



Conceptual Wetland Mitigation Plan

**Conceptual Wetland Mitigation Plan
Noble Ball Hill Windpark
Towns of Villenova and Hanover
Chautauqua County, New York**

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Prepared for:

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Introduction

This report provides a conceptual plan to mitigate for permanent impacts to wetlands resulting from construction and operation of the Noble Ball Hill Windpark (the Project) in the Towns of Villenova and Hanover, Chautauqua County, New York. This report has been prepared to support Noble Environmental Power, LLC's (Noble's) Joint Permit Application submitted to United States Army Corps of Engineers (USACE) and the New York State Department of Environmental Conservation (NYSDEC). Ecology and Environment, Inc. (E & E) delineated and evaluated wetlands and waterbodies within the Project Site regulated by the USACE under Sections 401 and 404 of the Clean Water Act (CWA) and by NYSDEC under the Article 24, Freshwater Wetlands Act, and Article 15, Protection of Waters Program. Jurisdictional wetland determinations will be confirmed by the USACE and NYSDEC in the fall of 2008 or spring of 2009. Specific details of the wetland delineation are provided in Appendix G of the Draft Environmental Impact Statement (DEIS) prepared for the Project.

This document provides background information on existing conditions in the Project Area and the concepts that will be applied to the design of a final mitigation plan. Noble has developed this mitigation plan as a conceptual document to demonstrate the adequacy of suitable wetland mitigation opportunities in the Project Area to offset potential Project impacts. Noble will develop a final mitigation plan in consultation with the USACE and NYSDEC prior to the Project implementation.

1.1 Description of the Proposed Action

Noble Ball Hill Windpark, LLC (Noble) is proposing to construct and operate a wind energy facility (Project) in the Towns of Villenova and Hanover (Chautauqua County), located in western New York State (NYS) (see Figure 1.1-1 of the Joint Application for Permit). The Project, referred to as the Ball Hill Windpark, consists of both Generation and Transmission components (see Figure 1.1-2 of the Joint Application for Permit).

More specifically, the Project will include the following:

- Installation and operation of 60 wind turbines (49 in the Town of Villenova and 11 in the Town of Hanover) with a capacity of 90 megawatts (MW) within an approximate 13,658-acre Project Area in the Towns of Villenova and Hanover.
- Construction and use of approximately 16 miles of access roads (13 miles in the Town of Villenova and 3 miles in the Town of Hanover) that will connect each wind turbine to a town or county roadway to allow equipment and vehicle access for construction and subsequent maintenance of the facilities as well as emergency services, if needed. After construction, the 35-foot access road will be scaled back to 16 feet, allowing Noble to use the existing roadway for maintenance and operational purposes; and
- Construction and use of an electrical collection system that will allow delivery of electricity to a new substation to be constructed in the Town of Hanover. Where practical, the electrical collection system will be installed underground along the same right-of-way (ROW) corridor as the access roads. A total of 23.8 miles of collection lines (including underground collection lines co-located with access roads) will be installed (18.7 miles in the Town of Villenova and 5.1 miles in the Town of Hanover). Approximately 8.5 miles will be installed within new ROWs on private lands between turbines (7.3 miles in the Town of Villenova and 1.2 miles in the Town of Hanover). As currently designed, nearly the entire collection system will be installed underground. A total of 174 feet (0.03 miles) of overhead collection lines will be installed in the Town of Villenova. No overhead collection line will be required in the Town of Hanover.
- Construction and use of a new substation (Hanover substation) within the Project Area in the Town of Hanover that will tie into a new 115-kilovolt (kV) transmission line. The substation footprint will be approximately 200 by 300 feet. The substation will be located on, and have direct access to, Hurlbert Road.
- Construction and use of a switchyard within the Project Area in the Town of Hanover. The switchyard footprint will be approximately 300 by 500 feet. The switchyard will be located on and have direct access to Bennett State Road (County Route 85).
- Construction and use of a 6-mile overhead 115 kV transmission line, sited within the Town of Hanover, to transfer the energy from the new substation to the new switchyard. The proposed switchyard will provide a connection to the existing 230 kV National Grid transmission line that provides access to the grid.

- Use of equipment laydown areas for temporary staging of turbine components and other construction related materials and facilities. Approximately 28 acres of laydown area are proposed within the Project Area.

