Disclaimer: Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. § 794d), as amended in 1998, requires that the information in federal documents be accessible to individuals with disabilities. CHIPS for America, U.S. Department of Commerce, has made every effort to ensure that the information in the Micron Semiconductor Manufacturing Project Draft Environmental Impact Statement is accessible; however, some Appendix elements may not be fully accessible. Individuals with disabilities are encouraged to contact David Frenkel, Environmental Division Director by phone at (240) 204-1960 or by email at david.frenkel@chips.gov for access to the information contained in this document.

APPENDIX F
WATER RESOURCES

Appendix F-1
Water Resources Study Area

F-1 Water Resources Study Area

The function of each water resource depends on a complex set of relationships between the resource and the surrounding watershed ecosystems within which it lies. USEPA defines a watershed as a geographic area in which water, sediments, and dissolved materials drain from higher elevations to a common low-lying basin or point on a larger stream, lake, underlying aquifer, or estuary (USEPA, 2025a). The size of a watershed (also called a drainage basin or catchment) is defined on several scales. The scale of a watershed is based on the geography that is most relevant to its specific area. Larger watersheds may encompass thousands of square miles and are assigned Hydrologic Unit Codes (HUCs) (NOAA, 2024). Each of the 10 digits in a watershed HUC or 12 digits in a sub-watershed HUC signify a code for each watershed level (i.e., first 2 digits = region, next 2 digits = sub-region, next 2 digits = basin, next 2 digits = sub-basin, next 2 digits = watershed, and last 2 digits = sub-watershed) (USGS, 2024a). Smaller drainage basins, such as Youngs Creek and Shaver Creek, are not coded, as they combine to comprise larger sub-watersheds with assigned 12-digit HUCs.

The proposed Micron Campus site, Rail Spur Site, and Childcare Site are located entirely within the Oneida River watershed (HUC 0414020209) and the Oneida River sub-watershed (HUC 041402020905). Two smaller drainage basins within the Oneida River sub-watershed, Youngs Creek and Shaver Creek, drain nearly all the land on or near the Proposed Project features and many of the Connected Actions, and thus have the highest potential to be affected by Proposed Project construction and operation. Therefore, the extent of these two basins has been selected as the portion of the water resources study area relevant to analyzing Proposed Project activities. For a map of the Youngs Creek and Shaver Creek drainage basins, see Figure F-1.

The Youngs Creek basin drains 6.78 square miles of surrounding landscape (USGS, 2024b). It is part of the larger Oneida River sub-watershed (HUC 041402020905), which drains more than 26,000 acres. Youngs Creek is a freshwater stream that runs for more than six miles from its headwaters to its confluence with the Oneida River (USGS, 2024c). Combined with its tributaries, there are approximately 10.41 miles of mapped channels within the basin. Approximately 2.33 percent of the Youngs Creek basin, or 0.16 square miles, is covered by impervious surfaces such as paved roadways, parking lots, houses, and other buildings (USGS, 2024c). In December 2023, at Micron's direction based on a NYSDEC and USFWS request, Ramboll conducted a qualitative environmental field survey of Youngs Creek and its associated tributaries in the vicinity of the WPCP. Ramboll evaluated 22 surface water locations within five stream reaches, which Ramboll observed to exhibit a low gradient with nominal flow under relatively stagnant or still conditions (Ramboll, 2024a).

The Shaver Creek basin drains 2.51 square miles of surrounding landscape (USGS, 2024d). It is also part of the larger Oneida River sub-watershed (HUC 041402020905). Shaver Creek is a freshwater stream that runs for more than five miles from its headwaters to its confluence with the Oneida River. Combined with its tributaries, there are approximately 6.11 miles of mapped channels within the basin. Only 1.71 percent, or approximately 0.04 square miles, of the basin is covered by impervious surfaces (USGS, 2024e).

Some of the LODs associated with the Connected Actions fall within the Proposed Project portion of the water resources study area, including the eastern portion of the proposed National Grid natural gas distribution line route, the proposed National Grid Clay electric substation

expansion area, the southeastern end of the proposed OCWA water supply transmission mains, and the eastern portion of the proposed OCDWEP industrial wastewater conveyance route. Other Connected Action footprints lie outside this portion of the study area, including the westernmost portions of the gas line and industrial wastewater conveyance routes, the majority of the OCWA water supply lines and associated facility upgrades, and the proposed IWWTP. Connected Action LODs outside this portion of the study area lie within five different watersheds, including the Oneida River (HUC 0414020209), Ox Creek-Oswego River (HUC 0414020301), Oswego River (HUC 0414020302), Ninemile Creek-Frontal Lake Ontario (HUC 0414010101), and Amherst Island-Frontal Lake Ontario (HUC 0428000201) watersheds.

Figure F-2 shows each of the HUC 10 watersheds and HUC 12 sub-watersheds associated with the proposed Connected Actions. Although Connected Action activities would be distributed across nine sub-watersheds, effects on water resources would be expected to occur primarily within the Connected Action LODs. Specifically, Connected Action activities would occur within the within the following watersheds and sub-watersheds:

- Oneida River watershed:
  - Mud Creek sub-watershed (HUC 041402020902)
  - Oneida River sub-watershed (HUC 041402020905)
  - Sixmile Creek sub-watershed (HUC 041402020903)
- Ox Creek-Oswego River watershed:
  - Waterhouse Creek-Oswego River sub-watershed (HUC 041402030103)
- Oswego River watershed:
  - Black Creek sub-watershed (HUC 041402030203)
  - Oswego River sub-watershed (HUC 041402030204)
- Ninemile Creek-Frontal Lake Ontario watershed:
  - Eightmile Creek-Frontal Lake Ontario sub-watershed (HUC 041401010102)
  - Rice Creek sub-watershed (HUC 041401010101)
- Amherst Island-Frontal Lake Ontario watershed:
  - Point Peninsula-Frontal Lake Ontario sub-watershed (HUC 042800020102).

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Appendix F-2
Legal and Regulatory Setting

F-2 Legal and Regulatory Setting

F-2.1 Federal

Section 301 of the CWA (33 U.S.C. § 1311) prohibits the discharge of pollutants into WOTUS without authorization or compliance with the CWA. This includes dredged or fill material, which is covered by Section 404 of the CWA. Under Section 301, Federal agencies are required to comply with all Federal and State requirements for water pollution control and abatement. Section 301 is enforced through a NPDES permit issued under Section 402 of the CWA or, in the case of New York State, through a SPDES permit issued by NYSDEC (see below under Section 402).

Section 401 of the CWA (33 U.S.C. § 1341) prohibits a Federal agency from issuing a permit or license to conduct any activity that may result in any discharge into WOTUS unless a Section 401 water quality certification is issued, or certification is waived. States and authorized Tribes where the discharge would originate are generally responsible for issuing water quality certifications. USEPA has authorized NYSDEC to approve projects and issue water quality certifications for proposed discharges in New York State. Once a water quality certification is granted, granted with conditions, or waived, USEPA is required to review the certification to determine whether the proposed discharge has the potential to affect water quality in a neighboring jurisdiction. The NYSDPS also reviews applications for activities involving the construction and operation of major electric transmission or natural gas distribution facilities pursuant to Article VII of the New York State Public Service Law. As part of the NYSDPS, the NYSPSC would be responsible for issuing a Section 401 water quality certification for the proposed National Grid Clay electric substation expansion.

Section 402 of the CWA (33 U.S.C. § 1342) establishes Federal limits on the amounts of specific pollutants that can be discharged into surface waters. Section 402 prohibits discharges from point (e.g., end-of-pipe) and non-point (e.g., stormwater) sources of water pollution unless they are authorized by a NPDES permit or an approved State permit. USEPA has approved NYSDEC's SPDES program to permit discharges in New York State.

Section 404 of the CWA (33 U.S.C. § 1344) prohibits the discharge of dredged or fill material into WOTUS, including wetlands, without a permit. USACE regulates such discharges and is responsible for reviewing applications for permits.

Section 10 of the Rivers and Harbors Act (33 U.S.C. § 403) requires USACE authorization for any in-water work or structures proposed in navigable waters.

Executive Order 11988 (Floodplain Management) directs Federal agencies to avoid long- and short-term adverse effects associated with the occupancy and modification of floodplains, to the extent possible. It also directs agencies to avoid conducting or authorizing direct and indirect floodplain development unless it is the only practicable alternative. Flood potential is typically determined by the 100-year floodplain (42 Fed. Reg. 26951).

The Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451 *et seq.*) aids states, in cooperation with Federal and local agencies, in developing land and water use programs in designated coastal zones. Projects that require Federal permits or authorizations, such as a USACE

permit, may require consistency review by the NYSDOS if the proposed activity would take place in, or affect, a designated coastal zone.

F-2.2 State

The Freshwater Wetlands Act (New York ECL Article 24; 6 NYCRR Parts 663-665) was enacted in 1975 in response to rapidly increasing wetland losses throughout New York State to preserve, protect, and conserve freshwater wetlands and their benefits. NYSDEC is the primary regulatory agency under the Act. As a result of the 2022 amendments to the Act and to 6 NYCRR Part 664, which took effect on January 1, 2025, NYSDEC's jurisdictional authority over freshwater wetlands has expanded beyond the limits of the previously mapped freshwater wetlands historically used by the State. Currently, NYSDEC has jurisdiction over all regulated activities affecting wetlands at least 12.4 acres in size and wetlands less than 12.4 acres if they meet "unusual importance" criteria. In 2028, the regulated size threshold will decrease from 12.4 acres to 7.4 acres.

The Protection of Waters Program (ECL Article 15 Title 5; 6 NYCRR Part 608) charges NYSDEC with preserving and protecting the State's lakes, rivers, streams, and ponds. All waters of the State are provided a class and standard designation based on the existing or expected best usage of each water or waterway segment. Streams and small waterbodies with a Classification of AA or A (waters used as a source of drinking water), B (best usage for swimming and other contact recreation), or C (waters supporting fisheries and suitable for non-contact activities) with a standard designation that it may support a trout population (T) or trout spawning (TS) are collectively referred to as "protected streams" and are subject to the stream protection provisions of the Protection of Waters regulations. Small waterbodies (ponds and lakes) with a surface area of less than 10 acres located within the stream course are considered part of the stream and are also subject to the regulations.

The Water Pollution Control Act (ECL Article 17; 6 NYCRR Part 750) charges NYSDEC with administering the CWA Section 402 NPDES program in New York State under the approved SPDES program established under ECL Article 17 (primarily Titles 7 and 8). The SPDES program prohibits discharges from point and non-point sources of water pollution into the waters of the State without a SPDES permit. NYSDEC issues SPDES permits that include technology-based or water quality-based effluent limitations developed to ensure compliance with State and Federal water quality standards.

The Participating in Flood Insurance Programs Law (ECL Article 36) establishes State participation in the National Flood Insurance Program (NFIP) and requires all local governments with land use jurisdiction within SFHAs to comply with Federal standards and permitting for flood insurance.

Article VII of the New York State Public Service Law (Siting of Major Utility Transmission Facilities) requires a full review of the need for, and environmental effects of, the siting, design, construction, and operation of major transmission facilities in New York State. Major transmission facilities include natural gas pipelines that extend a distance of at least 1,000 feet and operate at pressures of 125 pounds per square inch or more.

Sole Source Aquifer Protection (ECL Article 55) establishes procedures to designate special groundwater protection areas in Federally designated SSAs in counties with one million people or more, to ensure that areas within SSAs are protected and managed to maintain or improve existing water quality, and to develop and implement site-specific management plans for designated special groundwater protection areas.

Prohibition of Certain Incompatible Uses Over Either Primary Groundwater Recharge Areas or Federally Designated Sole Source Aquifers (ECL Article 15, Title 5, § 15-0514) prohibits incompatible land uses over primary groundwater recharge areas or Federally designated SSAs. Incompatible uses include those that lead to the contamination of groundwater from hazardous wastes or substances.

The Coastal Erosion Management Program (ECL Article 34; 6 NYCRR Part 505) is enforced to protect and preserve natural protective features (i.e., nearshore areas, beaches, bluffs, and dunes) and to protect human life and property by ensuring that new development is placed at a safe distance from areas of active erosion and coastal storms. NYSDEC's CEHA maps identify the areas that are regulated under this permit program.

The Waterfront Revitalization of Coastal Areas and Inland Waterways Act (New York State Executive Law, Article 42) designates possible technical and financial support by the State and its agencies to local governments seeking to revitalize their waterfronts. Participating local governments must submit their waterfront revitalization program details to NYSDOS.

F-2.3 Local

Flood Damage Prevention, Town of Clay, General Legislation, Chapter 112 aims to control filling, grading, dredging, and development that may increase erosion or flood damage, and alterations of natural floodplains and stream channels that accommodate floodwater, within all SFHAs in the Town of Clay. The Town of Clay recognizes the SFHAs identified by FEMA on FIRMs within the Town and outlined in § 112-6, in addition to those identified in the Flood Insurance Study, Onondaga County, New York, All Jurisdictions, dated November 4, 2016. The Town of Clay Planning and Development Department acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

Flood Damage Prevention, Town of Schroeppel, General Legislation, Chapter 95, Article XII aims to control the alteration of natural floodplains and the filling, grading, dredging, and development of floodplains that may increase erosion and flood damage. The Town of Schroeppel recognizes the SFHAs identified by FEMA on FIRMS within the Town and outlined in § 95-63, in addition to those identified in the Flood Insurance Study, Oswego County, New York, All Jurisdictions, dated June 18, 2013. The Town of Schroeppel Code Enforcement Officer acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

The Flood Prevention Law, City of Oswego aims to control the alteration of natural floodplains and the filling, grading, dredging, and development of floodplains that may increase erosion and flood damage. The City of Oswego recognizes the SFHAs identified by FEMA on FIRMs within the City, in addition to those identified in the Flood Insurance Study, Oswego

County, New York, All Jurisdictions, dated November 16, 2023. The City Engineer acts as the local floodplain administrator and is authorized to grant or deny floodplain development permits required under this legislation for development within identified SFHAs.

The Town of Clay Local Waterfront Revitalization Plan (LWRP) was adopted in 2012 to help the Town plan the development, redevelopment, enhancement, and preservation of its 26 miles of riverfront. The Town of Clay LWRP assesses the development of Three Rivers Point, the revitalization of a former industrial site on Maider Road, and several State- and Town-owned waterfront parcels. The LWRP identifies a need to preserve the history of certain sites, create mixed-use development that promotes a "waterfront village," and increase access to the river for fishing and boating. In support of these goals, the LWRP recommends development of Three Rivers Point and former industrial sites on Maider Road, with a boardwalk connecting the two sites, among other opportunities. Noting that constraints to achieving these goals include physical barriers such as Route 57 and the CSX rail line, as well as the lack of municipal sanitary sewers and water service along portions of Maider Road, the LWRP recommends that the Town study the potential need to expand services to the waterfront (Plumley Engineering, 2012).

The designated Waterfront Corridor under the Town of Clay LWRP extends along the Oneida and Seneca Rivers, generally located to the north and west of the Proposed Project area. The Micron Campus, Rail Spur Site, and Childcare Site would not be located within the Waterfront Corridor. However, the proposed new IWWTP and portions of the OCDWEP industrial wastewater conveyance and OCWA water lines would be located within the designated Town of Clay LWRP boundaries (see Figure F-47).

The City of Oswego LWRP was implemented in 1986. The overarching objective of the City of Oswego LWRP is to rejuvenate and enhance a significant portion of the waterfront and foster a dynamic blend of uses suitable for a waterfront district. The plan was conceived to pinpoint appealing development sites for marketing to developers, designate areas suitable for public access, achieve a harmonious mix of uses, and identify potential funding sources from both the private and public sectors. To achieve these objectives, the LWRP conducted an inventory of vacant and underutilized sites, referred to as Opportunity Sites, as well as natural resources and existing land and waterfront uses. Furthermore, the plan establishes goals and policies aimed at safeguarding natural resources, restoring fish and wildlife habitats, and preventing erosion and flooding (City of Oswego, 1986). In examining the state of the waterfront, the Oswego LWRP conducted a comprehensive review of all activities within the waterfront area to assess their suitability or potential recommendation for relocation. The LWRP concluded that the Raw Water Pump Station on Lake Ontario, responsible for drawing water from Lake Ontario to meet the water needs of a substantial portion of Central New York, qualified as a water-dependent use, and deemed its location to be appropriate for the waterfront area (City of Oswego, 1986).

The designated Waterfront Revitalization Area under the City of Oswego LWRP is located along the Oswego River and the Lake Ontario shorefront within the City. The Proposed Project and most Connected Action components are outside this area. However, OCWA water system components, including the Raw Water Pump Station and a portion of the OCWA water transmission main, are within the City of Oswego LWRP area (see Figure F-48).

References

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Plumley Engineering. (2012). Town of Clay Local Waterfront Revitalization Program. Adopted March 19, 2012.

Appendix F-3
Supplemental Information: Affected Environment

F-3 Supplemental Information: Affected Environment

F-3.1 Wetlands

In 2018, the State of New York was estimated to contain 2.5 million acres of freshwater wetlands (NYSDEC, 2018). Wetlands are a vital component of the ecosystem, providing food and habitat for thousands of species of plants and animals (USGS, 2024f). Wetlands have been compared to tropical rainforests and coral reefs with regard to the productivity and diversity of species they support (USEPA, 2002; USEPA, 2025a). Wetlands also function to improve water quality, store floodwater, provide aesthetic quality to the surrounding landscape, and help prevent shoreline erosion (USGS, 2024f; USEPA, 2002; USEPA, 2025a).

According to USEPA, wetlands are natural sponges that function to trap and slowly release surface water, rain, snowmelt, groundwater, and flood waters. Within a floodplain, trees, root mats, and other wetland vegetation also act as barriers, slowing down the speed of flood waters and helping to distribute them more slowly. The combination of both water storage and braking action can lower flood height, reduce erosion, and protect against water logging of crops. Wetlands downstream of pavement and buildings are particularly valuable in counteracting the greatly increased rate and volume of surface water runoff. The preservation and restoration of wetlands can often provide the level of flood control otherwise provided by expensive dredging operations and levees (USEPA, 2025a).

The physical and biological properties of wetlands slow the movement of stormwater runoff from surrounding upgradient land, allowing suspended soil particulates and other pollutants to drop out and settle to the wetland floor, where they may be absorbed and stored by wetland soil particles. Nutrients dissolved in the water, such as nitrogen and phosphorus, are often absorbed by plant roots and microorganisms in the soil. In many cases, this filtration process removes much of the water's nutrient and pollutant load prior to its being released from wetlands into neighboring surface waters or underlying groundwater aquifers (USEPA, 2002). Wetland plant communities and soil also store carbon, which prevents it from being released into the atmosphere as carbon dioxide, thus helping to moderate global climate conditions (USEPA, 2025a).

F-3.1.1 Micron Campus

The Micron Campus was field evaluated for the potential presence of wetlands regulated by the Federal government and the State of New York. The delineations were conducted by Ramboll biologists trained in wetlands identification and delineation in the fall of 2021, summer of 2022, and spring, summer, and fall of 2023. Site visits were also conducted in the spring, summer, and fall of 2023 and the spring of 2024 with USACE Buffalo District and NYSDEC Region 7 personnel to observe, verify, and supplement the delineations conducted by Ramboll. Data on vegetation, soils, hydrology, and geographic location were collected as part of the formal wetland delineations (Ramboll, 2023).

Wetlands that meet the current definition of "waters of the United States," as defined in 33 C.F.R. § 328.3, are subject to Federal jurisdiction and regulation under the CWA by USACE. Wetlands that meet the criteria in 6 NYCRR Part 664 are subject to State jurisdiction and regulation under the ECL by NYSDEC. In general, Federal jurisdiction over wetlands on the proposed

Micron Campus site was determined by the USACE based on continuous surface connection to the Youngs Creek or Shaver Creek stream systems. Both creeks meet the "relatively permanent" standard for Federal jurisdictional rivers and streams and are tributaries of the Oneida River, which is a traditionally navigable water subject to Federal jurisdiction. Table F-1 provides a breakdown of the delineated Federal jurisdictional wetlands on the proposed Micron Campus site by wetland type.

Table F-1 Delineated Federal Jurisdictional Wetland Acreages (Micron Campus)

ID	POW	PEM	PSS	PFO	Total
W1	0.03	5.75	2.01	10.55	18.34
W2	0.19	12.35	0.33	25.66	38.53
W3	0.0	5.47	0.0	0.49	5.96
W5	0.31	2.39	4.84	0.21	7.75
W6a	0.0	0.0	0.0	0.38	0.38
W11	0.24	17.57	0.07	1.32	19.2
W12	0.0	0.20	0.30	0.0	0.50
W13	0.0	0.43	0.38	0.0	0.81
W14	0.0	0	0.35	0.0	0.35
W26	0.0	0.81	0.49	0.0	1.3
W28	0.0	0.0	0.0	0.49	0.49
W29	0.0	0.0	0.0	1.08	1.08
W34	0.93	77.37	16.24	15.17	109.71
W35	0.0	92.77	1.77	87.32	181.86
W40	0.0	0.88	0.0	0.0	0.88
W53	0.0	0.35	0.0	4.43	4.78
W54	0.0	6.45	1.81	0.0	8.26
W55	0.0	0.0	0.0	4.71	4.71
W61	0.0	0.0	0.36	1.61*	1.97
W62	0.0	0.95*	0.0	0.0	0.95
W63	0.0	0.0	0.33	0.0	0.33

W69	0.0	0.0	0.07	0.0	0.07
W70	0.0	0.23	0.0	0.15	0.38
W71	0.0	0.02	0.0	0.0	0.02
Total	**1.70**	**223.04**	**30.30**	**153.57**	**408.61**

Sources: Ramboll (2024a); Micron (2025b); Chiarello (2025a); Chiarello (2025b). Note: *Denotes acreage calculations different from those in JD letters from USACE based on property line discrepancies identified after JDs were issued. The differences amount to 0.01 fewer acres for W61 and 0.03 fewer acres for W62 than what USACE identified.

New York State jurisdictional authority was based on connection of wetlands to State Class II and III jurisdictional wetlands previously mapped (prior to regulatory changes implementing amendments to Article 24 of the ECL, which took effect on January 1, 2025) adjacent to, within, and north of the overhead electric utility ROW located on the northern portion of the proposed Micron Campus site. Table F-2 provides a breakdown of the delineated State jurisdictional wetlands on the proposed Micron Campus site by wetland type.

Table F-2 Delineated State Jurisdictional Wetland Acreages (Micron Campus)

ID	SEM	DEM	SS	RMHS	HHS	FF	FP/AP	Total
W1	5.75	0.0	2.01	10.55	0.0	0.0	0.03	18.34
W2	12.29	0.0	0.56	22.52	3.14	0.28	0.19	38.98
W3	4.58	0.0	0.89	0.0	0.0	0.49	0.0	5.96
W5	2.39	0.0	4.84	0.0	0.0	0.21	0.31	7.75
W6a	0.0	0.0	0.0	0.34	0.04	0.0	0.0	0.38
W11	17.57	0.24	0.07	0.0	0.0	1.32	0.0	19.2
W12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W28	0.0	0.0	0.0	0.0	0.0	0.04	0.0	0.04
W29	0.0	0.0	0.0	0.0	0.0	0.38	0.0	0.38
W34	15.07	60.26	15.80	8.23	0.0	6.94	0.13	106.43
W35	0.0	91.43	3.11	11.73	0.0	75.59	0.0	181.86
W40	0.88	0.0	0.0	0.0	0.0	0.0	0.0	0.88

W53	0.35	0.0	0.0	0.0	0.0	4.43	0.0	4.78
W54	6.45	0.0	1.81	0.0	0.0	0.0	0.0	8.26
W55	0.0	0.0	0.0	0.0	0.0	4.71	0.0	4.71
W61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W62	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W63	0.0	0.0	0.33	0.0	0.0	0.0	0.0	0.33
W69	0.0	0.0	0.07	0.0	0.0	0.0	0.0	0.07
W70	0.23	0.0	0.0	0.0	0.0	0.15	0.0	0.38
W71	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.02
Total	**65.58**	**151.93**	**29.49**	**53.37**	**3.18**	**94.54**	**0.66**	**398.75**

Sources: Ramboll (2024a); Micron (2025a); Chiarello (2025a); Chiarello (2025b).

The topographic gradient at the WPCP is generally sloping from southwest to northeast. Therefore, hydrologic flow within wetlands on the property are generally connected to the Youngs Creek system. Based on a review of historical aerial photographs, a portion of the WPCP was historically used for agricultural production until as recently as the early 2020s. As a result, remnants of clay drain tiles and farm furrows are still present. Although pasture/hay land is one of the more prominent land use habitat cover types reported for the WPCP, many of these agricultural fields have succeeded into old field and shrubland habitats due to years of inactivity. Therefore, most of the pasture/hay and cultivated crops cover types are better described as successional old field and successional shrubland. Despite the historic disturbances, a significant portion of the identified wetlands occur on lands that are now undergoing this natural successional stage of development (Micron, 2025a).

The two largest wetland complexes on the WPCP, W34 and W35, are located along the northern and eastern portions of the site. These two wetlands comprise approximately 71.3 percent of all wetlands on the WPCP. Because of their diffuse boundaries and mixture of open water and dense vegetation receiving the majority of runoff from uplands and other wetlands, these two wetland complexes were identified as having three principal wetland functions (floodflow alteration, sediment or toxicant retention, and wildlife habitat) and were deemed suitable for six additional functions (groundwater recharge or discharge; fish and shellfish habitat; nutrient removal; production export; sediment stabilization) and one service (endangered species habitat). Most of the other jurisdictional wetlands on the WPCP were identified as having one principal function (e.g., wildlife habitat), though some were also deemed suitable for up to three additional functions (e.g., floodflow alteration, nutrient removal, or sediment or toxicant retention) and one service (e.g., endangered species habitat) (Ramboll 2024b).

The 109.71 acres of Federal jurisdictional wetlands within the W34 complex consist of 77.37 acres of PEM cover type, dominated by narrowleaf cattail (*Typha angustifolia*) sedges, rushes, pickerelweed (*Pontederia cordata*), sensitive fern (*Onoclea sensibilis*), reed canary grass (*Phalaris arundinacea*), and common reed (*Phragmites australis*), 15.17 acres of PFO cover type,

dominated by silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), halberd-leaf tearthumb (*Persicaria arifolia*), and poison ivy (*Toxicodendron radicans*), 16.24 acres of PSS cover type, dominated by Bebb's willow (*Salix bebbiana*), silky dogwood (*Cornus amomum*), and sensitive fern, and 0.93 acres of POW cover type. Wetland complex W34 has been influenced by past human activity (e.g., agricultural use and utility corridors) as evidenced by old furrows, successional vegetative growth in scrub shrub and woodlands, historic ditching, and diverted and culverted drainages. Beaver activity is also evident, influencing the extent of inundation and soil saturation (Ramboll, 2024b). A total of 106.43 acres of this wetland are also State jurisdictional subject to regulation by NYSDEC, classified as a mixture of 60.26 acres of deep emergent marsh, 15.80 acres of shrub swamp, 15.07 acres of shallow emergent marsh, 6.94 acres of floodplain forest, 8.23 acres of red maple-hardwood swamp, and 0.13 acres of farm pond / artificial pond.

The 181.86 acres of Federal jurisdictional wetlands within the W35 complex consist of 92.77 acres of PEM cover type, dominated by narrowleaf cattail (*Typha angustifolia*), silky dogwood, gray dogwood, common buckthorn (*Rhamnus cathartica*), creeping jenny, and purple loosestrife, 87.32 acres of PFO cover type, dominated by green ash, silky dogwood, gray dogwood, reed canary grass, and sensitive fern, and 1.77 acres of PSS cover type. This wetland has also been influenced by past human activity (e.g., agricultural use and utility corridors) as evidenced by old furrows, successional vegetative growth in scrub shrub and woodlands, historic ditching, and diverted and culverted drainages (Ramboll, 2024b). All 181.86 acres of this wetland are also State jurisdictional subject to regulation by NYSDEC, classified as a mixture of 91.43 acres of deep emergent marsh, 75.59 acres of floodplain forest, 11.73 acres of red maple-hardwood swamp, and 3.11 acres of shrub swamp.

F-3.1.2 Rail Spur Site

The Rail Spur Site was field evaluated in 2023 by Ramboll biologists for the potential presence of wetlands and other WOTUS. Ramboll delineated 17.27 acres of Federal jurisdictional wetlands and no State jurisdictional wetlands on the site. The USACE JD for the site found hydrologic flow within wetlands on the site to flow generally toward the west, with the wetlands connected to the Shaver Creek system (USACE, 2024). The 17.27 acres of Federal jurisdictional wetlands on the Rail Spur Site are part of one designated wetland complex, W49, containing a mix of 16.61 acres of PFO wetlands, 0.26 acres of PSS wetlands, and 0.40 acres of POW habitat (Micron, 2025a). W49 was identified as having wildlife habitat as its principal function, but it was also deemed suitable for floodflow alteration and sediment or toxicant retention functions and endangered species habitat service (Ramboll, 2024b). The forest ecological community at the site is dominated by sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), eastern hemlock (*Tsuga canadensis*), green ash, and goldenrod (*Solidago* sp.). The average size of the trees in the canopy suggests that this forest is not fully mature. The successional shrubland ecological community is dominated by common buckthorn, gray dogwood, Tartarian honeysuckle (*Lonicera tatarica*), green ash, red maple, and American elm. The species composition (including the prevalence of invasive species), limited canopy cover, and small size of existing trees suggests historic disturbance and a community in the earlier stages of succession. The inundated open water habitat is best characterized as a reed marsh ecological community dominated by common reed formed as a result of a beaver dam. The prevalence of invasive common reed suggests it is a disturbed community (Micron, 2025a).

F-3.1.3 Childcare Site

The Childcare Site was also field evaluated in 2023 by Ramboll biologists. Ramboll delineated 4.51 acres of Federal jurisdictional wetlands on the site, which are also State jurisdictional wetlands subject to regulation by NYSDEC. These wetlands have been classified as a mix of 2.63 acres of PEM wetlands and 1.88 acres of PFO wetlands. The emergent wetlands are in a pasture and previously active hay field and the forested wetlands are in a mature forest. Although these areas are separated within the property boundary, they were determined to have a continuous hydrologic connection outside the site limits to the east. Therefore, they were designated as one wetland complex, W52 (Ramboll, n.d.). This complex is also presumed to include the same acreage of the NYSDEC Class II wetlands and was classified as a mix of 2.63 acres of shallow emergent marsh and 1.88 acres of floodplain forest. The wetland vegetation includes emergent species (grasses, nettles, and sedges), shrub species (buckthorn) and trees (ash, elms, and hickories). The hydrologic flow of the emergent wetlands was found to flow generally to the north and to be confined to narrow drainages and fringe areas of the forested wetlands. The forested wetlands receive hydrology from neighboring active farmland to the west and their hydrologic flow was found to flow generally to the east (Ramboll, n.d.). Because the proposed Childcare Site would not result in any losses of jurisdictional wetlands on the property, wetland complex W52's functions and services have not been formally evaluated.

F-3.1.4 Connected Actions

The presence and extent of wetlands within each Connected Action LOD were delineated in the field and evaluated in the same manner as those conducted for the proposed Micron Campus, except for wetlands within the proposed water supply improvement LODs, because those improvements are currently scheduled too far in the future for wetland delineations conducted at this time to be valid by the time construction begins. Instead, the water supply improvement LODs were evaluated as part of a desktop review of the USFWS NWI maps (USFWS, 2024a) and New York State informational freshwater wetland maps (NYSDEC, 2025a). Field delineations of these LODs would be conducted as part of the permitting process for, and prior to construction of, the water supply improvements.

The Connected Action LOD wetland delineations have not yet been evaluated by NYSDEC for State jurisdictional status, except for the wetland delineations for the Clay Substation expansion area LOD. Further, the total amount of non-jurisdictional wetlands present within the LODs cannot be determined at this time because not all of the LODs have been delineated. Except as described below for the proposed Clay Substation expansion area, functional analyses of wetlands within the remaining Connected Action LODs also have not yet been conducted, for various reasons, including because field delineations have not yet been performed, wetlands have yet to be assessed by USACE or NYSDEC, or losses of jurisdictional wetlands within the remaining LODs are anticipated to be negligible. Jurisdictional determinations by USACE and NYSDEC would be required for any applicable Section 404 and Article 24 permitting, respectively, after field delineations have been conducted.

As noted in Section 3.3.3.1, a total of 78.86 acres of wetlands have been identified within the Connected Action LODs, including within the Clay Substation expansion area and the natural gas, water supply, and wastewater improvement LODs. However, jurisdictional determinations have not yet been issued for these features, except for the Clay Substation expansion area.

Clay Substation Expansion Area

The anticipated LOD for the Clay Substation expansion area was field evaluated by GZA environmental scientists in the summer and fall of 2023. The substation is located within the Youngs Creek drainage basin and would be expanded to the north and east of its current property line, affecting 10.3 acres of already disturbed land. GZA delineated 10 wetlands within the proposed expansion area LOD (GZA, 2024; Thompson, 2025) (see Figure F-11). National Grid requested a PJD for nine of these wetlands and an AJD for the remaining wetland (Wetland 8). GZA identified the 8.34 acres of wetlands treated as Federally jurisdictional as a mix of 6.94 acres of PSS wetlands (83.2 percent), 1.15 acres of PEM wetlands (13.8 percent), and 0.25 acres of PFO wetlands (3.0 percent) (GZA, 2024).

Typical vegetation observed within the PSS wetlands included silky dogwood, southern arrow-wood (*Viburnum dentatum*), young green ash, and various species of willow (*Salix* spp.). The emergent wetlands were typically vegetated with reed canary grass, common soft rush (*Juncus effusus*), sensitive fern, purple loosestrife, and dark green bulrush (*Scirpus atrovirens*). Typical vegetation observed within the PFO wetlands included green ash, American elm, silver maple, and red maple (GZA, 2024). GZA identified all of these wetlands as capable of providing nutrient retention, production export, and wildlife habitat, with wildlife habitat identified as the principal function of more than half of the wetlands on the site. GZA also identified two wetlands on the site as capable of providing groundwater recharge and floodflow alteration. Although GZA did not identify the wetlands within the Clay Substation expansion area as providing endangered species habitat service, suitable habitat for various threatened and endangered species has since been recorded for this property and adjacent former or active agricultural fields (GZA, 2024). Based on new NYSDEC freshwater wetland maps, these 8.34 acres of wetlands within the LOD are currently considered not likely to be State jurisdictional (NYSDEC, 2025a).

USACE verified the boundaries of the wetlands being treated as Federal jurisdictional under the CWA through a PJD issued on June 2, 2025 (included in Appendix F-6). USACE also confirmed that Wetland 8 within the LOD is non-jurisdictional through an AJD issued the same day (included in Appendix F-6).

Natural Gas Improvements

The anticipated LOD for the natural gas line was field evaluated by Fisher Associates environmental scientists in the fall of 2020, spring of 2021, fall of 2021 and 2022, and spring of 2023. The line would traverse the Youngs Creek and Shaver Creek drainage basins within the Oneida River sub-watershed, and the westernmost portion of the line and GRS 147 are located within the Mud Creek sub-watershed (see Figure F-1 to Figure F-2). The line would run primarily along disturbed land, including NYS Route 31 and an existing National Grid easement. Fisher Associates delineated 7.37 acres of wetlands within the natural gas line LOD (see Figure F-12), which are being treated as Federal jurisdictional, as a mix of 4.25 acres of PSS wetlands (57.7 percent), 2.10 acres of PEM wetlands (28.5 percent), and 1.02 acres of PFO wetlands (13.8 percent). The PSS wetlands are generally dominated by red osier dogwood (*Cornus sericea*), grey dogwood, and green ash. The PEM wetlands consist primarily of purple loosestrife, sensitive fern, and reed canary grass. The PFO wetlands are generally dominated by pussy willow (*Salix discolor*), silver maple, and green ash (Fisher Associates, 2023). These wetlands reportedly receive hydrologic input from both a direct groundwater connection to and surface hydrology associated

with unnamed tributaries to the Oneida River. In addition, overland flow and intermittent discharges from stormwater management structures associated with the railroad bed that crosses the LOD and the Clay Substation area provide an additional hydrologic source (Fisher Associates 2023). Based on new NYSDEC freshwater wetland maps, these 7.37 acres of wetlands are currently considered potentially State jurisdictional (NYSDEC, 2025a).

Water Supply Improvements

As noted above, the proposed water supply improvement LODs would traverse various parts of nine sub-watersheds (see Figure F-2) and were evaluated as part of a desktop review of Federal NWI and State freshwater wetland maps. The Federal maps show approximately 20.05 acres of wetlands within the LODs (see Figure F-13 through Figure F-17), and the State maps show 53.62 acres of wetlands within the LODs (see Figure F-18 through Figure F-22). The NWI mapped wetlands include a mix of 9.03 acres of PFO wetlands (45.0 percent), 7.42 acres of PUB habitat (37.0 percent), and 3.60 acres of PSS wetlands (18.0 percent). There are no cover types assigned to the State mapped wetlands. These map results are considered baseline estimates of the potential regulated wetlands present within the LODs. Delineations would be conducted along the full extent of the LODs closer to construction to ensure a more accurate evaluation of all wetland locations, sizes, and habitat types. Jurisdictional determinations would be made by USACE and NYSDEC after the wetland delineations are conducted.

