Bluestone Wind Project

Case No. 16-F-0559

1001.11 Exhibit 11

Preliminary Design Drawings

EXHIBIT 11 PRELIMINARY DESIGN DRAWINGS

The Preliminary Design Drawings, which are included in Appendix K of this Application, were prepared using computer software (i.e., AutoCAD) under the direction of a professional engineer, landscape architect, or architect who is licensed and registered in New York State and were labeled "preliminary" and/or "not for construction purposes."

(a) Site Plan

The Preliminary Design Drawings constitute the Site Plan for the Facility and have been prepared at a common engineering scale (i.e., 1" – 100'). In addition, Preliminary Turbine Foundation Drawings (Appendix L) and Buried Collection and Transmission Line Details and Substation Plan and Details, collectively the "Preliminary Electrical Detail Drawings" (Appendices E and H) were prepared in support of this Application. These drawings include the following features:

- Access roads (temporary and permanent);
- Turbine foundations, tower outline, and crane pads;[1]
- Turn-around areas to be used during turbine deliveries;
- Proposed grading (temporary grading for construction purposes and approximate final contours);
- Profiles for each access road depicting cut and fills required;
- Buried electric collection lines;[2]
- Limits of disturbance for all Facility components (turbines, access roads, buildings, electric collection lines, the collection substation, etc.);
- Clearing limits for all project components (turbines, access roads, buildings, collection lines, etc.) and the vegetation type of the potentially cleared areas;
- Permanent rights-of-way (ROW) for electric cable installations;
- Horizontal directional drilling (HDD) locations;[3]
- Collection and point of interconnection (POI) substation (i.e. switchyard) outlines, including the access driveway, battery storage,[4] and the fence line;
- The on-site concrete batch plant outline, including access way(s), property setbacks, and parking areas;

[1] Because the wind turbine foundation drawings are confidential they are not being provided with this Application, but rather will be provided to the New York State Department of Public Service (NYSDPS) under a separate cover. The Applicant is seeking the requisite confidential commercial information/trade secret protection for this information pursuant to New York Public Officer's Law § 87(2)(d) and 16 NYCRR § 6-1.3.
[2] All collection lines will be buried. The required number of circuits for each collection line route are indicated.
[3] Laydown areas and the approximate lengths of the installations are detailed for each HDD location.
[4] Located within the collection substation.

- Existing utility equipment locations and easement lines of those existing utilities including electric and gas transmission or distribution lines, cable and telecommunication lines, and any other utilities in relation to proposed Project Facilities locations;
- The operation and maintenance (O&M) building, including access way(s), property setbacks, and the parking area;[5]
- Permanent meteorological (met) towers;
- Laydown, staging and equipment storage areas, including associated access way(s) and parking areas;
- Municipal and other boundary lines, property lines, existing easements for public roadways, and other structures or uses.[6]

An illustration of the various setbacks from each turbine and other Facility components to other features (e.g., property lines) based on the Applicant's proposed setbacks is provided in Figure 11-1. The Preliminary Design Drawings depict soil types and all delineated wetlands and streams. More detailed information about wetlands and streams, is included with Exhibit 22 of this Application and the Wetland and Stream Impact Drawings (Appendix WW). See Exhibit 21 for more detailed information about soils within the Facility Site.

With respect to the concrete batch plant, the Applicant currently anticipates this feature will be located adjacent to the laydown area and the O&M building on William Law Road. General information about the temporary concrete batch plant, including a graphic depicting a conceptual layout of the plant, is included in Appendix M, Site Plan Schematics. The Applicant may rely solely on offsite suppliers for concrete or may obtain concrete from local or regional suppliers to supplement the concrete batch plant.

The Preliminary Design Drawings and other supporting drawing sets are organized by discipline—civil, electrical, and structural. Generally, the drawing sets for each of these disciplines are further organized by access road and/or turbine string or by Facility component.

The civil drawings were developed by Fisher Associates and include Preliminary Design Drawings (Appendix K) and the O&M Building Elevation Drawings (Appendix N). The Preliminary Design Drawing set is extensive and provides:

- A general site plan map;
- A map of the transportation plan;

[5] See Appendix M for further O&M building details. Specifics regarding installation of septic and water supply systems will be provided when the details regarding the O&M building are finalized.
[6] Depicted using publicly available data and based on stakeholder consultation.

- Turbine coordinates;
- General Facility design notes;
- Design cross sections for access roads, crane paths, temporarily widened area, crane pads, and crest correction;
- Construction design details, including turbine site grading, met tower pad details, intersection improvements, erosion and sediment controls, and site plans and profiles for access roads, collection lines, the collection substation, the POI substation, the O&M facility, the laydown yard, and the concrete batch plant (also see Appendix M, Site Plan Schematics).

Information is also provided regarding the soils, wetlands/waterways, tree clearing limits, limits of disturbance, rights of way, construction easements, utilities, and other relevant features found in the maps, plans, profiles, and designs above.

The O&M Building Elevation Drawings depict the elevations of both the O&M building and the O&M outbuilding.

