Appendix 22-6:

Wetland and Stream Delineation Report,
Wetland and Stream Delineation Report Addendum

WETLAND AND STREAM DELINEATION REPORT
EXCELSIOR ENERGY CENTER PROJECT

TOWN OF BYRON
GENESEE COUNTY, NEW YORK

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1.0 INTRODUCTION

1.1 Project Description and Purpose

Excelsior Energy Center, LLC (Excelsior Energy Center), a wholly-owned indirect subsidiary of NextEra Energy Resources, LLC (NextEra or NEER), is proposing construction of the Excelsior Energy Center Project (the Project) in the Town of Byron, Genesee County, New York. The Project Site consists of 60 separate tax parcels totaling approximately 3,418 acres within the Town of Byron. The proposed Project will consist of an approximately 280 megawatt (MW) solar energy center with a 20 MW energy storage system located on land leased from owners of private property. Proposed components include commercial-scale solar arrays, access roads, buried (and possibly overhead) electric collection lines, and electrical interconnection facilities. The final solar array specification, as well as locations of arrays, will be finalized as part of ongoing environmental studies and engineering efforts. The Project Site consists predominantly of active and non-active agricultural land, with some forested lots and forested perennial stream buffer zones.

1.2 Report Purpose

TRC Companies, Inc. (TRC) conducted a wetland and stream delineation of the Project Site on behalf of Excelsior Energy Center beginning on May 28, 2019 and concluding on June 20, 2019. This report details the wetlands and surface waters within the Project Site (including any rivers, streams, ponds, and lakes), regardless of jurisdictional status. However, this report's description of potential jurisdictional areas to regulatory agencies lends itself toward assessing jurisdiction and avoiding wetlands and surface waters by implementing setbacks (both required by the State and Excelsior Energy Center's internal process) during Project planning, to the extent practical.

Delineation efforts included the following tasks:

1. A desktop review of existing, publicly available federal and state agency resources;

2. A field delineation of all aquatic features within the Project Site using a handheld Global Positioning System (GPS) with reported sub-meter accuracy; and,

3. Documentation of the delineated aquatic features including the assumed agency jurisdiction for each resource based on hydrology, vegetation, and hydric soils data collected in the field.

Conclusions proposed herein provide information necessary to support a permit application to the United States Army Corps of Engineers (USACE) (if determined necessary) and the New York State Board on Electric Generation Siting and the Environment (Siting Board).

2.0 REGULATORY AUTHORITY

2.1 United States Army Corps of Engineers

In accordance with Section 404 of the Clean Water Act, the USACE asserts jurisdiction over Waters of the United States (WOTUS). WOTUS are defined as wetlands, streams, and other aquatic resources under the regulatory authority of Title 33 Code of Federal Regulations (CFR) Part 328 and the United States Environmental Protection Agency (EPA), per Title 40 CFR Part 230.3(s). Wetlands are defined as "*those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*" (33 CFR 328.3[c]).

2.1.1 Historical Context

On June 6, 2007, the EPA and the Department of Army issued a memorandum outlining jurisdictional guidance on WOTUS. The document outlined major key points resulting from the United States Supreme Court decision in the matter of *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers* (531 U.S. 159, January 9, 2001) and *Rapanos v. United States* (547 U.S. 715, June 19, 2006). Following receipt of public comment and based on these agencies' experience in implementing the Rapanos decision, EPA and USACE issued a revised memorandum on December 2, 2008 providing guidance to EPA regions and USACE districts. This document defined the following:

The USACE will assert jurisdiction over the following waters:

- Traditional navigable waters;
- Wetlands adjacent to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (i.e., typically three months); and
- Wetlands that directly abut such tributaries.

The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent;
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent; and

- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

The USACE generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow); and
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The USACE will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters; and
- Significant nexus includes consideration of hydrologic and ecologic factors.

2.1.2 Current Status

On August 28, 2015, the EPA released the Clean Water Rule (33 CFR Part 328) intending to clarify the scope of the Clean Water Act (CWA), WOTUS, and definitions of significant nexus. However, on October 9, 2015, implementation of the Clean Water Rule was stayed by the Sixth Circuit Court of Appeals pending further action of the court. On August 16, 2018, the U.S. District Court for the District of South Carolina enjoined the delay of the Clean Water Rule. After which, the Clean Water Rule became in effect in 22 states, including New York.

On September 12, 2019 the EPA and the Department of the Army (DOA) announced the repeal of the Clean Water Rule. This repeal will re-implement the pre-2015 regulations. The repeal will take effect 60 days after publication in the Federal Register (EPA, 2019).

The USACE also regulates navigable waters under Section 10 of the Rivers and Harbor Act (33 U.S.C. 401 et seq.), which requires a permit be issued by the USACE prior to the construction of any structure in or over any navigable water of the United States, as well as any proposed action (such as excavation/dredging or deposition of materials) that would affect the course, location, condition, or capacity of the navigable water, even if the proposed activity is outside the boundaries of the stream in associated wetlands.

2.2 New York State Department of Environmental Conservation

The Freshwater Wetlands Act (Article 24 and Title 23 of Article 71 of the Environmental Conservation Law [ECL]) gives the NYSDEC jurisdiction over state-protected wetlands and adjacent areas, typically extending 100 feet from the wetland perimeter. To implement this Act, regulations were promulgated by the State under 6 NYCRR Parts 663 and 664. Part 664 designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest. Wetlands regulated by the State are those 12.4 acres (5 hectares) in size or larger, as well as those smaller than 12.4 acres, deemed to be of "unusual local importance." The Freshwater Wetlands Act requires the NYSDEC to map all state-protected wetlands. This allows landowners and other interested parties a means of determining where state jurisdictional wetlands exist, although the maps are legally only approximations—thus the need for on-site delineations. Under Part 663, approval under an Article 24 permit is required from the NYSDEC prior to most disturbances to a state-protected wetland or its protected adjacent area, including the removal of vegetation.

Article 15 of the ECL (Protection of Waters), and its implementing regulations under 6 NYCRR Part 608, provides the NYSDEC with regulatory jurisdiction over activities disturbing the bed or banks of protected streams, including small lakes and ponds with a surface area of 10 acres or less, located within the course of a protected stream. This law and regulation also provide NYSDEC jurisdiction over navigable waters of the State, including contiguous marshes, estuaries, tidal marshes and wetlands that are inundated at mean high water level or tide, A protected stream is defined in the ECL as any stream, or particular portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, A, B, C(T), or C(TS) (6 NYCRR Part 701). State water quality classifications of unprotected watercourses include Class C and Class D streams. The classifications are defined below.

- 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. Streams designated (T) indicate that they support trout, while those designated (TS) support trout spawning.
- Waters with a classification of D are generally suitable for fishing and non-contact recreation.

It should be noted, per 6 NYCRR Chapter X, Subchapter B, "*All streams or other bodies of water which are not shown on the reference maps herein shall be assigned to Class D, as set forth in Part 701, supra, except that any continuous flowing natural stream which is not shown on the reference maps shall have the same classification and assigned standards as the waters to which it is directly tributary.*"

3.0 PROJECT SITE CHARACTERISTICS

3.1 Resources

The following publicly available resources were used in the investigation, delineation, and report preparation:

- United States Geological Survey (USGS) Byron, New York 7.5-minute quadrangle;
- United States Department of Agriculture (USDA) Ecoregion Maps;
- NYSDEC Ecozone Mapping;
- USGS National Hydrography Dataset;
- USGS Hydrologic Unit Maps;
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 361139A, effective date 2/1/1988;
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping;
- NYSDEC Environmental Resource Mapper (ERM);
- NYSDEC Freshwater Wetlands Mapping;
- USDA Natural Resources Conservation Service (NRCS) Web Soil Survey; and
- Recent aerial orthoimagery.

3.2 Vegetation and Ecological Communities

The Project Site resides in the Eastern Broadleaf Forest (Continental) Province and the Erie and Ontario Lake Plain Section ecoregions of the United States as defined by the USDA Forest Service (Bailey et al., 1995). Ecoregions are ecosystems of regional extent. The USDA identifies ecoregions by ecosystem characteristics into the following classifications:

- Domains: the largest ecosystem, which are groups of related climates and are differentiated based on precipitation and temperature.
- Divisions: represent the climates within domains and are differentiated based on precipitation levels and patterns, as well as temperature.

- Provinces: Subdivisions of divisions, which are differentiated based on vegetation or other natural land covers.

- Sections: Subdivisions of provinces based on terrain features, sections are the finest level of detail described for each subregion.

- Mountainous Areas: Mountainous regions that exhibit different ecological zones based on elevation.

The Eastern Broadleaf Forest (Continental) Province Ecological Region is characterized by cold winters and warm summers with average annual temperatures ranging from 40 degrees to 65 degrees Fahrenheit. Elevations range from 80 feet to 1,650 feet. There is year-round precipitation; however, it is greater during the summer months. The forests are characterized as temperate deciduous and dominated by tall broadleaf trees (Bailey et al., 1995).

The Erie and Ontario Lake Plain Section is part of the Central Lowlands geomorphic province. It is characterized by its flatness and by shallow entrenchment of its drainages. In this section, there is a combination of level to gently rolling till-plain (glacial ground moraine), and flat lake plain. There are a few areas with broad, low ridges (glacial end moraines) generally trending parallel to the lakes' shorelines. Within New York State, there are moderately dissected till and drumlin plains on three low but notable "stairstep" escarpments, parallel to and below the northern margin of the Allegheny Plateau. Elevations range from 245 ft (75 m), which is the mean elevation of the surface of Lake Ontario and extend up to 1,000 ft (300 m) along the Appalachian Plateau border. Most of the land is under 800 ft (240 m) in elevation. The dominant land use in this area is agriculture, accounting for about 50 percent of total acreage in this Section. Forest land, mostly in farm woodlots, occupies 30 percent of the area. The remaining land is in residential and urban use.

Similarly, the NYSDEC has divided New York State into specific ecological regions (Ecozones). Boundaries of the Ecozones of New York State were derived from Will et al. (1982) and Dickinson (1983) and then further modified by the NYSDEC. The Ecozones of New York State have been classified into Major and Minor Zones. The Project Site is located within the Great Lakes Plain Major Zone and the Erie-Ontario Plain Minor Zone.

The Great Lakes Plain Major Zone is characterized as a feature similar to a plateau with horizontal rock formations; however, it is not elevated enough above sea level and does not rise above adjacent land to be classified as such. It is essentially a flat plain. Elevation in the zone is typically less than 800 feet. The soils in this major zone are generally limy (alkaline,) and situated on glacial till over undulating to rolling terrain. These soils can also be found on glacial lake sediments over level to undulating terrain. All of the soils within the zone tend to be medium to fine textured. The Great Lakes Plain is part of the elm-red-maple northern hardwood natural vegetation zone. Approximately 20 percent of the land is forested.

The Erie-Ontario Plain Minor Zone is very similar to the Great Lakes Plain Major zone. A majority of the minor zone is under 800 feet in elevation. The average town in this zone is only 15 percent wooded.

Recent aerial orthoimagery of the Project Site and surrounding vicinity, obtained from Google Earth and APEM (flown in 2019), indicates that the Project Site is predominantly covered by agricultural land. There are some pockets of forested area which are mostly within wooded lots on agricultural land. A small portion of the land in the area is residential. The following ecological communities, as defined by *Ecological Communities of New York State* (Edinger et al., 2014), were identified on the Project Site at the time of the delineation:

- Beech-maple mesic forest
- Common reed marsh
- Confined river
- Cropland/ field crops
- Cropland/ row crops
- Ditch/ artificial intermittent stream
- Deep emergent marsh
- Farm pond/ artificial pond
- Floodplain forest
- Intermittent stream
- Maple-basswood rich mesic forest
- Mowed lawn
- Northern white cedar swamp
- Pastureland
- Paved road/path
- Shallow emergent marsh
- Shrub swamp
- Successional old field
- Successional shrubland
- Successional southern hardwoods
- Red maple-hardwood swamp
- Unconfined river
- Unpaved road/path

3.3 Hydrology

3.3.1 Hydrologic Mapping

The USGS has divided and sub-divided the country into hydrologic units based primarily on drainage basins and watershed boundaries. The main hydrologic unit levels are regions, sub-regions, basins, sub-basins, watersheds, and sub-watersheds. The hydrologic units are nested within each other, from the largest geographic area (regions) to the smallest geographic area (sub-watersheds). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to twelve digits based on the six levels of classification in the hydrologic unit system. In addition to the hydrologic unit codes, each hydrologic unit is assigned a name corresponding to the unit's principal hydrologic feature, or to a cultural or political feature within the unit.