Wastewater Improvements

The anticipated LOD for the IWWTP was field evaluated by EDR environmental scientists, and the anticipated LOD for the wastewater conveyance was field evaluated by Ramboll environmental scientists. The IWWTP and the westernmost portion of the wastewater conveyance would be located within the Mud Creek sub-watershed, and the rest of the conveyance would traverse the Shaver Creek and Youngs Creek drainage basins within the Oneida River sub-watershed (see Figure F-1 to Figure F-2). The conveyance would first run along the disturbed northern edge of Verplank Road before running through agricultural fields and undisturbed wooded habitat. EDR delineated 2.27 acres of wetlands within the IWWTP LOD, and Ramboll delineated 7.26 acres of wetlands within the wastewater conveyance LOD (see Figure F-23). The wetlands within these LODs have not yet been evaluated for jurisdictional status, but for purposes of this EIS they are being treated as jurisdictional. EDR identified the 2.27 acres of wetlands within the IWWTP LOD as a mix of 1.42 acres of PFO wetlands (62.6 percent), 0.72 acres of PSS wetlands (31.7 percent), and 0.13 acres of PEM wetlands (5.7 percent). Ramboll identified the 7.26 acres within the wastewater conveyance LOD as a mix of 3.71 acres of PFO wetlands (51.1 percent), 3.34 acres of PEM wetlands (46.0 percent), and 0.21 acres of PSS wetlands (2.9 percent).

F-3.2 Surface Water

The State of New York contains 87,000 miles of rivers and streams (NYSDEC, 2018). The principal streams in the Proposed Project portion of the water resources study area are Youngs Creek and Shaver Creek, in the Oneida River sub-watershed. Table F-3 describes the current water quality conditions of these surface waters.

Table F-3 Current Surface Water Quality Conditions

Surface Water	Description of Current Surface Water Quality Conditions
Oneida River sub-watershed	The Oneida River sub-watershed, within which the Youngs Creek and Shaver Creek basins both lie, has been assigned a watershed health rating of 0.65 out of 1.0. This indicates that this sub-watershed is relatively healthier than other watersheds in the area, including the Mud Creek watershed to the southeast (health rating of 0.57) and the Crooked Brook-Seneca River watershed to the southwest (health rating of 0.52). No waters within the Oneida River sub-watershed are currently listed on the Final New York State 2020/2022 CWA Section 303(d) list of impaired waters. Listing on the Section 303(d) list means a water no longer supports its best uses in accordance with water quality standards.
Youngs Creek	Youngs Creek is classified as a Class C stream, which is defined as having a best usage of fishing pursuant to 6 NYCRR § 701.8. A Class C stream must be suitably maintained for fish, shellfish, and wildlife propagation and survival, as well as for primary and secondary contact recreation, although other factors may limit these uses. Water quality conditions in the Youngs Creek basin have not been evaluated by USEPA. However, in June 2024, Ramboll conducted an investigation that focused on physical water quality parameters within reaches of Youngs Creek and the WPCP that had standing water and were identified as having the potential for supporting aquatic life (i.e., benthic macroinvertebrates and fishes). Results from this investigation revealed the following: • Temperature ranged from 18.09 degrees Celsius (ºC) to 26.71ºC (64.56 degrees Fahrenheit (ºF) to 80.08ºF) (healthy stream temperatures are below 26.7ºC (80ºF)). • Dissolved oxygen (DO) ranged from 0.51 milligrams per liter (mg/L) to 7.35 mg/L (healthy DO levels are greater than 5 mg/L). • Specific conductivity ranged from 0.451 micro-Siemens per centimeter (µS/cm) to 0.852 µS/cm (healthy conductivity values are below 300 µS/cm). • Turbidity ranged from 0 Nephelometric Turbidity Units (NTUs) to 162 NTUs (healthy turbidity values are below 5 NTUs). • pH ranged from 5.7 to 8.35 (healthy pH levels are between 6.5 and 8.5). Recorded DO levels were generally low throughout the Youngs Creek system, with the ponded wetland locations having the lowest levels observed (0.51-6.52 mg/L). These same areas recorded the highest surface water temperatures (26.16-26.71ºC; 79.09-80.08ºF). The perennial portion of Youngs Creek (i.e., water present within the channel throughout the year) was unique compared to other locations, as it showed the highest DO level (7.35 mg/L) and a reduced abundance of duckweed (*Lemna perpusilla*) and sago pondweed (*Stuckenia pectinata*). These aquatic surface-oriented plants often form floating mats on ponded surface water features with high nutrient content (eutrophic conditions). If weed growth becomes excessive, the resulting effects may include the depletion of oxygen and reduced water circulation. The intermittent tributaries showed signs of decreased water quality (e.g., decreased DO levels, higher temperatures, indications of eutrophic conditions) compared to the main channel of Youngs Creek. Youngs Creek is not currently listed on the Final New York State 2020/2022 Section 303(d) list of impaired waters.

Shaver Creek	Shaver Creek is classified as a Class C stream, which is defined as having a best usage of fishing pursuant to 6 NYCRR § 701.8. A Class C stream must be suitably maintained for fish, shellfish, and wildlife propagation and survival, as well as for primary and secondary contact recreation, although other factors may limit these uses. Water quality conditions in the Shaver Creek basin have not been evaluated by USEPA. Ramboll's June 2024 survey did not include Shaver Creek because Proposed Project activities would only result in losses to rivers and streams associated with Youngs Creek. Shaver Creek is not currently listed on the Final New York State 2020/2022 Section 303(d) list of impaired waters.

Sources: Ramboll (2024b); NYSDEC (2024b); USEPA (2024b).

F-3.2.1 Proposed Project

During the 2021 to 2023 wetland delineations, Ramboll biologists also conducted field evaluations of the proposed Micron Campus, Rail Spur Site, and Childcare Site for the presence of potentially jurisdictional rivers and streams. Ramboll identified freshwater courses such as stream channels, tributaries, ditches, and linear conveyance features based on the recognition of field indicators of a stream bed, banks, and an OHWM, which marks the lateral extent of Federal jurisdiction over navigable waters. Ramboll also evaluated features for perennial, intermittent, and ephemeral flow regimes, and whether features contributed flow directly or indirectly to the Oneida River, a traditionally navigable water. Ramboll also reviewed standard State stream classes and designations (Ramboll, 2023).

Because the effects of the Proposed Project on surface water would be concentrated primarily within the Youngs Creek system, Ramboll biologists conducted a qualitative environmental survey of the extent of Youngs Creek within the proposed Micron Campus site in December 2023 to determine the system's current health. The field survey assessed streams identified during previous wetland delineation efforts and adjoining features with continuous surface connections to Youngs Creek (Ramboll, 2024a).

The survey showed that a portion of the Youngs Creek system within the Micron Campus displayed signs of alteration from previous human agricultural, residential, transportation, and utility corridor activities. The agricultural activity may be as recent as the early 2020s; remnants of clay drain tiles and farm furrows are still present. Although pasture/hay land is one of the more prominent land cover types at the site, many of the agricultural fields have succeeded into old field and shrubland habitats due to years of inactivity. Therefore, most of the pasture/hay and cultivated crop cover types are better described as successional old field and successional shrubland. A substantial portion of the wetlands on the site also are now undergoing this natural successional stage of development (Micron, 2025a). The survey also revealed signs of substantial alterations to stream channels from recent beaver activity. Channelization, draining, and ponding from beaver activity has diffused or flooded the main channel of Youngs Creek and created low water conditions and high sedimentation rates in certain areas.

Ramboll identified a portion of the main channel of Youngs Creek within the site as a perennial feature. Due to flooding conditions, Ramboll assessed that this feature functions primarily as wetland habitat rather than a stream system (Ramboll, 2024a). Therefore, the majority of the main channel of Youngs Creek within the site was classified as wetland habitat associated

with the W34 and W35 wetland complexes (see Section 3.3.3.1). The stream channels on the site that Ramboll identified as intermittent exhibited natural and altered features. Those Ramboll identified as ephemeral exhibited moderately to severely altered habitat conditions and have been reported to go dry in September, relatively late in the year, indicating that their flow regimes are more likely intermittent.

Ramboll conducted a follow-up quantitative study of the area assessed in the field survey in June 2024, which focused on physical water quality parameters within the perennial and intermittent reaches identified as having the potential to support aquatic life. Results from this investigation are reflected in Table F-3 above.

F-3.2.2 Connected Actions

The presence and extent of rivers and streams within each Connected Action LOD were delineated in the field and evaluated in the same manner as those conducted for the Proposed Project components, except for rivers and streams within the proposed water supply improvement LOD, because those improvements are currently scheduled too far in the future for delineations conducted at this time to remain valid by the time construction begins. Instead, the water supply improvement LOD was evaluated as part of a desktop review of Federal and State river and stream maps and databases. Field delineations of this LOD would be conducted as part of the permitting process for and prior to construction of the water supply improvements.

The Connected Action LOD river and stream delineations have not yet been evaluated by NYSDEC for State jurisdictional status, with the exception of the substation expansion LOD. Further, the total amount of non-jurisdictional rivers and streams present within the LODs cannot be determined at this time because not all of the LODs have been delineated. Except as described below for the proposed Clay Substation expansion area, functional analyses of rivers and streams within the remaining Connected Action LODs also have not yet been conducted, for various reasons, including because field delineations have not yet been performed, rivers and streams have yet to be assessed by USACE or NYSDEC, or losses of jurisdictional rivers and streams within the remaining LODs are anticipated to be negligible. Jurisdictional determinations by USACE and NYSDEC would be required for any applicable Section 404 and Article 15 and 24 permitting, respectively, after field delineations have been conducted.

As noted in Section 3.3.3.2, a total of 7,160 LF of surface water features have been identified within the Connected Action LODs, including within the Clay Substation expansion area, natural gas, water supply, and wastewater improvement LODs. However, jurisdictional determinations have not yet been issued for these features, except for the surface water features within the Clay Substation expansion area LOD.

Clay Substation Expansion Area

GZA identified one intermittent stream flowing north at the western edge of the proposed Clay Substation expansion area, and one ephemeral and three intermittent stormwater ditches within the expansion area (see Figure F-28). National Grid requested a PJD from USACE to verify the extents of the intermittent features and an AJD for the ephemeral ditch (Ditch 2). No stream segments qualifying as protected streams under ECL Article 15 were identified.

USACE verified the boundaries of the surface water features being treated as Federal jurisdictional under the CWA through a PJD issued on June 2, 2025 (included in Appendix F-6). USACE also confirmed that Ditch 2 within the LOD is non-jurisdictional through an AJD issued the same day (included in Appendix F-6).

Natural Gas Improvements

Fisher Associates identified three portions of eight different stream segments and one intermittent ditch within the proposed natural gas line LOD (see Figure F-29). National Grid has requested PJDs from USACE for these features, which are currently pending. No stream segments qualifying as protected streams under ECL Article 15 were identified. The three identified stream features receive drainage from multiple wetlands, waterbodies, and connecting streams within the area and are likely hydrologically connected to Shaver Creek. Two of the features were assigned a preliminary Class C surface water designation (waters supporting fisheries and suitable for non-contact activities), and one was assigned a probable Class D designation (other waters only suitable for fishing, the lowest classification standard). These three features are not anticipated to have any other designations (Fisher Associates, 2023). Therefore, they would not support a trout population or trout spawning and would not qualify as protected streams under ECL Article 15. However, NYSDEC has yet to confirm these preliminary designations. It is unclear whether the intermittent ditch identified within the LOD hydrologically connected to Youngs Creek or Shaver Creek, as it feeds wetlands that may be connected to both. All other streams and ditches within the LOD were found unlikely to be Federal or State jurisdictional. However, jurisdictional determinations from USACE and NYSDEC are currently pending.

Water Supply Improvements

A desktop review of State GIS stream mapping and Federal NWI mapping information was conducted to determine the extent of rivers and streams within the proposed water supply improvement LODs. A field study would be conducted to more accurately identify all relevant features within these LODs prior to the permitting process for the water supply improvements. OCWA would request PJDs from USACE for these features as part of that process. Based on the desktop review, 12 river and stream crossings were identified that are likely to qualify as Federal jurisdictional within the water supply improvement LODs at various locations (see Figure F-30 to Figure F-34). However, only the Oneida and Oswego River crossings would be anticipated to be State jurisdictional under ECL Article 15.

Wastewater Conveyance

Ramboll delineated a section of Shaver Creek with a perennial flow regime within the proposed wastewater conveyance LOD flowing in a northerly direction at approximately the center mark of the proposed conveyance route (see Figure F-35). This section of Shaver Creek is classified as a Class C surface water, with no other designation (NYSDEC, 2025a). OCDWEP has requested a PJD from the USACE for this feature, which is currently pending. No stream segments qualifying as protected streams under ECL Article 15 were identified.

F-3.3 Stormwater

Land cover, soil type, and precipitation factors can influence stormwater flow and serve as variables used to model stormwater within the study area. Ramboll has conducted preliminary stormwater modeling to conservatively estimate peak post-construction stormwater discharge rates at selected stormwater design locations. However, these results have not been validated. The modeling process would be used to make iterative adjustments to the design of Proposed Project structures as part of site planning and calculate the degree to which stormwater management techniques would be able to meet the standards for green infrastructure practices in order to show compliance with SPDES General Permit for Stormwater Discharges from Construction Activity requirements via designed post-construction SMPs. The SMPs would be designed to meet effluent limitations for stormwater discharges from industrial activities as required by the SPDES MSGP. Under the 2024 *New York State Stormwater Management Design Manual*, to qualify as green infrastructure practices, SMPs must be capable of treating 100 percent of post-construction WQV, which is an expression of the stormwater runoff volume that includes 90 percent of all rainfall events in a given year. Because the majority of rainfall typically occurs in relatively small events, treating the WQV is considered to be a cost-effective standard for minimizing overall post-construction stormwater runoff pollutant discharge. Sites that cannot treat 100 percent of the WQV due to site constraints must estimate the extent of the WQV they can treat and provide an additional minimum runoff reduction volume (RRV) that they can treat on top of that extent of the WQV (NYSDEC, 2024b).

F-3.4 Groundwater

The water resources study area is situated in the Erie-Ontario Lowlands, a physiographic province that borders the Great Lakes. Consolidated rock, or bedrock, within the water resources study area consists of Ordovician-aged shale, limestone, dolomite, and sandstone, as well as Silurian-aged limestone and dolomite (NYSDOT, 2013, Sheets and Simonson, 2006). The study area is situated over carbonate and sandstone aquifers (USGS, 1995). Carbonate aquifers consist of limestone and dolomite which dissolve to form caverns and crevices that can hold and transport groundwater. Shale and sandstone may also contain groundwater in fractures and joints but often do not yield large quantities of groundwater (NYRWA, n.d.; USGS, 1995). Although bedrock formations are a significant source of groundwater supply in the State of New York, most bedrock aquifers are not mapped in the State (NYSDEC, n.d.-a).

Unlike bedrock aquifers, unconsolidated deposits of permeable sand and gravel are the most productive aquifers in the State (NYSDEC, n.d.-a). Unconsolidated aquifers overlie bedrock and occupy major river and stream valleys or lake plains and terraces (NYSDEC, n.d.-a). Throughout the State of New York, groundwater within unconsolidated aquifers is local in origin and occurs at shallow depths (NYRWA, n.d.). Due to the high permeability of deposits within unconsolidated aquifers and the shallow depth of the water table, unconsolidated aquifers are susceptible to contamination from the land surface above the aquifer. Unconsolidated aquifers are considered either confined (i.e., overlain by clays and fine-grained material with low permeability) or unconfined (i.e., extending and open to the land surface) (NYRWA, n.d.). Unconfined aquifers are particularly vulnerable to contamination because, unlike confined aquifers, they do not have overlying continuous and impermeable barriers that act to block or protect them from contaminated infiltration. Unconfined aquifers are the most common type of high-yielding aquifer system in

Upstate New York and are therefore commonly used as public water supply sources, if sufficiently productive (NYSDEC, 1990).

To protect the quality of groundwater used for public drinking water supplies, unconfined aquifers determined to be highly vulnerable to contamination and highly productive for use by public water supply systems are categorized by the NYSDEC Division of Water as either primary aquifers or principal aquifers. Primary aquifers are those that are highly productive and are utilized as sources of water by major municipal water supply systems; principal aquifers are those that are known to be highly productive or whose geology suggests the potential for an abundant water supply, but which are not intensively used as water supply sources (NYSDEC, 1990).

Although private water wells throughout the region may rely on groundwater for drinking water, all public water supply sources for the municipalities in which the Proposed Project and Connected Actions would be constructed, including the Towns of Clay, Cicero, Schroeppel, Volney, and Minetto and the City of Oswego, originate from surface water sources (OCWA, 2024; City of Oswego, 2024). OCWA provides public water to Clay, Cicero, Schroeppel, Volney, and Minetto with freshwater supply from Lake Ontario. Clay and Cicero also receive water from Otisco Lake (OCWA, 2022). The City of Oswego Water Department receives its public water supply from Lake Ontario (City of Oswego, 2024).

At the Federal level, USEPA defines a SSA as an aquifer that supplies at least 50 percent of the drinking water for its service area where no reasonably available alternative drinking source would exist should the aquifer become contaminated (USEPA, 2023). USEPA designates SSAs as the sole or main source of drinking water for a community under the Federal Safe Drinking Water Act (NYSDEC, n.d.-b) and makes SSA designations in response to petitions by localities and after a public hearing (NYSDEC, 1990). USEPA also reviews Federally-funded projects that would be located on land surface overlying SSAs (USEPA 2023). Unlike the primary and principal aquifer designations assigned by the State of New York, the Federal designation of an SSA does not indicate that an aquifer is more or less valuable or vulnerable to contamination than other aquifers without the Federal SSA designation (USEPA, 2025b).

The presence and extent of groundwater resources within the water resources study area were identified based on State and Federal databases, regional mapping sources, and on-site groundwater monitoring, including unconsolidated aquifer data obtained from the New York State Geographic Information System (GIS) Clearinghouse (NYSDEC, 2025a) and publicly available GIS data on the USEPA website that includes polygons for all SSAs located throughout the nation. SSA overlays were compared to the proposed Connected Action footprints to identify the presence of any SSAs within the Connected Action LODs (USEPA, 2020).

Based on review of the above State GIS Clearinghouse data, the presence or absence of unconsolidated aquifers, as well as the classification of aquifers as primary or principal, were determined with respect to all Connected Action locations. Approximate surface areas of unconsolidated aquifers were then calculated at each location where a Connected Action LOD would overlay an aquifer to facilitate determination of potential effects on groundwater resources.

This review identified unconsolidated aquifers within the LODs of the proposed natural gas line, water supply improvements, IWWTP, and wastewater conveyance.[18]

Table F-4 shows the estimated acreages of disturbance these activities would have on unconsolidated aquifers, and those aquifer types, designations (primary or principal), and depth to groundwater. The estimated disturbances are also labeled on Figure F-38 and Figure F-39.

Table F-4 Mapped Unconsolidated Aquifers within Connected Action LODs

Figure	Disturbance	Type	P/P	Yield	Depth
Natural Gas Improvements					
F-38	6.49 acres	Confined, no overlying surficial aquifer	No	5-500 gal/min	8-20 ft.
Water Supply Improvements					
F-38	8.98 acres	Confined, no overlying surficial aquifer	No	5-500 gal/min	8-20 ft.
F-39	18.61 acres	Primary aquifer region	Primary – Fulton	-	-
F-39	25.36 acres	Confined, unknown depth and thickness	Primary – Fulton	-	-
F-39	6.41 acres	Kame, kame terrace, kame moraine, outwash, or alluvium	No	-	-
F-39	3.43 acres	Confined, unknown depth and thickness	No	-	-
IWWTP					
F-38	3.79 acres	Confined, unknown depth and thickness	No	-	-
	6.65 acres	Unconfined, high yield	Principal	>100 gal/min	10-53 ft.
Wastewater Conveyance					
F-38	6.81 acres	Confined, unknown depth and thickness	No	-	-
Total Disturbance: 86.53 acres					

Notes: P/P = primary or principal aquifer. Depth = depth to groundwater. "-" = unknown yield or depth.

There are no primary or principal aquifers or SSAs located beneath the natural gas improvement LODs. However, as shown in Table F-4 and Figure F-38, the natural gas line LOD would overlay 6.49 acres of an unconsolidated aquifer located on the western boundary of the

[18] The LODs for the Clay Substation expansion area, the eastern portion of the natural gas line, the southeastern end of the water supply lines, and the eastern portion of the wastewater conveyance would fall within the Proposed Project portion of the water resources study area. These LODs would not overlay any groundwater aquifers.

Shaver Creek watershed. This aquifer is confined with no overlying surficial aquifers. Water yield ranges from 5 to 500 gallons per minute.

Information on groundwater quality and movement through the LOD is limited, but groundwater in this area generally moves from south to north toward the Oneida River and Oneida Lake (CNYRPDB, 2014). Based on completion reports submitted by registered water well drillers for private domestic water wells outside of the LOD but within this unconsolidated aquifer, depth to groundwater ranges from approximately 8 to 20 feet below ground surface (bgs) and depth to bedrock ranges from approximately 28 to 118 feet bgs (NYSDEC, 2024b). The closest site-specific groundwater monitoring wells are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is located southwest of the Proposed Project area near Camillus, NY, outside of the Oneida River watershed but within the same physiographic province as the LOD. Over the period of record, from January 7, 2004, to February 27, 2025, the daily mean depth to groundwater at the Camillus station (USGS 430243076180402) ranged from a minimum depth of 10.75 feet bgs in 2016 to a maximum depth of 14.02 feet bgs in 2004 (USGS, 2025a). Over the last five years, the daily mean depth to groundwater was 12.66 feet bgs. Groundwater quality at the Camillus station is consistent with the chemical weathering of rocks and sediments within an aquifer. In comparison to the NYSDOH drinking water MCLs (10 NYCRR Part 5), the Camillus station has high concentrations of dissolved solids such as chloride and sulfate and high concentrations of minerals such as iron and manganese (USGS, 2025a).

There are no principal aquifers or SSAs beneath the water supply improvement LOD. However, as shown in Table F-4 and Figure F-39, in Oswego County, the LOD would overlay 43.97 acres of the County's Fulton primary aquifer region. Other portions of the water supply line LOD would overlay three unconsolidated aquifers, including 8.98 acres of a confined, unconsolidated aquifer in Onondaga County, 6.41 acres of a kame aquifer in Oswego County, and 3.43 acres of a confined, unconsolidated aquifer in Oswego County (Figure F-38 and Figure F-39).

The 43.97-acre LOD that would overlay the Oswego County Fulton primary aquifer region is interspersed with till and deposits of sand and silt (Miller and Muller, 1982). The till is compact and of low permeability, creating spaces throughout the aquifer around which groundwater must flow. The deposits of sand and silt are of low to moderate permeability with groundwater generally flowing northwest toward the Oswego River (Stelz, 1982; Anderson and Allen, 1982). Yield within the areas of low to moderate permeability is less than 10 gallons per minute due to the thinness of the deposits (Anderson, 1982). Within this 43.97-acre LOD, 25.36 acres are indicated as being confined with unknown depth and thickness (NYSDEC, 2025a).

The 6.41-acre LOD that would overlay the kame aquifer in Oswego County consists of stratified sand and gravel deposits from melted glaciers (NYSDOT, 2013; Goldstein, 1984). These sediments make the aquifer well drained and capable of rapid infiltration. Information on groundwater quality and movement through this aquifer is limited, but completion reports submitted by registered water well drillers for private domestic water wells outside of the LOD and within the aquifer show depth to bedrock between approximately 15 to 24 feet bgs and stabilized discharges between 9 to 40 gallons per minute (NYSDEC, 2024b).

Other portions of the water supply improvement LOD would overlay unconsolidated aquifers at multiple locations, with the northernmost aquifers located near Fulton City in Oswego

County, and the southernmost aquifer located closer to the WPCP in Onondaga County. The northernmost unconsolidated aquifer is confined with unknown depth, thickness, and yield (NYSDEC, 2024b). The southernmost unconsolidated aquifer is the same aquifer over which the natural gas line would be located. As noted above, this aquifer is confined with no overlying surficial aquifers, with groundwater yield from approximately 5 to 500 gallons per minute (NYSDEC, 2025a), and private domestic water well completion reports show depth to groundwater ranging from approximately 8 to 20 feet bgs and depth to bedrock ranging from approximately 28 to 118 feet bgs (NYSDEC, 2024b).

Data on groundwater levels within the Fulton primary aquifer, kame aquifer, and northernmost unconsolidated aquifer are limited. The closest USGS groundwater monitoring station to these aquifers is located northeast of Fulton near Volney, NY, just outside of the Fulton primary aquifer. Over the period of record, from November 1, 2002, to February 27, 2025, the daily mean depth to groundwater at the Volney station ranged from a minimum depth of 21.16 feet bgs in 2017 to a maximum depth of 22.93 feet bgs in 2015 (USGS, 2025b). Over the last five years, the daily mean depth to groundwater was 22.4 feet bgs. Groundwater quality information within the Fulton primary aquifer is limited, but an annual drinking water quality report from Fulton City in 2023, which includes two groundwater wells located within the Fulton primary aquifer, indicated that groundwater contaminant levels were below NYSDOH drinking water MCLs (Fulton City Water Works, 2023). The closest groundwater monitoring wells to the southernmost unconsolidated aquifers are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is the Camillus station noted above, which most closely represents the general state of groundwater quality within the southern portion of the LOD.

There are no primary aquifers or SSAs located beneath the wastewater improvement LODs. However, as shown in Table F-4 and Figure F-38, the IWWTP and wastewater conveyance LODs would overlay two unconsolidated aquifers located on the western edge of the Shaver Creek watershed. Specifically, 6.65 acres of the IWWTP LOD would overlay the northernmost of these two aquifers, which is considered a principal aquifer. This aquifer is unconfined and offers a high yield of more than 100 gallons per minute. Information on groundwater quality and movement through this aquifer is limited, but based on completion reports submitted by registered water well drillers for private domestic water wells within this aquifer, depth to bedrock ranges from approximately 22 to 53 feet bgs and depth to groundwater ranges from approximately 10 to 53 feet bgs (NYSDEC, 2024b). A total of 3.79 acres of the IWWTP LOD and 6.81 acres of the wastewater conveyance LOD would overlay the southernmost of these two aquifers, which is not considered a primary or principal aquifer. This aquifer is confined with an unknown depth, thickness, and yield. Information on groundwater quality and movement through this aquifer is also limited, but completion reports submitted by registered water well drillers for private domestic water wells within the aquifer show depth to bedrock at approximately 43 feet bgs (NYSDEC, 2024b).

The closest site-specific groundwater monitoring wells are those installed on the WPCP and proposed Rail Spur Site, which indicate groundwater at depths of 0.1 to 7.8 feet below grade. The closest USGS groundwater monitoring station is the Camillus station noted above, which most closely represents the general state of groundwater quality within the LOD.

F-3.5 Floodplains

Flooding can endanger human life and damage property, particularly in floodplains where development has occurred (NYSDEC, 2024c). Changes in land use and precipitation and runoff patterns, impervious surfaces, and obstructions in floodways can alter floodplain boundaries and potentially expand floodwater footprints (Tetra Tech, 2019).

FEMA manages the NFIP to provide flood insurance to people who live in areas with the greatest risk of flooding. FEMA maintains flood insurance rate maps (FIRMs) that delineate SFHAs with the highest risk of flooding (FEMA, 2020a, 2020b, 2024). Local governments may participate in the NFIP by ensuring that local laws contain adequate land use and floodplain development control measures and by adopting FIRMs or Flood Hazard Boundary Maps (FEMA, 2024).

Despite its name, a "100-year flood," also known as a base flood, is a flood with a one percent chance of occurring in any given year (FEMA, 2020c). SFHAs include "100-year floodplains," which are floodplains inundated by base flood events (FEMA, 2020a). Portions of SFHAs with watercourse channels and adjacent floodplain areas prone to increasing flood heights within 100-year floodplains if developed or filled are referred to as regulated floodways (FEMA, 2020d). SFHAs also include coastal floodplains where wave action or high-velocity water can cause damage during a one percent annual chance flood (FEMA, 2021).

A "500-year storm" is a storm event with a less than one percent but more than 0.2 percent chance of occurring in any given year. Although they are not considered SFHAs, "500-year floodplains" are also delineated on FIRMs, and are considered low- to moderate-risk areas that may still result in shallow flooding (FEMA 2020e, n.d.).

The presence and extent of floodplains within the water resources study area were identified through a desktop review of FEMA FIRMs and GIS data available on FEMA's Flood Map Service Center website delineating the relevant locations of base flood elevations, SFHAs, and flood insurance risk premium zones.

Based on review of the FEMA FIRMs and GIS data, the presence or absence of SFHAs and 500-year floodplains were determined for all Connected Action locations. Approximate surface areas were then calculated for each location where a Connected Action LOD would overlay an SFHA or 500-year floodplain to facilitate determination of potential effects on floodplains.

This review identified no SFHAs or regulated floodplains within the LODs of the proposed Clay Substation expansion area, natural gas line, or wastewater conveyance, but identified floodplains within 28.28 acres of the proposed water supply improvement LODs and 1.36 acres of the IWWTP LOD. Table F-5 shows the estimated floodplain acreages within these LODs. The floodplain acreages are also labeled on Figure F-41 through Figure F-45.

Table F-5 Mapped FEMA Floodplains within Connected Action LODs

Figure	Waterbody	100-yr	Reg.	500-yr
Water Supply Improvements				
F-41	Mud Creek	0.52	0.97	0.33
F-42	Oneida River	0.06	1.20	0.24
F-42	Peter Scott Swamp	5.63	-	0.54
F-42	Peter Scott Swamp	-	-	0.21
F-43	Unnamed tributary to Waterhouse Creek	0.10	-	-
F-43	Unnamed tributary to Waterhouse Creek	4.26	-	-
F-43	Unnamed tributary to Waterhouse Creek	7.10	-	-
F-44	Unnamed tributary to Waterhouse Creek	0.03	-	-
F-44	Black Creek	4.66	-	-
F-44	Unnamed tributary to Oswego River	-	-	0.35
F-44	Oswego River	0.45	1.31	0.07
F-44	Unnamed tributary to Oswego River	0.25	-	-
IWWTP				
F-41	Oneida River	1.27	-	0.09
	Totals	**24.33**	**3.48**	**1.83**

Sources: FEMA (2016, 2023). Notes: 100-yr = 100-year floodplain acreage. Reg. = regulated floodway acreage. 500-yr = 500-year floodplain acreage. "-" = unknown acreage.

The proposed water supply improvements would traverse six municipalities in Onondaga and Oswego Counties, including the Towns of Cicero, Clay, Schroeppel, Volney, and Minetto and the City of Oswego. The IWWTP would be located within the Town of Clay. Each of these municipalities participates in the NFIP and enforces floodplain management requirements, either through floodplain development permits or planning permits approved by local floodplain administrators (Barton & Loguidice, 2019; TetraTech, 2019).

The 28.28 acres of FEMA floodplains in these municipalities located within the water supply improvement LODs include 23.06 acres of 100-year floodplains (81.5 percent), 3.48 acres of regulated floodways (12.3 percent), and 1.74 acres of 500-year floodplains (6.2 percent). The 1.36 acres of FEMA floodplains in Clay within the IWWTP LOD include 1.27 acres of 100-year floodplains (93.4 percent) and 0.09 acres of 500-year floodplains (6.6 percent).

F-3.6 Coastal Resources

The waters of Lake Ontario continue to be a source of high-quality drinking water. In 2022, toxic chemicals monitored in Lake Ontario sediments and surface water were assessed as fair and long-term trends indicated that concentrations were unchanging to improving. However, atmospheric deposition and localized areas of highly contaminated sediment in or adjacent to the

shorelines, particularly in urban areas, remain significant pathways for contaminants to enter the lake (USEPA and GOC, 2022).

The human population surrounding Lake Ontario has increased by more than 60 percent over the past 50 years, more than any of the other Great Lakes (USEPA and GOC, 2022), increasing coastal erosion along the shoreline. Humans can cause erosion through vegetation removal, exposing soil to erosion by wind, waves, and precipitation, directing runoff from impervious surfaces over dunes and bluffs, and constructing hardened structures that reflect wave energy onto adjacent shorelines or deepen nearshore areas (NYSDEC, 2024d).

The presence and extent of coastal resources within the study area were identified through a desktop review of State mapping and GIS data (NYSDEC, 2025a), including data on landward coastal zone boundaries and the Town of Clay and City of Oswego LWRP boundaries published by NYSDOS and CEHA boundary information published by NYSDEC, and a review of the Clay and Oswego LWRPs (Plumley Engineering, 2012; City of Oswego, 1986).

Based on these reviews, 3.69 acres of the LOD of the new water supply line that would be constructed from the RWPS at Lake Ontario to the LOWTP would be located within the Lake Ontario coastal zone boundary, but more than 115 feet away from the nearest CEHA (see Figure F-46), and 3.71 acres of the LOD of this water supply line would be located within the City of Oswego LWRP boundary (see Figure F-48). Separately, a 15.19-acre segment of the water supply line that would be constructed from the LOWTP to the Terminal Campus would be located within the Town of Clay LWRP boundary (see Figure F-47). In addition, all 36 acres of the IWWTP LOD and 3.89 acres of the western end of the wastewater conveyance LOD would also be located within the Clay LWRP boundary (see Figure F-47).

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Appendix F-4
Supplemental Information: Environmental Consequences

F-4 Supplemental Information: Environmental Consequences

F-4.1 Construction Effects – Connected Actions

F-4.1.1 Wetlands

Construction of the Connected Actions would result in the permanent loss of wetlands within the proposed Clay Substation expansion area and IWWTP LOD, as well as temporary effects on wetlands within the substation expansion area and the proposed natural gas improvement, water supply improvement, and wastewater conveyance LODs.

The losses in this section are estimates based on currently available Connected Action design information and would be further refined during the permitting processes for each Connected Action. Construction activities within the LODs for some of the water supply and wastewater improvements that would be constructed further in the future (see Chapter 2, Figure 2.1-3), for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects.

Field delineations to date have been conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2012). The amount of State jurisdictional wetlands and associated wetland boundaries, and non-jurisdictional wetlands, are unknown at this time, and would be identified during applicable permitting processes once all necessary field delineations have been completed and jurisdictional determinations have been issued by USACE and NYSDEC. Currently, PJDs and AJDs have not yet been issued for the Connected Action LODs, except for the Clay Substation expansion area. Therefore, the estimated losses in this section reflect the total amount of wetlands anticipated to be subject to regulation by USACE. Effects on regulated wetland buffer areas also would be evaluated during applicable permitting processes. Overall, ground disturbing activities would be anticipated to result in the temporary and permanent direct effects on jurisdictional wetlands shown in Table F-6.

Table F-6 Anticipated Direct Effects on Wetlands (Connected Actions)*

Type	Temporary Effects	Permanent Losses	Total
Clay Substation Expansion			
PEM	0.60	0.55	1.15
PSS	3.68	3.26	6.94
PFO	0.02	0.23	0.25
All	**4.30**	**4.04**	**8.34**
Natural Gas Improvements			
PEM	2.09	0.01	2.10

PSS	4.12	0.0	4.12
PFO	0.91	0.077	0.98
All	**7.12**	**0.087**	**7.20**
Water Supply Improvements			
All	53.62	0.0	53.62
IWWTP			
PEM	0.0	0.13	0.13
PSS	0.0	0.72	0.72
PFO	0.0	1.42	1.42
All	**0.0**	**2.27**	**2.27**
Wastewater Conveyance			
PEM	3.34	0.0	3.34
PSS	0.21	0.0	0.21
PFO	3.71	0.0	3.71
All	**7.26**	**0.0**	**7.26**
Total	**72.30**	**6.40**	**78.70**

Notes: *All values are in acres, are estimates based on currently available Connected Action design information, and would be further refined during the permitting processes for each Connected Action. Construction activities within the water supply and wastewater improvement LODs, for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects. Total wetland acreage estimates represent the total amount of wetlands currently anticipated to be subject to regulation by USACE and are being treated as regulated under the CWA.

As shown in the table, construction of the Connected Actions would result in the permanent loss of a total of 6.40 acres of wetlands being treated as Federal jurisdictional wetlands, including 4.04 acres within the proposed Clay Substation expansion area, 0.087 acres within the natural gas improvement LODs, and 2.27 acres within the IWWTP LOD. These losses would occur as a result of site equipment staging, excavation, filling, and grading necessary to create the level upland conditions required for construction of the various Connected Action components. An additional 0.165 acres of PSS/PFO wetlands is anticipated to be permanently converted to PEM habitat within the natural gas improvement LOD as a result of right-of-way maintenance.

National Grid, OCWA, and OCDWEP would seek to avoid or minimize permanent losses of wetlands and their functions and services through project design modifications during applicable permitting processes. The potential compensatory mitigation that would be required for losses of Federal jurisdictional wetlands regulated by USACE also would be determined during

the applicable permitting process for each Connected Action.[19] Losses and conversion of wetlands determined to be State jurisdictional and subject to regulation by NYSDEC also would require preparation of compensatory mitigation plans under ECL Article 24. Losses of wetlands determined to be non-jurisdictional would not require mitigation.