In addition to the Project-specific facilities associated with the Project, some modifications to existing transportation infrastructure may be required to allow the transport of Project-related equipment to the Project Site along the proposed Local Haul Routes. A Transportation Haul Route Study was prepared (Appendix N of the DEIS) that considers four primary Haul Routes, with three additional alternatives, for a total of seven Haul Routes under consideration. The Study identifies off-site haul routes and 16 intersections within the Project Area (the Local Haul Route) that may be used for the transport of Project-related equipment. Improvements may be required along the Local Haul Route at 14 public roadway intersections to accommodate delivery of equipment during construction of the facilities. The proposed Haul Routes for transport of heavy/oversized construction equipment to the Project Site are depicted in Appendix F.

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Mitigation Goals and Objectives

Within the regulatory framework, compensatory mitigation can only be considered after the Project proponent demonstrates avoidance and minimization to the extent possible. Following the review and acceptance by agencies regarding the alternatives analysis conducted to demonstrate minimization of impacts, compensatory mitigation must be developed to offset Project-related impacts. With respect to the Noble Ball Hill Windpark, unavoidable permanent wetland impacts will result from a network of interconnecting roads and associated electric connection and Transmission lines required to access the Project Area and connect the Windpark to the local electric grid. No turbine locations will result in permanent wetland impacts. Based on USACE guidance and NYSDEC guidance, mitigation can be completed either financially, in the form of in lieu fee mitigation, land acquisition for preservation purposes, regional mitigation banking, or in the form of a specific wetland restoration, creation, or enhancement project developed in conjunction with the proposed Project. Depending on agency input and local availability of existing mitigation opportunities, the mitigation may also take the form of a consolidated mitigation plan, combining several of the available mitigation options.

Impacts from construction of the Project will result in the permanent fill of a total of 0.36 acre of wetland (see Table 2-1). The Project will also result in the permanent conversion of 6.12 acres of forested wetland to shrub-scrub or emergent wetland (see Table 2-1).

Wetlands under Federal Jurisdiction

Of the total of 0.36 acres of wetland that will be impacted by the permanent placement of fill, 0.36 acres is assumed to be federally jurisdictional because Noble has elected to seek a preliminary jurisdictional determination from the USACE. With a preliminary jurisdictional determination, the applicant requests that the USACE assume jurisdiction over all wetlands regardless of surface water connections to traditionally navigable waterways. The Project will also result in the permanent conversion of 1.46 acres of wetland assumed to be federally jurisdictional forested wetland to shrub-scrub or emergent wetland (see Tables 2-2 and 2-3). This acreage coincides with permanent forest conversion associated with temporary or permanent ground disturbance. Clearing in the transmission line

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ROW with no associated ground disturbance is not considered federally jurisdictional forest conversion.

Wetlands under State Jurisdiction

Several of the federally jurisdictional wetlands impacted are also regulated under New York State wetland regulations. As such, they are dually regulated and the state jurisdictional wetland impacts discussed here are a subset of the federally jurisdictional wetlands and do not represent additional wetland impacts. The only exception is permanent forest conversion. NYSDEC considers clearing in the transmission ROW permanent forest conversion, regardless of associated ground disturbance. Construction of the Project will also result in de minimis wetland impacts to NYSDEC wetlands from permanent fill associated with the installation of one transmission pole. The Project will result in the permanent conversion of 2.87 acres of forested wetland under state jurisdiction (see Table 2-4).

2.1 Mitigation Goals and Objectives

Goals and objectives of the proposed mitigation project are derived from the lost or impaired functions and values of the on-site wetlands due to the Project activities. Mitigation will offset the adverse effects on the benefits of a wetland and compensate for the lost wetland acreage.

Twenty one wetlands assumed to be under federal jurisdiction will be permanently impacted by the Project, resulting in the placement of a total of 0.36 acres of permanent fill in the wetlands. The placement of permanent fill is associated with access roads and four transmission line poles. The wetlands impacted by placement of permanent fill are emergent, shrub-scrub and forested wetlands that are small to large in size with low to high vegetative diversity. The permanent impacts will result in a loss of wetland area. One of these impacted wetlands (SVC16-W110) is also under jurisdiction of NYSDEC and will be affected by the placement of one pole.