The region hydrologic unit level contains either the drainage area of a major river or the combined drainage areas of a series of rivers. Regions receive a two-digit code. The following hydrologic unit levels are designated by the addition of another two digits with each level. Each sub-region includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin or basins, or a group of streams forming a coastal drainage area.

The Project Site is located within the USGS defined Lower Genesee sub-basin (HUC 04130003), Lake Ontario/Black Creek watershed (HUC 0413000101), and the Black Creek Headwaters sub-watershed (HUC 041300030602) as well as the Robins Brook-Black Creek sub- watershed (HUC 041300030603).

The Lower Genesee sub-basin (HUC 04130003) is located in the western portion of New York State almost directly south of the center of Lake Ontario. The sub-basin occupies 683,237 acres and ranges in elevation from 239 to 2,283 feet above sea level. The higher elevations tend to be in the southern branches of the sub-basin. Urban areas make up 10.4% of the sub-basin, with agriculture spread out evenly across the rest. The northern and central portions of the sub-basin are on the Ontario Lake Plain and the southern portion is on the Appalachian Plateau. All of the area within the sub-basin has been glaciated. The Lower Genesee sub-basin empties into the Genesee river which flows north-east and empties into Lake Ontario.

The NYSDEC classifies watersheds more generally within the State of New York. Unlike mapping efforts outlined by the USGS above, the NYSDEC uses the definitions of watersheds and drainage basins interchangeably. New York's waters (e.g., lakes, rivers, wetlands, and streams) fall within one of seventeen major drainage basins as defined by the NYSDEC. The NYSDEC defines these drainage basins or watersheds as an area of land that drains water into a specific body of water within or adjacent to New York State and includes networks of rivers, streams, lakes, and the surrounding lands. The NYSDEC-classified watersheds are separated by high elevation geographic features (e.g., mountains, hills, and ridges). Each major drainage basin corresponds to one or more USGS sub-basins (USGS HUC 8-digit codes).

The Project Site is located within the Lake Ontario and Minor Tributaries major drainage basin of New York. This major drainage basin is divided into three sections that stretch all along the Lake Ontario Shoreline predominately draining minor tributaries into Lake Ontario. This Major Drainage includes 5,891 miles of freshwater rivers and streams and 60 significant freshwater lakes, ponds, and reservoirs. Within this major drainage basin, the Project is located in the Lower Genesee sub-basin (HUC 04130003).

3.3.2 Hydrologic Character

The dominant surface water features on the site are three perennial streams that intersect several parcels throughout the Project Site. Most of the aquatic features within the Project Site receive surface waters from precipitation events, agricultural runoff, or are fed by drain tiles. Several ephemeral, intermittent, and perennial streams flow through the Project site. The predominant surface waterbodies of the Project Site are Bigelow Creek, Black Creek, and Spring Creek.

The perennial streams act as the primary mechanism by which surface water runoff is removed from the Project Site, flowing predominantly to the northeast. Additionally, the on-site wetlands act primarily as surface water drainages within the Project Site as well as groundwater recharge/ discharge features. Drain tiles irregularly spaced within the Project Site feed back into groundwater, often through non-jurisdictional drainages, wetlands, and perennial streams throughout the site. In some instances, the drain tiles feed intermittent or ephemeral streams connecting back to the larger perennial stream system when not draining into groundwater or wetlands.

The Project Site receives an average of 35.36 inches of rainfall annually based on information for the City Batavia, New York, located 8 miles south of the Project Site (U.S. Climate Data, 2019).

In addition to direct precipitation, on-site hydrology originates from agricultural runoff, subsurface flow, and streams originating offsite. Onsite hydrology drains to the Black Creek stream system and flows offsite. The Project Site drains predominantly to the northeast.

On-site hydrological conditions observed during the delineation included several large precipitation events which were indicative of the wetter than average 2019 spring season. These conditions allowed for standing water to occur in low lying areas and micro-topographical depressions where upland soils were present. Consequently, more soils than under normal circumstances were saturated or inundated, with wet spots occurring in upland areas

3.3.3 FEMA Flood Zone Mapping

FEMA maintains materials developed to support flood hazard mapping for the National Flood Insurance Program (NFIP). According to FIRM panel 361139A, effective 2/1/1988 the nearly all of the Project Site is not located within a flood hazard area. A small portion of one Project parcel is mapped within the Zone A flood zone associated with a portion of Black Creek (see Figure 3). Zone A is defined by FEMA as Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones (FEMA, 1988).

3.4 Federal and State Mapped Wetlands and Streams

The USFWS is the principal US federal agency tasked with providing information to the public on the status and trends of wetlands on a national scale. The USFWS NWI is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of nationwide wetlands (where mapped). NWI mapping data is offered in an effort to promote the understanding, conservation, and restoration of wetlands. Note, unlike NYSDEC wetland maps, NWI wetland maps do not denote federal jurisdiction with their mapped boundaries. NWI wetlands are used as a reference guide by TRC field biologists to conduct a more informed site survey in the demarcation or delineation of wetlands and streams, which could be subject to federal jurisdiction under the CWA within the target Project Site.

Review of the NWI mapping during the preliminary desktop analysis indicated 74 federally mapped features within the Project Site, totaling approximately 151.4 acres (see Figure 3). NWI mapping data indicates that PFO1B (Palustrine Forested Broad-leaved Deciduous Seasonally Saturated) aquatic features are the dominant NWI features present within the Project Site. These features comprise a total of approximately 67.3 acres. Other common cover types include PSS1Cd (Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded Partially Drained/Ditched) (12.58 acres), PFO1/SS1B (Palustrine Forested Broad-Leaved Deciduous/ Scrub-Shrub Broad-Leaved Deciduous Seasonally Saturated) (8.76 acres), and PEM1A (Palustrine Emergent Persistent Temporary Flooded) (6.97 acres).

The field-delineated aquatic features within the Project Site outnumber and occupy a larger area than the features represented by the NWI mapping for the Project Site. On the other hand, some field-delineated NWI mapped features are significantly smaller than their current depictions and have more specific sinuosity to their boundaries. A total of 14 NWI features identified on NWI maps were confirmed during delineation efforts to not occur on the Project Site. This may have been due to agricultural practices in the area.

Review of the NYSDEC ERM indicated three NYSDEC freshwater wetlands mapped within the Project Site. These are regulated under Article 24 of the ECL (see Table 1 and Figure 3).

Table 1. NYSDEC-Mapped Freshwater Wetlands

NYSDEC Wetland ID	Wetland Class (I, II, III, or IV)[1]	Total Wetland Area (Acres)	Wetland Area within the Project Site (Acres)
BY-13	II	22.6	8.73
BY-18	III	23.1	20.12
BY-25	II	77.1	1.63

[1]The NYSDEC classification system of freshwater wetlands designates wetlands into four class ratings, with Class I being the highest or best quality wetland and Class IV being the lowest quality.

Based on NYSDEC stream classification mapping, 10 mapped streams are within the Project Site. State-protected streams are protected by Article 15 of the ECL (see Section 2.2). Table 2 provides a detailed summary of the NYSDEC-classified (protected and unprotected) streams within the Project Site.

Table 2. NYSDEC-Mapped Streams within the Project Site

NYSDEC Stream Name and Regulatory Number	NYS Major Drainage Basin	USGS Sub-basin HUC 8 and Name	NYSDEC Classification[1] and Standard[2]	Cumulative Linear Feet within the Project Site
Black Creek, Middle, and minor tribs (821-19)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	2,584.34
Black Creek, Upper, and minor tribs (821-20)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	539.80
Black Creek, Middle, and minor tribs (821-40)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	1,168.12
Spring Creek and tribs (821-41)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	2,459.27
Spring Creek and tribs (821-42)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C(T)	3,458.02
Spring Creek and tribs (821-44)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	507.70
Spring Creek and tribs (821-45)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C(T)	2,387.49
Spring Creek and tribs (821-46)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	18.74
Bigelow Creek and tribs (821-51)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	5,061.40
Bigelow Creek and tribs (821-52)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	3,857.52
Black Creek, Upper, and minor tribs (821-61)	Lake Ontario and Minor Tributaries	4130003 (Lower Genesee sub-basin)	C/C	1,573.11

[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.

3.5 Physiography and Soil Characteristics

3.5.1 Physiography and Topography

The Project Site is located within the Erie-Ontario Lowlands Physiographic Province of New York State (New York State Department of Transportation, 2013). This Physiographic Province is defined by the plains which border the Great Lakes. They abut the Glaciated Allegheny Plateau to the south, and to their greatest extent, Tug Hill on the east. The Ontario lowlands are an area of generally subdued topography, except for the Niagara escarpment and the swarms of drumlins south of Lake Ontario. The Erie portion slopes rather uniformly from the Portage escarpment northwestward to the shore of Lake Erie. The generally low relief is provided by a series of proglacial lake beach ridges (NYSDOT Geotechnical Design Manual, 2013).

The landforms of the Project Site are cool wet plains and cool wet hills on mixed sedimentary rock with grassland, scrub, or shrub.

As shown on the USGS Byron, NY 7.5-minute quadrangle, the Project Site consists of very gently rolling plains (approximately 1 to 3 percent slope) and some slightly steeper banks of the perennial streams on the site. The Project Site can be said to be dipping very slightly to the North East, however due to the low relief of the area it is more accurate to describe the site as undulating-flat. The topography ranges from approximately 600 feet above mean sea level (AMSL) in the northcentral region of the Project Site, to approximately 700 feet AMSL in the southeast region.

3.5.2 Site Soils

The USDA NRCS Web Soil Survey is an online resource mapping tool that provides soil data and information for the vast majority of the nation. This information is produced by the National Cooperative Soil Survey (NCSS), in partnership with federal, regional, state, and local agencies and private entities and institutions.

A total of 52 soil map units were identified within the Project Site. Soil map units represent a type of soil, a combination of soils, or miscellaneous land types. Soil map units are usually named for the predominant soil series or land types within the map unit. Due to limitations imposed by the small scale of the soil survey mapping, it is not uncommon to identify wetlands within areas not mapped as hydric soil, while areas mapped as hydric often do not support wetlands. This concept is emphasized by the NRCS:

"*Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.*"

Soil drainage in the Project Site is variable, with approximately 19.3 percent of the mapped soils classified as well drained, 38.6 percent moderately well drained, 31.3 percent somewhat poorly drained, 7.8 percent poorly drained, and 3 percent classified as very poorly drained. Additionally, soils within the Project Site have been listed as a farmland classification of not prime farmland, prime farmland if drained, prime farmland, and farmland of statewide importance.

The 52 soil map units identified within the Project Site are briefly described in Appendix D and outlined in Table 3. Refer to Figure 2 for graphically depicted soil map units of the Project Site. See Appendix D for more detailed descriptions of the soils identified within the Project Site.

Hydric Soil

The Web Soil Survey was consulted prior to conducting the delineation to determine the extent of soils on the Project Site meeting hydric criteria as defined by the NRCS. The *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratories, 1987) (1987 Manual) defines a hydric soil as "*a soil that in its undrained condition, is saturated, flooded or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.*"

Of the Project soils, 12 of the soils mapped within the Project Site contain higher percentages (33 percent or more) of mapping units with hydric soil inclusions (see Figure 2). These higher rating percentages indicate the potential presence of a wetland feature on site. Hydric Soil Rating indicates the percentage of map units that meet the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor non-hydric components in the higher positions on the landform, and map units that are made up dominantly of non-hydric soils may have small areas of minor hydric components in the lower positions on the landform. As such, each map unit is rated based on its respective components and the percentage of each component within the map unit. Although a soil series will be given a general hydric soil rating on the Web Soil Survey, this rating is for reference only and does not supersede site-specific conditions documented in the field that constitute hydric soil presence in located wetlands.

