were documented at each wetland where vegetation, soils, hydrological data, location, and geographic nature were also collected as part of a formal delineation. A total of 41 wetlands delineated within the Project Area were entered into the spreadsheet and the various wetland qualifiers identified at each wetland. Based on the entered data, the primary functions and values provided by each wetland were determined and documented based off of cross-references to the predetermined Qualifier Assignment Table (Table 2).

Wetlands functions and values recognized under Article 24 of the Environmental Conservation Law (ECL) and Regulations are similar to those described by the Supplement, and include:

1. Flood and storm control by the hydrologic absorption and storage capacity of freshwater wetlands
2. Wildlife habitat by providing breeding, nesting, and feeding grounds and cover for many forms of wildlife, wildfowl, and shorebirds, including migratory wildfowl and species such as the bald eagle and osprey
3. Protection of subsurface water resources and provision for valuable watersheds and recharging ground water supplies
4. Recreation by providing areas for hunting, fishing, boating, hiking, bird watching, photography, camping and other uses
5. Pollution treatment by serving as biological and chemical oxidation basins

6. Erosion control by serving as sedimentation areas and filtering basins, absorbing silt and organic matter, and protecting channels and harbors
7. Education and scientific research by providing readily accessible outdoor bio-physical laboratories, living classrooms, and vast training and education resources
8. Open space and aesthetic appreciation by providing often the only remaining open areas along crowded river fronts and coastal Great Lakes regions
9. Sources of nutrients in freshwater food cycles and nursery grounds and sanctuaries for freshwater fish

The Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of the ECL) gives the New York State Department of Environmental Conservation (NYSDEC) jurisdiction over state-protected wetlands and adjacent areas (100-foot upland buffer). The Freshwater Wetlands Act requires the NYSDEC to map all state-protected wetlands to allow landowners and other interested parties a means of determining where state jurisdictional wetlands exist. To implement the policy established by this Act, regulations were promulgated by the state under 6 NYCRR Parts 663 and 664. Part 664 of the regulations designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest. Consideration of the classifications assigned by the NYSDEC are included in this functional assessment where NYSDEC jurisdiction was pertinent.

3.0 Wetland Functions

Wetland functions are the properties or processes of a wetland ecosystem that aid in promoting a homeostatic natural environment while in the absence of human interference. A wetland's specific function results from both organic and inorganic components including physical, geologic, hydrologic, chemical, and biological systems. These components include all processes necessary for the self-maintenance of the wetland ecosystem such as, but not limited to, groundwater recharge, primary production, nutrient cycling, and sediment retention. Wetland functions relate to the ecological significance of wetland properties without regard to subjective human values. The eight functions defined by the Supplement, including short descriptions defining each function, are as follows:

1. **Flood-flow Alteration** - This function applies to the effectiveness of the wetland in reducing flood damage by containing an enhanced ability to store floodwaters for an extended period of time following heavy precipitation events.
2. **Groundwater Recharge/Discharge** - This function defines the potential for a wetland to act as a source of groundwater recharge and/or discharge. Recharge describes the potential for the wetland to contribute water to an underlying aquifer. Discharge relates to the potential for the wetland to act as a source of groundwater transfer to the surface (i.e., springs and hillside seeps).
3. **Sediment/Pollutant Retention** - This function describes the ability of a wetland to hinder the degradation of water qualities downstream. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens based off of its geomorphic position, connectivity, soil thickness, and other physical characteristics.
4. **Fish and Shellfish Habitat** - This function defines a wetland's ability to contain or influence suitable habitats for fish and shellfish species.
5. **Sediment/Shoreline Stabilization** - This function defines a wetland's ability to effectively stabilize streambanks and shorelines against future erosion events.
6. **Production (Nutrient) Export** - This function relates to a wetland's ability to produce food or usable products for organisms, including humans, within the trophic levels associated with the watershed.
7. **Nutrient Removal/Retention/Transformation** - This function relates to the wetland containing the ability to prevent excess nutrients from entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.
8. **Wildlife Habitat** - This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and their periphery. Resident and migrating species are considered along with the potential for any state or federally listed species occurring within the target wetland.