Nineteen (19) wetlands assumed to be under federal jurisdiction will be impacted by permanent conversion, resulting in 1.46 acres of forested wetland that will be converted to emergent or shrub scrub wetland, two of these wetlands will also be impacted by permanent fill associated with access road construction. Two additional federally jurisdictional forested wetlands in the transmission line ROW will be impacted by permanent fill associated with pole placement. A total of 0.04 acres of forested federally jurisdictional wetland will be subject to permanent fill. In addition, tree clearing in five NYSDEC jurisdictional wetlands will result in permanent conversion of 2.87 acres of forested wetland to emergent or shrub-scrub wetland, one of which will be permanently impacted by the placement of fill for the placement of one pole and is reported as both a federal and state impact. The permanent fill is included in the federally jurisdictional impact calculations; the permanent conversion of NYSDEC wetlands is not regulated by USACE as the conversion is due to clearing with no associated ground disturbance.

2. Mitigation Goals and Objectives

The wetlands impacted by permanent forest conversion are of moderate to large size with low to high vegetative diversity. The primary function affected is wildlife habitat. This conversion will result in a long-term shift in wildlife habitat functions. The final mitigation plan to be developed during the course of the Joint Permit Application process will address the site-specific cumulative loss of biological function provided by the impacted wetlands, as well as any identified public value. Consistent with the USACE and NYSDEC guidance, the goal of the mitigation plan is to create, enhance, and preserve existing wetland functions, values, and ecological integrity at a specific mitigation area to adequately offset the loss of function and value within jurisdictional wetlands resulting from Project implementation.

The conceptual design components that will be implemented to offset permanent fill impacts and permanent conversion impacts in these wetlands include:

- Creation of new wetland area with similar function and value to those lost due to permanent impact;
- Tree planting within and in the vicinity of an existing wetland to compensate for function(s) lost by the conversion of forested wetland to non-forested wetland; and
- Preservation of existing wetlands within the mitigation area via the establishment of conservation easements.

Noble does not plan to acquire the land required to implement this mitigation project. Easement agreements will be sought with landowners for the mitigation site. Noble will discuss with landowners within the Project Area regarding development of on-site mitigation and a conservation easement on the mitigation area. Based on the field surveys and review of mapped NYSDEC wetlands within the Project Area, multiple potential mitigation sites could be considered. Because of the relatively small total acreage of impact, Noble will plan to consolidate mitigation into a single location to maximize functions and values of the mitigation area. By centralizing the mitigation into a single location, Noble believes that the overall value of the mitigation area increases in relation to the surrounding landscape. During the course of the permit review process, Noble will continue coordinating with local landowners regarding the acquisition of suitable parcels to implement mitigation and placement of a conservation easement on the mitigation area.

The proposed mitigation project is intended to compensate for lost function and values of these wetlands while providing more of a benefit at a landscape scale by enhancing one contiguous wetland complex. The primary function of the forested component to be permanently converted is wildlife habitat. The conversion of NYSDEC forested wetland due to ROW clearing and maintenance along the Transmission line will result in a long-term shift in wildlife habitat functions. Smaller amounts of permanent conversion of federally jurisdictional wetlands in

2. Mitigation Goals and Objectives

the generation portion of the project will have similar impacts to wildlife habitat function. The goals and objectives for this proposed mitigation project are to enhance an existing wetland by planting trees, and to preserve said area via the establishment of conservation easements. By meeting these goals, wildlife value of the mitigation area is expected to increase.

2.2 Mitigation Area Description

Consistent with the USACE and NYSDEC guidance, wetland mitigation for Project-related impacts will be accomplished by wetland creation and by tree planting. Wetland creation will offset acreage lost due to permanent fill impacts, and planting trees to offset conversion of forested wetland to non-forested wetland and compensates for the loss of wetland function. The mitigation area will be hydrologically connected to waters of the United States contiguous with a wetland under the jurisdiction of NYSDEC. A site for the mitigation area(s) will be selected that meets set goals and objectives to counteract wetland impacts from the Project. The location of the mitigation area(s) will be discussed in the Final Mitigation Plan, and the exact mitigation size will be finalized through discussions with the USACE and NYSDEC as Project permitting proceeds.

