HIGH RIVER ENERGY CENTER

Case No. 17-F-0597

1001.23 Exhibit 23

Water Resources and Aquatic Ecology

Contents

Tables

Figures

Appendices

Exhibit 23: Water Resources and Aquatic Ecology

This Exhibit will track the requirements of proposed Stipulation 23, dated August 26, 2019, and therefore, the requirements of 16 NYCRR § 1001.23.

23(a) Groundwater

(1) Hydrologic Character

The Project Area is partly underlain by principal, unconsolidated aquifers. According to the Natural Resources Conservation Service (NRCS), the average representative depth to the water table within the Project Area is 35 inches (0.88 meter) and the average depth to bedrock is approximately 6.2 feet (1.9 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 3 to 20.5 feet below existing grades, however groundwater conditions may vary by season and weather conditions Subsurface conditions generally indicate bedrock depth of 21.5 feet throughout 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 23-3 depicts the depth to high groundwater across the Project Area. These features will be largely avoided, except as noted in Exhibit 22. In no location is bedrock presumed to be exposed on the Project Area.

The geotechnical investigations included 18 borings and seven test pits. Borings were advanced with either an all-terrain-mounted CME-55, or a D-50 drill rig utilizing 2 ¼ inch outside diameter hollow-stem augers. At selected intervals, samples of the subsurface materials were taken at each boring location by driving split spoon in general accordance with ASTM Standards. Test pits were excavated using a Volvo EC160C backhoe excavator equipped with a flat bucket utilized to collect approximate topsoil depths, and a bucket with approximate 6-inch teeth for the remainder of the excavation process. The associated Geotechnical Engineering Report (Terracon, 2019) is included as Appendix 21-1.

At the depths estimated by the NRCS soil report, and as encountered by geotechnical survey, most construction is not expected to intercept or affect groundwater on site. Posts will be embedded to a depth of approximately five feet. Based on the results from the geotechnical

investigation, groundwater may be experienced below a depth of three feet. Temporary dewatering may be required during construction if perched water, groundwater, or seepage is encountered.

Based on actual conditions encountered in the borings and test pits, bedrock conditions within the Project Area are deeper than suggested by the NRCS Web Soil Survey. Encountered site conditions are generalized as depicted below in Table 23-1.

Table 23-1. Generalized Geotechnical Review Results

Description	Approximate Depth to Bottom of Stratum (feet)	Material Description	Relative Density/ Consistency
Stratum 1	8 to 31	Silty Sand and Sandy Silt, with varying amounts of Gravel, cobbles and possible boulders	Loose to Very Dense
Stratum 2	32	Weathered Shale	Very Dense
Stratum 3	38 (maximum depth explored)	Shale Bedrock	Weak to moderately hard, close to very close fractured
Source: Terracon, 2019			

This same subsurface investigation encountered groundwater in nine of the borings and test pits at the time of exploration at depths ranging from 3 to 20.5 feet below existing grades. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations. Groundwater conditions can change spatially and with varying seasonal and weather conditions, as well as other factors.

A United States Geological Survey (USGS) study of the groundwater within the New York State Department of Environmental Conservation (NYSDEC)-defined Mohawk drainage basin indicates that the groundwater quality is generally good. However, concentrations of some constituents equaled or exceeded current or proposed Federal or New York State drinking-water standards. These standards are color, pH, sodium, chloride, sulfate, dissolved solids, aluminum, iron, manganese, radon-222, and bacteria. Groundwater sampling sites nearest the Project include

SN1131, located approximately 7 miles east of the Project Area, and S1366, located approximately 3 miles south of the Project Area (Nystrom & Scott, 2013).

(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 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. 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 New York State Department of Environmental Conservation and Department of Health 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.). These 1:24,000 scale maps are not available for the Project Area.

The Project Area does not overlay any NYSDEC-listed primary aquifers. The closest primary aquifer is the Schenectady Aquifer, with its watershed and closest point starting slightly over one mile east of the Project Area's eastern limit (Brown et al., 1981). 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 City of Schenectady, Village of Scotia, and Towns of Glenville, Niskayuna, and Rotterdam operate six well fields permitted by the New York State Department of Health (NYSDOH) to withdraw approximately 65 million gallons of water daily from the aquifer. The City has the largest permitted capacity of 35 million gallons of water daily. It is rare that the municipalities approach their capacity. Instead, on an average day, the combined groundwater withdrawal is approximately 25 million gallons. Occasionally the municipalities will impose lawn-watering restrictions. Typically, these restrictions are commonly activated because of transmission limitations of the large quantities of water and not because the aquifer cannot meet the demands during dry periods (Schenectady County, n.d.).