Construction also would result in temporary effects on a total of 72.30 acres of wetlands being treated as Federal jurisdictional wetlands, including 4.30 acres within the substation expansion area, 7.12 acres within the natural gas improvement LOD, 53.62 acres within the water supply improvement LOD, and 7.26 acres within the wastewater improvement LOD. These temporary effects would occur primarily during construction within the linear improvement LODs as a result of the intrusion of personnel and mechanized equipment within the LODs, trampling and machine compression during ground disturbance, cut and cover trenching, and potential HDD.

In general, National Grid, OCWA, and OCDWEP would protect wetland areas from heavy construction equipment and other disturbances through the use of temporary timber mats. Although soil would be stockpiled away from any delineated or suspected wetland areas when feasible, timber matting also would be used when temporary soil stockpiling is required within a wetland area to reduce disturbances. Soil would not be staged on timber matting if it would cause any erosion or sedimentation issues in adjacent wetlands or waterbodies. All wetlands disturbed during trenching would be backfilled with the original excavated soil, when feasible, and would be returned to grade. Any remaining exposed or disturbed soils would be stabilized (e.g., with seed and straw mulch) in accordance with the New York State *Standards & Specifications for Erosion & Sediment Control* (NYSDEC, 2016). In addition, SWPPP and SPCC/SPR Plans would be prepared for Connected Actions as required to reduce the risk of accidental releases, leaks, or spills of materials such as concrete, oil, fuel, lubricants, or hydraulic fluids during construction and provide for immediate containment and cleanup of any release.

The loss of the wetlands described above also could result in indirect long-term effects on any remaining wetlands within the Connected Action LODs or on the wetland buffers and hydrology, soils, and vegetation supporting them, as a result of subsequent changes in hydrology, including increased stormwater runoff and decreased groundwater recharge. The precise nature of these effects cannot be determined at this time given that some Connected Action designs and LODs have not been finalized and not all wetlands have been delineated and verified by USACE or NYSDEC. Although in general, these indirect effects would be assumed to be similar to those described for the Proposed Project, they also would be anticipated to occur on a substantially smaller scale given the comparatively smaller footprints of the Connected Actions.

To minimize indirect effects on remaining wetlands, National Grid, OCWA, and OCDWEP would implement stormwater BMPs similar to those that Micron would implement for the Proposed Project to reduce runoff rates, reduce erosion of disturbed land and downgradient sedimentation, and protect stormwater from contamination before and during Connected Action construction activities. These would include BMPs to reduce temporary effects from construction activities, including silt fencing, stone outlet sediment traps, compost filter socks, or other

[19] The permanent loss of wetlands within the Clay Substation expansion area is anticipated to include the loss of their nutrient retention, production export, and wildlife habitat functions. National Grid has currently proposed compensatory mitigation for these losses in the form of in-lieu fee program credits.

temporary soil stabilization measures to contain excavated materials, and erosion control measures to prevent sediment-laden runoff from discharging to adjacent areas. Erosion and sediment control plans would be prepared once Connected Action engineering designs are completed.

The permanent and temporary construction effects on wetlands within the Connected Action LODs, in combination with other wetland and surface water effects under the Preferred Action Alternative, would constitute a significant adverse effect on water resources.

F-4.1.2 Surface Water

Construction of the Connected Actions would result in the permanent loss of stream features within the proposed Clay Substation expansion area, as well as temporary effects on rivers and streams within the substation expansion area and the proposed natural gas, water supply, and wastewater improvement LODs.

The losses in this section are estimates based on currently available Connected Action design information and would be further refined during the permitting processes for each Connected Action. Construction activities within the LODs for some of the water supply and wastewater improvements that would be constructed further in the future (see Chapter 2, Figure 2.1-3), for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects.

Field delineations to date have been conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE, 2012). The amount of State jurisdictional and non-jurisdictional rivers and streams are unknown at this time and would be identified during applicable permitting processes once all necessary field delineations have been completed and jurisdictional determinations have been issued by USACE and NYSDEC. However, affected State jurisdictional surface waters are anticipated to be limited to those within Oneida and Oswego River crossings totaling approximately 229.93 LF.

PJDs and AJDs have not yet been issued for the Connected Action LODs, with the exception of the Clay Substation. Therefore, the estimated losses in this section reflect the total amount of rivers and streams anticipated to be subject to regulation by USACE. Overall, construction would be anticipated to result in the temporary and permanent direct effects on jurisdictional rivers and streams shown in Table F-7.

Table F-7 Anticipated Direct Effects on Rivers and Streams (Connected Actions)*

Flow Regime	Current Length	Temporary Effects	Permanent Effects
Clay Substation Expansion			
Intermittent	1,925	380	1,545
Total	**1,925**	**380**	**1,545**

Natural Gas Improvements			
Perennial	808	100	0.0
Intermittent	1,491	75	0.0
Total	**2,299**	**175**	**0.0**
Water Supply Improvements			
Total	**2,835**	**2,835**	**0.0**
Wastewater Improvements			
Perennial	101	101	0.0
Total	**101**	**101**	**0.0**
Total (All)	**7,160**	**3,491**	**1,545**

Notes: *All values are in linear feet, are estimates based on currently available Connected Action design information, and would be further refined during the permitting processes for each Connected Action. Streams mapped within the water supply improvement LODs have not yet been evaluated in the field for flow regime. Construction activities within the water supply and wastewater improvement LODs, for which there are currently limited or no available plans, would be conservatively assumed to result in at least some level of adverse effects. Total linear feet estimates represent the total amount of rivers and streams currently anticipated to be subject to regulation by USACE and are being treated as regulated under the CWA. A total of 229.93 LF included under temporary effects within the water supply improvement LODs are also anticipated to be State jurisdictional.

As shown in the table, construction of the Connected Actions would result in the permanent loss of a total of 1,545 LF of intermittent stream features and ditches being treated as Federal jurisdictional, all within the proposed Clay Substation expansion area. These losses would occur as a result of site equipment staging, excavation, filling, and grading necessary to create the level upland conditions required for construction of the various Connected Action components. Based on current designs, the losses within the Clay Substation expansion area would primarily be losses of shallow stormwater ditches (Thompson, 2025). However, as part of the expansion, new stormwater ditches with similar dimensions would be installed around the base of the area to provide similar functions as those lost. The total anticipated loss of 1,545 LF of stream features and ditches is approximately 0.20% of the approximately 759,264 LF of stream channels mapped as included in and near the Oneida River sub-watershed (USEPA, 2025c).

National Grid, OCWA, and OCDWEP would seek to avoid or minimize permanent losses of stream features and their functions and services through project design modifications during applicable permitting processes. The potential compensatory mitigation that would be required for losses of Federal jurisdictional rivers and streams regulated by USACE also would be determined during the applicable permitting process for each Connected Action. Losses of rivers and streams determined to be State jurisdictional and subject to regulation by NYSDEC also would require preparation of compensatory mitigation plans under ECL Article 24. Currently, State jurisdictional stream losses are anticipated to occur within streams designated as Class C waters of the Oneida River sub-watershed, and there are no anticipated permanent losses of State jurisdictional rivers (i.e., losses in the Oneida and Oswego Rivers). Losses of rivers and streams determined to be non-jurisdictional would not require mitigation.

Construction also would result in temporary effects on a total of 3,491 LF of rivers and streams being treated as Federal jurisdictional, including 380 LF within the substation expansion area, 175 LF within the natural gas improvement LOD, 2,835 LF within the water supply improvement LOD, and 101 LF within the wastewater improvement LOD. These temporary effects would occur primarily during construction within the linear improvement LODs as a result of the intrusion of personnel and mechanized equipment within the LODs, trampling and machine compression during ground disturbance, cut and cover trenching, potential HDD methods, and installation of pipeline.

In general, National Grid, OCWA, and OCDWEP would protect streams and ditches from heavy construction equipment and other disturbances through the use of temporary timber mats. Although soil would be stockpiled away from any delineated or suspected stream features when feasible, timber matting also would be used when temporary soil stockpiling is required within a surface water area to reduce disturbances. Soil would not be staged on timber matting if it would cause any erosion or sedimentation issues in adjacent waterbodies. Any remaining exposed or disturbed soils would be stabilized (e.g., with seed and straw mulch) in accordance with the New York State *Standards & Specifications for Erosion & Sediment Control* (NYSDEC, 2016). In addition, SWPPPs and SPCC/SPR Plans would be prepared for Connected Actions as required to reduce the risk of accidental releases, leaks, or spills of materials such as concrete, oil, fuel, lubricants, or hydraulic fluids during construction and provide for immediate containment and cleanup of any release.

Trenching within waterways, such as for the water supply improvements, would require the use of temporary water impoundment structures (e.g., cofferdams) and pumping or redirection of upstream water flow to the downstream side of the structure to allow trenching work to be performed in dry conditions to minimize sediment suspension. After installation, the trench would be backfilled with the original sediment when feasible, or clean fill when not feasible, and the channel bottoms would be returned to their original grade. However, the installation and removal of these impoundment structures would stir up bottom sediments, which could adversely affect water quality by temporarily increasing turbidity and decreasing dissolved oxygen, primarily out to points past the impoundment structures, where suspended sediment within turbidity plumes would re-settle to the bottom. The sizes and shapes of these turbidity plumes cannot be precisely determined at this time, but the extent of the plumes would be anticipated to be within a few hundred feet of the impoundment structures or fewer, depending on the amount of fine particles (i.e., silts and clays) in the sediment.

Pollutants or contaminants deposited and trapped within the sediment bed from past activities such as agricultural runoff (e.g., pesticides) or road runoff (e.g., petroleum hydrocarbons) could become temporarily re-suspended during installation and removal of impoundment structures, but these contaminants would not be anticipated to be present in concentrations that would exceed water quality standards.

Accidental releases from construction machinery could potentially occur during work in channel bottoms, but these activities would be subject to controls in the SWPPPs and SPCC/SPR Plans noted above. Limiting timing of construction activities to periods when intermittent or ephemeral stream channels would be dry also would be considered to minimize effects.

Use of HDD methods in certain circumstances (e.g., for constructing water supply lines across the Oneida and Oswego Rivers) would avoid direct effects on stream channels by directing pipeline underneath the channel. If HDD methods are used, an Inadvertent HDD Fluid Release Contingency Plan would be required to provide for proper containment and cleanup of any accidental releases of HDD fluids.

The loss of the streams and ditches described above also could result in indirect long-term effects on downgradient rivers or streams from altered hydrologic conditions or adverse water quality conditions, including as a result of temporary upland changes in topography through the completion of construction. The precise nature of these effects cannot be determined at this time given that some Connected Action designs and LODs have not been finalized and not all rivers and streams have been delineated and verified by USACE or NYSDEC. In general, these indirect effects would be assumed to be similar to those described for the Proposed Project.

To minimize indirect effects on remaining rivers and streams, National Grid, OCWA, and OCDWEP would implement stormwater BMPs similar to those that Micron would implement for the Proposed Project to reduce runoff rates, reduce erosion of disturbed land and downgradient sedimentation, and protect stormwater from contamination before and during Connected Action construction activities. These would include BMPs to reduce temporary effects from construction activities, including silt fencing, stone outlet sediment traps, compost filter socks, or other temporary soil stabilization measures to contain excavated materials, and erosion control measures to prevent sediment-laden runoff from discharging to adjacent areas. Erosion and sediment control plans would be prepared once Connected Action engineering designs are completed.

The permanent and temporary construction effects on rivers and streams within the Connected Action LODs, in combination with other wetland and surface water effects under the Preferred Action Alternative, would constitute a significant adverse effect on water resources.

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Appendix F-5
Water Resources Figures

F-5 Water Resources Figures

Table F-8 Water Resources Figures

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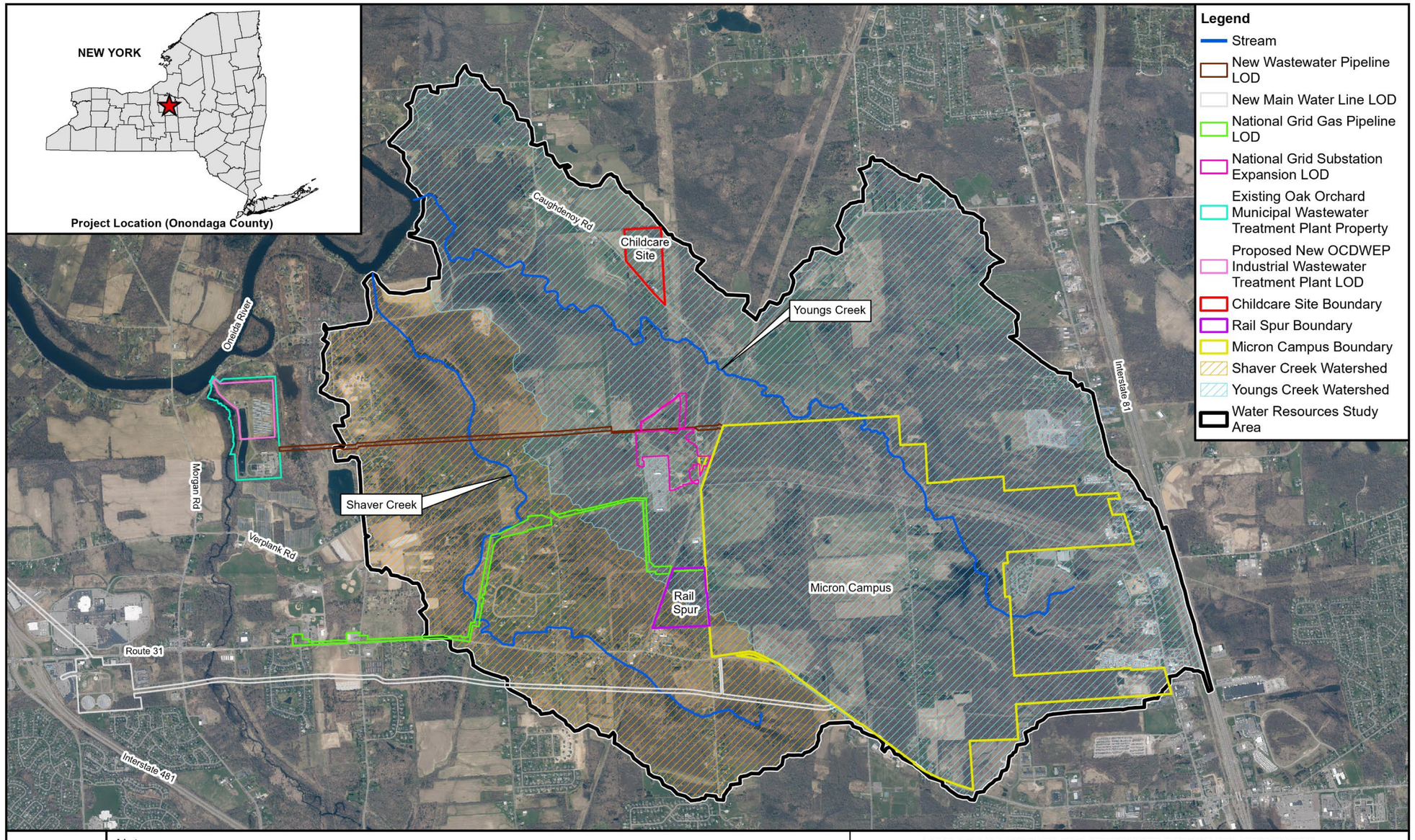
Figure F-1 Proposed Project Water Resources Study Area Map



Notes:
LOD = Limit of Disturbance
Image Source: NYS ITS Geospatial Services, Westchester County GIS

FIGURE F-1 PROPOSED PROJECT WATER RESOURCES STUDY AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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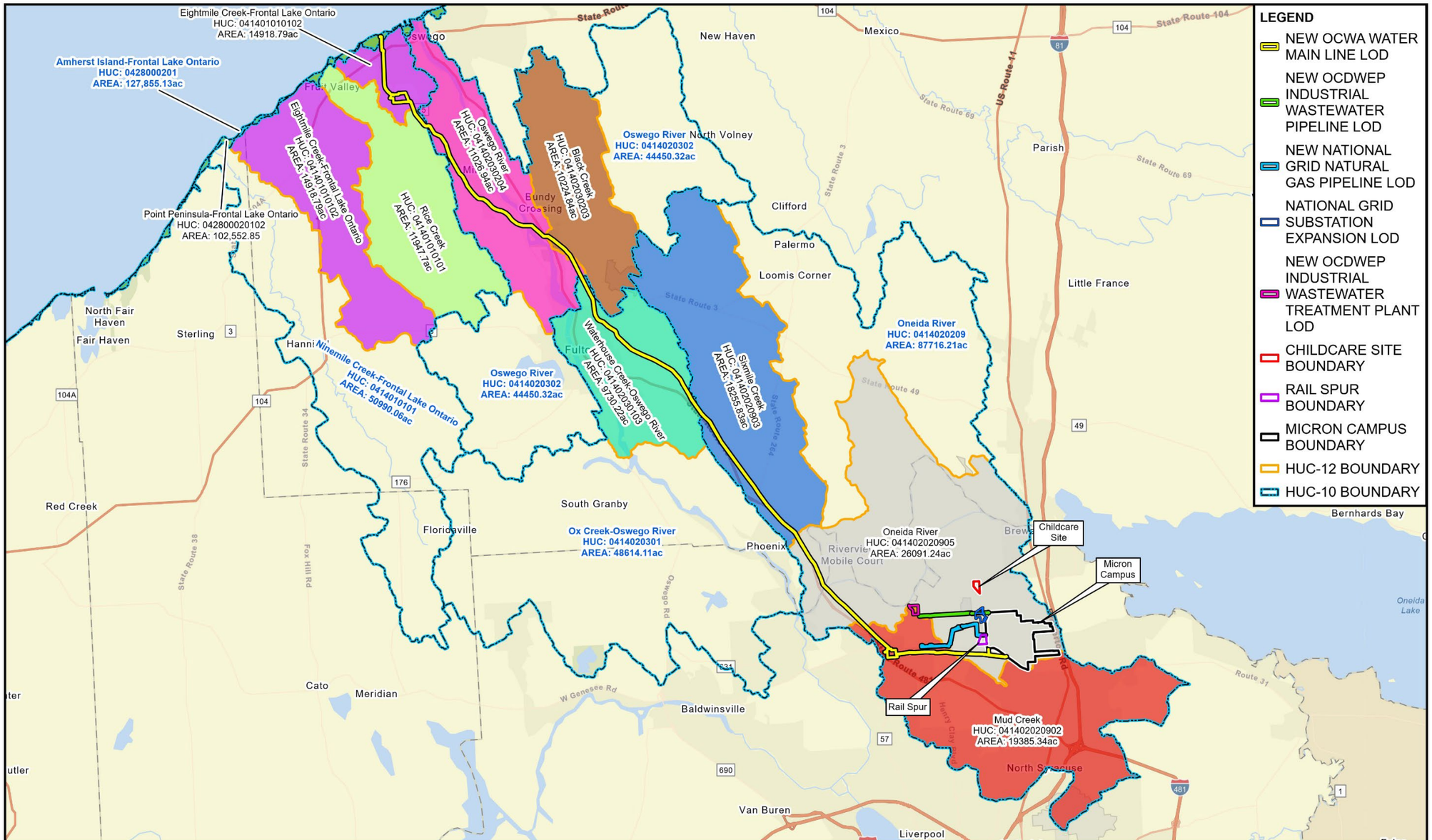
CH	06/27/2024	31000524.001	F-1

Figure F-2 Connected Actions Water Resources Study Area



Notes:
LOD = Limit of Disturbance
Image World Street Map: Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS

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FIGURE F-2 CONNECTED ACTIONS WATER RESOURCES STUDY AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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CH	02/11/2025	31000524.001	F-2

Figure F-3 Micron Campus Delineated Federal Jurisdictional Wetlands

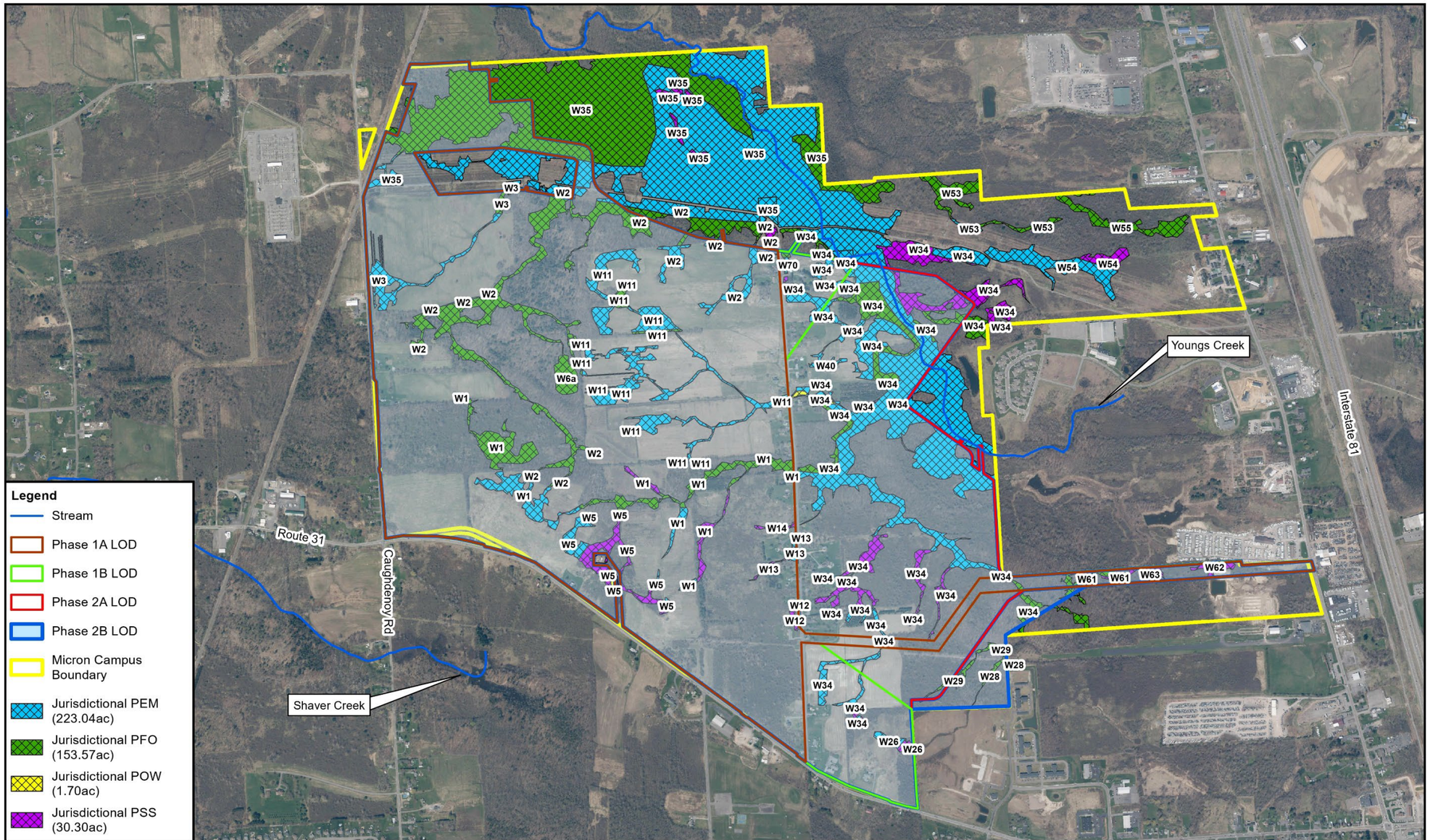

FIGURE F-3 MICRON CAMPUS DELINEATED FEDERAL JURISDICTIONAL WETLANDS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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CH	01/28/2025	31000524.001	F-3

Figure F-4 Micron Campus Delineated State Jurisdictional Wetlands

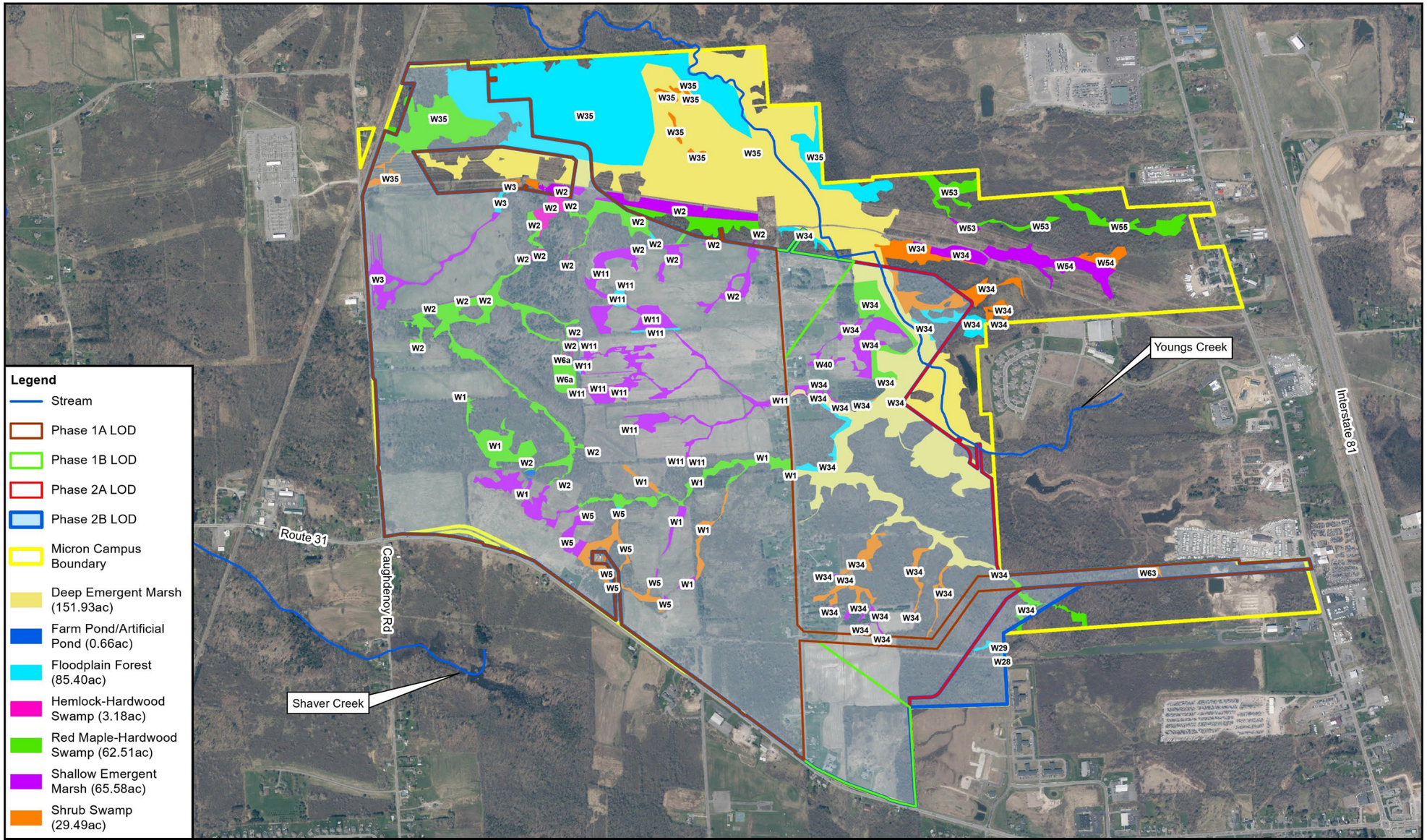

Figure F-5 Micron Campus Delineated Non-Jurisdictional Wetlands

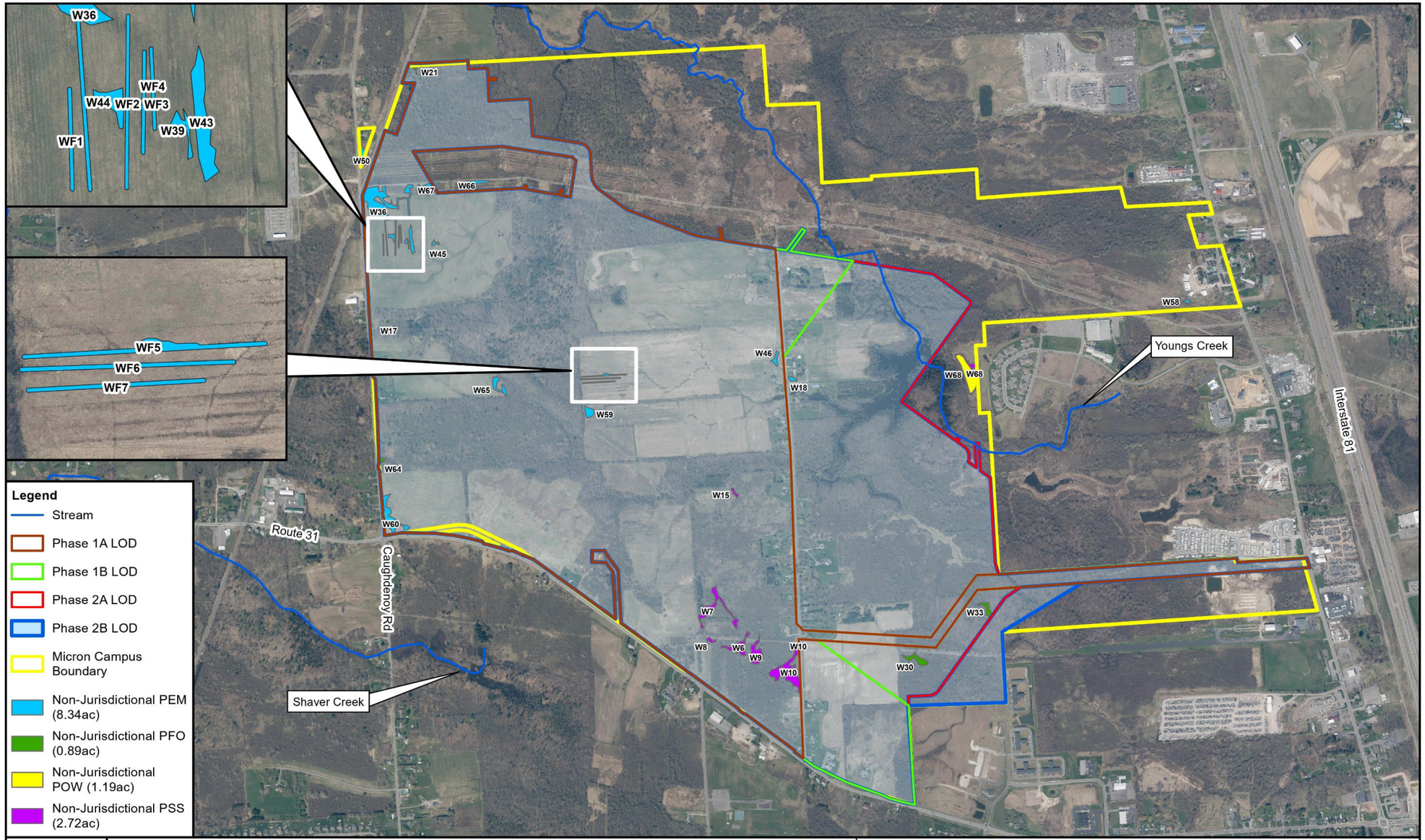

Figure F-6 Rail Spur Site Delineated Federal Jurisdictional Wetlands

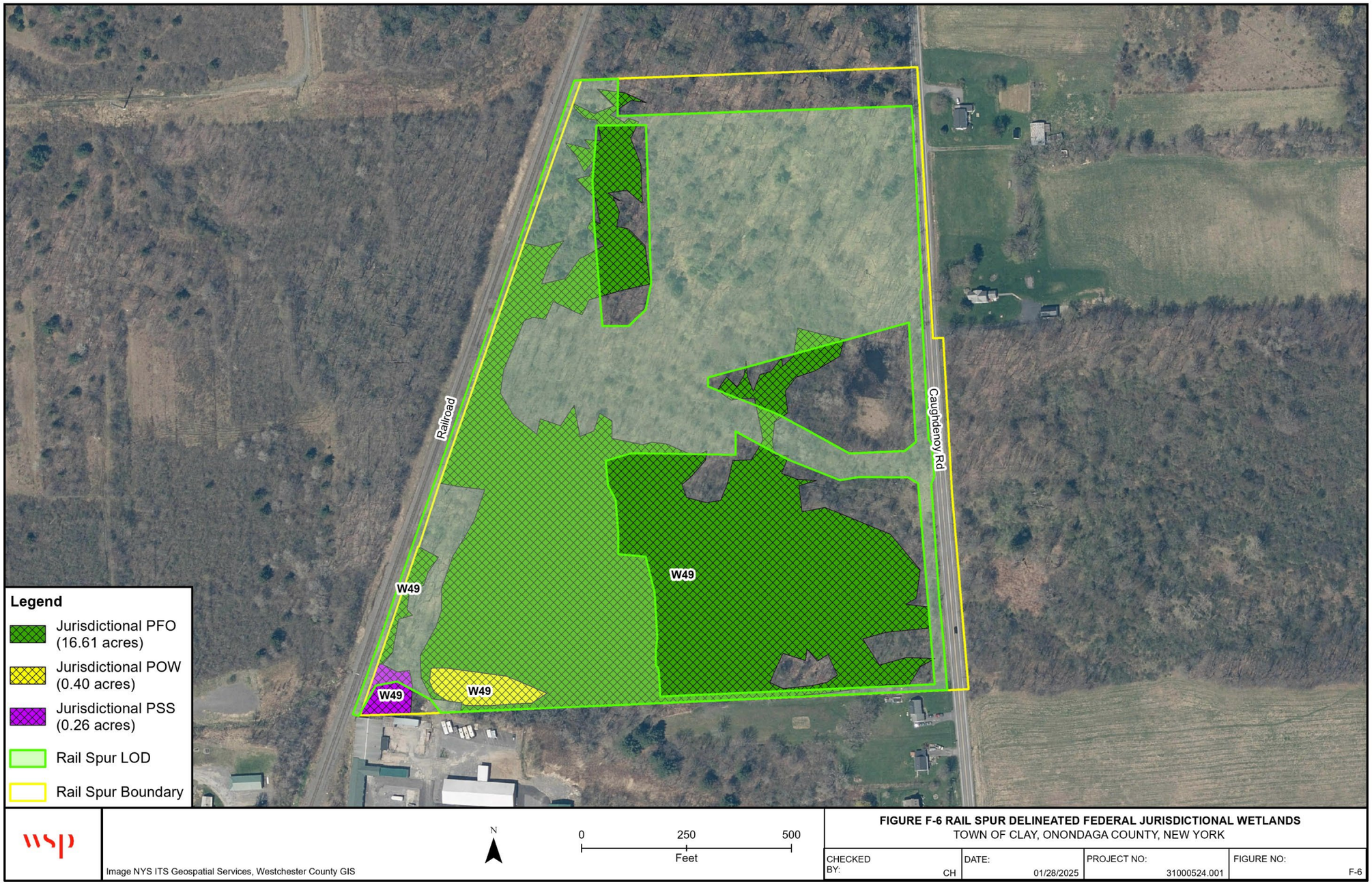

FIGURE F-6 RAIL SPUR DELINEATED FEDERAL JURISDICTIONAL WETLANDS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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Figure F-7 Rail Spur Site Delineated Non-Jurisdictional Wetlands