3.1 Wetland Values

Values are the societal benefits that occur as a result from one or more of the aforementioned functions and can also include other physical characteristics associated with a wetland that benefit society. Most wetlands have a corresponding public value to an assessable degree. The value of a particular wetland function, or a combination of functions, is based on the interpretative judgment of the significance attributed to the wetlands through the various functions it provides. The judgment of value was based on the opinion of recognized staff members whose views will be ultimately weighed and considered by the presiding agencies for the Project. The five values defined by the Supplement and adopted for use in this assessment, including short descriptions defining each value, are documented below.

1. **Recreation** - This value indicates if the wetland is effective in providing, or assisting in the establishment of, recreational opportunities such as boating, fishing, hunting, and other leisurely pursuits. Recreation in this capacity includes both consumptive and non-consumptive activities. Consumptive activities consume or diminish the plants, animals, or other resources that are naturally located in the wetland, whereas non-consumptive activities do not.
2. **Education/Scientific Value** - This value considers the effectiveness of the wetland as a site for public education or as a location for scientific research.
3. **Uniqueness/Heritage** - This value applies to wetlands and associated waterbodies that contain a singular or rare quality. Special qualities may include the wetland's history and the presence of archaeological sites; an unusual aesthetic quality; historical events, which may have taken place at the wetland; or unique plants, animals, or geologic features located within, or supported by, the wetland feature.
4. **Visual Quality/Aesthetics** - This value relates to the visual and aesthetic qualities of the wetland.
5. **Threatened or Endangered Species Habitat** - This value relates to the effectiveness of the wetland or associated waterbodies to specifically support threatened or endangered species.

3.2 Results

The assignment of qualifiers, which when attributed, and in some instances combined with other qualifiers, identified the primary functions and values that could potentially be provided by the wetlands identified within the Project Area (Table 1). The primary functions and values of each delineated wetland were based off observed qualifiers (Table 2).

