EXCELSIOR ENERGY CENTER

Case No. 19-F-0299

1001.23 Exhibit 23

Water Resources and Aquatic Ecology

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Exhibit 23: Water Resources and Aquatic Ecology

This Exhibit will track the requirements of Stipulation 23, dated July 6, 2020, and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) § 1001.23.

23(a) Groundwater

(1) Hydrologic Character

According to the Natural Resources Conservation Service (NRCS), the average representative depth to the water table within the Project Area is 32 inches (0.81 meter) and the average depth to a restrictive layer is approximately 6.3 feet (1.92 meters). This data was obtained from the United States Department of Agriculture (USDA) NRCS Web Soil Survey tool, which lists depth to restrictive layers and water table by soil map unit for a given area of interest. Findings of the geotechnical investigations on site indicate groundwater at depths ranging from 0 to 25 feet below existing grades; however, groundwater conditions may vary by season and weather conditions. Subsurface conditions generally indicate bedrock depth at 28 feet within the Project Area. The Geotechnical Engineering Report is provided as Appendix 21-1. For purposes of the Application, this information is depicted visually in Figure 21-3 in Exhibit 21. High groundwater at the Project Area is expressed in some wetlands and ponds on site as surface water features. Figure 23-2 depicts the depth to high groundwater across the Project Area. These features will be largely avoided, except as noted in Section 22(m) of Exhibit 22. In no location is bedrock presumed to be exposed at the Project Area.

At the depths estimated by the NRCS soil survey, and as encountered by the geotechnical survey, most construction is not expected to intercept or affect groundwater on site. Posts will be embedded to depths between 6 feet and 12 feet. Temporary dewatering may be required during construction if perched water, groundwater, or seepage is encountered.

Conditions encountered during subsurface investigations are generalized as depicted below in Table 23-1.

Table 23-1. Generalized Geotechnical Review Results

Model Layer	Layer Name	Depth to Bottom of Stratum (feet)	Material Description
Layer 1	Surficial	0 to 1.5	Black and brown topsoil.

Table 23-1. Generalized Geotechnical Review Results

Model Layer	Layer Name	Depth to Bottom of Stratum (feet)	Material Description
Layer 2	Native Layer	25	Clay, silt, and sand and gravel mixtures; occasional cobble fragments; red-brown to gray.
Layer 3	Weathered Bedrock	28	Completely to slightly weathered shale or dolostone; gray to olive-gray.
Layer 4	Bedrock	35 (maximum depth explored)	Shale: unweathered to slightly weathered gray; medium strong, thinly bedded, fractured with occasional gypsum seams.
Source: Terracon, 2019			

(2) Map of Groundwater Aquifers and Groundwater Recharge Areas

To enhance and promote proper development, management, and protection of the unconsolidated aquifers of upstate New York, the United States Geological Survey (USGS) has completed hydrogeologic mapping projects in cooperation with New York State and local agencies. The distribution and hydrogeologic characteristics of the unconsolidated aquifers are presented at the 1:250,000 scale in a series of five maps that were published in 1988 in cooperation with the New York State Department of Environmental Conservation (NYSDEC). More detailed hydrogeologic maps are available for selected aquifers at 1:24,000 scale. Since 1980, 33 of these aquifer maps have been published in cooperation with the NYSDEC, the New York State Department of Health (NYSDOH), and various local agencies. The aquifer maps generally include a series of 1:24,000 maps showing aquifer boundaries, surficial geology, location of wells and test holes, and the water-table or potentiometric surface (USGS, n.d.). Aquifer maps for Genesee County are available in the USGS Water Resources Investigation Report 85-4096, which was published in 1986.

Sole source aquifers are defined by the United States Environmental Protection Agency (EPA) as aquifers that supply at least 50% of the drinking water for their service areas; and there are no reasonable alternative drinking sources should these aquifers become contaminated. The nearest sole source aquifer is the Cattaraugus Creek Basin Aquifer located in Wyoming County, New York; approximately 32 miles south of the nearest point within the Project Area (EPA, 2017). Refer to Figure 23-1 for a depiction of this aquifer.

The Project Area does not overlay any NYSDEC-listed primary aquifers. Primary aquifers are defined by the USGS and the NYSDEC as “highly productive aquifers presently utilized as sources of water supply by major municipal water supply systems” (NYSDEC, 1990). The closest primary aquifer is the Tonawanda Aquifer with its watershed and closest point starting slightly over 3 miles south of the Project Area’s southern limit (Terry et al., 1986). The Batavia Aquifer underlies approximately 23 square miles of the Tonawanda Creek Valley in Batavia, New York; its closest point is approximately 2.3 miles southwest of the Project Area (Terry et al., 1986). Water within the aquifer generally flows from southwest to northeast and infiltration rates vary from less than 0.2 inches per hour to greater than 2.0 inches per hour (Terry et al., 1986). This aquifer is primarily used as a source of water for rural residents, industry, and community water systems within central Genesee County with well yields in this area ranging from as low as 50 gallons per minute (gpm) along the perimeter of the aquifer to 9,000 gpm at the center and deepest portions of the aquifer (Terry et al., 1986).

The Project Area does not overlay any NYSDEC-listed principal aquifers. Principal aquifers, per the NYSDEC, are aquifers known to be highly productive, or whose geology suggests abundant potential water supply, but which are not intensively used as sources of water supply by major municipal systems at the present time. Based on topography of the Project Area, groundwater flows to the northeast.

According to the *Principal Aquifers of the United States* (USGS, 2003), the Project Area does not overlay a USGS-listed principal aquifer. The USGS defines a principal aquifer as “a regional extensive aquifer or aquifer system that has the potential to be used as a source of potable water” (USGS, 2003). Groundwater aquifers and groundwater wells are mapped on Figure 23-1. The data on groundwater aquifers and recharge areas was obtained through the NYSDEC Division of Water Resources, Bureau of Water Management. Specific information pertaining to local mapped groundwater aquifers and groundwater wells are described in detail below.

