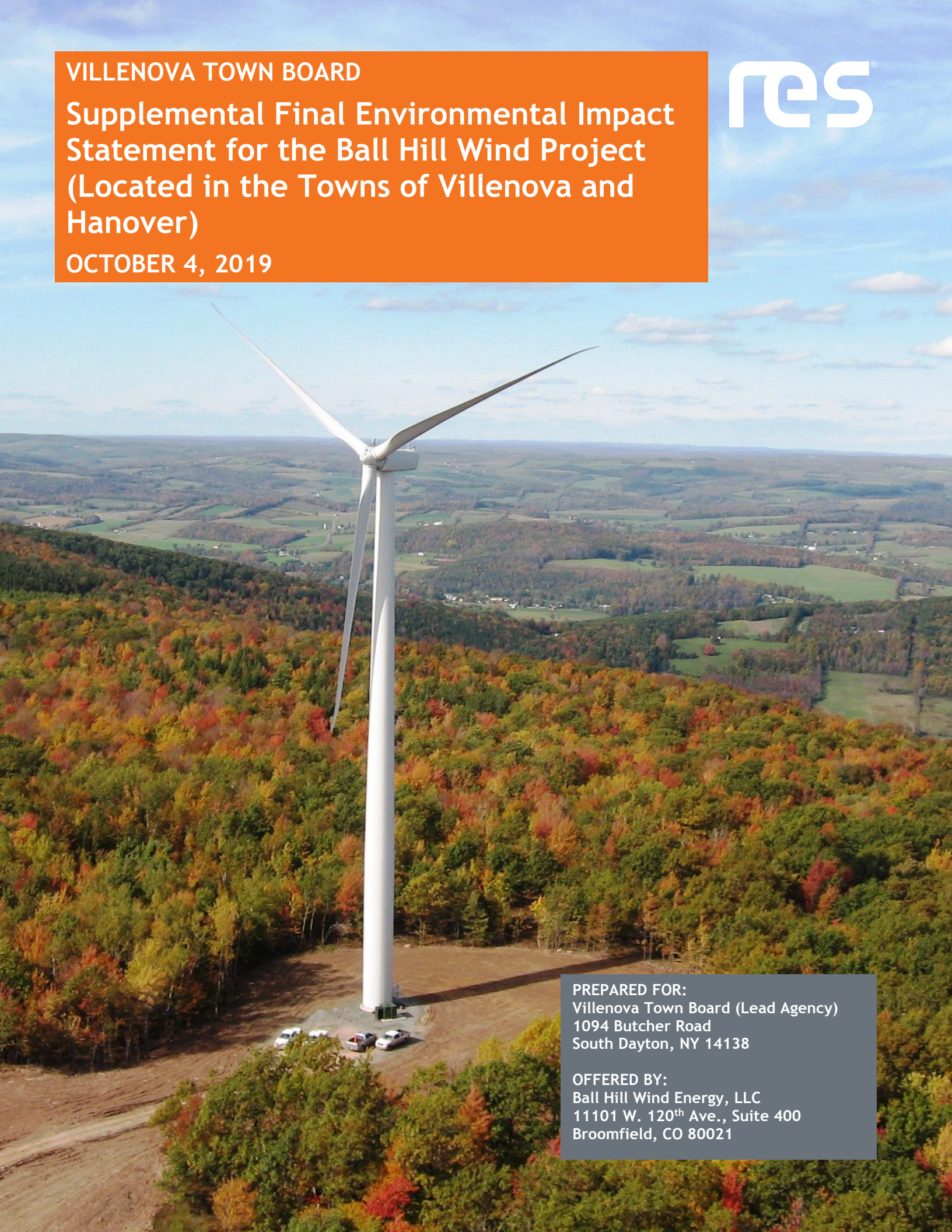
VILLENOVA TOWN BOARD

Supplemental Final Environmental Impact Statement for the Ball Hill Wind Project (Located in the Towns of Villenova and Hanover)

OCTOBER 4, 2019



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DEFINITIONS

The following terms are used throughout this document.

- **Project.** "Project" refers to all activities involved in the construction, operation and decommissioning of the Ball Hill Wind Project described herein and all components thereof, including, but not limited to, wind turbines (including blades, nacelles, towers, pads, and foundations); electrical transmission and collection lines and poles; trenches; access roads; laydown areas, Operations and Maintenance (O&M) buildings and related structures.

- **Project Area.** The Project Area (see Figure 1.1-1) is denoted by the outer boundary of the geographic area that contains all wind energy facilities (as defined in the Villenova and Hanover wind laws) including, without limitation, turbine sites, access roads, transmission line and collection system components, O&M building, laydown areas, substation, and Switchyard.

- **Project Site.** The Project Site consists of land within the Project Area that has the potential to be permanently or temporarily disturbed as a result of the construction, operation, or decommissioning of Project facilities (including wind turbines, electrical collection and transmission lines, utility trenches, utility poles, access roads, staging areas, mitigation areas and other related structures). Ball Hill has obtained property interests or is in the process of finalizing negotiations for all parcels that would host Project components or for which a setback waiver within the Project Site is required.

- **Project Sponsor.** The Project Sponsor is the Ball Hill Wind Energy, LLC. Throughout this document the Project sponsor will be referred to as "Ball Hill."

- **Proposed Action.** The Proposed Action consists of two design modifications to the Project as described in the FEIS and approved in 2016: an increase maximum allowable height of twenty-three (23) turbines in the Town of Villenova from 492 feet to 599 feet, in their 2016-approved locations with the exception of three minor shifts (135 feet or less) to ensure adequate setbacks (to turbines T2, T4 and T8, as described herein); and elimination of the 2016-approved 5.7-mile overhead high-voltage electrical interconnection line and south Hanover collection substation in favor of extending the Project underground electrical collection system 5 miles to the point of interconnection ("Underground Gentie").

EXECUTIVE SUMMARY

On December 6, 2016 the Villenova Town Board, acting as Lead Agency pursuant to the State Environmental Quality Review Act (SEQRA), adopted a Statement of Findings on a Final Environmental Impact Statement (FEIS) completed for the proposed Ball Hill Wind Energy Project ("Project"). As described in the FEIS, the Project consisted of 29 wind energy turbines with a maximum allowable height of 495 feet in the Towns of Villenova (23 turbines) and Hanover (6 turbines), 19.8 miles of buried electrical collection lines, 5.7 miles of overhead high-voltage transmission line, a collection substation in south Hanover, an interconnection substation in north Hanover, and 13 miles of access roads, in a Project Area of approximately 9,715 acres.

In 2018 Ball Hill Wind Energy, LLC ("Ball Hill") applied for approval ("2018 Application") to modify the Project design in two regards: to increase the maximum allowable height of the wind turbines to 599 feet in their previously approved locations, and to eliminate the 5.7 miles of overhead high-voltage transmission line and southern collection substation to be replaced with an approximate 5 mile continuation of the previously approved 19.8 miles of buried electrical collection line ("Proposed Action").

In accordance with SEQRA, the potential environmental impacts associated with the Proposed Action were thoroughly identified and considered by the Town Board and determined not to be significant or adverse, as described in a Negative Declaration Determination of Non-Significance issued August 8, 2018 ("Neg Dec"). The Neg Dec was challenged by several petitioners under New York Civil Practice Law and Rules (CPLR) Article 78 in a Petition filed September 7, 2018. On June 24, 2019 the State of New York Supreme Court: County of Chautauqua issued a Decision ("Decision") that concluded that the Neg Dec be "returned" to the "Town of Board" because it:

> *"failed to take the requisite hard look at [the issues of: "the effect that the increase in height of the turbines could have on the bald eagle population which was mentioned in the [Project's] 2016 SEIS…, and…the potential environmental impact in the area where the [5 miles of additional electrical collection] lines were to be installed."*

The Decision failed to acknowledge that the 2018 Application described in detail the absence of any expected change in impacts from the proposed turbine height increase on avian species, as compared with the 2016 FEIS Findings, as well as the general reduction in ground surface, water resource and wetlands impacts associated with burying an additional 5 miles of electrical collection lines as compared with the approved 2016 overhead high-voltage configuration.

In response to the Decision, Ball Hill presented a full description of potential environmental impacts associated with the Proposed Action, based on the studies and information provided in the 2018 Application and the elaborations solicited by the Decision.

This Supplemental Final Environmental Impact Statement (SFEIS) describes the potential environmental impacts and mitigation measures associated with the Proposed Action pursuant to the New York State Environmental Quality Review Act (SEQRA) (Environmental Conservation Law [ECL] Article 8 and its implementing regulations at 6 New York Codes, Rules, and Regulations [NYCRR] Part 617). The original Project was described, and its impacts were evaluated in the Final Environmental Impact Statement (FEIS), which was accepted by the Town of Villenova Town Board, the Lead Agency under SEQRA, in November 2016 (FEIS).

On August 14, 2019, a draft of a Supplemental Draft Environmental Impact Statement (SDEIS) was provided to the Town of Villenova. A public hearing was held on September 4, 2019, and a public comment period was open through September 30, 2019. Comments and questions raised during the public hearing and public comment period related to eagles, bats, public health and infrasound, setbacks, and cultural and historical resources.

This SFEIS was revised to respond to the comments as follows:

- The final version of the Memorandum of Agreement ("MOA") between the U.S. Army Corps of Engineers, the New York State Office of Parks, Recreation and Preservation, and Ball Hill Wind Energy, LLC regarding mitigation for effects from the Project on cultural resources was added as Appendix M.

- Additions were made to Section 2.1.2.7 to address comments regarding potential impacts to eagles; also, the Project-specific voluntary Bird and Bat Conservation Strategy (BBCS), including Eagle Management Plan, is included as Appendix N.
- A Public Comments and Response Log is included as Appendix O.

Project Description

Ball Hill Wind Energy, LLC (Ball Hill), a company owned by Renewable Energy Systems Americas Inc. (RES), proposes to construct and operate the Project in the Towns of Villenova and Hanover, Chautauqua County, located in western New York State (NYS). The Project would include up to 29 wind turbines. As approved in 2016, 23 turbines would be installed in the Town of Villenova, and 6 turbines would be installed in the Town of Hanover.

Ball Hill proposes to install newer wind turbine technology than what was approved in the FEIS. Wind turbine models and technology advancements, such as taller towers, allow for greater energy capture without additional significant environmental impacts. All potential impacts associated with the proposed use of these taller turbines are assessed in this SFEIS.

In addition, since the approval of the 2016-proposed electrical interconnection configuration, consisting of a 5.7-mile overhead high-voltage transmission line and associated south Hanover collection substation, Ball Hill has identified and now proposes to eliminate and reduce impacts associated with visual, noise, wetlands and ground-clearing by strategically burying extended medium voltage circuits for interconnection. All potential impacts associated with the proposed undergrounding of the Project's electrical interconnection lines are assessed in this SFEIS.

The design improvements comprising the Proposed Action are the only changes to the overall Project design that was thoroughly studied in 2016, and for which the Villenova Town Board identified all potential impacts, took a hard look at each one, and made determinations of their significance in the FEIS. The full scope of potential impacts associated with the proposed modifications to the 2016-Approved Project design is contained in this SFEIS, and where such modifications would result in no change in impacts determined in the FEIS a statement "No change from FEIS" is indicated herein.

In addition to the wind turbines, the Project will involve constructing a system of gravel access roads, buried electrical collection lines, an operation and maintenance (O&M) building, an on-site step-up substation, and an interconnection facility. Temporary construction laydown areas are also planned for the construction phase of the Project. None of these improvements and facilities have changed from the 2016 FEIS.

Increased energy generation is expected from the proposed larger turbines, which would result in a commensurate increase in wind energy lease royalties to local landowners. Other than this, no change is expected to job creation and economic development estimates in the FEIS as a result of the Proposed Action.

In order to identify and assess the complete scope of impacts associated with the Proposed Action, Ball Hill has reviewed and updated, as needed, the following impact assessment studies for this SFEIS:

- Unless otherwise indicated herein, impacts assessments have been done for 29 taller turbines, notwithstanding that the Hanover Town Board's denial of permission to increase turbine heights will mean that the 6 turbines proposed for Hanover will remain at their 2016-approved levels of not greater than 495 feet. All impacts associated with the use of taller turbines (not greater than 599 feet), include the following updates:
  - Visual impact assessment, including viewshed analysis and photo simulations;
  - Shadow flicker impact analysis;
  - Sound-level assessment report;
  - Avian and bat impacts, including eagles;
  - Communication signals impacts; and
  - Impacts associated with the construction of larger turbine foundations.
- All impacts associated with the Underground Gentie, include the following updates:

- Wetland and waterbodies report;
- Ground clearing;
- Land (slopes, water table, bedrock etc.);
- Geological Features;
- Surface Water;
- Groundwater;
- Flooding/Floodplains;
- Plants/Animals (endangered, threatened etc.);
- Land Use & Agricultural Resources (active ag, prime soils, forests etc.);
- Cultural Resources (historic and archeological);
- Open Space/Recreation;
- Human Health (traversing areas of contamination, etc.); and
- Soils.

> Property values;

> Airspace reports;

> Architectural and archaeological cultural resource surveys; and

> Threatened and endangered species.

The SDEIS, was accepted as complete for public review and comment by the Villenova Town Board on August 14, 2019. Public comments were received on the SDEIS until the end of the comment period as specified in the Notice accompanying the SDEIS. This SFEIS includes updates and revisions based on the comments received.

Purpose, Need, and Benefit

The Proposed Action modifies the previously approved Ball Hill Wind Energy Project (which consists of 29 wind turbines, associated electrical collection and transmission lines, access roads and related wind energy facilities which include an operations and maintenance facility) by increasing the total maximum permissible height of 23 wind turbines to be located in the Town of Villenova from 492 feet to a maximum of 599 feet, the minor relocation of three (3) wind turbines (less than 135 feet from their approved locations), and replacement of the ±5.7-mile overhead 115kV transmission interconnection circuit and associated Collection Substation with ±5.0 miles of four (4) predominantly underground 34.5kV circuits (“Underground Gentie”). The locations of twenty (20) of the wind turbines in the Town of Villenova remain unchanged, as does the substation for interconnection with the existing National Grid 230 kV electric transmission line.

The proposed turbine height increase is necessary to improve the efficiency and capacity of the wind turbines, allowing for production of the most electricity within the same Project footprint. Replacement of the overhead lines with underground cables will minimize visual, wetland, noise and agricultural impacts from the previously proposed 5.7-mile overhead electric transmission line, which included the proposed use of approximately 80-feet-high poles and an additional substation. These proposed Project changes will require the amendment of the Town of Villenova Laws to increase the maximum permitted height to accommodate the proposed wind turbines, and modification of the previously issued special use permit from the Town of Villenova.

Local economic benefits of the Project would include the following:

> Temporary and permanent employment;

> Increased commerce in local towns due to spending by Project employees, suppliers, and local merchants;

> Increased flow of revenue to the county, towns, and school districts through payment in lieu of taxes (PILOT) payments;

- Increased flow of revenue to landowners through lease agreements; and
- Increased economic diversification.

The Project would utilize and support providers of local services, suppliers, and area manufacturers during its construction and operation. Ball Hill has negotiated agreements to provide payments to both towns and other taxing authorities in the form of a PILOT program and Host Community Agreements. These payments would result in a significant increase in local revenue for the taxing authorities. Moreover, the Project would not place additional demands for services upon the local municipalities or school districts.

The Project would assist in the revitalization of the local economy by providing steady income through lease payments to landowners. Many of the landowners in the Project Area are farmers and the additional income from annual lease payments is expected to help stabilize their income and provide some relief from the cash-flow fluctuations inherent in the agricultural industry.

Additional value to the local economy would result from increased diversification of the county and state economic bases. Economic diversification ensures greater stability of the economy by minimizing financial high and low cycles associated with a specific industry. This effect is particularly important in rural areas, where more goods and services are imported, and more dollars leave the region.

Summary of Potential Impacts

In accordance with the requirements of SEQRA, the full range of potential environmental impacts arising from the construction and operation of the Proposed Action were identified early in the 2018 application process. Given that the discreet changes to the 2016 approved Project design are limited in scope to increasing turbine heights at pre-approved locations, eliminating a southern collector substation, and undergrounding the electric interconnection lines, it is reasonable that the marginal impacts associated with the Proposed Action are also limited in scope. A number of commenters noted that this SFEIS recites that many potential impact areas remain as described in the FEIS, and that is because they will not change as a result of the Proposed Action. In fact, impacts in many areas, such as noise, wetland impacts, and ground clearing, are reduced as a result of the Proposed Action. and are evaluated in this SEIS with respect to a range of environmental, economic, and cultural resources. Table ES-2 summarizes potential impacts that may occur in association with the construction and/or operation of the Proposed Action. These impacts and associated mitigation measures are described in greater detail within Section 2 of this SFEIS.

TABLE ES-1 SUMMARY OF EVALUATED POTENTIAL PROJECT IMPACTS

ENVIRONMENTAL RESOURCE	POTENTIAL IMPACTS
Regional Geology, Topography, and Seismic Activity	> Construction of the Proposed Action is not expected to change Regional Geology, Topography, and Seismic Activity, as compared with the FEIS.
Soil Types and Descriptions, Agricultural Land, Steep Slopes, and Drainage Characteristics	> Soil erosion and compaction impacts will be mitigated by construction methods studied in the FEIS. > Potential damage to soil structure will be mitigated by construction methods studied in the FEIS. > Introduction of stones or rocks to topsoil will be mitigated by construction methods studied in the FEIS. > Conversion of prime farmland soils will be mitigated by construction methods studied in the FEIS.

TABLE ES-1 SUMMARY OF EVALUATED POTENTIAL PROJECT IMPACTS	
ENVIRONMENTAL RESOURCE	**POTENTIAL IMPACTS**
Water Quality	> Number if stream crossings will decrease because of the Proposed Action from those studied in the FEIS. > Siltation/sedimentation impacts will be mitigated by construction methods studied in the FEIS. > No change in permanent stream crossings with culverts is expected by the Proposed Action as compared with the FEIS.
Wetlands	> The minor shift of Turbine T8 will result in avoidance of approximately 408 square feet of temporary impacts to Wetland Q1, a palustrine scrub-shrub (PSS) wetland. However, the revised limits of disturbance for T8 now encroaches on a small portion (566 square feet [.013 acres]) of Wetland A653, a Palustrine Emergent wetland (PEM). This increase in impact, 166 square feet, is de minimis and is offset by the significant decrease in impacts resulting from the Underground Gentie. > There is no permanent fill of wetlands associated with the Proposed Action, as compared with the FEIS. > Temporary wetland disturbance was reduced from 13.44 acres to 8.01 acres. > Permanent forest conversion was reduced from 6.20 acres to 3.74 acres. Specifically, this is due to the elimination in the ROW southwest of Turbine 35 and the re-alignment of the ROW along Denison Road, and the directional bore under the delineated wetlands associated with NYSDEC Freshwater Wetlands SC-12 and SC-13.
Biological Resources and Threatened and Endangered Species	> Vegetation clearing will be reduced overall by the Proposed Action. Tree clearing will be reduced by 9.19 acres as compared with the FEIS transmission configuration, while there will be an increase of 3.7 acres of temporary construction impacts on agricultural land. > Incidental wildlife injury and mortality is not expected to change from the FEIS as a result of the Proposed Action. > Wildlife displacement is not expected to change from the FEIS as a result of the Proposed Action. > Loss or alteration of habitat is not expected to change from the FEIS as a result of the Proposed Action. > Permanent conversion of agricultural land is not expected to change from the FEIS as a result of the Proposed Action. > Preservation of land near turbines for agriculture is not expected to change from the FEIS as a result of the Proposed Action.

TABLE ES-1 SUMMARY OF EVALUATED POTENTIAL PROJECT IMPACTS	
ENVIRONMENTAL RESOURCE	**POTENTIAL IMPACTS**
Bird and Bat Resources	> The range of predicted collisions resulting in mortality or injury is not expected to change from the FEIS as a result of the Proposed Action. > Loss or alteration of habitat is not expected to change from the FEIS as a result of the Proposed Action. > Influence on nesting locations is not expected to change from the FEIS as a result of the Proposed Action. > The Underground Gentie will not have any operational impacts on birds or bats, and the elimination of the Overhead Transmission Line is expected to have a positive impact on birds.
Eagle Population	> Based on available New York wind project operating data and reasoned analysis, as described more fully in Section 2.1.2.7 herein, the Proposed Action is not expected to pose a significant risk to eagles. > Loss or alteration of habitat is not expected to change from the FEIS as a result of the Proposed Action. > Influence on nesting locations is not expected to change from the FEIS as a result of the Proposed Action. > The Underground Gentie will not have any operational impacts on eagles, and the elimination of the Overhead Transmission Line is expected to have a positive impact on eagles.
Visual Resources	> The Project screening would decrease by approximately 1.1% (from 67.7% to 66.6%) within the five-mile study area utilizing the vegetated viewshed mapping. However, this increase in visibility would potentially be further mitigated by localized conditions at specific receptors by existing landscaping, hedgerows, and structures. Within the 33.4% of the study area where the Project is visible, the increase in height has increased the area where 26-29 turbines will be visible by 2.2% (approximately 2,200 acres). > One additional resource, the Hamlet of Balltown, would potentially have the view of one turbine, as compared to none in the FEIS. > The taller turbines will result in an increase in the number of receptors potentially receiving 10-20 and 30+ hours of shadow flicker per year. In total, 35 receptors may exceed 30 hours of shadow flicker (an increase of 13 from 2016). The increases are: • 10-20 hrs/yr: 5 additional receptors (+2.1%) • 30-40 hrs/yr: 2 additional receptors (+0.8%) • 40+ hrs/yr: 11 additional receptors (+4.5%) > Although the increase in turbine height in the Proposed Action increases the potential visual impacts from the proposed Project, the Underground Gentie eliminates impacts to residences along the proposed transmission corridor.

TABLE ES-1 SUMMARY OF EVALUATED POTENTIAL PROJECT IMPACTS	
ENVIRONMENTAL RESOURCE	**POTENTIAL IMPACTS**
Sound	> Construction noise is not expected to change from the FEIS as a result of the Proposed Action. > Operational noise impacts on adjacent residents are predominantly reduced from the Proposed Action as compared with the FEIS, as described herein. > Operational noise impacts from the previously proposed Overhead Transmission Line and Substation have been eliminated.
Climate and Air Quality	> Construction vehicle emissions are not expected to change from the FEIS as a result of the Proposed Action. > Dust during construction is not expected to change from the FEIS as a result of the Proposed Action. > Reduced air pollutants and greenhouse gases are expected from the Proposed Action as a result of increased clean energy production displacing conventional fuel-based sources.
Communications	> No increased interference with public, private, or government communication facilities is expected from the FEIS as a result of the Proposed Action. > No increased telecommunication interference is expected to change from the FEIS as a result of the Proposed Action.
Traffic and Transportation	> Road wear is not expected to change from the FEIS as a result of the Proposed Action. > Traffic congestion/delays are not expected to change from the FEIS as a result of the Proposed Action. A slight reduction in negative impacts to local roadway traffic is anticipated due to directionally boring collection lines at most of the local road crossings, rather than stringing an overhead transmission line. > Road system improvements/upgrades are not expected to change from the FEIS as a result of the Proposed Action.
Land Use	> Adverse and beneficial impacts on farming are not expected to change from the FEIS as a result of the Proposed Action. > Changes in land use trends are not expected to change from the FEIS as a result of the Proposed Action. As noted in Section 2.2.1 and in Table 10, the proposed Underground Gentie Corridor will eliminate permanent impacts to agricultural lands.
Socioeconomics	> Host community payment/PILOT > Revenue to compensated landowners > Expenditures on goods and services > Short and long-term employment > Direct and induced employment > No adverse impacts to property values are expected as a result of the Proposed Action A (Appendix G).

TABLE ES-1 SUMMARY OF EVALUATED POTENTIAL PROJECT IMPACTS	
ENVIRONMENTAL RESOURCE	**POTENTIAL IMPACTS**
Cultural Resources	> OPRHP reviewed the Proposed Action and determined that it would not warrant additional architectural or archeological survey work. Any impacts on cultural resources will be mitigated under the terms of the ORPHP Memorandum of Agreement.
Health and Safety	> Stray voltage is not expected as a result of the Proposed Action. > Tower collapse/blade failure is not expected to change from the FEIS as a result of the Proposed Action. Any potential is mitigated by increased turbine setbacks to compensate for the taller turbines. > Ice throw impacts are not expected to change from the FEIS as a result of the Proposed Action. Any potential is mitigated by increased turbine setbacks (3 turbines, each shifted no more than 135 feet) to compensate for the taller turbines. > Lightning strike impacts are not expected to change from the FEIS as a result of the Proposed Action, except for the reduction of potential impacts to the overhead transmission poles and structures that are now eliminated from the Project. > Fire risk is not expected to change from the FEIS as a result of the Proposed Action. > Demands on police and emergency services are not expected to change from the FEIS as a result of the Proposed Action.