The Project Area partly overlays portions of two NYSDEC-listed principal aquifers. As opposed to primary aquifers, principal aquifers, as 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. As

depicted in Figure 23-1, these NYSDEC-listed principal aquifers encroach slightly within the northern and southern Project Area boundaries. 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 overlays a USGS-listed principal aquifer: the New York and New England carbonate-rock 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 in 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.

There is a USGS groundwater monitoring site (USGS 425511074254001 Local number, Mt-4110), at Randall NY, approximately 14 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 33 feet below land surface, with seasonal variation of approximately 2 feet.

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 and the NYSDEC to identify the locations of existing water wells within the two-mile Study Area. These letters requested any information pertaining to groundwater wells (including location, construction logs, depths, and descriptions of encountered bedrock) within the Project Area. An initial request letter was sent to the NYSDEC on July 1, 2019 asking for the water well completion reports. The NYSDEC Central Office provided Well Completion Reports (with redactions) for 53 wells in Montgomery County and 19 wells in Schenectady County. Seven of these wells are located approximately 500 feet from the Project Area boundaries and four wells are located approximately 2,000 feet from the Project Area boundaries. No wells were identified within the Project Area. 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). Copies of the FOIL letters and responses received are included in Appendix 23-1.

Well completion reports obtained from the NYSDEC showed that typical well depth ranged from 53 to 502 feet and averaged 235 feet within the two-mile Study Area. Depth to groundwater ranged from -1 to 346 feet and averaged 73.5 feet. Most wells reported yields between 4 and 20 gallons per minute (gpm), with some as low as 0 gpm and as high as 100 gpm.

A FOIL request letter was also sent to the NYSDOH on May 28, 2019 requesting data on wells within the Project Area. The NYSDOH responded on August 12, 2019 providing copies of records they maintained, with redactions to ensure no unwarranted invasion of personal privacy. There are no known public or commercial groundwater wells within 2,000 feet of the Project Area boundaries. A FOIL request letter was sent to the Montgomery County Records Access Officer on May 29, 2019. A response indicated that no departments within the county maintain well information (see Appendix 23-1). As suggested by the Montgomery County response letter, the Applicant consulted with the Town of Florida Supervisor to inquire whether the town had well data records. The Town indicated that no such records existed and suggested contacting the Montgomery County Soil and Water Conservation District (SWCD). A letter was sent to the Montgomery County SWCD on July 29, 2019 requesting groundwater well information. No response has been received by the Applicant. FOIL requests were also submitted to Schenectady County on May 28, 2019 and July 16, 2019. No response has been received from Schenectady County.

(3) Impacts on Groundwater Quality and Quantity

Sole source aquifers are defined by the United States Environmental Protection Agency (USEPA) as aquifers that supply at least 50 percent of the drinking water for their service areas; there are no reasonable alternative drinking sources should these aquifers become contaminated. The nearest sole source aquifer is approximately one mile east of the nearest point within the Project Area, in Schenectady County. (The USEPA “Sole Source” aquifer being coincident with the NYSDEC primary-class aquifer described above.) Refer to Figure 23-1.

No permanent impacts to aquifers (primary, principal, or sole source) or groundwater are anticipated to result from this Project. There is potential for minor and temporary adverse impacts to the local water avoided and/ or mitigated through the use of best management practices 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, minimization, and mitigation measures, which will be strictly adhered to. These measures will be outlined in the Project's Preliminary Spill Prevention, Containment, and Countermeasure (SPCC) 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.

Within the Project Area, depths to the seasonal high water table is approximated to range from the surface in isolated areas, to more than 78 inches below ground level. Proposed access roads are pervious; therefore, they will not significantly impact groundwater infiltration. 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.

Project construction and operation is not anticipated to cause any impacts to drinking water. Measures contained in the SWPPP and SPCC will be taken to avoid, minimize, and mitigate for any possible 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 (Appendix 12-3).

Plans for notification and complaint resolution during construction of the Project for owners/operators of public and private wells within a one-mile radius of the Project Area are detailed in Exhibit 12 of this Application and the full Complaint Resolution Plan is available in Appendix 12-3.