Table 3. Mapped Soils within the Project Site

Map Unit Symbol	Map Unit Name	Slope (%)	Drainage Class	Hydric Rating (%)	Acres in Project Site	Percent of Project Site
Ad	Alden mucky silt loam	0-3	Very poorly drained	100	25.7	0.8%
ApA	Appleton silt loam	0-3	Somewhat poorly drained	4	360.0	10.6%
ApB	Appleton silt loam	3-8	Somewhat poorly drained	5	24.2	0.7%
ArB	Arkport very fine sandy loam	1-6	Well Drained	0	36.8	1.1%
AuA	Aurora silt loam	0-3	Moderately well drained	0	6.3	0.2%
AuB	Aurora silt loam	3-8	Moderately well drained	0	26.2	0.8%

Table 3. Mapped Soils within the Project Site

Map Unit Symbol	Map Unit Name	Slope (%)	Drainage Class	Hydric Rating (%)	Acres in Project Site	Percent of Project Site
CaA	Canandaigua silt loam	0-2	Poorly Drained	95	91.0	2.7%
CbA	Canandiagua mucky silt loam	0-2	Very poorly drained	95	4.3	0.1%
CeA	Cazenovia silt loam	0-3	Moderately well drained	0	2.9	0.1%
CeB	Cazenovia silt loam	3-8	Moderately well drained	0	172.9	5.1%
CeC	Cazenovia silt loam	8-15	Moderately well drained	0	16.7	0.5%
CgD3	Cazenovia silty clay loam	15-25	Moderately well drained	0	1.3	0.0%
ClB	Collamer silt loam	2-6	Moderately well drained	0	106.0	3.1%
DuC	Dunkirk silt loam	6-12	Well drained	0	0.2	0.0%
Fo	Fonda mucky silt loam	0-1	Very poorly drained	100	2.0	0.1%
FpA	Fredon gravelly loam	0-3	Somewhat poorly drained	10	3.7	0.1%
GnB	Galen very fine sandy loam	2-6	Moderately well drained	0	26.4	0.8%
GP	Gravel pits	N/A	N/A	5	1.3	0.0%
HlA	Hilton loam	0-3	Moderately well drained	0	166.8	4.9%
HlB	Hilton loam	3-8	Moderately well drained	0	179.2	5.3%
La	Lakemont silty clay loam	0-3	Poorly drained	95	62.5	1.8%
Ld	Lamson very fine sandy loam	0-3	Poorly drained	90	44.0	1.3%
Le	Lamson mucky very fine sandy loam	0-3	Very poorly drained	90	1.9	0.1%
LmA	Lima silt loam	0-3	Moderately well drained	1	161.3	4.7%
LmB	Lima silt loam	3-8	Moderately well drained	1	437.6	12.8%
LoA	Lyons soils, 0 to 3 percent slopes	0-3	Poorly drained	95	32.2	0.9%
Ma	Madalin silty clay loam	0-3	Poorly drained	95	1.2	0.0%

Table 3. Mapped Soils within the Project Site

Map Unit Symbol	Map Unit Name	Slope (%)	Drainage Class	Hydric Rating (%)	Acres in Project Site	Percent of Project Site
MnA	Minoa very fine sandy loam	0-2	Somewhat poorly drained	5	11.7	0.3%
NeA	Newstead silt loam	0-3	Somewhat poorly drained	5	8.9	0.3%
NgA	Niagara silt loam	0-2	Somewhat poorly drained	5	69.2	2.0%
OdA	Odessa silt loam	0-3	Somewhat poorly drained	5	12.9	0.4%
OdB	Odessa silt loam	3-8	Somewhat poorly drained	4	38.9	1.1%
OnA	Ontario loam	0-3	Well drained	0	110.5	3.2%
OnB	Ontario loam	3-8	Well drained	0	403.5	11.8%
OnC	Ontario loam	8-15	Well drained	0	22.9	0.7%
OnD	Ontario loam	15-25	Well drained	0	0.8	0.0%
OsB	Ontario loam, stony	3-8	Well drained	0	27.2	0.8%
OvA	Ovid silt loam	0-3	Somewhat poorly drained	5	210.9	6.2%
OvB	Ovid silt loam	3-8	Somewhat poorly drained	5	328.2	9.6%
Pd	Palms muck	0-6	Very poorly drained	100	8.3	0.2%
PhA	Palmyra gravelly loam	0-3	Well drained	0	2.8	0.1%
PhB	Palmyra gravelly loam	3-8	Well drained	0	19.7	0.6%
PhC	Palmyra gravelly loam	8-15	Well drained	0	13.2	0.4%
PkD	Palmyra and Arkport soils	15-25	Well drained	0	1.6	0.0%
PsA	Phelps gravelly loam	0-3	Moderately well drained	5	1.2	0.0%
PsB	Phelps gravelly loam	3-8	Moderately well drained	0	2.0	0.1%
RsA	Romulus silt loam	0-3	Poorly drained	85	37.0	1.1%
ShC3	Schoharie silty clay loam	6-12	Moderately well drained	0	0.1	0.0%
Te	Teel silt loam	0-3	Moderately well drained	5	7.4	0.2%
Wk	Wakeville silt loam	0-3	Somewhat poorly drained	10	49.4	1.5%
WsB	Wassaic silt loam	2-8	Well drained	0	17.4	0.5%

Table 3. Mapped Soils within the Project Site

Map Unit Symbol	Map Unit Name	Slope (%)	Drainage Class	Hydric Rating (%)	Acres in Project Site	Percent of Project Site
Wy	Wayland soils complex, frequently flooded	0-3	Very poorly drained	90	5.8	0.2%

4.0 DELINEATION METHODOLOGY

Prior to initiating field investigations, TRC conducted a desktop review of publicly available data to determine the potential presence of federal and state mapped wetlands and streams within the Project Site alongside other potential environmental constraints, which could impact the Project. TRC field biologists subsequently performed field investigations to identify aquatic features within the Project Site. Delineations for wetlands were performed in accordance with criteria set forth in the 1987 Manual (Environmental Laboratory, 1987) and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (USACE, 2012) (Supplement). Data was collected from paired sample plots inside and outside each delineated wetland at a representative area near the wetland boundary. Depending on the size of the delineated area and any change in cover type, multiple sample plots of the delineated wetland may have been taken. Delineation data was recorded on USACE Routine Wetland Determination Forms (Appendix C). The boundaries of wetlands were demarcated with pink survey ribbon labeled "wetland delineation" and located with a GPS unit with reported sub-meter accuracy.

4.1 Hydrology

The presence of wetland hydrology is determined based on primary and secondary indicators established by the USACE. The 1987 Manual defines the presence of wetland hydrology when at least one primary indicator or two secondary indicators are identified. One primary indicator is sufficient to determine if hydrology is present; however, if primary indicators are absent, two or more secondary indicators are required to determine the presence of wetland hydrology. If other probable wetland hydrology evidence was found on-site, then such characteristics were subsequently documented on the USACE Routine Wetland Determination Form. Wetland hydrology indicators are grouped into 18 primary and 11 secondary indicators as presented in the Supplement.

Wetland hydrology may influence the characteristics of vegetation and soils due to anaerobic and reducing conditions (Environmental Laboratory, 1987). This influence is dependent on the frequency and duration of soil inundation or saturation which, in turn, is dependent on a variety of factors including topography, soil stratigraphy, and soil permeability, in conjunction with precipitation, runoff, and stormwater and groundwater influence.

4.2 Vegetation

Hydrophytic vegetation is defined in the 1987 Manual as:

"*…the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.*"

Plants are categorized according to their occurrence in wetlands. Scientific names and wetland indicator statuses for vegetation are those listed in *The National Wetland Plant List: 2016 Wetland Ratings* (Lichvar et al., 2016) (NWPL). Due to regional differences in wetland vegetation, among other characteristics, the USACE divided the United States into regions to improve the accuracy and efficiency of wetland delineations. The indicator statuses specific to the "Northcentral and Northeast Region," as defined by the USACE, apply to the Project Site. The official short definitions for wetland indicator statuses are as follows:

- Obligate Wetland (OBL): Almost always occur in wetlands.
- Facultative Wetland (FACW): Usually occur in wetlands but may occur in non-wetlands.
- Facultative (FAC): Occur in wetlands and non-wetlands.
- Facultative Upland (FACU): Usually occur in non-wetlands but may occur in wetlands.
- Upland (UPL): Almost never occur in wetlands.

For species with no indicator status in the Project Site's region, the indicator status assigned to the species in the nearest adjacent region is applied. Plants that are not included on the NWPL within the Project Site's region, nor an adjacent region, are given no indicator status, and are not included in dominance calculations. Plants that are not listed in any region on the NWPL are considered as UPL on USACE Routine Wetland Determination Forms.

Vegetation in both upland and wetland communities was characterized using areal methods for instituting plot measurement. In accordance with USACE methodology, a plot radius of 30 feet around the soil sample location was applied to tree species and vines, a 15-foot radius for saplings/shrubs, and a 5-foot radius was utilized for herbaceous plants. After the measurement of percent coverage was determined for each species, an application of the 50/20 rule of dominance determination was utilized to determine hydrophytic dominance at sample plots. In using the 50/20 rule, the plants that comprise each stratum are ranked from highest to lowest in percent cover. The species that cumulatively equal or exceed 50 percent of the total percent cover for each stratum are dominant species, and any additional species that individually provides 20 percent or more percent cover are also considered dominant species of its respective strata. The total cover for each stratum, and subsequently the plot as a whole, could exceed 100 percent due to vegetation overlap.

It should be noted that where the wetland boundary results of this approach differ meaningfully from the approach outlined within the *New York State Freshwater Wetland Delineation Manual* (Browne et al., 1995), the difference is described within this report if needed to address NYSDEC Article 24 jurisdiction. Though not common, two wetland boundaries, a state and a federal boundary, may arise from subtle differences in the definition of vegetative strata, sampling technique, and wetland indicators between the USACE and the NYSDEC. See Section 5.0 for more detail.

Cover types are also assigned to each wetland. The delineated resources were classified in accordance with the system presented in *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (Federal Geographic Data Committee [FGDC], 2013). Field biologists assign cover types to wetlands based on this classification standard and utilize this document. TRC biologists used the definitions for perennial and intermittent streams found in *The Classification of Wetlands and Deepwater Habitats of the United States, Second Edition* (FGDC, 2013) when classifying delineated streams. Ephemeral streams have flowing water primarily from rainfall runoff and are above the water table.

4.3 Soils

Hydric soil indicators were determined utilizing the Supplement with added provision from the *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils*, Version 8.2 (USDA NRCS, 2018). Soil characteristics were documented, such as color, texture, layer depth, presence of organic layers, and evidence of redoximorphic features, which may include indicators such as reduction, oxidation, gleyed matrices, manganese features. Soil test pits were dug using a spade shovel to a depth of approximately 20 inches. If refusal of a soil sample to 20 inches occurred due to the presence of hardpan layer, rock, or hard fill materials, this occurrence was documented. Soil color was described using the *Munsell Soil Color Book* (Munsell Color, 2015). Texture was determined using the USDA feel method (Thien, 1979).

Hydric soil indicators applicable to the Project Site were determined using the *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin* (NRCS, 2006) (MLRA Handbook). Per the MLRA Handbook, the Project Site is within Major Land Resource Area 101 (Ontario-Erie Plain and Finger Lakes Region) of Land Resource Region (LRR) L (Lake States Fruit, Truck Crop, and Dairy Region). Hydric soil indicators that do not apply to this MLRA were not considered.

4.4 Streams

Streams and other non-wetland aquatic features (e.g., lakes and ponds) within the Project Site were identified by the presence of an OHWM, which is the line established by the fluctuations of water (33 CFR 328.3). The OHWM, where not established and available by public record, is indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other characteristics of the surrounding areas.

The streams were delineated from bank to bank with blue flagging and points of the delineated boundaries were located with a handheld GPS unit set for sub-meter accuracy. In streams less than 6 feet wide, sub-meter GPS point capture and post-processing (differential correction) may yield imprecise stream bank measurements due to the narrow nature of the stream. In these circumstances, centerline delineations are applied to maintain accurate representation of stream sinuosity for planning and impact calculation purposes. Stream attributes including width, bank height, and water depth are measured and documented on TRC Stream Inventory Data Forms (Appendix C).

5.0 RESULTS

5.1 General Overview

The Project Site contains primarily agricultural land. Several tree lines between agricultural fields and small patches of forested habitat are present. Upland forests included tree species such as sugar maple, red maple (*Acer rubrum*), shagbark hickory (*Carya ovata*) eastern hop-hornbeam (*Ostrya virginiana*), bitternut hickory (*Carya cordiformis*), and American beech (*Fagus grandifolia*).