Table1. Qualifier Assignment Table

| Qualifiers | Wetland Functions | | | | | | | | Wetland Values | | | | |
|--|-----------------------------------|-----------------------|---------------------------|--|---|-------------------|-----------------------------------|------------------|----------------|---------------------------------|-------------------------|-------------------------------|--|
| | Groundwater Recharge or Discharge | Flood Flow Alteration | Fish or Shellfish Habitat | Sediment, Toxicant, Pathogen Retention | Nutrient Removal, Retention, Transformation | Production Export | Sediment, Shoreline Stabilization | Wildlife Habitat | Recreation | Educational or Scientific Value | Uniqueness and Heritage | Visual Quality and Aesthetics | Threatened or Endangered Species Habitat |
| Associated with Watercourse | X | X | X | X | X | X | X | X | X | X | X | X | |
| Signs of Springs/Seeps | X | | | | | | | | | | X | | |
| Concave Landform or Gentle Gradient | | X | | X | X | | X | | | | | | |
| Deep Surface Soil Layer (16"+) | | X | | X | X | X | | | | | | | |
| Dense Vegetative Coverage | | X | X | X | X | X | X | X | | | | | |
| Sizeable Wetland | | X | X | | X | X | X | | X | X | X | X | |
| Deep Open Water Area | X | X | X | X | X | X | | | | | X | X | |
| Fish/Shellfish Present | | | X | | | X | | X | | | | X | |
| Ecologically Rich | | | | | | X | | X | X | X | X | | |
| Fine-grained or Organic Soils Present | X | X | | X | X | | | | | | | | |
| No to Low Wetland Fragmentation | | | | | | X | X | X | | | X | | X |
| Publicly Accessible | | | | | | | | | X | X | | X | |
| Threatened/Endangered Present or Habitat Present | | | | | | | | | | X | X | | X |
| Multiple Cover Types | | | | | X | X | | X | X | | X | X | |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-AJF-01 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge ; Wildlife Habitat |
| W-AJF-02 | Yes | No | Yes | No | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration ; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-AJF-03 | Yes | No | Yes | Yes | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration ; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-AJF-04 | No | No | Yes | Yes | High | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-AJF-05 | No | No | Yes | Yes | Medium | Medium | No | No | No | Yes | Medium | No | No | No | No | Groundwater Recharge/ Discharge ; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-AJF-06 | Yes | Yes | Yes | Yes | Medium | Small | Yes | Yes | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation ; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-AJF-07 | Yes | No | Yes | Yes | Low | Small | Yes | Yes | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-AJF-08 | Yes | Yes | Yes | Yes | Medium | Large | Yes | Yes | Yes | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat; Uniqueness/Heritage; |
| W-AJF-09 | Yes | No | Yes | Yes | Low | Small | No | No | No | Yes | Medium | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-AJF-10 | Yes | No | Yes | Yes | Low | Medium | No | No | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-AJF-11 | Yes | Yes | Yes | Yes | Medium | Large | No | No | No | Yes | Medium | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-AJF-12 | Yes | No | Yes | No | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Shoreline Stabilization ; Wildlife Habitat |
| W-AJF-13 | Yes | Yes | Yes | Yes | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation ; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-AJF-14 | No | No | Yes | No | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge ; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-AJF-15 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge /Discharge; Wildlife Habitat |
| W-AJF-16 | No | No | No | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-AJF-17 | Yes | Yes | Yes | Yes | High | Large | Yes | No | Yes | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat; Uniqueness/ Heritage |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-ARS-01 | No | No | Yes | No | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge Wildlife Habitat |
| W-ARS-02 | No | No | Yes | Yes | Medium | Large | No | No | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-ARS-03 | No | No | Yes | No | Medium | Small | No | No | No | Yes | Medium | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-ARS-04 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-ARS-05 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-ARS-06 | No | No | Yes | Yes | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-ARS-07 | Yes | No | Yes | Yes | Medium | Medium | Yes | No | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-ARS-08 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-ARS-09 | No | No | Yes | No | Low | Small | Yes | No | No | No | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-CTL-01 | Yes | Yes | Yes | Yes | High | Large | No | Yes | Yes | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|--|
| W-CTL-02 | Yes | Yes | Yes | Yes | High | Large | No | Yes | Yes | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Fish and/or Shellfish Habitat; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation ; Production Export; Sediment, Shoreline Stabilization; Wildlife Habitat |
| W-DJL-01 | No | No | Yes | Yes | Medium | Small | No | No | No | Yes | Medium | No | No | Yes | No | Groundwater Recharge/Discharge; Nutrient Removal, Retention, Transformation ; Wildlife Habitat |
| W-JJB-01 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge ; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-JJB-03 | No | No | Yes | Yes | Medium | Large | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge ; Wildlife Habitat |
| W-JJB-04 | No | No | Yes | Yes | Low | Medium | Yes | No | No | Yes | Medium | No | No | Yes | No | Groundwater Recharge/Discharge; Nutrient Removal, Retention, Transformation ; Wildlife Habitat |
| W-JJB-06 | No | No | Yes | No | Low | Small | Yes | No | No | No | Medium | No | No | Yes | No | Groundwater Recharge/Discharge ; Wildlife Habitat |
| W-JJB-07 | No | No | Yes | No | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge ; Wildlife Habitat |
| W-JJB-08 | No | No | Yes | Yes | Medium | Medium | No | No | No | Yes | Medium | No | No | Yes | No | Groundwater Recharge/Discharge; Nutrient Removal, Retention, Transformation ; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-MJR-18 | No | No | Yes | No | Low | Small | Yes | No | No | No | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-MJR-19 | No | No | Yes | Yes | Medium | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-MJR-20 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-MJR-21 | Yes | No | Yes | Yes | Medium | Small | No | No | No | Yes | Low | No | No | Yes | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |

Table 2. Functions and Values of Delineated Wetlands

| Wetland Name | Associated with Watercourse | Signs of Springs/ Seeps | Concave Landform or Gentle Gradient | Deep Surface Soil Layer (16"+) | Vegetative Cover Density (High, Medium, Low) | Wetland Size (Small, Medium, Large) | Deep Open Water Area (3'+) | Fish or Shellfish Present in Associated Stream | Ecologically Rich | Fine-grained or Organic Soils Present | Wetland Fragmentation (High, Medium, Low) | Publicly Accessible | Threatened or Endangered Species Present or Habitat Present | Multiple Covertypes | Rare Unique Features | Attributed Functions and Values* |
|--------------|-----------------------------|-------------------------|-------------------------------------|--------------------------------|--|-------------------------------------|----------------------------|--|-------------------|---------------------------------------|---|---------------------|---|---------------------|----------------------|---|
| W-MJR-22 | No | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/ Discharge; Wildlife Habitat |
| W-MJR-23 | Yes | No | Yes | Yes | Low | Small | No | No | No | Yes | Low | No | No | No | No | Groundwater Recharge/Discharge; Floodflow Alteration; Sediment, Toxicant, Pathogen Retention; Nutrient Removal, Retention, Transformation; Sediment, Shoreline Stabilization; Wildlife Habitat |