(4) Private Well Survey Results

To help identify private well locations, well survey questionnaires were mailed to all landowners of tax parcels within a 2,000-foot radius of the Project Area, totaling 154 surveys. 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, etc. 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 36 responses to the surveys. Six out of the 36 survey responses indicated they did not have any wells currently in use on their property. A total of 30 sites stated that wells were on the property.

For planning and avoidance purposes, wells which are utilized for drinking but have an unknown location were marked as to be occurring within the general vicinity of the current residence. One survey returned indicated that remnant wells were assumed to be on the property in question, but their locations were unknown. These wells were not mapped due to the lack of available location information. It should also be noted that 1 response indicated that potable water was obtained through groundwater discharge sites (springs) located on the property. As springs occur on the Earth's surface and act as the sources for wetlands and waterbodies down slope, any impacts to these spring features would be acknowledged through the analysis of wetland and waterbody delineation efforts performed for this Project. No known impact to delineated spring features which provide a source of drinking water for a residence is known to occur. Based on the results and level of detail provided within each response, the depths of private wells ranged from approximately 8 feet to 400 feet below grade with averages around 170 feet. Groundwater discharge from wells reported in this survey ranged from 1 gallon per minute (gpm) to 30 gpm with averages around 14 gpm. The completed responses are attached in Appendix 23-2.

23(b) Surface Water

(1) Surface Water Map

The locations of surface waters are mapped in Figure 23-2. 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 Study Area is located within the NYSDEC-defined Mohawk River major drainage basin. This major drainage basin drains an area of 3,460 square miles entirely within New York State. The entirety of Montgomery County is within this drainage basin. The Mohawk River originates in the valley between the Adirondack Mountains and the Tug Hill Plateau and flows 140 miles eastward to join the Hudson River. In the Mohawk major drainage basin, 65 percent of rivers/waterbody miles and 64 percent of lake, pond, and reservoir acres have been assessed. Water quality measurements for rivers are generally good and lakes are generally poor. Major water quality concerns include urban runoff and industrial impacts in population centers along the Mohawk River/New York State Barge Canal corridor and agricultural and other nonpoint sources of nutrients (NYSDEC, 2010).

The Project is located in the USGS-defined Mohawk River Drainage Basin, Hydrologic Unit Code (HUC) 02020004. This watershed encompasses portions of 14 counties and comprises approximately 25% of the total drainage area of the Hudson River. Due to the basin's size and the diversity of both landscape (natural conditions) and land uses (human uses) that it exhibits, for planning purposes, the watershed may be organized into three regions based on geographic areas within the watershed: Upper Mohawk, Main River, and the Schoharie Watershed. The Main River Region, where the Project Area resides, includes portions of Fulton, Montgomery, Schenectady, Saratoga, and Albany Counties. Portions of this Region drain fertile and heavily farmed agricultural land, while other portions are highly developed, including the cities of Amsterdam and Schenectady and the suburbs of Albany. Wetlands and open water constitute 14.2 percent of the Mohawk River Basin (USDA NRCS, 2011).

The Mohawk basin is comprised of two 8-digit HUC subwatersheds (the Mohawk and Schoharie), eighteen 10-digit subwatersheds, and 116 12-digit HUC subwatersheds. The 12-digit HUC is the level at which watershed health is typically assessed and strategies and action plans for restoration or protection are implemented. The Project Area is located within the Alplaus Kill 10-Digit HUC 0202000411, and Evas Kill 12-digit HUC 020200041104.

The water quality exhibited by streams draining the many subwatersheds varies significantly. The Alplaus Kill has low water quality with percent impairment of waterbodies in the range of 40–60%. The waterbody use most affected by the poor water quality is aquatic life.

In reference to Title 5 of Article 15 within the New York State Environmental Conservation Law (Protection of Waters), the NYSDEC has implemented regulations addressing state-listed protected waterbodies. Any action which disturbs the bed or banks of these protected waterbodies requires the issuance of a permit, except that permit is supplanted by Article 10 of the Public Service Law and the approval is instead issued by the NYSDPS staff as part of the Certificate.

The NYSDEC has classified waterbodies state-wide with the following letters or grades, AA, AA(T), A, A(T), B, B(T), C, C(T), and D. Class AA or A waterbodies are reserved for the waterbodies with the highest water quality. AA or A classes indicate that the best use of the waterbody can be as a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and also fishing. Class B waters are suggested to only be used for primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing and non-contact related activities. Class D waters represent the poorest water quality standard and activities within this water class are advised to not occur. 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 23-1 below lists all NYSDEC-mapped waterbodies within the Project Area and their state classifications. Figure 23-2 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 23-2.