Weather conditions were indicative of overall trend for the year having higher than average rainfall; there was an above average number of precipitation events during the delineation effort. Precipitation events were observed on 8 of the 18 field days spent onsite. The other days were overcast to sunny with average temperatures for the field effort of 70 degrees Fahrenheit. Delineations were postponed at any time delineators thought the weather might interfere in accurate data collection.

TRC identified and delineated 60 wetlands and 24 streams within the Project Site during the delineation period of May 28th through June 20th (see Figure 4 of Appendix A). Approximately 5.1% (176 acres) of the approximately 3,418-acre Project Site is classified as wetland. Tables 4 and 5 below detail the wetlands and streams delineated at the Project Site. Representative photographs taken of each delineated wetland community and stream within the Project Site are provided in Appendix B. Completed USACE Routine Wetland Determination Forms and TRC Stream Inventory Data Forms are provided in Appendix C.

5.2 Delineated Wetlands

Palustrine Emergent Wetlands (PEM) – A total of 43 wetlands delineated within the Project Site contained characteristics representative of an emergent wetland community. Emergent wetlands are dominated by erect, rooted, herbaceous hydrophytic vegetation excluding mosses and lichens (Cowardin et al. 1979).

Emergent wetlands encountered on the Project Site were typically dominated by purple-stem American-aster (*Symphyotrichum puniceum*), narrow-leaf cat-tail (*Typha angustifolia*), common reed (*Phragmites australis*), blunt spike-rush (*Eleocharis obtuse*), cursed buttercup (*Ranunculus sceleratus*), reed canary grass (*Phalaris arundinacea*), spotted touch-me-not (*Impatiens capensis*), and fowl blue grass (*Poa palustris*). Evidence of wetland hydrology for these wetlands included saturation, saturation visible on aerial Imagery, inundation visible on aerial imagery, geomorphic position, surface water, high water table, and aquatic fauna. Variations of characteristics in the soil matrices generally demonstrated redox dark surface (F6) and depleted matrix (F3) hydric soil indicators,

Palustrine Scrub-Shrub Wetlands (PSS) – A total of 10 wetlands delineated within the Project Site contained characteristics representative of a scrub-shrub wetland community. Scrub-shrub wetlands are dominated by woody shrub vegetation that stands less than 20 feet tall. Shrub species dominating the wetland could include true shrubs, a mixture of young trees and shrubs, or trees that are small or stunted due to stressors from explicit environmental conditions (Cowardin et al. 1979).

Scrub-shrub wetlands encountered on the project site were typically dominated by black willow (*Salix nigra*), silky dogwood (*Cornus amomum*), gray dogwood (*Cornus racemosa*), gray willow (*Salix bebbiana*), Evidence of wetland hydrology for these wetlands included high water table, saturation, algal mat or crust, geomorphic position, water stained leaves, high water table and watermarks. Variations of characteristics in the soil matrices generally demonstrated Depleted Matrix (F3), Depleted Below Dark Surface (A11) and Redox Dark surface (F6) hydric soil indicators.

Palustrine Forested Wetlands (PFO) – A total of 20 wetlands delineated within the Project Site contained characteristics representative of a forested wetland community. Forested wetlands are dominated by trees and shrubs that are at least six meters tall. Forested wetlands typically have a mature tree canopy and depending upon the species and density, can have a broad range of understory and groundcover community components (Cowardin et al. 1979).

Forested wetlands encountered on the project site were typically dominated by red maple (*Acer rubrum*), American elm (*Ulmus americana*), swamp white oak (*Quercus bicolor*), green ash (*Fraxinus pennsylvanica*), silver maple (*acer saccharinum*) Evidence of wetland hydrology for these wetlands included water stained leaves, surface water, saturation, high water table, saturation, algal mat or crust, sparsely vegetated concave surface, watermarks, and thin muck surface, Variations of characteristics in the soil matrices generally demonstrated Depleted Matrix (F3) and Depleted Below Dark surface (A11) hydric soil indicators.

Palustrine Unconsolidated Bottom Wetlands (PUB) – A total of 11 wetlands delineated within the Project Site contained characteristics representative of unconsolidated bottom wetland communities. Unconsolidated bottom wetlands include wetland and Deepwater habitats with at least 25 percent cover of particles smaller than stones, and a vegetative cover less than 30%. Water regimes are restricted to subtidal, permanently flooded, intermittently exposed, and semi permanently flooded (Cowardin et al. 1979).

Unconsolidated bottom wetlands are predominantly unvegetated however dominant vegetation observed on the borders of PUB wetlands included black willow, green ash, and narrow-leaf cat-tail. Evidence of wetland hydrology for these wetlands included surface water, high water table, saturation, inundation visible on aerial imagery, and geomorphic position. Due to inherent inundation in these wetlands it is not possible to obtain an accurate soil profile, because these wetlands are inundated year round, soils are assumed to be hydric.

Table 4. Delineated Wetlands within the Project Site

Wetland Field Designation	Cover Type Classification[1] and Acreage				Total Wetland Acreage within Project Site	NWI Cover Type[2]	NYSDEC Wetland ID	NYSDEC Wetland Class[3]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO	PUB								
W-JDV-01	0.33	-	15.60	-	15.93	PFO1B	-	-	USACE	-	43.0832	-78.0737
W-JDV-02	0.06	-	-	-	0.06	-	BY-13	II	USACE/ NYSDEC	100’	43.0804	-78.0730
W-JDV-03	0.13	-	-	0.17	0.30	-	-	-	USACE	-	43.0807	-78.0460
W-JDV-04	1.65	-	-	-	1.65	R4SBC	-	-	USACE	-	43.0826	-78.0497
W-JDV-05	0.08	-	1.93	-	2.01	PFO1/ PSS1E	-	-	USACE	-	43.0866	-78.0830
W-JDV-06	-	0.15	-	-	0.15	PSS1E	-	-	USACE	-	43.0858	-78.0914
W-JDV-07	0.03	0.29	-	-	0.32	PSS1E	-	-	USACE	-	43.0861	-78.0924
W-JDV-08	0.00	-	-	-	0.00	-	-	-	-	-	43.0876	-78.0967
W-JDV-09	0.10	-	-	-	0.10	-	-	-	-	-	43.0734	-78.0922
W-JDV-10	0.02	-	-	-	0.02	-	-	-	-	-	43.0731	-78.1024
W-JDV-11	-	-	0.16	-	0.16	-	-	-	-	-	43.0768	-78.1001
W-JDV-12	0.01	-	-	-	0.01	-	-	-	-	-	43.0493	-78.1126
W-JDV-13	0.14	-	-	-	0.14	PEM1C x	-	-	USACE	-	43.0691	-78.1086
W-JDV-14	-	9.41	-	-	9.41	PEM1E, PSS1E	-	-	USACE	-	43.0713	-78.1109
W-JDV-15	-	-	-	0.27	0.27	PUBF	-	-	-	-	43.0705	-78.1132

Table 4. Delineated Wetlands within the Project Site

Wetland Field Designation	Cover Type Classification[1] and Acreage				Total Wetland Acreage within Project Site	NWI Cover Type[2]	NYSDEC Wetland ID	NYSDEC Wetland Class[3]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO	PUB								
W-JDV-16	-	-	0.02	-	0.02	-	-	-	USACE	-	43.0723	-78.1076
W-JJB-01	-	-	1.33	-	1.33	-	-	-	USACE	-	43.0841	-78.0496
W-JJB-02	-	-	-	0.17	0.17	-	-	-	-	-	43.0706	-78.0493
W-JJB-03	-	-	0.61	-	0.61	-	-	-	USACE	-	43.0706	-78.0513
W-JJB-04	-	-	1.91	-	1.91	-	-	-	USACE	-	43.0715	-78.0528
W-JJB-05	-	5.45	5.38	-	10.83	PFO1B	-	-	USACE	-	43.0730	-78.0551
W-JJB-06	-	-	5.27	-	5.27	-	-	-	-	-	43.0756	-78.0543
W-JJB-07	0.43	-	-	-	0.43	-	-	-	-	-	43.0779	-78.0509
W-JJB-08	0.61	-	-	-	0.61	-	-	-	-	-	43.0663	-78.0583
W-JJB-09	0.55	-	-	-	0.55	-	-	-	USACE	-	43.0678	-78.0625
W-JJB-10	3.87	-	4.68	-	8.55	PFO1B, R4SBAx	-	-	USACE	-	43.0700	-78.0591
W-JJB-11	-	2.35	6.53	-	8.88	PSS1/ EM1C, PFO1C	-	-	USACE	-	43.0738	-78.0690
W-JJB-12	0.12	-	-	-	0.12	-	-	-	-	-	43.0584	-78.0545
W-JJB-13	1.48	3.20	9.18	-	13.86	PFO1B, PUBFh,	-	-	USACE	-	43.0609	-78.0503
W-JJB-14	0.71	-	-	-	0.71	R4SBC	-	-	USACE	-	43.0552	-78.0474
W-JJB-15	0.96	0.48	-	-	1.44	-	-	-	USACE	-	43.0539	-78.0478
W-JJB-16	-	0.76	-	-	0.76	-	-	-	USACE	-	43.0549	-78.0454

Table 4. Delineated Wetlands within the Project Site

Wetland Field Designation	Cover Type Classification[1] and Acreage				Total Wetland Acreage within Project Site	NWI Cover Type[2]	NYSDEC Wetland ID	NYSDEC Wetland Class[3]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO	PUB								
W-JJB-17	-	-	5.58	0.64	6.22	PUBFx	-	-	-	-	43.0626	-78.0996
W-JJB-18	-	-	-	0.04	0.04	-	-	-	-	-	43.0631	-78.1009
W-JJB-19	-	-	-	32.80	32.80	PFO1B	BY-18	III	USACE/ NYSDEC	100’	43.0569	-78.1053
W-JJB-20	0.94	0.21	-	-	1.15	-	-	-	USACE	-	43.0466	-78.1090
W-JJB-21	0.27	-	-	-	0.27	R4SBC x	-	-	USACE	-	43.0702	-78.1151
W-JJB-22	2.56	4.48	2.37	0.26	9.67	PFO1/ SS1B	BY-13	II	USACE/NYS DEC	100’	43.0786	-78.0748
W-JJB-23	0.07	-	-	0.65	0.72	PUBHh	-	-	USACE	-	43.0732	-78.0772
W-JJB-24	0.05	-	-	-	0.05	-	-	-	USACE	-	43.0668	-78.0761
W-JJB-25	1.23	-	0.59	-	1.82	PFO1E	-	-	USACE	-	43.0630	-78.0798
W-JJB-26	0.13	-	-	-	0.13	-	-	-	USACE	-	43.0602	-78.0791
W-JJB-27	1.23	-	-	-	1.23	R4SBAx	-	-	USACE	-	43.0607	-78.0860
W-JJB-28	-	-	-	0.14	0.14	-	-	-	-	-	43.0603	-78.0865
W-JJB-29	0.05	-	-	-	0.05	-	-	-	USACE	-	43.0614	-78.0839
W-JJB-30	0.11	-	-	-	0.11	-	-	-	-	-	43.0550	-78.0851
W-JJB-31	4.28	1.68	-	4.53	10.49	PEM1A, PFO1A, R2UBH	-	-	USACE	-	43.0516	-78.0894
W-JJB-32	0.28	-	-	-	0.28	-	-	-	-	-	43.0554	-78.0870

Table 4. Delineated Wetlands within the Project Site

Wetland Field Designation	Cover Type Classification[1] and Acreage				Total Wetland Acreage within Project Site	NWI Cover Type[2]	NYSDEC Wetland ID	NYSDEC Wetland Class[3]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO	PUB								
W-JJB-33	1.10	-	8.95	0.16	10.21	R4SBAx	-	-	USACE	-	43.0549	-78.0895
W-JJB-34	0.89	-	-	-	0.89	-	-	-	-	-	43.0544	-78.0870
W-JJB-35	0.63	-	-	-	0.63	PUBHx	-	-	-	-	43.0542	-78.0927
W-JJB-36	-	-	2.95	-	2.95	PFO1A	-	-	USACE	-	43.0536	-78.0676
W-WSH-01	0.37	-	-	-	0.37	R5UBH	-	-	USACE	-	43.0428	-78.0402
W-WSH-02	0.51	-	-	-	0.51	R4SBCx	-	-	USACE	-	43.0420	-78.0419
W-WSH-03	0.35	-	-	-	0.35	-	-	-	USACE	-	43.0480	-78.0882
W-WSH-04	1.93	-	2.02	-	3.95	-	-	-	-	-	43.0454	-78.0907
W-WSH-05	0.03	-	-	-	0.03	-	-	-	-	-	43.0436	-78.0927
W-WSH-06	0.05	-	-	-	0.05	PSS1Cd	-	-	USACE	-	43.0423	-78.0956
W-WSH-07	1.78	-	3.36	-	5.14	PSS1Cd/ PEM1C	-	-	USACE	-	43.0438	-78.0950
W-WSH-08	-	-	-	0.14	0.14	-	-	-	USACE	-	43.0570	-78.0963
Total Wetland Acreage Delineated:					**176.96**							