Based upon review of the USGS mapping, the Project Area does not contain any portion of a principal aquifer (USGS, 2003). Portions of the USGS identified principal aquifer, the New York and New England carbonate-rock aquifer, sit to the north and south of the boundaries of the Black Creek watershed, in which the Project Area is located, and trend east to west across New York State (Autin, Noll, & Zollweg, 2003). There is a USGS groundwater monitoring site (USGS 430146078101301 Local number, Gs-217), near Batavia, New York, approximately 3 miles west of the Project Area. According to data collected at this USGS groundwater site, the average

annual depth to the New York and New England carbonate-rock aquifer's water level is approximately 74.6 feet below land surface (USGS, 2020).

In order to identify existing groundwater wells within the Project Area, Freedom of Information Law (FOIL) (Public Officers Law, Article 6 Sections 84-90) request letters were sent to the NYSDOH, NYSDEC, Genesee County Soil and Water Conservation District (GCSWCD), and the Genesee County Public Health Department to identify the locations of existing water wells within 500 feet of the Project Area. In addition, though no blasting is proposed, the Applicant also sent letters requesting locations of wells within 2,000 feet of the Project Area to conservatively account for potential blasting and array post installation locations, as applicable. These letters requested any information pertaining to groundwater wells (including location, construction logs, depths, and descriptions of encountered bedrock) within and near the Project Area as described above. A response from NYSDOH was received on April 22, 2020 and a response from GCSWCD was received on March 25, 2020. These responses are detailed below.

A consultation letter was sent to the NYSDEC on March 20, 2020, requesting water well completion reports. No data has been received from the NYSDEC as of the filing of this Application. The NYSDEC's Water Well Program Information Search Wizard was also consulted. The records were compiled in a spreadsheet showing location coordinates, depth, and yield of the wells. All records obtained from the NYSDEC are included in Appendix 23-1 and locations of wells obtained from the records are mapped in Figure 23-1 (note that only wells that actually provided coordinates in their well completion reports were included in Figure 23-1). Additionally, publicly available data from the NYSDEC indicated that two public water extraction locations exist outside of the Project Area. These public water extraction locations include the L-Brook Farms water withdrawal, located approximately 0.5 miles south of the intersection of Cockram Road and Batavia Byron Road; and the Star Growers Farm water withdrawal, located near the intersection of Starowitz Road and Walkers Corners Road. Both of these identified public water extraction locations are used as a public water source for agricultural activities. They are not identified as being used as a public source of potable drinking water. The locations of these public water withdrawals can be seen on Figure 23-1. Copies of the FOIL letters and responses received are included in Appendix 23-1.

A FOIL request letter was also sent to the NYSDOH on March 20, 2020, requesting data on wells within the Project Area. The NYSDOH responded on April 22, 2020 stating that they do not maintain these types of records and requests of this nature should be directed to the NYSDEC.

As previously stated, the NYSDEC was contacted regarding this matter on March 20, 2020 and a response has not yet been received. See Appendix 23-1 for copies of correspondence.

A FOIL request letter was sent to the Genesee County Public Health Department on July 22, 2020. A FOIL request letter was also sent to the GCSWCD on March 23, 2020, requesting groundwater well information within the Project Area. The GCSWCD responded on March 25, 2020, stating that they do not keep record of this information and suggested reaching out to the Genesee County Public Health Department. No data has been received from the Genesee County Public Health Department as of the filing of this Application.

(3) Impacts on Groundwater Quality and Quantity

As stated above, no permanent impacts to aquifers (primary, principal, or sole source) or groundwater in general are anticipated to result from this Project. Potential for minor and temporary adverse impacts to the local water resources will be avoided or minimized through the use of best management practices (BMPs), including measures proposed in the Stormwater Pollution Prevention Plan (SWPPP) provided as Appendix 23-3.

Temporary impacts to groundwater could potentially occur through the introduction of pollutants from inadvertent discharges of petroleum or other chemicals used during the construction, operation, or maintenance phases of the Project. These discharges could result from mechanical failures in construction, operation, and maintenance equipment, and through spills during the refueling of equipment. Impacts to groundwater, however, are not anticipated due to the implementation of required avoidance and minimization, measures, which will be strictly adhered to. These measures will be outlined in the Project's Preliminary Spill Prevention, Containment, and Control (SPC) Plan that will be completed upon receipt of the Certificate and submitted to the Secretary or as part of a Compliance Filing prior to construction/operation of the Project.

The Project will add only a small area of impervious surface to the landscape through the placement of equipment pads, the collection substation, and related Point-of-Interconnection (POI) facilities. These impervious areas will be dispersed throughout the Project Area and will have at most a negligible effect on groundwater recharge for the local region. The construction of these impervious surfaces is typical of construction projects throughout New York State with methods approved by the NYSDEC. Beneath the solar arrays and within the overall majority of the Project Area will be pervious land cover (grass) that will allow for continued infiltration of stormwater runoff as occurs under existing site conditions.

Within the Project Area, depths to the seasonal high-water table is approximated to range from the surface in isolated areas, to approximately 19 feet below ground level. It is presumed that groundwater may be encountered in poorly drained soils, areas with a characteristic shallow water table, areas which contain seasonally perched groundwater, or areas where semi-impervious or impervious layers of substrata do not permit groundwater to permeate deeply within the soil profile (i.e., aquitards and aquicludes). Furthermore, the ponding of surface waters and the pooling of water due to significant precipitation events could occur in open excavation areas or depressions during the construction phases of the Project.

To further minimize impacts to groundwater, pier, and post-driving activities will not be conducted within 100 feet of any existing active water well. Additionally, the Applicant will utilize a qualified third party to conduct testing of potability of water wells both prior to construction and following the completion of construction. The Applicant will conduct potability testing for active water wells of a non-participating parcel (provided the Applicant is granted access by the property owner) should the well exist within 100 feet of Project collection lines or access roads, 200 feet of pier and post installation activities, and 500 feet of any horizontal directional drilling (HDD) operations.