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

NYSDEC Stream Name	NYS Major Drainage Basin	USGS HUC 8 Sub-basin and Name	NYSDEC Classification and Standard
Terwilleger Creek and tribs	Mohawk River	02020004 (Mohawk River)	C
Minor tribs to Mohawk River	Mohawk River	02020004 (Mohawk River)	C

Wetland and waterbody delineations occurred in the summer of 2017, spring and summer of 2018, and spring of 2019. 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 total of 49 stream features were identified during the delineation efforts. These stream features incorporate portions of the aforementioned mapped streams and also unmapped streams identified by field staff. Streams were documented as having perennial, intermittent, or ephemeral flows.

Aquatic life support and recreational uses (fishing, boating) in this reach of the Mohawk River may be affected by various urban and agricultural nonpoint runoff sources. Although this reach provides a productive and popular recreational fishery and the most recent monitoring indicates good water quality, fairly recent monitoring has shown significant water quality impacts.

A biological (macroinvertebrate) assessment of the Mohawk River in Fonda, above this reach, was conducted in 2000. Multiple sampling results indicated non-impacted water quality conditions. Previous sampling at this site has generally resulted in assessments of moderately impacted conditions. Although this sampling was conducted above the described reach, the sampling results are considered to be reflective of conditions in this segment adjoining the Project Area (NYSDEC/DOW, BWAR/SBU, July 2002).

Agricultural management practices in small watersheds tributary to this reach of the Mohawk contribute to livestock waste loadings to the river. Some barnyard boundaries permit unrestricted access to the river, resulting in nutrient and pathogen loads and streambank destabilization. Improper manure application on these fields is also a concern. Most of area farms have no silage leachate, manure or milk house wastewater treatment facilities. Some of the streams flow through intensively cultivated row croplands. Nutrient (fertilizer) and pesticides applied to these field in the

absence of approved nutrient/pesticide management plans may have an impact on water quality (NYSDEC, 2010).

Of note for the Alplaus Kill is that 40–60% of the area has ground water resources, notably the Schenectady (aka Great Flatts) aquifer. Protecting the recharge areas for the principal aquifers is important for preventing groundwater contamination. With agriculture encompassing only 20–30% of the land use, urban runoff is of most concern in the Alplaus Kill subwatershed, which has a relatively high population density and percentage of impervious surfaces. Within this subwatershed, there are 26 municipal wastewater treatment plants discharging to stream segments (MRWC, 2015).

In an effort to conservatively report on the potential impacts to local aquatic wildlife as a result of the Project, an inquiry was sent to the NYSDEC Division of Fish, Wildlife & Marine Resources on May 28, 2019 requesting site specific data on the fish species which reside in the waterbodies that cross or are proximate to the Study Area. Waterbodies that are encompassed in the Study Area and incorporated into the information request include Sandsea Kill, Chaughtanoonda Creek, Compaanen Kill, Lewis Creek, Evas Kill, Terwilleger Creek, and Degraff Creek. Minor tributaries associated with the aforementioned waterbodies were also included in the inquiry.

All fish species listed within the NYSDEC Statewide Fisheries Database which are related to the aforementioned waterbodies were also included in the master wildlife inventory list attached in Appendix 22-2. A total of 16 fish species were identified as a result of the inquiry. Larger and recreationally significant fish located within the Study Area include bluegill, brown trout, and brook trout.

A complete list of freshwater fish species which were observed or presumed to occur within the Project Area is located in the master wildlife inventory list attached in Appendix 22-2.

It is assumed, based on current distribution data within the NYSDEC's list of Common Aquatic Invasive Species of New York (n.d.), that several common invasive aquatic species might occur within the vicinity of the Project Area, and in particular within the Mohawk River. These species include brittle naiad, curly-leaf pondweed, European frogbit, Eurasian watermilfoil, fanwort, water chestnut, zebra mussel, Didymo (Schoharie Creek), alewife, and white perch. None of these species were observed during wetland and waterbody delineations. Due to the location of the Project Area in the watershed, the vast majority of the Project Area does not consist of

waterbodies large enough (or with a sufficient water column) to support the prevalence of these aquatic invasive species.