Figure F-8 Childcare Site Delineated Federal Jurisdictional Wetlands

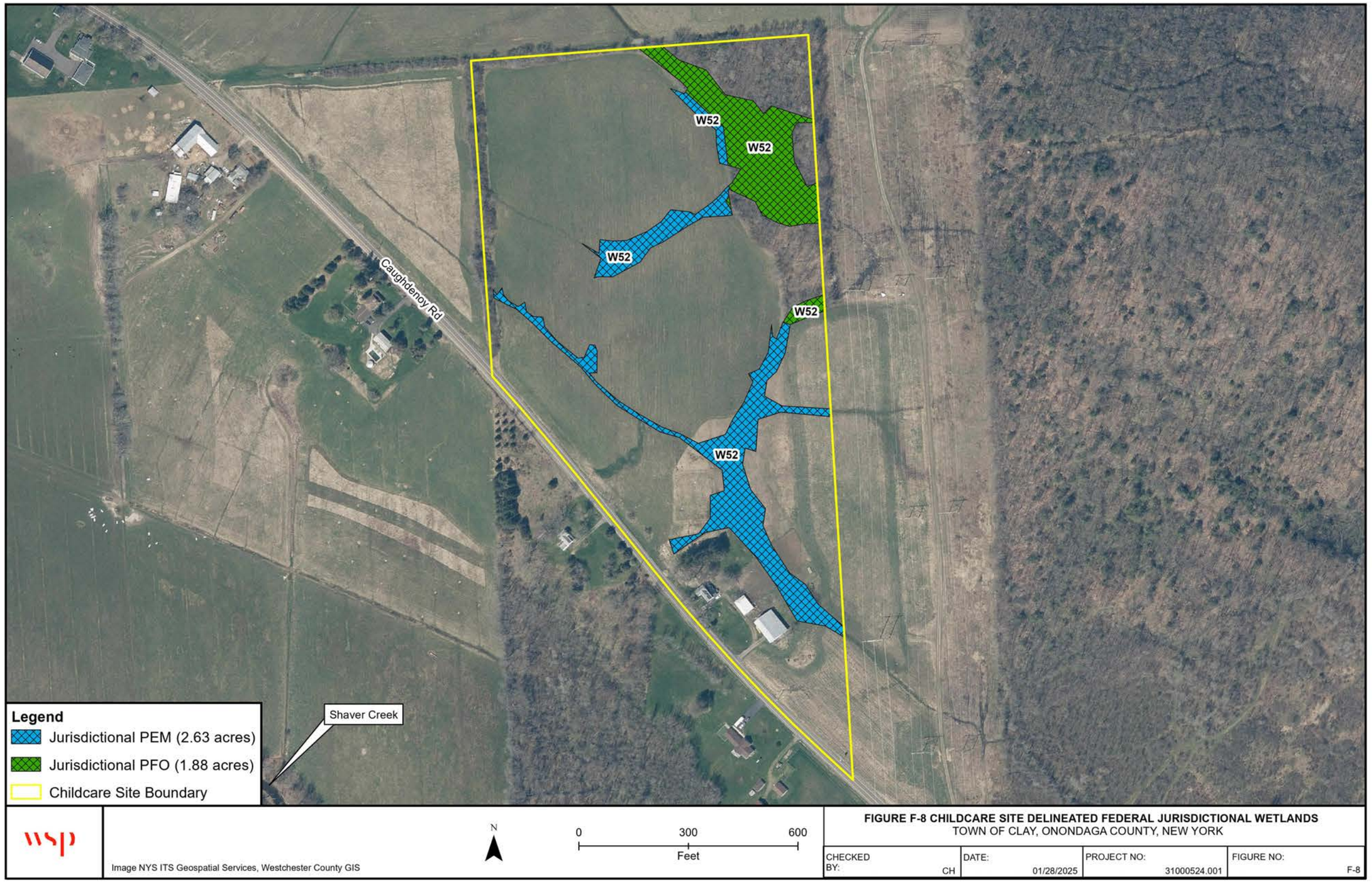


Figure F-9 Childcare Site Delineated State Jurisdictional Wetlands

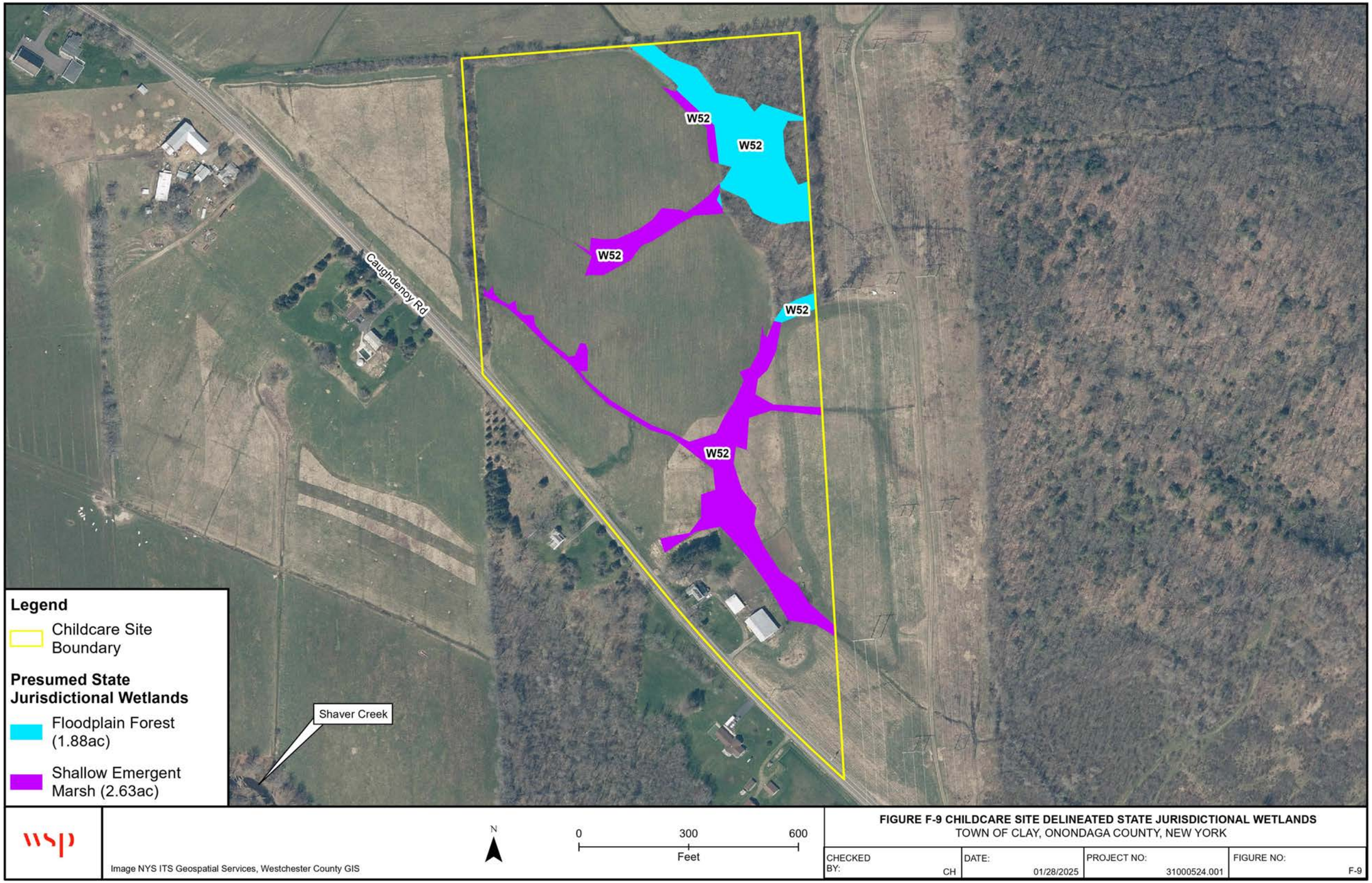


Figure F-10 Childcare Site Delineated Non-Jurisdictional Wetlands

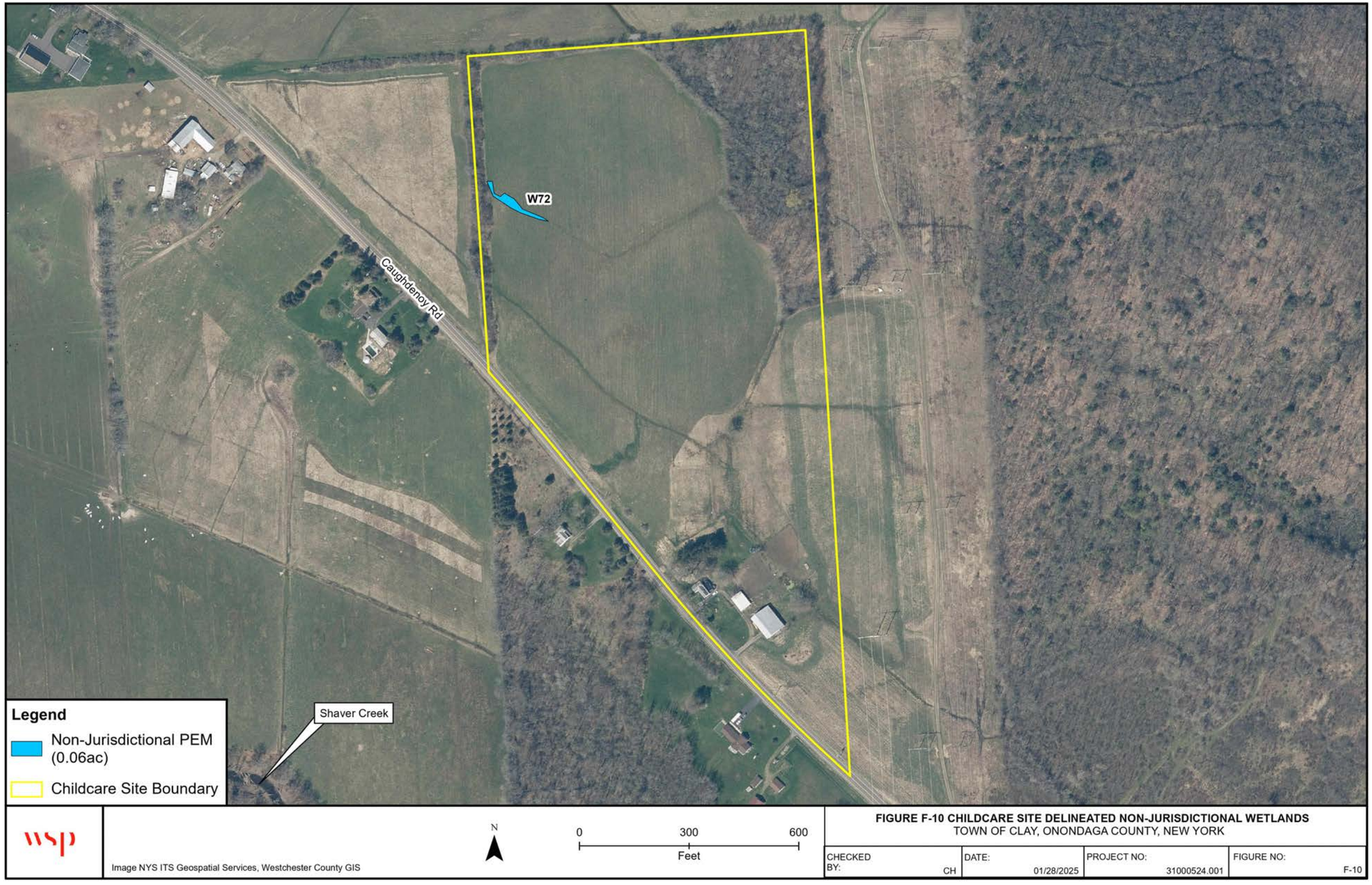
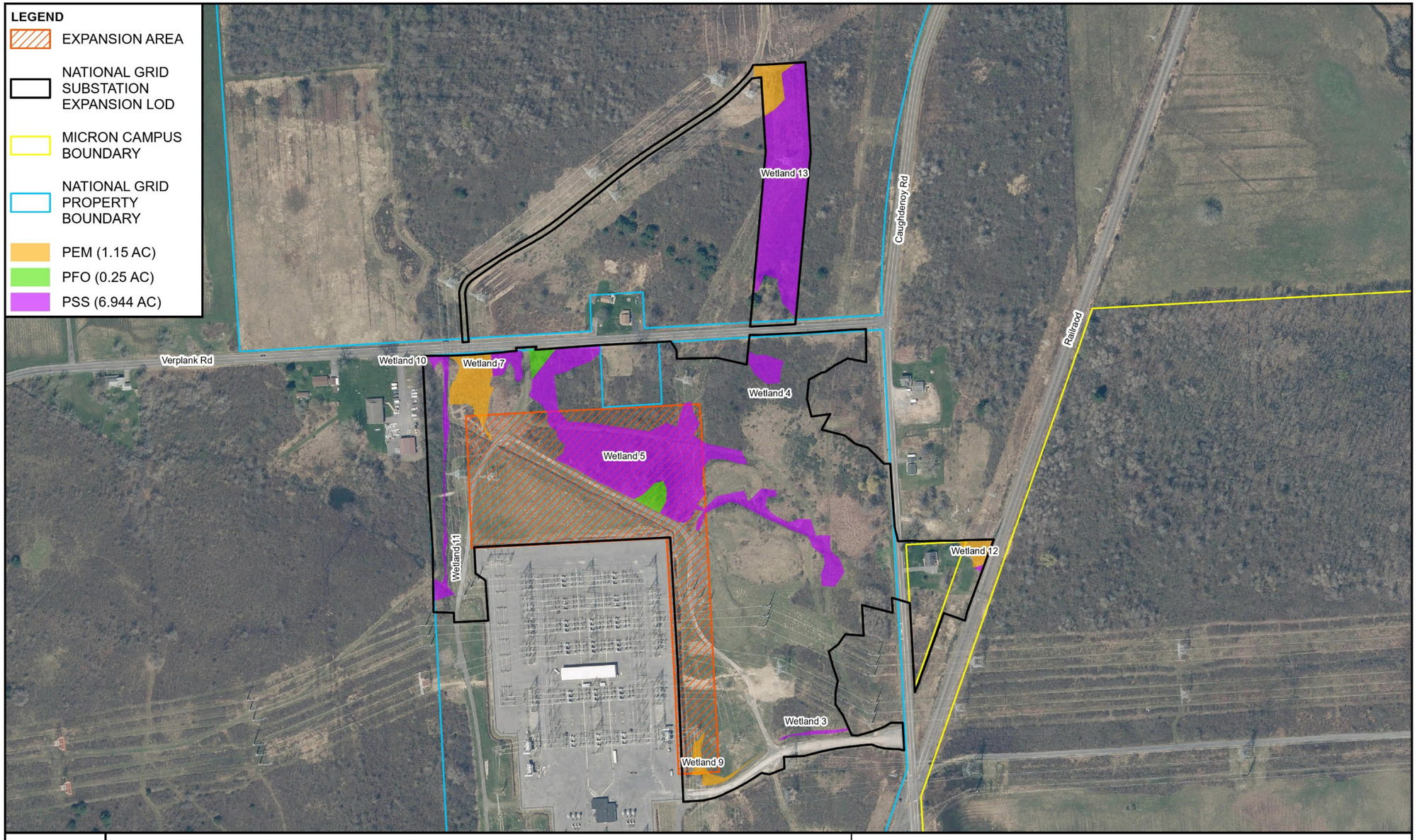


Figure F-11 Electricity Improvements Delineated Wetlands



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-11 ELECTRICITY IMPROVEMENTS DELINEATED WETLANDS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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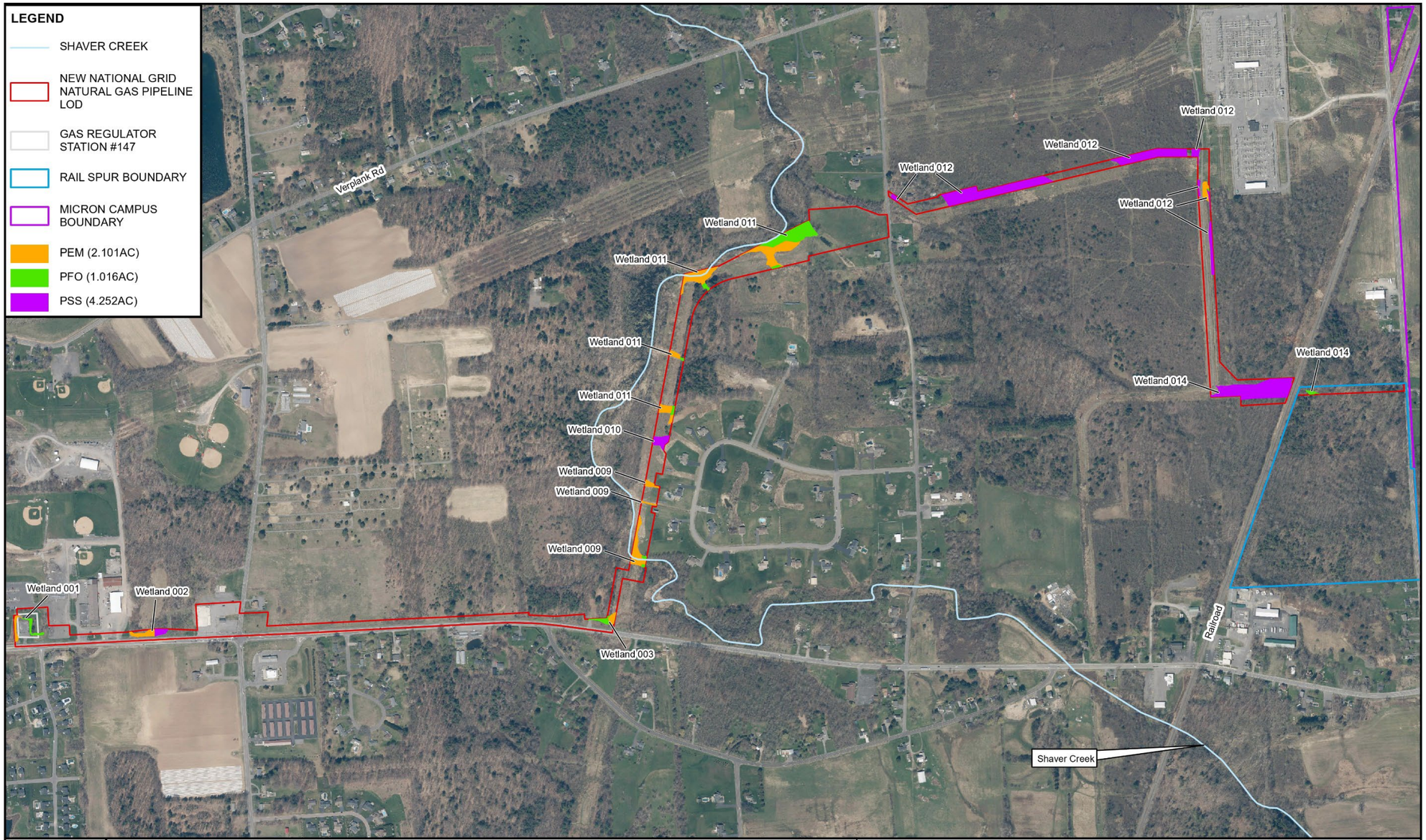
CH	02/11/2025	31000524.001	F-11

Figure F-12 Natural Gas Improvements Delineated Wetlands



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-12 NATURAL GAS IMPROVEMENTS DELINEATED WETLANDS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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CH	02/11/2025	31000524.001	F-12

Figure F-13 Water Supply Improvements Mapped Federal Wetlands (Area 1)

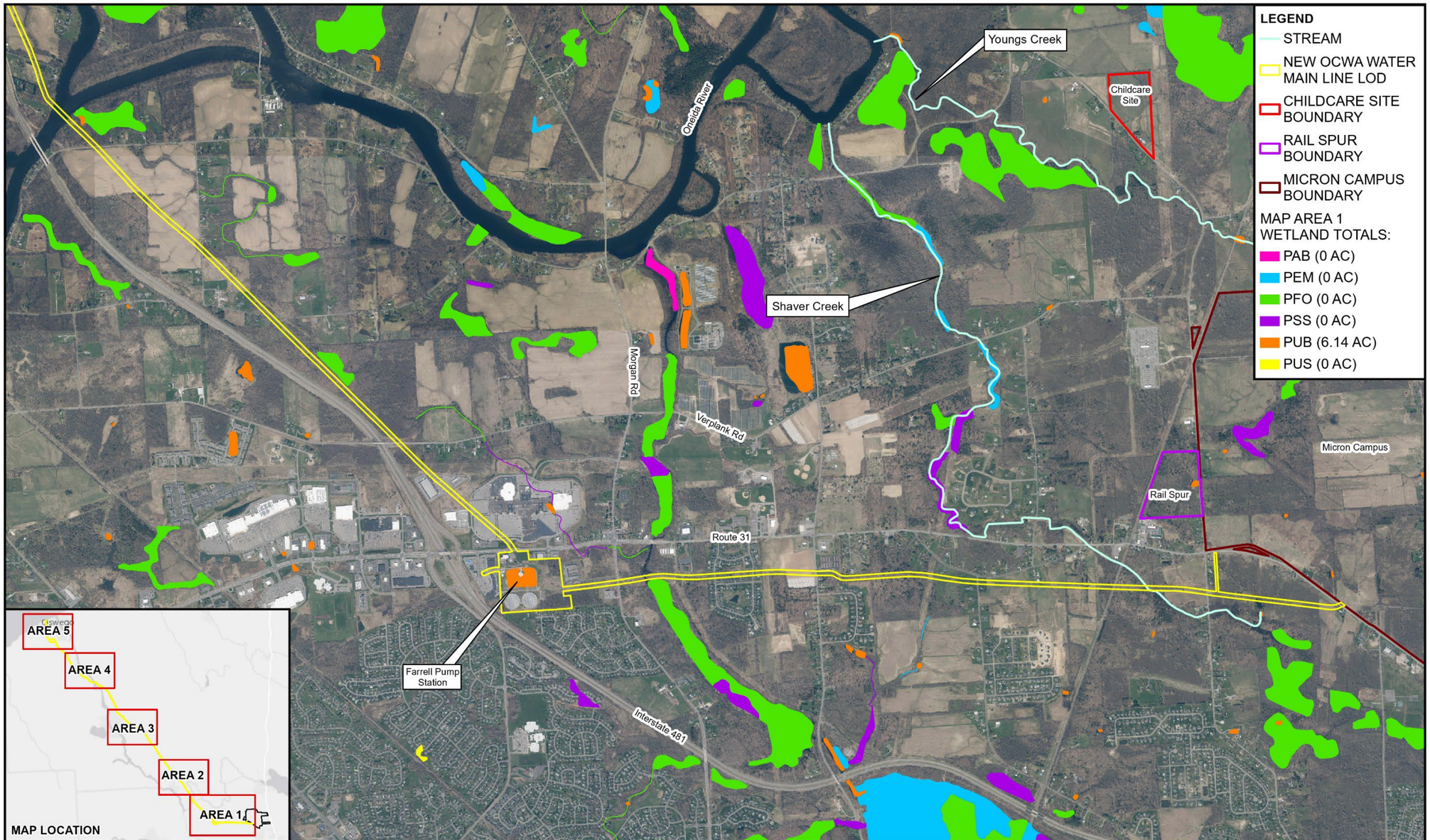
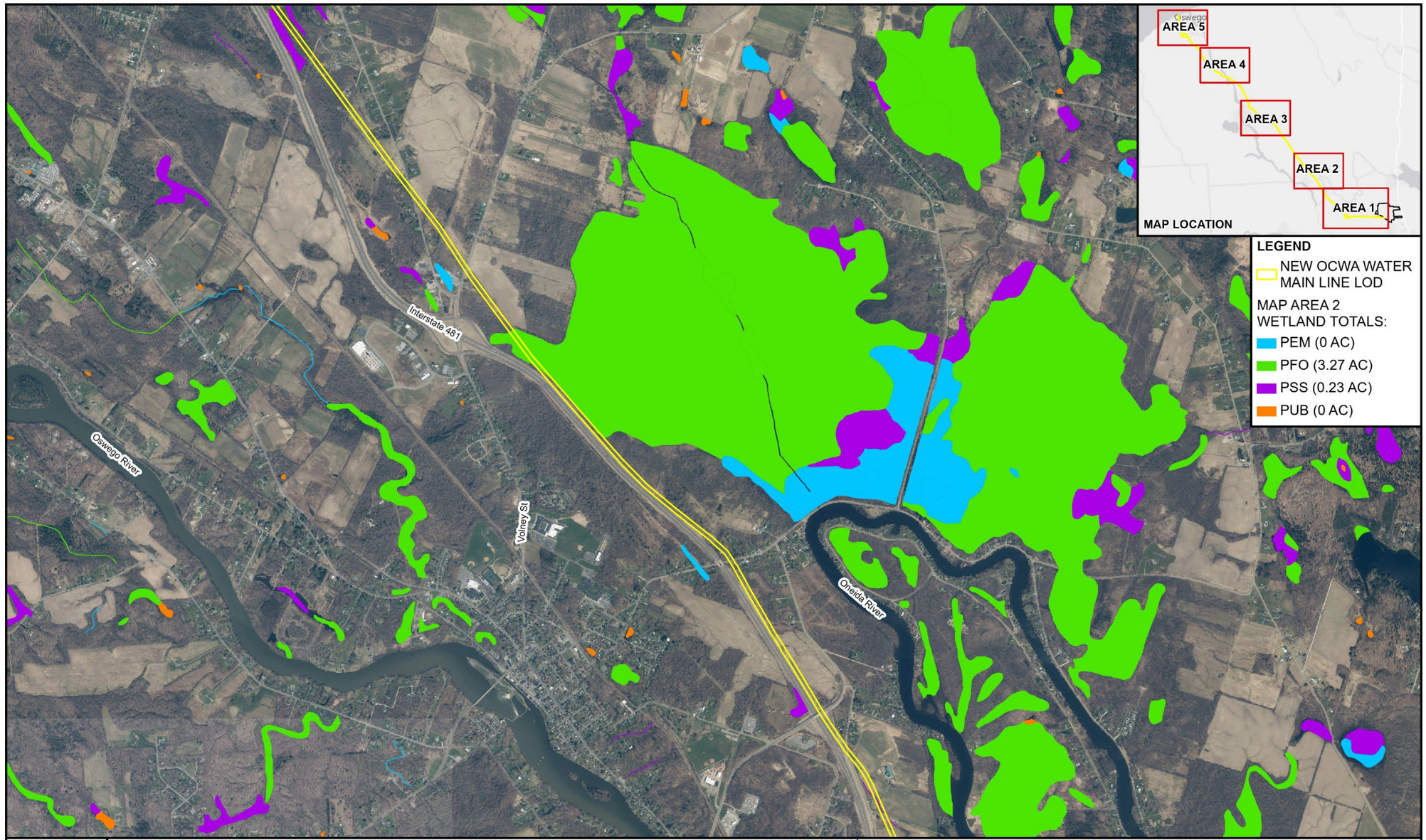


Figure F-14 Water Supply Improvements Mapped Federal Wetlands (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-14 WATER SUPPLY IMPROVEMENTS MAPPED FEDERAL WETLANDS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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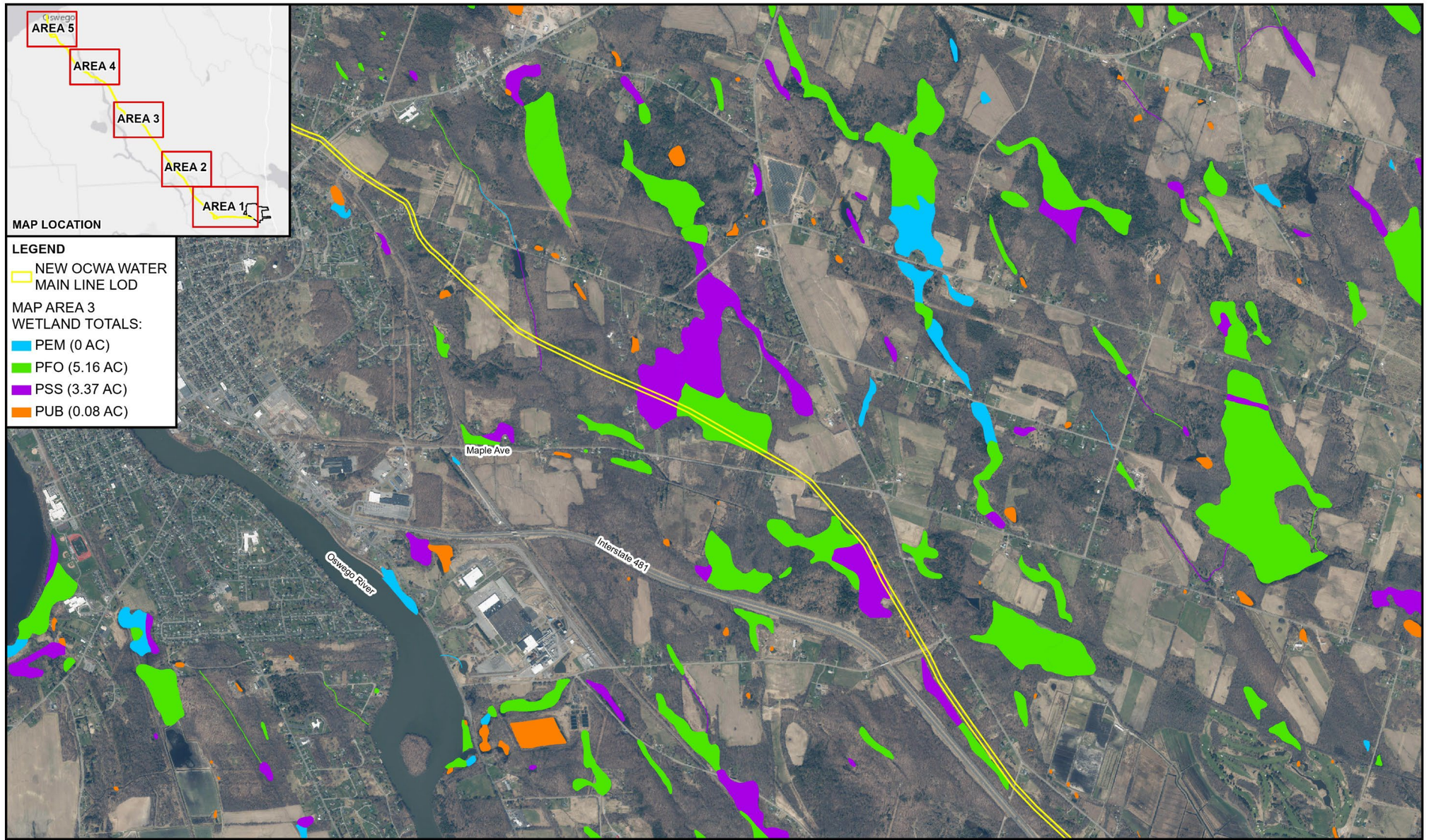
Figure F-15 Water Supply Improvements Mapped Federal Wetlands (Area 3)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

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FIGURE F-15 WATER SUPPLY IMPROVEMENTS MAPPED FEDERAL WETLANDS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

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CH	02/11/2025	31000524.001	F-15

Figure F-16 Water Supply Improvements Mapped Federal Wetlands (Area 4)

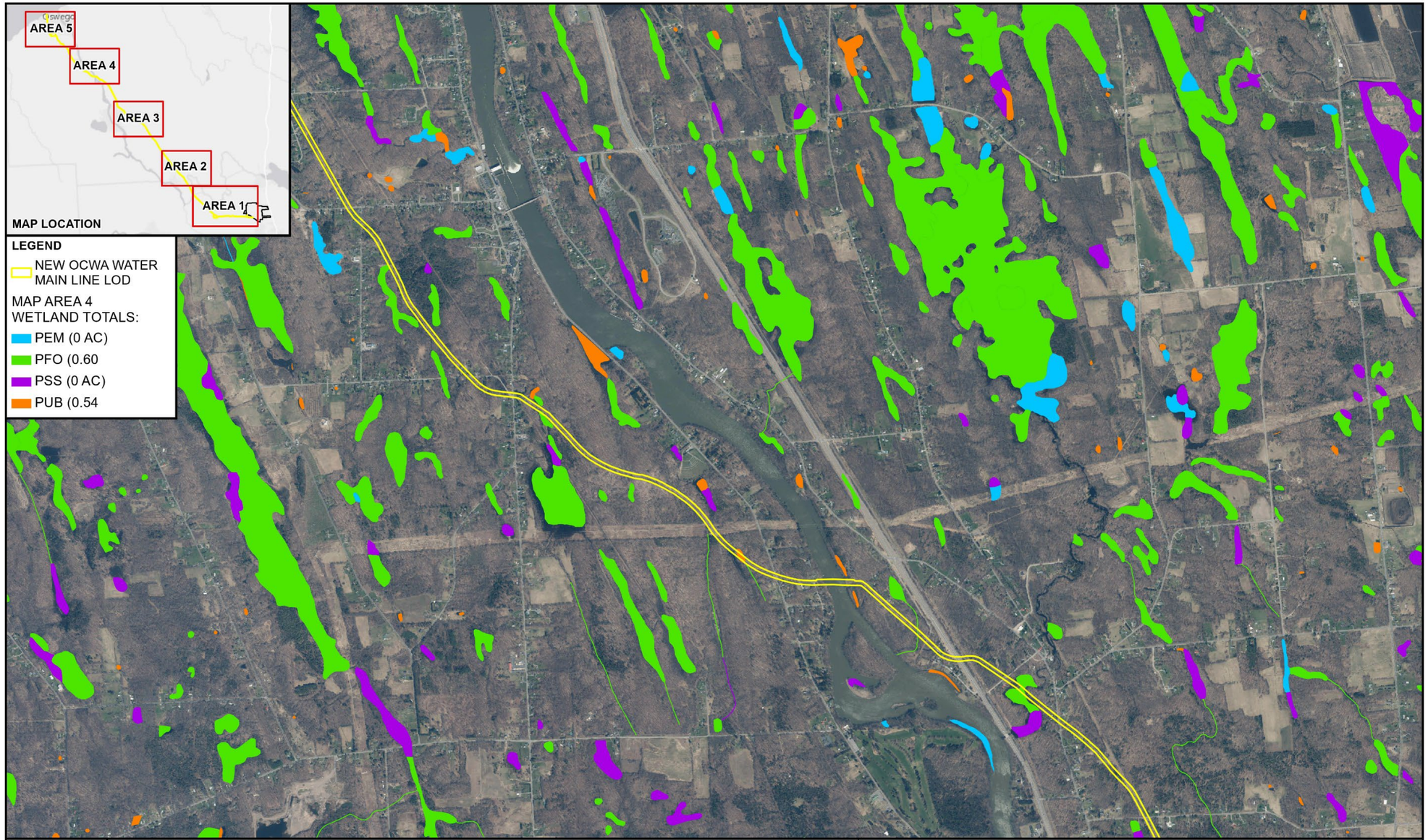
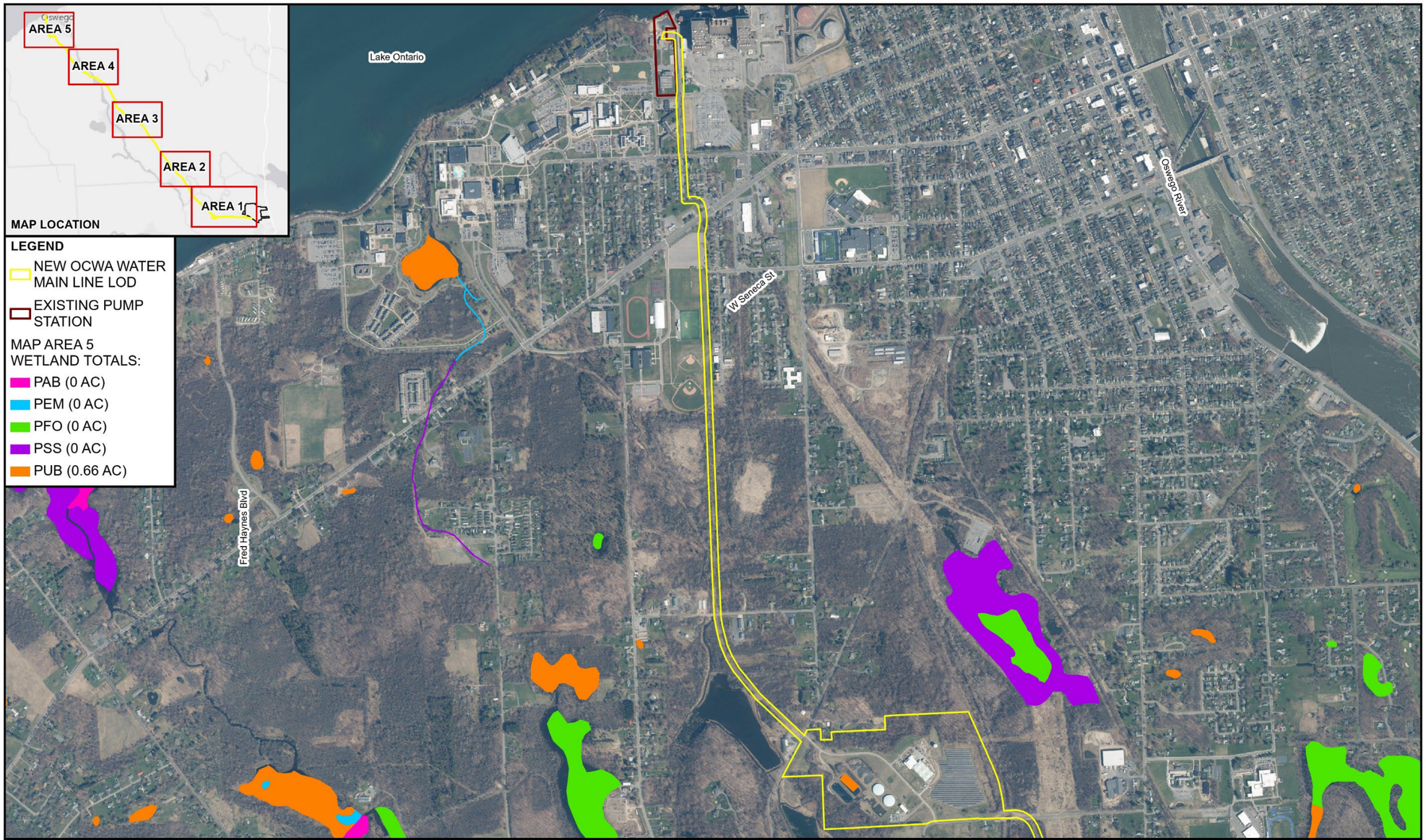


Figure F-17 Water Supply Improvements Mapped Federal Wetlands (Area 5)

