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Environmental Setting and Impacts

A study was conducted to determine the extent and quality of wetlands and waterbodies within the Project Area that could potentially be impacted by the Project. The study consisted of a desktop review of existing wetland and stream location information and mapping available from NYSDEC, NWI maps, United States Geological Survey (USGS) topographic maps, and aerial photographs. In addition, wetland delineation surveys were conducted specifically for the Project.

Surveys were conducted in 2008 for the Generation and Transmission section of the Project and for the Haul Route. This section pertains to environmental settings and impacts identified within the Generation, Transmission, and Haul Route portions of the Project.

Sections 2.1 and 2.2 provide a summary of the number, acreage, and potential federal and state protection of existing wetlands and streams delineated within the areas surveyed. A more detailed discussion of the existing conditions for wetlands and waterbodies in the Generation and Transmission portion of the project is found in the Wetland and Waterbodies Report, which was submitted to the agencies for review on August 18, 2008. A more detailed discussion of the existing conditions for wetlands and waterbodies along the Haul Route for the Project is included in the Haul Route Wetland and Waterbodies Study (see Appendix F). Section 2.3, Federally Jurisdictional Wetlands: Impacts and Mitigation Summary; Section 2.4, State Jurisdictional Wetlands: Impacts and Mitigation Summary; and Section 2.5, Surface Water: Impacts and Mitigation Summary provide summaries of impacts to wetlands and waterbodies along with general avoidance, minimization, and mitigation measures to reduce impacts. Detailed descriptions of wetland and stream impacts, along with site-specific avoidance and minimization are provided in Sections 2.6, Turbine Cluster Detail; and Section 2.7, Transmission Section Detail. Section 2.8 discusses the location of and potential impacts to floodplains within the Project Area. Wetland and stream mapping for all portions of the Project are included in Appendix I, Wetland Maps and Figures.

2.1 Wetlands: Environmental Setting

This section outlines the methodology used to identify wetlands within the Project area and provides a Project-wide summary of the number, acreage, and potential federal and state protection of existing wetlands delineated within the surveyed

areas. Subsequent sections provide discussions of the anticipated Project-related impacts based on jurisdictional authority associated with each Project component.

Section 404 of the Clean Water Act authorizes the USACE to issue permits regulating the discharge of dredged or fill materials into the waters of the United States, including wetlands. There is no minimum size for wetlands to be regulated under federal jurisdiction; however, wetlands that do not have a significant nexus with traditional navigable waters of the United States may not be subject to federal jurisdiction.

Under Article 24 of the NYS ECL, NYS regulates wetlands that exceed 12.4 acres (5 hectares) in size, or have unusual local importance. NYS also regulates a 100-foot upland buffer area surrounding each regulated wetland to protect the wetland. Work within state-regulated wetlands and the regulated 100-foot upland buffer area requires a permit from NYSDEC.

2.1.1 Preliminary Data Review

Prior to conducting wetland delineations, information sources were reviewed including aerial photographs of the Project Area (see Figure 3 in the Wetland and Waterbodies Report), USGS 7.5-Minute Series topographic maps (see Figure 4 in the Wetland and Waterbodies Report and Figure 3 in Appendix F), United States Fish and Wildlife Service (USFWS) NWI maps (see Figure 5 in the Wetland and Waterbodies Report, NYSDEC freshwater wetlands maps (see Figure 5 in the Wetland and Waterbodies Report), and the Chautauqua County soil survey (see Figure 6 in the Wetland and Waterbodies Report).

USGS topographic maps and aerial photos indicated the possible presence of wetlands in the Project Area. The NWI maps depict wetlands occurring throughout the Project Area. NYSDEC Freshwater Wetlands Maps depict seven state-regulated wetlands within the Project Area. The Chautauqua County Soil Survey indicates the presence of hydric soils and soils with potential hydric inclusions in the Project Area. Based on the results of the desktop review, it was determined that field verification would be required to determine the presence and extent of wetlands in the Project Area. A detailed discussion of the preliminary data review is included in the Wetlands and Waterbodies Report and the Haul Route Wetlands and Waterbodies Study (see Appendix F).

2.1.2 Field Delineation

Detailed wetland delineations for the Project were conducted within a defined survey corridor based on preliminary siting of facilities. The field teams used established delineation procedures as outlined in the USACE *Wetland Delineation Manual* (Environmental Laboratory 1987) and the NYSDEC *Freshwater Wetlands Delineation Manual* (1995). The survey corridor generally included a 300-foot corridor centered on linear facilities and a circular area with a 250-foot radius surrounding each turbine. In some areas surveys were restricted or expanded (i.e., restricted due to property access or expanded to ensure that regulated buffers adjacent to NYSDEC wetlands were identified). The goal of the delineation effort

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was to identify and document wetlands that potentially would be temporarily or permanently disturbed as a result of construction or operation of the proposed facilities. This information was then used to adjust the turbine sites, roads, electrical collection, and transmission line to avoid and minimize impacts to wetlands to the extent practicable. Delineations for the Generation and Transmission portion of the Project resulted in the identification of 231 wetlands totaling approximately 91.25 acres within survey corridors totaling approximately 1,298.7 acres.

A wetland study was also conducted at the Haul Route intersections to determine the presence or absence of wetlands in areas where modifications/road improvements may be necessary to transport equipment to and through the Project Area. Detailed delineations of wetlands and waterbodies were conducted only in areas where property access had been secured. The survey corridor generally included a 100-foot corridor from the edge of the existing roadway. Where access was not secured, the extent of wetlands and waterbodies were estimated using aerial photography in combination with roadside observations. The Haul Route wetland study resulted in the identification of no wetlands or streams. If it is determined that wetland or waterbodies in areas for which access had not been obtained are within the workspace, access will be obtained, and detailed delineations will be performed. Final determinations of jurisdiction will be made by the regulatory agencies subsequent to field review. The Haul Route Wetland and Waterbodies Study is included in Appendix F.

Subsequent to the field delineations of wetlands and waterbodies within the Project Area, regulatory agencies were afforded the opportunity to conduct field visits to verify the extent of wetlands and waterbodies as mapped by Noble. Field verifications of transmission line delineations were conducted with NYSDEC staff on September 8, 2008, and with USACE staff on September 9, 2008. Field verifications of the generation portion of the project were conducted with USACE staff on October 15 and 16, 2008. Agency comments and recommendations made during those site visits have been incorporated into this joint application. Changes resulting from the agency field visits account for the differences between this application and the Wetland and Waterbodies Report submitted to agencies on August 18, 2008. Additionally, all changes to this report are reflected in the Addendum to the Wetland and Waterbodies Report in Appendix E, which updates the prior submittal.

Tables 2-1 and 2-2 provide summaries of the number and acreage of delineated wetlands in the survey corridor of the Generation and Transmission portion of the Project. Each wetland that was delineated was assigned a general cover type classification based on the Cowardin Classification System (i.e., Palustrine Forested [PFO], Palustrine Shrub/Scrub [PSS], Palustrine Emergent [PEM]). The tables are broken down by vegetative cover type and likely federal and state jurisdictional status. The delineated wetlands are depicted on mapping and tables included in Appendices E and F.

Table 2-1 Delineated Wetland Summary – Noble Ball Hill Windpark, Generation Portion

Wetland Community Type	Acreage of Wetland Delineated (No. of Wetlands Delineated)	Acreage of Wetlands With Apparent Connection to Waters of the United States ¹	Acreage of Wetlands With No Apparent Connection to Waters of the United States ²	Acreage of Wetlands Under the Jurisdiction of NYSDEC ³
		(No. of Wetlands With Apparent Connection to Waters of the United States)	(No. of Wetlands With No Apparent Connection to Waters of the United States)	(No. of Wetlands Under NYSDEC Jurisdiction)
PEM/PFO	2.86 (6)	2.86 (6)	0 (0)	0 (0)
PEM/PSS	9.98 (27)	9.71 (24)	0.27 (3)	0 (0)
PEM/PSS/PFO	4.86 (5)	4.86 (5)	0 (0)	0 (0)
PEM/PFO 1/4	4.03 (3)	3.79 (2)	0.24 (1)	0 (0)
PFO	5.56 (16)	5.22 (13)	0.34 (3)	0 (0)
PFO ¼	9.02 (17)	9.02 (17)	0 (0)	0 (0)
PSS	1.01 (6)	0.95 (5)	0.06 (1)	0 (0)
PSS/PFO	2.09 (3)	2.09 (3)	0 (0)	0 (0)
PEM	12.84 (109)	11.13 (83)	1.71 (26)	0 (0)
Total Wetlands Delineated Within the Survey Corridor	192	158	34	0
Total Acreage of Delineated Wetlands Within the Survey Corridor	52.25	49.64	2.61	0

Notes:
¹ Includes wetlands for which a surface water connection to waters of the United States was identified during field surveys. These wetlands may be determined to be federally jurisdictional. The jurisdictional determination will be made by the USACE.
² Includes wetlands for which no apparent surface water connection to waters of the United States was identified during field surveys. These wetlands may not be federally jurisdictional; however, Noble is seeking a preliminary jurisdictional determination from USACE, as such, the applicant is seeking a JD for all wetlands in the survey corridor regardless of surface water connection. The jurisdictional determination will be made by the USACE.
³ No NYSDEC jurisdictional or potentially jurisdictional wetlands were identified in the Generation portion of the Project Area. A final jurisdictional determination will be made by NYSDEC as part of the permitting process.

Key:
 NA = Not applicable.