(3) Downstream Drinking Water Supply Intakes

The nearest permitted drinking water intake downstream of the Project Area is the Mohawk View Water Treatment plant, operated by the Town of Colonie, within Albany County. This intake is located along the Mohawk River, approximately 25 miles downstream of the Project Area at a longitude and latitude of -73.780, 42.791. The Town of Colonie Department of Public Works, Division of Latham Water, provides drinking water and water for fire protection to 82,000 Town of Colonie residents, except the Village of Menands and Maplewood areas. The Town considers the quality of source water to be good. The treatment plant removes any solids, metals (primarily iron and manganese), color-producing compounds or other organic and inorganic compounds. At the treatment plant, the Town continuously monitors the clarity and disinfectant level to guarantee the bacteriological safety of the water. Chemical treatment consists of oxidation, coagulation, chlorination and pH adjustment. Physical treatment consists of flocculation, settling, and filtration. Finished water is pumped to the distribution system and is stored in nine steel storage vessels located throughout the Town (Town of Colonie, n.d.). At a distance of approximately 25 miles, there will be no impacts to this surface water drinking supply resulting from the Project development or operation.

Approximately 22 miles downstream from the Project Area the Town of Clifton Park, Saratoga County, developed a groundwater supply from an alluvial aquifer within the floodplain of the Mohawk River at the southern edge of the town. River stage and ground-water levels near the river suggests hydraulic connection with the Mohawk River. The possibility of an impact from the Project on this water supply is negligible.

(4) Surface Water Impacts

Project Components have been sited to avoid temporary or permanent impacts to wetlands and waterbodies to the maximum practicable extent. Refer to Exhibit 22 for a more detailed discussion of wetlands and measures employed to avoid, minimize and mitigate 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 (aboveground and buried), 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 also crossing at narrow wetland and waterbody locations where feasible. In addition, implementation of the best management practices (BMPs) in the SPCC 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 354 linear feet of temporary disturbance and approximately 439 linear feet of permanent disturbance to waterbodies identified during on-site wetland and stream delineation.

Impacts to wetlands and streams have been minimized and avoided through the siting of Components after surveys were completed to avoid wetlands and waterbodies to the maximum extent practicable and siting 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 Regime[1]	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-AJF-01	RIN	189.61	USACE	-	0.00	0.00	-	-
S-AJF-02	REPH	243.84	USACE	-	0.00	0.00	-	-
S-AJF-03	RIN	180.50	USACE	C	0.00	0.00	-	-
S-AJF-04	RIN	1,052.57	USACE	C	0.00	0.00	-	-
S-AJF-05	RUP	1,359.16	USACE	C	0.00	0.00	-	-
S-AJF-06	RIN	653.66	USACE	-	0.00	0.00	-	-

Table 23-3. Impacts to Streams

Field ID	Flow Regime[1]	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-AJF-07	RUP	7,259.37	USACE	C	7.59	132.00	Access road, culvert, and riprap; Collector line; array	Culvert; trenching (collector line); span (array)
S-ARS-01	REPH	454.51	USACE	-	0.00	0.00	-	-
S-ARS-02	RUP	1,126.93	USACE	C	0.00	0.00	-	-
S-ARS-03	REPH	448.04	USACE	-	0.00	0.00	-	-
S-ARS-04	RUP	308.11	USACE	C	0.00	0.00	-	-
S-ARS-05	REPH	582.65	USACE	C	0.00	0.00	-	-
S-ARS-06	REPH	320.39	None	-	0.00	0.00	-	-
S-ARS-07	REPH	1,120.43	-	-	5.84	0.00	Access road, culvert, and riprap; fence; array	Culvert; span (fence and array)
S-ARS-08	REPH	358.90	None	-	0.00	0.00	-	-
S-ARS-09	REPH	3,048.04	USACE	C	0.77	82.46	Access road, culvert, and riprap; Collector line	Culvert; trenching (collector line)
S-ARS-10	REPH	854.96	USACE	C	0.00	0.00	Collector line	HDD[2]
S-ARS-11	REPH	197.77	USACE	-	0.00	0.00	-	-
S-ARS-12	RIN/RUP	3,039.15	USACE	-	0.00	0.00	-	-
S-ARS-13	REPH	547.80	USACE	-	0.00	0.00	Array	Span
S-ARS-14	REPH	652.03	USACE	-	0.00	0.00	-	-