Summary of Mitigation Measures

Various measures will be taken to avoid, minimize, and/or mitigate potential environmental impacts to the greatest extent practicable. General mitigation measures will include adhering to requirements of various local, state, and federal laws, ordinances, and regulations and entering into development agreements with adjacent landowners. Ball Hill will also employ an environmental supervisor during construction to ensure compliance with permit requirements and environmental protection commitments.

Specific measures designed to mitigate or avoid adverse potential environmental impacts during Project construction or operations include the following:

- Increased setbacks from existing residences are proposed to ensure maximum screening benefit of existing woodland vegetation, where such exists, and minimizing sound impact and the potential for extended duration shadow flicker on nearby residences;
- Identifying and pursuing opportunities for local vegetative and other screening to minimize shadow flicker where it proves to be problematic under actual operating conditions.
- Burying electrical collection lines between turbines;
- Using existing roads for turbine access whenever possible to minimize disturbances of agricultural land, wildlife habitat, wetlands, and streams;
- Co-locating electrical lines and roads within the same corridor, where possible;
- Utilizing construction techniques that minimize disturbance of vegetation, streams, and wetlands;
- Eliminating the southern collection substation facility in the Town of Hanover;
- Painting the turbines with a matte non-specular finish;
- Developing and implementing a sedimentation and erosion control plan;
- Developing and implementing an invasive species management plan;

- Implementing a compensatory stream/wetland mitigation program, if warranted, based on federal and state permitting requirements;
- Siting select turbines to avoid or minimize wetland, wildlife, or visual impacts;
- Voluntarily limiting the operations of wind turbines in low-wind speed conditions during the fall bat migration season to reduce risks to bats;
- Performing tree clearing for construction during late fall through early spring to the greatest extent possible to minimize potential impacts on birds and bats;
- Performing post-construction mortality monitoring to improve understanding of possible avian and bat impacts;
- Implementing agricultural protection measures to avoid, minimize, or mitigate impacts on agricultural land and farm operations;
- Developing a traffic and dust-management plan during construction;
- Repairing and resurfacing public roads utilized during construction as needed;
- Preparing and adhering to a component delivery plan that avoids and/or minimizes impacts on residential areas;
- Developing and implementing a historic resource protection plan in concert with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP);
- Avoiding use of floodlights at any structures on-site or steady light sources near the turbines to minimize potential impacts on birds; and
- Performing post-construction restoration of resources to pre-construction or better conditions (i.e., wetlands and soils).

SECTION 1 INTRODUCTION

1.1 DESCRIPTION OF THE PROPOSED ACTION

On December 6, 2016 the Villenova Town Board, acting as Lead Agency pursuant to the New York State Environmental Quality Review Act (SEQRA), adopted a Statement of Findings on a Final Environmental Impact Statement (FEIS) completed for the proposed Ball Hill Wind Energy Project ("Project"). As described in the FEIS, the Project consisted of 29 wind energy turbines with a maximum allowable height of 492 feet in the Town of Villenova (23 turbines) and 495 feet in the Town of Hanover (6 turbines), 19.8 miles of buried electrical collection lines, 5.7 miles of overhead high-voltage transmission line, a collection substation in south Hanover, an interconnection substation in north Hanover, and 13 miles of access roads, in a Project Area of approximately 9,715 acres.

In 2018 Ball Hill Wind Energy, LLC ("Ball Hill") applied for approval ("2018 Application") to modify the Project design in two regards: to increase the maximum allowable height of the wind turbines to 599 feet in their previously approved locations, and to eliminate the 5.7 miles of overhead high-voltage trans-mission line and southern collection substation to be replaced with an approximate 5-mile continuation of the previously approved 19.8 miles of buried electrical collection line ("Proposed Action"). The Villenova Town Board approved the 2018 proposed maximum turbine height increase, while such an increase was not approved by the Town of Hanover.

In accordance with SEQRA, the potential environmental impacts associated with the Proposed Action were thoroughly identified and considered by the Town Board, and determined not to be significant or adverse, as described in a Negative Declaration Determination of Non-Significance issued August 8, 2018 ("Neg Dec"). The Neg Dec was challenged by several petitioners under New York Civil Practice Law and Rules (CPLR) Article 78 in a Petition filed September 7, 2018. On June 24, 2019 the State of New York Supreme Court: County of Chautauqua issued a Decision ("Decision") that concluded that the Neg Dec be "returned" to the "Town of Board" because it:

> *"failed to take the requisite hard look at [the issues of: "the effect that the increase in height of the turbines could have on the bald eagle population which was mentioned in the [Project's] 2016 SEIS…, and…the potential environmental impact in the area where the [5 miles of additional electrical collection] lines were to be installed."*

The Decision failed to acknowledge that the 2018 Application described in detail the absence of any expected change in impacts from the proposed turbine height increase on avian species, as compared with the 2016 FEIS Findings, as well as the general reduction in ground surface, water resource and wetlands impacts associated with burying an additional 5 miles of electrical collection lines as compared with the approved 2016 overhead high-voltage configuration.

This Supplemental Final Environmental Impact Statement (SFEIS) describes the potential environmental impacts and mitigation measures associated with the Pro-posed Action pursuant to SEQRA (ECL Article 8 and its implementing regulations at 6 New York Codes, Rules, and Regulations [NYCRR] Part 617). The original Project was described, and its impacts were evaluated in the Final Environmental Impact Statement (FEIS), which was accepted by the Town of Villenova Town Board, the Lead Agency under SEQRA, in November 2016 (FEIS).

1.1.1 Project Description

The Project as approved in 2016, is located in Chautauqua County within an area of 9,715 acres in the Towns of Villenova and Hanover, New York. As described in the FEIS, land uses within the Project Area are predominantly a mixture of forested and agricultural land. Additional acreage within the Project Area consists of wetlands, roads and other paved surfaces, scattered residences, buildings, and open water features, such as farm ponds. The principal agricultural enterprise is dairy farming. Corn and hay are the main crops, but some other crops are grown. The northern portion of the Project Area in the Town of Hanover includes vineyards and orchards. Most of the natural stands are represented by mixed hardwoods dominated by sugar maple (*Acer*

saccharum), red oak (*Quercus rubra*), black cherry (*Prunus serotina*), white ash (*Fraxinus americana*), and American beech (*Fagus grandifolia*). Current and historic silviculture is evident throughout the Project Area.

- **Turbines:** Every turbine will be constructed on a turbine site. A turbine site is a staging area used during construction of wind turbines and includes a foundation for that structure, a gravel crane pad, and the surrounding construction/maintenance area. Within the staging area, an approximately 270- by 240-foot area would be cleared and graded to a slope of 2% or less to facilitate the layout of turbine components. Disturbance outside of this 270-by 240-foot area would generally be limited to selective tree cutting necessary for rotor assembly and storage of excess topsoil, subsoil, or woody material, including roots, logs, and/or wood chips. The turbine site refers to the total area associated with each turbine that would experience temporary impacts during construction, as described. Once the turbine at a particular site is installed, temporary impacts would be mitigated such that permanent impacts would include a 100- by 60-foot gravel crane pad, which would be left in place post-construction, and a round, slightly exposed base approximately 18 feet in diameter. No turbine will be constructed in a delineated wetland or stream. All proposed Turbine Sites remain as studied in the FEIS and approved in 2016, with three (3) exceptions. The Locations of turbines T2, T4 and T8 have each been shifted slightly (not more than 135 feet) to ensure adequate setbacks for the proposed taller turbines (see Figures 2, 3 and 4).
- **Access Roads:** Construction and use of approximately 13 miles of access roads to connect each turbine site to a town or county roadway. The access roads would provide equipment and vehicle access for construction and subsequent maintenance of the facilities, as well as for emergency services, if needed. These 36-foot-wide temporary access roads would be restored and scaled back to a permanent width of 18 feet. The Proposed Action involves no change to Access Roads from the FEIS design.
- **Collection System:** Construction and use of an underground electrical collection system, which would allow delivery of electricity produced by the Project to a new substation to be constructed in the town of Hanover. The underground electrical collection system as currently sited would be installed on private lands parallel to the right-of-way (ROW) corridors for the turbine access roads wherever feasible, or in separate ROW corridors where not feasible. A total of approximately 24.8 miles of collection lines (including underground collection lines collocated with access roads) would be installed. This total includes approximately 5 miles of Underground Gentie as part of the Proposed Action. As currently designed, all collection lines would be constructed underground. If overhead collection lines were to be required in future site design, they would be used to avoid wetland impacts or due to topography constraints.
- **Substation:** The Project 2016 Approvals included the construction and use of a new substation (Hanover substation) within the Project Area in the Town of Hanover, which would tie the electrical collection system into a new 230-kilovolt (kV) overhead transmission line. The substation footprint would be approximately 175 feet by 290 feet. A short access road would be constructed from Hurlbert Road to the new substation. In the current Proposed action, this Hanover substation and all impacts associated with it have been eliminated.
- **Transmission Line:** The Project 2016 Approvals included the construction and use of an approximately 5.7-miles-long overhead 115-kV transmission line in the Town of Hanover, which would transfer the energy produced by the Project from the new substation to the new Switchyard. The transmission line would be located in a 120-feet-wide ROW. As part of construction of the transmission line, 5.4 miles of access roads would be constructed for access. In the Proposed Action this overhead high-voltage transmission line and its associated impacts have been eliminated and replaced with a 5-mile extension of the Project's underground medium-voltage electrical collection circuits to the point of interconnection ("Underground Gentie").

- **Switchyard:** Construction and use of a switchyard within the Project Area in the town of Hanover ("Switchyard"). The proposed Switchyard would provide a connection to an existing 230-kV National Grid overhead transmission line, which would provide access to the grid. The Switchyard footprint would be approximately 255 feet by 611 feet. A short access road would be constructed from Stebbins Road (County Route 86) to the new Switchyard. The Proposed Action involves no change to these facilities studied in the FEIS and approved in 2016.
- **O&M Facility:** Construction and use of an O&M facility within the Project Area. During construction, the area surrounding the O&M building site would be used as a laydown area and would be 10.4 acres.
  - Ball Hill may lease up to 5 acres for the O&M facility; however, construction and operation of the O&M building and laydown area would only permanently impact 2.8 of those 5 acres. Upon completion of construction, 7.6 acres of the surrounding laydown area would be restored to allow existing uses to resume and 2.8 acres would be maintained as an O&M laydown area as part of the O&M building site. The O&M building footprint may be approximately 140 feet by 50 feet, constructed as a single story with amenities including a maintenance shop, offices, and a conference room. The Proposed Action involves no change to these facilities studied in the FEIS and approved in 2016.

A site plan for the Project, as modified by the Proposed Action, is shown in Figure 1.

Figure 1.1.1-1

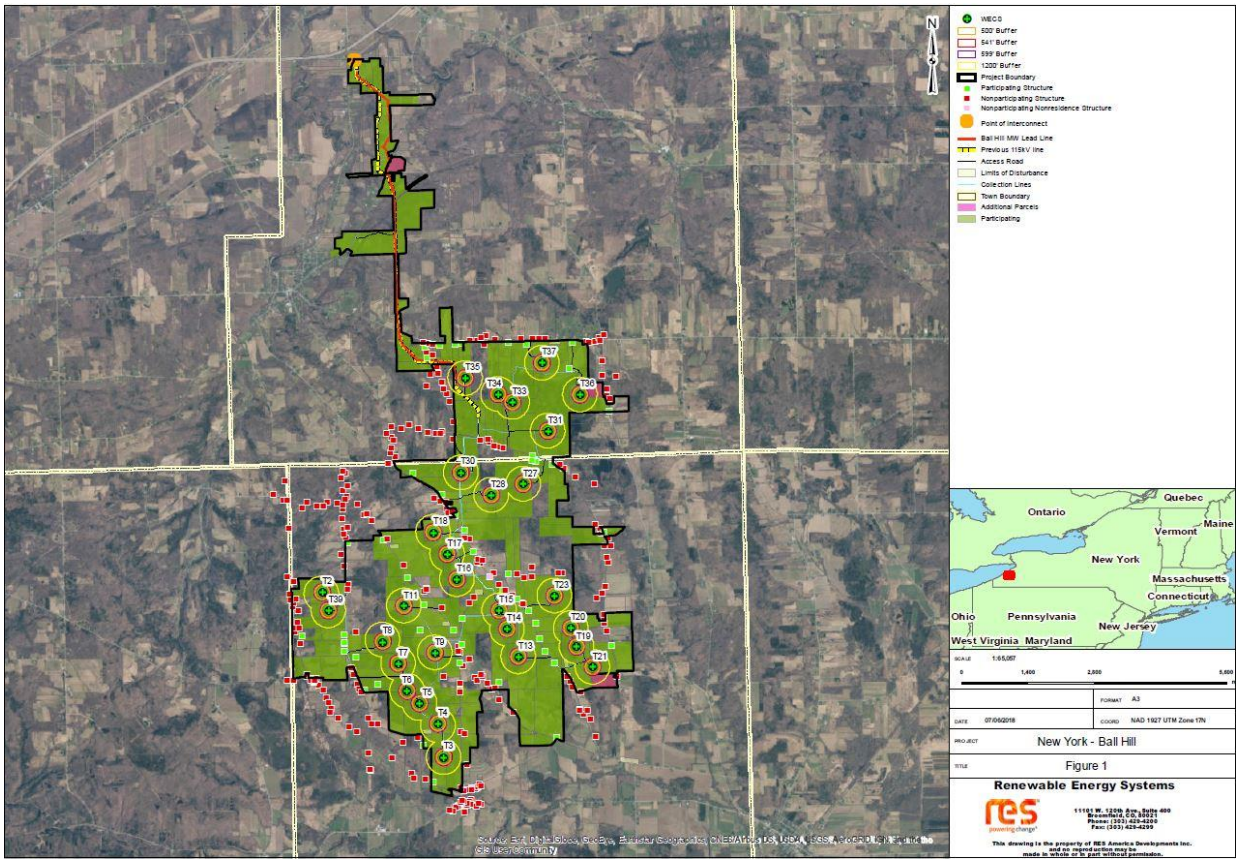

TABLE 1. BALL HILL WIND PROJECT SUMMARY OF CHANGES FROM THE 2016 SPECIAL USE PERMIT	
FACILITY	**MODIFICATIONS AND RATIONALE**
Turbine 2	Turbine moved ±129' to comply with larger setback
Turbine 4	Turbine moved ±132' to comply with larger setback
Turbine 8	Turbine moved ±128' to comply with larger setback
Collection Substation	Eliminated; reduce noise and light impacts
5.7-mile Overhead Transmission Line	Eliminated; replaced with four +/- 5.0 mile predominantly underground circuits to avoid and/or reduce wetlands, tree clearing and visual impacts.

Figure 1.1.1-2

Figure 1.1.1-3

Figure 1.1.1-4

1.1.1.1 Collection System Description

The Project Collection System will be as studied in the FEIS and approved in 2016, except as extended and described in Underground Gentie, below.

1.1.1.2 Underground Gentie

The Project as studied in the FEIS and approved in 2016 included the construction of a new 115-kV overhead electrical transmission line (approximately 5.7 miles long) to transfer the power from a new electrical substation in the Town of Hanover to a new step-up transformer station and Switchyard to the north in the Town of Hanover adjacent to the existing 230-kV National Grid Dunkirk-Gardenville electric transmission line.

Under the Proposed Action, the proposed 115 -kV overhead high-voltage electric transmission line and ancillary facilities, and south Hanover substation would be eliminated avoiding all associated impacts. The Proposed Action incudes burying the Project's electrical collection system ("Underground Gentie") for approximately 5 miles to the point of interconnection with National Grid's electric transmission line in the Town of Hanover.

1.1.1.3 Access Road and Component Delivery Description

The Project access roads and component delivery system would remain as studied in the FEIS and approved in 2016.

1.1.1.4 Substation and Switchyard Description

A new substation and switchyard would be constructed as described in the FEIS and co-located at the point of interconnection with National Grid's electric transmission line in the Town of Hanover.

1.1.2 Construction of Proposed Action

1.1.2.1 Turbine Installation

Generally, each component type would be installed in the same manner at each turbine site of the Project, as studied in the FEIS and approved in 2016.

Each wind turbine would permanently occupy a round foundation base that is approximately 78 feet in diameter, only a portion of which would be exposed. Preparation of each turbine site for installation of spread footer foundations would involve excavation of surface materials to a depth of approximately 10 feet. After excavation is complete, concrete would be spread on the bottom of the excavation to level it in preparation of the rebar installation. After the rebar, steel and a turbine bolt cage would be installed, and the concrete placed for the foundation and turbine pedestal. Each foundation would utilize approximately 625 cubic yards of concrete and rebar steel. The final design of each foundation will be submitted with the building permit application for each turbine site.

Best management practices (BMPs) would be used to ensure that topsoil and subgrade materials are kept separated and stockpiled so that the disturbed land is returned to its pre-construction condition and use. Dewatering will be used when necessary to maintain the strength of the subsurface load-bearing materials. If bedrock is encountered during excavation activities, an excavator with a large rock bucket would be used or, in locations where the bedrock is more concentrated with depth, an excavator equipped with a hydraulic/pneumatic breaker or rock grinder may be used.

Additional details relative to Project construction can be found in section 1.2.2 of the DEIS and Section 1.3.3 of the FEIS.

1.1.2.2 Underground Electrical Collection System Installation

Underground electrical collection lines, including the Underground Gentie, would be used as the main electrical collection system to gather electricity generated at all the wind turbine sites. Underground collection lines would be installed, to the extent possible, alongside areas of temporary road disturbance. In areas where underground collection lines could not be installed adjacent to an access road, they would be installed within a varying width ROW, depending on the number of circuits. Underground collection lines would be installed via direct burial using either a trenching machine or a track hoe. The cables would generally be buried in a 48-inch-deep trench, with a final depth to the top of the cable of 42 inches. Where multiple circuits are installed parallel to each other, a separation of approximately 12 feet is required between parallel runs. In the unlikely event that bedrock is encountered within the trench depth during installation, alternatives, such as ripping or blasting, would be evaluated. Blasting would not proceed until a blasting plan has been prepared and approved by the appropriate town in which the blasting would occur and Chautauqua County.

Construction of underground collection lines within wetlands would be done either by trenching or using a directional bore during construction. These narrow trenches in wetlands would not create an impervious boundary; therefore, would not cause any alteration in the subsurface hydrology of wetlands. However, where necessary, trench plugs would be used to prevent migration of water out of the wetland. Pre-existing contours would be restored after the trench is backfilled and the area is revegetated.

1.1.2.3 Access Road Construction

Access roads construction will remain as studied in the FEIS and approved in 2016.

1.1.2.4 Substation and Switchyard Construction

Substation and Switchyard construction will remain as studied in the FEIS and approved in 2016.

1.1.2.5 Environmental Monitoring

Environmental monitoring will remain as studied in the FEIS and approved in 2016.

1.1.2.6 Safety

Safety measures and practices will remain as studied in the FEIS and approved in 2016.

1.1.2.7 Complaint Resolution Process

Complaint Resolution Process will remain as studied in the FEIS and approved in 2016.

1.1.3 Operation and Maintenance

Operation and maintenance will remain as studied in the FEIS and approved in 2016.

1.2 PROPOSED ACTION ALTERNATIVES

1.2.1 Proposed Action Alternatives Evaluated

1.2.1.1 Retain Shorter Turbines

Retaining the use of turbines at the lower maximum allowable height approved in 2016 (492 feet) would result in a significant reduction in energy production, with a corresponding reduction in avoided pollutants and greenhouse gas emissions from conventional fuel-fired electric powerplants and wind energy lease revenues for landowners in Villenova. In addition, as detailed in the revised Noise Study, shorter turbines in the 2016-approved turbine locations tend to generate higher sound power levels than the proposed taller turbines.

1.2.1.2 Retain High-Voltage Overhead Transmission Line and South Hanover Substation

As described in detail in Section 2.4, construction of the 2016-approved overhead transmission line would increase total wetlands and ground-clearing disturbance by 6.52 acres as compared with the Underground Gentie and increase permanent impacts to forested wetlands by 3.1 acres. Additionally, the overhead configuration including south Hanover substation create visual and noise impacts that are eliminated by the Underground Gentie.

1.3 PROJECT PURPOSE, NEEDS, AND BENEFITS

1.3.1 Project Purpose and Need

The proposed height increase component of the Proposed Action is necessary to increase the efficiency and capacity of the wind turbines, enhancing commercial viability by allowing for production of the most electricity within the same Project footprint. Replacement of the overhead electrical transmission lines with underground cables will minimize visual, wetland, noise and agricultural impacts from the previously proposed 5.7-mile electric transmission line, which included the proposed use of approximately 80-feet-high pole structures and an additional substation. These changes will require the amendment of the Town of Villenova Laws to increase the maximum permitted height to accommodate the proposed wind turbines and modification of the previously issued special use permit from the Town of Villenova.

SECTION 2 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Section 2.0 supplements the analysis of potential adverse environmental impacts associated with the Project as addressed in the 2016 FEIS, 2016 SEQRA Statement of Findings (2016 SEQRA SOF), and potential impacts associated with the Proposed Action as addressed in the 2018 Full Environmental Assessment Form - Part 1 (2018 FEAF; see Appendix A). This section addresses existing conditions, and the potential environmental impacts and mitigation measures associated with the construction and operation of the Proposed Action.

2.1 IMPACTS ASSOCIATED WITH INCREASED TURBINE HEIGHT

2.1.1 Construction Impacts

2.1.1.1 Regional Geology, Topography, and Seismic Activity

The proposed construction actions will not change the previous region geology, topography, and seismic activity statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is altered (Appendix A).

2.1.1.2 Soil Types and Descriptions, Agricultural Land, Steep Slopes, and Drainage Characteristics

The proposed construction actions will not change the previous soil types, agriculture, steep slope and drainage characteristic statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.3 Water Quality

The proposed construction actions will not change the previous water quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.4 Wetlands

While the proposed turbine height increase will not result in changes to the wetland and waterbody impacts discussed in the SDEIS and FEIS, the layout changes resulting from the minor shift of T8 will result in avoidance of approximately 408 square feet of temporary impacts to Wetland Q1, a palustrine scrub-shrub (PSS) wetland. However, the revised limits of disturbance for T8 now encroaches on a small portion (566 square feet [.013 acres]) of Wetland A653, a palustrine emergent wetland (PEM). This increase in impact, 166 square feet, is de minimis and is offset by the significant decrease in impacts resulting from the transmission line modifications described below in Section 2.2.

2.1.1.5 Biological Resources and Threatened and Endangered Species

The proposed construction actions will not change the previous biological resources and threatened, and endangered species statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.6 Bird and Bat Resources

The proposed construction actions will not change the previous bird and bat resources statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.7 Eagle Population

The proposed construction actions will not change the previous eagle population statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location and only the height is being altered (Appendix A).

2.1.1.8 Visual Resources

The proposed construction actions will not change the previous visual resource statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.9 Sound

The proposed construction actions will not change the previous sound and noise statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.10 Climate and Air Quality

The proposed construction actions will not change the previous climate and air quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.11 Communications

The increase in wind turbine heights will cause no changes to the previously reported on Communication Signal Studies conducted by Comsearch. See Section 2.10 of the 2016 FEIS and Appendix E for more information.

2.1.1.12 Traffic and Transportation

The proposed taller turbines may result in an increase in construction related traffic. The Transportation Study provided in Appendix M of the FEIS assumed approximately 1,392 truckloads of concrete would be necessary to complete the foundations for the proposed turbines. The larger turbine requires a larger foundation. It is anticipated that 1,812 truckloads of concrete will be needed (assuming 10 cubic yards per trip) which represents an additional 420 truckloads (approximately 14 additional trips per turbine).