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Table 2-2 Delineated Wetland Summary – Noble Ball Hill Windpark, Transmission Section

Wetland Community Type	Acreage of Wetland Delineated (No. of Wetlands Delineated)	Acreage of Wetlands With Apparent Connection to Waters of the United States Potentially Under Federal Jurisdiction ¹ (No. of Wetlands With Apparent Connection to Waters of the United States)	Acreage of Wetlands With No Apparent Connection to Waters of the United States ² (No. of Wetlands With No Apparent Connection to Waters of the United States)	Acreage of Wetlands Under the Jurisdiction of NYSDEC ³ (No. of Wetlands Under NYSDEC Jurisdiction)
PFO	6.51 (8)	6.51 (8)	0 (0)	4.11 (3)
PEM/PSS	6.62 (6)	4.92 (5)	1.70 (1)	0 (0)
PEM/PSS/PFO	3.75 (3)	3.75 (3)	0 (0)	1.17 (1)
PEM/PFO 1/4	1.36 (1)	0 (0)	1.36 (1)	1.36 (1)
PSS	2.25 (3)	1.62 (2)	0.63 (1)	0 (0)
PSS/PFO	1.03 (3)	1.03 (3)	0 (0)	0.78 (1)
PEM	17.49 (15)	17.40 (14)	0.09 (1)	0.32 (1)
Total Wetlands Delineated Within the Survey Corridor	39	35	4	7
Total Acreage of Delineated Wetlands Within the Survey Corridor	39.00	35.23	3.77	7.74

Notes:

¹ Includes wetlands for which a surface water connection to waters of the United States was identified during field surveys. These wetlands may be determined to be federally jurisdictional. The jurisdictional determination will be made by the USACE.

² Includes wetlands for which no apparent surface water connection to waters of the United States was identified during field surveys. These wetlands may not be federally jurisdictional; however, Noble is seeking a preliminary jurisdictional determination from USACE, as such, the applicant is seeking a JD for all wetlands in the survey corridor regardless of surface water connection. The jurisdictional determination will be made by the USACE.

³ These wetlands were determined to be under NYSDEC jurisdiction during a September 8, 2008 NYSDEC field visit to the site. Final jurisdictional determinations will be made by NYSDEC as part of this permitting process.

Key:

NA = Not applicable.

Generation

Detailed wetland delineations were conducted in the survey corridor based on preliminary siting of generation facilities. One hundred and ninety-two (192) wetlands (i.e., areas with hydrophytic vegetation, hydric soils, and wetland hydrology) were delineated within the survey corridor. One hundred and fifty-eight (158) delineated wetlands have an obvious connection to waters of the United States. The remaining 34 wetlands have no apparent connection to waters of the United States. Noble is seeking a preliminary jurisdictional determination and considers all wetlands as federally jurisdictional in this application, regardless of an identified surface connection.

Five state-regulated wetlands (FO-1, FO-11, FO-12, PE-5 and PE-7) are mapped within the Generation portion of the Project Area; however, they were avoided during the siting process and as such, were not delineated. Based on the field surveys, no delineated wetlands within the Generation portion of the Project Area encompass sufficient acreage to fall under NYSDEC jurisdiction, and no delineated wetlands have an apparent hydrologic connection to any of the NYSDEC wetlands in the Generation portion of the survey corridor.

Table 2-1 provides a summary of the number and acreage of delineated wetlands broken down by vegetative cover type, as well as the identified presence or absence of a surface water connection and state jurisdictional status for the Generation portion of the Project.

Table 4 in Appendix E provides a summary of each delineated wetland including, general cover type classification, hydrologic connection to waters of the United States, NYSDEC jurisdictional status, acreage within the survey corridor, and additional comments regarding the existing conditions at each wetland for the Generation portion of the Project.

Transmission

Detailed wetland delineations were conducted in the study corridor based on preliminary siting of transmission facilities. Thirty-nine (39) wetlands were delineated within the proposed transmission line study corridor. Thirty-five (35) delineated wetlands have an obvious connection to waters of the United States. Four wetlands have no apparent surface connection to waters of the United States.

There are a total of seven mapped wetlands, encompassing approximately 7.74 acres, located within the Survey Corridor, that were verified by NYSDEC as state jurisdictional during their September 8, 2008, field visit. SVC18-W110 and SVC10-W111 overlap with NYSDEC Wetland SC-12 and will fall under NYSDEC jurisdiction. Five delineated wetlands, encompassing approximately 2.39 acres (SVC23-W61, SVC23-W62, SVC23-W63, SVC23-W64, and SVC23-W65), are associated with NYSDEC Wetland SC-13 and were determined to be state jurisdictional during the site visit. During the course of delineations, three additional wetlands (SVC22-W59, SVC22-W60, and SVC18-W61a) were identified as potentially falling under state jurisdictional in the Wetland and Waterbod-

ies Report. However, during the course of the agency field visit, all three of these wetlands were determined to be outside of the jurisdiction by NYSDEC. Wetlands SVC22-W59 and SVC22-W60 were determined to be too far (greater than 50 meters) from the boundary of mapped NYSDEC Wetland SC-13 and Wetland W61a was determined to be of minimal functional connection and too small to be considered NYSDEC jurisdictional. See Appendix E for updates to the Wetlands and Waterbodies Report.

Table 2-2 provides a summary of the number and acreage of delineated wetlands broken down by vegetative cover type and likely federal and state jurisdictional status for Transmission Section.

Table 5 in Appendix E provides a summary of the delineated wetlands including general cover type classification, hydrologic connection to waters of the United States, NYSDEC jurisdictional status, acreage within the survey corridor, and additional comments regarding the existing conditions at each wetland for the Transmission portion of the Project.

Haul Route

Noble did not obtain property access for the roadside Haul Route investigation as a final Haul Route within the Project Area has not been chosen; therefore no wetlands were delineated (see Appendix F). Depending on the route chosen, roadside surveys indicate that, there may be wetlands in proximity to the Haul Route (See Table 2 of Appendix F). When the Haul Route has been determined and access has been obtained, detailed delineations will be performed within the required workspace as necessary.

2.2 Surface Water: Environmental Setting

The Project Area is located within the Chautauqua-Conneaut and Conewango watersheds. The watershed boundary locations in relation to the Project Area are depicted in Figure 6 of the Wetland and Waterbodies Report. The Chautauqua-Conneaut watershed drains generally north and west to Lake Erie. The Conewango watershed generally drains south along Conewango Creek before reaching the Allegheny River. The Chautauqua-Conneaut and Conewango watersheds have been designated as Category II watersheds by the New York Unified Watershed Assessment Program. Category II watersheds are defined as those currently meeting water quality goals (NYSDEC 1998). No waterbodies within the Project Area are listed on the New York State Section 303(d) List of Impaired Waters, and no impaired waters or priority listed waters are located within the Project Area (NYSDEC 2008a). For the purposes of discussion, the Chautauqua-Conneaut watershed is further divided into the Tupper Creek, Walnut Creek and Silver Creek watersheds; the Conewango watershed is further divided into the North Branch Conewango and West Branch Conewango watersheds. These smaller watersheds are depicted in Figure 6 of the Wetland and Waterbodies Report.

2.2.1 Protected Streams

Multiple streams were identified and delineated during surveys within the Project Area. Table 2-3 and Table 2-4 provide descriptions of all perennial and intermittent streams that were identified during surveys of the generation and transmission portions of the Project. The streams range from well-defined stream channels to poorly defined headwater channels. The locations of these streams are depicted in relation to Generation and Transmission portions of the Project in updated A-series wetland mapping included in Appendix E.

Additionally, depending on the final Haul Route, roadside surveys indicate that, there may be streams in proximity to the Haul Route (see Table 2 of Appendix F). When the Haul Route is determined and access has been obtained, detailed delineations will be performed within the required workspace to identify existing stream and wetland resources as necessary.

NYSDEC stream classification data were reviewed to determine whether streams in the Project Area are protected by NYS under Article 15 of the ECL. NYSDEC uses a stream classification system in order to identify the value and uses of watercourses in the state. A protected stream is any stream or particular portion of a stream for which any of the following classifications or standards have been adopted by NYSDEC or any of its predecessors: AA, AA(t), A, A(t), B, B(t), or C(t). Streams designated (t) (trout) also include those more specifically designated as trout spawning (ts). Disturbance to the bed or banks of protected streams requires a permit under Article 15 of the NYS ECL.

Streams within the generation and transmission portions of the Project Area are identified as Class C and Class A, with some Class C(t) streams. Class C streams support fishing, fish propagation, and primary and secondary contact recreation. Class C(t) streams support the same uses and are designated to support trout populations. Class A streams are assigned to waters used as a source of water supply for drinking, culinary, or food processing purposes; primary and secondary contact recreation; and fishing.

2.2.2 Surface Water Use

Surface water features in the survey corridor are utilized for public drinking water, recreational, wildlife, and agricultural purposes.

The Class A streams in the Project Area include those streams tributary to Silver Creek. Upper and Lower Silver Creek reservoirs are the source of drinking water for Hanover Water Districts No. 1 and No. 2 in the Village of Silver Creek; the village is approximately 5 miles north of the Project Area (EPA 2008). The tributaries to Silver Creek in the generation portion of the Project Area drain to the Upper Silver Creek Drinking Water Reservoir, just east of the Project Area. The tributaries to Silver Creek in the transmission portion enter Silver Creek below the Lower Silver Creek Reservoir location. The locations of both reservoirs are shown on Figure 2.1-1 of the DEIS in Appendix D.