Project construction and operation is not anticipated to cause any impacts to drinking water. Measures contained in the SWPPP and SPC will be taken to avoid or minimize, for any possible significant adverse impacts to surface water and groundwater. Additionally, the Project will not have adverse impacts on public or private water wells. If a resident feels that their well water has been adversely affected by Project construction or operation, they may file a formal complaint to the Applicant through the Complaint Resolution Plan (see Appendix 12-3).

Plans for notification and complaint resolution during construction of the Project for owners/operators of public and private wells within a 1-mile radius of the Project Area are detailed in Section 12(d) of Exhibit 12 of this Application and the full Complaint Resolution Plan is available in Appendix 12-3. If, as a result of project construction, should an active potable water well no longer meet federal or state potable water testing, the Applicant will work with the well owner to reach an agreeable resolution.

(4) Private Well Survey Results

To help collect information on private wells adjacent to the Project Area, 254 well survey questionnaires were mailed to landowners of tax parcels within 500 feet of the Project Area. As previously noted, though no blasting is proposed, the Applicant also sent well surveys to

landowners of tax parcels within 2,000 feet of the Project Area to conservatively account for potential blasting and array post installation locations. Included in the survey were questions about whether the parcel had well(s) on it, the size, yield, depth, and quality of water obtained from well(s) on the property, location in relation to any buildings on the property, if any type of water treatment system had every been installed at the property, and if any issues had ever occurred with wells identified on the property. The letter also contained a phone number to reach a TRC consultant if the recipient had any questions, along with a stamped self-addressed envelope to facilitate returns back to TRC on behalf of the Applicant. TRC received 204 responses to the surveys. Out of the 204 survey respondents, 91 indicated they have wells currently in use on their property. A total of 113 landowners stated that they did not have wells currently in use on their property. See Figure 23-3 for approximate well locations as identified through surveys.

Based on the results and level of detail provided within each response, the depths of private wells ranged from approximately 19 feet to 165 feet below grade with most identified wells drilled to depths around 48 feet. Amongst survey responses in which landowners indicated the presence of a well on their property, 8% indicated that water quality was good, while 17% of surveys indicated that water quality was poor due to a sulfur and iron smell or taste, or hardness. However, these landowners primarily utilized this water for outdoor activities such as gardening and utilized the existing public water supply for drinking water. Of the 203 survey responses received indicating that landowners did not have a well currently in use on their property, 39 stated that this was because public water was now available or in use. Completed responses are attached in Appendix 23-2; however, they are redacted and submitted confidentially to protect the privacy of respondents. The proposed Project will be sited in a manner that will avoid or minimize impacts to private wells. Therefore, impacts are not anticipated to occur due to Project construction or operation. As previously stated, if an active potable water well no longer meets federal or state potable water testing parameters as a result of Project construction, the Applicant will work with the well owner to reach an agreeable resolution.

23(b) Surface Water

(1) Surface Water Map

The locations of surface waters, including the Bigelow Creek, Black Creek, Mill Pond (incorrectly referred to as Mill Brook in the stipulations), Robins Brook, Spring Creek, Byron-Bergen Swamp, and several unnamed waters within the Study Area are mapped in Figure 23-4. This map was generated from publicly available data from the NYSDEC, Environmental Systems Research

Institute (ESRI), USGS, National Wetland Inventory, and waterbody data collected during on-site waterbody and wetland delineations. On-site survey data for surface waters was also provided to NYSDEC and New York State Department of Public Service (NYSDPS) as shapefiles and in tabular format that can be cross-referenced to the maps.

(2) Surface Water Characteristics

The Project is located in the USGS-defined Lake Ontario and Minor Tributaries, Hydrologic Unit Code (HUC) 041300. The Project Site is located within the USGS defined Lower Genesee sub-basin (HUC 04130003), Black Creek watershed (HUC 0413000306), and the Black Creek Headwaters sub-watershed (HUC 041300030602) as well as the Robins Brook-Black Creek sub-watershed (HUC 041300030603) and the Spring Creek watershed (HUC 041300030601).

The Study Area is located within the NYSDEC-defined Genesee River Watershed, a 2,373-square mile drainage area, whose upper basin is in the Allegheny Plateau in Northern Pennsylvania, while the majority of the basin is in New York State. The Genesee River begins in Pennsylvania and flows north into Lake Ontario. The Project is within the Black Creek watershed (HUC 0413000306). The Black Creek watershed is primarily agricultural land with some residential and commercial land use (Autin, Noll, & Zollweg, 2003). Therefore, the watershed is impacted by various nonpoint source pollution from agricultural activities and municipal discharge (Autin, Noll, & Zollweg, 2003). Within the Project Area, two aquatic invasive species have previously been documented, including common carp (*Cyprinus carpio*) and phragmities (*Phragmites australis ssp. australis*) (iMapInvasives, 2020). TRC biologists also observed phragmities during field efforts. A complete list of plant and animal species that occur within the Project Area can be found in Appendix 22-1.

The NYSDEC has classified waterbodies state-wide according to their best use, as either AA, AA(T), A, A(T), B, B(T), C, C(T), or D. Class AA or A waterbodies are of the highest water quality. AA or A classes indicate that the best uses of the waterbody are as follows: a source of water supply for drinking, culinary, or food processing purposes, primary and secondary contact recreation, and/or fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The best usage of Class C waters is fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. The best usage of Class D waters is fishing. Due to such natural conditions as intermittency of flow,

water conditions not conducive to propagation of game fishery, or stream bed conditions, the waters will not support fish propagation. These waters shall be suitable for fish, shellfish, and wildlife survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning events. Certain waters of the state are listed as protected due to their classification level.