As discussed in the 2016 SEQRA SOF, construction related traffic will be limited to the hours allowed in the local laws. In addition, Ball Hill will manage construction traffic in accordance with its road use agreements, which designate approved routes as well as provide a commitment to repair and/or improve roadways utilized by the Project.

2.1.1.13 Land Use

The proposed construction actions will not change the previous land use statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.14 Socioeconomics

The proposed construction actions will not change the previous socioeconomics statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.15 Cultural Resources

The proposed construction actions will not change the previous cultural resources statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.1.16 Health and Safety

The proposed construction actions will not change the previous health and safety statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2 Operational Impacts

2.1.2.1 Regional Geology, Topography, and Seismic Activity

The proposed operational activities associated with the Project will not change the previous regional geology, topography and seismic activity statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.2 Soil Types and Descriptions, Agricultural Land, Steep Slopes, and Drainage Characteristics

The proposed operational activities associated with the Project will not change the previous soil type, agricultural land, steep slopes and drainage characteristic statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.3 Water Quality

The proposed operational activities associated with the Project will not change the water quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.4 Wetlands

The proposed operational activities associated with the Project will not change the wetland impact statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.5 Biological Resources and Threatened and Endangered Species

Biological Resources

The proposed operational activities associated with the Project will not change the biological resources statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location; only the height is being altered (Appendix A).

Threatened and Endangered Species

Various public comment responses within the 2016 FEIS address the potential for occurrence and impacts to non-avian and bat threatened and endangered species. The proposed operational activities do not result in substantive changes to these discussions.

2.1.2.6 Bird and Bat Resources

There would be an increase in overall turbine blade rotor sweep area of approximately 529,424 square feet with the change to the 23 taller turbines. This is the equivalent of adding the sweep area of approximately five more turbines at the previously proposed dimensions. This is an approximate 14% increase in rotor sweep area for the entire Project. The maximum blade tip height of the new proposed turbines would increase 104 feet from 492 feet to 599 feet above ground level (agl). The minimum blade tip height of these turbines would rise by 20-58 feet, going from a previous height of 78 feet agl to 98-136 feet agl. These changes in dimensions and rotor sweep area have been reviewed for possible changes in the potential impacts on bird and bat resources from those previously identified in Appendix H-1 of the 2016 FEIS.

In the FEIS, the approximate number of bird and bat fatalities for the Project were estimated on a per-turbine and per-megawatt (MW) basis. The minimum and maximum per-turbine and per-MW rates from post-construction mortality monitoring studies in New York were used to establish a range of potential bird and bat fatalities. There are many differences in the post-construction mortality monitoring studies conducted in New York, including turbine height and turbine rotor sweep. The range of New York study results are within the North American range of study results and provide reasonable estimates of bird and bat fatalities from collision for a project in New York. As the number of turbines and total MWs proposed for the Project are unchanged, there are no changes to these fatality estimate calculations. The approximate fatalities in the FEIS ranged from 19 to 563 birds per year and 20 to 1,630 bats per year. Ball Hill's plan to voluntarily reduce operations during the times of increased bat risk will result in lower mortality than the sites previously studied that did not employ similar operational reductions.

Taller turbines and more overall rotor sweep in the Project area could result in some slightly higher fatality rates than the previous proposed turbines. Most nocturnal songbird migration occurs between 400 feet agl and 2,000 feet agl. With the proposed taller turbines, more nocturnal bird migrants than previously estimated may encounter the risk of turbine collision. Most diurnal bird flight occur below 500 feet agl, and with the lower reach of the rotors higher than previously proposed, there could be slightly fewer bird collisions with the turbines in the daytime.

Potential changes are less clear for bats, but the current consensus is that taller turbines serve as a greater attractant to bats, perhaps being viewed as "taller trees" and from greater distances, and thus pose increased risk of collision. Similar to diurnal bird flight, the increased open-air space from the ground could benefit some bat species that tend to fly closer to the ground when foraging. Even with taller turbines and more rotor swept area, it is not anticipated that fatalities to birds and bats would fall outside of the minimum and maximum rates from other studies in New York, as identified in the FEIS.

The NYSDEC has determined that a permit under Article 11 of the NYS Environmental Conservation Law is required for a wind energy project that will operate in wind speeds less than 6.9 meters per second under seasonal, temperature and daylight conditions conducive to bat activity. The Article 11 permit for the project (attached as Appendix K) permits wind turbine operations above 5 meters per second wind speed during such conditions. As part of the Article 11 permitting process, Ball Hill and NYSDEC developed a plan to mitigate for the potential incidental take of northern long eared bats (NLEB) which is listed as Threatened by both the State and Federal governments. This mitigation plan Is included in Appendix K.

2.1.2.7 Eagle Population

As described in the 2016 FEIS, and herein below with regard to the proposed taller turbines, even though bald eagles have been sighted and documented near the Project Area, mortality risks to them are expected to be very low, in line with the experience of the many turbines operating throughout upstate New York over the past ~15 years[1]. This is true for the proposed taller turbines, as well, as discussed in more detail below. Despite the general presence of eagles in and around areas of active wind farms in New York over the past 15 years only one bald eagle fatality has been associated with a wind project. Eagles fly during the day and have keen eyesight, and thus have demonstrated an ability to avoid operating wind turbines. In order to minimize any unforeseen turbine impacts on eagles, and bird species generally, Ball Hill will follow the Bird and Bat Conservation Strategy (BBCS), including Eagle Management Plan (EMP), attached hereto as Appendix N. The BBCS and EMP include provisions to be implemented during construction and operation of the Project to monitor risks and mitigation to respond to risks through adaptive management and mitigation, if necessary.

FEIS Findings with Full Second Year of Eagle Surveys

As described in the 2016 FEIS, additional eagle surveys were conducted in 2016 to gather more up to date information to supplement the data obtained during the "Year 1" surveys conducted in 2012-2013 from 312 survey hours. "Year 2" eagle point-count surveys were initiated in March 2016. During each spring and summer season field visit, Ball Hill's wildlife consultant Ecology & Environment (E & E) also observed the two nearest bald eagle nests and collected sighting and nest status notes. An interim report that

[1] USGS. The U.S. Wind Turbine Database. https://eerscmap.usgs.gov/uswtdb/

summarized the results of the eagle surveys conducted through September 2016 was included in 2016 FEIS as Appendix H, Bird and Bat Resources.

Year 2 eagle surveys were completed in February 2017 and the report was updated in September 2017. The report is also provided as Appendix L of this SFEIS.

Fifty bald eagle sightings and no golden eagle sightings were recorded during the Year 2 point-count surveys conducted in the Project area between March 2016 and February 2017, with a peak of sightings in September (see Appendix L for full details). The eagle survey effort in 2016 and 2017 amounted to a total of 156 hours (9,360 minutes) of survey time. Bald eagles were identified in the Project area during 11 of the 12 monthly survey rounds conducted. The 17 bald eagle sightings on September 1, 2016 likely involved multiple sightings of the same individuals. The bald eagles were likely a mix of migrants, locals, and transients and included adult and immature birds. The relatively high sightings per hour at the three most northern survey points is influenced by the large number of sightings on September 1, 2016, which involved surveying only the northern half of the Project site. Aside from the number of sightings on September 1, 2016, the results of the 2016 and 2017 surveys are generally consistent with the results reported in previous studies conducted by E&E in the Project area, suggesting bald eagle activity within the Project area during spring and fall migration seasons and more occasional activity during summer months.

Bald eagles remained present and expanded their distribution in Chautauqua County as well as in western New York State, adjacent states, and the Great Lakes region during this period. Two bald eagle nest locations in the vicinity of the Project area were monitored in 2016 and early 2017. Both nests were confirmed to be occupied by incubating bald eagles in 2016. The “Hanover nest” apparently failed later in the season while the “Thruway nest” possibly fledged two young (see the report provided as Appendix L). In early 2017 the “Hanover nest” was confirmed to be occupied with an incubating bald eagle while the “Thruway nest” had an adult pair perched on the nest at that time.

Review of Potential Impacts of Taller Turbines on Eagles

The American Wind Wildlife Institute (AWWI) is a partnership of the wind industry, wildlife management agencies, and science and environmental organizations who collaborate on wildlife issues associated with responsible development of wind (AWWI 2019a). Each year AWWI updates their publication, “Wind Turbine Interactions with Wildlife and Their Habitats: A Summary of Research Results and Priority Questions” , which is a useful summary on the current state of knowledge for wind and wildlife interaction. Several items in the 2019 publication are relevant to the review of potential impacts from taller turbines on birds generally.

- “The effect of turbine height and rotor swept area on bird and bat collision fatalities remains uncertain.”
  - Some study results have suggested an increase in fatalities with turbine height while others have not.
  - The general hypothesis is that taller turbines may have a greater impact on nocturnal migrant songbirds.
- “A substantial majority of bird fatalities at wind energy facilities are small passerines”
  - Most avian fatalities are smaller bird species, typically associated with spring and fall migration periods.
- “Fatalities of diurnal raptors are reported more often than expected given the relatively low abundance of these species”
  - Diurnal raptors account for approximately 8% of reported fatalities in North America.
  - This might reflect the higher detectability of carcasses of large birds during post-construction mortality searches though.
  - Red-tailed hawk and American kestrel have had the most fatalities among diurnal raptor species in North America, and they are also the most abundant species.

While there is a new generation of taller turbines, such as proposed for the Ball Hill project, turbines have been increasing in height with each generation for decades. Thus, the issue of taller turbines is not new. The average avian fatality rate has remained consistent around 3 to 6 birds per MW for all species combined (AWWI 2019b) nationwide, despite a steady progression increasing rotor diameter turbines and taller turbines. Because

the current generation of larger turbines is relatively new, limited turbine-specific data are available. Review of the potential impacts of taller turbines on any species, such as bald eagle, must therefore be qualitative. Consequently, we refer to fatality estimates for bird species generally, and then reasonably consider the flight patterns of bald eagle to infer the species-specific impact potential from a larger rotor.

Bald eagle is one of the hundreds of bird species that occurs in the Project area and it is included in the overall potential turbine collision impacts to all birds described previously in Section 2.1.2.6 and the 2016 FEIS. Of note, there were no bald eagle fatalities documented in the 23 studies from 13 operating New York wind projects that were publicly available at the time of the 2016 FEIS. Bald eagles are present in the Project area throughout the year. As documented in the 2016 FEIS, there are several nesting pairs within five miles of the Project area and more within 10 miles, while migrants and wandering bald eagles also occur in the Project area. New York State has seen a rapid expansion in the bald eagle population over the last two decades as measured by the number of occupied pairs, nesting territories, productivity, wintering eagles, and expanding distribution (NYSDEC 2016). The number of nests in Chautauqua County has increased as well. Despite this increase in population and occurrence, only one bald eagle fatality has been documented to date in New York where there are 1,128 turbines operating through mid-2019 (AWEA 2019). The bald eagle fatality in New York was disclosed within the past year in presentations by national USFWS staff regarding nationwide eagle fatalities and then by NYSDEC in Article 10 case proceedings in 2019. An immature bald eagle was found by project staff at the Orangeville Wind Farm in Wyoming County, New York in June 2015 with a diagnosis of blunt impact trauma. Fatality numbers in the eastern U.S. are relatively low, with approximately 13 bald eagle fatalities associated with U.S. wind projects east of the Mississippi River (Pagel et al. 2013; Kritz et al. 2018). USFWS has documented nine bald eagle fatalities in Michigan, one in Illinois, one in Maryland, and one in North Carolina in addition to the one in New York (Pagel et al. 2013, Kritz et al. 2018). There are currently 9,081 turbines operating in the U.S. east of the Mississippi River (AWEA 2019). Fatalities have been documented in Canada as well. Based on this history, the likelihood of a bald eagle collision with a Project turbine is low.

Bald eagles are strictly diurnal flyers (i.e., they fly during the daytime). The possibility of slightly higher bird fatality rates for nocturnal songbird migrants due to taller turbines mentioned above and previously in Section 2.1.2.6 is not relevant to bald eagles. As diurnal migrant raptors, such as bald eagles, already have a high degree of detection and avoidance, it is reasonable to hypothesize that rotor area size is less likely than topography, geography, and weather to influence potential collisions. For local diurnal movements, the change to taller turbines with larger rotors creates more rotor sweep area through which a bald eagle, or any bird species, might fly compared to the previous turbine selection. This approximate 14% increase in rotor sweep presents more flight space in which a collision could occur, but this increase is minimal compared to the overall available flight space in the Project Area. A wind turbine stands in a small amount of the overall air space in the Project Area. When an eagle is flying toward a wind turbine it will normally have time to detect and make a slight adjustment to its flight around or above the turbine. The high degree of detection and avoidance would apply for local, diurnal flights as well, with the exception of when an eagle, or any other species, may become distracted such as during courtship flights or territorial chases. Thus, the overall risk of collision for bald eagles with a Project turbine remains essentially the same as previously identified in the 2016 FEIS.

Ball Hill Consultations with State and Federal Environmental Agencies

NYSDEC Discussions

Ball Hill conducted regular consultation with NYSDEC wildlife staff regarding a permit that included incidental take for northern long-eared bat (Article 11), as well as wetlands and streams (Article 24). Eagle nests and eagle risks more broadly were not a point of focus in those discussions beyond agreement on permit condition #40 (see more below). At no point did NYSDEC formally recommend that the Project seek an incidental take permit for bald eagles. The Article 11 for norther long-eared bat permit was issued in March 2019.

Condition #40 in the NYSDEC permit specifies what Ball Hill must follow during construction and operation regarding eagles.

> **Nests or Roosts of Bald Eagles.** *If at any time during construction or operational life of the Project, a nest or roost of a bald eagle (Haliaeetus leucocephalus) is located in the Project area or if eagles are observed in the Project Area exhibiting breeding or roosting behavior, the NYSDEC Chief Permit*

Administrator, Central Office, Albany, NY (CPA) and the NYSDEC Region 9 Natural Resources Supervisor (NRS) will be notified within twenty-four (24) hours of discovery or observation. Immediately upon such discovery or observation, no disturbance is permitted around the nest, roost, or area where eagles were seen exhibiting any breeding or roosting behavior. An area of one quarter (1/4) mile in radius from the nest(s) will be avoided, and an area at least six hundred sixty (660) feet in radius from the nest or roost will be posted to further halt disturbance. The nest or roost will not be approached under any circumstances, and the avoidance area will remain in place until notice to continue construction, ground clearing, grading, maintenance or restoration activities at that site is authorized by the Region 9 NRS.

USFWS Discussions

Ball Hill met with U.S. Fish and Wildlife Service (USFWS) staff several times during the course of Project development, with the most recent discussion held in October 2018. USFWS advised Ball Hill to follow the Eagle Conservation Plan Guidance (ECPG) should Ball Hill elect to apply for an eagle take permit. At no point did USFWS formally recommend that the Project seek an eagle take permit. Applying for an eagle take permit is voluntary and is ultimately a business decision that each project developer makes regarding the time, effort, and liability protection afforded by a permit.

Ball Hill is not seeking an eagle take permit at this time. Nevertheless, Ball Hill collected two years (468 survey hours) of eagle point-count data following the ECPG, which could be used toward an eagle take permit application in the future, if desired.

As indicated in the 2016 FEIS and the BBCS and EMP, Ball Hill will implement post-construction monitoring and minimization measures to monitor risks and to respond to risks through adaptive management if necessary. Ball Hill will continue to coordinate with USFWS regarding eagle activity.

Bird and Bat Conservation Strategy with Eagle Management Plan

Ball Hill developed a Bird and Bat Conservation Strategy (BBCS) and Eagle Management Plan (EMP) for the Project (see Appendix N attached). These voluntary documents had been drafted previously by Ball Hill and were recently updated to document the minimization measures, post-construction monitoring activities, and adaptive management measures, among other items developed for the Ball Hill Project. While these documents are not typically included in a SEQRA review, Ball Hill elected to include them as part of this submittal to demonstrate the measures to be taken toward reducing potential impacts on eagles and all birds and bats.

Nationwide and New York State goals to increase energy production from renewable sources due to increased energy demands has intensified the development of domestic energy projects, including wind energy facilities. In an effort to reduce the impacts of wind energy projects on bird and bat resources, the USFWS recommends that wind energy project proponents develop a Bird and Bat Conservation Strategy (BBCS) that outlines the project development process and includes monitoring and conservation measures (CMs) that would be implemented to avoid and minimize impacts on birds and bats at each project they propose to develop. The recommendation for the development of a BBCS is part of the USFWS's *Land-Based Wind Energy Guidelines* (WEG; USFWS 2012a), which outlines a systematic approach for a wind energy developer to assess the potential risk to bird and bat resources during the pre-construction phase, evaluate the impacts on bird and bat resources resulting from the construction and operation of the project, and develop CMs and mitigation measures to avoid and minimize impacts during the pre-construction, construction, and operational phases of the project. The USFWS's tiered approach has been integrated into this document to show the process by which Ball Hill has evaluated the potential risks to bird and bat species in the development of this BBCS.

In addition, Ball Hill has developed an Eagle Management Plan (EMP; Appendix A of the BBCS) for the Project. The EMP documents Bald Eagle and Golden Eagle use in the Project Area, describes efforts made to reduce risk due to project development, documents communications and cooperation with the USFWS and NYSDEC, and the proposed post-construction monitoring and adaptive management approach for the Project. The EMP generally follows the USFWS *Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy* (ECPG; USFWS 2013) but does not follow Stage 3 for use of the collision risk model as an eagle take permit is not being pursued at this time. For a complete discussion of predicted risks and associated conservation measures for potential impacts on eagles, see the EMP (Appendix A to the BBCS (Appendix N hereto)).

Avoidance and minimization measures included in the EMP include project siting, use of existing roads, burying powerlines (including elimination of previously proposed overhead transmission line), Project staff speed limits, eagle nest monitoring, Project personnel education, carcass removal, and minimize attracting prey; see more details on the EMP. Information on post-construction monitoring, reporting, a Wildlife Incident Reporting System, and plans for adaptive management are also included in the EMP.

Other Projects in New York

Ball Hill is not aware of any wind projects operating in New York State, or the Northeastern states, that has obtained an eagle take permit from USFWS. Very few (~6) eagle take permits have been issued nationally, with most of those being issued in the last two years, and with a project in Missouri being the closest to New York.

Similarly, Ball Hill is not aware of any wind projects currently operating in New York State that have obtained a New York State incidental take permit for bald eagle. Several wind projects that have gone through or are currently proceeding through the Article 10 permitting process, have been recommended to follow the equivalent of the state Article 11 incidental take permit process for bald eagle. To our knowledge, the other Chautauqua County wind projects, Arkwright Wind and Cassadaga Wind, do not have state or federal take permits, or equivalents, for bald eagles.

Summary

There is a potential risk of collision for any bird species that might fly within the rotor sweep of a turbine. Predicting avian fatalities to the species level is problematic many different bird species are typically present in a Project area at various times. A range of expected mortality of all avian species was presented in the 2016 FEIS. While the rotor sweep associated with the proposed taller turbines will be higher and larger in area, predicted avian mortality for all species is expected to remain within the range predicted in 2016. Similarly, no difference in potential risk is anticipated for bald eagle based on their diurnal flight activity and minimal history of collisions in New York, with only one previously documented eagle fatality associated with a New York wind project.

In addition, Ball Hill conducted consultation with NYSDEC and received a Project permit under Article 11 the New York State Environmental Protection Law dealing with a State-listed bat species. Bald eagle take was not subject to inclusion, or even discussion, with NYSDEC prior to permit issuance earlier this year. A condition was included in the Article 11 permit for Ball Hill to notify the appropriate agencies upon the discovery of any bald eagle nests or roosts during construction and operation to minimize risk to bald eagles.

Ball Hill is not pursuing a federal eagle take permit at this time but will remain in discussion with the USFWS through the operation of the Project. To help reduce the potential for impacts on eagles, as well as all birds and bats, Ball Hill will implement a voluntary Bird and Bat Conservation Strategy, including an Eagle Management Plan. These documents generally follow guidance documents published by the USFWS and will be updated and implemented throughout the life of the Project.

References

American Wind Wildlife Institute (AWWI). 2019a. Wind Turbine Interactions with Wildlife and Their Habitats: A Summary of Research Results and Priority Questions. Washington, DC. May 2019. Available at www.awwi.org.

American Wind Wildlife Institute (AWWI). 2019b. AWWI Technical Report: A Summary of Bird Fatality Data in a Nationwide Database. Washington, DC. Available at www.awwi.org.

Pagel, J. E., K. J. Kritz, B. A. Millsap, R. K. Murphy, E. L. Kershner and S. Covington. 2013. Bald Eagle and Golden Eagle mortalities at wind energy facilities in the contiguous United States. J. Raptor Res. 47 :311-315.

Kritz,K., M. Rheude, B. Millsap, M. Sadlowski, J. Pagel, M. Stuber, C. Borgman, T. Wittig, U. Kirkpatrick, J. Muir and H. Beeler. 2018. Bald Eagle mortalities and injuries at wind energy facilities in the United States. Presented at 12th NWCC Wind Wildlife Research meeting in St. Paul, MN 2018

NYSDEC. 2016. Conservation Plan for Bald Eagles in New York State. March 2016.

2.1.2.8 Visual Resources

In February June 2018, Saratoga Associates completed a Technical Memorandum which analyzed the potential for additional impacts resulting from the proposed modifications (see Appendix B). The review found that the increase in turbine height would result in the following:

- The Project screening would decrease by approximately 1.1% (from 67.7% to 66.6%) within the five-mile study area utilizing the vegetated viewshed mapping. However, this increase in visibility would be further mitigated by localized conditions such as landscaping, hedgerows, and structures.
- Within the 33.4% of the study area where the Project is visible, the increase in height has increased the area where 26-29 turbines will be visible by 2.2% (approximately 2,200 acres).
- A review of potential sensitive resources indicates that one additional resource, the Hamlet of Balltown, would potentially have the view of one turbine.
- A review of resources of Statewide Significance indicates that the Project would remain not notably visible at either Boutwell Hill State Forest or Canadaway Creek Wildlife Management Area.
- The Project previously anticipated having 22 of 29 turbines fitted with FAA lighting. Given the increase in height all 29 turbines will require lighting. However, as the previously lit turbines were located around the perimeter of the site, the increase in the area where lit turbines will be visible is relatively small (approximately 2%, from 28.1% to 29.6%)
- The increased height will result in an increase in the number of receptors potentially receiving 10-20 and 30+ hours of shadow flicker per year. In total, 35 receptors may exceed 30 hours of shadow flicker (an increase of 13 from 2016). The increases are:
  - 10-20 hrs/yr: 5 additional receptors (+2.1%)
  - 30-40 hrs/yr: 2 additional receptors (+0.8%)
  - 40+ hrs/yr: 11 additional receptors (+4.5%)

It should be noted that in the SEQRA SOF issued for the Project, the Lead Agency found that the shadow flicker analysis is considered to present a worst-case scenario, and that it is anticipated that the number of hours per year that some receptors will experience shadow flicker will be less than modeled.

While the increase in turbine height has resulted in minor increases to the potential visual impacts from the proposed Project.

Pursuant to Federal Aviation Administration (FAA) requirements, all turbines will include hazard lighting. This is required as all proposed turbines have received a Determination of No Hazard from the FAA, each of which is conditioned on the obstruction marking and lighting condition of white paint and synchronized red lights. Copies of all FAA Determinations of No Hazard are provided in Appendix D. There will be no lights operating during the day. There will be red flashing lights during the night, designed at a minimum intensity and duration of time with an illumination pattern that will primarily be directed upward, as recommended by the FAA.

Mitigation for the visual effects of the proposed Project were described Appendix I of the FEIS and contemplated by the Lead Agency in the Statement of Findings (pp. 149-155).

2.1.2.9 Sound

The comprehensive sound level assessment report prepared for the Project on October 4, 2016 (Sound Report) and incorporated in the 2016 FEIS was revised October 23, 2017 to assess the sound level effects of the turbine changes and the elimination of the Collection Substation proposed herein (Revised Sound Modeling Memo, see Appendix C). A summary of the changes in A-weighted L10 sound power levels at the 769 receptor points studied for the Project in the Sound Report is presented in Table 3.

TABLE 3 CHANGE IN A WEIGHTED L_{10} SOUND POWER LEVELS		
SOUND LEVEL CHANGE	NUMBER OF RECEPTOR POINTS	RESULTING SOUND LEVEL
No Change	589	
Quieter	161	
+1db	17	≤26db (16 points); 36db (1 point)
+2db	2	22db

With the proposed changes, the Project remains fully compliant with all applicable noise restrictions in Town local laws.