Table 2-3 Stream Characteristics, Ball Hill Windpark Generation Portion

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type 1	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
Entire Project Area Survey Corridor: 1298.7 Acres²														
Streams Identified During Surveys Within the Project Area														
Sector A														
Cluster 1 (Turbines T1, T2 and T3)														
WBC33-S81	S81	Sector A/Cluster 1 (Turbines T1, T2 and T3)	0-3	2	5	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC33	65.32	Small P-RPW flowing west between fallow agricultural field and upland forest. Riparian wetland W81 is mapped within the banks. Flows to an unnamed tributary to West Branch Conewango Creek (P493, P494, P455, P456).	A-1
WBC28-S83	S83	Sector A/Cluster 1 (Turbines T1, T2 and T3)	3-6	3	12-15	Gravel	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC28	59.14	Stream starts from wetland W83 where wetland narrows and becomes more channelized. It continues to the southwest beyond the survey corridor to an unnamed tributary to West Branch Conewango Creek (P463, P464, P478, P479).	A-1
WBC46-S86	S86	Sector A/Cluster 1 (Turbines T1, T2 and T3)	3-6	3	30-40	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC46	67.17	Small channelized stream through upland forest blows out into riparian wetland (stream flows west) (P484, P485, P486).	A-2
Cluster 2 (Turbine T4)														
No Streams														
Cluster 3 (Turbines T5 and T6)														
WBC77-S75	S75	Sector A/Cluster 3 (Turbines T5 and T6)	0-3	2	3	Gravel	Intermittent	S-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC77	54.87	Stream starts as drain D75 flowing southwest from and up-gradient agricultural field. Apparent dumping of fieldstones where drain transitions into a stream (P429, P430, P431, P432).	A-4
Sector A Collection Line														
No Streams														
Sector B														
Cluster 4 (Turbine T7)														
WBC72-S92	S92	Sector B/Cluster 4 (Turbine T7)	0-3	2	3	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC72	114.67	Perennial stream associated with riparian wetland W92 along banks, down gradient from agricultural field (P1511, P1512).	B-1
Cluster 5 (Turbines T8, T9 and T10)														
WBC88-S98	S98	Sector B/Cluster 5 (Turbines T8, T9 and T10)	3-6	2	12	Gravel	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC88	53.95	Perennial stream associated with wetland W98 flowing south along the survey corridor (P1529).	B-4
Cluster 6 (Turbines T11, T13 and T14)														
WBC101-S101	S101	Sector B/Cluster 6 (Turbines T11, T13 and T14)	0-3	2	4-6	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC101	37.12	Northeast flowing stream within wetland W101. Begins as drain with high, dense vegetation (Solidago, Juncus) which chanelizes into stream and continues outside survey corridor (P1556, P1556a, P1601, P1603).	B-5 and B-6
Cluster 7 (Turbines T16 and T17)														
WBC103-S1535	S1535	Sector B/Cluster 7 (Turbines T16 and T17)	0-3	1-3	5	Gravel, Silt/Clay	Ephemeral	S-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC103	200.68	Ephemeral stream, datapoint (point closest to road centerline) is a headwaters of stream, at groundwater seep (P982, P983).	B-7
Cluster 8 (Turbine T68)														
No Streams														
Cluster 9 (Turbines T18, T19, T20 and T21)														
No Streams														
Sector B Collection Line														
WBC90-S598	S598	Sector B Collection Line	0-3	10	10	Bedrock, Gravel	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC90	70.41	Perennial stream, trash pile to the north has significant runoff into stream when precipitation is present (P953, P954, P955).	B-10
WBC103-S602	S602	Sector B Collection Line	0-3	3-10	5-20	Gravel, Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC103	200.68	Perennial stream, associated with riparian wetland W602 within its banks (P964, P965, P966, P967).	B-9

Table 2-3 Stream Characteristics, Ball Hill Windpark Generation Portion

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type 1	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
Sector C														
Cluster 10 (Turbine T25)														
WBC130-S526	S526	Sector C/Cluster 10 (Turbine T25)	0-3	4	7	Gravel	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC130	16.04	Perennial stream, associated with riparian wetland W526 and abuts W525 to the north. Stream flows south at edge of turbine buffer (P605, P606).	C-1
Cluster 11 (Turbines T23 and T24)														
No Streams														
Cluster 12 (Turbine T22)														
No Streams														
Cluster 13 (Turbine T26)														
No Streams														
Cluster 14 (Turbine T27)														
No Streams														
Cluster 15 (Turbine T29)														
WBC21-S1501	S1501	Sector C/Cluster 15 (Turbine T29)	3-6	2-5	5-15	Bedrock, Gravel, Cobble	Intermittent	S-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC21	63.04	Forested stream at data point (Tsuga Canadensis, Acer rubrum, Prunus serotina) (P614, P615).	C-8
Cluster 16 (Turbines T30, T31 and T32)														
No Streams														
Cluster 17 (Turbines T33, T34 and T35)														
WBC47-S1509	S1509	Sector C/Cluster 17 (Turbines T33, T34 and T35)	0-6	0	8	Gravel, Cobble	Intermittent	S-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC47	31.24	Drain D1509 leads to stream S1509, D1509 definitely man made drain (makes 90° angle) to drain agricultural fields to S1509. Downstream there is flow, mayflies (P653, P654).	C-10
WBC74-S1514	S1514	Sector C/Cluster 17 (Turbines T33, T34 and T35)	0-3	2-8	5-12	Gravel, Silt/clay, Cobble	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC74	41.22	Stream originates at groundwater seeps off of a agricultural field. Drains D1514 and D1514a come into stream towards edge of survey corridor (P663, P664).	C-12
Cluster 18 (Turbine T36)														
No Streams														
Sector C Collection Line														
WBC45-S530	S530	Sector C Collection Line	0-3	1-3	1-4	Silt/clay	Intermittent	S-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC45	96.78	Stream S530 begins as drain D530 northeast of Pond PO530, it then flows out of PO530 as a stream and cuts through wetland W530 continuing south to unnamed tributary to West Branch Conewango Creek (P627).	C-10
S1509-See Cluster 17														
Sector D														
Cluster 19 (Turbine T38)														
WBC107-S533	S533	Sector D/Cluster 19 (Turbine T38)	0-3	2.5-6	2-5	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to West Branch Conewango Creek	WBC107	159.72	Small stream meanders along side of old agricultural field. Runs under road through culvert. There is an abundance of algal growth in the stream (P674).	D-1
NBC69-S534	S534	Sector D/Cluster 19 (Turbine T38)	0-3	1	12	Gravel, Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to North Branch Conewango Creek	NBC69	82.84	Perennial stream, associated with riparian wetland W534. Stream S534 appears to drain the NWI wetland to the north, outside of survey corridor (portions mapped as W534a) (P678, P679).	D-2
Cluster 20 (Turbines T39, T40, T41, T42, T43 and T45)														
NBC69-S534- See Cluster 19														
NBC57-S44	S44	Sector D/Cluster 20 (Turbines T39, T40, T41, T42, T43 and T45)	0-3	18"	4-6	Gravel	Intermittent	S-RPW	C	Unnamed tributary to North Branch Conewango Creek	NBC57	30.47	Stream starts as broad vegetated swale up gradient from wetland W44. Drain becomes channelized at W44 and turns into a channelized stream with defined bed and bank at W44-104. Flows north beyond survey corridor at stream S44-12 (P235, P236).	D-5
NBC55-S46	S46	Sector D/Cluster 20 (Turbines T39, T40, T41, T42, T43 and T45)	0-3	4-5	10-12	Gravel	Perennial	P-RPW	C	Unnamed tributary to North Branch Conewango Creek	NBC55	63.81	Perennial RPW stream, associated with riparian wetland W46, within the banks of S46 (P239, P240, P241, P242).	D-5

Table 2-3 Stream Characteristics, Ball Hill Windpark Generation Portion

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type 1	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
Cluster 21 (Turbines T46 and T47)														
NBC46-S31	S31	Sector D/Cluster 21 (Turbines T46 and T47)	0-3	1-2	2-4	Gravel, large flat stone	Perennial	P-RPW	C	Unnamed tributary to North Branch Conewango Creek	NBC46	162.04	Small stream with riparian corridor making up wetland W31. Active agricultural fields to the northeast and southwest. Point source pollution coming from drain tile that is draining agricultural field to the southwest. High nutrient load and some littler present. Otherwise stream appears healthy with high floodplain and wildlife value and function (P181, 182, 183).	D-8
Cluster 22 (Turbines T48, T50 and T51)														
SVC138-S16	S16	Sector D/Cluster 22 (Turbines T48, T50 and T51)	0-3	2	4	Gravel	Intermittent	S-RPW	A ³	Unnamed tributary to Silver Creek	SVC138	54.77	Small S-RPW draining north from Wetland W16 (channelization starts near W16-18) to an unnamed tributary of Silver Creek (P96).	D-13
Cluster 23 (Turbines T52, T53 and T55)														
SVC133-S1000	S1000	Sector D/Cluster 23 (Turbines T52, T53 and T55)	0-3	4-5	6-8	Gravel	Perennial	P-RPW	A ³	Unnamed tributary to Silver Creek	SVC133	87.19	Perennial stream, an unnamed tributary to Silver Creek (P04, P05).	D-17
SVC133-S1002	S1002	Sector D/Cluster 23 (Turbines T52, T53 and T55)	0-3	1-2	12-15	Silt/clay	Perennial	P-RPW	A ³	Unnamed tributary to Silver Creek	SVC133	87.19	Small, perennial stream, flows east at Access Road 21 (P33, P34, P35).	D-18
SVC136-S7	S7	Sector D/Cluster 23 (Turbines T52, T53 and T55)	0-3	1	12-16"	Gravel, silt/clay	Ephemeral	Non-RPW	A ³	Unnamed tributary to Silver Creek	SVC136	60.55	Stream S7, a small ephemeral stream, beyond survey corridor Wetland W7 drains north northwest to stream S7 (P44, P45).	D-15
Sector D Collection Line														
NBC39-S9	S9	Sector D Collection Line	3-6	4	6-8	Gravel	Perennial	P-RPW	C	Unnamed tributary to North Branch Conewango Creek	NBC39	38.70	Stream S9 is a perennial stream, flowing east, associated with riparian wetland W9 (P55, P56).	D-16
SVC140-S22	S22	Sector D Collection Line	0-3	2	3	Silty with other sediments	Perennial	P-RPW	A ³	Unnamed tributary to Silver Creek	SVC140	67.74	Stream S22 is a perennial stream which flows northeast beyond survey corridor into larger wetland complex. Stream is associated with riparian wetland W22, within the banks of S22 (P115, P116, P117).	D-14
SVC140-S123	S123	Sector D Collection Line	0-3	1-3	2-5	Gravel, Silt/clay	Perennial	P-RPW	A ³	Unnamed tributary to Silver Creek	SVC140	67.74	Small stream flowing northwest through wet logging road (Wetland W123) into stream S22 (P1654, P1655, P1656).	D-14
SVC129-S1001/S551	S1001/S551	Sector D Collection Line	0-3	4-6	7-10	Gravel, Silt/Clay, Cobble	Perennial	P-RPW	A ³	Unnamed tributary to Silver Creek	SVC129	156.58	Stream S1001 drains north to culverted road. Stream comes off wetland W4 and goes north to unnamed tributary to Silver Creek (P18, P19). Stream S551 begins at culvert and abuts wetland W551 on its east border. Japanese knotweed (invasive) grows on east bank (P765, P766, P767).	D-19