Waterbodies with a classification of AA, A, or B, or with a classification of C with a standard of (T) or (TS) are collectively referred to as "protected waterbodies," and are subject to the provisions of the Protection of Waters regulations. Special requirements apply to sustain (T) and (TS) waters that support sensitive fisheries resources. Table 23-2 below lists NYSDEC-mapped waterbodies within the Project Area and their state classifications. Figure 23-4 portrays their locations relative to the Project Area. In addition to those NYSDEC-mapped waterbodies listed below, a number of small unnamed and unmapped (by NYSDEC) waterbodies and tributaries are also present within the Project Area. Those waterbodies within 500 feet of any Project Components have been mapped and identified on Figure 23-4.

Table 23-2. NYSDEC-Mapped Streams within the Study Area

NYSDEC Stream Name	New York State Major Drainage Basin	USGS HUC 8 Sub-basin and Name	NYSDEC Classification[1] and Standard[2]
Black Creek and Minor tributaries (821-19)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Black Creek and Minor tributaries (821-20)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Black Creek and Minor tributaries (821-40)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Black Creek, Middle, and Minor tributaries (821-51)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Spring Creek and tributaries (821-41)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Spring Creek and tributaries (821-42)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C(T)
Spring Creek and tributaries (821-44)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Spring Creek and tributaries (821-45)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C(T)

Table 23-2. NYSDEC-Mapped Streams within the Study Area

NYSDEC Stream Name	New York State Major Drainage Basin	USGS HUC 8 Sub-basin and Name	NYSDEC Classification[1] and Standard[2]
Spring Creek and tributaries (821-46)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Bigelow Creek and tributaries (821-51)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Bigelow Creek and tributaries (821-52)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C
Bigelow Creek and tributaries (821-61)	Lake Ontario and Minor Tributaries	41300003 (Lower Genesee sub-basin)	C/C

1. A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Waters with a classification of D are generally suitable for fishing and non-contact recreation.
2. Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning.

Wetland and waterbody delineations occurred in the spring of 2019 between May 28 and June 20. A supplemental delineation effort was conducted on June 1, 2020. A vernal pool survey occurred during the spring of 2020 on March 30 and the 31. A full description of the wetland and waterbody delineation methodology and the results of the surveys can be reviewed in the Wetland and Stream Delineation Report located in Appendix 22-6. A description of the methodology and results of the vernal pool surveys can be reviewed in the Vernal Pool Memo located in Appendix 22-5. A total of 24 stream features were identified during the delineation efforts. These stream features incorporate portions of the aforementioned mapped streams in addition to unmapped streams identified by field staff. Streams were documented as having perennial, intermittent, or ephemeral flows.

(3) Downstream Drinking Water Supply Intakes

There are six water districts in the Town of Byron as identified in the Town's Comprehensive Plan. Public water is provided to the Town of Byron by the Monroe County Water Authority through the Genesee County Public Water Supply Program. The nearest drinking water intake downstream from the Project Area is the Shoremont Water Treatment Plant, operated by the City of Rochester in Monroe County, New York. The Shoremont Water Treatment Plant is located on Lake Ontario in the City of Rochester near the mouth of the Genesee River, approximately 24 miles northeast

of the Project Area at latitude and longitude 43.2677 and -77.6483. At a distance of approximately 24 miles, there will be no impacts to this surface water drinking supply resulting from the Project development or operation.

(4) Surface Water Impacts

Project Components have been sited to avoid temporary or permanent impacts to wetlands and waterbodies to the maximum extent practicable. Refer to Section 22(n) of Exhibit 22 for a more detailed discussion of wetlands and measures employed to avoid and minimize potential impacts thereto. Certain construction activities have potential to result in direct and/or indirect impacts to surface waters. These activities include the installation of access roads, upgrading of existing farm lanes, installation of collection lines, and the development of temporary staging areas and workspaces around the solar arrays and substation. Impacts related to the construction of access road and collection line crossings will be minimized to the maximum extent practicable by utilizing existing crossings and by crossing at narrow wetland and waterbody locations where feasible. In addition, implementation of the BMPs in the SPC and SWPPP will avoid or minimize impacts to the maximum extent practicable.

The Applicant evaluated potential temporary and permanent impacts to surface waters resulting from the construction and operation of the Project based on the Project design as shown in the Preliminary Design Drawings (Appendix 11-1). Construction of the Project is anticipated to result in approximately 13.5 linear feet of temporary disturbance and no permanent disturbance to waterbodies identified during on-site wetland and stream delineation.

Impacts to wetlands and streams have been largely avoided to the maximum extent practicable through the siting of Components away from wetlands and waterbodies. Where these wetlands and waterbodies were unavoidable for collection line crossings, the Applicant is proposing the use of HDD to avoid impacts. Finally, where an access road crossing resulted in impacts to these resources, the Applicant sited stream crossings in locations of existing access ways, or along narrow sections of stream channels to reduce impact numbers. Table 23-3 lists a summary of the potential impacts to waterbodies identified in close proximity to Project Component placement and construction.

Table 23-3. Impacts to Streams

Field ID	Flow Regime1	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification4 and Standard5	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component2	Method of Crossing3
S-JJB-01	RIN	285.43	USACE	-	0.00	0.00	-	-
S-JJB-02	RIN	504.48	USACE	-	0.00	0.00	-	-
S-JJB-03	RIN	759.67	USACE	-	0.00	0.00	-	-
S-JJB-04	RIN	668.58	USACE	-	0.00	0.00	-	-
S-JJB-05	RUP	3,121.61	USACE/NYSDEC	C	0.00	0.00	-	-
S-JJB-06	RUP	5,258.29	USACE/NYSDEC	C (T)	7.54	0.00	LOD	HDD
S-JJB-07	RIN	156.98	USACE	-	0.00	0.00	-	-
S-JJB-08	RIN	444.42	USACE	C	0.00	0.00	-	-
S-JJB-09	RIN	34.02	USACE	C	0.00	0.00	-	-
S-JJB-10	RIN	217.69	USACE	C	0.00	0.00	-	-
S-JJB-11	RUP	60.61	USACE	-	0.00	0.00	-	-
S-JJB-12	RUP	7,013.80	USACE/NYSDEC	-	5.95	0.00	Collector Lines	HDD
S-JJB-13	RIN	615.44	USACE	-	0.00	0.00	-	-
S-JJB-14	REPH	677.97	USACE	-	-	-	-	-
S-JJB-15	RIN	81.12	USACE	-	-	-	-	-
S-JDV-01	RUP	7,043.12	USACE/NYSDEC	C(T)	-	-	-	-
S-JDV-02	RIN	238.41	USACE	-	-	-	-	-
S-JDV-03	RIN	105.61	USACE	-	-	-	-	-