2.1.2.10 Climate and Air Quality

The proposed operational activities associated with the Project will not change the climate and air quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is altered (Appendix A).

2.1.2.11 Communications

The increase in wind turbine heights will cause no changes to the previously reported on Communication Signal Studies conducted by Comsearch. See Section 2.10 of the 2016 FEIS and Appendix E for more information.

2.1.2.12 Traffic and Transportation

The proposed operational activities associated with the Project will not change the traffic and transportation statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is altered (Appendix A).

2.1.2.13 Land Use

The proposed operational activities associated with the Project will not change the land use statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.14 Socioeconomics

The proposed operational activities associated with the Project will not change the socioeconomic statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is being altered (Appendix A).

2.1.2.15 Cultural Resources

The proposed operational activities associated with the Project will not change the cultural resources statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location only the height is altered (Appendix A).

2.1.2.16 Health and Safety

The proposed operational activities associated with the Project will not change the health and safety statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation since the turbines are located in the same location, only the height is altered (Appendix A).

2.1.3 Mitigation

The Towns of Villenova and Hanover regulate wind turbine development to protect the public health, safety, and welfare of the towns' residents. These regulations establish turbine setback requirements to protect the public from a tower collapse regardless of its cause, seismic or otherwise. In compliance with applicable Town laws, proposed tower locations will be set back from off-site residences, public roads and site boundary lines to ensure that, in the unlikely event of catastrophic structure failure, damage to other residences will not occur. In association with its Approval of the 2018 proposed maximum turbine height increase to 599 feet, the Town

of Villenova increased these minimum permissible setbacks (2018 Setbacks). The Proposed Modifications exceed the 2018 Setbacks as detailed in Table 4 below.

TABLE 4 LOCAL LAW AND PROJECT ACTUAL TURBINE SETBACKS

TOWN	RESIDENCE	PUBLIC ROAD	OFF-SITE PROPERTY LINE	SOUND LEVEL AT RESIDENCE	MAXIMUM TURBINE HEIGHT
Villenova Law	1,000 feet	599 feet (1xTurbine Height)	599 feet (1xTurbine Height)	50dBA	599 feet
Project Setbacks Minimum/Maximum	1,207 Feet (2 x TH)	686 feet (1.2 x Turbine Height)	624 feet (1.1 x Turbine Height)	47dBA	599 feet

2.2 IMPACTS ASSOCIATED WITH UNDERGROUND GENTIE

2.2.1 Construction Impacts

2.2.1.1 Regional Geology, Topography, and Seismic Activity

This section provides updated information on the potential impacts of the Project and mitigation related to geologic resources in the Underground Gentie corridor. Information on the existing surficial geology, bedrock geology, topography, mineral resources, and seismic activity within the Project Area is included in Section 2.1 of the 2016 FEIS. This information remains accurate and relevant to the Project and, for the sake of efficiency, is incorporated herein by reference. This section evaluates potential impacts on geology and topography from construction operations and potential Project-related risks from seismic activity in the region.

Construction of the Underground Gentie corridor is not expected to result in a significant adverse impact to regional geology and topography because the spatial scale of the Underground Gentie corridor is much smaller than the regional geologic and topographic scales. Construction of the Underground Gentie Corridor will potentially impact portions of the Project area geology and topography in the following situations:

- If shallow bedrock is encountered during construction, it would be excavated and returned to the excavation or trenches. Blasting during construction is not anticipated for the burial of the collection lines and directional drilling. However, if blasting becomes necessary, it would not proceed until approval has been obtained from the proper jurisdictions. Significant changes will not be made to the overall level of bedrock. For additional discussion of blasting, see Section 3.1 of 2016 FEIS.

Geology and topography impacts related to steep slopes and the presence of shallow bedrock, as inferred from the USDA NRCS SSURGO database soil characteristics, are included in Table 5.

Seismic Activity

The Underground Gentie will be constructed in relatively the same location as the original overhead electric transmission line as described in the 2016 FEIS, therefore there is no expected change to the potential for the Underground Gentie to encounter seismic activity as previously assessed in the 2016 FEIS.

2.2.1.2 Soil Types and Descriptions, Agricultural Land, Steep Slopes, and Drainage Characteristics

Construction activities associated with the proposed Underground Gentie will involve both temporary and permanent impacts on soil resources and agricultural productivity within the proposed electric transmission line corridor. To estimate areas of potential soil impact due to the construction of the Underground Gentie in comparison to the originally approved overhead electric transmission line and collection substation, the Chautauqua County Soil Survey and the 2015 USDA-NRCS Soil Survey Geographic (SSURGO) database was reviewed.

Soil Types and Descriptions

As noted in Table 5, the Proposed Action will result in a slight change in the soil types within the Underground Gentie corridor and their characteristics. The original overhead electric transmission line and collection substation corridor contained approximately 55.7 acres of land, and the proposed Underground Gentie corridor contains approximately 54.26 acres of land (52.74 acres of underground, and 1.52 acres of overhead).

The overall soil disturbance within the Underground Gentie corridor is anticipated to be higher than what was projected for the overhead transmission line and collection substation. The overall increased soil impacts are due to the proposed open-cut trenching of +/-5.0 miles of underground electric collection line. However, the Proposed Action no longer proposes construction and operational impacts associated with the collection substation. Table 6 presents estimates of the construction impacts as they relate to farmland, steep slopes and drainage characteristics.

Specifically, soil disturbance (top soil and sub-surface soils) within the original overhead electric transmission line corridor and collection substation was approximately 1.5 acres. Construction activities for the replacement of the overhead electric transmission lines with the Underground Gentie will result in approximately 4.3 acres of soil disturbance, which is about a 2.8-acres increase. This is due to the fact the open trench method (open cut) will be utilized in a majority of the Underground Gentie corridor to install the underground collection lines. The Underground Gentie will be constructed in a minimum 2-feet-wide trench for each of the four (4) electric collection lines.

Temporary construction activities, including clearing and grading, trenching and excavation, movement of heavy equipment, and cleanup, may affect soils and agricultural productivity. Potential soil impacts from construction include erosion, compaction, damage to soil structure resulting from construction equipment traffic, and the introduction of stones or rocks from shallow bedrock areas into the topsoil.

Rutting and compaction of soils may result from the passage of heavy equipment and construction vehicle traffic in the Underground Gentie corridor. These impacts are of particular concern in agricultural fields and may be more likely to occur where soils are poorly drained. Soils with the potential for compaction or rutting resulting from heavy equipment are noted in Table 6.

Agricultural Lands

Current agricultural land uses within the Project Area include pastureland, hay, row crops, and vineyards. The NYSDAM has updated their Agricultural Districts since the 2016 FEIS. A majority of the original overhead electric transmission line and collection substation and the proposed Underground Gentie are located in the Town of Hanover, Chautauqua County Agricultural District 2 (CHAU002) (NYSDAM 2016). However, with the replacement of overhead transmission lines and the collection substation to underground collection lines there has been a reduction of approximately 4.32 acres of agricultural land within Agricultural District 2.

Agricultural Districts are often created based on the presence of “prime farmland” and “soils of statewide importance” (NYSDAM 2016). It is important to clarify that the designation of a soil under any of these classes does not mean that the land is currently or was formerly used for agricultural purposes; rather, it simply indicates that the soil type possesses the necessary physical and chemical criteria to satisfy the designation defined by the USDA or pertinent state agencies, such as NYSDAM (USDA 2016; NYSDAM 2016). Soils identified as prime farmland or soils of statewide importance are recognized as having the greatest potential productivity for crop growth. Prime farmlands and soils of statewide importance are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding. In

a review of the overall Underground Gentie corridor there was a decrease in the area of land classified as "prime farmland if drained" due to the shift and realignment of the overhead transmission line to underground collection lines and the removal of the collection substation. This modification creates a reduction of impacts to "prime farmland if drained", by approximately 5.41 acres (original overhead electric transmission line and collection substation: 28.93 acres, Underground Gentie corridor: 23.52 acres). However, there was an increase in lands classified as "All areas are prime farmland" due to the transmission modification by approximately 0.24 acre (original overhead electric transmission line and collection substation: 7.47 acres, Underground Gentie corridor: 7.71 acres), and an increase in area within the corridor classified as "Farmland of statewide importance" of 6.72 acres (original overhead electric transmission line and collection substation: 13.60 acres, Underground Gentie corridor: 20.32 acres). Though, it is important to note that even though there are increases to the acreage that is classified as "All areas are prime farmland" and "Farmland of statewide importance" not all of the soils within these areas will be impacted or disturbed and those that are disturbed within the Underground Gentie corridor will be temporary.

Steep Slopes and Drainage Characteristics

Of the total 54.25 acres within the Underground Gentie corridor, approximately 1.87 acres of the soils have steep slopes greater than 15%. However, only 0.01 acre of these areas are expected to be impacted from construction activities. This is an increase from the original overhead electric transmission line and collection substation, since there was no expected soil disturbance to areas with greater than 15% slopes.

Additionally, approximately 0.46 acre of soils categorized as having poor drainage will be temporarily impacted by construction activities associated with the Underground Gentie corridor. This is an increase from the 0.2 acre that was originally projected to be impacted by construction activities from the substation. Soil drainage characteristics may be a concern since soils with poor drainage can result in areas of ponding or significant water buildup during storm events. This can cause problems during construction with equipment access and increased rutting potential in soils that are saturated. See Section 2.2.3 for mitigation and restoration measures.

Topsoil and Subsoil

Soil impacts, such as loss of organic matter, topsoil-subsoil mixing, deterioration of soil structure, and soil settling or slumping, will be minimized and/or avoided to the maximum extent practicable by use of protective measures. These measures are intended to minimize topsoil-subsoil mixing and compaction and other construction-related impacts.

Upland and agricultural topsoil will not be stockpiled adjacent to the Project workspace within 50 feet from any wetland or waterbody boundary. Silt fencing will be properly installed around the perimeter of the toe-of-slope of all upland and agricultural topsoil stockpiles to prevent movement of sediment off site. When topsoil stockpiles are left to "over winter" (prior to final restoration operations), each stockpile will be hydro seeded with an annual ryegrass and a suitable hydro mulch prior to the onset of winter weather.

In areas where wetland soils are encountered, all wetland topsoil will be stockpiled separate from upland/agricultural topsoil and placed adjacent to the wetland from which it was removed. These stockpiles will not be placed within 50 feet from any wetland or waterbody boundary. Silt fencing will be placed around the toe-of-slope perimeter of all wetland topsoil stockpiles, and the stockpiles will be clearly identified as "Wetland Topsoil" (see Section 2.4, Wetlands for a list of relevant wetlands). Wetland topsoil will be re-placed into the wetland from which it was removed as soon as practicable after the completion of major construction operations (e.g., turbine placement, trenching).

All excavated subsoil material will be stockpiled separately from all topsoil and adjacent to the Project workspace, no less than 50 feet from any wetland/waterbody. Topsoil will be removed from all areas where subsoil will be stockpiled.

Topsoil will be replaced to original depth, and the original contours will be reestablished to the maximum extent practicable. In active agricultural lands where the topsoil has been stripped, soil decompaction will be conducted prior to topsoil replacement as per NYSDAM guidelines to minimize trench settling. Ball Hill will backfill the trench with select material followed by the native soil. Subsoil decompaction and topsoil

replacement will be avoided during and after periods of heavy precipitation. Following decompaction, rocks four (4) inches in diameter and larger will be removed from the surface of the subsoil prior to replacement of the topsoil. If the excavated materials are not suitable for use as backfill around turbine pads and roadway areas, soil of similar texture may be imported. The unsuitable soils will then be removed from the Project Area and disposed of in accordance with all applicable permit requirements. For active agricultural lands, any imported topsoil will be selected in consultation with the affected landowner and in accordance with NYSDAM guidelines. If rutting occurs in agricultural fields during construction, either topsoil stripping or heavy timber matting will be employed to prevent the mixing of subsoil and topsoil.

Ball Hill will dewater all excavations and trenches prior to backfilling. The SWPPP will provide the necessary measures for dewatering of trenches and excavations when groundwater is encountered.

TABLE 5 MAJOR CHARACTERISTICS OF SOILS FOUND WITHIN THE UNDERGROUND GENTIE CORRIDOR COMPARED TO THE ORIGINAL OVERHEAD ELECTRIC TRANSMISSION AND COLLECTION SUBSTATION[1]

Soil Series	Farmland Class	% Slope	Drainage	Water Table Depth[5] (cm)	Depth to Bedrock (feet)	Hydric	Agricultural District	Total Soils within Corridor (Acres)		
								Original OH Transmission & Substation[2]	Underground Gentie- UG[3]	Underground Gentie- OH[4]
Alden mucky silt loam	Not prime farmland	2	Very poorly drained	0	> 200	Predominantly Hydric	CHAU002	0.42	0.37	-
Ashville silt loam	Farmland of statewide importance	2	Poorly drained	15	> 200	Predominantly Hydric	CHAU002	0.46	0.45	-
Barcelona silt loam, 3 to 8 percent slopes	Prime farmland if drained	4	Somewhat poorly drained	31	130	Predominantly Not Hydric	N/A	0.001	0.001	-
Barcelona silt loam, 3 to 8 percent slopes	Prime farmland if drained	4	Somewhat poorly drained	31	130	Predominantly Not Hydric	CHAU002	0.99	0.99	-
Busti silt loam, 3 to 8 percent slopes	Prime farmland if drained	6	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	CHAU002	5.30	4.09	-
Canandaigua silt loam, loamy substratum	Farmland of statewide importance	2	Poorly drained	0	> 200	Predominantly Hydric	CHAU002	2.07	5.18	-
Chautauqua silt loam, 3 to 8 percent slopes	All areas are prime farmland	6	Moderately well drained	54	> 200	Not hydric	CHAU002	3.53	3.13	-
Chenango gravelly loam, 0 to 3 percent slopes	All areas are prime farmland	2	Well drained	0	> 200	Not hydric	N/A	0.09	0.16	-
Chenango gravelly loam, 0 to 3 percent slopes	All areas are prime farmland	2	Well drained	0	> 200	Not hydric	CHAU002	1.56	2.40	-

TABLE 5 MAJOR CHARACTERISTICS OF SOILS FOUND WITHIN THE UNDERGROUND GENTIE CORRIDOR COMPARED TO THE ORIGINAL OVERHEAD ELECTRIC TRANSMISSION AND COLLECTION SUBSTATION[1]

Soil Series	Farmland Class	% Slope	Drainage	Water Table Depth[5] (cm)	Depth to Bedrock (feet)	Hydric	Agricultural District	Total Soils within Corridor (Acres)		
								Original OH Transmission & Substation[2]	Underground Gentie- UG[3]	Underground Gentie- OH[4]
Chenango gravelly loam, 3 to 8 percent slopes	All areas are prime farmland	6	Well drained	0	> 200	Not hydric	CHAU002	1.49	0.97	-
Fremont silt loam, 0 to 3 percent slopes	Prime farmland if drained	2	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	N/A	0.01	0.10	-
Fremont silt loam, 0 to 3 percent slopes	Prime farmland if drained	2	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	CHAU002	7.08	6.46	0.001
Fremont silt loam, 3 to 8 percent slopes	Farmland of statewide importance	6	Somewhat poorly drained	31	0	Predominantly Not Hydric	N/A	0.09	-	-
Fremont silt loam, 3 to 8 percent slopes	Farmland of statewide importance	6	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	CHAU002	9.21	10.07	-
Hornell silt loam, 0 to 3 percent slopes	Prime farmland if drained	2	Somewhat poorly drained	31	97	Predominantly Not Hydric	N/A	0.55	0.55	-
Hornell silt loam, 3 to 8 percent slopes	Farmland of statewide importance	6	Somewhat poorly drained	31	97	Predominantly Not Hydric	N/A	0.79	3.58	0.05
Hornell silt loam, 15 to 25 percent slopes	Not prime farmland	20	Somewhat poorly drained	31	97	Predominantly Not Hydric	N/A	0.17	0.79	-
Hornell silt loam, 15 to 25 percent slopes	Not prime farmland	20	Somewhat poorly drained	31	97	Predominantly Not Hydric	CHAU002	3.63	0.17	-

TABLE 5 MAJOR CHARACTERISTICS OF SOILS FOUND WITHIN THE UNDERGROUND GENTIE CORRIDOR COMPARED TO THE ORIGINAL OVERHEAD ELECTRIC TRANSMISSION AND COLLECTION SUBSTATION[1]

Soil Series	Farmland Class	% Slope	Drainage	Water Table Depth[5] (cm)	Depth to Bedrock (feet)	Hydric	Agricultural District	Total Soils within Corridor (Acres)		
								Original OH Transmission & Substation[2]	Underground Gentie- UG[3]	Underground Gentie- OH[4]
Niagara silt loam, 0 to 3 percent slopes, loamy substratum	Prime farmland if drained	2	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	N/A	0.12	0.09	-
Niagara silt loam, 0 to 3 percent slopes, loamy substratum	Prime farmland if drained	2	Somewhat poorly drained	31	> 200	Predominantly Not Hydric	CHAU002	9.62	5.98	-
Orpark silt loam, 0 to 3 percent slopes	Prime farmland if drained	2	Somewhat poorly drained	31	66	Predominantly Not Hydric	N/A	0.14	0.14	-
Orpark silt loam, 0 to 3 percent slopes	Prime farmland if drained	2	Somewhat poorly drained	31	66	Predominantly Not Hydric	CHAU002	1.89	1.88	-
Orpark silt loam, 3 to 8 percent slopes	Prime farmland if drained	5	Somewhat poorly drained	31	66	Predominantly Not Hydric	N/A	0.10	0.10	-
Orpark silt loam, 3 to 8 percent slopes	Prime farmland if drained	5	Somewhat poorly drained	31	66	Predominantly Not Hydric	CHAU002	2.87	2.84	0.03
Orpark silt loam, 8 to 15 percent slopes	Farmland of statewide importance	12	Somewhat poorly drained	31	66	Predominantly Not Hydric	CHAU002	0.99	0.86	0.12
Pompton silt loam	All areas are prime farmland	2	Moderately well drained	46	> 200	Not hydric	N/A	0.34	0.07	-

TABLE 5 MAJOR CHARACTERISTICS OF SOILS FOUND WITHIN THE UNDERGROUND GENTIE CORRIDOR COMPARED TO THE ORIGINAL OVERHEAD ELECTRIC TRANSMISSION AND COLLECTION SUBSTATION[1]

Soil Series	Farmland Class	% Slope	Drainage	Water Table Depth[5] (cm)	Depth to Bedrock (feet)	Hydric	Agricultural District	Total Soils within Corridor (Acres)		
								Original OH Transmission & Substation[2]	Underground Gentie- UG[3]	Underground Gentie- OH[4]
Pompton silt loam	All areas are prime farmland	2	Moderately well drained	46	> 200	Not hydric	CHAU002	0.40	0.95	-
Schuyler silt loam, 3 to 8 percent slopes	All areas are prime farmland	5	Moderately well drained	54	> 200	Not hydric	CHAU002	0.06	0.03	-
Swormville silt loam	Prime farmland if drained	2	Somewhat poorly drained	31	0	Predominantly Not Hydric	CHAU002	0.25	0.28	-
Towerville silt loam, 35 to 50 percent slopes	Not prime farmland	43	Moderately well drained	54	76	Not hydric	N/A	0.36	0.01	-
Towerville silt loam, 35 to 50 percent slopes	Not prime farmland	43	Moderately well drained	54	76	Not hydric	CHAU002	0.97	0.02	0.36
Water	Not prime farmland	0	Not Applicable	0	> 200	Not Ranked	CHAU002	0.13	0.03	0.95
						Total Corridor Acres:		55.70	52.74	1.52

Notes:

[1] Soils data taken from USDA-NRCS SSURGO Database (USDA 2015).

[2] Soil calculations are only on the original overhead 115kV Transmission Line and associated Interconnection Substation. This includes the full corridor and limits of disturbance for these areas.

[3] Soil calculations are only on the current Underground Gentie Corridor where the collection lines are underground. No access roads have been included.

[3] Soil calculations are only on the current Underground Gentie Corridor where the collection lines are overhead. No access roads have been included.

TABLE 6 POTENTIAL CONSTRUCTION IMPACTS TO SOILS FOR THE UNDERGROUND GENTIE[1, 2]

Project Component	Total Impact (Acres)[3]	High Erosion Potential (Acres)[4]	Poor Drainage (Acres)[5]	Shallow Bedrock (Acres)[6]	Slope >15% (Acres)	Prime Farmland (Acres)	Prime Farmland if Drained (Acres)	Farmland of Statewide Importance (Acres)
Original OH Transmission & Substation[7]	1.5	0	0.2	0	0	0.3	1.18	0.02
Underground Gentie Corridor- UG[8]	4.3	0.1	0.46	0	0.01	0.7	2.1	1.5
Underground Gentie Corridor- OH[9]	0	0	0	0	0	0	0	0
Change in Construction Impacts	2.8	-0.1	0.26	0	0.01	-0.4	0.92	1.48

Notes:

[1] A comparison of potential operational impacts of the Underground Gentie to soils and Project components.

[2] Construction impacts include areas that will be graded or excavated.

[3] Total impact is the total soils impacted by each Project component and does not represent a sum of the types of soils presented in this table.

[4] Includes severe and very severe soil component erosion potentials.

[5] Includes poorly drained and very poorly drained soils.

[6] Includes all soils that have a depth to bedrock less than 6 feet from the surface.

[7] Calculations are only on the original 115kV Transmission Line and associated Interconnection Substation ground disturbance areas (grading and excavation limits). Impacts from poles are considered negligible and are not included. There will be no impact on soils from the clearing of the 80-foot ROW.

[8] Calculations are only on the current Underground Gentie Corridor where the collection lines are underground. No access roads have been included. Ground disturbance calculations is based on a 2 feet-wide open trench for each collection line. There are found parallel collection lines.

[9] Calculations are only on the current Underground Gentie Corridor where the collection lines are overhead (above ground). No access roads have been included. There is no anticipated ground disturbance with this activity. Impacts from poles are considered negligible and are not included.

2.2.1.3 Water Quality

This section addresses potential impacts on groundwater and surface water resulting from construction activities associated with the Proposed Action as it relates to the Underground Gentie. Information regarding the specific wetlands and streams can be found in the Wetland Delineation Reports in the 2016 FEIS which include the Underground Gentie corridor and the Revised May 2017 Ball Hill Wind Project Wetland Delineation Report provided in Appendix H. Construction activities, including trenching electrical collection and transmission lines, and the building of the collection substation may impact the condition of groundwater and surface water resources and, ultimately, water quality. Ball Hill will minimize any potential construction impacts on surface or groundwater quality through the implementation of BMPs as described herein.

No long-term impacts (permanent impacts) on surface water quality are expected. The Underground Gentie was sited to avoid impacts on groundwater and surface water resources by locating it within previously disturbed areas such as along agriculture access roads, permanent roadways and agricultural fields to the extent practicable while still following the straightest route possible to maintain energy transmission efficiency.

Groundwater

Construction of the Underground Gentie is not expected to cause any significant adverse impact on groundwater. It is possible that shallow groundwater may be encountered during excavation of the Underground Gentie, as noted in Section 2.2.1.2, or that other localized groundwater flow disruptions may take place downgradient of excavations. However, should this occur, it is anticipated that preconstruction groundwater conditions would restore themselves as groundwater fills in behind the subsurface Project facilities. Any soil compaction that takes place during construction is not expected to extend to the water table; therefore, groundwater movement would not be disrupted by compaction. Compaction could potentially result in less groundwater infiltration in affected areas. However, the total area where compaction could potentially take place in comparison with the amount of pervious surface that readily allows infiltration to groundwater in the Underground Gentie corridor, is minor and is not expected to cause any changes in regional groundwater levels or quality. The corridor for the Underground Gentie will experience temporary compaction during the construction process and traversing on the site. Construction of the Underground Gentie corridor may increase the potential for introduction of pollutants into groundwater as a result of possible spills of petroleum or other chemicals. To avoid or mitigate any such potential impact, Ball Hill will implement a site-specific SWPPP in accordance with NYSDEC regulations. The SWPPP contains a spill prevention, control, and countermeasure (SPCC) plan. A typical SWPPP, including spill prevention measures, is included in the 2016 SDEIS as Appendix E. In addition, under federal environmental regulations in 40 CFR Part 112, Ball Hill will implement an SPCC plan for the Project because oil in excess of stated thresholds (i.e., 1,320 gallons for the site) would be stored on the site. Sources of oil could include the main power transformer, wind turbine pad mount transformers, gear oils, and hydraulic fluids located in the turbines, and any oil or fuel storage as part of construction. Ball Hill general policies for the implementation of the SPCC are included in the Emergency Response Plan (ERP) in Appendix G of the 2016 SDEIS. As the Project develops, a site-specific SPCC will be established and included as an appendix to Ball Hill's Health and Safety Plans.