* Functions and values in bold represent the primary functions and values of each wetland.

3.3 Groundwater Recharge/Discharge

Groundwater can be found within surficial geology and also within bedrock formations. Groundwater is recharged naturally and can occur through multiple sequences. Recharge can occur from precipitation events directly on the surface, through percolation from waterbodies flowing across or situated above an aquifer, and also by subsurface flows between adjacent aquifers. Wetlands and waterbodies assist in groundwater recharge by being collection points for stormwater and surface water flows. Based on the specific soil content, geomorphology, and underlying bedrock characteristics, wetlands and waterbodies can be a direct source of groundwater replenishment. If specific wetland and waterbody characteristics are not conducive for direct groundwater recharge, they are still important as facilitators of flow regimes towards groundwater recharge sites downstream. Natural groundwater discharge often occurs at springs and seeps. Wetlands and waterbodies receive groundwater discharge typically where the water tables are high relative to surrounding elevations.

Within the Project Area, each of the identified wetlands were found to execute a measurable level of groundwater recharge/discharge function. This conclusion is due in part by the relative fluidity and connectivity of wetlands and waterbodies through surface or groundwater flows and the fundamental interactions that occur between wetlands and aquifers. A total of 18 wetlands had groundwater recharge or discharge as their primary function. Wetlands in the Project Area that displayed the function of either groundwater recharge or discharge were observed to have characteristics such as being associated with a watercourse, ponded water, signs of springs or seeps, sandy or organic soils, located in a concave depression or contain a gradual gradient, water marks, and deep surface soil layers. These characteristics indicate that the water level changes periodically or seasonally within the wetland due to potential discharge/recharge events, which the wetland assists in the continuance of surface water flows for groundwater recharge, or that physical attributes in the wetland allows for groundwater recharge/discharge to occur on-site at variable rates.

3.4 Flood-flow Alteration

A total of 18 wetlands within the Project Area were found to contain a practical ability to function as a site of flood-flow alteration or attenuation. A total of two wetlands had flood-flow alteration and/or attenuation as their primary function. Flood-flow alteration and/or attenuation is a wetland's ability to reduce or inhibit the peak flow of major storm events from damaging properties

downstream. Wetlands that occur higher in the watershed have the ability to reduce flooding of downstream waterbodies through ponding water or diffusing or diverting flow velocities. Wetlands that occur lower in the watershed may contain the ability to store high volumes of water through direct interactions with the local floodplain or contain large areas of deep porous surface soils with the ability to become heavily saturated and still maintain integrity during increased saturation events. Furthermore, if the wetland is situated in the riparian zone along a waterbody and contains dense vegetation, it has the ability to attenuate the severity of peak flows by dissipating flow velocity during flooding events.

Many of the delineated wetlands that contain the potential to function as an area of flood flow alteration or attenuation were noted to have ponded water, water marks, dense vegetation coverages, be associated with a waterbody, contain deep top layers of fine-grained or organic soils, large sizes when compared to other wetlands in the local watershed, or to be located in a concave depression or contain a gradual gradient. All these characteristics contribute to the ability to reduce and diffuse stormwater flow velocities, divert stormwater flows, and store excess water volumes.

3.5 Fish and Shellfish Habitat

For a wetland to contain fish and/or shellfish habitat, or directly contribute to the support of suitable habitats downstream, the wetland must be associated with a fish/shellfish bearing water. Wetlands providing the fish and shellfish habitat are typically associated with perennial streams or large bodies of standing water. These waterbodies contain enough production, nutrients, structure, complexity, and annual flow levels in the water column at depths to support the lifecycles of various fish and/or shellfish species.