The electrical drawings (i.e., Preliminary Electrical Detail Drawings, Appendices E and H) were developed by Mott Macdonald Group. These drawings provide details specific to the buried electric collection system, the collection and POI substations, and the 115 kV transmission line that will connect these substations. This transmission line will be approximately 200 feet long and will include two poles, one within the collection substation and one within the POI substation.

The structural drawings (i.e., Preliminary Turbine Foundation Drawings, Appendix L) were developed by WST Engineering, Incorporated, and include foundation plans, reinforcement plans, details regarding foundation sections, embedment ring details, and the anchor bolt assembly for the rock anchor and concrete mat-type foundations contemplated for the Facility. As previously noted, these drawings are being submitted separately to preserve confidentiality.

(b) Construction Operations Plan

The Preliminary Design Drawings (Appendix K) depict the location of all anticipated construction staging/material laydown areas. These areas will include construction preparation, construction equipment, and worker parking areas, and the contractor trailers/offices.

With respect to notable excavations associated with the Facility, as indicated in (a) above, the Preliminary Design Drawings include plan and profile sheets, each of which indicates the anticipated cut and fill associated with notable Facility construction activities. Therefore, notable excavations are associated with areas anticipated to experience notable cut as identified on the profile drawings. Excess soil will be stockpiled along the construction corridors and used in site restoration.

(c) Grading and Erosion Control Plans

The footprint of a wind power project is relatively small compared to a conventional energy generating facility and can be designed to fit within the existing land form. Publicly available contour data was obtained from Broome County (2-meter contour intervals). Using AutoCAD software, a three-dimensional (3D) surface was created from which 2-foot contour intervals were interpolated. Existing and proposed contours (2-foot intervals) are depicted on the plan view sheets of the Preliminary Design Drawings.

Erosion control practices consistent with the requirements of 16 NYCRR § 1001.11(c) also are shown in the Preliminary Design Drawings as are the proposed locations of permanent stormwater control measures to be used during construction. In addition, as indicated in Section (a) above, soil type information is also included in the Preliminary Design Drawings. See Exhibit 21 for information relating to depth to bedrock, preliminary cut and fill calculations, a summary of test borings conducted at a sub-set of turbine locations and substation locations, etc. Exhibit 21 also includes an overview of the stand-alone Report of Expected Geotechnical Conditions (included as Appendix JJ).

(d) Landscaping Plan

Based on the Applicant's experience, the only location potentially requiring landscaping plans would be the collection and POI substations. As indicated in the Visual Impact Assessment (VIA) prepared for the Facility, the collection substation is located on a hillside in an area with relatively high topographic relief and is surrounded by a mixed successional forest (see Exhibit 24 for additional information). Two visually sensitive resources are found within 1-mile of the proposed collection substation, the State/National Register of Historic Places (S/NRHP) eligible Merrill (Parkhill) Cemetery and Neils Creek Public Fishing Stream; however, the collection substation will not be visible from either of these resources. Because the visibility and visual impact associated with the collection substation is anticipated to be minimal (see Exhibit 24), no conceptual landscape screening plans are proposed. Snow plowing will occur along driveways. Snow storage will be located along the edges of driveways and parking areas (see Preliminary Design Drawings).

Tree and vegetation clearing will be limited to the minimum necessary for Facility construction. The Preliminary Design Drawings depict the Facility footprint and the extent to which trees may need to be removed. With respect to the anticipated acreage of tree removal, see Exhibit 22. An on-site inventory and survey of all trees to be removed is not included in this Application.

Across the Facility Site, it is not anticipated that the Facility will have a significant adverse visual impact on historic resources listed in or eligible for listing in S/NRHP (see the Visual Impact Assessment, Appendix ZZ). Therefore, the Applicant has not proposed using vegetation as mitigation to address potential visual screening needs at historic resources or community or cultural sites. See Exhibit 20 for additional information on cultural resources.

(e) Lighting Plan

Lighting specifications for FAA lights on turbines and typical lights to be used at the substations and O&M facility are discussed in Exhibit 18 and the Site Security Plan (Appendix U). Manufacturer cuts sheets for Facility lighting are not readily available to the Applicant at this time. However, a detailed Facility Exterior Lighting Plan ("Lighting Plan") will be submitted as a compliance filing for review and approval no later than 30 days prior to the commencement of construction. The elements to be addressed in the Lighting Plan (e.g., the use of task lighting and full cut-off fixtures) are also outlined in the Site Security Plan.

(f) Architectural Drawings or Typical Details

The Applicant proposes to build a new O&M building as shown on the Preliminary Design Drawings (see Appendix K) Typical architectural drawings of the O&M building, indicating height above grade, are included in the O&M Building Elevation Drawings (Appendix N). These drawings are based on the Applicant's standard O&M building design, layout and specifications, and current industry standards along with specific state building code requirements and local law provisions. The drawings indicate the anticipated length, width, height, material of construction, color and finish of the building. Note that these drawings are presented for informational purposes only, as changes to the O&M building drawings may be necessary following Certification. If the Applicant opts to purchase an existing building to utilize for O&M purposes, the layout and architecture of the building will comply with all requisite building standards, provisions, and specifications. The O&M building is the only stand-alone building, aside from the substation, the Applicant anticipates constructing as part of the Facility.