Construction of the Underground Gentie is not expected to impact private or public drinking sources. Typically, any ground disturbance associated with the Underground Gentie corridor will be due to the burial of the underground collection lines. These will be installed within shallow narrow trenches and are not likely to impact any drinking water wells or natural springs. Typically, drinking water wells used by residents in the Underground Gentie corridor are designed to withdraw water from deep aquifers, which would utilize a deeper source of groundwater that would not be encountered during construction. Neither the original orientation nor the current layout for the transmission and collection lines are located over a primary, sole-source or principal aquifer according to publicly available maps through the USGS.

Surface Water

Figure 2.2.1.3-1 shows that both the original overhead electric transmission line and collection substation and the Underground Gentie corridor are located outside the 500-year floodplain (Zone X). However, there are areas of both corridors that lie within the 100-year floodplain (Zone A), although the change to the

Underground Gentie corridor has reduced the amount of acreage that lies within the 100-year floodplain. This is primarily due to the shift of the Underground Gentie corridor adjacent to County Road 141 out of the forested area and into agricultural fields.

Additionally, streams were delineated within the Project Study Limits identified for the Proposed Action and are reported in the Revised May 2017 Ball Hill Wind Project Wetland Delineation Report and the June 2018 Ball Hill Wind Project-Supplemental Wetland Delineation Memo (see Appendix H). The potential sources of impacts on these streams are summarized in Table 7 and shown on Figure 2.2.1.3-2 below. Measures were taken during the Project's siting process to avoid stream crossings, such as the re-alignment and shift of the underground corridor along Dennison Road to avoid some large riverine (stream) channels. Overall, a total of 12 different stream crossings (four (4) perennial, two (2) intermittent, and six (6) ephemeral) were delineated along the original overhead electric transmission line and collection substation, whereas the Underground Gentie corridor has a total of 11 stream crossings (two (2) perennial, two (2) intermittent, and seven (7) ephemeral). Additionally, the temporary impacts to all streams has decreased from 1,492 linear feet to 1,175 linear feet (733 linear feet underground collection, and 442 linear feet of overhead collection) due to the realignment of the collection corridor, and the removal of the substation. Since there are no permanent buildings and roads proposed within the Underground Gentie corridor there will be no permanent impacts to streams. Additionally, there will be no permanent impacts to streams since the pole structures and guy wires that are necessary for the 0.2 miles of remaining overhead collection line will be located outside of stream channels.

The proposed construction of the Underground Gentie will avoid three (3) perennial stream crossings. The underground collection lines will be directional drilled to minimize and avoid impacts to the bed and banks of the perennial stream crossings, which are wide stream or riverine systems.

Construction of the Underground Gentie corridor requires the clearing of woody vegetation within the ROW to allow installation of the underground collection lines, poles for the overhead portion and avoid interference with vegetation once the lines are installed. Temporary construction impacts will be minimized by using temporary crossings such as construction mats for equipment crossings. Any vegetation impeding equipment access will be hand-cleared in the vicinity of streams. Clearing vegetation along crossed streams may increase water temperature due to loss of shade; however, where practicable, stumps will be left in place to minimize erosion and sedimentation and to facilitate natural revegetation once construction is complete.

Protected Streams

NYSDEC regulates mapped state streams that are either classified as Class A (drinking water), Class B (recreation) and Class C (T or TS) (support trout spawning or populations) under the NYSE CL Article 15: Protection of Waters Program. However, there are no NYSDEC regulated mapped or delineated streams within either the original overhead electric transmission line and collection substation or the proposed Underground Gentie corridor. All of the delineated streams within both corridors are either considered to be Class C or Class D streams.

Stormwater

Construction of the Underground Gentie could impact local water quality due to stormwater runoff. Indirect impacts on surface waters that could potentially result from construction activities include increases in sedimentation and turbidity caused by increased surface water runoff from disturbed areas and the possible release of pollutants or hazardous materials in the event of a spill during construction. Due to the removal of the collection substation, there is a decrease in impervious surface from the original layout, which will reduce the overall potential for stormwater runoff for the Project. Therefore, no significant adverse impacts on stormwater runoff volumes or water quality are anticipated due to the construction of the Underground Gentie. Site-specific SWPPP information can be found in Section 2.3 of the 2016 SDEIS.

Figure 2.2.1.3-1 FEMA Flood Zones

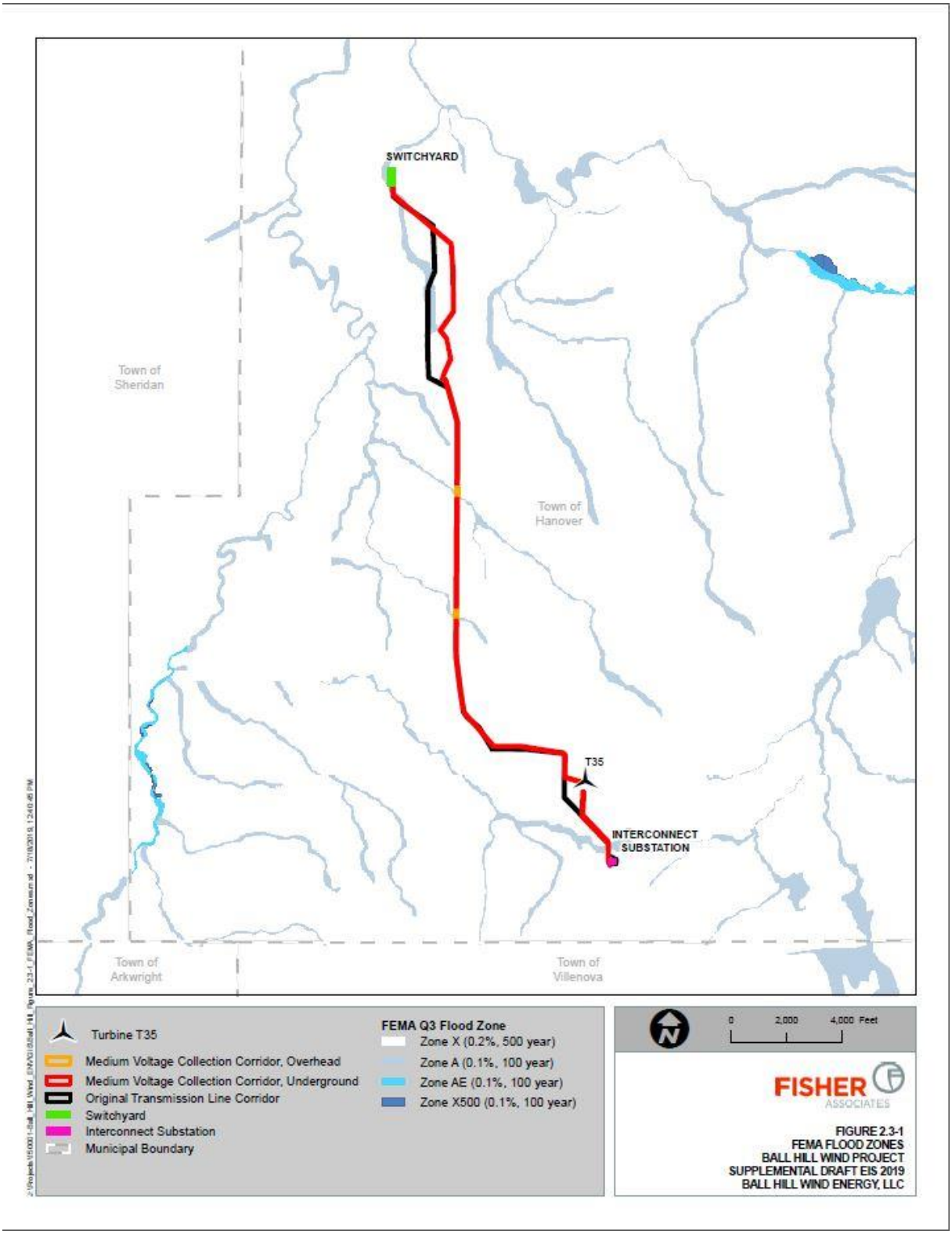

Figure 2.2.1.3-2 Streams Delineated Along Underground Gentie Corridor

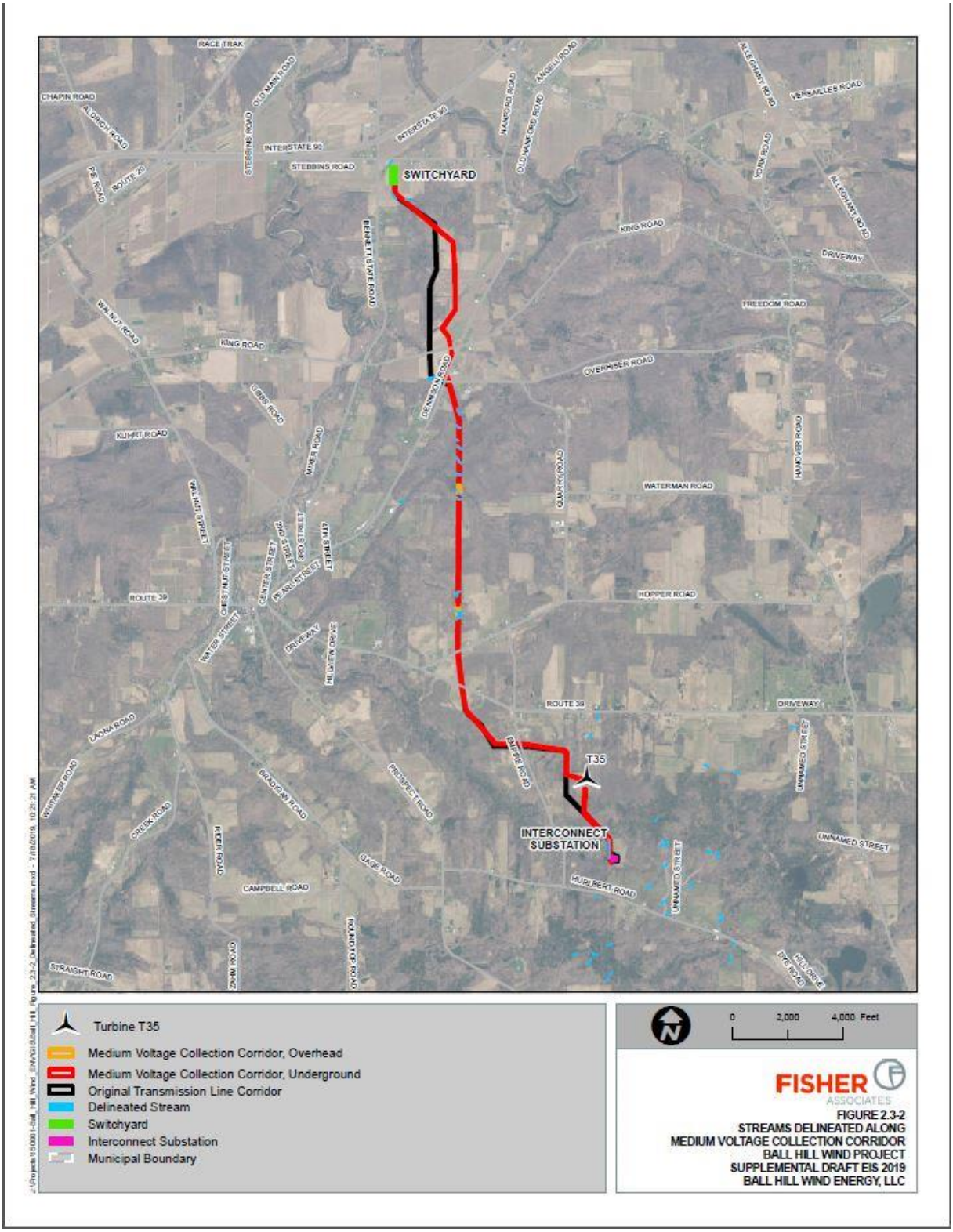

TABLE 7 STREAM IMPACT COMPARISON FOR THE ORIGINAL OVERHEAD TRANSMISSION AND SUBSTATION VS. THE UNDERGROUND GENTIE CORRIDOR

Delineated Stream ID[4]	Stream Type	NYSDEC Classification[5]	Original Overhead Transmission and Substation Corridor[1]		Underground Gentie Corridor-UG[2]		Underground Gentie Corridor-OH[3]	
			Temporary Impacts[7] (LF)	Permanent Disturbance[8] (LF)	Temporary Impacts[7] (LF)	Permanent Disturbance[8] (LF)	Temporary Impacts[7] (LF)	Permanent Disturbance[8] (LF)
A210	Intermittent	C	89	-	-	-	89	-
A527	Perennial	C	100	-	-	-	-	-
A528	Perennial	C	217	-	-	-	-	-
A540	Perennial	C	118	-	-	-	118	-
A523	Perennial	C	65	-	65	-	-	-
A211	Ephemeral	D	284	-	49	-	235	-
A212	Ephemeral	D	88	-	88	-	-	-
A539	Ephemeral	D	81	-	81	-	-	-
A541	Ephemeral	D	111	-	111	-	-	-
A542	Ephemeral	D	143	-	143	-	-	-
A543	Intermittent	D	109	-	109	-	-	-
A545	Ephemeral	D	87	-	87	-	-	-
Total[9]			1,492	-	733	-	442	-

Notes:

[1] Calculations are based on the full corridor (ROW) for the original overhead 115kV Transmission Line and associated Interconnection Substation. No access roads have been included.

[2] Calculations are based on the current Medium Collection Corridor where the collection lines are underground. No access roads have been included.

[3] Calculations are based on the current Medium Collection Corridor where the collection lines are overhead. No access roads have been included.

[4] Each unique stream identification number is assumed to be associated with a single stream crossing.

[5] NYSDEC Classification is based on that stated in the Revised May 2017 Ball Hill Wind Project Wetland Delineation Report.

[6] Construction disturbance includes all areas to be disturbed during construction activities. As such, they include all impact related to clearing and grading of stream banks, in-stream trenching, trench dewatering, and backfilling. For the transmission portion of the Project, this includes the linear feet of all streams that fall within the 80-foot-wide cleared ROW. For the underground Gentie Corridor this is based on the 2-foot-wide trench necessary for construction for each of the four (4) collection lines. This is reported in linear feet of stream length that crosses the construction ROW.

[7] Temporary stream impacts refer to ford crossing and open cutting of streams that will be restored to original pre-construction conditions and contours immediately following construction.

[8] Permanent stream impacts refer to in-stream trenching, trench dewatering, and backfilling and culvert installation. No permanent fill would be placed in the stream channel; however, alteration of the vegetative communities on the banks may have minor impacts on stream ecology or function due to loss of shade.

[9] Due to rounding, totals may not reflect the sum of numbers.

2.2.1.4 Wetlands

This section provides a detailed discussion of the overall wetland impacts for wetlands impacted by the replacement of the original overhead electric transmission line and collection substation corridor with the Underground Gentie. Specific wetland information can be found within the Revised May 2017 Ball Hill Wind Project Wetland Delineation Report and the June 2018 Ball Hill Wind Project – Supplemental Wetland Delineation Memo (Appendix H).

Federal and State-Regulated Wetlands

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 (WOTUS), including wetlands. There is no minimum size for wetlands to be regulated under federal jurisdiction.

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

Activities associated with construction and operation of the Project components within the delineated wetlands are anticipated to be subject to federal and/or state regulations.

Delineated Wetlands

There was a total of 41 delineated wetlands within both the original overhead electric transmission line and collection substation and Underground Gentie corridor jointly. As noted in Table 8 below, these were comprised of 15 palustrine emergent (PEM), 15 palustrine forested (PFO) and 11 palustrine scrub-shrub wetland systems. Of these delineated wetlands there were seven (7) wetlands that correspond to NYSDEC Freshwater wetlands. Delineated Wetlands A593, A594, A650 and A651 correspond to NYSDEC Freshwater Wetland SC-12, which is located in the northern most portion of both corridors. Delineated Wetlands A643, A644, and A649 correspond to NYSDEC Freshwater Wetland SC-13, which is located just south of SC-12. Figure 2.2.1.4-1 displays the delineated wetlands that either cross or are within close proximity to the Underground Gentie, and Table 8 displays the specific delineated wetlands and a comparison of impacts that will occur based on the original overhead electric transmission line and the Underground Gentie.

Construction Impacts to Wetlands

Impacts during construction include all areas to be disturbed during construction activities (i.e., electrical collection and transmission lines, utility trenches, utility poles, and substation). Impacts are broken down further by temporary and permanent impacts. Some wetlands are temporarily impacted by ground disturbance or placement of fill during construction; however, the pre-existing contours and conditions will be restored following construction to allow wetlands conditions to become reestablished. PFO wetlands that are not directionally bored will be maintained in the future as emergent wetlands and impacts to them are considered to be permanent forested wetland conversion.

For the approximate 6-mile original overhead electric transmission line and collection substation, wetland impacts were calculated assuming a cleared 80-feet-wide permanent ROW. The total construction-related wetland impacts include the area of temporary impact during construction, the area of permanent wetland impacts associated with placement of fill for permanent facilities (those located within the footprint of any of the permanent facilities – substation), and the forested wetlands that will be cleared and permanently maintained as emergent or shrub wetlands within the electrical transmission line corridor.

The Underground Gentie wetland impacts were calculated based on the entire width (80-feet) of the maintained ROW. The total construction-related wetland impacts include the area of temporary impact during construction. No permanent wetland fill is anticipated for this portion of the Project. A majority of the temporary and permanent impacts associated with PFO NYSDEC wetlands were avoided through the use of directional drilling to avoid these wetlands. These are described in greater detail in Section 2.4.1, Construction Impacts.

During Project construction, the original overhead transmission line and collection substation will have impacted 32 different delineated wetlands totaling approximately 13.44 acres of temporary disturbance, and

6.20 acres of permanent PFO wetland conversion. Wetland impacts resulting from the proposed Underground Gentie corridor are reduced to 8.01 acres (7.93 acres for underground and 0.07 acres for overhead) of temporary wetland disturbance and 3.74 acres (3.67 acres for underground and 0.07 acres for overhead) of permanent PFO wetland conversion. Specifically, this decrease is due to the elimination of a portion of the ROW southwest of Turbine 35, the realignment of a portion of the ROW between Dennison Road and where the Interconnection Substation was previously located, and the planned directional bore under the delineated PFO wetlands that are part of the NYSDEC Freshwater Wetland SC-12 and SC-13 complexes.

It is important to note that the remaining 8.01 acres (7.93 acres underground and 0.07 acres overhead) of unavoidable disturbance to wetlands will be temporary. This is because these are emergent or scrub-shrub wetlands that will be restored back to the original pre-construction conditions and vegetation will be reestablished and allowed to re-generate.

Figure 2.2.1.4-1 Delineated Wetlands Along Underground Gentie Corridor

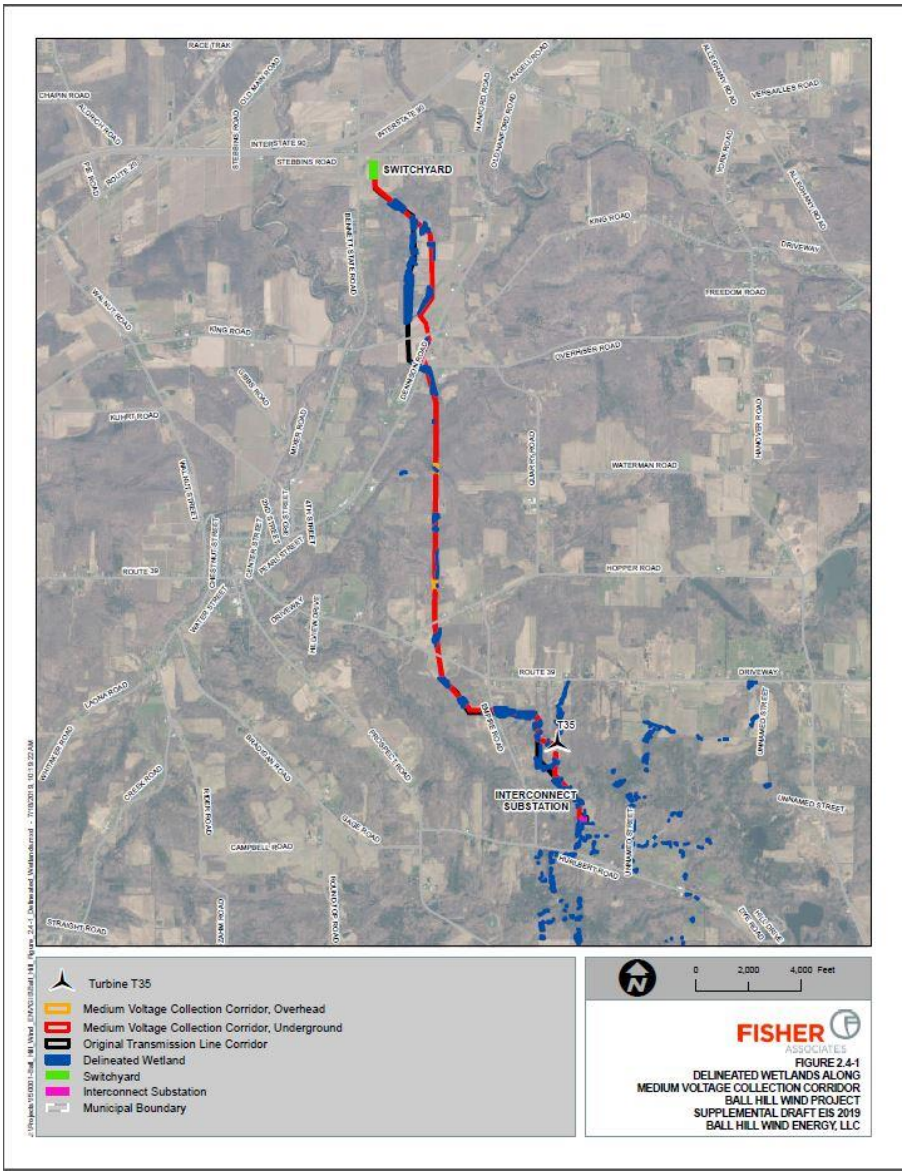

TABLE 8 COMPARISON OF WETLAND IMPACTS FOR THE ORIGINAL OVERHEAD TRANSMISSION AND SUBSTATION CORRIDOR VS THE UNDERGROUND GENTIE CORRIDOR

Delineated Wetland ID[4]	Wetland Type	NYSDEC Wetland	Original Overhead Transmission and Substation Corridor[1]				Underground Gentie Corridor- UG[2]				Underground Gentie Corridor- OH[3]			
			Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]	Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]	Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]
A239	PEM	-----	-	0.24	-	-	-	0.24	-	-	-	-	-	-
A239	PFO	-----	-	0.05	-	0.05	-	0.05	-	0.05	-	-	-	-
A578	PSS	-----	-	0.001	-	-	-	0.001	-	-	-	-	-	-
A580	PEM	-----	-	0.06	-	-	-	0.06	-	-	-	-	-	-
A581	PSS	-----	-	0.27	-	-	-	0.27	-	-	-	-	-	-
A582	PFO	-----	-	0.47	-	0.47	-	0.47	-	0.47	-	-	-	-
A583	PEM	-----	-	0.15	-	-	-	-	-	-	-	-	-	-
A583	PFO	-----	-	0.001	-	-	-	-	-	-	-	-	-	-
A583	PSS	-----	-	0.20	-	-	-	-	-	-	-	-	-	-
A585	PFO	-----	-	0.38	-	0.38	-	0.35	-	0.35	-	-	-	-
A586	PFO	-----	-	0.29	-	0.29	-	0.31	-	0.31	-	-	-	-
A587	PFO	-----	-	1.00	-	1.00	-	1.16	-	1.16	-	-	-	-
A587	PSS	-----	-	1.05	-	-	-	1.24	-	-	-	-	-	-
A591	PSS	-----	-	0.52	-	-	-	0.52	-	-	-	-	-	-
A592	PEM	-----	-	0.15	-	-	-	0.15	-	-	-	-	-	-
A592	PFO	-----	-	0.56	-	0.56	-	0.52	-	0.52	-	-	-	-
A593	PFO	SC-12	-	0.95	-	0.95	-	-	-	-	-	-	-	-
A594	PFO	SC-12	-	0.85	-	0.85	-	-	-	-	-	-	-	-
A629	PFO	-----	-	-	-	-	-	0.25	-	0.25	-	-	-	-
A630	PEM	-----	-	-	-	-	-	0.06	-	-	-	-	-	-
A633	PEM	-----	-	-	-	-	-	0.04	-	-	-	-	-	-

TABLE 8 COMPARISON OF WETLAND IMPACTS FOR THE ORIGINAL OVERHEAD TRANSMISSION AND SUBSTATION CORRIDOR VS THE UNDERGROUND GENTIE CORRIDOR

Delineated Wetland ID[4]	Wetland Type	NYSDEC Wetland	Original Overhead Transmission and Substation Corridor[1]				Underground Gentie Corridor- UG[2]				Underground Gentie Corridor- OH[3]			
			Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]	Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]	Temporary Fill[5]	Temporary Disturbance[6]	Permanent Fill[7]	Permanent Forest Conversion[8]
A633	PSS	-----	-	0.19	-	-	-	0.07	-	-	-	-	-	-
A634	PEM	-----	-	0.07	-	-	-	0.05	-	-	-	-	-	-
A635	PSS	-----	-	0.33	-	-	-	0.33	-	-	-	-	-	-
A638	PFO	-----	-	0.45	-	0.45	-	0.45	-	0.45	-	-	-	-
A639	PFO	-----	-	0.07	-	0.07	-	-	-	-	-	0.07	-	0.07
A641	PEM	-----	-	0.62	-	-	-	0.46	-	-	-	-	-	-
A641	PFO	-----	-	0.11	-	0.11	-	0.11	-	0.11	-	-	-	-
A641	PSS	-----	-	0.15	-	-	-	0.15	-	-	-	-	-	-
A642	PSS	-----	-	0.15	-	-	-	-	-	-	-	-	-	-
A643	PEM	-----	-	0.75	-	-	-	0.18	-	-	-	-	-	-
A643	PFO	SC-13	-	0.53	-	0.53	-	-	-	-	-	-	-	-
A643	PSS	-----	-	2.21	-	-	-	-	-	-	-	-	-	-
A644	PEM	-----	-	0.13	-	-	-	-	-	-	-	-	-	-
A644	PFO	SC-13	-	0.50	-	0.50	-	-	-	-	-	-	-	-
A646	PEM	-----	-	-	-	-	-	0.01	-	-	-	-	-	-
A646	PSS	-----	-	-	-	-	-	0.001	-	-	-	-	-	-
A649	PEM	SC-13	-	-	-	-	-	0.08	-	-	-	-	-	-
A650	PEM	SC-12	-	-	-	-	-	0.04	-	-	-	-	-	-
A651	PEM	SC-12	-	-	-	-	-	0.25	-	-	-	-	-	-
A652	PEM	-----	-	-	-	-	-	0.06	-	-	-	-	-	-
Total[9]			0.00	13.44	0.00	6.20	0.00	7.93	0.00	3.67	0.00	0.07	0.00	0.07

Notes:

[1] Calculations are based on the full corridor (ROW) for the original overhead 115kV Transmission Line and associated Interconnection Substation. No access roads have been included.