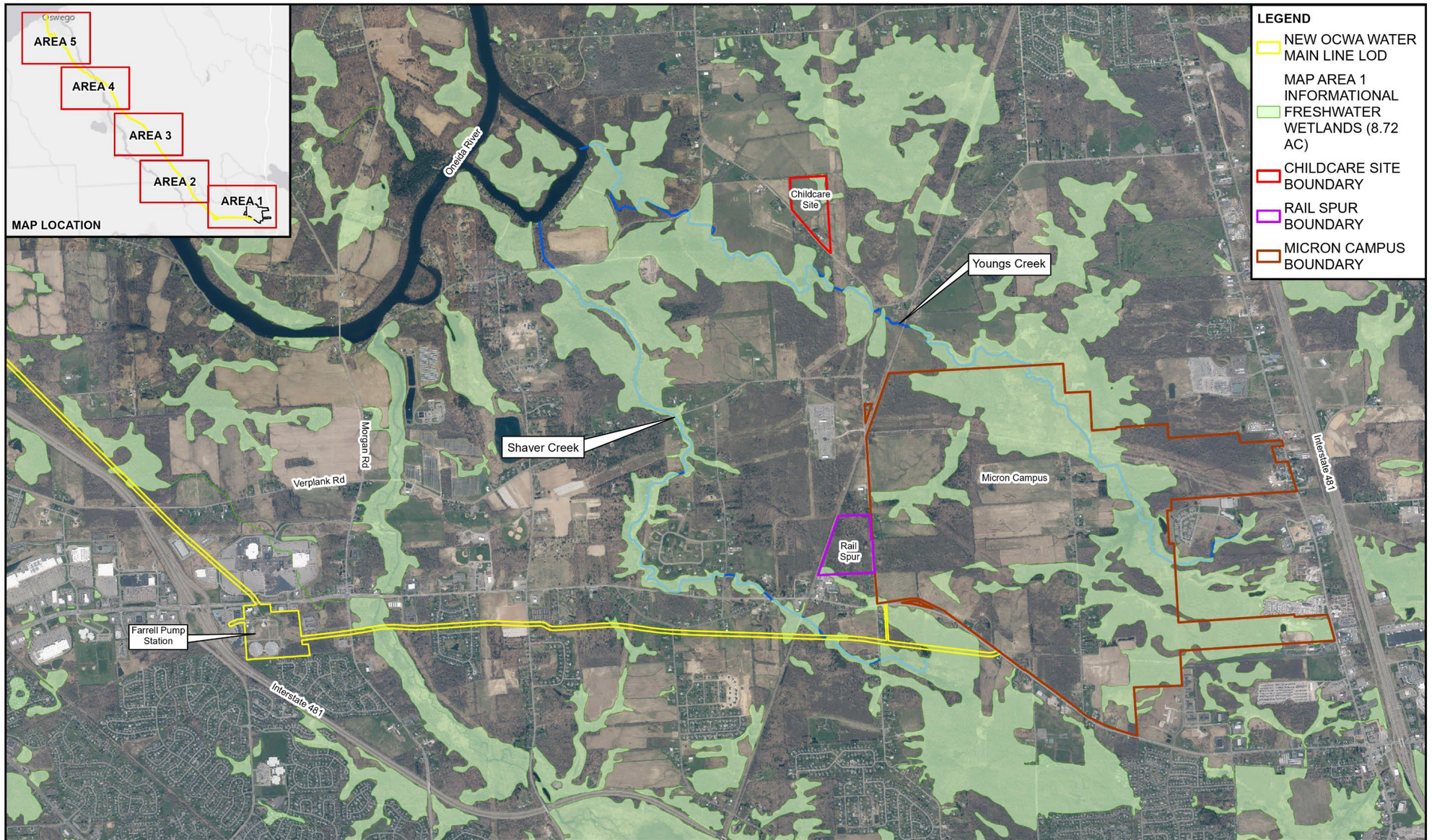


Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

FIGURE F-17 WATER SUPPLY IMPROVEMENTS MAPPED FEDERAL WETLANDS (AREA 5)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-17

Figure F-18 Water Supply Improvements Mapped New York State Wetlands (Area 1)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

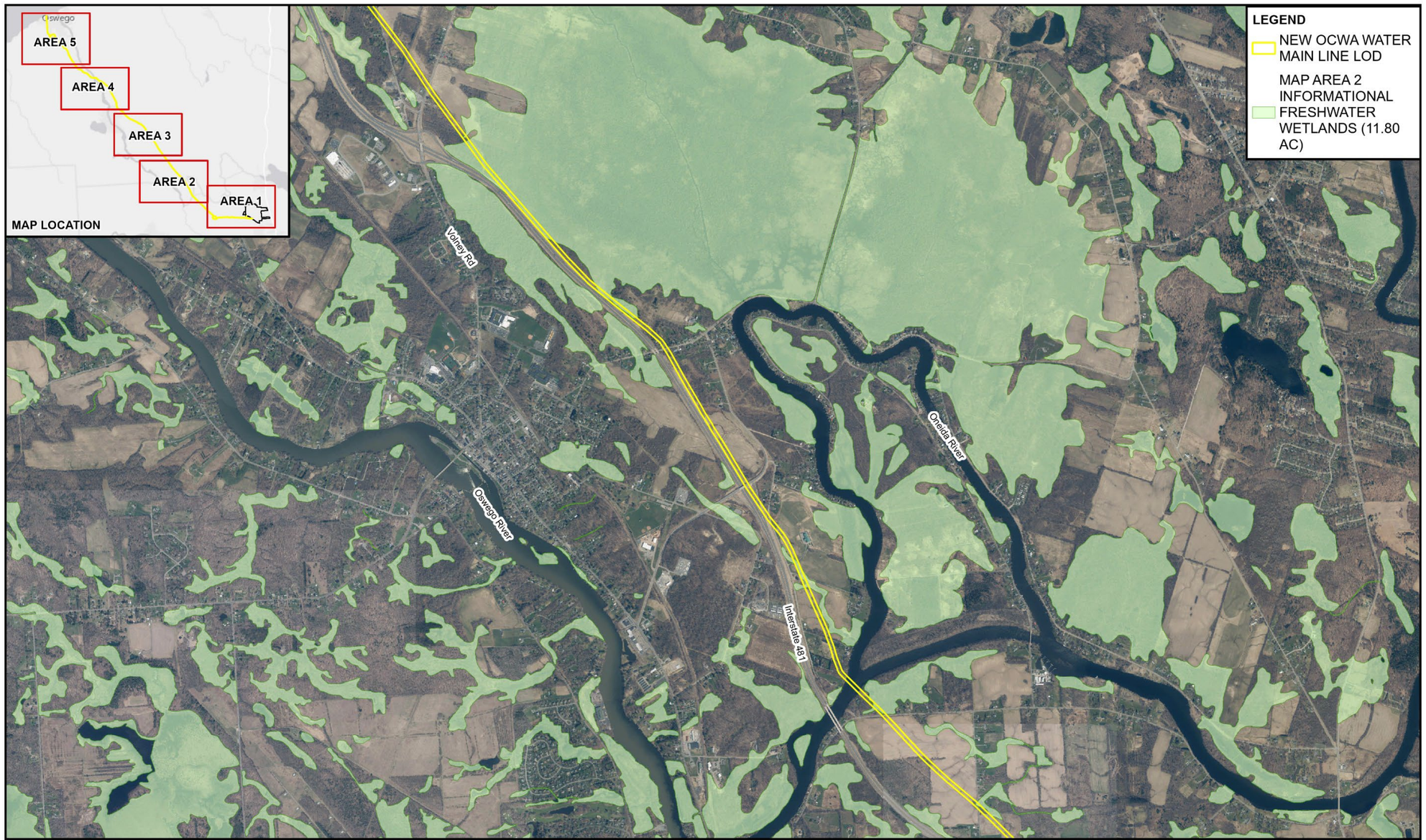
N

0 0.5 1
Miles

FIGURE F-18 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 1)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-18

Figure F-19 Water Supply Improvements Mapped New York State Wetlands (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-19 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-19

Figure F-20 Water Supply Improvements Mapped New York State Wetlands (Area 3)

Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-20 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-20

Figure F-21 Water Supply Improvements Mapped New York State Wetlands (Area 4)

Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-21 WATER SUPPLY IMPROVEMENTS MAPPED
NEW YORK STATE WETLANDS (AREA 4)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-21

Figure F-22 Water Supply Improvements Mapped New York State Wetlands (Area 5)

Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

N

0 0.75 1.5
Miles

FIGURE F-22 WATER SUPPLY IMPROVEMENTS MAPPED NEW YORK STATE WETLANDS (AREA 5)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-22

Figure F-23 Wastewater Improvements Delineated Wetlands

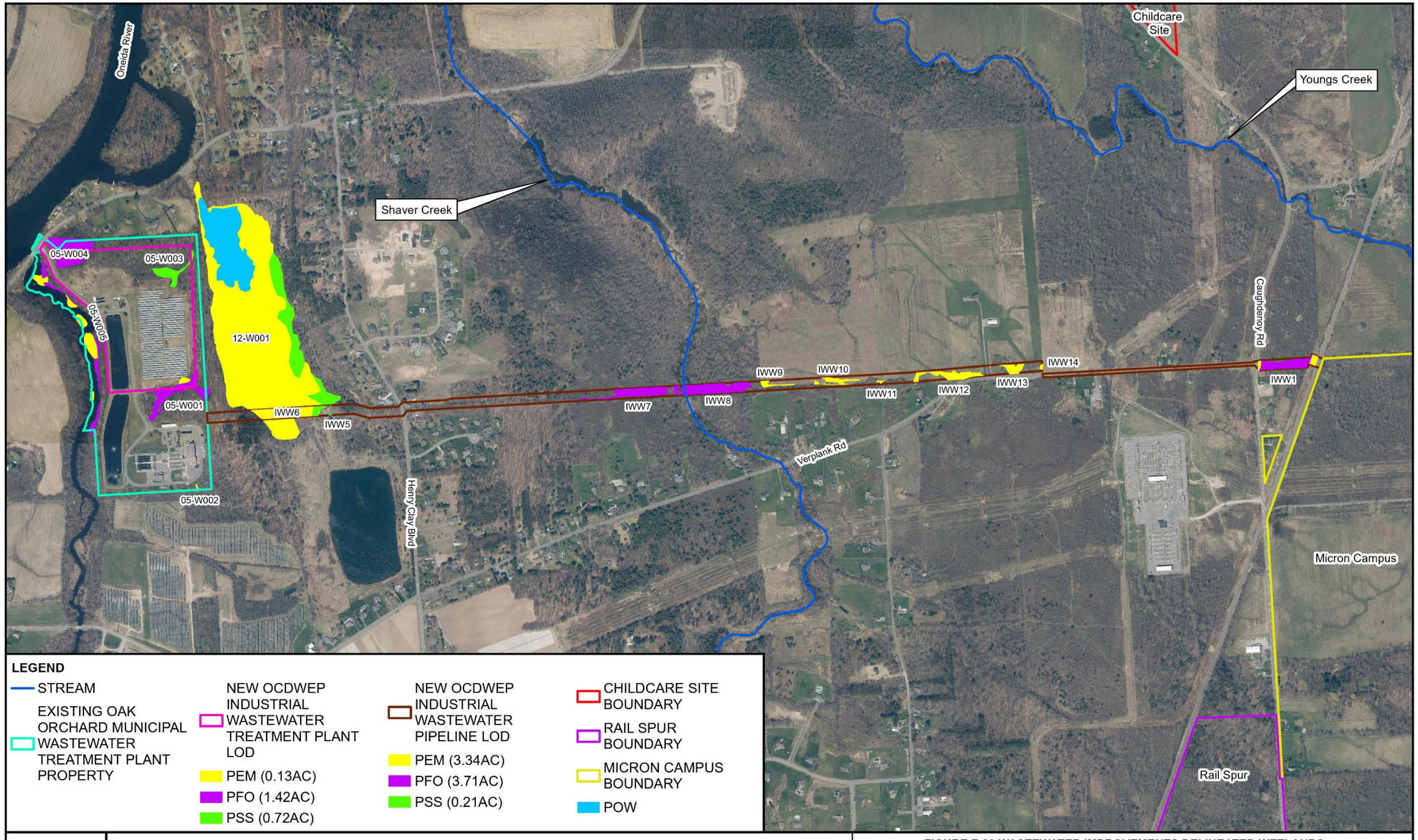
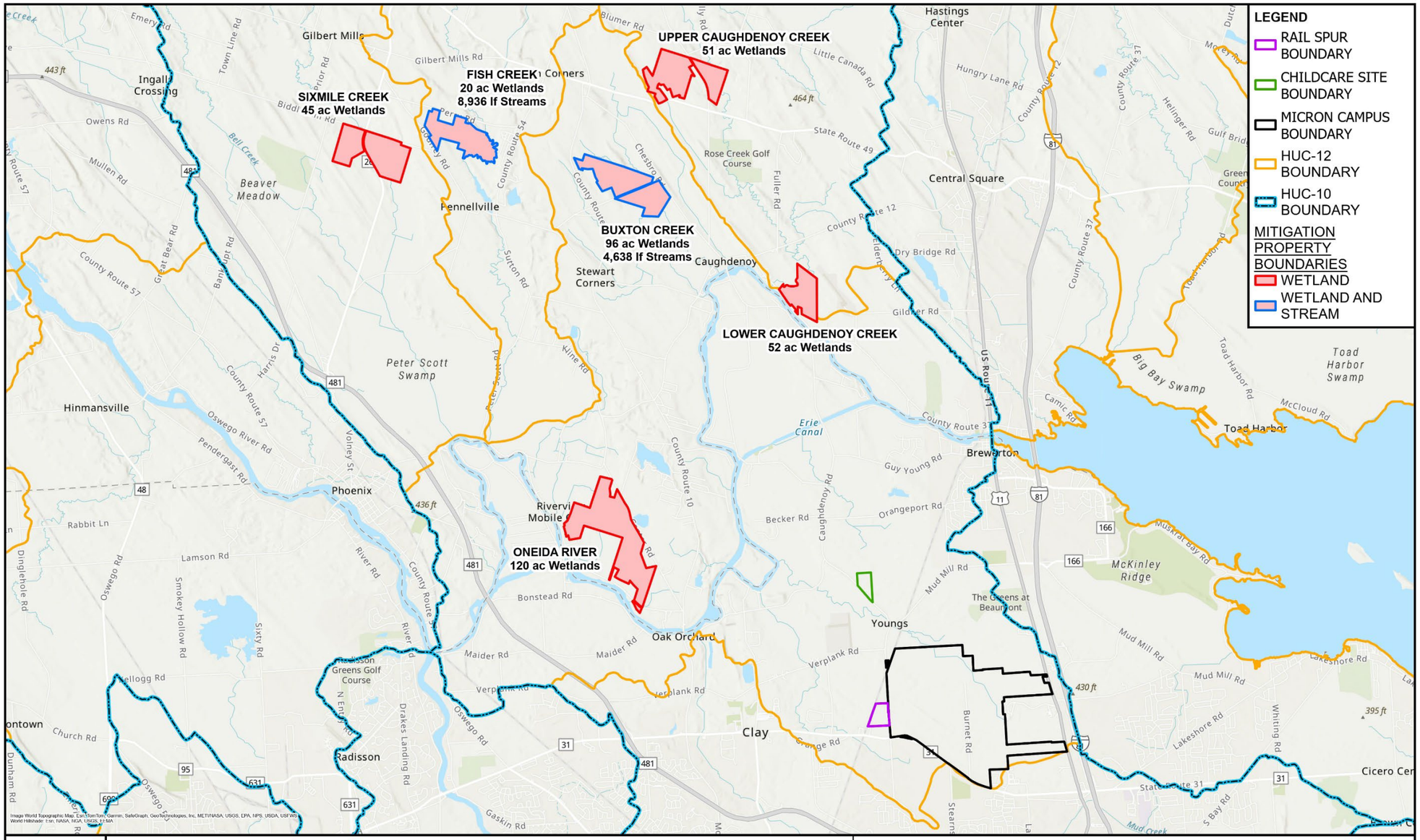


Figure F-24 Proposed Compensatory Mitigation Sites



Notes:
ac = acres
lf = linear feet

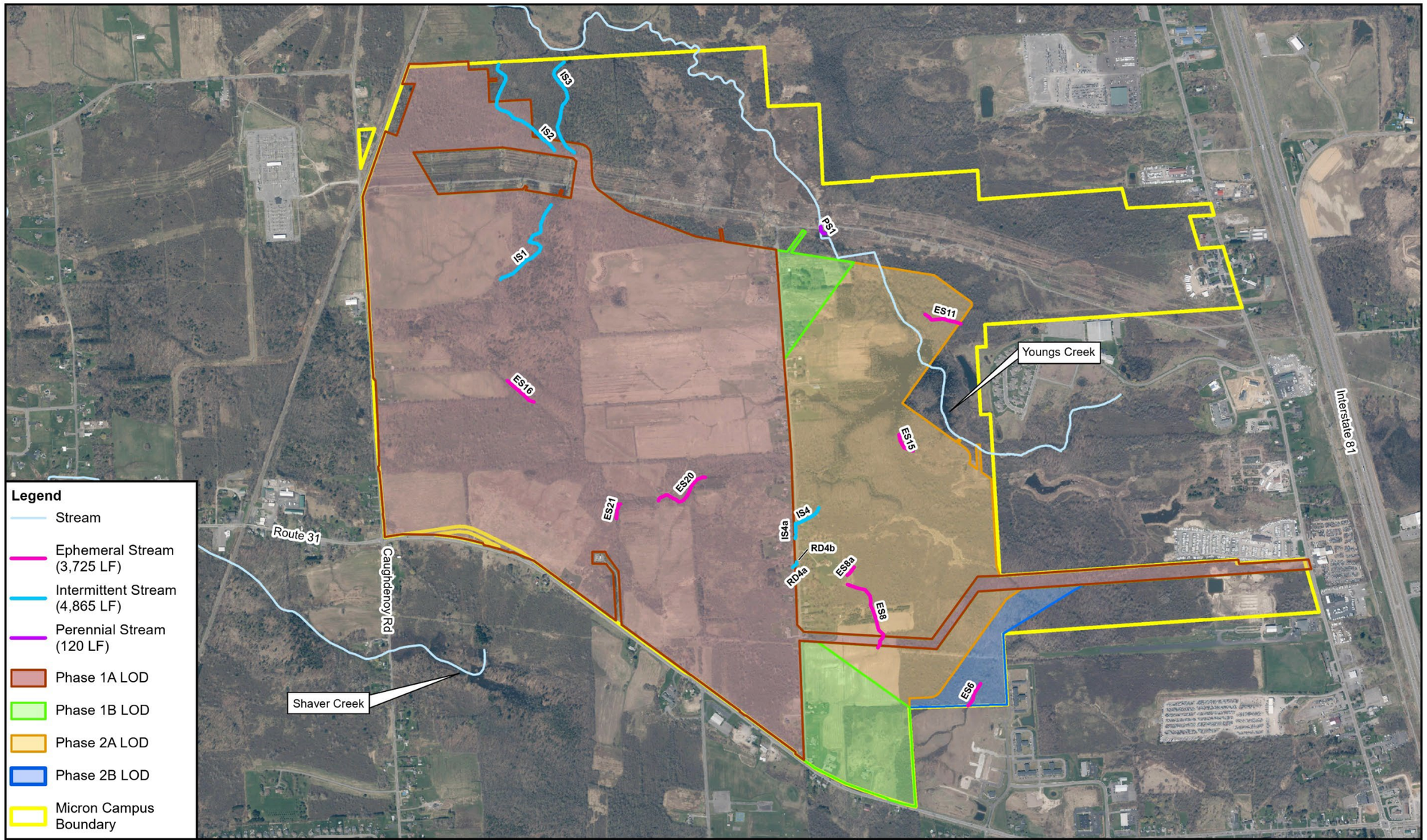
N

0 1.25 2.5
Miles

FIGURE F-24 PROPOSED COMPENSATORY MITIGATION SITES
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-24

Figure F-25 Micron Campus Delineated Federal Jurisdictional Rivers and Streams



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

N

0 0.25 0.5
Miles

FIGURE F-25 MICRON CAMPUS DELINEATED FEDERAL JURISDICTIONAL RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	01/28/2025	31000524.001	F-25

Figure F-26 Micron Campus Delineated Non-Jurisdictional Rivers and Streams

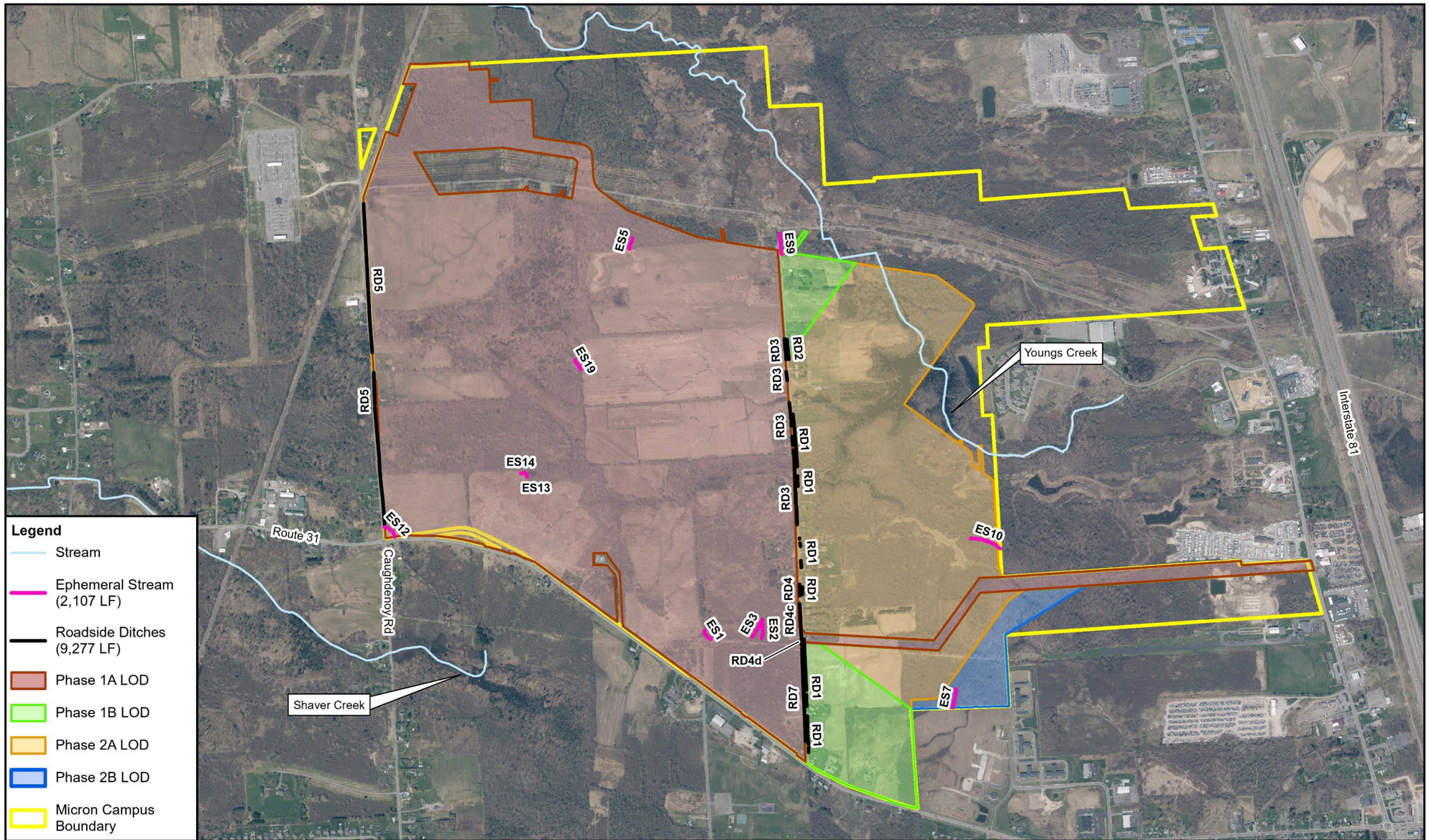


Figure F-27 Childcare Site Delineated Federal Jurisdictional Rivers and Streams

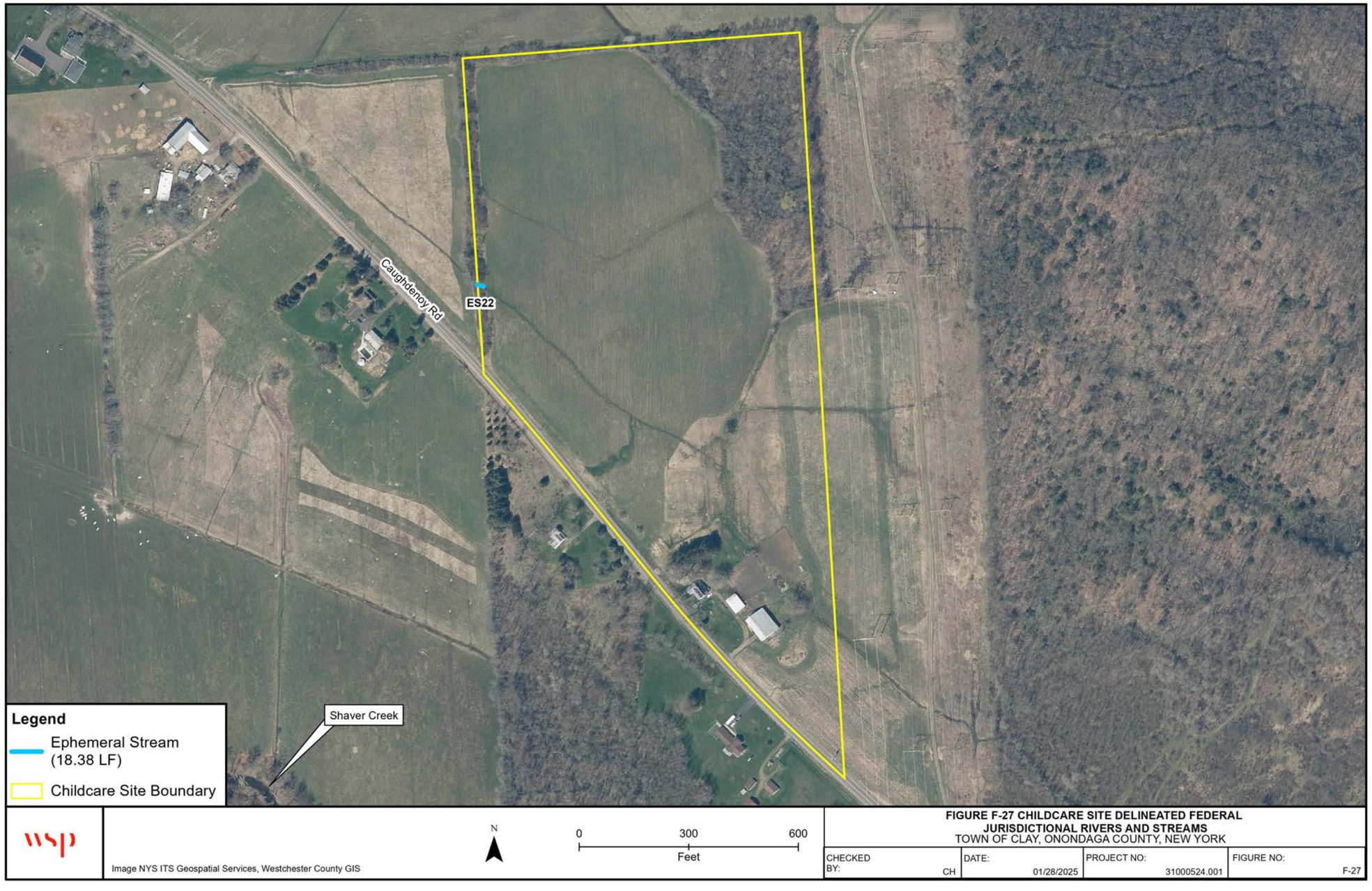
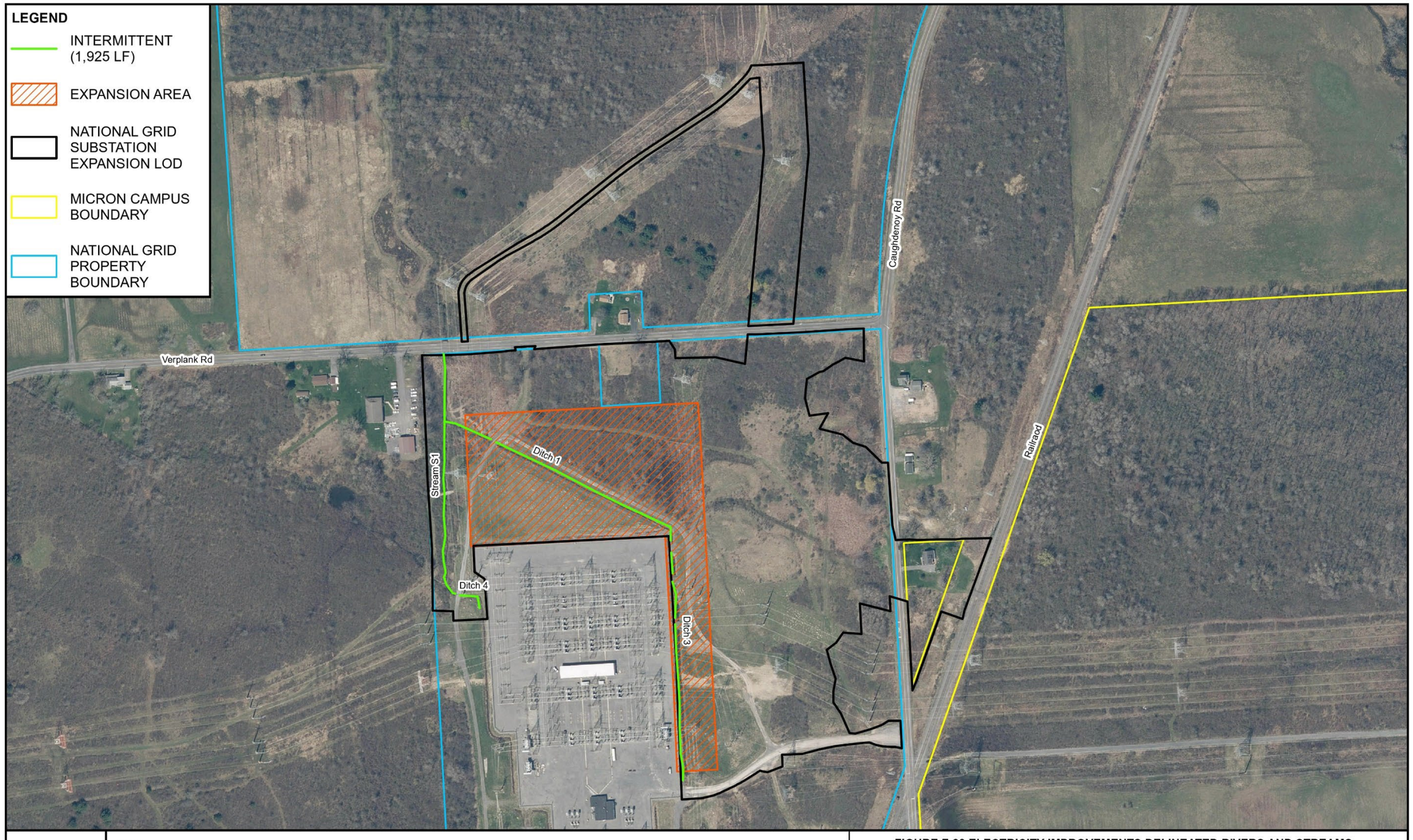


Figure F-28 Electricity Improvements Delineated Rivers and Streams



Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image NYS ITS Geospatial Services, Westchester County GIS

N

0 375 750
Feet

FIGURE F-28 ELECTRICITY IMPROVEMENTS DELINEATED RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-28

Figure F-29 Natural Gas Improvements Delineated Rivers and Streams

Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image NYS ITS Geospatial Services, Westchester County GIS

N

0 750 1,500
Feet

FIGURE F-29 NATURAL GAS IMPROVEMENTS DELINEATED RIVERS AND STREAMS
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-29

Figure F-30 Water Supply Improvements Mapped Rivers and Streams (Area 1)

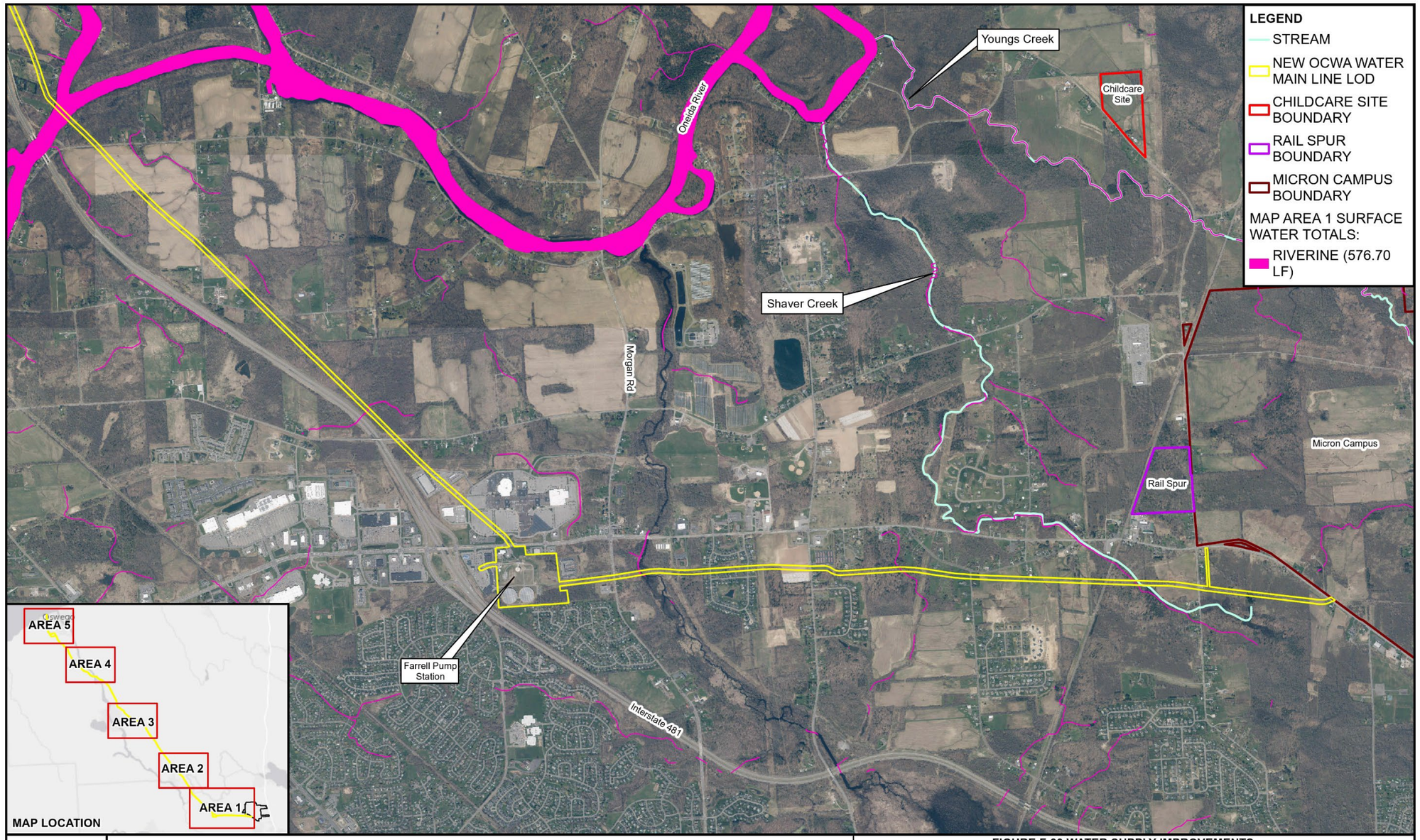
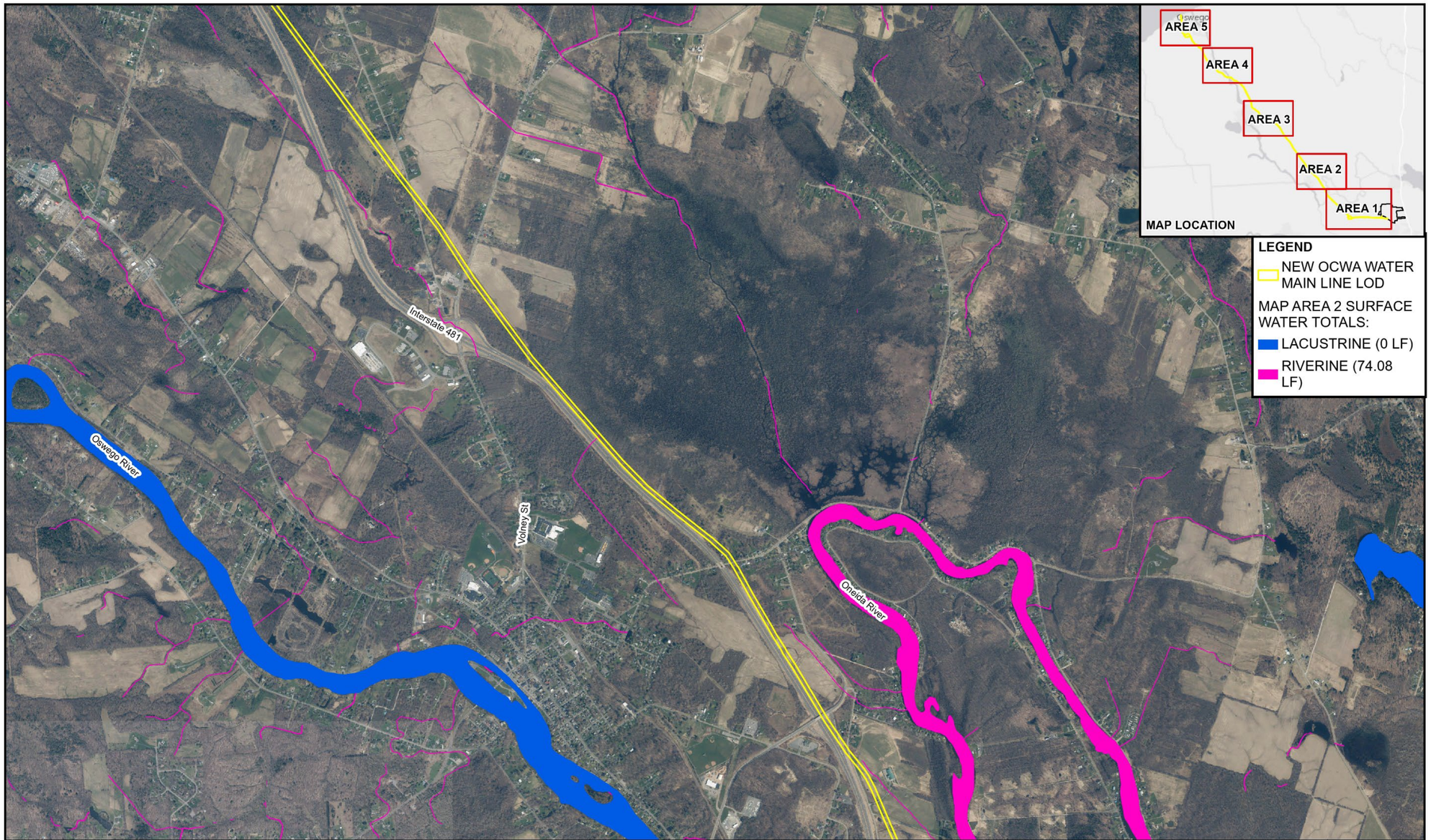