The Project Area is located within the Chautauqua-Conneaut and Conewango watersheds. The watershed boundary locations in relation to Project facilities are depicted in Figure 5 of Appendix G of the DEIS, Wetland and Waterbodies Report. The Chautauqua-Conneaut watershed drains generally northwest to Lake Erie. The Conewango watershed generally drains south along Conewango Creek before reaching the Allegheny River. The area chosen for mitigation is expected to be within one or both of these watersheds.

Table 2-1 Total Wetland Impacts, Entire Project

	Construction Disturbance (acres) ¹	Temporary Impacts (Areas to be Restored to Preconstruction Contours following Construction) (acres) ²	Permanent Impacts (Permanent Placement of Fill) (acres) ³	Clearing (acres) ⁴
Turbines	0.31	0.31	NA	NA
Access Roads	0.99	0.63	0.36	NA
Underground Collection	2.10	2.10	NA	NA
Overhead Collection	NA	NA	NA	NA
Transmission	13.02	3.76	0.002	9.26
Total	16.42	6.80	0.36	9.26

Notes:

¹ Construction disturbance includes all areas to be disturbed during construction activities, as such, they include all impact related to clearing, grading, placement or poles for overhead transmission, placement of wetland mats, and placement of fill. For the Generation portion of the Project, this includes the acreage of all wetlands that fall within the construction ROW. For the Transmission portion of the Project, this includes the acreage of all wetlands that fall within the 100-foot-wide permanent ROW.

² Temporary impacts for the Generation portion of the Project are defined as wetland impacts associated with filling or excavation activities where the Project Site will be restored to preconstruction contours and elevation. For Generation, temporary impacts are associated with grading of turbine sites, construction of access roads and trenching for underground collection. Temporary impacts for the Transmission portion of the Project Site are limited to temporary placement of wetland mats within a 30-foot-wide travel corridor to provide access across wetlands.

³ Permanent impacts for both the Generation portion and Transmission portion of the Project refer to permanent placement of fill within wetlands that results in a loss of wetland acreage. Placement of fill includes placement of gravel fill for permanent roadways, and placement of poles for transmission lines.

⁴ Clearing refers to clearing of vegetation within the construction ROW for transmission lines with no other ground disturbance. No clearing will occur within the Generation portion of the Project. For the Transmission portion of the Project this refers to wetlands within the permanent 100-foot ROW that are not within the 30-foot-wide travel corridor.

Key:

NA = Not applicable.

2. Mitigation Goals and Objectives

Table 2-2 Impacts to Federally Jurisdictional Wetlands, Entire Project⁵

	Construction Disturbance (acres)¹	Temporary Impacts (Areas to be Restored to Preconstruction Contours following Construction) (acres)²	Permanent Impacts (Permanent Placement of Fill) (acres)³	Clearing (acres)⁴
Turbines	0.31	0.31	NA	NA
Access Roads	0.99	0.63	0.36	NA
Underground Collection	2.10	2.10	NA	NA
Overhead Collection	NA	NA	NA	NA
Transmission	13.02	NA	0.002	12.87
Total	16.42	3.04	0.36	12.87

Notes:

- ¹ Construction disturbance includes all areas to be disturbed during construction activities, as such, they include all impact related to clearing, grading, placement of poles for overhead transmission, placement of wetland mats, and placement of fill. For the Generation portion of the Project, this includes the acreage of all wetlands that fall within the construction ROW. For the Transmission portion of the Project, this includes the acreage of all wetlands that fall within the 100-foot-wide permanent ROW.
- ² Temporary impacts for the Generation portion of the Project are defined as wetland impacts associated with filling or excavation activities where the Project Site will be restored to preconstruction contours and elevation. There are no impacts associated with respect to temporary placement of wetland mats within a 30-foot-wide travel corridor to provide access across wetlands, as the USACE does not consider use of wetland mats with no associated ground disturbance as temporary impact.
- ³ Permanent impacts for both the Generation portion and Transmission portion of the Project refer to permanent placement of fill within wetlands that results in a loss of wetland acreage. Placement of fill includes placement of gravel fill for permanent roadways, and placement of poles for overhead collection or transmission lines.
- ⁴ Clearing refers to clearing of vegetation within the construction ROW for overhead collection or transmission lines with no other ground disturbance. No clearing will occur within the Generation portion of the Project. For the Transmission portion of the Project this refers to wetlands assumed to be under federal jurisdiction within the permanent ROW.
- ⁵ Federal Jurisdiction is assumed for all delineated wetlands in the survey corridor regardless of any evidence of a surface water connection to a waterbody that eventually flows into a traditional navigable waterway (TNW), as Noble is seeking a preliminary jurisdictional determination from USACE. The relationship of each wetland to TNWs (e.g., surface connection or no apparent surface connection) is provided in the Wetland and Waterbodies Report. Final jurisdictional determination will be made by the USACE subsequent to field verification.