Table 23-3. Impacts to Streams

Field ID	Flow Regime1	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification4 and Standard5	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component2	Method of Crossing3
S-JDV-04	RIN	1,044.34	USACE	-	-	-	-	-
S-JDV-05	RIN	1,520.45	USACE	-	-	-	-	-
S-JDV-06	RIN	297.44	USACE	-	-	-	-	-
S-WSH-01	REPH	297.44	USACE	C	-	-	-	-
S-WSH-02	REPH	751.87	USACE	-	-	-	-	-
S-WSH-04	RIN	463.43	USACE	-	-	-	-	-
S-IBP-1	RUP	493.00	USACE	C	-	-	Collector Lines	HDD
S-IBP-2	RUP	1,186.00	USACE	C	-	-	Collector Lines	HDD
S-IBP-3	RIN	361.00	USACE	C	-	-	-	-

1. Flow Regime: REPH – Ephemeral, RIN – Intermittent, RUP – Perennial, UNK – Unknown
2. Project Component: LOD – Limit of Disturbance
3. HDD – Horizontal Directional Drilling
4. A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Waters with a classification of D are generally suitable for fishing and non-contact recreation.
5. Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning

As indicated in Table 23-4 and on the Preliminary Design Drawings in Appendix 11-1, there will be a total of 4 waterbody crossings. Of the total waterbody crossings, none will include impacts to NYSDEC-protected waterbodies, which are regulated under Article 15 of the Environmental Conservation Law. Additionally, waterbodies will not be temporarily or permanently impacted by the crossings. Crossings will be constructed in accordance with NYSDEC and United States Army Corps of Engineers (USACE) regulations and permit conditions. The Project will use a selection of the following proposed BMPs to prevent and reduce stream impacts: temporary equipment bridge, dam and pump stream crossing, HDD, dewatering basin, sediment filter bag, stream bank matting, and trench plugs. Final BMPs will be submitted to the Secretary or as part of a Compliance Filing.

Anticipated temporary and permanent impacts to delineated wetlands containing open waters, resulting from Project-related construction and operation, were calculated. Table 23-4 below lists all associated open-water wetlands within the Project Area. No Project Components have been sited within or adjacent to these open water wetlands. Therefore, construction and operation of the Project is anticipated to result in no permanent or temporary disturbance to open-water resources.

Table 23-4. Impacts to Open Water Wetlands (Ponds)

Field ID	Type1	Acres Within Project Area	Potential Jurisdiction	Temporary Impact (Acre)	Permanent Impact (Acre)	Related Component
W-JDV-03	PEM/PUB	0.13/0.17	USACE	0	0	-
W-JDV-15	PUB	0.27	-	0	0	-
W-JJB-02	PUB	0.17	-	0	0	-
W-JJB-17	PFO/PUB	5.58/0.64	-	0	0	-
W-JJB-18	PUB	0.04	-	0	0	-
W-JJB-19	PUB	32.80	USACE/ NYSDEC	0	0	-
W-JJB-22	PEM/PSS/PFO/PUB	2.56/4.48/2.37/0.26	USACE/ NYSDEC	0	0	-
W-JJB-23	PEM/PUB	0.07/0.65	USACE	0	0	-
W-JJB-28	PUB	0.14	-	0	0	-
W-JJB-31	PEM/PSS/PUB	4.28/1.68/4.53	USACE	0	0	-
W-JJB-33	PEM/PFO/PUB	1.10/8.95/0.16	USACE	0	0	-

Table 23-4. Impacts to Open Water Wetlands (Ponds)

Field ID	Type1	Acres Within Project Area	Potential Jurisdiction	Temporary Impact (Acre)	Permanent Impact (Acre)	Related Component
W-WSH-08	PUB	0.14	USACE	0	0	-

1. Type: PEM – Palustrine emergent, PSS – Palustrine scrub-shrub, PFO – Palustrine forested, PUB - Palustrine unconsolidated bottom

The Applicant will take measures to avoid or minimize siltation events pursuant to the Final SWPPP. A preliminary SWPPP is contained in Appendix 23-3 of this Application.

As explained in detail earlier in this Exhibit, there are no surface drinking water intake sites in the Project Area, nor are there any intake sites downstream of the Project Area within the Study Area. Based on the information obtained, the Project will not result in impacts to water supply intakes. The Applicant will take all practicable measures to avoid or minimize, any significant adverse impacts to surface waters through the measures adopted in the SWPPP and SPC Plan.

In keeping with guidance outlined by the NYSDPS and NYSDEC, the Applicant will develop a SPC Plan that also will be utilized to avoid or minimize the potential for the release of hazardous chemicals into local natural resources. The SPC will assist in the avoidance, minimization, and mitigation of surface water impacts to protect local drinking water supplies.

(5) Groundwater Mitigation Methods

Site planning was executed to avoid impacts to groundwater to the maximum extent practicable, as explained in Section 23(a)(3). Pre-construction planning for the Project will be completed with the understanding that groundwater could be encountered due to the variable seasonal high-water table throughout the Project Area. Conventional sump pump methods are anticipated to adequately control any accumulation of groundwater in shallow trenches or ponded surface water in low-laying areas utilized during construction. Sediment-laden water removed during these dewatering activities will be sufficiently filtered and discharged in upland locations avoiding waterbodies and wetlands. Dewatering will likely occur if shallow groundwater is encountered during the construction phase of the Project. If dewatering is required, a temporary pit or designed sediment trap will be utilized and placed in well-drained upland areas. These sediment traps will not be placed within or directly adjacent to wetlands or waterbodies. Sediment traps will collect excess sediment in turbid waters and filter out cleaner water, discharging it into a pre-determined

stable discharge area. Dewatering techniques will follow the standard actions of pumping accumulated water to a device (e.g., sediment filter bag, silt fence barrier, sediment trap), which will decrease the discharge velocity of water outflow and also trap any suspended sediment prior to out-letting to well-drained undisturbed upland areas. Additionally, construction of the Project will adhere to the SPC plan and SWPPP guidelines, which prevent the contamination of and/or erosion due to surface water runoff or groundwater discharge, thereby avoiding significant adverse impacts to any water resources.