Figure F-31 Water Supply Improvements Mapped Rivers and Streams (Area 2)



Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

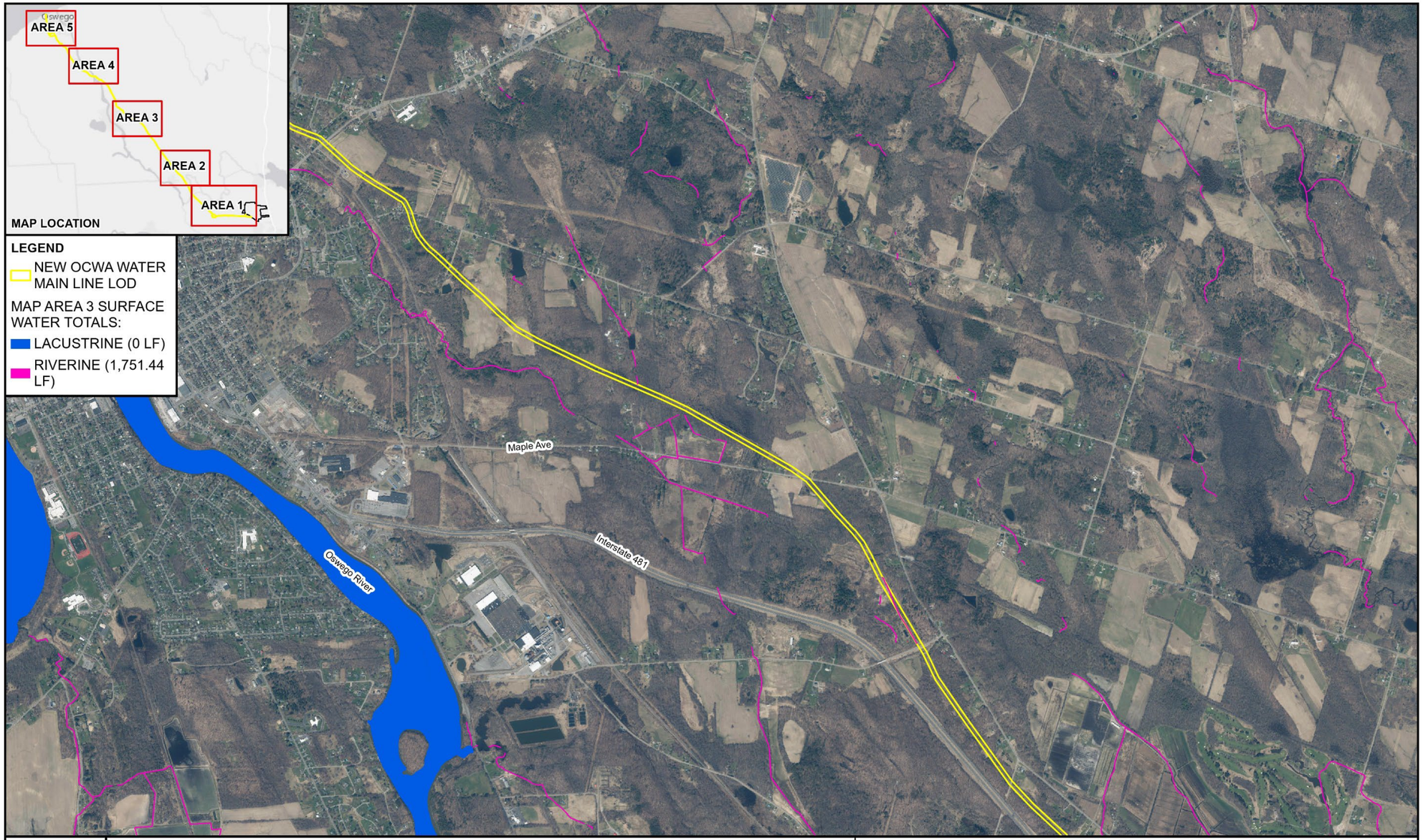
N

0 0.5 1
Miles

FIGURE F-31 WATER SUPPLY IMPROVEMENTS
MAPPED RIVERS AND STREAMS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-31

Figure F-32 Water Supply Improvements Mapped Rivers and Streams (Area 3)



Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

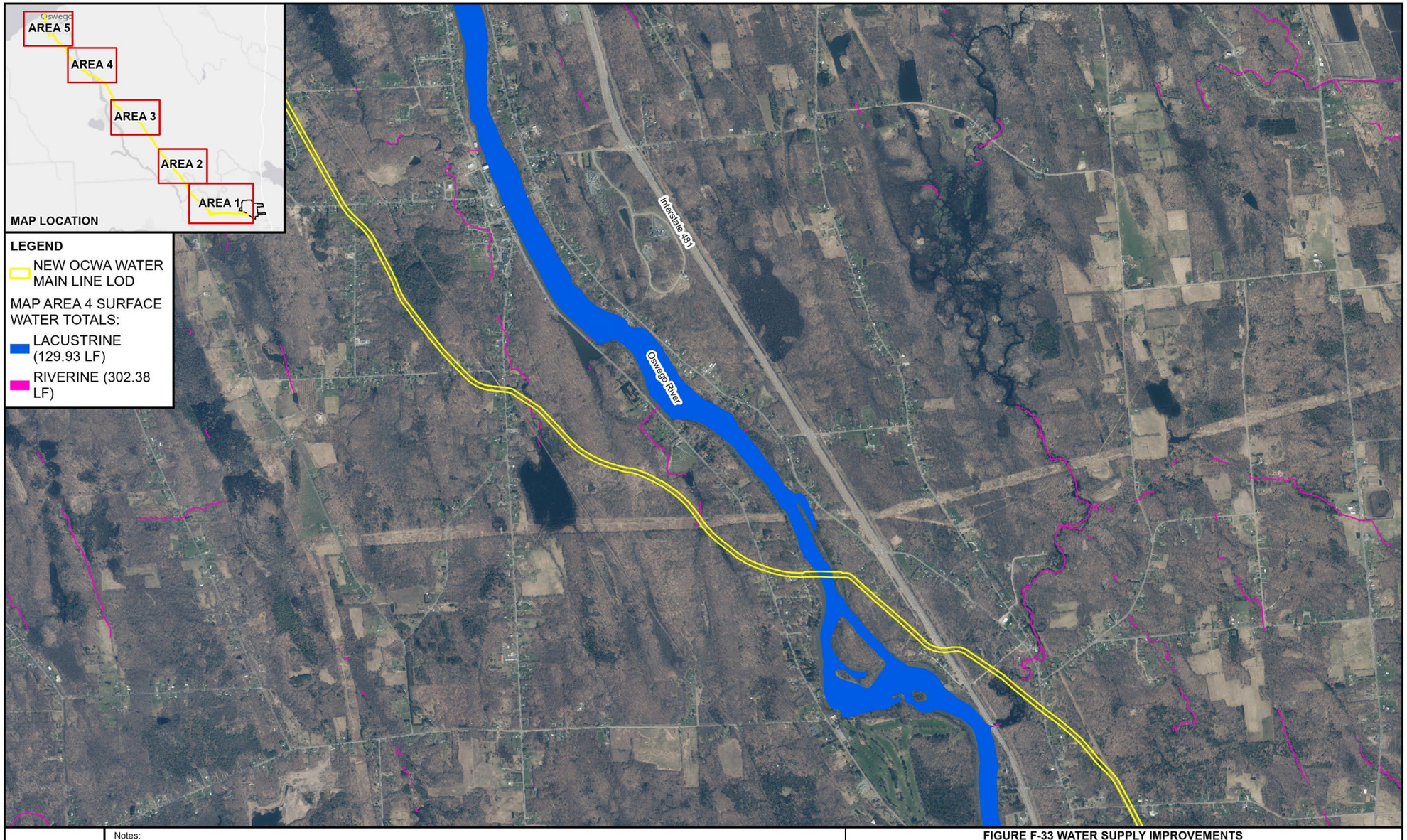
N

0 0.5 1
Miles

FIGURE F-32 WATER SUPPLY IMPROVEMENTS
MAPPED RIVERS AND STREAMS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-32

Figure F-33 Water Supply Improvements Mapped Rivers and Streams (Area 4)



Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

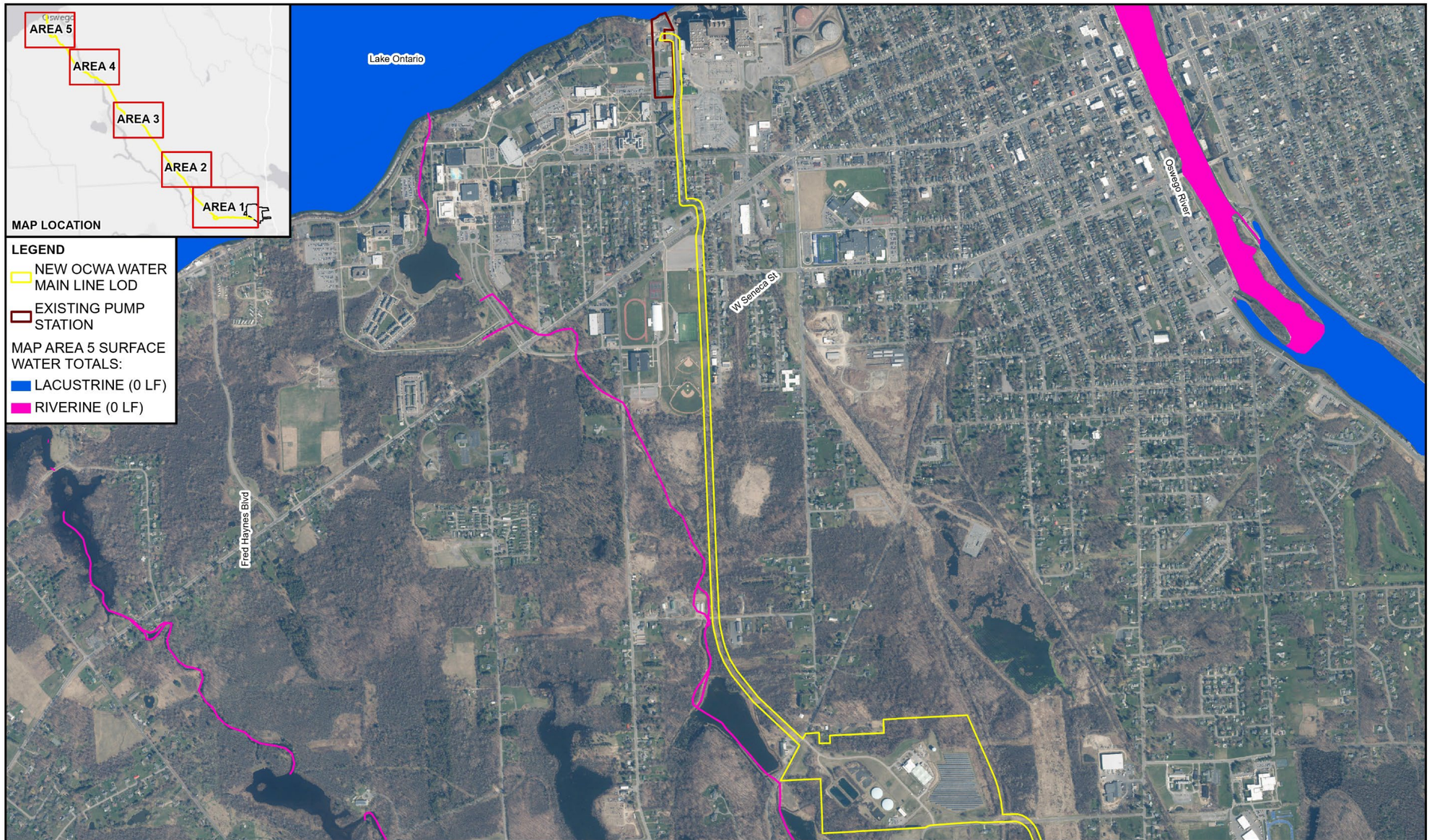
N

0 0.5 1
Miles

FIGURE F-33 WATER SUPPLY IMPROVEMENTS
MAPPED RIVERS AND STREAMS (AREA 4)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-33

Figure F-34 Water Supply Improvements Mapped Rivers and Streams (Area 5)



Notes:
LOD = Limit of Disturbance
LF = Linear Feet
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.25 0.5
Miles

FIGURE F-34 WATER SUPPLY IMPROVEMENTS
MAPPED RIVERS AND STREAMS (AREA 5)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-34

Figure F-35 Wastewater Improvements Delineated Rivers and Streams

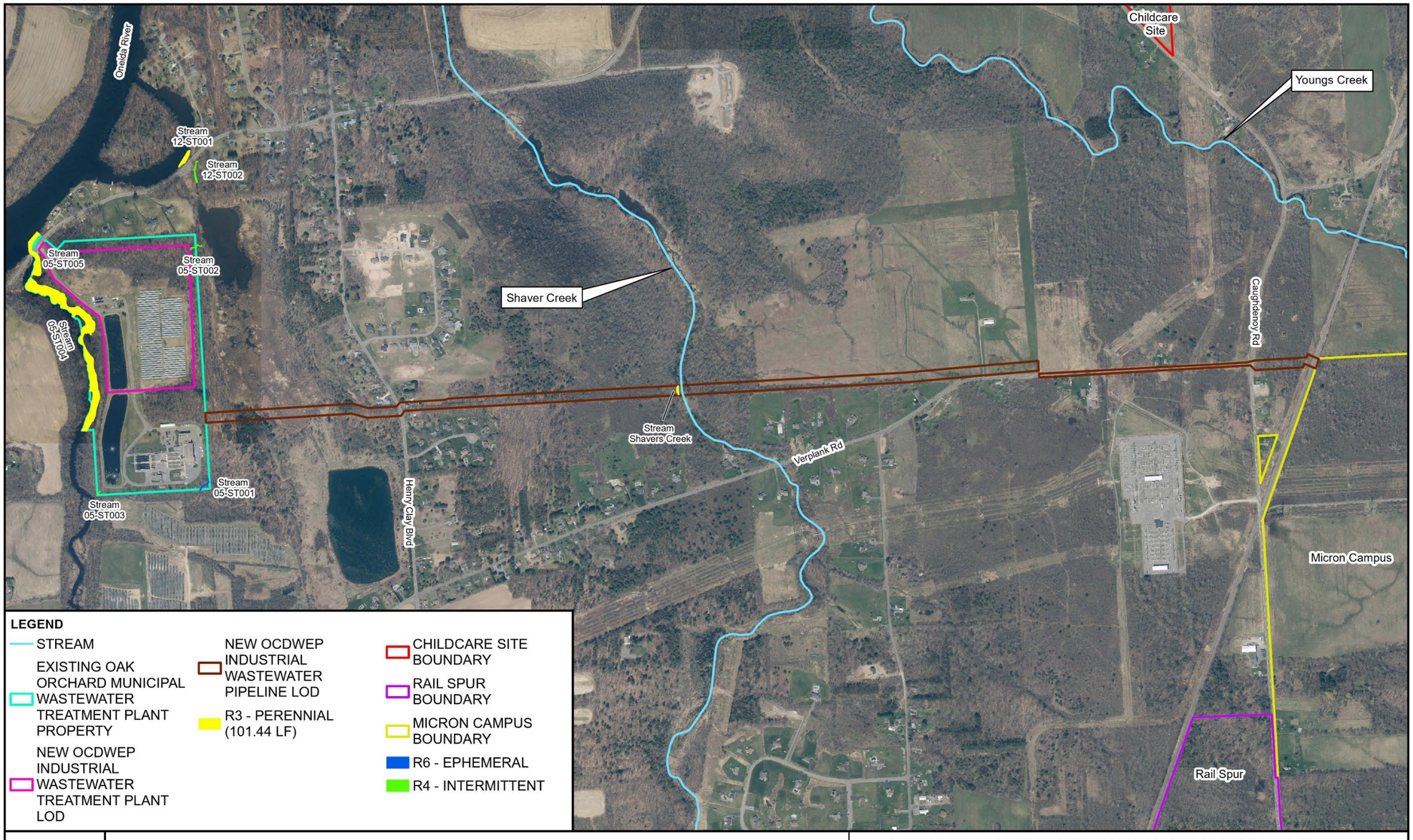
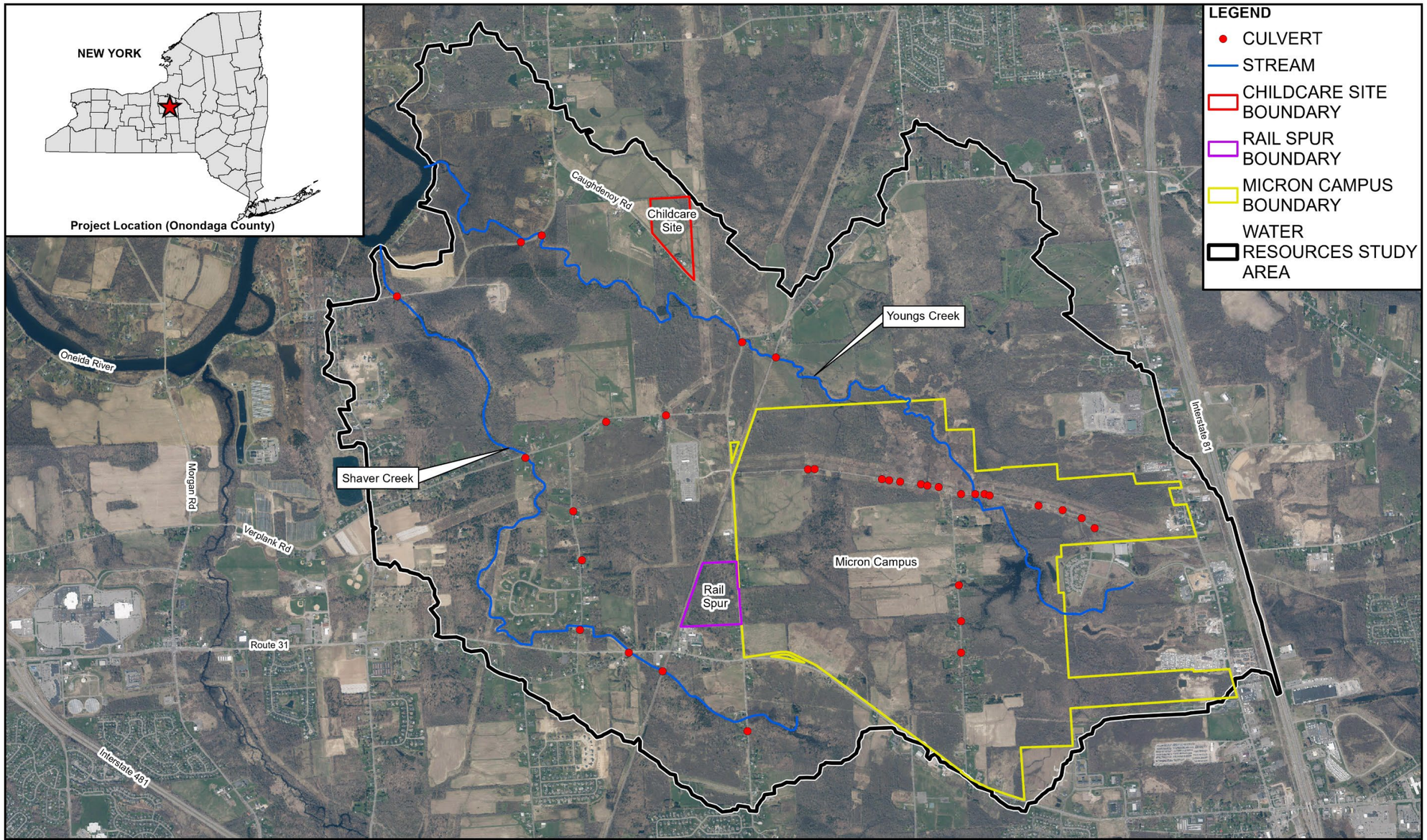


Figure F-36 Stormwater Culverts in Water Resources Study Area



Notes:
Culvert locations are approximated based on information from Ramboll
Image Source: NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-36 STORMWATER CULVERTS IN WATER RESOURCES STUDY AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	06/27/2024	31000524.001	F-36

Figure F-37 Groundwater Aquifers in Water Resources Study Area

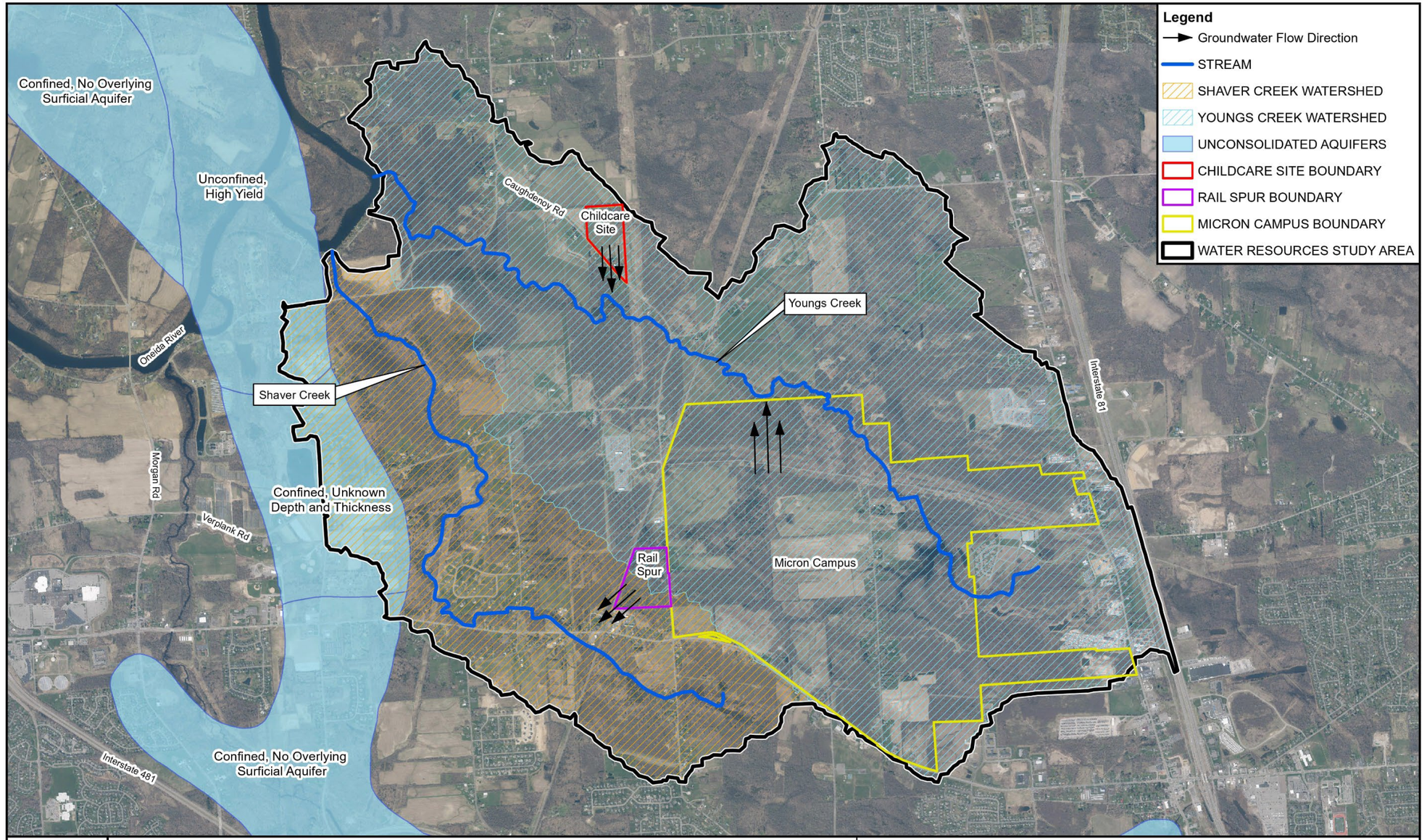
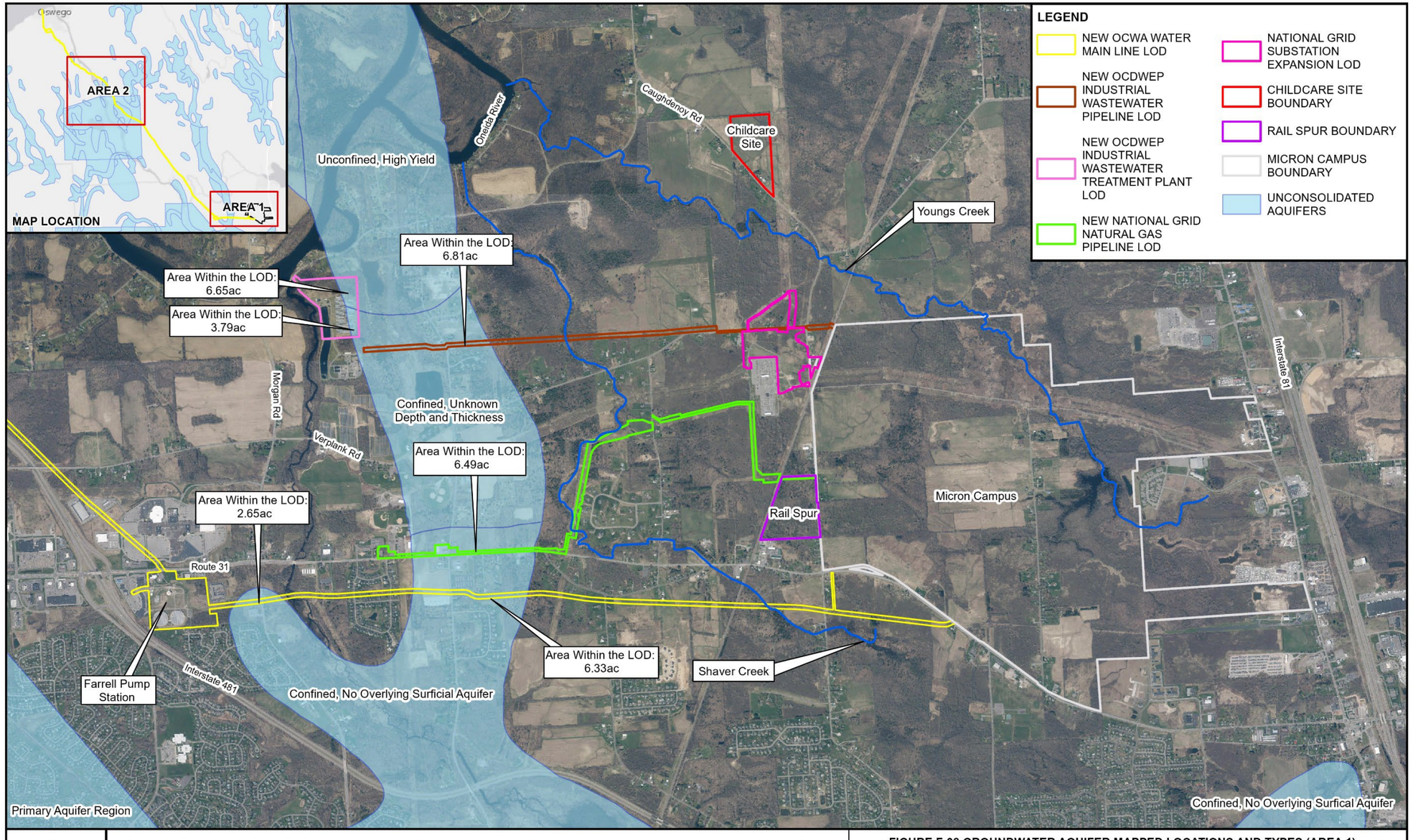


FIGURE F-38 GROUNDWATER AQUIFERS IN WATER RESOURCES STUDY AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	09/12/2024	31000524.001	F-38

Figure F-38 Groundwater Aquifer Mapped Locations and Types (Area 1)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

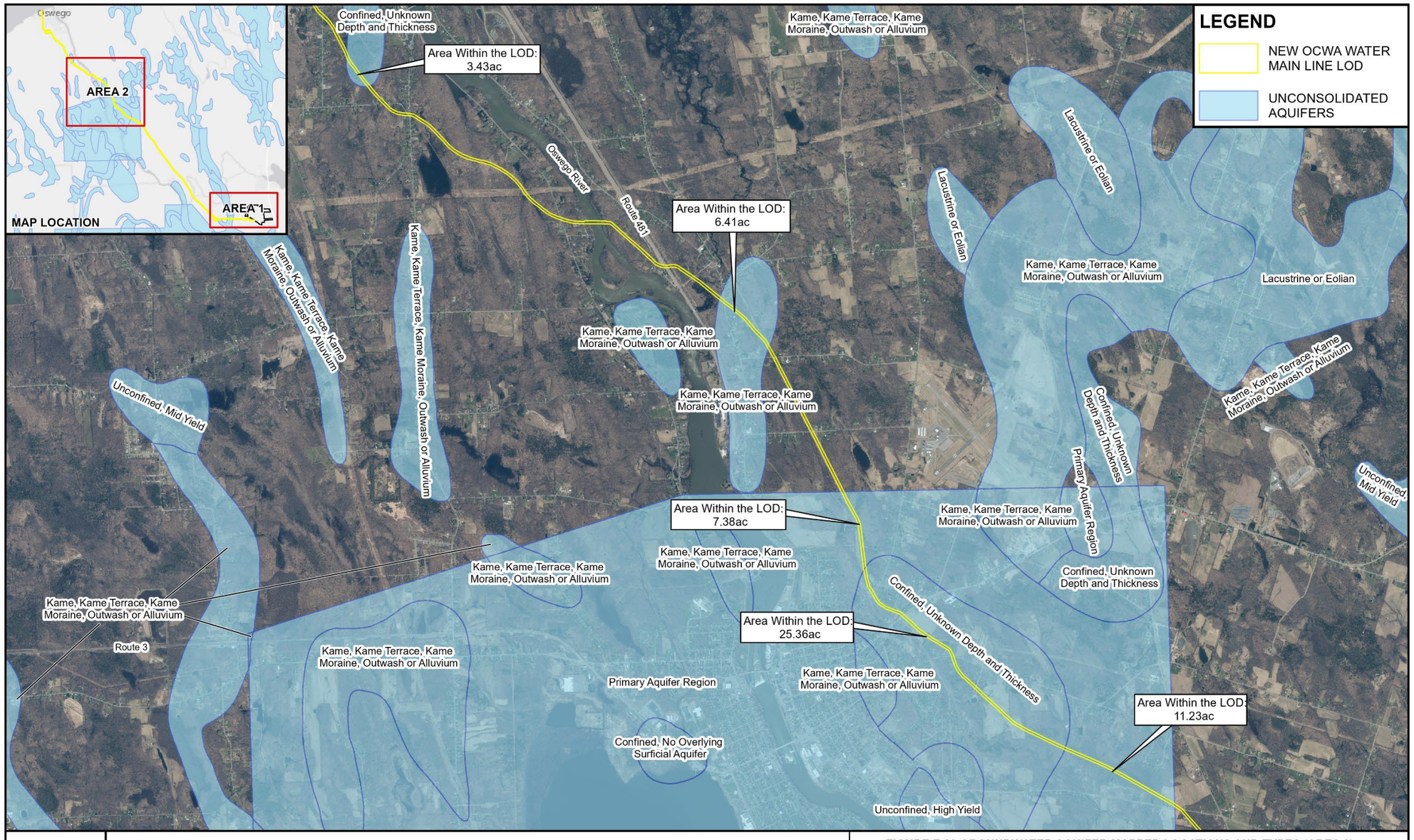
N

0 0.5 1
Miles

FIGURE F-38 GROUNDWATER AQUIFER MAPPED LOCATIONS AND TYPES (AREA 1)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-38

Figure F-39 Groundwater Aquifer Mapped Locations and Types (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.75 1.5
Miles