[1]PEM – palustrine emergent; PSS – palustrine scrub-shrub; PFO – palustrine forested; PUB – palustrine unconsolidated bottom
[2]PEM1A- Palustrine emergent, persistent, temporary flooded; PEM1C- Palustrine emergent, persistent, seasonally flooded; PEM1Cx- Palustrine emergent, persistent, seasonally flooded, excavated; PEM1E- Palustrine emergent, persistent, seasonally flooded/saturated; PFO1B- Palustrine forested, broad-leaved deciduous, seasonally saturated; PFO1C- Palustrine forested, broad-leaved deciduous, seasonally flooded; PFO1E- Palustrine forested, broad-leaved deciduous, seasonally flooded/saturated; PSS1C- Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded; PSS1B- Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated; PSS1Cd- Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded, partially drained/ditched PSS1E- Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated; PUBF- Palustrine unconsolidated

Table 4. Delineated Wetlands within the Project Site

Wetland Field Designation	Cover Type Classification[1] and Acreage				Total Wetland Acreage within Project Site	NWI Cover Type[2]	NYSDEC Wetland ID	NYSDEC Wetland Class[3]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
	PEM	PSS	PFO	PUB								

bottom, semipermanently flooded; PUBFh- Palustrine unconsolidated bottom, semipermanently flooded, diked/impounded; PUBFx- Palustrine unconsolidated bottom, semipermanently flooded, excavated; PUBHh- Palustrine unconsolidated bottom, permanently flooded, diked/impounded; PUBHx- Palustrine unconsolidated bottom, permanently flooded, excavated; R2UBH- Riverine, lower perennial, unconsolidated bottom, permanently flooded; R4SBAx- Riverine, intermittent, streambed, temporary flooded, excavated; R4SBC- Riverine, intermittent, streambed, seasonally flooded; R4SBCx- Riverine, intermittent, streambed, seasonally flooded, excavated; R5UBH- Riverine, unknown perennial, unconsolidated bottom, permanently flooded;

[3]The NYSDEC classification system of freshwater wetlands designates wetlands into four class ratings (I–IV), with Class I being the highest or best quality wetland and Class IV being the lowest quality.

5.3 Delineated Streams

Streams (RUP, RIN, REPH) – A total of 24 streams or stream segments were delineated within the Project Site. Classification of streams were dependent on a temporal description of their usual level of flow regimes. Perennial streams (RUP) tend to flow all year, except during severe drought conditions. Perennial streams can flow below the water table and typically receive groundwater flow from springs or groundwater seepages. Intermittent streams (RIN) flow only during certain times of the year from springs, snow melts, and runoff from seasonal precipitation events. Intermittent streams can flow above or below the water table but do have a connection to the water table Ephemeral streams (REPH) flow sporadically and are entirely dependent on transient precipitation from storm events or from periodic snow melts. These streams tend to be disconnected from the water table and are often drainage features adjacent to, or within, the headwaters of a more major stream system.

Streams encountered on the Project Site were mostly intermittent in nature with a few larger perennial streams running through the Project Site as well. These were flowing along shallow gradients of approximately one to five percent. Stream substrates observed were diverse and included gravel, silt/clay, cobble, sand, riprap, and organic matter. Stream depths ranged from zero inches to four feet deep. A majority of streams supported some form of aquatic ecology, with a few of the streams, especially the larger perennials, determined to contain significant aquatic habitat and sufficient flow regimen able to support fish and wildlife populations.

Table 5. Delineated Streams within the Project Site

Stream Field Designation	Flow Regime Classification	Linear Feet within Project Site	NYSDEC Stream Name	NYSDEC Classification[1] and Standard[2]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
S-JJB-01	Intermittent	285.43	-	-	USACE	-	43.0860	-78.0901
S-JJB-02	Intermittent	504.48	-	-	USACE	-	43.0859	-78.0883
S-JJB-03	Intermittent	759.67	-	-	USACE	-	43.0862	-78.0921
S-JJB-04	Intermittent	668.58	-	-	USACE	-	43.0772	-78.1012
S-JJB-05	Perennial	3,121.61	Black Creek, Upper, Middle, and minor tribs	C	USACE/ NYSDEC	50’	43.0705	-78.1091
S-JJB-06	Perennial	5,258.29	Spring Creek and tribs	C(T)	USACE/ NYSDEC	50’	43.0724	-78.1122
S-JJB-07	Intermittent	156.98	-	-	USACE	-	43.0858	-78.0748
S-JJB-08	Intermittent	444.42	Spring Creek and tribs	C	USACE	-	43.0715	-78.0542
S-JJB-09	Intermittent	34.02	Black Creek, Middle, and minor tribs	C	USACE	-	43.0693	-78.0619
S-JJB-10	Intermittent	217.69	Black Creek, Middle, and minor tribs	C	USACE	-	43.0685	-78.0610
S-JJB-11	Perennial	60.61	-	-	USACE	-	43.0737	-78.0701
S-JJB-12	Perennial	7,013.80	Bigelow Creek and tribs	C	USACE/ NYSDEC	50’	43.0550	-78.1126
S-JJB-13	Intermittent	615.44	-	-	USACE	-	43.0557	-78.1154
S-JJB-14	Ephemeral	677.97	-	-	USACE	-	43.0701	-78.1145
S-JJB-15	Intermittent	81.12	-	-	USACE	-	43.0683	-78.0756
S-JDV-01	Perennial	7,043.12	Spring Creek and tribs	C(T)	USACE/ NYSDEC	50’	43.0682	-78.0759

Table 5. Delineated Streams within the Project Site

Stream Field Designation	Flow Regime Classification	Linear Feet within Project Site	NYSDEC Stream Name	NYSDEC Classification[1] and Standard[2]	Potential Jurisdiction	Associated Buffer	Latitude of Centroid	Longitude of Centroid
S-JDV-02	Intermittent	238.41	-	-	USACE	-	43.0637	-78.0836
S-JDV-03	Intermittent	105.61	-	-	USACE	-	43.0441	-78.0959
S-JDV-04	Intermittent	1,044.34	-	-	USACE	-	43.0546	-78.0896
S-JDV-05	Intermittent	1,520.45	-	-	USACE	-	43.0560	-78.0934
S-JDV-06	Intermittent	32.50	-	-	USACE	-	43.0551	-78.0674
S-WSH-01	Ephemeral	297.44	Black Creek, Middle, and minor tribs	C	USACE	-	43.0410	-78.0445
S-WSH-02	Ephemeral	751.87	-	-	USACE	-	43.0444	-78.0846
S-WSH-04	Intermittent	463.43	-	-	USACE	-	43.0463	-78.0960
Total Stream Length Delineated:		31,397.29						

[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.

6.0 CONCLUSIONS

TRC identified and delineated a total of 60 wetlands (176.9 acres) in the Project Area, including several with mixed classification characteristics. Of these wetlands, there were 43 with PFO characteristics (111.21 acres), 10 wetlands with PSS characteristics (28.25 acres), 43 with PEM characteristics (30.32 acres), and 11 with PUB characteristics (7.17 acres). TRC assumes that 40 of the delineated wetlands have the potential to be under USACE jurisdiction, as they are hydrologically connected to WOTUS, or extend offsite where connections are presumed. There are no federally-protected buffers or setbacks associated with USACE-regulated wetlands. Twenty delineated wetlands do not have a direct physical connection to WOTUS and have the potential to be considered isolated and hence non-jurisdictional. As such, they are likely to be non-jurisdictional under the USACE. Three delineated wetlands are considered to represent NYSDEC mapped freshwater wetlands and therefore are likely under NYSDEC jurisdiction.

TRC identified and delineated a total of 24 streams in the Project Area, including 5 perennial streams, 16 intermittent streams, and 3 ephemeral streams. All of the delineated streams will likely be under USACE jurisdiction, as they are physically connected by surface water connections to WOTUS or flow offsite and are assumed to connect to WOTUS downstream. Four of these streams coincide with NYSDEC stream mapping as navigable Class C(T) or Class C streams and are therefore not protected waters per Article 15 of the ECL (Protection of Waters).

Despite assumptions offered above by TRC, it is recognized that the final determination of the jurisdictional status of the wetlands and streams identified on the Project Area must be made by both the USACE and the NYSDEC upon completion of detailed reviews by each respective agency.

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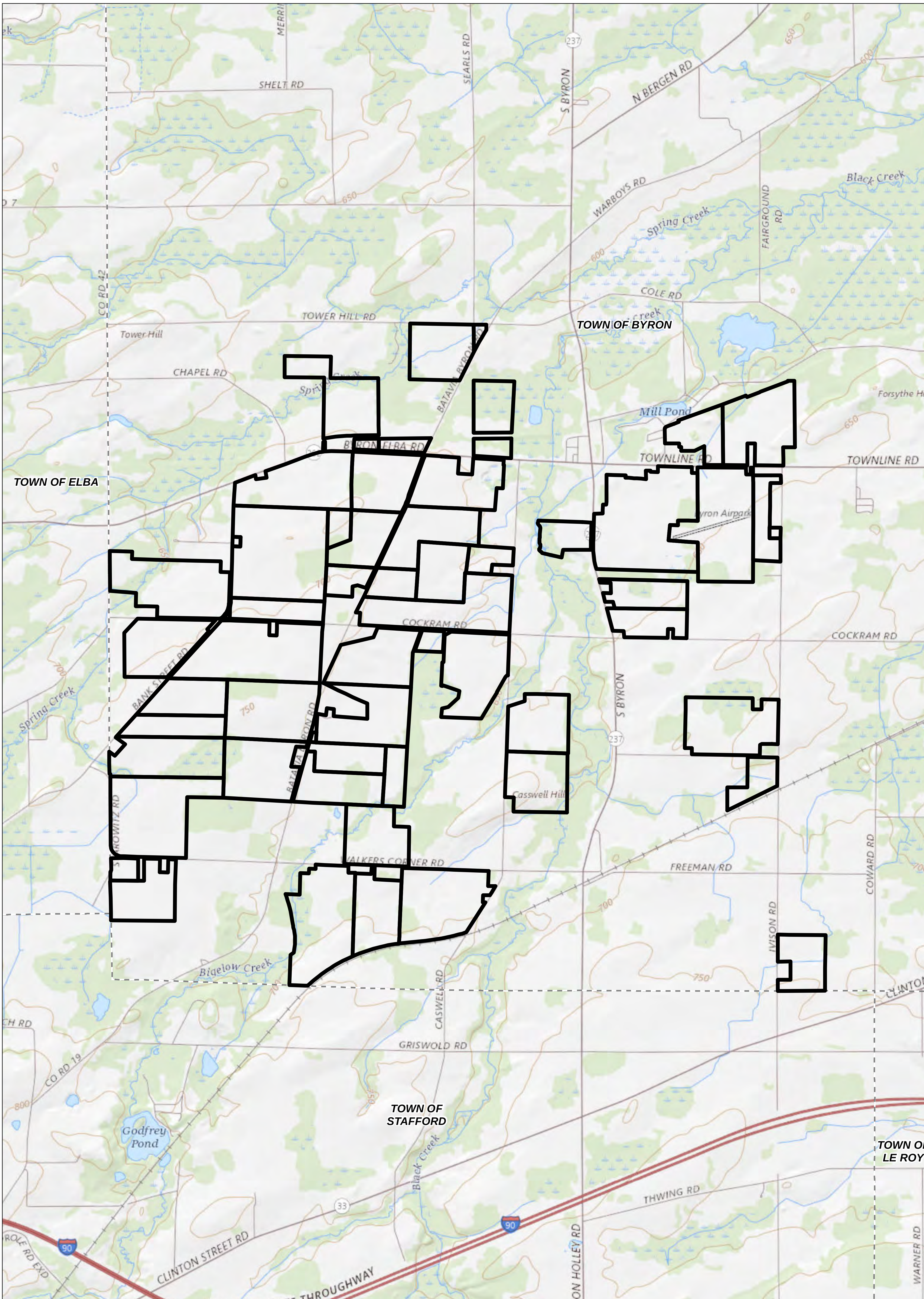
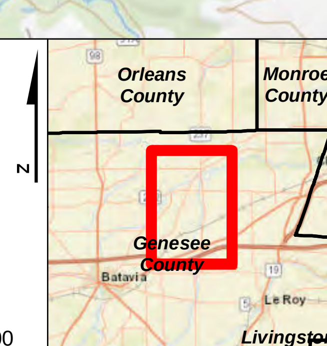
APPENDIX A
Figures