Key:

NA = Not applicable.

Table 2-3 Permanent Conversion of Forested Wetlands, Entire Project

	Total Forested Wetland Conversion (acres) ¹	Federally Jurisdictional Forested Wetland Conversion (acres)²	State Jurisdictional Forested Wetland Conversion (acres)³
Turbines	0.15	0.15	NA
Access Roads	0.18	0.18	NA
Underground Collection	1.13	1.13	NA
Overhead Collection	NA	NA	NA
Transmission	4.66	NA	2.87
Total	6.12	1.46	2.87

Notes:

¹ Total permanent forest conversion is used to indicate the permanent loss of forest cover in wetlands associated with clearing activities, and which will be maintained in a shrub/scrub or emergent condition during operation of Project facilities, regardless of jurisdictional status. It is determined by adding the forested wetland portion of wetland acreages reported for clearing and the forested wetland portion of the wetland acreages reported as temporary impact. It is the total forested wetland that will be permanently converted to herbaceous or shrub scrub communities. While conversion is recognized as a long term impact, it is distinguished from permanent impacts associated with fill to facilitate review and permitting of the Project. For the Generation portion of the Project, this includes the acreages of all the forested wetlands within the construction ROW that will not be permanently filled. Permanent conversion within the Transmission portion of the Project includes all forested wetlands within the permanent ROW that will be permanently maintained to prevent reestablishment of trees.

² Federally jurisdictional forested wetland conversion refers to the forested wetland portion of the wetland acreages reported as temporary impact. These areas will be maintained in a shrub/scrub or emergent condition during operation of Project facilities. Clearing with no associated ground disturbance is not considered federally jurisdictional forest conversion by the USACE; therefore, there is no federally jurisdictional forested wetland conversion in the transmission portion of the project. The use of wetland mats within the travel corridor with no associated ground disturbance is not considered temporary impact by USACE.

³ State jurisdictional forested wetland conversion is determined by adding the forested wetland portion of NYSDEC wetland acreages reported for clearing and the forested wetland portion of the NYSDEC wetland acreages reported as temporary impact. It is the total state jurisdictional forested wetland that will be permanent converted to herbaceous or shrub scrub communities. State jurisdiction has been verified by NYSDEC during a September 8, 2008, field visit, but is still subject to NYSDEC review as part of the permitting process. (Note: No wetlands under state jurisdiction were identified in the Generation portion of the Project).

Key:

NA = Not applicable.

2. Mitigation Goals and Objectives

Table 2-4 Impacts to State Jurisdictional Wetlands, Entire Project⁵

	Construction Disturbance (acres)¹	Temporary Impacts (Areas to be Restored to Preconstruction Contours following Construction) (acres)²	Permanent Impacts (Permanent Placement of Fill) (acres)³	Clearing (acres)⁴
Turbines	NA	NA	NA	NA
Access Roads	NA	NA	NA	NA
Underground Collection	NA	NA	NA	NA
Overhead Collection	NA	NA	NA	NA
Transmission	3.08	1.04	0.0005	2.04
Total	3.08	1.04	0.0005	2.04

Notes:

- ¹ Construction disturbance includes all areas to be disturbed during construction activities, as such, they include all impact related to clearing, grading, placement of poles for overhead transmission, placement of wetland mats, and placement of fill. For the Generation portion of the Project, this includes the acreage of all wetlands that fall within the construction ROW. For the Transmission portion of the Project, this includes the acreage of all wetlands that fall within the 100-foot-wide permanent ROW.
- ² Temporary impacts for the Generation portion of the Project are defined as wetland impacts associated with filling or excavation activities where the Project Site will be restored to preconstruction contours and elevation. Temporary impacts for the Transmission portion of the Project Site are limited to temporary placement of wetland mats within a 30-foot-wide travel corridor to provide access across wetlands and the temporary placement of wetland mats within pole staging areas needed to erect transmission poles.
- ³ Permanent impacts for both the Generation portion and Transmission portion of the Project refer to permanent placement of fill within wetlands that results in a loss of wetland acreage. Placement of fill includes placement of gravel fill for permanent roadways, and placement of poles for overhead collection or transmission lines.
- ⁴ Clearing refers to clearing of vegetation within the construction ROW for overhead collection or transmission lines with no other ground disturbance. No clearing will occur within the Generation portion of the Project. For the Transmission portion of the Project this refers to wetlands within the permanent ROW that are not within the 30-foot-wide travel corridor or pole staging areas.
- ⁵ State jurisdictional wetlands are a subset of federally jurisdictional wetlands. As such, impacts to state jurisdictional wetlands are included in, and are not additional to, the acreages reported as impacts to federally jurisdictional wetlands. State jurisdiction has been verified by NYSDEC during a September 8, 2008, field visit, but is still subject to NYSDEC review as part of the permitting process.

Key:

NA = Not applicable.

3

Implementation Plan

There are several components in the design and implementation of mitigation plans that are necessary procedures to follow in order to ensure success of the mitigation effort. Given the mixed track record of mitigation efforts, good planning and associated design are necessary activities in order to enhance Project success. The Implementation Plan, to be included in the Final Mitigation Plan, will include specifications for planting, the sequence of operations, final quantification of materials, development of appropriate best management practices (BMPs) and additional monitoring and maintenance plans. The wetland mitigation area will be designed to provide function and value equal to, or greater than, that of the forested wetlands that are permanently converted to shrub-scrub or emergent wetlands.

The goal of the Implementation Plan is to identify potential required design factors, as well as any necessary constraints that would interfere with the successful tree planting at the mitigation area. The objectives to attain this goal include: examining current vegetation communities in the mitigation area; examining current hydrologic and soil conditions in the mitigation area; determining the most appropriate species to be planted; determining the most efficient and effective means to accomplish tree planting; and ensuring the development of a diverse native plant community that minimizes interferences by invasive species.

3.1 Site Preparation

Once a mitigation area has been chosen, additional field reconnaissance will be conducted to further characterize the area and determine preparation needs. Field investigations will include wetland delineations in the mitigation area in order to determine wetland/upland boundaries and to characterize vegetation communities.

3.2 Vegetative Establishment

The Implementation Plan will promote the introduction of additional native trees in the mitigation area that will enhance the natural plant communities and improve wildlife habitat. The species will be selected for enhancement of the mitigation area based on the hydrologic and soil conditions at the mitigation site, the species composition of the impacted wetlands, and species typical of undisturbed natural communities in the area.

3. Implementation Plan

A detailed wetland planting plan will be developed to provide specifications as to the numbers of each species planted or their application rate (seeding), their location, source of planting material, and establishment methods. The planting plan will be a component of the final mitigation design package. In addition the planting plan will be made available to the USACE and NYSDEC for review.

4

Performance Standards and Monitoring

Performance standards will be developed to assess the condition and functionality of the mitigation area. The standards will assess the development and survival of the enhanced vegetation communities. Relative success or failure of the vegetation community will be based on a percent survival that will be developed in conjunction with the agencies and presented in the Final Mitigation Plan.

A maintenance and monitoring plan will be developed and implemented to ensure the vitality and functional integrity of the enhanced wetland. This plan will include elements of vegetative monitoring, invasive species monitoring and control, and faunal monitoring. The goal of the wetland mitigation project is to enhance and preserve wetlands in the Project Area to mitigate for the wetlands that will be impacted by the Project. A stratified sampling plan will be developed in order to estimate percent cover and relative survival of the planted trees. The duration of monitoring will be developed with the regulatory agencies, but will likely involve a five-year timeframe.

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Schedule

Planting of the mitigation site is expected to proceed concurrently with the construction of the Project. Preconstruction design activities as described above will be initiated once the USACE and NYSDEC have approved the site proposed by Noble. In addition, a Final Mitigation Plan, containing the location of the proposed mitigation area and the Implementation Plan will be submitted to NYSDEC and the USACE prior to permit issuance.