A total of six wetlands within the Project Area were designated as having the function of supporting fish/shellfish habitat. Wetlands within the Project Area that primarily contained fish/shellfish and associated with perennial streams or large open waterbodies were determined to function as fish/shellfish habitat. Other contributing characteristics to the primary indicators of fish/shellfish habitat included wetlands that contained gradual slopes to allow for slow to moderate stream flows, wetlands that contained dense vegetation, and wetlands that contained little to no fragmentation were considered to function in support of fish and shellfish habitat. Wetlands with dense vegetation and associated with perennial waterbodies provide habitat through overhanging vegetation along the waterbody, which provide shading and cover objects such as woody debris

in the stream substrate. Delineated wetlands were also included as contributing to potential fish/shellfish habitat if they contained intermittent tributaries and/or ponded wetland areas that were in close connection to a perennial waterbody and could provide seasonal fish habitat or potential refugia within confluence areas. Wetlands directly connected and adjacent to predetermined high quality streams or designated trout streams by the NYSDEC were also characterized as containing the function of supporting fish/shellfish populations and/or habitat.

3.6 Sediment/Toxicant/Pathogen Retention

The sediment/toxicant/pathogen retention ability of a wetland is defined as characteristics that help inhibit the spread of sediments/toxicants/pathogens downstream and negatively affect lower sections of the watershed. Ultimately, the retention of excessive sediments, toxicants, or pathogens that may be carried by surface water runoff within the watershed reduces or prevents the degradation of water quality and is a function shared by many wetland features. A total of 15 wetlands, primarily with palustrine emergent (PEM) wetland characteristics, in the Project Area were noted to contain prominent sediment/toxicant/pathogen retention abilities. These wetlands were determined to have thick layers of organic soils that drain slowly, occur in a concave depression or shallow gradient to reduce outflow velocity, and contain areas of deep open water or inundation for extended durations to trap sediment/toxicant/pathogens and allow them to settle out of the water column. Wetlands that contain dense vegetation are also believed to assist in trapping sediment and were included as secondary characteristics associated with sediment/toxicant/pathogen retention. Generally, wetlands that were associated with a watercourse and were deemed suitable to provide flood-flow alteration were also noted to contain the function of sediment/toxicant/pathogen retention. This is due in part by the belief that sediments/toxicants will be carried downstream and deposited in wetlands during flooding events as well. Suspected potential sources of excess sediment/toxicants/pathogens such as animal farms, agriculture areas, construction sites, roadways, and industrial activities along watershed areas above wetlands increased the importance of this function and these wetlands were specifically targeted to support this function.

3.7 Nutrient Removal/Retention/Transformation

A total of 19 wetlands within the Project Area had the primary function of nutrient removal/retention/transformation. This function defines a wetland's ability to remove excess nutrients, such as fertilizers, from incoming water and prevent them from impacting waters

downstream. Wetlands remove nutrients through variable processes. Mostly wetlands remove excess nutrients by trapping sediments infused with nutrients, by adsorption into soils with high organic matter, and also through nitrification and denitrification events in alternating oxic and anoxic water conditions.

Wetlands that support this function also commonly assist in trapping and retention like the wetlands mentioned to contain the sediment/toxicant/pathogen retention ability. As such, wetlands within the Project Area that support nutrient removal/retention/transformation contain characteristics such as inundation or deep water habitats, were associated with a watercourse, contained a concave landform or gentle gradient to support slow draining, large in size, contained thick layers of fine-grained or organic soils, and contained dense vegetation coverage. Variation in vegetation cover types also allowed for more uptake, retention, and transformation of nutrients in wetland systems due to a presence of more variable plant life. Significant portions of the Project Area are under agricultural land use. As such, wetlands that contain the nutrient removal/retention/transformation function are particularly important in helping reduce the input of excess nutrients to downstream watercourses. An excess of nutrients deposited into a watershed can be associated with increased productivity levels of aquatic plant life, eutrophication events, and lowered dissolved oxygen levels throughout the water column. Such instances may lower water quality, alter aquatic habitat, and adversely impact fish and other aquatic species downstream.