[2] Calculations are based on the current Medium Collection Corridor where the collection lines are underground. No access roads have been included.

[3] Calculations are based on the current Medium Collection Corridor where the collection lines are overhead. No access roads have been included.

[4] Delineated Wetland IDs are based on wetlands reported on within the Revised May 2017 Ball Hill Wind Project Wetland Delineation Report.

[5] Temporary fill, is fill that is placed during construction and will be removed post-construction. The area will be restored back to the original conditions and contours.

[6] Temporary disturbance includes wetlands that are crossed or where ground disturbance may occur (trenching) but will be restored back to their original conditions and contours post-construction.

[7] Permanent placement of fill refers to placement of fill within wetlands that results in a permanent loss of wetland acreage. Placement of fill includes placement of gravel or permanent structures.

[8] Permanent forest conversion includes areas where forested wetlands will be cleared and not be allowed to naturally regenerate to forested wetlands, but rather be maintained in a scrub-shrub or emergent state.
For the overhead transmission, underground collection and overhead collection portions of the Project, this would include all portions of forested wetlands that fall within the 80-foot-wide cleared ROW that will
not be maintained as a permanent access road (accounted for in permanent placement of fill).

[9] Due to rounding, totals may not reflect the sum of numbers.

2.2.1.5 Biological Resources and Threatened and Endangered Species

Upland Vegetation

The primary impacts on biological resources will result from temporary and permanent loss of habitat due to clearing of land for a maintained ROW (corridor) associated with the Underground Gentie Corridor. This is similar to what would have been needed for the Original Overhead Transmission and Substation Corridor and therefore there is no significant change. During construction there will be a loss of upland vegetation due to the removal of existing vegetation through clearing of forested, scrub-shrub, and herbaceous vegetation as part of construction activities. Habitat fragmentation resulting from the development of the collection corridor has been minimized by using existing corridors (e.g., existing farm and logging roads) to the greatest extent practicable.

The existing mosaic of land uses within the region, including agricultural lands and early successional stages of forestland, indicate that disturbance is a common occurrence in this landscape.

Wetlands and Aquatic Habitats

Impacts from construction on aquatic and wetland communities are discussed in Section 2.2.1.4, Wetlands. Among the impacts discussed, soil erosion may result in the transfer of sediment off the construction area to adjacent waterbodies, which may cause turbid waters and act to fill wetlands or embed stream substrate. These potential impacts could affect the quality of aquatic habitats. Mitigation measures, including a SWPPP, would be developed for the Project Site and implemented to reduce impacts from sedimentation and erosion during construction. BMPs that is included in the SWPPP are described in Appendix E of the 2016 SDEIS.

Threatened and Endangered Plant Species

No threatened or endangered vegetation or communities were identified within the Project Area and the Underground Gentie Corridor during the field survey efforts. Additionally, as noted in the 2016 SDEIS and 2016 FEIS, there were two (2) New York Natural Heritage Program (NHP) listed significant ecological communities identified outside of the Project Area. Therefore, no significant adverse impacts to threatened and endangered plant species or significant natural communities are expected as a result of the replacement of overhead transmission lines and a substation with predominantly buried collection lines.

Common Wildlife

Most wildlife species are not expected to experience significant direct impacts as a result of construction of the Underground Gentie and are expected to avoid the Project Site during the active construction period. Wildlife species common to the eco-communities identified in the Project Area are listed in Table 2.5-2 of the 2016 SDEIS, and species of local significance are discussed in Section 2.5 of the 2016 SDEIS. Since a majority of the predominantly underground collection corridor will be in the same location and general area as the original overhead transmission line there is not expected to be any significant impact changes to common wildlife.

The most prevalent upland eco-communities in the Project Area are successional northern hardwood forest and agricultural land. Successional northern hardwood forest habitat supports black bear (*Ursus americanus*), eastern chipmunk (*Tamias striatus*), eastern cottontail (*Sylvilagus floridanus*), gray fox (*Urocyon cinereoargenteus*), gray squirrel (*Sciurus carolinensis*), opossum (*Didelphis virginiana*), porcupine (*Erethizon dorsatum*), red bat (*Lasiurus borealis*), red squirrel (*Tamiasciurus hudsonicus*), and striped skunk (*Mephitis mephitis*).

Agricultural land generally supports the big brown bat (*Eptesicus fuscus*), coyote (*Canis latrans*), eastern cottontail, hoary bat (*Lasiurus cinereus*), red fox (*Vulpes vulpes*), striped skunk, white-tailed deer (*Odocoileus virginianus*), and woodchuck (*Marmota monax*). Less mobile species in upland vegetative communities may experience some limited mortality during the course of construction, including small mammals that may not have time to escape areas of disturbance. This may also include nocturnal species that roost in trees during the day when construction activities take place. The same could be expected for common wildlife species that inhabit agricultural fields and lands in various stages of succession; while most species would relocate to avoid construction impacts, construction may inadvertently impact ground-dwelling or burrowing wildlife.

Threatened and Endangered Wildlife Species and Species of Special Concern

Based on consultation with the USFWS and the NHP, no non-avian species listed as threatened or endangered potentially occur in the Project Area, except for transient individuals. Therefore, no significant adverse impacts on non-avian threatened and endangered animal species are expected as a result of the replacement of overhead transmission lines with underground collection lines. Potential impacts on bird and bat species are discussed in Section 2.2.1.6, Bird and Bat Resources.

2.2.1.6 Bird and Bat Resources

This section provides updated information on the potential impacts and mitigation related to bird and bat resources resulting from the construction of the Underground Gentie. Information on the existing bird and bat resources within the Project area is included in the 2016 FEIS.

No additional bird or bat surveys were conducted since the 2016 FEIS was submitted.

Construction-related activities (e.g., clearing, infrastructure construction, equipment noise, increased vehicle traffic, and human presence) can potentially impact birds and bats by causing temporary displacement from habitat and direct mortality. Because these impacts are generally only temporary in nature, impacts on bird and bat populations are typically not significant.

Potential construction impacts on habitat would be caused by ground disturbance and tree removal, which are also associated with farming and logging practices, which are common in the area. Tree clearing during the late fall, winter or early spring months would present the lowest potential risk to birds by avoiding potential disturbance of nests. Tree clearing during the breeding bird season (late spring, summer, or early fall), would have the greatest potential to have an adverse impact on nesting birds. Tree clearing during these months will be minimized to the greatest extent practicable if total avoidance is not achieved due to Project construction timing considerations.

Tree clearing has been reduced as a result of the proposed Underground Gentie. The maintained ROW for the Underground Gentie will be narrower than that which would have been necessary for the originally proposed overhead 115kV electric transmission line.

Potential Impacts on Migratory Birds

The construction of the Underground Gentie is expected to have no significant adverse impacts on migratory bird populations, including raptors, passerines, and waterbirds. The elimination of the overhead electric transmission line is anticipated to have a positive impact on migratory birds, through the reduction of above ground obstacles (utility poles). Most migratory bird species are expected to be temporarily displaced as they are anticipated to avoid immediate areas during active construction but will resume activity shortly thereafter.

Potential Impacts on Threatened or Endangered Bird Species

The use of the Underground Gentie corridor by bird species listed as endangered, threatened, or of special concern is anticipated during construction and will be slightly lower but still similar to the original overhead electric transmission line and collection substation corridor due to the removal of the collection substation. Occurrences and observations of threatened and endangered species would be related to migratory, transient/foraging, and breeding behavior for this portion of western NY. Species that breed in the Underground Gentie corridor would likely occur in very low numbers, and the potential for impacts during construction would be minimized by the use of on-site environmental personnel and immediate incorporation of adaptive management measures upon discovery of nesting prior to or during construction. Disruption by construction (e.g., land clearing, equipment movement and noise, etc.) during the breeding season could potentially affect the northern harrier, sharp-shinned hawk, cooper's hawk, red-shouldered hawk, and grasshopper sparrow because these species could potentially breed in the Project area. It is anticipated that monitoring in grassland habitats (for the northern harrier and grasshopper sparrow) and forested areas (for the sharp-shinned hawk, cooper's hawk, and red-shouldered hawk) would identify nests and reduce potential impacts during construction. Transient and/or migratory use by the other listed species is not expected to result in any significant adverse impacts during construction.

If threatened, endangered, or special concern bird species are identified as nesting immediately prior to or during construction of the Underground Gentie), then monitoring, avoidance, and minimization measures would be implemented to reduce the potential for construction to negatively impact these species. Potential avoidance and mitigation measures are discussed in this section. With implementation of monitoring activities, no significant adverse impacts from construction on threatened, endangered, or special concern bird species are anticipated.

Potential Impacts on Breeding Birds

As noted in the 2016 FEIS there are no expected significant adverse impacts on breeding bird populations due to Project construction.

Potential Impacts on Bats

There is not a significant change in the potential for impacts on both tree roosting bats and cave bats as a result of habitat alteration or loss associated with the construction of the Underground Gentie. Activities, such as equipment noise, increased vehicle traffic, and human presence, will not be expected to have a significant adverse effect on bat populations because bats are most active at night when construction is not taking place and because they can temporarily relocate. However, tree clearing activities in association with the clearing of the ROW have a potential to have an adverse impact on bats within the Project Area.

Potential construction impacts on habitat will be caused by ground disturbance and tree removal, which are also associated with farming and logging practices, which are common in the area. Tree clearing during the late fall, winter or early spring months will present the lowest potential risk to bats by avoiding potential removal of roosting or maternity trees. Tree clearing during the late spring, summer, or early fall will have the greatest potential to have an adverse impact on colonial roosting bats, such as the tri-colored bat, big brown bat, and *Myotis* species, if a roost or maternity colony were to be cut down. Tree clearing during these months will be minimized to the greatest extent practicable if total avoidance is not achieved due to Project construction timing considerations.

Changes in vegetation may influence the behavior of bats by changing microclimatic conditions and the quality of habitat for foraging or roosting bats (National Research Council [NRC] 2007). Bats may also become attracted to openings made in forested areas from tree clearing activities as they may find foraging opportunities in the openings. It is anticipated that any bats that are present in the Project Area will return to areas that were temporarily disturbed following the completion of construction activity. The 2012 acoustic study suggests that a robust bat population is present within the Project Area, so there is a potential for some adverse impacts during construction of the Underground Gentie. These risks will be reduced if tree clearing activity can be limited to the later fall, winter, or early spring months. If tree clearing cannot be limited to these months, Ball Hill will minimize any adverse construction impacts on active roost trees and bat species within the Project Area. If necessary based on NYSDEC and USFWS coordination, Ball Hill will have qualified biologist(s) conduct tree inventories to identify potential roost trees and monitor with acoustic devices and/or conduct dusk exit surveys, or other similar methods as coordinated with NYSDEC and USFWS.

Potential Impacts on Threatened or Endangered Bat Species

A description of threatened and endangered bat species, specifically the NLEB and the Indiana bat is provided in the 2016 FEIS. It is anticipated that the construction of the Underground Gentie will not result in a significant adverse impact to threatened or endangered bat species, specifically the NLEB and the Indiana bat.

Bird and Bat Fatality Approximations

There is no proposed change to proposed Project bird and bat fatalities as a result of the construction of the Underground Gentie. It is anticipated that during construction birds and bats will be temporarily displaced, and no permanent structures will be placed that could potentially cause fatalities.

2.2.1.7 Eagle Population

According to the 2016 FEIS there are no bald eagle nests within the Project Area. It was determined that since the nearest bald eagle nest is outside the limits of the Project Area and beyond the minimum USFWS guidance (2007) for construction, no significant adverse impacts from construction activities on bald eagles are

anticipated. Specifically, the replacement of the overhead electric transmission line and collection substation to the Underground Gentie will not have an adverse impact on bald eagle nests, breeding or flight paths. The elimination of the overhead electric transmission line is anticipated to have no impact on bald eagles.

Ball Hill will continue to coordinate with the USFWS regarding the potential risk from the construction of the Underground Gentie on bald eagles.

2.2.1.8 Visual Resources

The Proposed Action will not change the previous air quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.1.9 Sound

As noted in the Noise Assessment at Appendix C, the Underground Gentie will eliminate noise impacts associated the 2016-approved Original Overhead Transmission and Substation configuration.

2.2.1.10 Climate and Air Quality

The Proposed Action will not change the previous air quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.1.11 Communications

The Proposed Action will not change the previous communication statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.1.12 Traffic and Transportation

Since the current Underground Gentie Corridor is approximately within the same location as the Original Overhead Transmission and Substation Corridor there are no expected changes or negative impacts to traffic within the area and transportation routes. However, it is important to note that there will be a slight reduction in negative impacts to local roadway traffic because the lines will no longer be strung overhead at most of the local road crossings and will instead be directional drilled under the roadway.

Air Transportation

The Underground Gentie will eliminate any air transportation impacts associated the 2016-approved Original Overhead Transmission and Substation configuration.

2.2.1.13 Land Use

Local Land Use Plans, Zoning and Laws

The proposed Underground Gentie will not cause a significant adverse impact on the Town of Hanover's local land use plan, Chautauqua County's April 2011 Chautauqua 20/20 Comprehensive Plan, and Hanover and Villenova's zoning laws and regulations. Construction activities will be conducted in accordance with the design and siting requirements of the local wind energy facility laws of each municipality in the Project Area. The necessary approvals will be obtained from each municipality prior to construction. The Project is consistent with the Chautauqua 20/20 Comprehensive Plan, which includes, "encourage local farms to explore . . . renewable energy opportunities such as wind," as one of its recommended strategies and actions.

Land Use Impacts

Local land use impacts associated with the switch from the Original Overhead Transmission and Substation Corridor to the Underground Gentie Corridor are generally similar to one another. An analysis was conducted on the land use classification for agriculture, forested and developed lands that fall within these two (2) corridors that will be impacted due to construction and operation related activities based on publicly available data through USGS. The approximate acreage of each land use/land cover classifications is shown in Table 9, and on Figure 2.2.1.13-1. Agricultural land use/ land cover areas include the USGS Land Use/ Land Cover categories of pasture/hay, grassland/herbaceous, cultivated crops and emergent wetlands. Forested areas include the USGS Land Use/Land Cover categories of deciduous forest, evergreen forest, mixed forests,

scrub/shrub, and woody wetlands. Developed areas are based on the USGS Land Use/Land Cover categories of developed open space and developed low intensity.

The proposed modifications to the height of the proposed turbines do not result in any changes to the existing land uses described in the DEIS, SDEIS, and FEIS due to the turbine locations remaining the same.

Additionally, as noted previously soils characterized as “prime farmland,” “prime farmland if drained” and “farmland of statewide importance” generally make up agricultural districts and are where there may be active agricultural productions. As shown in Table 9 there is an increase in the amount of soils that are being disturbed within all three (3) of these categories (approximately 2.8 acres) due to the replacement of the overhead transmission line with the underground collection lines and the removal of the collection substation. However, these impacts to agricultural soils as they relate to the underground collection lines will only occur during construction and are considered to be temporary impacts. It should be noted that the New York State Department of Agriculture and Markets (NYSDAM) Guidelines for Agricultural Mitigation for Wind Power Projects (Revision 4/19/2018) indicate a strong preference for underground placement of electrical collection lines within agricultural fields. This is because it will minimize the number of poles and guy wires necessary for overhead transmission lines and allow farmers to cultivate a higher and more efficient yield within the fields without the need to farm around them. Even though there is a higher farmland soil impact due to underground collection installation, this will only be a temporary impact.

Agricultural production may also be hampered by the introduction of stones or rocks greater than four (4) inches in diameter into the soil surface layer. Subsurface rock fragments and stones may be encountered during grading, trenching, and excavation operations. Excavation of shallow bedrock during construction could also introduce rock fragments and stones into an agricultural field’s topsoil layer. Soils are considered to have shallow bedrock if bedrock is encountered less than 6 feet from the soil surface. As indicated in Table 9, there are no soils within e the Underground Gentie corridor that contain shallow bedrock.

Construction impacts will be temporary, short term and, for the most part, reversible. It is estimated that it will take about two years until construction-related land disturbances revert back to preconstruction conditions. Table 10 compares agricultural, forested and developed land use/cover within the Original Overhead Transmission Corridor to the Underground Gentie Corridors as it relates to construction and operation activities.

Figure 2.2.1.13-1 Land Use Types for Underground Gentie Corridor

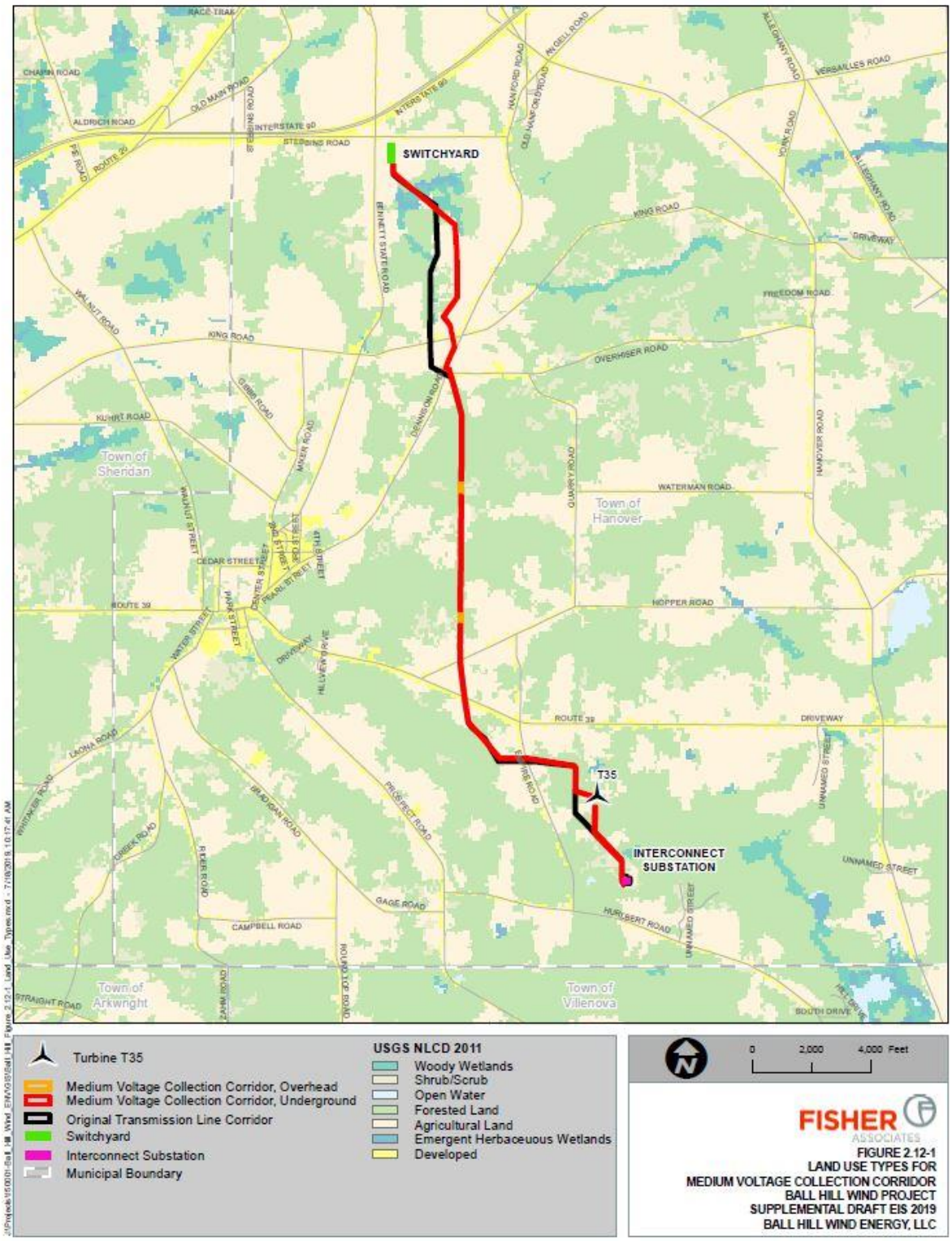

TABLE 9 COMPARISON OF EXISTING LAND USE FOR ORIGINAL OVERHEAD TRANSMISSION & SUBSTATION AND UNDERGROUND GENTIE CORRIDOR

Land Use/Land Cover	Original OH Transmission & Substation (Acres)	Underground Gentie Corridor-UG (Acres)	Underground Gentie Corridor-OH (Acres)
Agricultural[1]	22.21	22.99	0.00
Forested[2]	32.29	27.27	1.52
Developed[3]	1.32	2.56	0.00
Total[4]	55.82	52.82	1.52

Source: Homer et al. 2015.

Notes:

[1] Agricultural land use includes the USGS Land Use/Land Cover categories of Pasture/Hay; Grassland/Herbaceous; Cultivated Crops; and Emergent Herbaceous Wetlands. Section 2.4, Wetlands, provides a summary of the acreages of wetlands that were field-delineated within the survey corridor.