Table 2-3 Stream Characteristics, Ball Hill Windpark Generation Portion

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type 1	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
SVC129-S1001a	S1001a	Sector D Collection Line	0-3	18'	2-3	Gravel, Sand, Silt/Clay	Intermittent	S-RPW	A ³	Unnamed tributary to Silver Creek	SVC129	156.58	Stream S1001A starts as a groundwater seep and drains northeast to S1001 ~100 feet away (P265).	D-19
Sector E														
Cluster 24 (Turbine T56)														
SVC129-S1001/S551-see Sector D Collection														
Cluster 25 (Turbines T57, T58, T59, T60 and T67)														
SVC118-S132	S132	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	2-3	3-4	Gravel	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC118	86.74	S-RPW flowing southeast through uplands forest (Wetland W132 is approximately 100 feet upstream of proposed road crossing (P1701, P1702, P1703, P1704). Drain D130 (P1698) and stream S132 meet approximately 20' upstream of road crossing and point where SD132 was recorded. Channel at road crossing is 3-5' in width. Stream S132 flows south from road crossing into W576 (P1695) and S576 approximately 60 feet down gradient.	E-7
SVC118-S576	S576	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	2-6	2-8	Gravel, Sand	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC118	86.74	Stream S576 flows across corridor loosely west to east. Banks steep in some places but very flat in others. Riparian wetland W576 corridor is small to moderate in size. Water is clear (P857, P858).	E-7
SVC204-S577	S577	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	2-15	4-16	Gravel, Silt, Clay	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC204	88.65	Stream is surrounded by a sugar maple forest to the N, E and W, about 75 feet to the south vegetation changes to shrub scrub on the edge of an agricultural field. Surrounding stream banks have sugar maple saplings. Diversity and wildlife value are both low. Stream splits into two tributaries (both with flow present) which have multiple drains. Tributaries come back together 100 feet from the split.	E-2 and E-7
SVC76-S583	S583	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	4-5	5-6	Gravel, Sand, Silt/Clay	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC76	75.71	Stream meanders through hemlock and sugar maple forest. Many fallen trees and branches in stream with lots of leaves and small sticks caught on them. Banks have leafy debris but little understory/herbaceous growth. Some small drains leading to stream. Running water is clear (P893, P894).	E-6
SVC124-S591	S591	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	1-4	1-5	Gravel, Silt/Clay, Vegetation	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC124	87.49	Stream S591 meanders through cow pasture and fruit trees to west. Stream has low habitat value. Bottom vegetated in most areas, except where crosses centerline (P883, P884).	E-4, E-12 and E-13
SVC124-S592	S592	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	3-6	7-9	Silt/Clay	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC124	87.49	Stream S592 flows from culvert under Hurlburt Road outside of survey corridor northeast through wetland W593. It then passes through a culvert under an active farm road and flows east through wetland W592. Stream is in active pastures in a gently rolling terrain. Bed is muddy within survey corridor, with some small gravel in W592 (P922).	E-2
SVC124-S592A	S592a	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-3	0.5-1	2-8	Gravel/Silt/Clay	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC124	87.49	Stream S592A flows east through wetland W593A before joining and providing inflow to S592. It occurs in an active cow pasture.	E-2
SVC122-S594	S594	Sector E/Cluster 25 (Turbines T57, T58, T59, T60 and T67)	0-6	1-2	4-5	Gravle, Silt/Clay, Cobble	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC122	42.31	Stream S594 flowing from culvert under Hurlburt Road northeast to wetland W594. Two to three feet of scouring in south end near culvert along sloping terrain. Becomes less gravelly and no scour apparent in field near W594. Flows through active pasture into a wetland to the east of survey corridor (P926, P927).	E-2

Table 2-3 Stream Characteristics, Ball Hill Windpark Generation Portion

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type 1	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
Cluster 26 (Turbines T64, T65 and T66)														
SVC104-S1526	S1526	Sector E/Cluster 26 (Turbines T64, T65 and T66)	0-3	1-3	4-10	Gravel, Silt/Clay, large Cobble	Intermittent	S-RPW	A	Unnamed tributary to Silver Creek	SVC104	24.69	Stream S1526 is an intermittent, small rain water/snow melt runoff stream. Steep terrain with much erosion on both banks. Cows have access and have many crossings. Cow wastes in stream channel (P815, P816).	E-9
SVC109-S568	S568	Sector E/Cluster 26 (Turbines T64, T65 and T66)	0-3	2-5	8-10	Silt/Clay	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC109	25.45	Small perennial stream associated with wetland W568. Only minor flow, but drains moderate sized wetland so some flow should be present all year. Active pastureland to northeast and southwest. Cows cross streams. Changes to drain D568 short distance away. Across barbed wire fence, wide and fully vegetated. (P829)	E-8
Cluster 27 (Turbines T61 and T62)														
SVC106-S543	S543	Sector E/Cluster 27 (Turbines T61 and T62)	3-6	1-3	2-10	Gravel, Silt/Clay, Vegetation	Ephemeral	Non-RPW	A	Unnamed tributary to Silver Creek	SVC106	31.76	Stream S543 enters survey corridor on west side as outflow from manmade pond (pond is outside corridor). It flows north through Wetland W544, then parallel to driveway and into western segment of wetland W543. It passes under driveway through culvert into the east segment of wetland W543, and continues as a drain through that segment. Becomes stream-like again briefly out of corridor to east, then less channelized. Probably becomes more channelized further out of corridor, as it is located near a NYS DEC mapped stream (P729).	E-13
SVC103-S1519	S1519	Sector E/Cluster 27 (Turbines T61 and T62)	0-3	4-6	6-8	Gravel, Silt/Clay	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC103	46.55	Rocky stream, flows through culvert under road. Banks have all upland vegetation. Stream is south of about 15 honey bee boxes. Vegetation is burdock, Rubus species, honeysuckle, and sugar maple. More bee boxes are on the south side of the stream, approximately 30 total (P723, P724, P725, P726).	E-10
SVC73-S1520	S1520	Sector E/Cluster 27 (Turbines T61 and T62)	0-3	7-12	7-12	Gravel	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC73	98.54	Stream S1520 is a perennial stream with, high wildlife value, many tracks in riparian zone. Some large rocks in gravel (> 6" diameter). Many areas with runs and riffles. Collects runoff from the south via drain D1520 (P747, P748).	E-12
Sector E Collection Line														
SVC204-S577-See Cluster 25														
SVC126-S561	S561	Sector E Collection Line	0-3	1-3	6-9	Silt/Clay, muddy bottom	Perennial	P-RPW	A	Unnamed tributary to Silver Creek	SVC126	87.07	Stream S561 is a Minor stream flowing north out of a compacted, muddy cow pasture, through wetland W561 (vegetated pasture). Stream meanders through gently sloping terrain with a large riparian zone on both banks (P763, P794, P795, P796).	E-1
SVC122-S564	S564	Sector E Collection Line	0-3	1-3	4-6	Silt/Clay, rounded rocks	Ephemeral	Non-RPW	A	Unnamed tributary to Silver Creek	SVC122	42.31	Stream S564 is a NYSDEC mapped stream whose channel may have been manipulated into agricultural drainage. Channel is wide and vegetated in west portion of corridor and without flow. It is mapped as wetland in that area. Flow becomes evident at eastern edge of wetland W564, and continues east to stream S561 out of corridor (P799, P801).	E-1

Notes:

¹ Stream flow classifications are based on the following definitions:

Perennial Relatively Permanent Water (P-RPW) - The stream flow is evident throughout the year, in most years.

Seasonal Relatively Permanent Water (S-RPW) - The stream channel contains flowing water for at least three months but does not flow throughout the year, in most years.

Non-RPW - The stream channel contains flowing water for less than three months of the year, in most years.

² Highlighted cells indicate a revision to the table subsequent to submittal of the Ball Hill Wetland Delineation Report in August 2008.

³ These stream classifications were inferred from NYCRR Chapter X.