At the Project Area, in light of minimal subsurface work proposed, groundwater would likely flow around the disturbance area and assume normal flow regimes further downslope. If groundwater infiltrates work areas that may occur below the water table, removal of the groundwater by pumping could slightly decrease the level of local water tables within the vicinity of the construction activity. Any impact, however, will be very minimal, localized, and temporary. Measures to restore the groundwater will be implemented. All water subject to pumping operations will be pumped to the surface and discharged in an approved technique for decreasing its outlet velocity. Slowly discharged water through sediment bags or grass detention basins as appropriate, will be allowed to permeate back into the ground and re-settle below the water table downslope. Where possible, the location selected for re-infiltration into the water table will occur on permeable soils (but not in wetland areas), which will help increase the rate of infiltration and reduce net loss of water volumes to evaporation. As stated, construction of the Project will adhere to the SPC plan and SWPPP guidelines, which prevent the contamination of and/or erosion due to surface water runoff or groundwater discharge, thereby avoiding significant adverse impacts to associated water resources.

Groundwater migration events could result from the installation of buried collection lines, which may facilitate groundwater travel along the loosened soils surrounding the buried collection line. Water could conceivably collect in the trench and migrate along the trench route to areas downslope. However, there likely will be no net loss of groundwater as volumes will be naturally allowed to infiltrate back into the water table at lower elevations. Trench plugs will be used where deemed appropriate in any areas potentially affecting wetland resources.

The Project, therefore, is not expected to have adverse impacts on public or private water wells. Any impacts to groundwater as a result of the Project will be minimal, localized, and temporary. In the unlikely event a local resident believes that their well water has been adversely impacted

by the Project construction or operation, they may file a formal complaint, which will be responded to by the Applicant through the Complaint Resolution Plan mentioned above.

(6) Surface Water Mitigation Methods

The use of existing and narrow crossings of surface waters will help minimize direct impacts to surface waters. To the maximum extent practicable, Project Components have been sited to avoid or minimize both temporary and permanent impacts to surface waters. Project Components will avoid surface waters to the maximum extent practicable. Large temporary construction facilities (staging areas, etc.) will avoid surface water and impacts to surface water to the maximum extent practicable as shown in the Preliminary Design Drawings (Appendix 11-1). Furthermore, the number and overall impacts of access roads and collection lines crossing surface waters will be minimized by using existing crossings and narrow crossing locations wherever possible and through the use of HDD for collection lines.

If the crossing of a surface water resource is deemed necessary for the Project, BMPs will be put into place following the guidelines and requirements put forth by the NYSDEC, the Siting Board-issued Article 10 Certificate, and USACE. Proper briefing and signage will be utilized with construction crews to dictate areas where equipment access is prohibited. Crossing will occur only along properly permitted access roads or through the use of temporary matting to traverse delineated waterbodies and wetlands. Also, a selection of activities will be restricted within a predetermined buffer zone around delineated wetlands, and other waterbodies. Buffer restrictions will include the following: no equipment refueling or washing in the buffer area, no storage of petroleum or chemical materials, no disposal of concrete or washwater, no amassing of construction debris or accumulation of slash materials in the area, no use of herbicides within the area, and no actions that may result in the degradation of waterbody banks or steep slopes above water resources.

Silt fences, straw bales, siltation catch basins, check dams, and other standardized sedimentation control measures will be installed and maintained during construction throughout the Project and will stay in place until impact areas become stabilized, as determined by appointed Environmental Monitors (EMs). To facilitate soil stabilization, exposed soils will be seeded and mulched in a timely manner to reduce the risk of sedimentation events arising from storm events. Control measures will be dictated in the Project SWPPP (see below). Their locations and design will be shown on appropriate construction drawings.

As part of the SWPPP, an EM will be in place throughout the work period and during the restoration period to inspect and assess sedimentation risk and also mitigate any unforeseen issues specific to the nature of the Project Area. Dewatering will likely occur if shallow groundwater is encountered during the construction phase of the Project. Refer to Section 23(b)(5) for additional detail on dewatering methods.

Thermal change to waterbodies resulting from vegetation clearing is unlikely, as there is minimal clearing proposed adjacent to streams. Changes to in-stream structure and morphology of streams are not expected, or if any do occur, will be minimal due to the use of culverts and temporary crossings. The effect of turbidity on the nearby aquatic habitat will be reduced by the following the SWPPP and other guidelines imposed by the regulatory agencies. There are no anticipated impacts to or take of state-listed threatened and endangered species, species of special concern, or species of greatest conservation need in the aquatic habitat within the Project Area. Based upon investigation of publicly available information, the aforementioned species are not indicated to occur in the Project Area. Refer to Section 22(f)(10) and 22(o) for further discussion on listed threatened and endangered species.

(7) Stream Crossings

The Preliminary Design Drawings (see Appendix 11-1) detail the temporary and permanent stream crossing methods and procedures to be used for the Project. Culvert specifications, sizing, and flow calculations will be provided in the Final SWPPP. The culverts will be appropriately designed to convey runoff. Refer to Section 23(c)(4) below for additional information on the Final SWPPP. The Final SWPPP will detail BMPs to be used for the stream crossings. Proposed erosion and sediment control measures to be utilized to prevent and reduce impacts to streams during stream crossing activities include an appropriate combination of temporary equipment bridges, damming and pumping stream crossings, open cutting stream crossings, flumed stream crossings, dewatering basins, sediment filter bags, stream bank matting, and trench plugs.