[2] Forested land use includes the USGS Land Use/Land Cover categories of Deciduous Forest; Evergreen Forest; Mixed Forests; Scrub-Shrub; and Woody Wetlands. Section 2.4, Wetlands, provides a summary of the acreages of wetlands that were field-delineated within the survey corridor.

[3] Developed land use includes the USGS Land Use/Land Cover categories of Developed, Open Space; Developed Low Intensity; and Developed High Intensity.

[4] Table totals may not add up due to rounding.

[5] Land Use calculations are on the entire original overhead 115kV Transmission Line corridor and limits of disturbance for the substation.

[6] Land Use calculations are only on the Underground Gentie Corridor where the collection lines are underground. This includes areas that will be directionally drilled. All areas will be allowed to revert back to original conditions. No trees will be allowed to re-grow within the corridor. No access roads have been included.

[7] Land Use calculations are only on the Underground Gentie Corridor where the collection lines are overhead. All areas will be allowed to revert back to original conditions. No trees will be allowed to re-grow within the corridor. No access roads have been included.

Agricultural Land Use/Land Cover Areas

Construction activities associated with the installation of the overhead transmission line and associated substation would have resulted in a total impact of 22.21 acres of agricultural land, of which 20.9 acres would have been restored to existing conditions post construction. The difference in acreage is due to the permanent construction of the substation. The shift and alignment of the corridor to the Underground Gentie Corridor that no longer includes the substation will result in a slight increase of impacted agricultural lands from 22.21 to 22.99 acres; however, because there are no permanent features associated with this Project modification agricultural land areas that will contain the underground and overhead collection lines will continue to be used for agricultural purposes after construction is complete. Unlike the placement of poles and guy wires for the original +/-5.7-mile overhead transmission line, these impacts will be temporary and limited to the duration of construction and restoration. As described in the 2016 SEQRA SOF (pp. 22), activities within agricultural fields will be conducted in accordance with applicable NYSDAM guidelines to the greatest extent possible. It should be noted that even though there is a slight increase in temporary impacts caused by the switch of overhead to underground lines, NYSDAM has indicated a strong preference for the underground placement of electrical collection lines within agricultural fields.

Forested Land Use/Land Cover Areas

Forested land use/ cover areas will be impacted within the Underground Gentie Corridor, because all trees will be removed, and the corridor will be maintained throughout the life of the Project through tree trimming, and brush cutting. The realignment of the current underground collection corridor, and the removal of the substation has resulted in a decrease in 3.5 acres of forested cover lands that will be disturbed or permanently impacted as a result of the Project. However, there still remains approximately 28.79 acres that will either be brush cut or tree cleared within forested areas, according to USGS Land Cover/Land Use data, in order to establish the Underground Gentie Corridor.

Developed Land Use/Land Cover Areas

The replacement of the overhead transmission line and substation with the four (4) Underground Gentie lines will result in an incremental increase of 1.24 acres of temporary disturbance to developed lands, from 1.32 acres to 2.56 acres. In these cases, the developed lands are areas where the collection lines are crossing roads. Construction impacts would be considered minor since the collection lines will either be directionally drilled under the road or hung as overhead collection lines.

2.2.1.14 Socioeconomics

The existing socioeconomic characteristics and general conclusions for the Underground Gentie Corridor remain accurate as described in the 2016 FEIS, Section 2.13, for the Proposed Action. No adverse impacts to property values are expected as a result of the Proposed Action (Appendix G).

2.2.1.15 Cultural Resources

This section supplements the 2016 FEIS regarding cultural resources within the current Underground Gentie Corridor. In addition, this section analyzes potential impacts from construction and operation of the Project and potential mitigation measures.

Architectural Resources

As discussed in Appendix F Cultural Resource Correspondence, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) reviewed the Proposed Action and determined that it would not warrant additional architectural survey work. All Project impacts on historic architectural resources will be mitigated in accordance with the Memorandum of Agreement ("MOA") approved by OPRHP.

Archaeological Resources

As discussed in Appendix F Cultural Resource Correspondence, OPRHP reviewed the Proposed Action and determined that it would not warrant additional archeological survey work. All Project impacts on historic architectural resources will be mitigated in accordance with the Memorandum of Agreement ("MOA") approved by OPRHP.

2.2.1.16 Health and Safety

Since the Proposed Action are still within the original footprint of the Project Area, the modifications will not cause any negative impacts or changes to emergency services, health and safety planning for the construction, operation, and maintenance of the Project by Ball Hill. See Section 2.15 of the 2016 FEIS which describes the Safety Management Plan (SMP), Safety Program File (SPF), Quality Management Plan (QMP), and ERP identified collectively as Ball Hill's Health and Safety Plans.

2.2.2 Operational Impacts of the Underground Gentie

2.2.2.1 Regional Geology, Topography, and Seismic Activity

Operation of the Underground Gentie will not result in additional impacts on local geology and topography beyond those required for the installation of the buried collection lines. However, following decommissioning, the land will be allowed to return to preconstruction conditions, and the land may be reclaimed for other uses. Additional details about decommissioning are presented in, Decommissioning, and Appendix J.

2.2.2.2 Soil Types and Descriptions, Agricultural Land, Steep Slopes, and Drainage Characteristics

The replacement of the original overhead electric transmission line and collection substation with the proposed Underground Gentie corridor will result in the elimination of permanent impacts to poorly drained soils and agricultural lands and soils (Table 6). Areas temporarily impacted during construction will be restored, and no further soil disturbance in the corridor will occur (underground and overhead).

Agricultural Lands

Ball Hill undertook an extensive multi-phased siting process to minimize impacts on agricultural lands and other sensitive environmental resources. Even though there are temporary impacts to agricultural lands and soils, as noted in Section 2.2.1 and in Table 10, the proposed Underground Gentie Corridor will eliminate permanent impacts to agricultural lands. This is contrasted with the original overhead electric transmission line and collection substation which due to the location and construction of the substation, will have permanently impacted and decommissioned approximately 1.5 acres of farmland.

TABLE 10 POTENTIAL OPERATIONAL IMPACTS TO SOILS FOR THE UNDERGROUND GENTIE[1, 2]								
Project Component	Total Impact (Acres)[3]	High Erosion Potential (Acres)[4]	Poor Drainage (Acres)[5]	Shallow Bedrock (Acres)[6]	Slope >15% (Acres)	Prime Farmland (Acres)	Prime Farmland if Drained (Acres)	Farmland of Statewide Importance (Acres)
Original OH Transmission & Substation[7]	1.5	0	0.2	0	0	0.3	1.18	0.02
Underground Gentie Corridor- UG[8]	0	0	0	0	0	0	0	0
Underground Gentie Corridor- OH[9]	0	0	0	0	0	0	0	0
Change in Operational Impacts[10]	-1.5	0	-0.2	0	0	-0.3	-1.18	-0.02

Notes:

[1] A comparison of potential operational impacts of the Underground Gentie to soils and Project components.

[2] Operational impacts are considered to be permanent impacts that will occur to the soils due to continued maintenance or installation of permanent structures or facilities.

[3] Total impact is the total soils impacted by each Project component and does not represent a sum of the types of soils presented in this table.

[4] Includes severe and very severe soil component erosion potentials.

[5] Includes poorly drained and very poorly drained soils.

[6] Includes all soils that have a depth to bedrock less than 6 feet from the surface.

[7] Calculations are only on the original 115kV Transmission Line and associated Interconnection Substation ground disturbance areas (grading and excavation limits). Impacts from poles are considered negligible and are not included. There will be no impact on soils from the clearing of the 80-foot ROW.

[8] Calculations are only on the current Underground Gentie Corridor where the collection lines are underground. No access roads have been included. Ground disturbance calculations is based on a 2 feet-wide open trench for each collection line. There are found parallel collection lines.

[9] Calculations are only on the current Underground Gentie Corridor where the collection lines are overhead (above ground). No access roads have been included. There is no anticipated ground disturbance with this activity. Impacts from poles are considered negligible and are not included.

[10] Individual values may not add up to totals due to rounding.

2.2.2.3 Water Quality

This section addresses potential impacts on groundwater and surface water resulting from operation activities associated with the proposed Underground Gentie.

No long-term impacts (permanent impacts) on surface water quality are expected. However, there may be minor temporary impacts to water quality throughout the operation of the Underground Gentie if a portion of the Underground Gentie needs maintenance. However, this will be very minor, and Ball Hill will obtain all necessary permits and coordinate with all applicable agencies as needed.

Operational maintenance of the 0.2 mile of the overhead electrical transmission lines by operations and maintenance (O&M) staff will use all-terrain vehicles (ATVs) or comparable vehicles. Crossing of streams and wetlands will be conducted only on dedicated access roads, designated permanent stream crossings or will use construction matting as necessary to cross streams and wetlands as permitted.

Groundwater

The operation of the Underground Gentie is not expected to have any permanent impacts on groundwater. The Underground Gentie corridor will not add impervious surface areas to the Project Area. The potential for pollutants to enter the groundwater from spills of petroleum and other chemicals during operation of the Project will be minimized through the continued implementation of BMPs and spill prevention measures set forth in the SPCC (see 2016 SDEIS for typical stormwater pollution prevention measures). Implementation of these measures is expected to result in the avoidance of impacts on groundwater and residential drinking water wells within or outside the Project Site.

Surface Water

No significant adverse impacts on streams are expected from operation of the Underground Gentie. No permanent fill or culverts will be installed within streams located along the corridor. Crossing of streams and wetlands will be conducted only on dedicated access roads, designated permanent stream crossings or will use construction matting as necessary to cross streams and wetlands as permitted and O&M staff will utilize ATVs or comparable vehicles. However, alteration of the vegetative communities on the banks may have minor impacts on stream ecology or function due to loss of shade. While impacts on riparian vegetation to maintain the Underground Gentie ROW may be necessary during operation, stream banks would remain vegetated as herbaceous or scrub-shrub cover type.

Protected Streams

The operation of the Underground Gentie corridor will have no impact on stream ecology or function to NYSDEC protected or regulated streams since all of the streams that will be crossed are either considered to be Class C or D.

Stormwater

Due to the removal of the collection substation, there is a decrease in impervious surface area, which would reduce the overall potential for stormwater runoff for the Project. Therefore, no significant adverse impacts on stormwater runoff volumes or water quality are anticipated with the switch of the overhead transmission lines to underground collection lines. Site-specific SWPPP information can be found in section 2.3 of the 2016 SDEIS.

2.2.2.4 Wetlands

Impacts during operation include only those impacts that occur or have the potential to occur after construction and restoration are complete. No foreseeable permanent or temporary impacts during Project operations will occur for the Underground Gentie. Temporary impacts may occur as a result of maintenance activities. Impacts on wetlands may occur along collection and transmission components of the Project during maintenance to clear vegetation or during access for maintenance. In the event that future temporary impacts are required for future maintenance, Ball Hill will obtain necessary permits from the USACE and NYSDEC on an as-needed basis.

There is no increase or decrease of permanent impacts (fill) to wetlands due to the elimination of the overhead transmission line because no permanent structures were to be constructed within wetlands and permanent impacts due to pole installation was considered to be minor.

However, due to the need to maintain the collection line corridor free of large woody trees, forested wetlands will be cut to the width of the ROW (corridor) and maintained throughout operation. Woody trees are not allowed to re-generate in these areas because the branches could impact the integrity of the overhead collection lines and the root systems could impact the integrity of the underground lines. Originally, the crossings of these forested wetlands with an overhead transmission line would have resulted in the permanent forest to emergent conversion of 6.20 acres of wetlands. Due to the realignment and construction method of directional drilling, this has been reduced to 3.74 acres. Specifically, there will be a reduction of temporary impacts to NYSDEC wetlands from 2.82 acres to 0.46 acres as well as a positive reduction of temporary impacts to the 100-foot NYSDEC regulated adjacent area to wetlands of 3.33 acres to 2.73 acres.

2.2.2.5 Biological Resources and Threatened and Endangered Species

Upland Vegetation

Permanent impacts on upland vegetation, which provides habitat for wildlife, will result from ongoing maintenance of the ROW/ corridor associated with the underground and remaining overhead collection lines during operation of the Project. Vegetation will be routinely mowed, or brush cut to maintain a certain height within the ROW. Permanent converted forests will continue to be vegetated (herbaceous) and there will not be a total loss of habitat in these areas. The Overall Overhead Transmission and Substation Corridor would have resulted in approximately 39.49 acres of tree clearing, whereas the Underground Gentie Corridor will only have approximately 30.30 acres of tree clearing. This is a positive reduction in the amount of acreage that will be permanently tree cleared. This is because more of the ROW was sited through agricultural fields rather than mature forested areas as noted above, realigning the collection corridor, the removal of the substation, and directional drilling of forested wetlands. In order to maintain the most energy efficient route and straightest line for the collection lines to distribute energy to the Switchyard, there will be 30.30 acres of permanent tree clearing.

As noted in the 2016 SEQRA Statement of Findings (pp. 81), the application of herbicides and pesticides is not anticipated, except for within the fenced substation enclosure. The elimination of the Collection Substation, as well as most of the overhead line, has minimized the potential areas that herbicides may be used.

Wetlands and Aquatic Habitat

Impacts on aquatic and wetland communities are discussed in Section 2.4, Wetlands.

Threatened and Endangered Plant Species

No threatened or endangered vegetation or communities were identified within the Project Area during the field survey efforts. Additionally, as noted in the 2016 SDEIS there were two (2) NHP listed significant ecological communities identified outside of the Project Area. Therefore, no significant adverse impacts to threatened and endangered plant species or significant natural communities are expected as a result of the replacement of overhead transmission lines and a substation with predominantly buried collection lines.

Common Wildlife

Most wildlife species are not expected to experience significant direct impacts as a result of construction of the Project and are expected to avoid the Project Site during the active construction period. Wildlife species common to the eco-communities identified in the Project Area are listed in Table 2.5-2 of the 2016 SDEIS, and species of local significance are discussed in Section 2.5 of the 2016 SDEIS. Since a majority of the predominantly underground collection corridor will be in the same location and general area as the original overhead transmission line there is not expected to be any significant impact changes to common wildlife.

Threatened and Endangered Wildlife Species

Based on consultation with the USFWS and the NHP, no non-avian species listed as threatened or endangered potentially occur in the Project Area, except for transient individuals. Therefore, no significant adverse impacts on non-avian threatened and endangered animal species are expected as a result of the replacement of overhead transmission lines with underground collection lines. Potential impacts on bird and bat species are discussed in Section 2.6, Bird and Bat Resources.

2.2.2.6 Bird and Bat Resources

Because the overhead transmission line will now predominately be below ground there will be minimal above ground operational activities. Thus, the potential impacts to birds during operations from the overhead transmission line area eliminated, and no impact to birds and bats as caused by operational activities.

Potential Impacts on Migratory Birds

The Underground Gentie will not have any operational impacts on migratory birds.

Potential Impacts on Breeding Birds

Given the various habitats and site topography in the Project Area, there is a fairly high diversity of breeding bird species; however, the majority of the Underground Gentie Corridor is sited in agricultural fields and open areas, habitats with a relatively low species diversity and density. There is a significant degree of existing habitat fragmentation in the Project Area due to agricultural operations and logging. By converting the overhead transmission line to predominantly underground collection lines, the Project reduced the wetland impacts and tree clearing of mature forests to the extent possible. Potential impacts on resident birds that utilize these habitats are thus minimized. A majority of the Underground Gentie Corridor will be constructed in agricultural areas and along edges of young woodlands. Breeding birds in these habitats may demonstrate temporary displacement. The installation of the buried collection lines will be a minor temporary disturbance, and the area will be allowed to revegetate. However, these temporary disturbances for the buried lines are no more than they would have been for the construction of the overhead transmission line.

Grassland-nesting species (i.e., Bobolink and Eastern Meadowlark) may not habituate to the presence of the turbines as much as species in other habitats. Some species are more susceptible to displacement than others (Kerlinger and Guarnaccia 2009; Shaffer et al. 2012), and displacement may be limited to the immediate area (i.e., the surrounding field) depending on site-specific conditions, including habitat, size of field, hay mowing, and pesticide practices. Construction of the Underground Gentie Corridor in wooded areas will result in some forest fragmentation and negatively impact some forest-dwelling species (i.e., Wood Thrush, Ovenbird); however, there are no extensive forest tracts in the overall Project Area, and fragmentation is already prevalent. Some avian species (e.g., Indigo Bunting and Mourning Warbler) will likely benefit from fragmentation.

No substantial negative impacts on habitat through loss, degradation, or displacement of breeding birds are anticipated. No significant long-term adverse impacts on breeding birds are anticipated from operation of the Project.

Potential Impacts on Threatened or Endangered Bird Species

During field surveys, two state-listed endangered species (the Golden Eagle and Peregrine Falcon), two state-listed threatened species (the Bald Eagle and Northern Harrier), and seven state-listed special concern species (the Common Loon, Osprey, Sharp-shinned Hawk, Cooper's Hawk, Red-shouldered Hawk, Horned Lark, and Grasshopper Sparrow) were observed in the Project Area. Generally, these species were observed in low numbers, and significant impacts would not be anticipated to these species. The potential impacts on these species and the additional species listed by the USFWS and NYSDEC in the NHP reports (i.e., Great Blue Heron, Short-eared Owl, Northern Harrier, Sedge Wren, Red-headed Woodpecker, and Henslow's Sparrow) within 10 miles of the Project Area are discussed within the 2016 FEIS.

Specifically, replacement of the 115kV Transmission Line and Substation to four (4) predominantly buried collection lines will not change. There are no significant impacts anticipated to occur to these species.

Potential Impacts on Bats

Since the replacement of the 115kV Transmission Line and Interconnection Substation is with predominately below ground collection lines, there are no anticipated impacts to bats from operational activities. As noted previously there was likely to be no operational impacts to bats caused by the overhead transmission line other than tree clearing, so this is not a significant change due to the Project modification.

Potential Impacts on Threatened or Endangered Bat Species

Since the replacement of the 115kV Transmission Line and Interconnection Substation is with predominately below ground collection lines, there are no anticipated impacts to bats from operational activities. As noted previously there was likely to be no operational impacts to bats caused by the overhead transmission line other than tree clearing, so this is not a significant change due to the Project modification.

Bird and Bat Fatality Approximations

As noted previously, if the Project incurs bird and bat fatalities they would primarily be caused by the construction and operation of the turbines. There are no expected fatalities of birds and bats as it relates to the replacement of the overhead transmission line and substation with the predominantly buried collection lines.

2.2.2.7 Eagle Population

The Proposed Action will not change the previous eagle population statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.2.8 Visual Resources

The replacement of the overhead 115kV overhead transmission line with the Underground Gentie will result in decreased visual impacts to residences along the proposed transmission corridor.

As described in the 2016 FEIS (FEIS; Table 2.4-1) lighting at the substation and O&M facility will consist of manually activated full-cutoff exterior lighting and temporary work lighting, with no drop-down optics. During normal operations, the substation will not be lit except as required for site security and/or as required by federal, state, or local agencies. Routine maintenance work at the substation is expected to occur during daylight hours; however nighttime work (requiring lighting) may be required in an emergency or for reliability reasons. Elimination of the Collection Substation will result in a decrease in the anticipated light sources from the Project.

As noted in the Visual Assessment at Appendix B, the Underground Gentie will eliminate visual impacts associated the 2016-approved Original Overhead Transmission and Substation configuration.

2.2.2.9 Sound

As noted in the Noise Assessment at Appendix C, the Underground Gentie will eliminate noise impacts associated the 2016-approved Original Overhead Transmission and Substation configuration.

2.2.2.10 Climate and Air Quality

The Proposed Action will not change the previous air quality statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.2.11 Communications

The Proposed Action will not change the previous communications statements made within the prior 2018 DEIS, 2016 SDEIS, 2016 FEIS, 2016 SEQRA SOF, and 2018 FEAF documentation (Appendix A).

2.2.2.12 Traffic and Transportation

Since the current Underground Gentie Corridor is approximately within the same location as the Original Overhead Transmission and Substation Corridor there are no expected changes or negative impacts to traffic within the area and transportation routes. However, it is important to note that there will be a slight reduction in negative impacts to local roadway traffic because the lines will no longer be strung overhead at most of the local road crossings and will instead be directional drilled under the roadway.

Air Transportation

The Underground Gentie will eliminate any air transportation impacts associated the 2016-approved Original Overhead Transmission and Substation configuration.

2.2.2.13 Land Use

This section describes the potential impacts that operation of the Project will have on land use due to the replacement of the Original Overhead Transmission and Substation Corridor with the Underground Gentie Corridor and identified mitigation measures to avoid or minimize such impacts to the maximum extent practicable.

Permanent impacts resulting from conversion of natural areas to the Underground Gentie Corridor will exist for the life of the Project (20 years) (i.e., impacts on forested lands). It is expected that the Underground Gentie Corridor will be allowed to return to preconstruction conditions (i.e. re-vegetate) after decommissioning of the Project. Table 10 compares agriculture forested and developed land use/cover within the Original Overhead Transmission Corridor to the Underground Gentie Corridors as it relates to construction and operation activities.

Agricultural Land Use/Land Cover Areas

The shift and alignment of the corridor to the Underground Gentie Corridor that no longer includes the substation will result in a slight increase of impacted agricultural lands from 22.21 to 22.99 acres. However, since there are no permanent features associated with this Project modification agricultural land areas that will contain the underground and overhead collection lines will continue to be used for agricultural purposes in the future. Unlike the placement of poles and guy wires for the original +/-5.7-mile overhead transmission line, these impacts will be temporary and limited to the duration of construction and restoration. As described in the 2016 SEQRA SOF (pp. 22), activities within agricultural fields will be conducted in accordance with applicable NYSDAM guidelines to the greatest extent possible. It should be noted that even though there is a slight increase in temporary impacts caused by the switch of overhead to underground lines, NYSDAM has indicated a strong preference for the underground placement of electrical collection lines within agricultural fields.

Forested Land Use/Land Cover Areas

The underground and overhead collection ROW is considered a permanent impact as Ball Hill will maintain this land in its converted state. The ROW will be allowed to naturally revegetate; however, occasional removal of tall woody vegetation (i.e., trees) will be required for line safety. These areas will be maintained largely in an herbaceous state. Within both the overhead and underground portions of the Underground Gentie Corridor, trees will not be allowed to regenerate. This is due to the fact that fallen tree branches will jeopardize the integrity of overhead lines and tree roots will jeopardize the integrity of the underground lines. This will result in a permanent impact (loss) of approximately 28.79 acres of forested lands throughout the Underground Gentie Corridor. This number is a decrease of 3.5 acres of forested land use/land cover areas from the Original Overhead Transmission and Substation Corridor as a result of the realignment of the ROW, and the removal of the substation.

It is important to note that information from USGS Land Use/Land Cover database is generic and pixel resolution tends to be very broad, a more comprehensive analysis was conducted by digitizing forested areas shown on publicly available aerials. This analysis shows that the Overall Overhead Transmission and Substation Corridor would have resulted in approximately 39.49 acres of tree clearing whereas the Underground Gentie

Corridor will only have approximately 30.30 acres of tree clearing. This is a reduction in the amount of acreage that would be permanently tree cleared, which is due to siting more of the collection line through agricultural fields rather than mature forested areas as noted above, realigning the collection corridor, the removal of the substation, and directional drilling of forested wetlands. In order to maintain the most energy efficient route and straightest line for the collection lines to distribute energy to the Switchyard, there will need to be 30.30 acres of permanent tree clearing. Therefore, the replacement of the Overhead Transmission Line and Substation Corridor with the Underground Gentie Corridor has 9.19 fewer acres of permanent tree clearing.

Developed Land Use/Land Cover Areas

Though the impacts to developed lands have increased from 1.32 acres to 2.56 acres due to the Project modification, these impacts are considered to be temporary. The developed lands that will be crossed by the collection corridor are areas where the collection lines are crossing roads. Collection lines will either be directionally drilled under the road or hung on overhead lines, the road will not be open cut during construction and lines will be hung at a height that will not impede traffic. There will be no actual physical impact to the roads and no permanent impact to these areas due to Project operation.