Table 23-3. Impacts to Streams

Field ID	Flow Regime[1]	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-ARS-15	RIN	3,439.90	USACE	C	15.26	36.01	Culvert and rip rap	Culvert
S-ARS-16	RIN	185.97	USACE	-	0.00	0.00	-	-
S-BS-09-P	UNK[3]	0[3]	USACE	C	5.04	0.00	Collector line	Existing road crossing
S-DJL-01	RUP	2,291.10	USACE	-	0.00	0.00	-	-
S-DJL-02	RIN	305.92	USACE	-	0.00	0.00	-	-
S-JJB-01	RIN	2,072.26	USACE	-	0.00	18.64	Access road, array, and fence	Stone fill (access road); Span (array and fence)
S-JJB-03	RIN	828.55	USACE	-	26.90	33.09	Access road, culvert, and riprap; collector line	Stone fill (access road); Trenching (collector line)
S-JJB-04	REPH	234.69	USACE	-	0.00	0.00	-	-
S-JJB-05	RIN	1,000.23	USACE	-	9.28	88.00	Access road, culvert, and riprap; collector line	Culvert
AS-JJB-16	UNK[3]	0[3]	USACE	C	0.00	0.00	Collector line	Existing road crossing
S-WSB-01	RIN/RUP	3,006.95	USACE	C	0.00	0.00	-	-
S-WSB-02	REPH	287.10	USACE	-	0.00	0.00	Fence	Span

Table 23-3. Impacts to Streams

Field ID	Flow Regime[1]	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-WSB-03	RUP	653.19	USACE	C	0.00	0.00	-	-
S-WSB-04	RIN	97.24	USACE	-	0.00	0.00	-	-
S-WSB-05	REPH	107.18	USACE	-	0.00	0.00	-	-
S-WSB-06	RIN	710.39	USACE	-	280.29	0.00	Laydown area, fence, and array	Matting (laydown area); span (fence and array)
S-WSB-07	RUP	3,483.91	USACE	-	0.00	0.00	-	-
S-WSB-09	REPH	391.73	USACE	-	0.00	0.00	-	-
S-WSB-10	RIN	206.87	USACE	-	0.00	0.00	-	-
S-WSB-11	REPH	72.03	USACE	-	0.00	0.00	-	-
S-WSB-12	REPH	148.57	USACE	-	0.00	0.00	-	-
S-WSB-13	REPH	395.56	USACE	-	0.00	0.00	-	-
S-WSB-14	RIN	2,447.15	USACE	-	2.66	48.49	Access road, culvert, and riprap; fence; array	Culvert; span (fence and array)
S-WSB-15	RIN	80.50	USACE	-	0.00	0.00	-	-
S-WSB-16	RIN	27.49	USACE	-	0.00	0.00	-	-
S-WSB-17	RIN	387.89	USACE	-	0.00	0.00	-	-
S-WSB-18	RIN	190.95	USACE	-	0.00	0.00	-	-
S-WSB-19	REPH	287.15	USACE	-	0.00	0.00	-	-
S-WSB-20	REPH	205.29	USACE	-	0.00	0.00	-	-

Table 23-3. Impacts to Streams

Field ID	Flow Regime[1]	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-WSB-21	REPH	352.15	USACE	-	0.00	0.00	-	-

1. Flow Regime: REPH – Ephemeral, RIN – Intermittent, RUP – Perennial, UNK - Unknown
2. HDD – Horizontal Directional Drilling
3. Stream located outside of Project Area, but within route of collection line

As indicated in Table 23-3 and on the Preliminary Design Drawings in Appendix 11-1, there will be a total of 14 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. Crossings will be constructed in accordance with NYSDEC and United States Army Corps of Engineers (USACE) regulations and conditions. The Project will comply with the following proposed BMPs to prevent and reduce stream impacts: temporary equipment bridge, dam and pump stream crossing, open cut stream crossing, flumed stream crossing, 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.

To also address impacts to wetlands containing open waters as a result of Project-related construction and operation, any temporary and permanent impacts to delineated wetlands with open water features were documented. 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 temporary disturbance to open water resources.