3.8 Production Export

A total of seven wetlands within the Project Area assist in production export. This function relates to the ability of a wetland to produce resources that may be consumed by various trophic levels or also used by wildlife and humans downstream. In order to perform this function, a wetland must contain a level of high productivity. Generally, wetlands with greater size have greater areas of vegetation. These areas in turn have the potential for more production of organic matter. Wetlands that serve this function are also associated with having an abundance of wildlife habitat and ecological richness. This is due to the notion that an increased amount of trophic levels aid in the support of more production levels within the system and in turn, an increased level of production export downstream. Most of the wetlands in the Project Area that are associated with production export are large wetlands with a dense vegetative community and associated with a watercourse. Wetlands in the Project Area with this function also contained a relatively high ecological richness and a high structural diversity through the presence of multiple vegetative cover types. Wetlands

with ponding or seasonal inundation also serve as habitats for amphibians, reptiles, freshwater fish, and aquatic invertebrates. Also, these ponded areas serve as breeding areas for insects that are consumed by higher trophic levels like birds, bats, and other mammals.

3.9 Sediment/Shoreline Stabilization

A total of 17 wetlands within the Project Area contained the function of sediment/shoreline stabilization. Only one wetland had sediment/shoreline stabilization as its primary function. Sediment/shoreline stabilization is a function of wetlands that border an associated waterbody. This role is defined as an ability of the wetland to reduce erosion of stream channels downgradient of the wetland and within the wetland itself. This function readily occurs in areas where highly erosional forces take place during storm events when water channels are running at higher than average velocities.

Wetlands in the Project Area were considered to function in stabilizing the sediment and banks of a waterbody if they created a wide buffer zone adjacent to a waterbody and contained dense vegetation which acts to absorb and/or diffuse high flow velocities during flood events. Other evidence of the wetlands containing sediment/shoreline stabilization function included the location of the wetland within a concave depression or gentle gradient, which helped to reduce erosional forces from occurring along the banks and shoreline of the waterbody within the wetland complex due to the gentle down gradient.

3.10 Wildlife Habitat

Within the Project Area, each of the identified wetlands were found to execute a measureable level of wildlife habitat. Wildlife habitat was the primary function of one wetland due its observed use as a site for amphibian breeding habitat. Wildlife use or evidence of general wildlife use was directly observed during field surveys in many of the wetlands. White-tailed deer, gray squirrel, various songbirds, various birds of prey, green frogs, salamanders, and several other species were seen within wetlands located within the Project Area during field surveys. Other evidence of wildlife included indication of animal presence including tracks, scat, mammal burrows, scrapes, and chews. Wildlife habitat value can also be inferred by the characteristics of the wetland, particularly its ecological community type, dominant vegetation, and landscape setting. Emergent wetlands are deemed to be suitable for a variety of wetland bird species among other animals. Emergent wetlands also often support abundant insect populations which provide a food source for birds, bats, and other wildlife. Open water and emergent wetlands within the Project Area have

pools and seasonally inundated areas respectively, which can provide aquatic breeding habitats for amphibians as well. In shrub swamps and forested wetlands, shrubs and trees that produce berries such as buckthorn (*Rhamnus cathartica*), Allegheny blackberry (*Rubus allegheniensis*), smooth arrow wood (*Viburnum recognitum*), ashes (*Fraxinus* spp.), and winterberry (*Ilex verticillata*), may be used by birds and mammals as a food source. Hardwood tree species like oaks (*Quercus* spp.) found in some forested wetlands produce acorns, which are often consumed by mammal species.

Wetlands in the Project Area that support wildlife habitat were observed to have characteristics such as being associated with a watercourse, have dense and variable vegetative coverage, being ecologically rich, and having limited wetland fragmentation.

3.11 Recreation

All of the wetlands in the Project Area are not considered suitable for public recreation, as they are located on private land without available public access, parking, or available recreational facilities. Hunting on private lands is very prevalent within the Project Area. In some instances wetlands provide habitat complexity, shelter, and food sources to multiple game species and impacts to wetlands should account for impacts to the local hunting community. Small man-made farm ponds also provide recreational opportunities for hunting and fishing. Qualifiers of a wetland that would support a recreational value was determined to be availability of public access, the presence of wildlife habitat, association with a watercourse, sizable wetland complexes, multiple cover types, ecological richness, and rare and unique features. However, due to the limitations to public access, the value of recreation is not deemed a principal value for any of the wetlands within the Project Area.