Table 2-4 Stream Characteristics, Ball Hill Windpark Transmission Section

Application ID	Field ID	Sector/ Cluster	Bank Height (feet)	Width of Water (feet)	Bank to Bank Width (feet)	Substrate	Flow Type	Flow Type ¹	NYSDEC Classification	Connection	Watershed	Stream Reach Drainage Area (Acres)	Comments	Appendix J Map Sheet
Entire Project Area Survey Corridor: 1298.7 Acres²														
Streams Identified During Surveys Within the Project Area														
Sector F Transmission Line														
Ball Hill Substation to Empire Road														
TUC6-S108	S108	Sector F Transmission Line	0-3	1-2	1-2	Silt/Clay	Perennial	P-RPW	C	Unnamed tributary to Tupper Creek	TUC6	35.15	Stream S108 is perennial stream, with moderate to high value, dominated by Typha latifolia, other species include sensitive fern and Viola spp. (P1586)	F-1
WNC87-S607	S607	Sector F Transmission Line	0-3	2	2	Silt/Clay	Perennial	P-RPW	C ³	Unnamed tributary to Walnut Creek	WNC87 and WNC92	31.98 and 51.72	Stream S607 is a very small creek, flowing north, associated with wetland W607, located on the western section of wetland. Flow transects survey corridor. (P1006, P1007)	F-3
WNC92-S607a	S607a	Sector F Transmission Line	0-3	2	4-6	Gravel	Perennial	P-RPW	C ³	Unnamed tributary to Walnut Creek	WNC92	51.72	Stream S607a is a minor stream flowing north though wetland W607 on the eastern section of the wetland. (P1008, P1009)	F-3
Empire Road to Hopper Road (No Streams)														
Hopper Road to Dennison Road														
WNC30-S50	S50	Sector F Transmission Line	6+	12-16	25	Bedrock	Perennial	P-RPW	C	Unnamed tributary to Walnut Creek	WNC30	118.43	Stream S50 is large perennial RPW with quick, steady flow. Predominantly upland vegetation with 60 foot banks on each side. Stream flows in a northwest direction. (P266, P267)	F-9
WNC103-S54	S54	Sector F Transmission Line	6+	2	5-7	Gravel, Sand, Silt/Clay	Perennial	P-RPW	C(T) ³	Unnamed tributary to Walnut Creek	WNC103	78.40	Stream S54 is a small, well incised, narrow stream with steep banks. Starts from culvert at unmapped pond outside the survey corridor and flows northwest into wetland W54 about 50 feet west of stream S54a. (P299, P300)	F-11 and F-12
WNC103-S54a	S54a	Sector F Transmission Line	6+	2	2-4	Silt/Clay	Intermittent	S-RPW	C(T) ³	Unnamed tributary to Walnut Creek	WNC103	78.40	Unable to determine stream origin due to historic filling of channel with concrete debris (see photos P301 & P302). Additional household litter in stream channel from stream points S54a-1 to S54a-2. Staining not apparent at Transmission Line crossing at Stream Data Point SD54a. Stream S54a meets stream S54 at beginning of wetland W54 (main hydraulic input). (P301, P302, P303, P323, P324)	F-11
WNC47-S103	S103	Sector F Transmission Line	3-6+	10	25	Bedrock	Perennial	P-RPW	C	Unnamed tributary to Walnut Creek	WNC47	28.80	Stream S103 is a large perennial stream, flows northwest with no live vegetation. Drain D1032 run into stream. (P563, P564)	F-7
WNC43-S104b	S104b	Sector F Transmission Line	0-3	NA	3-4	Gravel, Silt/Clay	Intermittent	S-RPW	C	Unnamed tributary to Walnut Creek	WNC43	58.34	Stream S104b starts at wetland W104-6 where it receives surface water runoff from wetland during spring melt and high water events. (P304a, P305a in Appendix J) The stream drains west to unnamed tributary to Walnut Creek.	F-7
WNC43-S104a	S104a	Sector F Transmission Line	0-3	NA	3-5	Gravel, Silt/Clay	Intermittent	S-RPW	C	Unnamed tributary to Walnut Creek	WNC43	58.34	Stream S104a starts from culvert under historic gas well road and receives runoff from wetland W104 during spring melt and high rain events. (P300a, P301a, P303a in Appendix J) Water drains west to unnamed tributary to Walnut Creek.	F-7
WNC28-S1014	S1014	Sector F Transmission Line	0-3	3	6	Bedrock	Perennial	P-RPW	C(T)	Unnamed tributary to Walnut Creek	WNC28	62.03	Stream S1014 is a P-RPW stream, which flows northwest. Stream crosses transmission line. (P279, P281, P282, P283)	F-10
WNC28-S1014a	S1014a	Sector F Transmission Line	0-3	1	4	Gravel	Intermittent	S-RPW	C(T)	Unnamed tributary to Walnut Creek	WNC28	62.03	Small branch splitting from stream S1014 near stream point S1014-2 resulting high flow event. Reverts to groundwater at stream point S1014a-6. (P280, P284, P285)	F-10
WNC47-S2000	S2000	Sector F Transmission Line	3-6	2	5	Gravel	Intermittent	S-RPW	C	Unnamed tributary to Walnut Creek	WNC47	28.80	Stream S2000 is an intermittent stream, which flows north.	F-7
Dennison Road to the Switchyard														
WNC103-S56	S56	Sector F Transmission Line	0-3	3	5	Silt/Clay	Perennial	P-RPW	C(T) ³	Unnamed tributary to Walnut Creek	WNC103	78.40	Stream S56 flows west from roadside ditch east of Dennison Road, through culvert and becomes channelized. Mapped as stream S56 from culvert outflow continuing west beyond survey corridor after merging with stream S56a near the transmission line crossing. (P372)	F-12
WNC103-S56a	S56a	Sector F Transmission Line	3-6	20	25	Silt/Clay	Perennial	P-RPW	C(T) ³	Unnamed tributary to Walnut Creek	WNC103	78.40	Chanel blows out to pond-like feature (20 feet x 40 feet). Data point taken at southeast portion of ponded area. Flows southwest to stream S56 near transmission line crossing and then to an unnamed tributary to Walnut Creek. (P370, P371)	F-12
SVC23-S60	S60	Sector F Transmission Line	0-3	6	8-10	Silt/Clay	Perennial	P-RPW	C(T) ³	Unnamed tributary to Silver Creek	SVC23	101.13	Stream S60 is between former agricultural field and forested area. Flow comes from drainage of wetland W60. Outflow is to an unnamed tributary to Silver Creek. (P352, P353)	F-13

Notes:

¹ Stream flow classifications are based on the following definitions:

Perennial Relatively Permanent Water (P-RPW) - The stream flow is evident throughout the year, in most years.

Seasonal Relatively Permanent Water (S-RPW) - The stream channel contains flowing water for at least three months but does not flow throughout the year, in most years.

Non-RPW - The stream channel contains flowing water for less than three months of the year, in most years.

² Highlighted cells indicate a revision to the table subsequent to submittal of the Ball Hill Wetland Delineation Report in August 2008.

³ These stream classifications were inferred from NYCRR Chapter X.

2. Environmental Setting and Impacts

Perennial streams that have been classified as Class C streams in the vicinity of the Project Area may provide fishing opportunities for the public. Public access is available along West Branch Conewango Creek and steelhead (trout) fishing is available, with owners' permission, along segments classified as C(t) on Walnut Creek and Silver Creek (NYSDEC 2008b and 2008c). These larger creeks lie primarily outside of the Project Area. Several of the streams within the Project Area are tributary to these systems (see Tables 2-3 and 2-4 for stream connections). According to NYSDEC, public fishing right easements are accessible at various locations along some of the unnamed tributaries within the Project Area.

All of the streams within the Project Area may be used to some extent by wildlife and livestock as a source of drinking water. However, based on data collected as part of the field surveys, many of the streams in the Project Area, including those designated as Class C(t) and A waters, are intermittent or ephemeral in nature. Therefore, water availability in these streams is intermittent and may be present only during periods of continuous or heavy precipitation or during the snowmelt period in the spring. Even though current NYSDEC regulations consider the C(t) streams suitable for supporting a cold water fishery, field survey data would suggest that the conditions in these intermittent streams are generally unsuitable for fish species. However, amphibians and macro-invertebrates are likely to inhabit intermittent streams when water is present.

Natural and man-made ponds are scattered throughout the Project Area. Ponds vary in size, but are typically less than 1.0 acre, with depths ranging from 2 to 10 feet. Man-made ponds used for agricultural purposes are located in farm fields, and recreational ponds are located in open forested residential areas and private camping areas. Wildlife may also utilize these resources.

2.3 Federally Jurisdictional Wetlands: Impacts and Mitigation Summary

This section discusses impacts to wetlands assumed to be federally jurisdictional wetlands as a result of construction and operation of the Project. 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; therefore wetland impact acreages presented in this section encompass all wetlands delineated within the survey corridor during field surveys, regardless of the presence/absence of a surface water connection. A Jurisdictional Determination will be made by the USACE subsequent to field review of delineated wetlands. Project facilities have been sited to minimize or avoid wetland impacts to the greatest extent practicable, although to meet Project objectives, some unavoidable wetland impacts will occur. Section 2.3.3 provides a discussion of measures to avoid, minimize, and mitigate for unavoidable wetland impacts.

The wetland impact discussion provided in this section is broken down by impacts during construction and impacts resulting from operation of the Project facilities.

2. Environmental Setting and Impacts

Construction disturbance includes all areas to be disturbed during construction activities; as such, they include all clearing, and impacts arising from, 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. For both the Generation and Transmission portions of the Project, construction disturbance equals the temporary impacts, plus permanent impacts, plus clearing; however, there is no clearing proposed for the Generation portion of the Project.

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 will be no temporary impacts for the Transmission portion of the Project. Wetland mats will be used, as necessary, for access within the 30-foot-wide travel corridor and in pole staging areas during construction of the transmission line; as such, equipment access through wetlands in the transmission corridor is not considered temporary impact.

For the purposes of this discussion, permanent impacts for both Generation and Transmission refer to permanent placement of fill within wetlands that result in a loss of wetland acreage. Placement of fill includes placement of fill for permanent roadways and for placement of poles for overhead transmission lines; however, this Project has been sited to avoid permanent fill impacts resulting from installation of turbines or overhead collection poles.

For the purposes of this discussion, clearing refers to clearing of vegetation within the construction ROW for overhead transmission lines with no other ground disturbance or placement of fill. The discussion of clearing impacts is limited to the Transmission portion of the Project. For the Transmission portion of the Project, clearing impacts reflect the portion of wetlands that fall within the 100-foot-wide permanent ROW and equal construction impacts, as there are no temporary impacts and permanent impacts from pole placement are considered de minimis.