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

Field ID	Type	Acres Within Project Area	Potential Jurisdiction	Temporary Impact (Acre)	Permanent Impact (Acre)	Related Component
W-AJF-01	PEM/PUB	0.36/0.42	USACE	0	0	-
W-AJF-06	PEM/PAB	0.32/0.16	USACE	0	0	-
W-ARS-04	PUB	0.47	USACE	0	0	-
W-ARS-06	PUB	0.12	USACE	0	0	-
W-DJL-02	PUB	0.41	USACE	0	0	-
W-JJB-03	PUB	0.74	USACE	0	0	-
W-JJB-05	PUB	0.59	USACE	0	0	-
W-WSB015	PEM/PUB	0.19/0.25	USACE	0	0	-

Surface waters surrounded by steep uplands are subject to erosion potential, and during any construction-related activity that may take place in close proximity to these slopes. In order to pursue safe and economical design and construction procedures, the Project has been designed to avoid steep slopes to the maximum extent practicable. Construction of the Project could result in minor siltation and sedimentation in waterbodies that are adjacent to steep uplands. The Applicant will take measures to avoid and minimize siltation events pursuant to the SWPPP that is ultimately approved. A proposed 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 or 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. All practicable measures will be taken by the Applicant to avoid, minimize, and mitigate any impacts to surface waters through the measures adopted in the SWPPP and SPCC.

In keeping with guidance outlined by the NYSDPS and NYSDEC, the Applicant will develop a SPCC Plan that also will be utilized in order to avoid or minimize the potential for the release of

hazardous chemicals into local natural resources. The SPCC will assist in the avoidance, minimization, and mitigation of surface water impacts in order to protect local drinking water supplies.

(5) Ground Water Mitigation Methods

Site planning was done 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 and pump methods are anticipated to be sufficient approaches to control any accumulation of groundwater in shallow trenches or ponded surface water in low-laying areas utilized during construction. The 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 SPCC 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.

In areas where construction activity occurs below the water table, there is always some potential to impact localized groundwater flow regimes if precautions are not taken. At the Project Area, in light of minimal subsurface work proposed, it is assumed groundwater could flow around the disturbance area and assume normal flow regimes further downslope. If groundwater infiltrates work areas that 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 of a temporary nature. Measures to restore the groundwater will be implemented. All water subject to the 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 SPCC 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 interconnect lines which may facilitate groundwater travel along the loosened soils surrounding the buried collection line. It is believed water could collect in the trench and migrate along the trench route to areas downslope. However, it is presumed there 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 may be used where deemed appropriate in any areas potentially affecting wetland resources.

The Project 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.

When 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, NYSDPS, 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 waterbodies, wetlands, and other waterbodies. These buffer restrictions will include 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.

During construction the use of silt fences, hay bales, siltation catch basins, check dams, and other standardized sedimentation control measures will be installed and maintained throughout the Project and until impact areas become stabilized as determined by appointed Environmental Monitors. 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 Environmental Monitor (EM) will be in place throughout the work period and during the restoration period in order 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 changes to waterbodies as a result of clearing vegetation is unlikely, as there is minimal tree clearing adjacent to streams proposed. Changes to in-stream structure and morphology of streams are not expected, or will be minimal due to the use of culverts and temporary crossings. The effect of turbidity on 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 aquatic habitat in the Project Area, as these species, based upon investigation of publicly available information, are not indicated to occur in the Project Area. Refer to Section 22(f)(9) for further discussion on take of threatened and endangered species and Section 22(p)(2) for further discussion on impacts to state and federally listed species.

(7) Stream Crossings

The Preliminary Design Drawings (see Appendix 11-1) detail the temporary and permanent stream crossing methods and procedures. Culvert specifications, sizing, and flow calculations will be provided in the Final SWPPP. The culverts will be designed to accommodate the 100-year storm event. 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 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.

The trenchless excavation technique of horizontal directional drilling (HDD) will be used to the maximum extent practicable to avoid impacts to streams. An Inadvertent Return Plan 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 Inadvertent Return Plan is included in Appendix 21-2 of this Application.

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 Stormwater Pollution Prevention Plan (SWPPP)

The NYSDEC requires coverage under the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (GP-0-15-002) 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-0-15-002. It is anticipated that a Notice of Intent (NOI) will be prepared and submitted to the NYSDEC, 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-0-15-002. 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-0-15-002. 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-0-15-002 and is provided as Appendix 23-3. The Preliminary SWPPP includes a detailed description of preconstruction requirements. As part of these requirements, an Environmental Monitor is required to be on-site on a daily basis 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.

The Applicant anticipates that submission and approval of a Final SWPPP will be a condition of the Article 10 Certificate.

(2) 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 trenches alongside access roads 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.