HDD, a trenchless excavation technique, will be used to cross five wetlands and one stream within the Project Area to avoid impacts to the maximum extent practicable. The proposed HDD locations include wetlands W-JJB-27, W-JJB-33, W-JJB-31, W-JDV-04, W-JJB-13; and streams S-JJB-06, S-JJB-12, S-IBP-1, and S-IBP-2. These locations can be found on the Preliminary Design Drawings available in Appendix 11-1. An Inadvertent Return Plan (see Appendix 21-2) has been prepared to outline the procedures and responsibilities for the prevention, containment, and cleanup of an inadvertent release associated with the HDD process.

The feasibility of using trenchless stream crossings will be assessed for all streams proposed to be crossed. BMPs will be utilized year-round for all stream crossings. Where impacts are deemed unavoidable, the mitigation measures discussed in Sections 23(b)(5) and 23(b)(6) above shall be used to reduce impacts to the maximum extent practicable.

23(c) Stormwater

(1) Preliminary SWPPP

The NYSDEC requires coverage under the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) for any "construction activities involving soil disturbances of one or more acres; including disturbances of less than one acre that are part of a larger common plan of development or sale that will ultimately disturb one or more acres of land; excluding routine maintenance activity that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility." This authorization is subject to review by NYSDEC but is coordinated with the Article 10 process. The Applicant will seek coverage under the NYSDEC SPDES General Permit for the construction phase of the Project.

Prior to construction, the Applicant will be required to prepare a Final SWPPP, which will describe in specific terms the erosion and sediment control practices that will be implemented during construction activities, and the stormwater management practices that will be used to reduce the pollutants in stormwater discharges after Project construction has been completed. This SWPPP will be prepared as part of the requirements for coverage under GP-0-20-001. It is anticipated that a Notice of Intent (NOI) will be prepared and submitted to the NYSDEC (with a copy filed with the Secretary), who will review and authorize a SPDES General Permit number along with the NYSDEC Letter of Acknowledgement certifying that the Project will be in compliance with the technical requirements of GP-0-20-001. Once the Project receives this required documentation, the Letter of Acknowledgement will be inserted within the SWPPP and kept on site, as required by GP-0-20-001. The NOI will be included in the Final SWPPP in Attachment A.

A Preliminary SWPPP has been designed in accordance with the guidelines set forth in GP-0-20-001 and is provided as Appendix 23-3. The Preliminary SWPPP includes a detailed description of preconstruction requirements. As part of these requirements, an EM is required to be on site daily to inspect the Project's erosion and sediment control practices when soil-disturbing activities are being performed.

The Preliminary SWPPP provides information on stormwater management practices, including erosion and sediment control (vegetative and structural measures, temporary and permanent measures), construction phasing and disturbance limits, waste management and spill prevention, and site inspection and maintenance. Pre- and post-development hydrology, in addition to evaluation of runoff and drainage patterns, will be analyzed as part of stormwater design in accordance with final Project layout, and will be included in the Final SWPPP. The Applicant anticipates that submission and approval of a Final SWPPP will be a condition of the Article 10 Certificate.

(2) SPDES Permit

The Project is eligible for coverage under the SPDES General Permit. Therefore, an individual SPDES Permit for the collection and management of stormwater discharges from the Project will not be submitted.

(3) Post Construction Erosion and Sediment Practices

Increases in stormwater runoff will be minimal, as Project construction will result in limited addition of impervious surface. Therefore, no significant changes to the rate or volume of stormwater runoff are anticipated as a result of Project operations. However, precautionary and appropriate post-construction BMPs will be installed and maintained according to the Project-specific NYSDEC-approved SWPPP for the Project per applicable regulations. The Applicant is proposing the use of infiltration basins for pre-treatment in combination with other commonly used New York State Stormwater Management Design Manual (SMDM)-approved practices.

Existing drainage patterns will be maintained to the maximum extent practicable. Minimal grading and impervious surfaces are proposed as part of the Project. Therefore, negative impacts to water wells and surrounding agricultural land uses are not anticipated. Erosion and sediment controls will remain in place during site restoration until disturbed areas have been stabilized with vegetation.

(4) NYSDEC Memo and Maryland Stormwater Design Guidance

The Final SWPPP will include an evaluation and the design for non-rooftop disconnection alternatives (Scenarios 1 and 2) in accordance with the Maryland “Stormwater Design Guidance – Solar Panel Installation.” The non-rooftop disconnection will depend on the placement of the solar arrays and the associated site slopes in those areas. For array areas with 5% slopes,

Scenario 1 will be employed. For array areas with site slopes of 5 to 10%, Scenario 2 will be utilized. For slopes greater than 10%, additional engineered controls will be developed, as necessary, to ensure adequate treatment of disconnected runoff and non-erosive runoff conditions. The Maryland "Stormwater Design Guidance – Solar Panel Installations," was considered as part of the draft SWPPP development. The two distinctions between the Maryland guidance, and current New York State SWPPP requirements are as follows:

- The Maryland guidance recommends using a level spreader, energy dissipater, or berm for site slopes between 5 and 10%.
- The amount of grass between panel rows must be equal to or greater than the width of the panels.

The Project complies with both these criteria. Otherwise, the design aspects for solar panel installations are consistent with SWPPPs developed through adherence to New York State guidance. A discussion of the conformance with the Maryland guidelines is included in the SWPPP (see Appendix 23-3).

(5) Post-Construction Stormwater Practices and Chapter 4 of the NYS SMDM

If the evaluation included in the Final SWPPP regarding non-rooftop disconnection alternatives determines that the Project includes Scenario 2 as described above, the Final SWPPP will address post-construction stormwater practices designed in accordance with the sizing criteria in Chapter 4 of the NYS SMDM, dated January 2015. The proposed Project is not located with a Municipal Separate Storm Sewer System (MS4). Therefore, the Project is not subject to state or federal regulations regarding MS4s.