Permanent forest conversion of federally jurisdictional wetlands is used to indicate the permanent loss of forest cover in wetlands resulting from temporary impact, and which will be maintained in a shrub or emergent condition during operation of the Project facilities. Removal of trees in forested wetlands associated with clearing in the transmission line ROW is not considered permanent forest conversion with respect to federal jurisdiction. Wetlands with herbaceous or shrub cover that are cleared in association with construction are expected to return to pre-existing herbaceous or shrub state within weeks to months of construction. While conversion is recognized as a long-term project 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 forested wetlands that fall within the construction ROW that will not be

permanently filled. There will be no temporary impacts for the Transmission portion of the Project; as such, there will also be no federally jurisdictional permanent conversion within the Transmission portion.

Summary of Impacts

Based on our evaluation (but subject to final review and jurisdictional determinations from the regulatory agencies), the Project will result in the permanent loss of only 0.36 acres of federally jurisdictional wetland due to placement of fill.

The Project will result in temporary impacts to 3.04 acres of federally jurisdictional wetlands, which will be restored to preconstruction contours following construction and allowed to revegetate to shrub/scrub or emergent cover. There will be no temporary wetland impacts to federally jurisdictional wetlands within the 30-foot travel route along the transmission line or transmission pole staging areas as wetland mats will be used to avoid ground disturbance.

In addition, temporary impacts associated with ground disturbance will result in 1.46 acres of federally jurisdictional wetland being converted from forested wetland to shrub/scrub or emergent wetland. Table 2-5 provides a summary of temporary and permanent impacts by component as they pertain to the federally jurisdictional wetlands in the Generation and Transmission portions of the Project.

A detailed list of impacts to areas subject to federal jurisdiction within the Generation portion of the Project is provided in Table 2-9.

2.3.1 Construction Impacts

2.3.1.1 Generation

Turbines

Use of turbine staging areas during installation of the Project will result in unavoidable temporary wetland impacts associated with grading and removal of vegetation. Each turbine will require a maximum staging area of 300 by 300 feet to stage turbine parts and position construction equipment around the turbine site. Sufficient space is needed around the turbine base to maneuver equipment and avoid safety hazards for construction workers. The staging areas were sited and modified to avoid and minimize impacts to wetlands to the extent possible, while still providing a safe and functional work space to erect the towers. All staging area impacts were calculated for the entire staging area. While Noble successfully located all turbines outside of wetlands, wetlands will be impacted by the staging areas.

The site contours of the turbine staging areas have been designed to utilize the existing base contours rather than importing significant fill volumes. After construction, the wetland areas that have been disturbed will be restored to preexisting contours. These areas will be allowed to revegetate to an emergent or scrub-shrub community.

Table 2-5 Impacts to Federally Jurisdictional Wetlands, Noble Ball Hill Windpark¹

Facility Type	Construction Disturbance ² (acres)	Temporary Impacts (Areas to be Restored to Preconstruction Contours following Construction) ³ (acres)	Permanent Impacts (Permanent Placement of Fill) ⁴ (acres)	Clearing ⁵ (acres)	Permanent Conversion (Permanent conversion of forested wetland to shrub/scrub or emergent wetland) ⁶ (acres)
Turbine Staging Areas	0.31	0.31	NA	NA	0.15
Access Roads	0.99	0.63	0.36	NA	0.18
Underground Collection	2.10	2.10	NA	NA	1.13
Transmission	13.02	NA	0.002	12.87	NA
Project Total	16.42	3.04	0.36	12.87	1.46

Notes:

- ¹ For the purpose of this table, 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 the USACE. The relationship of each wetland to TNWs is provided in Tables 2-9 and 2-10. Final jurisdictional determination will be made by USACE subsequent to field verification
- ² Construction disturbance includes all areas to be disturbed during construction activities, as such, they include all impact related to clearing, grading and 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.
- ³ 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 pre-construction contours and elevation; therefore, the temporary nature of these impacts relates to grading and placement of fill and does not take the loss of forest cover into consideration. Wetland mats will be used to avoid federally jurisdictional impacts within the 30-foot travel corridor and pole staging areas for transmission, therefore, no temporary federal impacts are reported for the transmission line.
- ⁴ For the purposes of this discussion, 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 transmission lines. It is fully understood that loss of forest cover is a long-term impact as well, this is described as forest conversion in order to separate fill impacts from loss of function associated with forest cover loss. Fill for overhead transmission results from placement of poles.
- ⁵ 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.
- ⁶ 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 the USACE.

Access Roads

Access roads were sited to avoid wetlands to the extent possible. However, construction of access roads for the Project will result in unavoidable temporary and permanent wetland impacts associated with grading and placement of fill. As a mitigation measure to minimize impacts to wetlands, where possible Noble reduced the nominal ROW width from the 60 feet used outside of wetland areas to the 40-foot ROW proposed through wetlands. Construction disturbance within wetlands will consist of the removal of vegetation and grading within a 40-foot construction ROW in wetlands to provide safe access. The temporary 35-foot wide access road will be installed within the construction corridor. Culverts and fords will be installed during road construction in appropriate areas to maintain wetland hydrology while the roads are in place. Typical design drawings of these methods are included in Appendix A. Noble will require a permanent 16-foot access road to each turbine. In wetlands and other low-lying areas, a 2-foot embankment on either side of the road may be required to accommodate the final 16-foot surface. For purposes of calculating Project impacts, it was assumed that this embankment would be installed, thus resulting in development of conservative impact numbers. After construction is completed, the additional road width required for construction will be removed, and the construction corridor will be restored to pre-construction contours and revegetated.

Underground Collection Lines

Construction of the Project will result in temporary wetland impacts associated with construction of underground collection lines. Construction disturbances within the underground electrical collection system corridors include the clearing of forested and woody vegetation and trenching to install underground collection lines. These areas will be returned to preconstruction contours and will be allowed to revegetate to an emergent or scrub-shrub community. Where possible, the underground electrical collection lines will be installed immediately adjacent to the operational access roads. However, in areas where the collection lines cannot be installed adjacent to an access road (i.e., between turbine clusters not connected by an access road), the lines will be installed within a corridor ranging between 22 feet wide for one circuit and up to 50 feet wide for four circuits. The lines will be placed inside a narrow trench with select material and then backfilled with native material. With proper design, the narrow collection system trenches will be constructed so as not to create an impervious boundary and, therefore, will not result in alteration to the subsurface hydrology of wetlands. However, where necessary, trench plugs will be used to prevent migration of water out of the wetland. Following installation, the pre-existing contours will be restored, and the ROW will be revegetated. No permanent filling of wetlands will occur in association with underground collection lines.

2.3.1.2 Transmission

Construction disturbances to wetlands located within the ROW for the transmission line include: the clearing of forested and woody vegetation, and placement of four poles for overhead transmission lines within three wetlands. A 100-foot-wide permanent ROW will be required for operation of the transmission line and

will be cleared during construction. Wetland mats will be used, as necessary, for access within the 30-foot-wide travel corridor and in pole staging areas during construction of the transmission line; as such, equipment access through wetlands in the transmission corridor is not considered temporary impact. Installation of four poles for the transmission line will result in de minimis impacts to the wetlands due to incidental displacement of soil during drilling for the pole and from permanent installation of the pole.

Haul Route

A roadside Haul Route investigation was conducted and is included as Appendix F. Depending on the final Haul Route chosen, roadside surveys indicate that there were wetlands identified in proximity to Haul Route intersections in need of improvement (see Table 2 of Appendix F). When the Haul Route has been determined and access has been obtained, detailed delineations will be performed within the required workspace as necessary.

2.3.2 Project Facility Impacts during Operation

Project facilities will have minimal impacts on wetlands associated with operation of the Project. Permanent impacts on wetlands resulting from placement of fill for permanent access roads and from permanent placement of four poles for overhead transmission lines will have minimal permanent impacts on wetlands.

Temporary wetland impacts, similar to those discussed above for construction, may be required, in conjunction with equipment access or excavation of underground facilities associated with repairs or maintenance during operation of the Project. In the event that temporary impacts are required for future maintenance, Noble will obtain necessary permits from the USACE on an as-needed basis. Finally, the operation of Project facilities will result in the permanent conversion of forested wetlands to shrub-scrub or emergent wetlands.

A detailed list of impacts to areas subject to federal jurisdiction and resulting from the operation of the Generation portion of the Project facilities is provided in Table 2-9, Section 2.6, Turbine Cluster Detail.

Turbines

Maintenance of the turbine staging areas during operation of the Project will require the permanent conversion of forested wetlands to shrub/scrub or emergent wetlands. No permanent fill within wetlands will result from operation of the turbines.

Access Roads

Noble will require a permanent 16-foot access road to each turbine. In wetlands and other low-lying areas, a 2-foot permanent embankment on either side of the road may be required. As discussed previously, all impact calculations have been based on a 20-foot-wide permanent fill to account for these embankments. The 40-foot-wide construction corridor for access roads will be maintained in an her-

baceous or shrub/scrub state. As such, maintenance of the access road corridor will result in permanent conversion of forested wetlands.

Underground Collection Lines

Operation of the underground collection lines will result in no permanent fill impacts on wetlands. The construction corridor for underground collection will be maintained in an herbaceous or shrub/scrub state. As such, maintenance of the underground collection corridor will result in permanent conversion of forested wetlands.

Transmission

Operation of Project facilities associated with the transmission line will result in de minimis permanent impacts associated with the placement of four poles within three wetlands for overhead transmission. Operation of Project facilities along the transmission line will require clearing of forested wetlands within the 100-foot ROW to shrub/scrub or emergent wetlands with no associated ground disturbance. Vegetation will be hand cleared and wetland mats will be used to avoid ground disturbance. The ROW will be maintained during operation of the Project to prevent re-establishment of trees. These areas will be periodically maintained to retain an herbaceous or shrub/scrub cover. A detailed list of impacts to areas subject to federal jurisdiction and resulting from the operation of transmission facilities is provided in Table 2-10 in Section 2.7.