FIGURE F-39 GROUNDWATER AQUIFER MAPPED LOCATIONS AND TYPES (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-39

Figure F-40 FEMA Floodplains in Water Resources Study Area

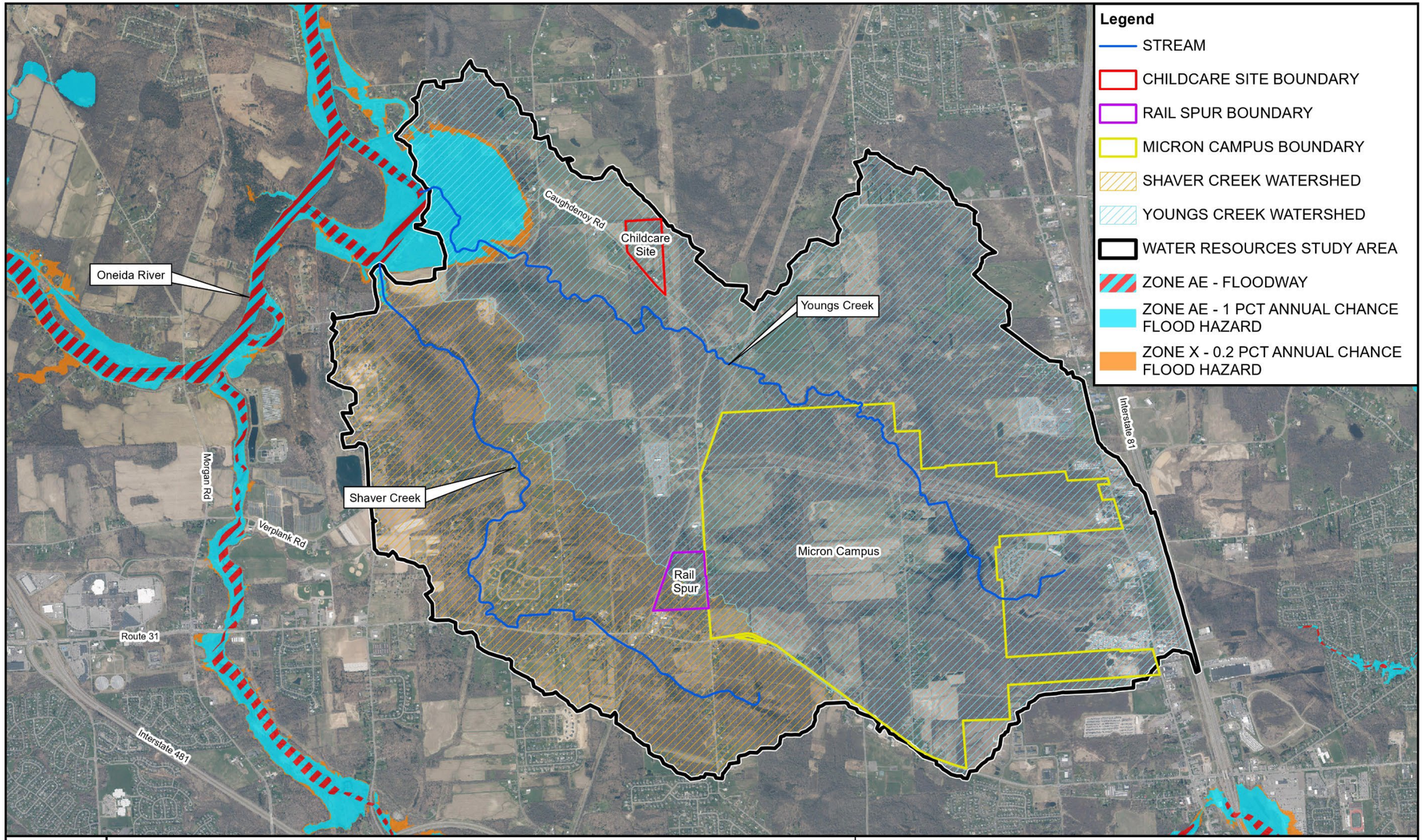
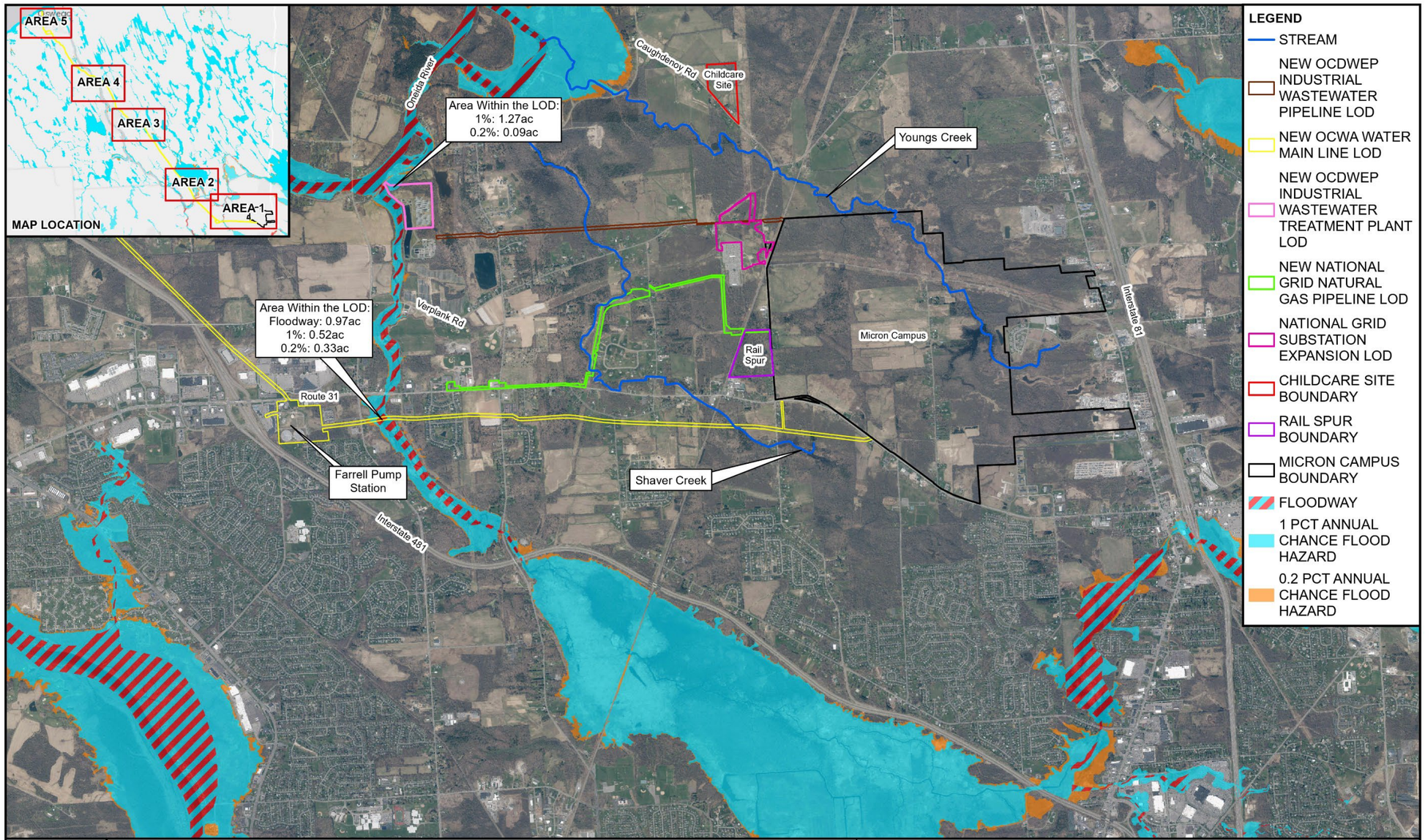


FIGURE F-40 FEMA FLOODPLAINS IN WATER RESOURCES STUDY AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	09/12/2024	31000524.001	F-40

Figure F-41 Water Supply Improvements Mapped FEMA Floodplains (Area 1)



Notes:
LOD = Limit of Disturbance
Image: Esri, HERE, Garmin, (c)OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

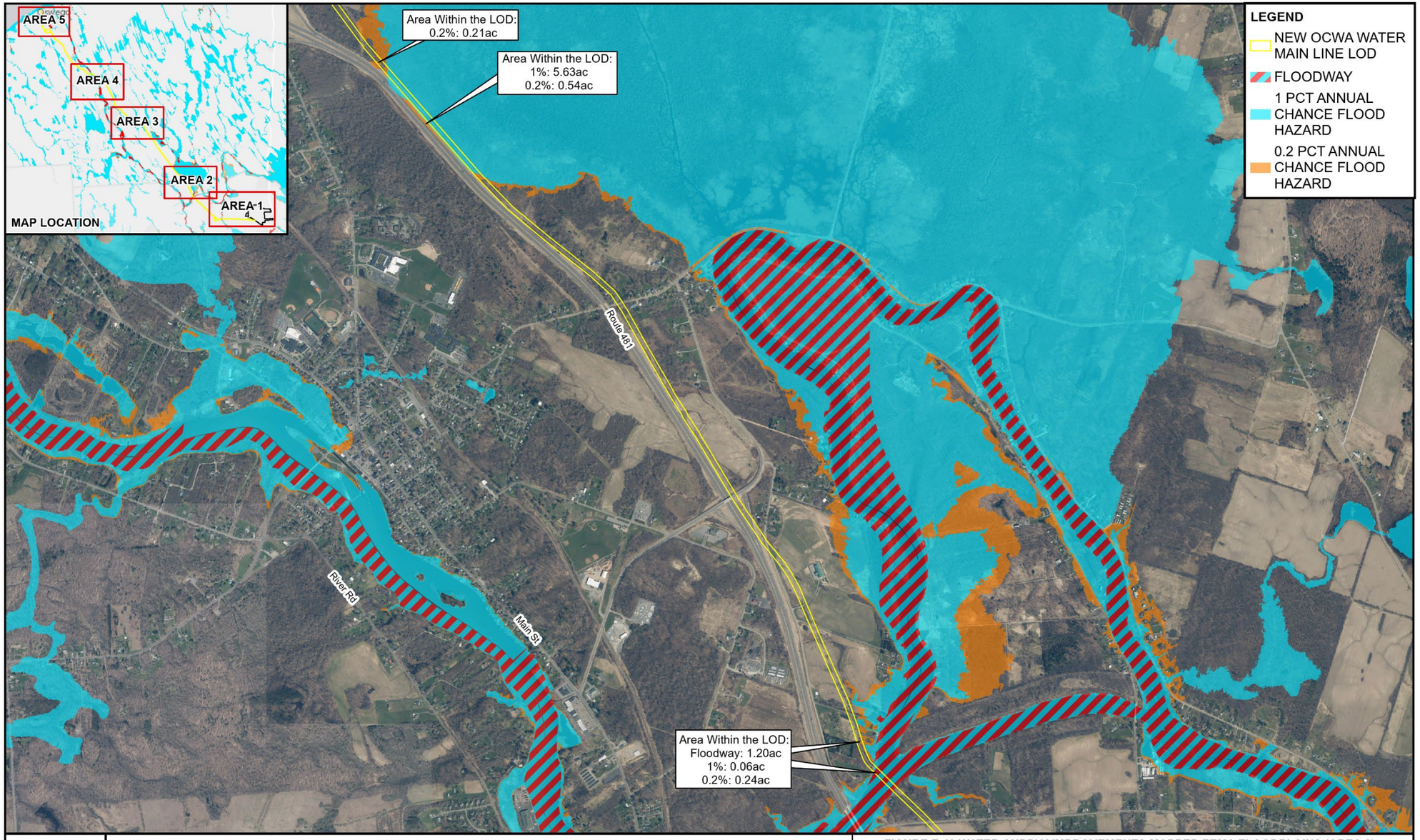
N

0 0.75 1.5
Miles

FIGURE F-41 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 1)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-41

Figure F-42 Water Supply Improvements Mapped FEMA Floodplains (Area 2)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

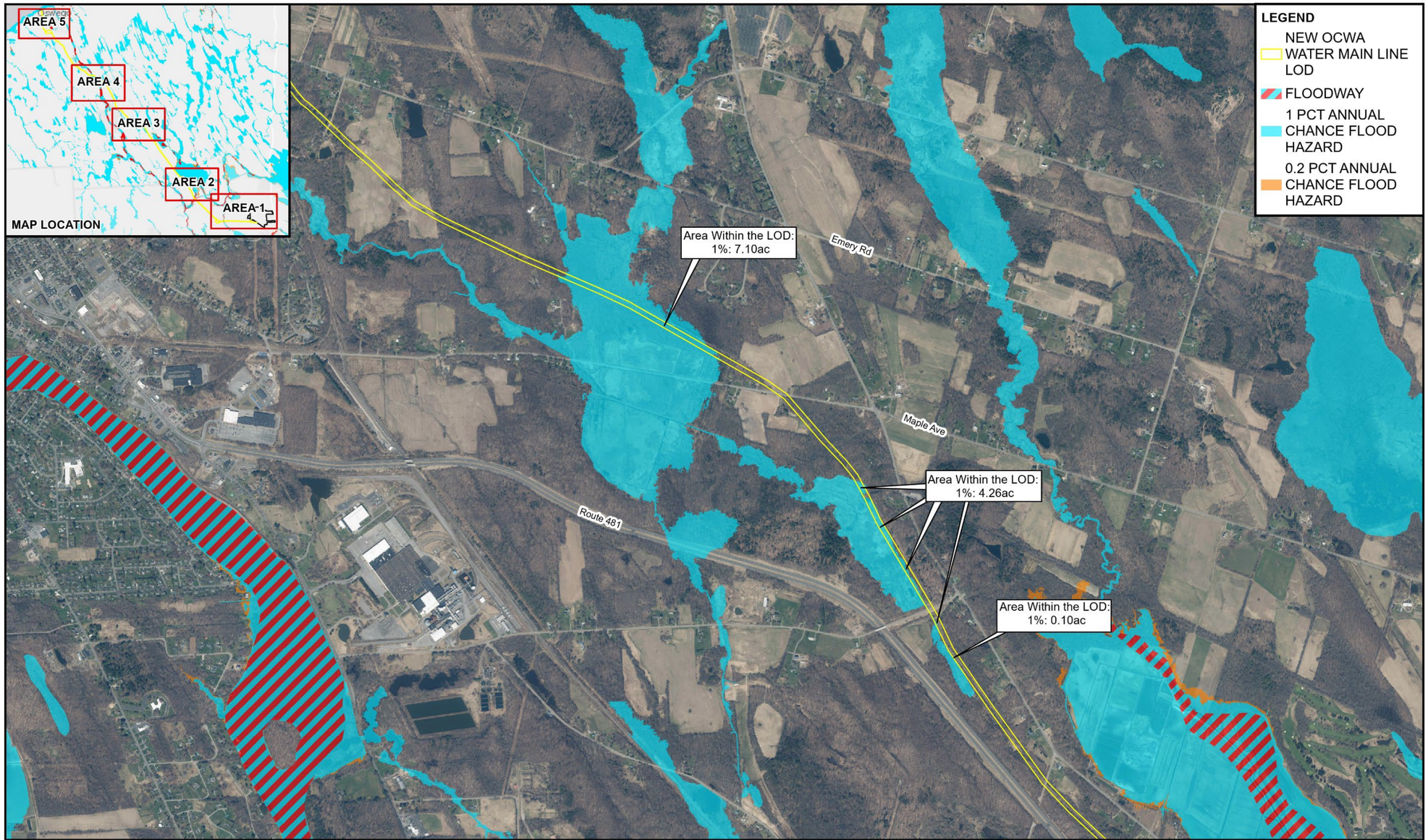
N

0 0.5 1
Miles

FIGURE F-42 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 2)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-42

Figure F-43 Water Supply Improvements Mapped FEMA Floodplains (Area 3)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

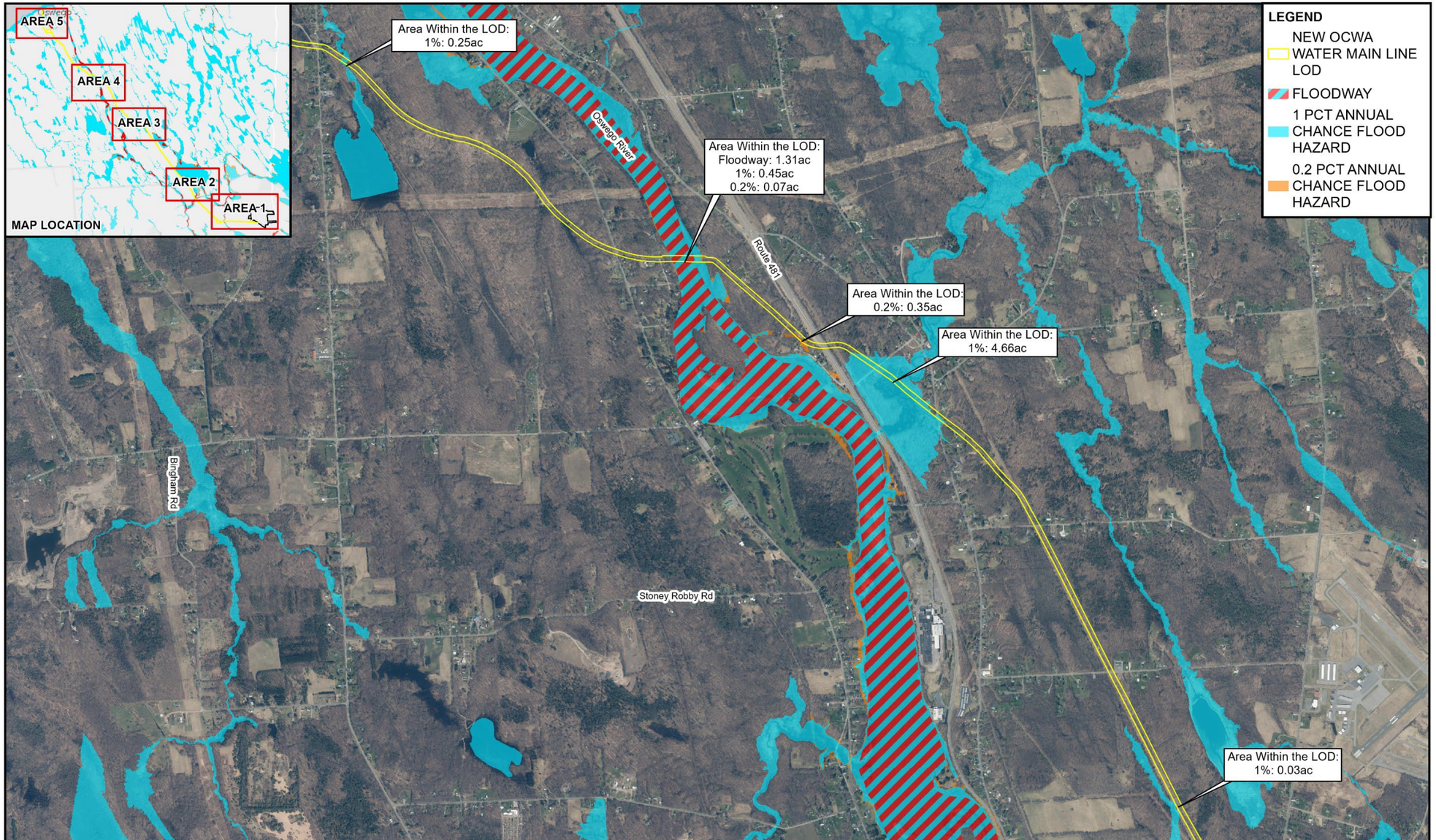
N

0 0.5 1
Miles

FIGURE F-43 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 3)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-43

Figure F-44 Water Supply Improvements Mapped FEMA Floodplains (Area 4)



Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
NYS ITS Geospatial Services, Westchester County GIS

N

0 0.5 1
Miles

FIGURE F-44 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 4)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-44

Figure F-45 Water Supply Improvements Mapped FEMA Floodplains (Area 5)

Notes:
LOD = Limit of Disturbance
Image Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

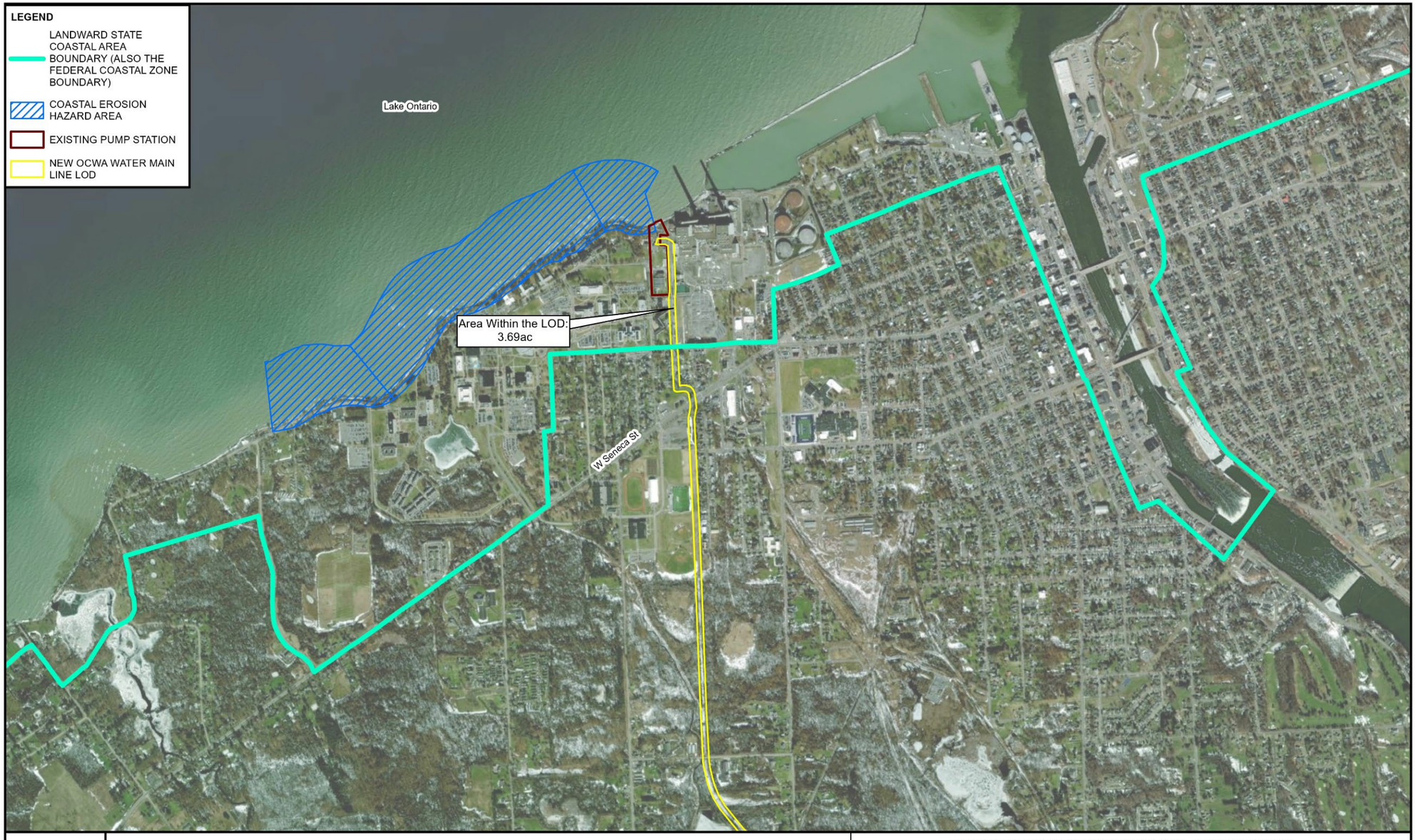
N

0 0.5 1
Miles

FIGURE F-45 WATER SUPPLY IMPROVEMENTS MAPPED FEMA FLOODPLAINS (AREA 5)
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-45

Figure F-46 New York State Coastal Area Boundary



Notes:
LOD = Limit of Disturbance
Image Source: Esri, Maxar, Earthstar Geographics, and the GIS

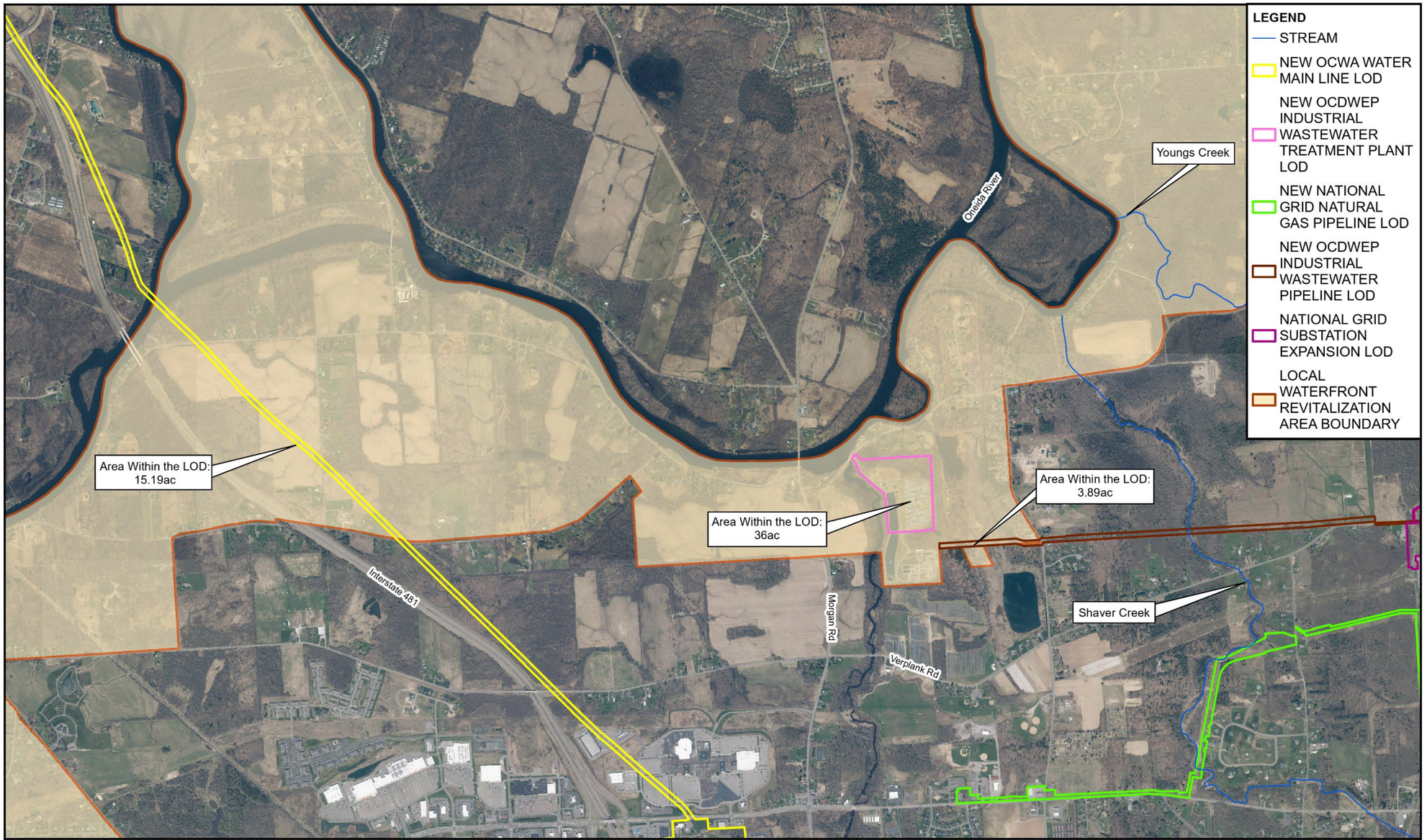
N

0 0.25 0.5
Miles

FIGURE F-46 NEW YORK STATE COASTAL AREA BOUNDARY
OSWEGO COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	06/17/2024	31000524.001	F-46

Figure F-47 Town of Clay Local Waterfront Revitalization Program Area



Notes:
LOD = Limit of Disturbance
Image NYS ITS Geospatial Services, Westchester County GIS

N

0 0.4 0.8
Miles

FIGURE F-47 TOWN OF CLAY LOCAL WATERFRONT REVITALIZATION PROGRAM AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-47

Figure F-48 City of Oswego Local Waterfront Revitalization Program Area

Notes:
LOD = Limit of Disturbance
Image Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

N

0 0.25 0.5
Miles

FIGURE F-48 CITY OF OSWEGO LOCAL WATERFRONT REVITALIZATION PROGRAM AREA
TOWN OF CLAY, ONONDAGA COUNTY, NEW YORK

CHECKED BY:	DATE:	PROJECT NO:	FIGURE NO:
CH	02/11/2025	31000524.001	F-48

Appendix F-6
Jurisdictional Determinations

F-6 Jurisdictional Determinations

Table F-9 Jurisdictional Determinations

JD	Title	Date	Component
Federal			
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	02/12/2024	Micron Campus
AJD	Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	03/11/2024	Micron Campus
AJD	Approved Jurisdictional Determination and Delineation Verification for Department of the Army Processing No. LRB-2000-02198	05/17/2024	Rail Spur Site
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2000-02198, Childcare and Health Care/Recreational Facility	10/11/2024	Childcare Site
PJD	Preliminary Jurisdictional Determination for Department of the Army Application No. LRB-2000-02198	10/11/2024	Micron Campus
AJD / PJD	Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2024-00629	06/02/2025	Clay Substation
State			
AJD	Final Approved NYS Jurisdictional Determination for Wetlands; Applicant: Micron New York Semiconductor Manufacturing LLC; Facility: White Pine Commerce Park-Micron; Town of Clay, Onondaga county; DEC ID: 7-3124-00575	02/13/2024	Micron Campus

Appendix F-7
Compensatory Mitigation Plan

MICRON SEMICONDUCTOR FABRICATION

CLAY, NY

USACE/NYSDEC JOINT PERMIT APPLICATION

APPENDIX N

COMPENSATORY WETLANDS/STREAM MITIGATION PLAN

May 23, 2025

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ATTACHMENTS

Attachment A	Wetland Impact Mitigation Ratio and Acreage Justification
Attachment B	The Wetland Trust Stream/Wetland Mitigation Plan (included as separate PDF files)
Attachment C	NYSROA Data Sheets (included as a separate Excel file)

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ABBREVIATIONS

CEQ ..... Council on Environmental Quality
CFR..... Code of Federal Regulations
FEMA..... Federal Emergency Management Agency
JD..... Jurisdictional Determination
JPA..... Joint Permit Application
NAD 83 ..... North America Datum 1983
NEPA ..... National Environmental Policy Act
NHPA ..... National Historic Preservation Act
NRCS..... Natural Resources Conservation Service
NWI ..... National Wetland Inventory
NYCRR ..... New York Codes, Rules and Regulations
NYS OPRHP..... New York State Office of Parks, Recreation and Historic Preservation
NYS..... New York State
NYSDEC ..... New York State Department of Environmental Conservation
NYSDOS ..... New York State Department of State
NYSOGS..... New York State Office of General Services
OCDWEP ..... Onondaga County Department of Water Environment Protection
OCIDA ..... Onondaga County Industrial Development Agency
OCWA ..... Onondaga County Water Authority
SEQRA..... New York State Environmental Quality Review Act
SHPO ..... State Historic Preservation Officer
USACE..... U.S. Army Corps of Engineers
U.S.C. ..... United States Code
USFWS ..... U.S. Fish & Wildlife Service
USGS ..... U.S. Geological Survey
USEPA ..... U.S. Environmental Protection Agency

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1 Introduction

Micron New York Semiconductor Manufacturing LLC ("Micron"), a Delaware limited liability company, is proposing to construct a semiconductor manufacturing campus (the Proposed Project) in the Town of Clay, New York, at the White Pine Commerce Park, a ± 1,400-acre industrial park, on parcels currently controlled by the Onondaga County Industrial Development Agency (OCIDA). The Proposed Project consists of the construction of four fabrication facilities and ancillary support facilities (the "Micron Campus"), as well as construction of a CSX rail line located contiguous to the western site property boundary and to the west of Caughdenoy Road (the "Rail Spur"). The Micron Campus and Rail Spur will collectively be referred to as the "Micron Site" throughout this mitigation plan. Off-site childcare and healthcare facilities are also proposed but are not proposed to discharge to a federally regulated wetland. If applicable, a separate permit may be filed with NYSDEC for wetland buffer impacts at a later date.

The objective of the Proposed Project is to construct and operate four state-of-the-art, advanced semiconductor fabrication facilities ("Fabs"), on a single, unified site in New York State to efficiently meet market demand and ensure competitiveness in the worldwide semiconductor market. Each Fab is expected to occupy approximately 1.2 million square feet (sf) of land and contain approximately 600,000 sf of clean room space, 290,000 sf of clean room support space, and 119,500 sf of administrative space. Each Fab would be supported by approximately 441,210 sf of central utility buildings, and 182,600 sf of product testing space housed in separate buildings.

The Proposed Project will permanently impact 193.38 acres of U.S Army Corps of Engineers (USACE) federally regulated wetlands and 6,283 linear feet (LF) of jurisdictional streams. Based on New York State Department of Conservation (NYSDEC) jurisdictional determinations, the Proposed Project will permanently impact 176.44 acres of wetlands that are under state regulation. There are no NYSDEC regulated streams on the Micron Site. For most of the wetlands, the USACE federally regulated wetlands overlap the NYSDEC wetlands, though there are a very small number of wetlands (18.61 acres) that are considered jurisdictional under federal regulations but not under state regulations. In addition to permanent impacts there will be a small amount of temporary wetland impacts (2.95 acres of USACE regulated wetlands, and 1.28 acres of NYSDEC regulated wetlands). After construction is complete, wetlands with temporary impacts will be returned to pre-disturbed conditions. Lastly, there are a small number (1.67 acres) of forested wetlands that will be permanently converted to emergent wetlands. These converted acres are considered permanent impacts under state regulations and are included as temporary impacts under federal regulations. These converted acres will be included in each respective table as such. In compensation for impacts to on-site federal and state regulated wetlands and streams, Micron is proposing to implement a combination of in-lieu fee and permittee-responsible off-site wetland and stream mitigation projects.

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Micron has submitted a JPA, of which this Compensatory Wetlands and Stream Mitigation Plan (CWSMP) is **Appendix N**. Additional details on the Proposed Project can be found in the Permit Narrative section of the JPA. This mitigation plan outlines the details, specifications, and actions that will be taken to implement the wetland and stream mitigation for the Proposed Project.

1.1 PROJECT BACKGROUND

Micron's proposed semiconductor manufacturing facility will be built out over an approximate 16-year period. Semiconductor wafer fabrication processing is known to be one of the most complex manufacturing systems. The production of a memory chip requires hundreds of processing steps; in addition, multiple products are processed simultaneously in a Fab. Micron expects that the Fabs will be built in sequence, with construction of each Fab starting as the preceding Fab is being fit out and operations begin. This process will result in continuous construction activities on the Micron Campus over the approximate 16-year period, with a significant portion of that construction occurring inside the previously constructed Fab buildings.

Additional details of the Proposed Project can be found in the Permit Narrative and in the 404(b)(1) analysis (**Appendix M**).

1.2 OVERVIEW OF MITIGATION

Micron will be utilizing in-lieu fee (ILF) and permittee-responsible off-site wetland and stream mitigation projects in compensation for proposed on-site impacts to federal and state jurisdictional wetlands and streams. Those impacts include:

- Wetland and stream impacts from construction activities implemented by Micron as part of the development of the 4 Fabs and associated infrastructure including some aspects of the electrical duct bank, and the on-site gas main and gas metering station.
- Wetland and stream impacts from construction activities implemented by Micron associated with the Rail Spur.
- The loss of the existing National Grid Wooding New York State-required wetland mitigation site.
- Wetland and stream impacts from construction activities implemented by National Grid associated with grubbing and the installation of the Micron Duct Bank utility easement.

The acreage of wetland mitigation and linear feet of stream mitigation proposed in compensation for wetlands and streams impacted are based on the wetland/habitat type and functional capability of that wetland or stream and upon discussions with the USACE and NYSDEC. The Wetland Trust (TWT) is preparing site-specific wetland and stream mitigation plans that provide a detailed description of each property, how the wetlands will be constructed, how the streams will be re-established, and how they will be monitored and maintained pursuant to

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performance standards. The Wetland Trust's Stream/Wetland Mitigation Plan can be found in **Attachment B** of this document.

To mitigate unavoidable impacts to wetlands, Micron is proposing 9 credits of in-lieu fee mitigation, with the remainder of mitigation for wetlands and streams be permittee responsible compensatory mitigation (PRM). Micron acknowledges that PRM is an aquatic resource restoration, establishment, enhancement and/or preservation activity undertaken by the permittee as defined by 33 CFR 332. Micron has developed this CWSMP to maintain the aquatic resource needs of the Oneida River watershed (10-digit HUC 0414020209) impacted by the Proposed Project in accordance with the NYSDEC mitigation guidance and information provided by the NYSDEC in their NOIA follow-up letter dated August 8, 2023.

In addition to the purchase of 9 ILF credits, Micron proposes to replace the functions and services of impacted wetlands due to the development of the Micron Site by mitigating wetlands through enhancement, rehabilitation, and establishment/re-establishment, in-kind (creation of forested wetlands to replace lost forested wetlands, creation of shrub wetlands to replace filled shrub wetlands, creation of emergent wetlands to replace filled emergent wetlands, and creation of deeper emergent areas to replace filled ponds). Micron proposes to replace the functions and services of impacted streams by restoring, and/or enhancing streams within the Oneida River Watershed. The resulting wetland/stream complexes are expected to provide a net increase in both quantity and quality of wetlands and streams within the watershed.

In addition to the purchase of 9 credits ILF, Micron proposes to re-establish/restore **389.6 credits/acres and enhance/rehabilitate 114 acres at a ratio of 3.5:1 for an adjusted 32.57 credits/acres of wetlands across six properties** (Buxton Creek, Fish Creek, Upper Caughdenoy Creek, Lower Caughdenoy Creek, Six Mile Creek, and Oneida River) located within the Oneida River watershed. This will offset impacts to **193.38 acres** of federal jurisdictional wetlands and **176.44 acres** of NYS jurisdictional wetlands impacted (including forest conversion) by the Proposed Project (**Figure 1-1**). Additionally, Micron proposes to re-establish approximately **14,030 linear feet** of stream to offset impacts to **6,283 linear feet** of streams impacted by the Proposed Project. Micron proposes stream mitigation on **two of the six wetland mitigation sites** (Fish Creek and Buxton Creek), **creating wetland-stream complexes comparable to those impacted at the Micron Campus.** Tables 1-1 and 1-2 below provide an overview of the federal wetland credits and New York State acres of wetland mitigation and overall credit ratios of each. Due to the size of the Proposed Project, small mitigation sites were not considered practical. Large mitigation sites and large active agricultural sites in the watershed were pursued where wetland creation acreage could be consolidated while reducing the impact to other habitat types, maximizing the significance of the mitigation within the watershed and further reducing uncertain mitigation success.

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Table 1-1: Summary of USACE Wetland Impacts and Mitigation Replacement Acreages and Ratios by Cover Type					
	Micron Site		USACE Requested Ratios & Credits		TWT Credits Proposed
Wetland Cover Type	Existing (ac)	Impacted (ac)	Replacement Ratio	Mitigation Credits Needed	TWT Credits
Palustrine Emergent	223.04	93.94	1.5:1	140.91	154.06
Palustrine Forested	170.18	77.79	3:1	233.37	240
*Palustrine Open Water	2.10	2.10	1:1	2.1	0
Palustrine Shrub Scrub	30.56	19.55	1.5:1	29.325	28.08
**ILF Credits	n/a	n/a	n/a	n/a	9
TOTALS	**425.88**	**193.38**	**2:1**	**405.705**	**431.14**

* Palustrine Open Water will be replaced with higher quality Deep Palustrine Emergent

**9 ILF Credits purchased at TWT Johnson Farms Preserve

Table 1-2: Summary of NYSDEC Wetland Impacts and Mitigation Replacement Acreages and Ratios by Cover Type					
	Micron Site		USACE Requested Ratios & Acres		TWT Adjusted Acres Proposed
Wetland Cover Type	Existing (ac)	Impacted (ac)	Replacement Ratio	Mitigation Credits Needed	*TWT Adjusted Acres
Shallow Emergent Marsh	65.58	48.12	1.5:1	72.18	72.73
Deep Emergent Marsh	151.93	41.01	1.5:1	61.515	81.33
Shrub Scrub	29.49	17.83	1.5:1	26.745	28.08
Floodplain Forest	94.54	19.31	3:1	57.93	64.91
Red Maple-Hardwood Swamp	53.37	46.43	3:1	139.29	164.64
Hemlock-Hardwood Swamp	3.18	3.08	3:1	9.24	10.44
**Farm Pond/Artificial Pond	0.66	0.66	1:1	0.66	0
TOTAL	**398.75**	**176.44**	**2:1**	**367.56**	**422.13**

*TWT Adjusted acres includes 1:1 ratio for Restoration and 3.5:1 for Enhancement

** POW will be replaced with higher quality Deep Emergent Marsh

The proposed mitigation sites range in size from 118 to 407 acres, are within 9 miles of the Micron Site and will protect, in perpetuity through conservation easement, about 1,340.4 acres of upland and wetland habitats within the Oneida River watershed. The Oneida River site is the largest (407-acre site) and nearest (4 miles) of the mitigation sites and includes approximately 150 acres of wetland mitigation. The next largest mitigation site, Buxton Creek (260-acre site), is anticipated to include approximately 96 acres of wetland mitigation. The wetlands to be re-established/restored (1:1 ratio) or rehabilitated/enhanced (3.5:1 ratio) at these two sites alone

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total 245 acres. The remaining four mitigation sites offer an additional 177 acres of wetland re-establishment/restoration (1:1 ratio) and rehabilitation/enhancement (3.5:1 ratio), the result of which is an overall net gain of approximately 230 acres of wetland value in the watershed. **Figure 1-1** provides a visual representation of mitigation sites that will be protected in perpetuity as compared to the Micron Site.