(3) Maryland Stormwater Design Guidance

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).

(4) Final SWPPP

The Final SWPPP will include an erosion and sediment control plan as required per GP-0-15-002 to limit the possibility of offsite 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.

(5) 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. See 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 ASTM D3487 Type II Inhibited Mineral Oil, or similar) for insulating purposes. 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 SPCC Plan to minimize the potential impact to aquatic resources from minor leaks or mechanical failures of construction equipment/vehicles. The SPCC Plan will be completed prior to receipt of the Certificate and submitted to the Secretary or the NYSDPS Staff 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 SPCC 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 or disposal of large volumes of substances regulated under the chemical and petroleum bulk storage programs of New York State is not proposed. 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

Sections 23(d)(1)(2) the on-site storage or disposal of large volumes of substances regulated under the chemical and petroleum bulk storage programs of any local laws is not proposed. 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 impacts to wetlands and waterbodies within the Project Area. Secondary reference can also be made through review of Tables 23-2 and 23-3 encountered in 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. None of the invasive species listed within the Common Aquatic Invasive Species of New York (NYSDEC, n.d.) list were documented during on-site survey work conducted by environmental field staff. Adverse impacts to aquatic biology as a result of the spread of invasive species as a direct result of the Project construction, therefore, are not anticipated.

In addition, the Project Area contains limited suitable habitat for the prevalence of aquatic invasive species and general aquatic communities and ecologies. This is due to a vast majority of the

Project residing within higher elevations where documented waterbodies and wetlands act as headwaters, and to the limited depth and size of waterbodies within the Project Area. For these reasons, the biological diversity of aquatic life on site is relatively low.

(2) Mitigation Measures for Biological Aquatic Resources

Measures to avoid and mitigate impacts to surface waters during construction are addressed in Section 23(b)(7) above. In summation, the protection of biological aquatic resources will be a direct result of protecting the surface waters in which these biological resources are dependent on. Water quality will be protected by avoiding impacts to wetlands and waterbodies to the maximum extent practicable. practicable. The utilization of HDD methods and underground drilling to avoid some stream features will also reduce impact to documented surface waters. Surface water impacts are only proposed to occur as a direct result of construction of the Project. 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. The Project Area encompasses small headwater streams and wetlands. As such, there are no impacts to larger streams and rivers which contain a clear majority of aquatic habitat which 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 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.

References

Brown, G.A., Moore, R.B., Mahon, K.I., and Allen, R.V. (Brown et al.).1981. *Geohydrology of the Schenectady Aquifer, Schenectady Count, New York*. U.S. Geological Survey Open-File Report 82-84. https://pubs.er.usgs.gov/publication/ofr8284. Accessed July 18, 2019.

Mohawk River Watershed Coalition (MRWC). 2015. *Mohawk River Watershed Management Plan*. http://mohawkriver.org/management-plan/. Accessed July 18, 2019.

New York State Department of Environmental Conservation (NYSDEC). 1990. *Division of Water Technical & Operational Guidance Series 2.1.3. Primary and Principal Aquifer Determinations*. https://www.dec.ny.gov/docs/water_pdf/togs213.pdf. Accessed July 18, 2019.

NYSDEC. 2010. *Mohawk River WI/PWL*. https://www.dec.ny.gov/chemical/36739.html. Accessed July 18, 2019.

NYSDEC. n.d. *Common Aquatic Invasive Species of NY*. https://www.dec.ny.gov/animals/50272.html. Accessed July 18, 2019.

Nystrom, E.A., and Scott, T. 2013. *Groundwater Quality in the Mohawk River Basin, New York, 2011*. U.S. Geological Survey Open-File Report 2013-1021. http://pubs.usgs.gov/of/2013/1021/. Accessed July 18, 2019.

Schenectady County. n.d. *Great Flats Aquifer*. https://www.schenectadycounty.com/node/224. Accessed August 1, 2019.

Town of Colonie. n.d. *Department of Public Works Division of Latham Water*. https://www.colonie.org/departments/lathamwater/. Accessed August 1, 2019.

United States Geological Survey (USGS). 2003. *Principal Aquifers of the United States*. https://water.usgs.gov/ogw/aquifer/map.html. Accessed July 18, 2019.

USGS. n.d. *Unconsolidated Aquifers of Upstate New York*. https://ny.water.usgs.gov/projects/bgag/aquifer.maps/maps.html. Accessed July 18, 2019.