2.3.3 Mitigation

As part of the detailed Project alternatives analysis presented in Section 1.3, Noble completed an intensive multi-phased siting process considering factors that included topography, location of wetlands and other sensitive resources, availability of sufficient wind resources, proximity to existing roads and transmission lines, locations of residential dwellings, and landowner access agreements. Each of these factors imposed limitations on the amount of flexibility available during the turbine siting process. Once these factors were considered, turbines and ancillary facilities (i.e., roads and collection and transmission systems) were sited to minimize environmental impacts. Where possible, Noble made every effort to collocate electrical lines and roads within the same corridor; optimize the use of previously disturbed areas, such as farmlands and roads; and avoid crossings of wetlands and streams. Despite an extensive effort to entirely avoid wetland impacts, because of other constraints and the linear nature of some Project components, it was not possible to design the Project without minimal impacts on wetlands while still meeting Project objectives. The process undertaken by Noble to minimize wetland impacts in the design of this Project is described below.

Avoidance and Minimization through Wetland Siting

A wetland study was conducted to determine the extent and quality of wetlands with the potential to be impacted by the Project. The wetland study consisted of a desktop review of existing wetland location information and mapping, reconnaissance level wetland surveys, and detailed wetland delineations. Each phase of the

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wetland study was used to refine siting for the Project facilities to minimize impacts to wetlands while balancing impacts to other resources.

The desktop review indicated that wetlands under state and federal jurisdiction were likely to exist within the Project Area. Based on the results of the desktop review, field reconnaissance-level surveys were conducted to develop general siting constraints. The general locations of large wetlands were identified, wetlands and streams were buffered, and these areas were blocked for consideration for turbine siting. Wetlands were considered along with other constraints and a preliminary turbine layout was developed.

A second round of reconnaissance-level wetland surveys was conducted based on the preliminary turbine layout. The primary purpose of the surveys was to refine the preliminary turbine locations to ensure that each site had sufficient space to locate the turbine and associated workspaces outside of wetlands. Additionally, preliminary access road routes were identified during this field effort. Project engineers conducted an initial desktop review of the preliminary access roads and a wetland delineation field survey corridor was established.

Detailed wetland delineations were conducted in the Project Site based on preliminary siting of facilities. The goal of the detailed wetland delineations was to identify and document wetlands that would potentially be temporarily or permanently disturbed as a result of construction or operation of the proposed facilities. The survey corridor generally included a 300-foot corridor centered on linear facilities and a circular area with a 250-foot radius around each turbine location. In some areas, the Project Site was restricted by property access or other factors, in other areas it was expanded (i.e., additional areas were examined to ensure that regulated buffers adjacent to NYSDEC regulated wetlands were accounted for). The delineated wetland boundaries were added to facility mapping and used to further refine the location of turbine sites, roads, and electrical collection to avoid and minimize impacts to wetlands to the extent practicable.

Siting for the Transmission portion of the Project was driven by the need to connect the Generation portion of the Project with the existing electrical grid within a ROW for which easement could be obtained. The siting process for the Transmission portion of the Project is discussed in detail in Section 1.3, Project Alternatives.

Every effort was made to avoid wetlands with Project components, and all turbine structures were located outside of wetland boundaries. However, because of the linear nature of the access roads, electrical collection system and transmission lines, as well as various engineering constraints, wetland impacts were unavoidable. Access roadways and electrical collection facilities were collocated to the extent practicable to minimize wetland impacts. Additionally, impacts have been minimized by utilizing existing log roads, existing farm roads, and areas disturbed in association with silviculture activities and by utilizing the shortest crossing where possible.

Minimization of Impacts during Construction and Operation of the Project

Although some impacts to wetlands are unavoidable, additional efforts have been made to minimize impacts during construction. The size of access road, collection line and transmission equipment access corridors within wetlands has been restricted to the width necessary to safely and effectively construct and transport equipment to the tower sites. The size and weight of the wind turbine components require a stable road surface free of obstructions, thus dictating the amount of woody vegetation that must be cleared and the size of the construction access roads. Roads will be gravel-based and will not require any impermeable top coating. Appropriately sized culverts will be used to maintain the hydrologic connectivity of the wetlands. Where possible, these crossings have been collocated with existing crossings; therefore, the opportunity may exist to improve the connectivity of wetland areas currently being crossed without culverting or bridging.

During construction and restoration of the Project Site, BMPs will be implemented to minimize impacts to the wetland resource. These practices include: stripping and stockpiling the wetland topsoil separate from subsoil layers during grading operations; use of geotextile fabric and/or crossing mats to minimize soil compaction; and installation of appropriately designed fords or culverts to maintain wetland hydrology. Noble will utilize BMPs while installing underground collection cables. Trench plugs will be used, as appropriate, and installed immediately after cable laying and prior to trench backfilling, in order to maintain existing hydrological conditions. Appropriate measures will be taken to minimize wetland impacts when installing overhead collection and transmission lines. Such measures may include the use of mats for crossing sensitive wetland areas and drop and lop clearing methods to minimize wetland disturbance associated with the removal of woody debris.

Noble will follow all NYSDEC and USACE permit requirements regarding restoration of wetland impacts. In areas where overhead transmission lines or underground collection lines are installed, Noble will return these wetlands to pre-construction grades and allow for the natural recruitment of plants into the underground collection corridor. These areas will be maintained in an herbaceous or shrub-scrub state, similar to other transmission line corridors.

An Invasive Species Management Plan (ISMP) has been developed in consultation with NYSDEC and the USACE, and discusses measures to prevent the spread or introduction of invasive species into the Project Area, measures to control existing invasive communities within the Project Site, and long-term monitoring procedures. A copy of the plan is included in the DEIS (see Appendix D).

Maintenance activities associated with Project facilities will include: routine maintenance of wind turbines; collection and transmission line service; and selective vegetative pruning around facilities; and access road maintenance. No

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chemical treatment of invasive populations will be used within 100 feet of any wetland boundary without prior approval from NYSDEC and the USACE.

Noble will implement a SWPPP in accordance with NYSDEC permit requirements, which will include a Sediment and Erosion Control Plan (SECP) and BMPs designed to minimize impacts to those wetlands crossed. During construction operations through permitted wetland areas, BMPs such as silt fencing, straw bale barriers, or temporary rock sediment traps will be installed to minimize off-site migration of Project-related sediment. SWPPP measures proposed for the Project are provided in Appendix G.

Mitigation for Unavoidable Impacts

For those wetland impacts that cannot be avoided, mitigation will be required as a condition of the wetland disturbance permits that will be required prior to construction. Within NYSDEC and USACE permitting requirements, compensatory mitigation can only be considered after the Project proponent demonstrates avoidance and minimization to the extent possible. A Conceptual Wetland Mitigation Plan is provided in Appendix H. Noble intends to meet with NYSDEC and USACE staff regarding the mitigation prior to development of a detailed mitigation plan.

Based on USACE 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 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.

Mitigation will be required for unavoidable, permanent fill impacts on regulated wetlands and for loss of function associated with permanent conversion of forested wetlands. The USACE will require mitigation for 0.36 acres of permanent fill and 1.46 acres of forested wetland conversion associated with ground disturbance. NYSDEC will require mitigation for 0.0005 acres of permanent fill and 2.87 acres of forested wetland conversion associated with temporary ground disturbance and clearing.

The Conceptual Mitigation Plan, provided in Appendix H, takes into account the permanent and temporary loss of wetland functions and values provided by the impacted wetlands. The goal of the mitigation plan is to restore, create, and/or enhance wetland hydrology, and hydric soil conditions to adequately offset the loss of function and value to the jurisdictional wetlands on the site resulting from Project implementation. A final mitigation plan will be developed in conjunction with NYSDEC and the USACE as part of their permitting process. The final mitigation plan will take into account the site-specific cumulative loss of biological function provided by the impacted wetlands, as well as any identified public value.

2.4 State Jurisdictional Wetlands: Impacts and Mitigation Summary

This section discusses impacts to wetlands under the jurisdiction of NYSDEC as a result of construction and operation of the Project. Project facilities have been sited to minimize or avoid wetland impacts to the greatest extent practicable, although to meet Project objectives, some unavoidable wetland impacts will occur. Section 2.3.3 provides a discussion of measures to avoid, minimize, and mitigate for unavoidable federal and NYSDEC jurisdictional wetland impacts.

State jurisdiction has been assumed if a field-delineated wetland corresponds to a mapped NYSDEC wetland based on map interpretation, has a surface water connection to a mapped NYSDEC wetland, or if the wetland is thought to exceed 12.4 acres. Although this section reflects NYSDEC's comments and input during the course of their September 8, 2008, field verification visit, final jurisdictional determination will be made by NYSDEC during the course of their permit review process.

A total of six field-delineated wetlands, which will be impacted, are assumed to fall under the jurisdiction of NYSDEC. All of these wetlands are located along the transmission line. Of these:

- One field-delineated wetland impacted by the Project has a surface connection to mapped NYSDEC Wetland SC-12, a Class II wetland;
- One field-delineated wetland impacted by the Project has a functional connection to mapped NYSDEC Wetland SC-12, Class II wetland; and
- Four field-delineated wetlands impacted by the Project have a surface connection to mapped NYSDEC Wetland SC-13, a Class III wetland.

Summary of Impacts

The wetland impact discussion provided in this section is broken down into several types of impacts resulting from operation of the Transmission portion of the Project. Based on the data collected to date, no wetlands in the Generation portion of the Project Area fall under NYSDEC jurisdiction.

For the transmission line, construction disturbance includes all areas to be disturbed during construction activities; as such, they include all clearing and impacts arising from placement of poles for overhead transmission, placement of wetland mats, and placement of fill. Construction disturbance along the transmission line includes the acreage of all wetlands that fall within the 100-foot-wide permanent ROW. Construction disturbance equals the temporary impacts, plus permanent impacts, plus clearing.