(6) Waiver to Disturb 5 or More Acres of Soil

The Applicant intends to request written authorization from the NYSDEC to allow the disturbance of greater than 5 acres at one time. Accordingly, construction phase SWPPP inspections will be required at least twice per every 7 calendar days.

(7) Final SWPPP

The Final SWPPP will include an erosion and sediment control plan as required per GP-0-20-001 to limit the possibility of off-site impacts, and to minimize, to the maximum extent practicable, soil

erosion and sedimentation within water resources throughout the Project Area and will be submitted to the Secretary for information purposes once accepted by NYSDEC.

(8) Post-Construction Runoff

The Preliminary SWPPP was developed in accordance with the most current version of the New York State Standards and Specification for Erosion and Sediment Controls (SSESC). The SWPPP identifies the post-construction erosion and sediment practices that will be used to manage stormwater runoff from the developed Project Area, and includes runoff reduction/green infrastructure practices, water quality treatment practices, and practices that control the volume and rate of runoff. Details are presented within the SWPPP (Appendix 23-3).

23(d) Chemical and Petroleum Bulk Storage

(1) Spill Prevention and Control Measures

No on-site storage or disposal of large volumes of substances regulated under the chemical and petroleum bulk storage programs of New York State is proposed. The generator step-up (GSU) transformer proposed within the collection substation will contain mineral oil (such as American Society for Testing and Materials [ASTM] D3487 Type II Inhibited Mineral Oil, or similar) for insulating purposes. The proposed substation is not proposed near any wetland or waterbody features and will be located approximately 230 feet northwest of the nearest (wetland W-JJB-23). Transformers are exempt from the petroleum bulk storage program as they are considered operational tank systems. Operational tank system means a tank system that is integral to, or connected to, equipment or machinery for which the petroleum in the system is used solely for operational purposes. Petroleum in an operational tank system is not consumed in any context (such as being combusted as fuel or used as a raw material in a manufacturing process).

The Project will adhere to a SPC Plan to minimize the potential impact to aquatic resources from minor leaks or mechanical failures of construction equipment/vehicles. The SPC Plan will be completed prior to receipt of the Certificate and submitted to the Secretary or as part of a compliance filing prior to construction/operation of the Project.

This plan dictates that all contractors will be required to keep materials on hand to control and contain a petroleum spill. Any spills will be reported in accordance with state and/or federal regulations. Contractors will be responsible for ensuring responsible action on the part of construction personnel.

The purpose of this SPC Plan is to:

- Provide guidance and information to the personnel that would be called upon to respond to sudden oil releases from oil-filled equipment and oil storage containers,
- Describe measures in place that would prevent released oil from reaching nearby navigable waters,
- Describe the inspection procedures, and
- Discuss the discharge response actions and notifications to ensure employees are prepared to carry out their responsibilities during an oil spill incident.

This Plan has the full approval of Project management with authority to commit the necessary resources to fully implement the Plan, and expeditiously respond to releases of oil.

(2) Storage or Disposal of Regulated Substances

The on-site storage of large volumes of substances regulated under the chemical and petroleum bulk storage programs of New York State is not proposed. On-site disposal will not occur. If construction operations require petroleum or other hazardous chemicals to be stored on site, applicable state and federal laws and guidelines will be followed.

(3) Storage of Hazardous Substances Compliance with Local Law Storage Regulations

On-site storage of large volumes of substances, regulated under the chemical and petroleum bulk storage programs of any local laws, is not proposed for the Project, as discussed in Sections 23(d)(1) and (2) above. On-site disposal will not occur. If construction operations require petroleum or other hazardous chemicals to be stored on site, those substances will be stored in a manner such that the applicable, substantive provisions of local laws and guidelines will be followed.

23(e) Aquatic Species and Invasive Species

(1) Biologic Aquatic Resource Impacts

Exhibit 22 directly addresses potential impacts to wetlands and waterbodies within the Project Area. Secondary reference can also be made through review of Tables 23-2 and 23-3 of this Exhibit.

It is assumed that any potential impacts to surface waters within the Project Area could, in turn, possibly impact ecologies, organisms, and ecosystems dependent upon these aquatic resources through the introduction of invasive species. Only a small portion of these biological complexes, however, could be impacted by the construction and operation of the Project due to its siting design.

TRC, on behalf of the Applicant, consulted local, statewide, and federal desktop databases and environmental agencies to determine common species documented to occur in the region of the Project Area. A full list of common species identified, as well as databases utilized to compile this list can be found in Appendix 22-1. None of the invasive species listed within the Common Aquatic Invasive Species of New York list (NYSDEC, n.d.) were documented during on-site survey work conducted by environmental field staff. Therefore, adverse impacts to aquatic biology resulting from the spread of invasive species caused by Project construction are not anticipated.

(2) Minimization Measures for Biological Aquatic Resources

Measures to avoid or minimizer impacts to surface waters during construction are addressed in Section 23(b)(6) above. In summation, protection of surface waters during Project construction will in turn protect the biological aquatic resources that depend on these surface waters. Water quality will be protected by avoiding impacts to wetlands and waterbodies to the maximum extent practicable. The utilization of HDD methods and underground drilling to avoid some stream features will also reduce impact to documented surface waters. Any surface water impacts anticipated to occur as a direct result of construction of the Project shall be minimal. No impacts to surface waters are likely to occur during the operation phase of the Project. It should be noted that loss of habitat has been largely avoided through careful siting and design of the Project. Additionally, the Project Area encompasses small tributary streams and wetlands. As such, there are no impacts to larger streams and rivers, which contain a clear majority of aquatic habitat that exists in the region. Where permanent roads cross a stream, the placement of “bottomless culverts” will also allow for aquatic species to travel through impacted areas unrestricted as required by NYSDEC and USACE regulatory requirements.

23(f) Cooling Water

This Project will not utilize cooling water during any phase of construction or operation and, therefore, cooling water withdrawals will not be addressed in the Application.

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