Project Area
Municipal Boundary

Base Map: USGS/The National Map

0 1,250 2,500
Feet

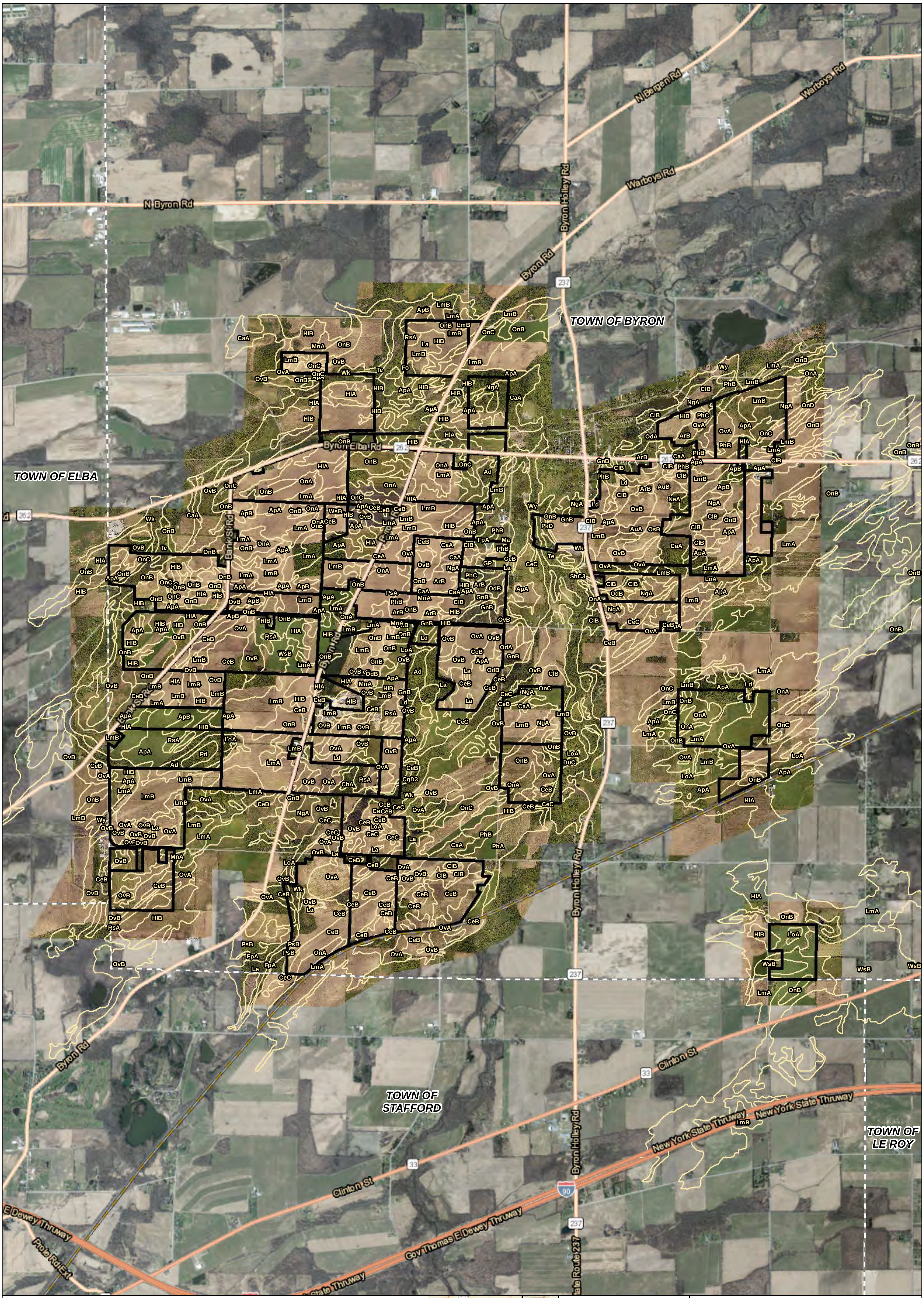


NEXTera ENERGY

SITE LOCATION MAP
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY

FIGURE 1	SEPTEMBER 2019

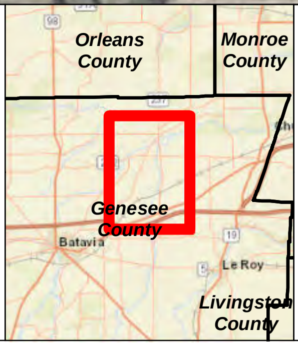
Map Produced by TRC



Project Area
Mapped Soils
Municipal Boundary

Data: USDA NRCS
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 1,250 2,500 3,750 Feet



NEXTera ENERGY

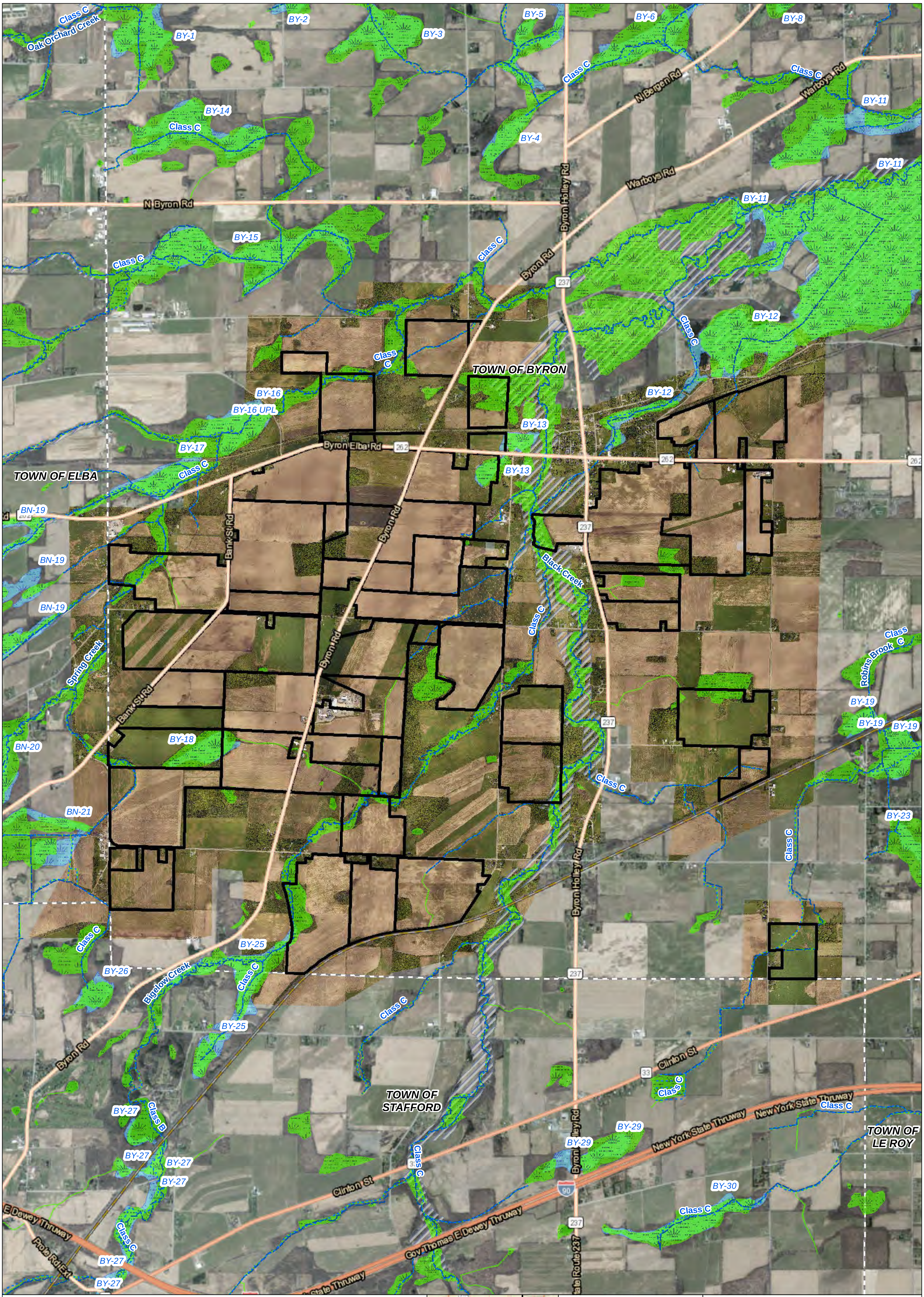
SOILS MAP

EXCELSIOR ENERGY CENTER, LLC

TOWN OF BYRON, NY

FIGURE 2 | OCTOBER 2019

Map Produced by: TRC



NHD Stream
NYSDEC Classified Stream
NWI Feature
NYSDEC Wetland
Special Flood Hazard Area (FEMA)
Project Area
Municipal Boundary

Data: NYGIS, NYSDEC, NWI, FEMA
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 1,250 2,500 3,750 Feet

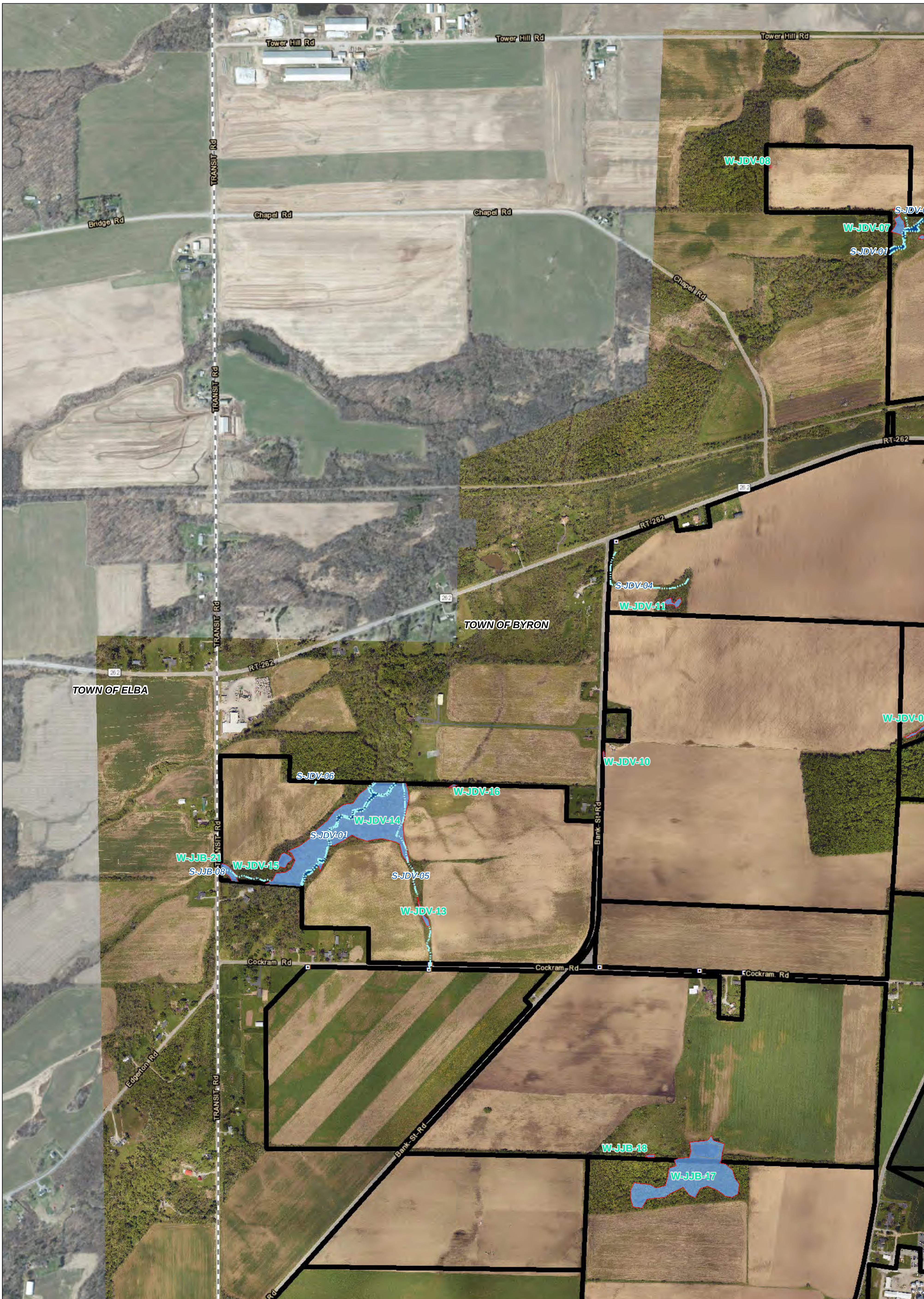
Orleans County
Monroe County
Genesee County
Livingston County
New York