Temporary impacts for the transmission portion of the Project would be limited to temporary placement of wetland mats within a 30-foot-wide travel corridor to

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provide access across wetlands and placement of wetland mats within temporary staging areas required for transmission pole installation.

For the purposes of this discussion, permanent impacts associated with the transmission portion of the Project refer only to permanent placement of fill within wetlands that result in a loss of wetland acreage. Permanent fill impacts along the transmission line result from the placement of poles within wetlands. One wetland under state jurisdiction will be permanently impacted by the placement of a single pole within the transmission corridor, resulting in de minimis permanent impact. Construction of the transmission line will result in the installation of five poles within the NYSDEC-regulated Adjacent Area (AA).

For the purposes of this discussion, clearing refers to clearing of vegetation within the construction ROW for overhead transmission lines with no other ground disturbance, placement of fill or placement of wetland mats. The discussion of clearing impacts is limited to the Transmission portion of the Project. For the Transmission portion of the Project, clearing impacts reflect the portion of wetlands that fall within the permanent ROW, but that are not within the 30-foot-wide travel corridor.

Permanent forest conversion is used to indicate the permanent loss of forest cover in wetlands associated with clearing activities. To allow for safe operation of the transmission line, cleared portions of the ROW will be maintained in a shrub or emergent condition during operation of the Project facilities. Wetlands with herbaceous or shrub cover that are cleared in association with construction are expected to return to pre-existing herbaceous or shrub state within weeks to months of construction. While conversion is recognized as a long-term project impact, it is distinguished from permanent impacts associated with fill to facilitate review and permitting of the Project. Permanent conversion within the transmission portion includes all forested wetlands within the permanent ROW that will be permanently maintained to prevent reestablishment of trees.

The Project will result in construction disturbance to 3.08 acres of state-regulated wetlands. Of the 3.08 acres, 1.04 acres will be temporarily impacted by grading, ground disturbance, or placement of fill during construction and all but the 0.0005 acres of permanent fill for pole placement are limited to temporary impact and will be returned to preconstruction contours (temporary impacts are limited to access via the temporary travel corridor and pole staging areas) and allowed to revegetate to shrub-scrub or emergent cover. The remaining 2.03 acres of wetlands disturbed during construction will be subject to disturbance related to clearing within the permanent ROW along the transmission line. Operation of the Project facilities will result in permanent conversion of 2.87 acres of state-regulated forested wetland to shrub-scrub or emergent wetland as a result of periodic removal of woody vegetation within the transmission corridor. The remaining 0.20 acres consist of emergent and shrub-scrub wetland communities that will be allowed to revert to pre-construction conditions.

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The Project will result in permanent fill impacts to 0.0025 acres of AA for pole installation and temporary impacts to 1.74 acres of AA, which will be restored to preconstruction contours following construction. In addition, 3.68 acres of AA will be permanently converted from forest to shrub/scrub or herbaceous communities, this includes that portion of the forested portion of the 1.74 acres of AA that are slated for temporary impact and that portion of the permanent ROW within the AA that will be cleared that is currently forested. A summary of impacts to areas subject to state jurisdiction and resulting from the construction and operation of the Project is provided in Table 2-6.

Local Haul Route

Noble did not obtain property access for the roadside Haul Route investigation as a final Haul Route within the Project Area has not been selected; therefore, no wetlands were delineated as part of the Haul Route Study (see Appendix F). Depending on the route chosen, roadside surveys indicate that there are NYSDEC wetlands in proximity to some of the alternative Haul Route intersections (see Table 2 of Appendix F). When the Haul Route has been determined and access has been obtained, detailed delineations will be performed within the required workspace as necessary.

Summary of Impacts to NYSDEC Regulated Wetlands

Summary of impacts to mapped NYSDEC Wetland SC-12:

- Wetland SCV18-W110: 0.25846 acres of temporary impact, and no permanent fill impact. 0.83681 acres of permanent forest conversion.
- Wetland SVC10-W111: 0.36464 acre of temporary impact and 0.0005 acres of permanent fill impact. 1.09715 acre of permanent forest conversion.

Summary of impacts to mapped NYSDEC Wetland SC-13:

- Wetland SVC23-W61: 0.13816 acres of temporary impact and no permanent fill impact. 0.39446 acres of permanent forest conversion.
- Wetland SVC23-W63: 0.08963 acres of temporary impact. No permanent fill impact or permanent forest conversion.
- Wetland SVC23-W64: 0.000002 acres of temporary impact and no permanent fill impact. 0.00400 acres of permanent forest conversion.
- Wetland SVC23-W65: 0.19111 acres of temporary impact and no permanent fill impact. 0.54048 acres of permanent forest conversion.

Table 2-6 Freshwater Wetland and Adjacent Area Impacts, Noble Ball Hill Windpark

Wetland	Freshwater Wetland Impacts (Acres)			Adjacent Area Impacts (Acres)		
	Permanent Impact	Temporary Impact	Forest Conversion	Permanent Impact	Temporary Impact	Forest Conversion
Mapped NYSDEC Wetland SC-12						
SVC18-W110	NA	0.25846	0.83681	0.00050	0.27870	0.55251
SVC10-W111	0.00050	0.36464	1.09715	NA	0.21994	0.60394
Total	0.00050	0.62310	1.93396	0.00050	0.49864	1.15645
Mapped NYSDEC Wetland SC-13						
SVC23-W61	NA	0.13816	0.39446	*	*	*
SVC23-W62**	NA	NA	NA	*	*	*
SVC23-W63	NA	0.08963	NA	*	*	*
SVC23-W64	NA	0.000002	0.00400	*	*	*
SVC23-W65	NA	0.19111	0.54048	*	*	*
Total	NA	0.41890	0.93894	0.00200	1.24183	2.52221
Total Project	0.00050	1.04200	2.87290	0.00250	1.74047	3.67866

Notes:

* Adjacent areas for W61, W62, W63, W64, and W65 overlap. Impacts to the adjacent areas for these wetlands are all inclusive in the adjacent area total for NYSDEC Wetland SC-13.

** Wetland SVC23-W62 will not be permanently or temporarily impacted. It is listed in this table because its AA is impacted; however, the AA impacts also overlap with Wetland SVC23-W61. The AA for all wetlands associated with NYSDEC Wetland SC-13 are reported as one value as there is significant overlap between these areas.

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Wetland	Impact
Summary of Impacts to Freshwater Wetlands (Not including Adjacent Areas)	
SVC18-W110	0.25846 acre of temporary impact and no permanent fill impact. 0.83681 acre of permanent forest conversion.
SVC10-W111	0.36464 acre of temporary impact and 0.00050 acre permanent fill impact. 1.09715 acre of permanent forest conversion.
SVC23-W61	0.13816 acre of temporary impact and no permanent fill impact. 0.39446 acre of permanent forest conversion.
SVC23-W63	0.08963 acre of temporary impact. No permanent fill impact or permanent forest conversion.
SVC23-W64	0.000002 acre of temporary impact and no permanent fill impact. 0.00400 acre of permanent forest conversion.
SVC23-W65	0.19111 acre of temporary impact and no permanent fill impact. 0.54048 acre of permanent forest conversion.
Summary of Impacts to Freshwater Wetland Adjacent Areas.	
SVC18-W110	0.27870 acre of temporary impact and 0.0005 acre of permanent fill impact. 0.55251 acre of permanent forest conversion.
SVC10-W111	0.21994 acre of temporary impact and no permanent fill impact. 0.60394 acre of permanent forest conversion.
SVC23-W61/W62/W63/W64/W65	1.24183 acres of temporary impact and 0.00200 acre of permanent fill impact. 2.52221 acre of permanent forest conversion.

Summary of Impacts to NYSDEC regulated Adjacent Area (AA)

Summary of impacts to mapped NYSDEC Wetland SC-12 AA:

- Wetland SCV18-W110: 0.27870 acres of temporary impact and 0.0005 acre of permanent fill impact with 0.55251 acres of permanent forest conversion.
- Wetland SVC10-W111: 0.21994 acres of temporary impact and no permanent fill impact with 0.60394 acres of permanent forest conversion.

Summary of impacts to mapped NYSDEC Wetland SC-13 AA:

- Regulated AAs for W61, W62, W63, W64, and W65 overlap. Impacts to the adjacent areas for these wetlands are all inclusive in the adjacent area total for NYSDEC Wetland SC-13. The adjacent area impacts: 1.24183 acres of temporary impact and 0.0020 acre of permanent fill impact with 2.52221 acres of permanent forest conversion.

A summary and discussion of impacted NYSDEC protected streams is provided in Section 2.5.1.

Temporary and permanent impacts to streams are listed in Section 2.5 in Tables 2-7 and 2-8 for Generation and Transmission portions of the Project.

2.5 Surface Water: Impacts and Mitigation Summary

Construction and operation of the Project, including the building of access roads and placement of turbines, electrical collection, and transmission lines, may impact surface water resources and, ultimately, water quality, through ground disturbance and runoff. This section addresses possible impacts on surface water as a result of construction and operation of the Project. Long-term impacts on surface water quality are expected to be minimal, as water resources were avoided to the extent practicable when siting Project facilities, and Noble will minimize any unavoidable construction impacts to surface waters through the implementation of BMPs. These measures are discussed in Appendix G. To further minimize impacts, Project facilities have been sited to utilize existing agricultural, field and logging roads and culverts, or other disturbed areas, to the extent possible.

Construction of the Project will result in minor, short-term impacts on the streams crossed. These impacts could occur as a result of in-stream construction activities or construction on slopes adjacent to stream channels. Clearing and grading of stream banks, in-stream trenching, trench dewatering, and backfilling could result in modification of aquatic habitat, increased sedimentation, turbidity, decreased dissolved oxygen concentrations, releases of chemical and nutrient pollutants contained in stream sediments, and introduction of chemical contaminants, such as fuel and lubricants, from possible spills. In general, these impacts will be limited to the period of in-stream construction and conditions are expected to return to normal shortly after completion of activities.