The Preliminary Turbine Foundation Drawings (Appendix L) depict anticipated turbine foundations to be used in the construction of the Facility; as previously noted, however, these drawings are confidential and will be filed separately under protective cover.

The Preliminary Design Drawings and Preliminary Electrical Detail Drawings (Appendices E and H) include a preliminary design, including height above grade, of the collection and POI substations and the transformer oil spill containment systems and battery storage component. As with the O&M building, these typical drawings may also change following Certification based on a final design.

(g) Typical Design Detail Drawings

The Preliminary Design Drawings and various appendices of this Application, detailed below, contain typical design details for all Facility components:

- Access roads (Preliminary Design Drawings, Appendix K);
- Buried electric collection lines (Buried Collection Line Details, Appendix E), including single and multiple-circuit layouts with proposed depth and level of cover, separation requirements between circuits, limits of disturbance for construction and operation, and required permanent ROWs;
- Horizontal directional drilling locations (Preliminary Design Drawings, Appendix K), including staging area/bore pits;
- On-site concrete batch plant (Appendix M);[7]
- Overhead transmission line between collection and POI substations (Preliminary Design Drawings in Appendix K and Transmission Line Details in Appendix E),[8] including typical elevations, height above grade, structure layouts, clearing width limits for construction and operation of the Facility, permanent ROW widths, average span lengths for each proposed layout, and structure separation requirements (for installations containing more than one pole, etc.) for all single and multiple-circuit layouts;
- Turbine laydown areas (Preliminary Design Drawings, Appendix K);
- Typical wind turbine technical and safety manuals (Appendix O). Note that the wind turbine technical and safety manuals are confidential and will be provided to NYSDPS under separate cover. The Applicant is seeking the requisite confidential commercial information/trade secret protection for this information pursuant to New York Public Officer's Law § 87(2)(d) and 16 NYCRR § 6-1.3;
- Wind turbine brochures (Appendix I); and
- Wind turbine foundations (Appendix L; filed separately under protective cover).

[7] Preliminary estimates indicate that 60 concrete truck trips per turbine foundation will be required, for an approximate total of 1980 trips. See Exhibit 25 for additional information.

[8] This span of overhead transmission line would be short, approximately 200 feet.

(h) Interconnection Facility Drawings

A single line drawing of the POI substation is included in the System Reliability Impact Study (SRIS), which is Critical Energy/Electric Infrastructure Information and has been filed under protective cover as Appendix D. Additional details on the POI substation will be available once the Facilities Study is complete (which will be after the Certificate is issued by the Siting Board). The general arrangement of the POI substation is included in the Preliminary Design Drawings (Appendix K) and the Substation Plans and Details (Appendix H).

(i) Engineering Codes, Standards, Guidelines, and Practices

The list of codes and standards that have been and will be considered during the design, construction, operation and maintenance of this Facility is extensive. The following is provided as a representative list of applicable codes and standards, which will be updated following Certification, during final design:

- The Aluminum Association (AA)
- American Association of State Highway and Transportation Officials (AASHTO)
- American Concrete Institute (ACI)
- American Institute of Steel Construction (AISC)
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- American Society for Testing and Materials (ASTM)
- American Welding Society (AWS)
- Concrete Reinforcing Steel Institute (CRSI)
- Edison Electric Institute Publications (EEI-AEIC)
- Federal Energy Regulatory Commission (FERC)
- Insulated Cable Engineers Association (ICEA)
- International Electro-technical Commission (IEC)
- Institute of Electrical and Electronics Engineers (IEEE)
- Mine Safety and Health Administration (MSHA)
- National Bureau of Standards (NBS)
- National Electrical Manufacturers Association (NEMA)
- National Electric Safety Code (NESC)
- National Electrical Testing Association (NETA)
- National Fire Protection Association (NFPA)

- National Institute of Standards and Technology (NIST)
- National Ready Mixed Concrete Association (NRMCA)
- Occupational Safety and Health Administration (OSHA)
- Portland Cement Association (PCA)
- Rural Electrification Administration (REA)
- Society of Automotive Engineers (SAE)
- Society for Protective Coatings (SSPC)
- Uniform Building Code (UBC)
- Underwriter's Laboratories, Inc. (UL)

(j) Flood Hazard Areas

The Special Flood Hazard Area (SFHA or "100-year floodplain") associated with Oquaga Creek crosses the center of the Facility Site (see Figure 4-7). A portion of the collection line will cross Oquaga Creek and the associated SFHA. At the location identified, the crossing will be implemented via horizontal directional drilling (HDD). As a result, no filling in the floodplain or floodway is proposed. Additional construction phase protection measures for work in the floodplain are described in Exhibit 23. No other Facility components will be sited within or adjacent to the 100-year floodplain.