TABLE 11 COMPARISON OF LAND USE IMPACTS FOR ORIGINAL OVERHEAD TRANSMISSION & SUBSTATION CORRIDOR AND UNDERGROUND GENTIE CORRIDOR[1]

	Construction Impacts (Permanent and Temporary Impacts) [acres]			Project Operational Impacts (Permanent Impacts) [acres]			Areas to be Restored to Existing Condition After Construction (Temporary Impacts) [acres]		
Land Use/Land Cover	Original OH Transmission & Substation[5]	Underground Gentie Corridor-UG[6]	Underground Gentie Corridor-OH[7]	Original OH Transmission & Substation[5]	Underground Gentie Corridor-UG[6]	Underground Gentie Corridor-OH[7]	Original OH Transmission & Substation[5]	Underground Gentie Corridor-UG[6]	Underground Gentie Corridor-OH[7]
Agricultural[2]	22.21	22.99	0	1.31	0	0	20.9	22.99	0
Forested[3]	32.29	27.27	1.52	32.29	27.27	1.52	0	0	0
Developed[4]	1.32	2.56	0	0	0	0	1.32	2.56	0
Total Acreage	55.82	52.82	1.52	33.6	27.27	1.52	22.22	25.55	0

Notes:

[1] Individual values may not add up to totals due to rounding.

[2] Agricultural land use includes the USGS Land Use/Land Cover categories of Pasture/Hay; Grassland/Herbaceous; Cultivated Crops; and Emergent Herbaceous Wetlands. Section 2.4, Wetlands, provides a summary of the acreages of wetlands that were field delineated within the survey corridor.

[3] Forested land use includes the USGS Land Use/Land Cover categories of Deciduous Forest; Evergreen Forest; Mixed Forests; Shrub/Scrub; and Woody Wetlands. Section 2.4, Wetlands, provides a summary of the acreages of wetlands that were field delineated within the survey corridor.

[4] Developed land use includes the USGS Land Use/Land Cover categories of Developed Open Space and Developed Low Intensity.

[5] Land Use calculations are on the entire original overhead 115kV Transmission Line corridor and limits of disturbance for the substation.

[6] Land Use calculations are only on the Underground Gentie Corridor where the collection lines are underground. This includes areas that will be directionally drilled. All areas will be allowed to revert back to original conditions. No trees will be allowed to re-grow within the corridor. No access roads have been included.

[7] Land Use calculations are only on the Underground Gentie Corridor where the collection lines are overhead. All areas will be allowed to revert back to original conditions. No trees will be allowed to re-grow within the corridor. No access roads have been included.

2.2.2.14 Socioeconomics

The existing socioeconomic characteristics and general conclusions for the Underground Gentie Corridor remain accurate as described in the 2016 FEIS, Section 2.13, for the Proposed Action. No adverse impacts to property values are expected as a results of the Proposed Action (Appendix G).

2.2.2.15 Cultural Resources

Architectural Resources

As discussed in Appendix F Cultural Resource Correspondence, the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) reviewed the Proposed Action and determined that it would not warrant additional architectural survey work. All Project impacts on historic architectural resources will be mitigated in accordance with the Memorandum of Agreement ("MOA") approved by OPRHP.

Archaeological Resources

As discussed in Appendix F Cultural Resource Correspondence, OPRHP reviewed the Proposed Action and determined that it would not warrant additional archeological survey work. All Project impacts on historic architectural resources will be mitigated in accordance with the Memorandum of Agreement ("MOA") approved by OPRHP.

2.2.2.16 Health and Safety

Since the proposed Underground Gentie is still within the original footprint of the Project Area, the modification will not cause any negative impacts or changes to emergency services, health and safety planning for the construction, operation, and maintenance of the Project by Ball Hill. See Section 2.15 of the 2016 FEIS which describes the Safety Management Plan (SMP), Safety Program File (SPF), Quality Management Plan (QMP), and ERP identified collectively as Ball Hill's Health and Safety Plans.

2.2.3 Mitigation

Agricultural Lands

The operation of the Underground Gentie will not result in the permanent impact to agricultural soils. Ball Hill has and will continue to coordinate with NYSDAM to develop an appropriate post-construction monitoring plan to ensure that NYSDAM guidelines are met. The Villenova Town Law governing wind energy facilities requires that "any construction or ground disturbance involving agricultural land shall be done in according to the NYSDAM's publication titled "*Guidelines for Agricultural Mitigation for Wind Power Projects*" (see Appendix B from the 2008 DEIS, and Appendix A of the 2016 SDEIS). Consistent with NYSDAM guidelines, active agricultural areas that are temporarily or permanently disturbed by construction will be monitored for two years following the completion of initial restoration. General conditions to be monitored include compaction testing, crop productivity, and condition and function of drainage features. During the monitoring period, an environmental supervisor versed in agricultural operations will be retained by Ball Hill to identify and make recommendations regarding unforeseen Project-related impacts on active agricultural lands that are found to need of additional mitigation measures. See Section 2.2.3 of the 2016 SDEIS for more specific information as it relates to monitoring and restoration of agricultural soils.

Erosion Control

Soil erosion and off-site sedimentation will be minimized through the implementation of erosion control measures to reduce unnecessary impacts and to comply with the appropriate regulations. BMPs will be implemented in conjunction with applicable guidelines (e.g., NYSDAM guidelines and SWPPP requirements). The removal of the Interconnection Substation will reduce the potential for soil erosion and off-site sedimentation to the area. However, there will be a slight increase of potential soil erosion and off-site sedimentation associated with the Underground Gentie Corridor compared to the Original Overhead

Transmission and Substation Corridor. Where possible, impacts have been reduced along steep slopes (stream riverine) by directional drilling the collection lines (1.87 acres down to 0.01 acres) rather than using an open-cut construction method. As indicated within the 2016 FEIS, a SWPPP will be prepared and implemented for the entirety of the Project.

During construction, Ball Hill will monitor the effectiveness of temporary erosion control devices in accordance with the SWPPP and Ball Hill's EMP. To ensure proper functioning, temporary erosion control devices will be monitored on a weekly basis, at a minimum, and after rain events to ensure proper functioning, as required in the New York State Standards and Specifications for Sediment and Erosion Control, and in accordance with the SPDES General Permit for Stormwater Discharges from Construction Activities and the SWPPP. Temporary erosion control structures will be maintained until the affected areas are successfully stabilized. Following successful revegetation of construction areas, temporary erosion control devices will be removed.

Mitigation measures will be applied to all disturbed areas and maintained as necessary to prevent soil erosion and sedimentation during the life of the Project. In areas in or adjacent to agricultural fields, the SWPPP will require revegetation or seeding/mulching, which will be coordinated with individual farmers so that the re-establishment of vegetation complements each farmer's operation. Restoration activities in these areas will be conducted in accordance with NYSDAM guidelines. Prior to construction, Ball Hill will document areas within the Project Site that currently have erosion and sedimentation issues so that the adequacy of restoration efforts and site drainage design can be evaluated.

Drainage

As it relates to the construction and installation of the underground collection lines, prior to and throughout construction, Ball Hill has and will continue to coordinate with individual landowners to determine the locations of all known drain tiles within the areas disturbed by the Project. This information will be provided to the installation contractors prior to the commencement of construction. Additionally, Ball Hill will coordinate with the Chautauqua County Soil and Water Conservation District to determine whether there are any records for the affected properties. If subsurface drainage tiles are encountered during construction, they will be restored in accordance with the drain tile repair specifications provided in Appendix I of the 2016 FEIS. There are no anticipated changes to the natural drainage ways of agricultural lands since all areas along the Underground Gentie Corridor will be restored to original pre-construction contours.

Water Quality

Several measures will be implemented to ensure surface water quality protection, including implementation of BMPs as set forth in the site-specific SWPPP within the 2016 SDEIS and 2016 FEIS, and the use of environmental monitoring to ensure these measures are implemented during construction. The SWPPP will require using sediment and erosion control measures and other BMPs during construction. Typical stormwater pollution prevention measures will be implemented as set forth in the SWPPP. Some examples include utilizing straw bale dikes, perimeter dikes/swales, silt fencing, stabilizing the construction entrance, stone/rock outlet sediment traps, stone check dams, level spreading, pipe slope drains, and dust control.

The SWPPP encompasses all requirements set forth by the SPDES General Permit for Stormwater Discharges from Construction Activities and will include an erosion and sediment control plan, measures for post-construction runoff control as required, and a spill prevention plan. Furthermore, during construction, sediment and erosion control devices will be monitored weekly, at a minimum, and twice weekly if more than five acres are disturbed at one time, and after precipitation events as per SPDES regulations and the NYSDEC Standards and Specification for Sediment and Erosion Control. In addition, the Town of Hanover local law requires that the SWPPP include pre-construction and post-construction drainage calculations that show a zero increase in runoff. The SWPPP will be submitted to the Towns and NYSDEC prior to construction, as required.

Typical BMPs that would be used during construction to prevent excess stormwater runoff from the construction areas include straw bale dikes, perimeter dikes/swales, silt fencing, stabilizing the construction entrance, stone/rock outlet sediment traps, stone check dams, level spreading, pipe slope drains, and dust control. For more details on these measures see the 2016 SDEIS and 2016 FEIS. Site-specific BMPs will be implemented prior to construction and will be described in more detail in the SWPPP, when developed. The SWPPP will address BMPs that will take place on site to prevent spills and, in the event of a spill, response procedures that will be used to avoid and/or minimize potential adverse groundwater and surface water

impacts. Any spillage of fuels, waste oils, other petroleum products, or hazardous materials in proximity to waterbodies shall be reported to NYSDEC's Spill Hotline (1-800-457-7362) within two hours. Any increase in stormwater discharges resulting directly from the construction of the Project will be documented in the SWPPP and, if needed, permitted through an SPDES General Permit for Stormwater Discharges from Construction Activities. Furthermore, maintenance and BMPs will be used for post-construction runoff control, as required. This will ensure that temporarily impacted features do not create more stormwater runoff than preconstruction conditions.

Groundwater

Potential significant adverse groundwater impacts will be avoided and/or minimized through SWPPP implementation of the mitigation measures and BMPs set forth in the SWPPP. All surface soils that are temporarily compacted will be de-compacted and/or mitigated as described in (see Section 2.2.1).

If shallow groundwater enters the excavated trench for the installation of the underground collection lines during installation, it may be pumped out. Any groundwater that is pumped will be discharged to an area that will either direct the flow toward existing waterbodies or temporarily retain the water until it can filter back into the ground. Specific details relating to pumping groundwater are included in the SWPPP. Temporary sediment traps or the controlled release of water over vegetated areas will be utilized during construction to intercept and manage sediment-laden runoff from dewatering. Based on engineering designs, the control practices will retain the runoff and allow sediment to settle prior to discharge. For dewatering practices, the sediment traps shall be placed adjacent to the excavated trench, with the outlet discharging to a swale, a ditch, or vegetated area.

Surface Water

Potential significant adverse surface water impacts were avoided and/or minimized by siting the Underground Gentie Corridor away from surface water resources to the extent practicable. However, it will be necessary to cross streams to install collection (underground and overhead) lines. During construction, appropriate erosion/sediment control measures (e.g., silt fences or straw bale dikes or other stormwater control measures) will be used to limit the area of impact on surface waters in accordance with USACE and NYSDEC permit requirements. However, since no NYSDEC regulated streams are being crossed or within 50 feet of the construction activities for the Underground Gentie Corridor, it is not anticipated that a NYSDEDC Article 15 permit will be needed for this portion of the Project. Any sediment runoff or increased turbidity in surface waters resulting from construction will be minimal. Other measures that will be implemented to minimize impacts on streams during construction include the following:

- Clearing of existing vegetation will be limited to the material that poses a hazard or hindrance to construction. Snags that provide shelter in streams for fish will not be disturbed unless they cause serious obstructions, scouring, or erosion. Trees will not be felled into any stream or onto the immediate stream bank.
- During periods of work activity, flow immediately downstream of the work site will approximate flow immediately upstream of the work site.
- Where streams with flow at the time of construction will be crossed, dam-and-pump procedures will be followed to control water adjacent to the work area.
- Any additional recommendations identified by NYSDEC or USACE during the permitting process.

Overhead and underground collection lines will be installed across streams. To minimize impacts, wetland mats will be used during construction to bridge streams to prevent impacts associated with equipment crossing. Any in-stream disturbance, such as trenching, will take place during dry conditions to minimize downstream impacts. If water is present at the time of crossing, Ball Hill will dewater the area using a dam-and-pump crossing to minimize stream impacts. To further minimize impacts on streams, the trench will be opened, installation accomplished, and backfilled in one continuous operation, thus limiting the duration of in-stream work. As currently designed, the collection lines are entirely underground. Woody vegetation along the stream bank will be cut in some places, but to the maximum extent practicable, stumps will be left in place to protect against erosion. Stream crossings will be engineered, designed, and installed to maintain sufficient flow during construction in accordance with applicable regulations. Due to the Project modification of overhead

transmission to underground collection, three (3) perennial stream crossings are now being avoided. In order not to disturb the bed and banks of the perennial stream crossings, which have wide stream or riverine systems, the underground collection lines will be directional drilled to minimize and avoid impacts. These methods will be provided to the Towns upon submittal of the Joint Wetland Permit Application to NYSDEC and the USACE and included in the 2016 FEIS.

Stormwater

Requirements and procedures to prevent and respond to spills during construction are a component of the SWPPP (see 2016 SDEIS, Appendix E). Ball Hill will require contractors to use BMPs for handling materials to help prevent spills. If a fuel or lubricating oil spill occurs, it will be cleaned up immediately by removing and properly disposing of any contaminated soils pursuant to applicable regulatory requirements.

For the duration of the Project, a complaint hotline will be established to address and resolve landowner complaints from Project construction or operation, which will be addressed according to the Complaint Resolution Plan described in Section 1.2.2 of the 2016 SDEIS. Ball Hill will work with an agriculture/soil conservation specialist, as required, to address and remediate any complaints received involving soils in agricultural areas. Response procedures in the event of a spill will also be described in the ERP that will be developed for the Project (see 2016 SDEIS, Appendix G).

Wetlands

With the realignment of the ROW, the removal of the ROW along the southwest side of Turbine 35 and the planned directional drilling of various portions of the underground collection lines, Ball Hill has been able to reduce its overall wetland impacts from 13.44 acres to 8.01 acres.

Minimization of Impacts to NYSDEC Wetlands

In the northern portion of the Project there are two large NYSDEC Freshwater Wetland complexes, SC-12 and SC-13, which cross the Project. In the Original Overhead Transmission and Substation Corridor alignment and the current Underground Gentie Corridor alignment there are multiple delineated wetlands that are crossed that are part of these NYSDEC complexes. However, where the original alignment was temporarily disturbing 2.82 acres, and causing 2.82 of permanent forest conversion within NYSDEC wetlands, the current corridor that utilizes a majority of underground collection lines only temporarily impacts 0.46 acres and causes 0.07 acres of permanent forest conversion. This is primarily due to the fact that with the underground collection lines, Ball Hill is using the option to directional drill under NYSDEC forested wetlands and will not maintain a collection corridor aboveground.

Mitigation for Permanent Impacts

Specifically, to the Underground Gentie Corridor, there are no permanent fill impacts to wetlands, however there is 3.74 acres of permanent forest conversion to federal wetlands, and 2.73 acres of impact to NYSDEC 100-foot adjacent areas. For those wetland impacts that cannot be avoided, Ball Hill has developed a Wetlands Mitigation Project that has been approved by the NYSDEC and ACOE and attached hereto as Appendix I.

Since all wetland impacts associated with the Underground Gentie Corridor are temporary, there is no mitigation required. No changes have been made to the Ball Hill Mitigation Plan, the amount of mitigation needed, and the requirements due to this Project modification and the reduction of wetlands that will be impacted.

Land Use

Since the Project layout has been sited in accordance with local laws, the Project is compatible with, or would not preclude, existing and potential uses. With the switch of overhead lines to underground lines there will be a slight increase in temporary disturbance of soils, however, following installation of the collection lines, topsoils will be graded and restored to original contours.

The realignment of the collection corridor was done in large part to minimize the loss of active agricultural land and the interference with active farm operations and other environmental resources. Although the replacement of the overhead lines to underground lines will result in a slight increase of construction impacts (temporary) to agricultural lands, these will be temporary, and the land will be allowed to continue to be utilized for agricultural purposes post-construction. It should be noted that NYSDAM has indicated a strong preference for underground placement of electrical collection lines within agricultural fields.

On agricultural land, all construction activities will be conducted in accordance with NYSDAM Agricultural Mitigation for Windpower Projects to the extent practicable, as required by Town Laws, and the local requirements for agricultural mitigation. Copies of these laws were provided in Appendix B of the 2008 DEIS, and Appendix A of the 2016 SDEIS. These guidelines and requirements provide guidance for the avoidance of impacts, the implementation of mitigation, and restoration of agricultural assets. The construction corridors to be used for stockpiling of topsoil and installation of collection system components are consistent with these guidelines and requirements. The temporary construction ROW will be restored per NYSDAM guidelines to the extent practicable.

Full compliance with the local law requirements for agricultural lands regulating the development of wind power facilities will reduce the impacts on agricultural land use. The local laws regulating wind energy facilities have specific agricultural mitigation measures based on the NYSDAM guidelines, which include locating structures along field edges where possible, locating access roads along ridge tops, avoiding dividing larger fields into smaller fields, and avoiding and maintaining all existing drainage and erosion control structures.

In forested areas, the Underground Gentie Corridor was sited, to the extent practicable, within previously disturbed areas, such as along existing logging roads and areas where recent logging has occurred. This is intended to minimize the clear cutting of trees. The realignment of the ROW that was facilitated by the change from overhead to underground lines, the removal of the substation, and the directional bore under the NYSDEC freshwater wetland, decreases the proposed tree clearing necessary for the construction and operation of the Project. Where the removal of any trees of economic value is necessary, landowners will be compensated based on their individual easement agreements. More detailed mitigation measures for forested areas are discussed in Section 2.5, Biological Resources.

Biological Resources

The overall impacts from construction and operation of the Project on vegetation, wildlife, and wildlife habitat are anticipated to be minimal for the Underground Gentie Corridor as a result of careful site planning and the use of BMPs. There has been a reduction in the amount of forested areas impacted as a result of the realignment of the collection lines and siting within agricultural fields. Since a majority of the current collection corridor is within the footprint of the original overhead transmission corridor, no new mitigation has been planned or proposed.

The Underground Gentie Corridor has been designed to protect existing habitats by minimizing the clear cutting of trees and, where practicable, co-locating roads and collection and transmission lines with existing logging roads and trails. In addition, temporary and permanent access roads have been located, wherever feasible, along hedge rows within agricultural fields. Where construction activities will require the removal of any trees of economic value, landowners will be compensated in accordance with their individual easement agreements. In many cases, these existing logging roads and trails have not been adequately maintained and may adversely impact streams and aquatic habitat by directly traversing these features. The Project will result in a collateral improvement to some of those existing crossings through the installation of culverts at stream crossings to accommodate access roads. This may also provide alternative routes for ATVs and other vehicles that may otherwise use off-road areas.

When construction is complete within all jurisdictional boundaries, restoration of disturbed areas will take place in a manner that prevents impacts from invasive species. An Invasive Species Management Plan (ISMP) has also been developed and will be implemented to establish revegetation by native, non-invasive species in areas disturbed by construction of the Project. The ISMP is included in the 2016 SDEIS in Appendix F, which will serve as a reference source to aid in the management of environmental issues that may potentially be encountered during construction of the Project. Furthermore, the ISMP provides framework for the daily and long-term

monitoring and reporting structure to ensure that the Project goals are accomplished within the parameters set forth in the permits issued for the Project. The ISMP is intended to be a “living” document, which will continuously evolve as the Project progresses and/or as unanticipated issues arise.

Areas temporarily impacted during the construction of the Underground Gentie Corridor will be restored to pre-construction contours and revegetated immediately following the completion of regulated activities throughout the corridor. An appropriate native seed mixture shall be applied to disturbed areas. All seed will be from local sources, to the extent possible dependent upon seed availability, and applied at recommended rates. A facultative wetland (Wet Meadow Mix) seed mixture, or an equivalent approved seed mix, will be used in the restoration of all wetland areas and riparian zones impacted by construction activities. Additional details are provided in Appendix F for the 2016 SDEIS as part of the ISMP.

Impacts on fish and wildlife will be further minimized through the implementation of BMPs. Erosion control structures will be used to prevent the off-site migration of soil and minimize impacts on fish and other aquatic species. Silt fencing will be installed along the construction ROW in all areas adjacent to wetlands, in accordance with the SWPPP. BMPs that will be used during construction to prevent excess storm water runoff from the construction areas will be implemented via the SWPPP, as discussed in Section 2.3, Water Quality. The clearing of natural vegetation adjacent to streams will be limited to the material that poses a hazard or hindrance to construction or Project facilities. Snags that provide shelter in streams for fish will not be disturbed unless they cause serious obstructions, scouring, or erosion. Trees will not be felled into any stream or onto the immediate stream bank. All in-stream work, as well as any work that may result in the suspension of sediment, shall not occur during the trout spawning and incubation period (October 1 through April 30), unless prior approval is obtained from NYSDEC. These and additional mitigation measures to protect water quality and wetlands are discussed in Section 2.3, Water Quality, and Section 2.4, Wetlands. Crossing methods and any potential impacts on protected streams and wetlands are subject to approval by NYSDEC and the USACE.

Bird and Bat Resources

The Proposed Action have resulted in no changes to bird and bat impact minimization, strategy and mitigation since the 2016 FEIS. See Section 2.6.3 of the 2016 FEIS for more information.

SECTION 3 DECOMMISSIONING

3.1 DECOMMISSIONING

Project Decommissioning will be done in accordance with the Decommissioning Plan attached in Appendix J. This Decommissioning Plan has been updated in accordance with the directive of the NYS Public Service Commission and provides for decommissioning security in the amount of its full gross estimated costs, without regard to salvage values for Project components and materials.

SECTION 4 SUMMARY OF CUMULATIVE IMPACTS

As a result of the proposed turbine height increase in the Proposed Action, a slight increase is expected in the total acreage that may have visibility by those wind projects reviewed. With the introduction of the proposed Project (2016 Layout), as well as the Arkwright Summit Wind Farm and Cassadaga Wind projects, one (1) or more structures will be theoretically visible from approximately 40.2 percent of the Project's five-mile radius study area. The total cumulative visibility of the proposed wind projects is approximately 40,645 acres.

Based on the 2017 Layout, one (1) or more structures will be theoretically visible from approximately 40.8 percent of the Projects five-mile radius study area (see Appendix B). The total cumulative visibility of the proposed wind projects is approximately 41,199 acres. This represents an increase of 554 acres when compared to the 2016 Layout.

The introduction of additional turbines within the same viewshed will increase the number of structures visible from many affected vantage points – thus creating a potential higher density of visible structures. However, visibility of the projects is dependent on viewer location/orientation, distance, and other factors. It is possible that with the additional turbines, the cumulative impact may be minimal.

It is also possible that all three (3) projects may not be visible in a single field of view. For example, views of the Project are to the east and north, whereas views of the Arkwright Summit and Cassadaga projects are to the west and south. If a viewer is at a location north of the adjacent projects and is viewing eastward, it is possible that the adjacent projects will not be visible.

Apart from cumulative visual impacts described above, no other cumulative impacts are expected from the Proposed Action.

APPENDIX A. FEAF

Appendix A. is attached.

APPENDIX B. VISUAL RESOURCE ASSESSMENT

Appendix B. is attached.

APPENDIX C. NOISE ASSESSMENT

Appendix C. is attached.

APPENDIX D. FAA DETERMINATIONS

Appendix D. is attached.

APPENDIX E. COMMUNICATIONS SIGNALS CORRESPONDENCE

Appendix E. is attached.

APPENDIX F. CULTURAL RESOURCES

Appendix F. is attached.

APPENDIX G. PROPERTY VALUES

Appendix G. is attached.

APPENDIX H. WETLAND DELINEATION REPORT

Appendix H. is attached.

APPENDIX I. WETLAND MITIGATION PLAN

Appendix I is attached.

APPENDIX J. DECOMMISSIONING STUDY

Appendix J. is attached.

APPENDIX K. BALL HILL NET CONSERVATION BENEFIT PLAN

Appendix K. is attached.

APPENDIX L. YEAR 2 EAGLE SURVEY

Appendix L. is attached.

APPENDIX M. CULTURAL RESOURCES MITIGATION PLAN (MOA)

Appendix M. is attached.

APPENDIX N. BIRD AND BAT CONSERVATION STRATEGY

Appendix N. is attached.

APPENDIX O. PUBLIC COMMENT AND RESPONSE LOG – SEPTEMBER 2019

Appendix O. is attached.