3.12 Educational/Scientific Value

As with the value of recreation for wetlands, the wetlands in the Project Area do not provide educational or scientific value, as they are located on private land without available or safe public access, parking, or facilities. Qualifiers within a wetland that would support an educational or scientific value include the presence of wildlife habitat, association with a watercourse, sizable wetland complexes, multiple cover types, ecological richness, the presence of threatened or endangered species or their habitats, and rare and unique features. However, due to the limitations to public access, the value of education or scientific value is not deemed a principal value for any of the wetlands within the Project Area.

3.13 Uniqueness/Heritage

The uniqueness/heritage value takes into account the special value that a wetland may have in the context of cultural features located within or adjacent to the wetland, if the wetland has been identified by a local jurisdiction as having local/regional significance, and if there is an assumed rarity of the wetland/habitat type in the local area. A total of two wetlands within the Project Area have been determined to contain a uniqueness/heritage value primarily due containing an especially large and continuous wetland area, containing a high quality of wetland habitat, and/or the presence of a rarer wetland habitat within the local watershed.

Wetlands deemed to be locally unique are:

- W-AJF-08 - *Large wetland with multiple cover types (NYSDEC Freshwater Wetland SS-6)*
- W-AJF-17 - *Large wetland with multiple cover types (NYSDEC Freshwater Wetland SS-1)*

3.14 Visual Quality/Aesthetics

All of the wetlands in the Project Area are unsuitable for visual quality/aesthetics, because they lack a primary or publicly-accessible viewing location. Qualifiers within a wetland that would support a value of visual quality/aesthetics include an associated watercourse, deep open water area, sizeable wetland complex, fish/shellfish present, publicly accessible, and multiple cover types.

3.15 Threatened or Endangered Species Habitat

Threatened or endangered species were not observed in any of the wetlands in the Project Area. Correspondence with the NYSDEC indicated there were no occurrences of threatened or endangered species within the Project Area.

3.16 Conclusions

Wetlands delineated within the Project Area displayed multiple functions based on their specific site characteristics. Each of the wetlands identified within the Project Area were determined to have the ability to provide some function of groundwater recharge/discharge and wildlife habitat. The primary functions displayed within wetlands delineated within the Project Area include:

- Nutrient Removal/Retention/Transformation (19 wetlands)
- Groundwater Recharge or Discharge (18 wetlands)
- Flood-flow Alteration (2 wetlands)
- Sediment/Shoreline Stabilization (1 wetlands)
- Wildlife Habitat (1 wetland)

Values were found to occur in a limited number of wetlands within the Project Area due to the Project Area not being accessible to the public. One wetland, W-AJF-08, coincides with a Class III NYSDEC freshwater wetland, SS-8, and is believed to provide the primary value of Uniqueness/Heritage due to its large size, multiple cover types, and an extensive open water area. One wetland, W-AJF-17, is likely associated with a Class III NYSDEC freshwater wetland, SS-1, and is believed to provide the primary value of Uniqueness/Heritage due to its large size, multiple cover types, and an extensive open water area.

Assessing a specific wetland's functions and values are principally needed to determine the overall effects an impact or alteration may have on a wetland feature. Ultimately, such a measurement aids in establishing the appropriate level of mitigation after impacts to a wetland occur. As such, this functions and values assessment will be utilized during the impact analysis and mitigation planning efforts for the Project.

3.17 References

Maslonek, M. L. 2010. *Bat use of created and natural wetlands*. West Virginia University.

U.S. Army Corps of Engineers (USACE). 1993. *The Highway Methodology Workbook*. U.S. Army Corps of Engineers, New England Division. NEDEP-360-1-30. 30 pp.

USACE. 1999. *The Highway Methodology Workbook Supplement. Wetland Functions and Values: A Descriptive Approach*. U.S. Army Corps of Engineers, New England Division. NAEEP-360-1-30a. 32 pp.

U.S. Fish and Wildlife Service. 2016. *Endangered and Threatened Wildlife and Plants; 4(d) Rule for the Northern Long-Eared Bat*. Federal Register Vol. 81 (6):1900-1922