NEXTera ENERGY

MAPPED RESOURCES MAP
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY

FIGURE 3 | OCTOBER 2019

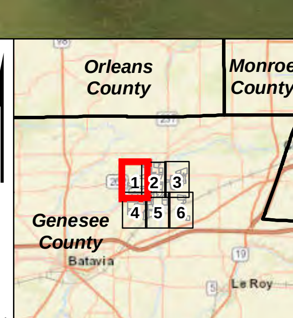
Map Produced by: TRC



Culvert Points (2019)
Delineated Streams
Delineated Wetland Boundary
Delineated Wetlands
Delineated Bank-to-Bank Streams
Municipal Boundary
Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 400 800 1,200
Feet



NEXTera ENERGY

DELINEATED RESOURCES
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY
FIGURE 4

SHEET 1 OF 6 | OCTOBER 2019

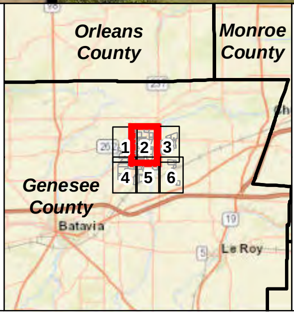
Map Produced by TRC

Culvert Points (2019)
Delineated Streams
Delineated Wetland Boundary
Delineated Wetlands
Delineated Bank-to-Bank Streams

Municipal Boundary
Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 400 800 1,200 Feet

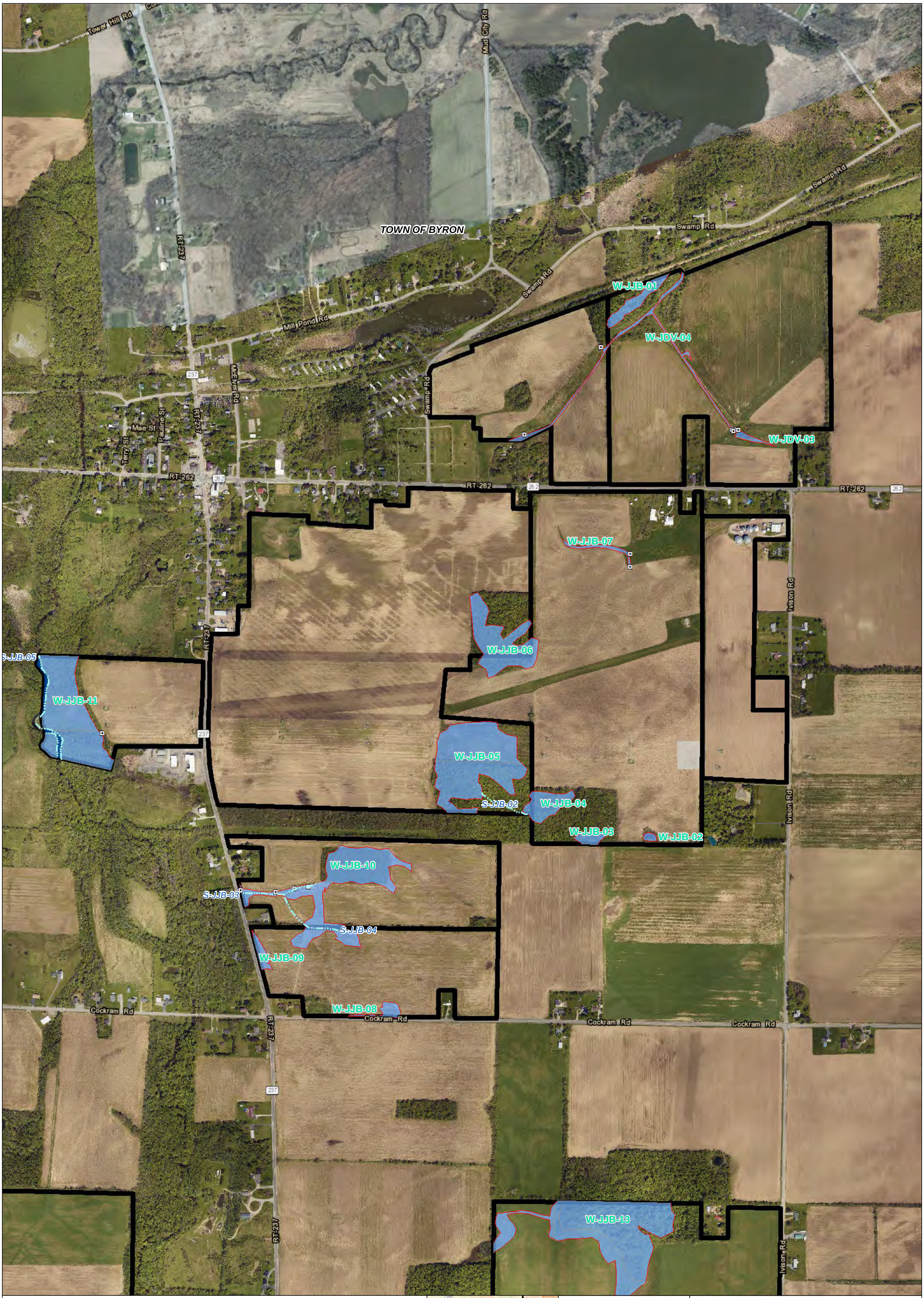


NEXTera ENERGY

DELINEATED RESOURCES
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY
FIGURE 4

SHEET 2 OF 6 | OCTOBER 2019

Map Produced by TRC



Culvert Points (2019)
Delineated Streams
Delineated Wetland Boundary
Delineated Wetlands
Delineated Bank-to-Bank Streams
Municipal Boundary
Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

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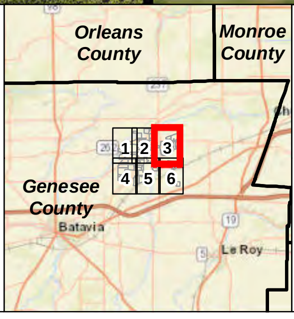
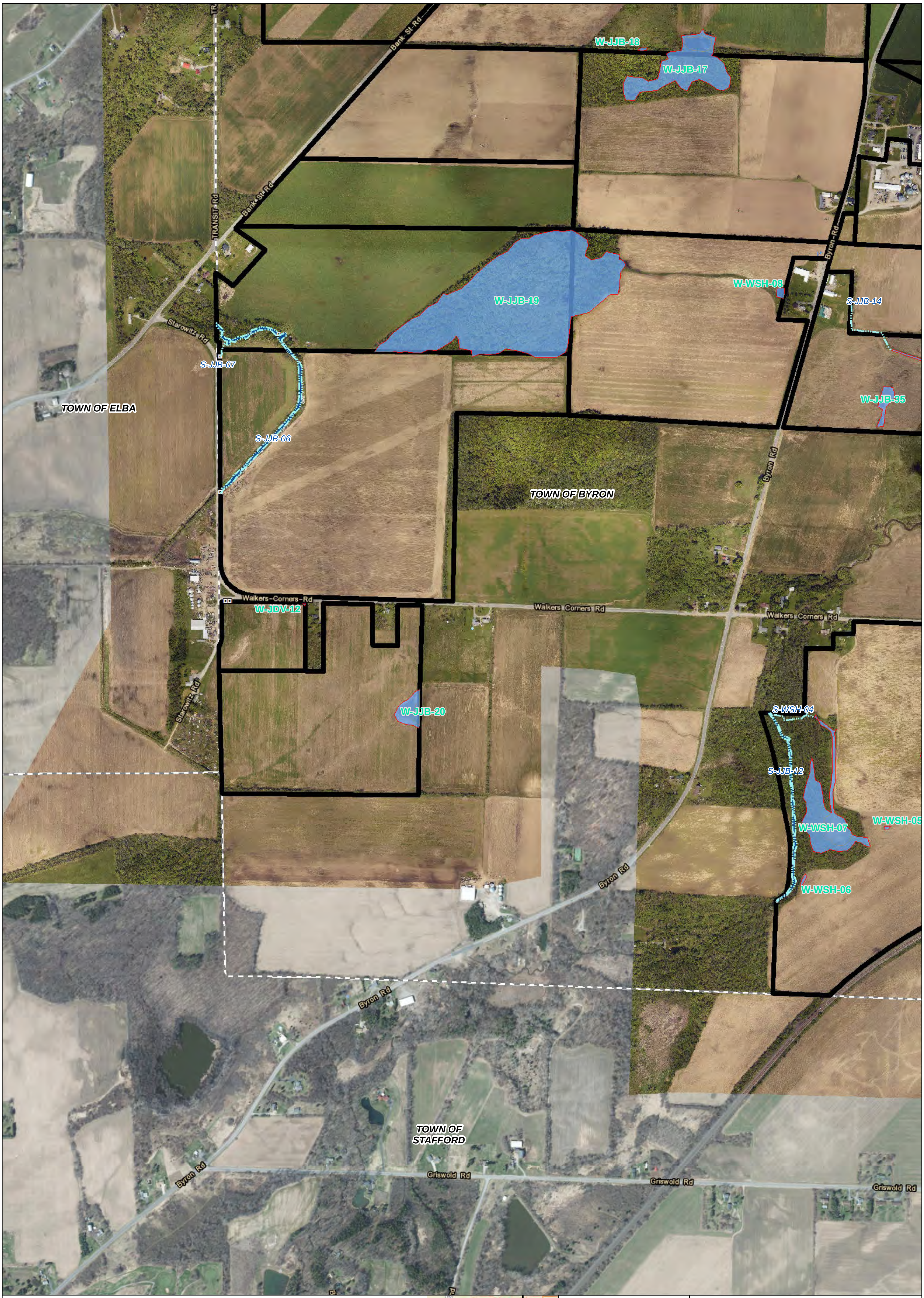


NEXTera ENERGY

DELINEATED RESOURCES
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY
FIGURE 4

SHEET 3 OF 6 | OCTOBER 2019

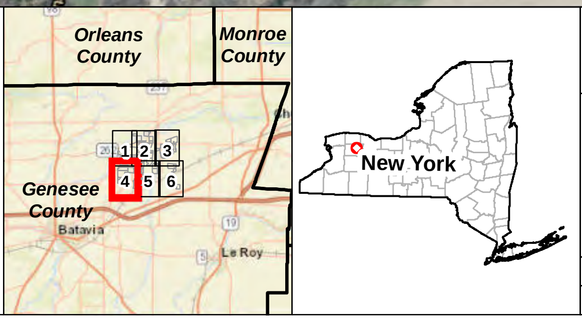
Map Produced by TRC



Culvert Points (2019)
Delineated Streams
Delineated Wetland Boundary
Delineated Wetlands
Delineated Bank-to-Bank Streams
Municipal Boundary
Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 400 800 1,200 Feet

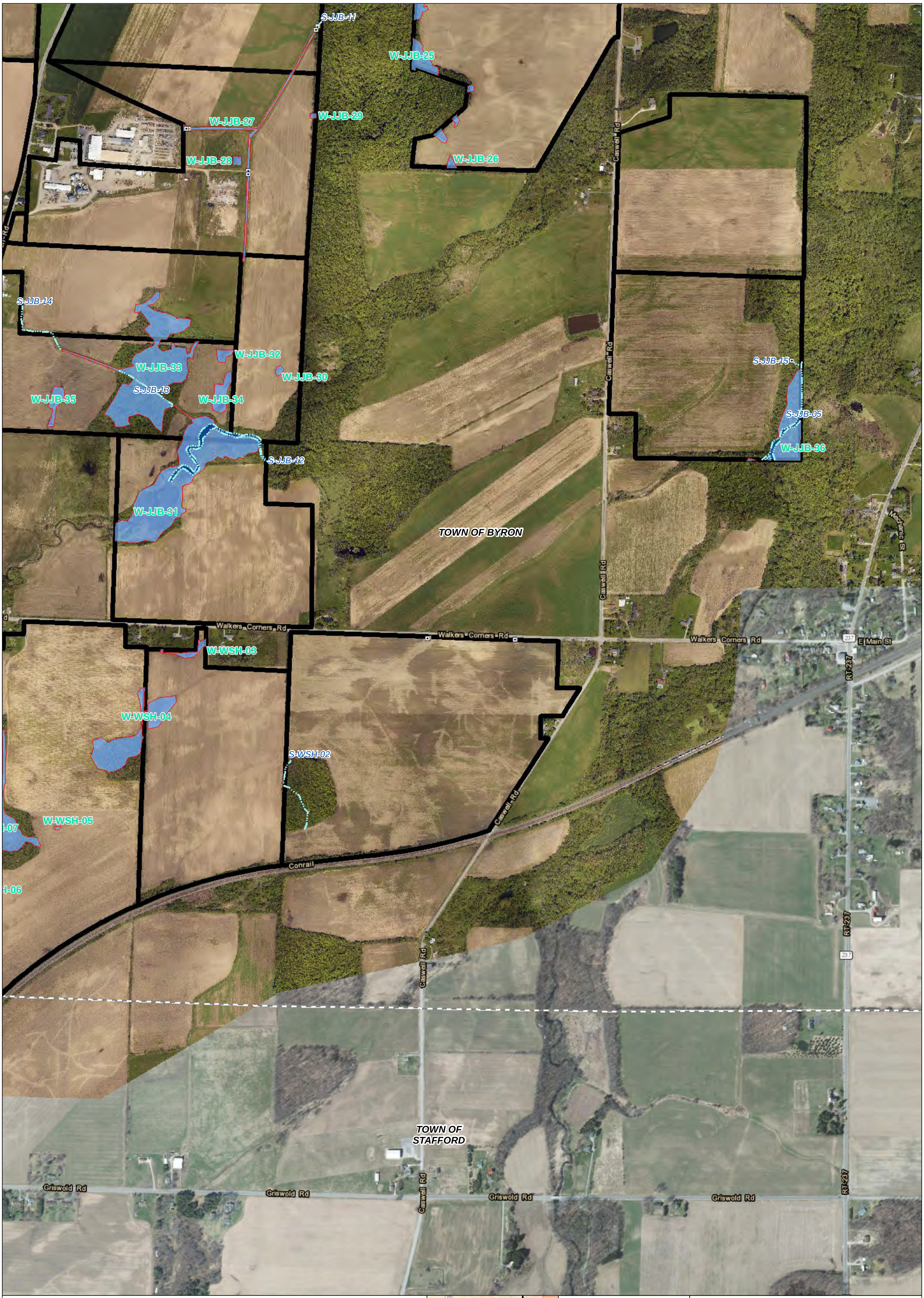


NEXTera ENERGY

DELINEATED RESOURCES
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY
FIGURE 4

SHEET 4 OF 6 | OCTOBER 2019

Map Produced by TRC



- Culvert Points (2019)
- Delineated Streams
- Delineated Wetland Boundary
- Delineated Wetlands
- Delineated Bank-to-Bank Streams
- Municipal Boundary
- Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

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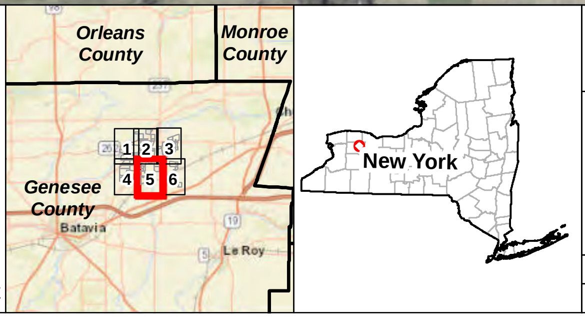
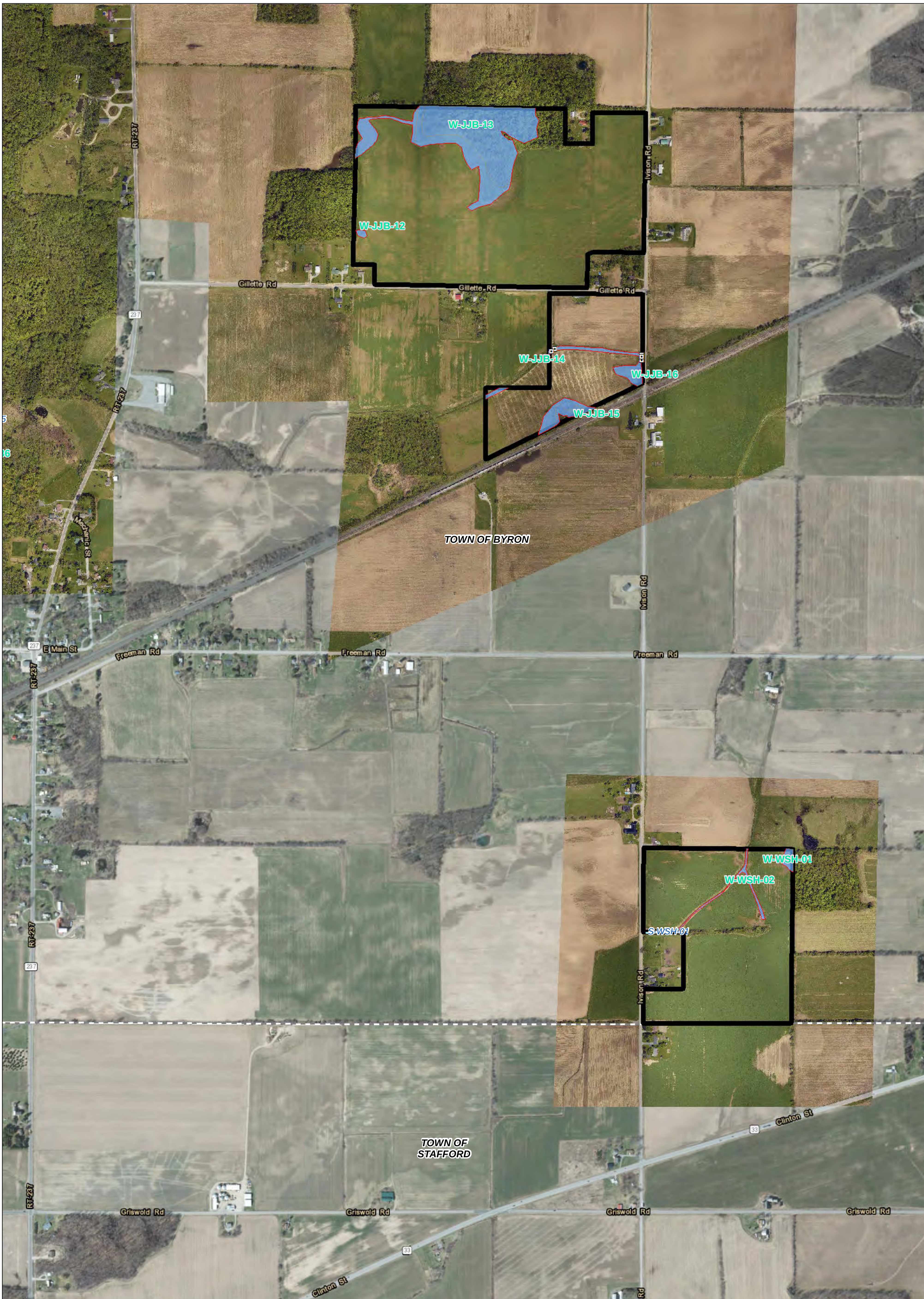


NEXTera ENERGY

DELINEATED RESOURCES
EXCELSIOR ENERGY CENTER, LLC
TOWN OF BYRON, NY
FIGURE 4

SHEET 5 OF 6	OCTOBER 2019

Map Produced by TRC

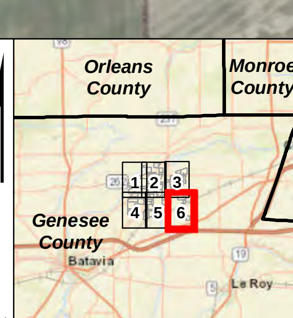


- Culvert Points (2019)
- Delineated Streams
- Delineated Wetland Boundary
- Delineated Wetlands
- Municipal Boundary
- Project Area

Data: TRC
Base Map: APEM 2019, ESRI "WORLD IMAGERY" 2017.

0 400 800 1,200 Feet

N



NEXTera ENERGY

DELINEATED RESOURCES

EXCELSIOR ENERGY CENTER, LLC

TOWN OF BYRON, NY

FIGURE 4

SHEET 6 OF 6	OCTOBER 2019

Map Produced by TRC

APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

Photo 1. Intermittent stream within PFO wetland in the northern section of the Project Site. 5/28/19

Photo 2. Characteristic PFO wetland in the northern section of the Project Site. 5/28/19

Photo 3. Upland agricultural field in the northeastern corner of the Project Site, representative of much of the agriculture throughout the Project Site. 5/29/19

Photo 4. Powerlines running through agricultural field in northeastern corner of the Project Site. 5/29/19.

Photo 5. PFO in northeast corner, characteristic of hardwood PFO wetlands on the Project Site. 5/29/19

Photo 6. Intermittent stream feature surrounded by forested upland. 5/29/19

Photo 7. View east along maintained powerline right of way within a PSS wetland in the northeastern corner of the Project Site. 5/30/19

Photo 8. View northwest of a PEM wetland swale located in an agricultural field. 5/30/19

Photo 9. PEM wetland within and disturbed agricultural field. 5/31/19

Photo 10. Excavated intermittent stream within a PEM wetland. 5/31/16

Photo 11. Black Creek, a perennial NYSDEC class-C stream running through the center of the Project Site. 5/31/19

Photo 12. Southern view of freshly planted agricultural field, typical of land use within the Project Site. 6/11/19

Photo 13. Northern view of Linear PEM wetland swale between agricultural fields. 6/11/2019

Photo 14. Bigelow Creek a NYSDEC class-C perennial stream in the south-central portion of the Project Site. 6/11/19

Photo 15. PUB wetland formed by an abandoned beaver damn complex on Bigelow Creek. 6/11/19

Photo 16. PEM wetland surrounding PAB beaver dam wetland complex in the south-central portion of the Project Site. 6/11/19

Photo 17. Inundated area within a PFO wetland in the south-central part of the Project Site. 6/12/19

Photo 18. Farm/cow pond in the south-central portion of the Project Site. 6/12/19

Photo 19. PEM wetland with large patch of invasive *Phragmites australis* in the south central are of the Project Site. 6/12/19

Photo 20. Inundated PEM wetland in an agricultural field in the south-central portion of the Project Site. 6/12/19

Photo 21. Vegetation and inundation in a PEM in the corner of a successional agricultural field. 6/3/19

Photo 22. PUB wetland pond located within a PFO wetland in the west-central portion of the Project Site. 6/4/19

Photo 23. Mosaic forested upland and PFO wetland in the west-central portion of the Project Site. 6/5/19

Photo 24. Inundated PFO with trees showing moss trimlines an physiological adaptation in their root systems. 6/5/19

Photo 26. NYSDEC mapped Class C(T) stream in the western portion of the Project Site. 6/6/19

Photo 26. Northern white cedar swamp, a NYNHP significant natural community, located in the north central portion of the Project Site. 6/7/19

Photo 27. PEM/PFO break in wetland covertype looking at the northern white cedar swamp. 6/7/19

Photo 28. Ephemeral stream located in the southern portion of the Project Site. 6/18/19

Photo 29. PEM/PFO wetland transition in the southern portion of the Project Site. 6/18/19