Providing wetland and stream mitigation on large sites within the Oneida River watershed in proximity to the impacted functions and services (wildlife habitat, water quality, climate resiliency, flood protection during storm events, etc.) minimizes downstream impacts associated with project implementation and maintains the wetland and stream resource needs of the watershed. Micron has developed this CWSMP, along with additional technical documentation such as the Wetland Assessment and Monitoring Plan (**Appendix O**) to maintain the following within the watershed:

- Habitat that supports the aquatic and terrestrial wildlife species resident to the Micron Site
- Surface water and groundwater quality
- Surface water storage and conveyance
- Wetland connectivity
- Climate and flood resiliency

The proposed mitigation sites will be owned in perpetuity by TWT, a 501(c)(3) corporation, nonprofit whose mission is the protection, conservation, and restoration of wetlands and other important habitat. The proposed sites will add approximately 1,441 acres of land to TWT's ownership and stewardship within the watershed. TWT currently owns more than 100 properties covering 3,800 wetland acres and is the sponsor of two in-lieu fee programs in New York State. TWT is also the sponsor of a federal wetland mitigation bank covering the Hudson River Basin. This extensive background in wetland and habitat establishment provides the scientific expertise of in-lieu fee mitigation, which will increase the likelihood for ecological success and sustainability of the wetland and stream mitigation developed to offset the impacts of the Proposed Project. TWT works with universities and the scientific community to study wetland ecosystems and protect wetlands and the species that live within and around them. Micron anticipates that the re-established/restored wetlands, rehabilitated/enhanced wetlands, stream re-establishment, and the additional upland habitat protected at the mitigation sites will provide higher quality wetland complexes and greater ecological value than the wetlands and streams impacted at the Micron Site.

Mitigation Site construction for all proposed wetland and stream components is expected to be completed within approximately 6-8 years of permit issuance. The timing of offsite mitigation construction is further explained in **Attachment B**. As such, prior to the commencement of

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construction of Phase 2 of the Proposed Project, all mitigation sites are expected to have as-built reports submitted and mitigation monitoring ongoing.

Table 1-3: USACE Wetland Impacts by Construction Phase		
Cover Type	**Phase 1 Acres**	**Phase 2 Acres**
PEM	44.26	49.68
PSS	10.66	8.89
PFO	64.9	12.89
POW	1.17	0.93
Total	**120.99**	**72.39**

Table 1-4: NYSDEC Wetland Impacts by Construction Phase		
Cover Type	**Phase 1 Acres**	**Phase 2 Acres**
Shallow Emergent Marsh	39.12	9
Deep Emergent Marsh	0.28	40.73
Shrub Swamp	8.96	8.87
Floodplain Forest	14.9	4.41
Red Maple-Hardwood Swamp	39.39	10.05
Hemlock-Hardwood Swamp	3.08	0
Farm Pond/Artificial Pond	0.53	0.13
Total	**106.26**	**73.19**

Phase 2 of the Proposed Project contains a majority of the main wetland complex that lies east of Burnet Road (approximately 75 acres). Phase 2 is currently planned to commence in 2033, at which time all the wetland and stream mitigation construction will be completed. **Table 1-3** and **Table 1-4** above provide an overview of wetland impacts by Phase of the Proposed Project. A detailed breakdown of wetland impacts (temporary and permanent) is provided in the following section and in **Table 2-1** and **Table 2-2**.

The information in this plan and permit application includes all information considered necessary for the USACE and NYSDEC to make a permit decision on the construction activities necessary for the Micron Site and each of the offsite mitigation properties.

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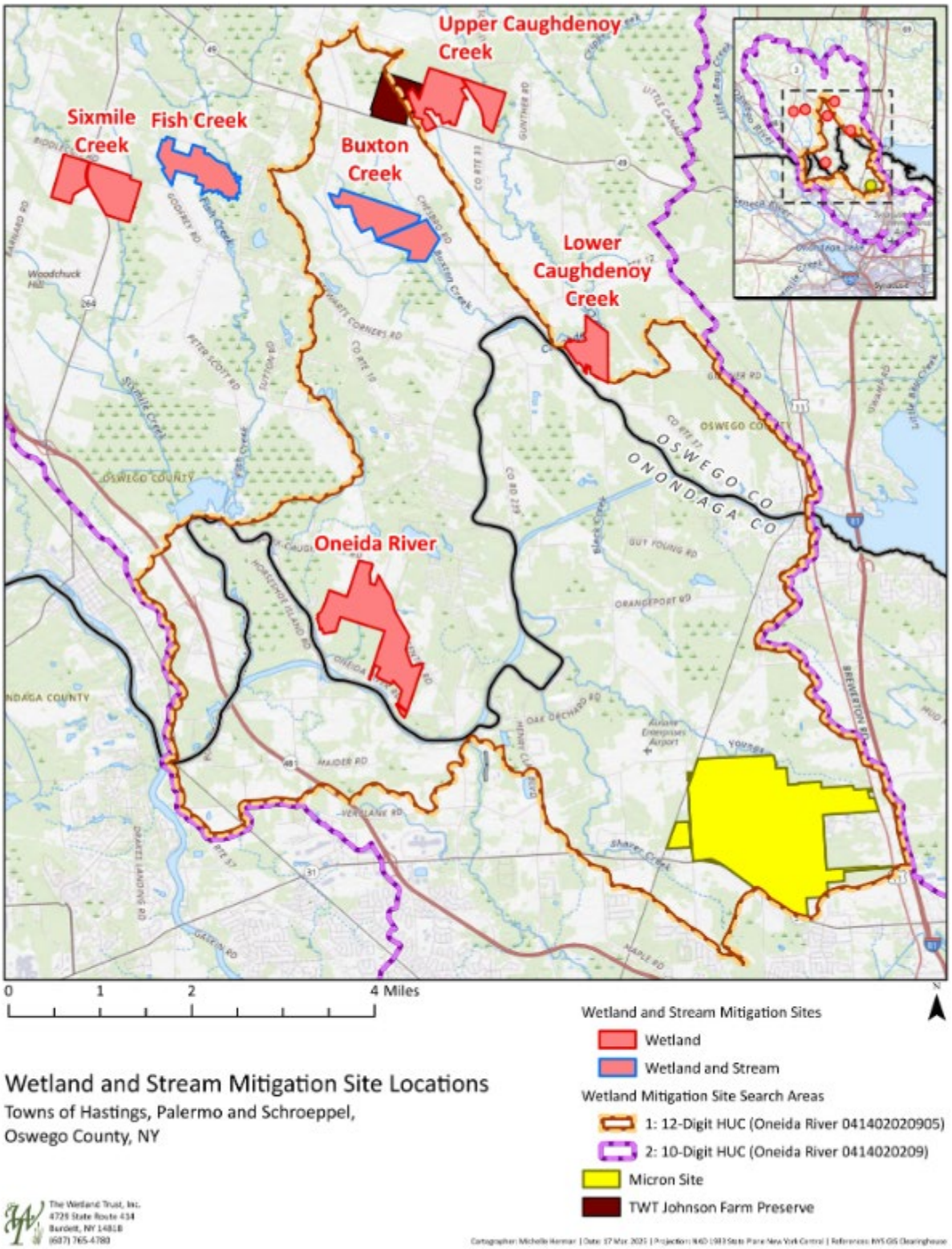
Figure 1-1 Mitigation Site Location Overview



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1.3 REGULATORY BACKGROUND

Wetlands and streams on the Micron Site are regulated at both the federal and state level. This mitigation plan is submitted as part of the JPA in accordance with:

- Clean Water Act Section 404 – 33 USC Subchapter 1344
- Clean Water Act Section 401 – 40 CFR Part 401
- Final Compensatory Mitigation Rules – 33 CFR Part 332
- New York Freshwater Wetlands Act – ECL Article 24
- Use and Protection of Waters – 6 NYCRR Part 608

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2 Objectives

The wetland mitigation components of this plan were developed consistent with USACE, U.S. Environmental Protection Agency (USEPA), and NYSDEC guidance documents to compensate for the ecological functions and services that will be lost with implementation of the Proposed Project.

2.1 WETLANDS MITIGATION OBJECTIVES

The following sections describe the objectives of this mitigation project.

2.1.1 Summary of objectives

The primary objectives of this CWSMP are:

- To offset unavoidable impacts to waters of the United States (WOTUS) authorized through the issuance of a USACE permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344)
- To offset unavoidable impacts to NYS Freshwater Wetlands authorized through the issuance of a permit pursuant to Article 24 of the NYS Environmental Conservation Law (implementing regulations 6NYCRR Parts 663, 664 and 665
- To replace functions and services of wetlands and streams impacted by construction of the proposed facilities
- To serve the aquatic resource needs of the watershed to provide for a compensatory mitigation plan that is not contrary to the public interest (i.e., the benefits, which reasonably may be expected to accrue from the project, will be balanced against its reasonably foreseeable detriments)
- To identify CWSMP components
- Identify in-lieu fee opportunities to meet required function and service replacement

2.1.2 Unavoidable impacts to waters of the United States

Unavoidable impacts to federal and state wetlands from the Proposed Project are summarized in **Tables 2-1 and 2-2**. A further breakdown of impacts by wetland, cover type and project phases is provided in **Section 5** of this plan. Wetland boundaries (jurisdictional determinations and submitted delineations) are illustrated on the plans included in **Appendix H & I** of the

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Table 2-1: Summary of Proposed Impacts to USACE Jurisdictional Wetlands

Wetland ID	Cover Type	USACE Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*								Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1B - Permanent	Phase 1B - Temporary	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2B - Permanent	Phase 2B - Temporary			
SUMMARY BY COVER TYPE	PEM	223.04		37.40	1.28	6.86	0.00	49.68	0.00	0.00	0.00	93.94	1.28	**95.21**
	PFO	170.18		64.39	1.67	0.51	0.00	10.33	0.00	2.56	0.00	77.79	1.67	**79.46**
	POW	2.10		1.17	0.00	0.00	0.00	0.93	0.00	0.00	0.00	2.10	0.00	**2.10**
	PSS	30.56		9.66	0.00	1.00	0.00	8.89	0.00	0.00	0.00	19.55	0.00	**19.55**
TOTALS		**425.88**		**112.62**	**2.95**	**8.37**	**0.00**	**69.83**	**0.00**	**2.56**	**0.00**	**193.38**	2.95	**196.33**

*Temporary Impacts include construction laydown areas and areas of ground disturbance to be returned to pre-disturbance conditions. Permanent Impacts include building envelopes and areas of site grading.

[1]Phased Total Impacts by Cover Type, Total Impacts, and Summary by Cover Type values are rounded from the computed GIS values and therefore may differ slightly from reported phase Total when summed.

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Table 2-2: Summary of Proposed Impacts to NYSDEC Jurisdictional Wetlands

Wetland ID	Cover Type	NYSDEC Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*												Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts by Cover Type (acres)[1] - Forest Conversion	Total Impacts (permanent and temp) (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1A - Forest Conversion	Phase 1B - Permanent	Phase 1B - Temporary	Phase 1B - Forest Conversion	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2A - Forest Conversion	Phase 2B - Permanent	Phase 2B - Temporary	Phase 2B - Forest conversion				
SUMMARY BY COVER TYPE	Deep Emergent Marsh	151.93		0.27	0.95	0.00	0.01	0.00	0.00	40.73	0.00	0.00	0.00	0.00	0.00	41.01	0.95	0.00	**41.96**
	Farm Pond/Artificial Pond	0.66		0.53	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	**0.66**
	Floodplain Forest	94.54		12.91	0.00	1.48	0.51	0.00	0.00	3.99	0.00	0.00	0.42	0.00	0.00	17.83	0.00	1.48	**19.31**
	Hemlock - Hardwood Swamp	3.18		3.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00	**3.08**
	Red Maple-Hardwood Swamp	53.37		39.19	0.00	0.20	0.00	0.00	0.00	6.09	0.00	0.00	0.96	0.00	0.00	46.24	0.00	0.20	**46.43**
	Shallow Emergent Marsh	65.58		35.44	0.32	0.00	3.68	0.00	0.00	9.00	0.00	0.00	0.00	0.00	0.00	48.12	0.32	0.00	**48.45**
	Shrub Swamp	29.49		8.89	0.00	0.00	0.07	0.00	0.00	8.87	0.00	0.00	0.00	0.00	0.00	17.83	0.00	0.00	**17.83**
TOTALS		**398.75**		**100.31**	**1.28**	**1.67**	**4.27**	**0.00**	**0.00**	**68.81**	**0.00**	**0.00**	**1.38**	**0.00**	**0.00**	**174.77**	**1.28**	**1.67**	**177.72**

*Temporary Impacts include construction laydown areas and areas of ground disturbance to be returned to pre-disturbance conditions. Permanent Impacts include building envelopes and areas of site grading.

[1]Phased Total Impacts by Cover Type, Total Impacts, and Summary by Cover Type values are rounded from the computed GIS values and therefore may differ slightly from reported phase Total when summed.

[2]Phase impact to W35 Deep Emergent Marsh is 0.001 AC, but is reported as 0 as impacts are only reported to the hundredth of an acre.

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Over an approximately 16-year period starting in 2025, Micron will generally progress construction on the Micron Campus sequentially (Phase 1A, 1B, 2A, and lastly 2B) from west to east. See Drawings included in JPA Narrative for a phase-by-phase depiction of estimated limits of disturbance (LOD) throughout the four Fab construction.

There is a larger concentration of higher quality wetland per acre in the portion of the Micron Site that is east of Burnett Road. Keeping this in mind, a strategic decision has been made in the construction laydown planning for Phase 1B to locate the laydown area west of Burnett Road (Note: there are minor exceptions to this approach, i.e., an access road installation from the Route 11 south finger entrance to the Phase 1A/1B area). This approach on all Phases will limit wetland disturbance to the extent practicable throughout the 16-year construction period.

2.1.3 Impacted Functions and Services

Data gathered during off-site document review and on-site wetland and stream boundary delineation activities was used to qualitatively assess the functions and services of the delineated wetlands. Wetland functions and services identified by the USACE in its publication The Highway Methodology Workbook Supplement: Wetlands Functions and Values – A Descriptive Approach (USACE 1999) were attributed to on-site wetlands:

- Wildlife habitat: each wetland exhibited wildlife habitat as the principal function. Multiple habitat types are present at the Micron Site which provide opportunity to accommodate a variety of species
- Floodflow alteration: detention of floodwater from Youngs Creek and stormwater runoff[1]
- Sediment/toxicant retention: retention of organic and inorganic particulates on a short-term or long-term basis through physical processes
- Nutrient removal: removal of nutrients, contaminants, or other elements and compounds on a short-term or long-term basis through burial, incorporation into biomass, or biochemical reactions
- Sediment/shoreline stabilization: stabilization of the banks and floodplain associated with Youngs Creek

[1] Micron has completed a Hydraulic and Hydrologic(H&H) analysis to evaluate surface and ground water conditions under both existing and proposed conditions.

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- Groundwater recharge/discharge: wetland hydrology influences the hydrology of the adjacent watercourses
- Endangered species habitat: ability to support threatened or endangered species or important habitat for state or federally listed species
- Fish and shellfish habitat: ability of seasonal or permanent watercourses to support fish and shellfish
- Production export: production of food or usable products for humans or other living organisms

Completed Value Evaluation Forms for delineated wetlands are included as Attachment 2 of the Joint Permit Application **Appendix I**. The Proposed Project will impact the existing functions and services provided by existing wetlands. It is anticipated that elements of this CWSMP will compensate for and enhance the functions and services provided by project area wetlands, resulting in increases in quantity and quality of wetlands and streams in the Oneida River watershed.

2.1.4 Threatened and Endangered species

Threatened and endangered aquatic species that are dependent on the on-site aquatic resources have not been identified by the involved agencies and have not been observed by the project team. As described in the Biological Assessment, the following federally listed terrestrial species have been documented on the Micron Campus and are assumed present within the LOD:

- Indiana bat (*Myotis sodalis*; U.S. endangered)
- Northern long-eared bat (*M. septentrionalis*; U.S. endangered)
- Tricolored bat (*Permimyotis subflavus*; U.S. proposed endangered)

No "critical habitat" has been designated by the U.S. Fish and Wildlife Service (USFWS) for these species except for the Indiana bat, for which there is no critical habitat in New York State. However, Micron is committed to several mitigation actions to compensate for unavoidable impacts, including the purchase and permanent protection of 1,216 acres of off-site roosting habitat, and the support of research and monitoring efforts that would benefit science-based management and conservation of these species in New York. This CWSMP does not address mitigation requirements for Threatened and Endangered species, however the Biological Assessment provides further information on mitigation measures for these protected species.

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IPAC reports for the six wetland/stream mitigation sites are included as appendices to the individual site chapters.

As described in the Incidental Take Permit (**Appendix Q**), the following State listed species have been documented on the Micron Campus and are assumed present within the LOD:

Short-eared owl (Asio flammeus; NYS threatened)

Northern harrier (Circus hudsonius; NYS threatened)

Because of the direct and indirect loss of habitat for the short-eared owl and northern harrier, the Proposed Project would result in a "take" of these species under NYSDEC regulations. This CWSMP does not address mitigation requirements for State listed species, however, as detailed in the Net Conservation Benefit Plan (**Attachment 1 of Appendix Q**) this unavoidable impact would be offset by the purchase and permanent protection of 628 total acres of suitable offsite habitat and a commitment to restore and manage that habitat as grassland for 15 years. This will ultimately result in a "net conservation benefit" for the short-eared owl and northern harrier.

2.1.5 Aquatic Resource Needs of the Watershed

In consideration of the physical constraints and other characteristics of the Micron Site (see **Section 3.1**) associated with the planned scale of site development, a watershed approach to compensatory mitigation was recommended to promote the best use of financial resources, with consensus that advancement of the mitigation at off-site locations within the Oneida River watershed (10-digit HUC 0414020209) that are currently utilized for agriculture is consistent with the prioritized needs of the overall watershed. Micron has developed this CWSMP, along with the Wetland Assessment and Monitoring Plan (**Appendix O**) to maintain the following within the watershed:

- Habitat that supports the aquatic and terrestrial species resident to the Micron Site
- Surface water and groundwater quality
- Surface water storage and conveyance
- Wetland connectivity
- Climate and flood resiliency

By maintaining these components of the watershed, Micron is aligning the CWSMP goals with the Great Lakes Restoration Initiative (GLRI) Action Plan IV long-term goals through the protection of 1,463 acres of mitigation properties, including establishment/reestablishment of 389 acres of wetland and restoration of 14,030 linear feet of streams. GLRI Action Plan long-term goals fall into five focus areas:

1. Toxic Substances and Areas of Concern

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2. Invasive Species
3. Nonpoint Source Pollution
4. Habitats and Species
5. Foundations for Future Restoration Actions

Through the development and monitoring of the mitigation sites, and implementation of the Wetlands Assessment and Monitoring Plan, Micron aims to align with and accelerate the following GLRI long-term goals;

- **Objective 2.3. Provide ecosystem and human benefits through prioritized and collaborative invasive species control efforts:** By 2029, this GLRI Action Plan objective hopes to increase total acres controlled for invasive species from 307,000 (baseline) acres to 360,000 acres. Through implementation of the Wetland Assessment and Monitoring plan for the Micron Site and invasive species management on the associated mitigation properties, acreages added to this objective will total approximately 2,740 acres, or just over 5% of the cumulative goal.
- **Objective 3.1. Reduce nutrient loads from agricultural watersheds to prevent harmful and nuisance algal blooms:** By 2029, this GLRI Action Plan objective hopes to reduce the amount of phosphorus applications by 1,500,000 lbs. TWT has acquired approximately 1,460 acres of agricultural land, primarily in production for soybean crops. Soybean fields require a relatively heavy phosphorus load (approximately 48 pounds of P_2O_5 per acre) to achieve a 60 bushel/acre harvest. Rounding the properties down to 1,400 acres and multiplying by 48 pounds of phosphorus application per acre, the Oneida River watershed will see a reduction in about 67,220 lbs. of phosphorus applied to agricultural fields, or about 4.5% of the total reduction goal.
- **Objective 3.2. Reduce or prevent stormwater runoff to improve and sustain water quality under a changing climate:** By 2029, this GLRI Action Plan objective hopes to increase acres of riparian buffers, wetlands and floodplains by 250 acres. The Micron mitigation plan alone will surpass this goal with the protection of 440 acres of riparian buffers, 390 acres of wetland re-establishment/restoration, 114 acres of wetland rehabilitation/enhancement, and 92 acres of preservation of existing wetlands. The Micron mitigation plan will also re-establish over 2.5 miles of historic stream channels by returning channelized farm ditches back to their original, sinuous hydrology. These streams will be incorporated into wetland/stream complexes in low lying areas suitable for wildlife habitat, nutrient/pollutant storage, and floodwater retention and storage.
- **Objective 4.1. Protect, enhance and increase resilience of habitats necessary for sustaining native aquatic and terrestrial species important for the future Great Lakes ecosystem:** By 2029, this GLRI Action Plan objective hopes to increase total acres of protected or enhanced coastal wetland, nearshore, and other habitats from 530,000 acres (baseline) to 568,000 acres (an increase of 38,000 acres). The Micron wetland

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mitigation plan will add approximately 1340 acres of permanently protected, and in some cases enhanced, habitat, within the Oneida River watershed or approximately 4% of the goal. This GLRI Action Plan objective also hopes to increase miles of connectivity for aquatic species from 8,170 miles to 8,800 miles in 2029. The Micron mitigation plan will re-establish over 2.5 miles of streams throughout the Oneida River watershed.

2.1.6 Public interest

This CWSMP will occur within the same Oneida River HUC-10 watershed (Oneida River HUC_0414020209) as the impacted wetlands. This approach enables the CWSMP to maintain the primary functions and services provided by the on-site wetlands (wildlife habitat, water quality, climate resiliency, flood protection during storm events, etc.) within the impacted watershed to minimize downstream impacts associated with project implementation. The proposed mitigation sites will be owned fee simple, in perpetuity by TWT, adding 1,441 acres of land to TWT's ownership and stewardship within the watershed. TWT works with universities and the scientific community to study wetland ecosystems and protect wetlands and the species that live within and around them. Micron anticipates that the wetlands and the upland habitat protected at the mitigation sites will improve the public interest value of aquatic resources within the watershed. As identified in the public comments received during the USACE Notice from May 30th, 2024, through July 31st, 2024, there is great public interest in the loss of primary functions and services provided by the on-site wetlands, and their subsequent mitigation. Many of Micron's responses to those public comments site this plan, to allow the public to better understand the impacts and proposed mitigation set forth.

2.1.7 In-kind vs. Out-of-kind

"In-kind" means a resource of a similar structure and functional type to the impacted resource. "Out-of-kind" means a structure and/or functional type that differs from the impacted resource.

The CWSMP incorporates in-kind elements at off-site mitigation sites within the Oneida River HUC 10 watershed with the focus on developing new wetlands or new wetland/stream complexes within active agricultural fields that include palustrine wetlands that were field-verified by the USACE and NYSDEC. In-kind elements are described in **Sections 6 and 7** and the work areas for wetland and stream mitigation are shown on the drawings provided in **Attachment B** of this CWSMP.

The CWSMP incorporates preservation of 1,340 acres of land associated with the six mitigation sites, including the wetlands established to offset impacts at the Micron Site as well as existing wetlands and upland communities.

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2.2 STREAM MITIGATION OBJECTIVES

The stream mitigation components of this CWSMP were developed consistent with the following USACE, USEPA, and NYSDEC guidance documents to compensate for the ecological functions and services that will be lost with implementation of the Proposed Project:

- *Guidelines for Stream Mitigation Banking and In-lieu Fee Programs in Ohio* (USACE 2016a)
- *Wilmington District Stream and Wetland Compensatory Mitigation Update* (USACE 2016b)
- *Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness: A Review of Current Science and Regulations* (USEPA 2005)
- *New York State Riparian Opportunity Assessment* (Conley et al. 2018)

Compensation was assessed using a methodology that allowed for direct, quantitative functional assessment of:

- The jurisdictional stream resources that exist within the limits of disturbance (LOD) of the Micron Site that are expected to be impacted from development activities
- Stream resources in the vicinity of the Micron Site that could offer compensatory mitigation opportunities

This assessment was completed using data from the New York State Riparian Opportunity Assessment (NYSROA) which was developed by the NYSDEC Natural Heritage Program (NHP) in 2018 with the goal of identifying and prioritizing sites for implementation of NYSDEC's Trees for Tribs program. The stated goal of the NYSROA is consistent with the objectives of this mitigation plan:

> "To plant native trees and shrubs in riparian buffers to **improve wildlife habitat, water quality, climate resiliency, and to provide flood protection during storm events**. We designed the assessment to meet this target goal **as well as be flexible enough for use in the prioritization of other restoration and protection efforts**… The results also facilitate an **ecosystem-based management approach to riparian restoration and protection** work by promoting **strategic, science-based decision-making to achieve multiple benefits**. "

Further, the NHP emphasized that the NYSROA was developed as a **"tool to more effectively and strategically target State and federal resources for riparian buffer restoration and protection"** while also looking for partners in new areas of the State for assistance (Conley et al. 2018]).

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Consistent with its goals, the NYSROA was used to evaluate and identify potential areas in the vicinity of the Micron Site that are impaired and would benefit from mitigation as prescribed in the NYSROA. Use of the NYSROA allowed for the application of a repeatable approach to quantifying stream impacts and crediting opportunities by using existing NYSDEC resources.

Approximately 14,030-linear feet (LF) of stream re-establishment will be incorporated into the Final CWSMP along Buxton Creek, a tributary to Buxton Creek, and a tributary to Fish Creek. The resources in these areas have been significantly channelized to permit tillage of the adjacent fields. There is also significant history and evidence of the installation of drainage tiles and culverts that will be removed or modified to the extent practicable to support the desired hydrology within the proposed wetland/stream complexes. The channels will be re-established within the historic channel footprints to the extent practicable based on:

1. Historic aerial imagery that shows channel location prior to anthropogenic alteration.
2. StreamStats data that provide recommended channel dimensions (e.g., bankfull depth, width, cross sectional area).
3. Field observations including:
    a. Soil borings
    b. Drainage flow patterns and measurements
    c. Evaluation of reference reaches that include characteristics desired in the proposed restoration reaches.

The re-established stream reaches will be bordered by vegetated wetland or upland habitat that is consistent with the NYSROA. Further, the entire parcels that contain the mitigation areas will be permanently protected through the establishment of conservation easements.

Pursuant to the Guidelines for Stream Mitigation Banking and In-lieu Fee Programs in Ohio (USACE 2016a), the on-site streams are best categorized as Group 1 streams. The stream debit ratio that the USACE recommends for each type of Group 1 stream is as follows:

- Ephemeral streams with sand/silt/muck/clay/artificial dominated substrates - 1:1
- Ephemeral streams with bedrock/boulder/cobble/gravel/sand mixed substrates - 1.5:1
- Intermittent streams with sand/silt/muck/clay/artificial dominated substrates - 1.5:1

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- Modified Warmwater and Modified Warmwater Habitat Equivalent - 1.5:1

Micron welcomes the opportunity to partner with state and federal agencies to improve the health of the watershed through implementation of this CWSMP.

2.2.1 Unavoidable Impacts to Waters of the United States

Table 3-1 provides a summary of the jurisdictional on-site stream resources within the Proposed Project LOD, including the hydrologic regime and jurisdictional linear feet (LF) on the Micron Site based on the Approved Jurisdictional Determination issued by March 11, 2024, the USACE. Stream locations and names are illustrated on the plans included in **Appendix H** of the JPA.

As part of the jurisdictional determination process, Micron provided justification for the flow regime for the resources identified based on the information available, including utilization of the USACE Antecedent Precipitation Tool and the characteristics observed in the field. An Approved Jurisdictional Determination, Preliminary Jurisdictional Determination, and Delineation Verification for Department of the Army Processing No. LRB-2000-02198 were issued on February 12, 2024."

2.2.2 Impacted Functions and Services

Consistent with the functions and services targeted by the NYSROA, the primary values and services provided by the Micron Site streams that will be impacted consist of:

- Wildlife habitat - Maintenance of plant and animal communities in terms of species composition, abundance, and age structure
- Water quality - Retention of organic and inorganic particulates, nutrients, contaminants, or other elements and compounds on a short-term or long-term basis through physical processes, burial, incorporation into biomass, or biochemical reactions
- Climate resiliency and flood protection during storm events - Stabilization of the bed, banks, and floodplain of Youngs Creek and its tributaries

Secondary functions and services that are provided by on-site streams and have been considered in the development of this CWSMP include:

- Geomorphology – Transport of woody debris and sediment to influence stream bed forms
- Thermal impacts – Significant canopy coverage of some on-site stream reaches can reduce thermal influence on the system and its resident biota

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It is anticipated that elements of this CWSMP will compensate for impacts to streams associated with the Proposed Project and enhance the functions and services provided by project area streams.

Table 3-1: I Jurisdictional On-Site Stream Resources

Stream ID	Cowardin Classification / Flow Regime	Length (LF) / OHW[1] Width (LF)	Impacts on Federal Jurisdictional Streams (LF)										
			Phase 1A – Temporary	Phase 1A - Permanent	Phase 1B - Temporary	Phase 1B - Permanent	Phase 2A - Temporary	Phase 2A - Permanent	Phase 2B - Temporary	Phase 2B - Permanent	Total Phased Impacts - Temporary	Total Phased Impacts - Permanent	Total Impacts
IS1	Intermittent/Riverine Stream Bed (R4SB)	1,411 / 10	0	1411	0	0	0	0	0	0	0	1411	1411
IS2	Intermittent/Riverine Stream Bed (R4SB)	1,532 / 25	79	607	0	0	0	0	0	0	79	607	686
IS3	Intermittent/Riverine Stream Bed (R4SB)	1,355 / 70	51	0	0	0	0	0	0	0	51	0	51
IS4	Intermittent/Riverine Stream Bed (R4SB)	337 / 5	0	0	0	0	0	337	0	0	0	337	337
IS4A	Intermittent/Riverine Stream Bed (R4SB)	150 / 2	0	0	0	0	0	150	0	0	0	150	150
ES6	Ephemeral/ R6	324 / 6	0	0	0	0	0	0	0	321	0	321	321
ES8	Ephemeral/ R6	1,045 / 2	0	130	0	0	0	915	0	0	0	1045	1045
ES8a	Ephemeral/ R6	134 / 3	0	0	0	0	0	134	0	0	0	134	134
ES11	Ephemeral/ R6	490 / 2	0	0	0	0	0	466	0	0	0	466	466
ES15	Ephemeral/ R6	298 / 2	0	0	0	0	0	298	0	0	0	298	298
ES16	Ephemeral/ R6	430 / 5	0	430	0	0	0	0	0	0	0	430	430
ES20	Ephemeral/ R6	795 / 5	0	795	0	0	0	0	0	0	0	795	795
ES21	Ephemeral/ R6	209 / 3	0	209	0	0	0	0	0	0	0	209	209
PS1 (Youngs Creek)	Perennial/Upper Perennial Unconsolidated Bottom (R3UB)	120 / 20	0	0	0	0	0	0	0	0	0	0	0
RD4A	Intermittent/Riverine Stream Bed (R4SB)	72 / 2	0	43	0	0	0	29	0	0	0	72	72
RD4B	Intermittent/Riverine Stream Bed (R4SB)	8 / 2	0	0	0	0	0	8	0	0	0	8	8
Totals		8,730	130	3625	0	0	0	2337	0	321	130	6283	6413

[1] Ordinary High Water

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2.2.3 Threatened and Endangered species

Threatened and endangered aquatic species that are dependent on the on-site stream resources have not been identified by the involved agencies and have not been observed by the project team. Federally listed terrestrial species that may occur within the LOD are discussed above in the threatened and endangered species section for Wetlands (**Section 2.1.4**).

The listed bat species are anticipated to utilize the existing forested stream habitat for foraging. The proposed riparian buffers that will be established and preserved as part of this CWSMP include significant forested habitat that can support populations of Indiana bat and northern long-eared bat.

2.2.4 Aquatic Resource Needs of the Watershed

As public agencies, the NYSDEC and the USACE have a responsibility to consider the public benefits afforded by project implementation as well as the socio-economic benefits that are anticipated. Micron has developed this CWSMP, along with the Wetlands Assessment and Monitoring Plan (**Appendix O**), to maintain the following within the watershed:

- Habitat that supports the aquatic and terrestrial species resident to the Micron Site
- Surface water and groundwater quality
- Surface water storage and conveyance
- Wetland connectivity
- Climate and flood resiliency

Providing this stream mitigation within the Oneida River watershed in proximity to the impacted functions and services provided by existing resources and incorporated into wetland mitigation complexes is expected to maintain the aquatic resource needs of the watershed.

2.2.5 Public interest

This CWSMP will occur within the same Oneida River HUC-10 watershed (Oneida River HUC_0414020209) as the impacted streams. This approach enables the CWSMP to maintain the functions and services provided by the on-site streams (wildlife habitat, water quality, climate resiliency, and flood protection during storm events) within the impacted watershed to minimize downstream impacts associated with project implementation. As identified in public comments received during the USACE Notice from May 30th, 2024, through July 31st, 2024, there is great public interest in the loss of primary functions and services provided by the on-site streams, and their subsequent mitigation. Many of Micron's responses to those public comments site this plan, to allow the public to better understand the impacts and proposed mitigation set forth.

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2.2.6 In-kind vs. Out-of-kind

As stated in **Section 2.2**, the streams that will be impacted on-site are best categorized as Group 1 streams (USACE 2016a), as they have been heavily impacted by anthropogenic activities. Agricultural activities such as tillage, stream channelization, fertilizer application, drainage tile installation, as well as culverting and utility right-of-way (ROW) maintenance, have significantly impacted the primarily ephemeral and intermittent stream resources on-site.

The impacted nature of the on-site streams limits their functions and services within the Oneida River watershed. However, it is recognized that these streams do provide some functions within the watershed, primarily associated with hydrology (transport of water from the contributing watershed to the channel); hydraulic (transport of water, sediment, and organic material in the channel and through the floodplain); and physiochemical (temperature and oxygen regulation and processing of organic matter and nutrients). Micron recognizes that some of the anthropogenic modifications occurred years ago, allowing some of the streams to regain partial historic functions and services (e.g., groundwater recharge, wildlife habitat). However, the aquatic resources proposed as part of the CWSMP are expected to result in stream/wetland complexes that provide functions and values that exceed those provided by the existing streams.

Further, while it is recognized that stormwater management channels are not generally considered appropriate mitigation for stream impacts per agency mitigation rules, the proposed on-site stormwater management system and low-impact development practices will maintain or improve the hydrology and hydraulic services currently provided by on-site streams. The on-site stormwater management channels will incorporate natural channel design elements to the extent practicable to compensate for and enhance impacted functions and services.

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3 Mitigation Site Selection Process

The following sections describe the process used in selecting the proposed mitigation sites.

3.1 PROPOSED ALTERNATIVES CONSIDERED FOR MITIGATION

Micron considered alternatives to avoid and minimize impacts to wetlands and streams as described in the 404(b)1 Analysis in **Appendix M** of the JPA.

To mitigate unavoidable impacts to wetlands, Micron is proposing to purchase 9 credits from an authorized in-lieu fee program. The remainder of the required compensatory wetland and stream mitigation will be permittee responsible compensatory mitigation. The 2008 USEPA and USACE Wetland Mitigation Rules outline the preferred mitigation options as 1) mitigation banking; 2) in lieu fee; then 3) permittee responsible mitigation. Micron first considered mitigation banking. However, there are no active mitigation banks in New York for the Buffalo District. As such, Micron did not pursue mitigation banking further. Micron next sought in-lieu fee credits. Due to the number of credits needed to offset impacts associated with the Proposed Project; Micron was unable to secure enough in-lieu fee credits to mitigate all impacts associated with the Proposed Project. Micron is proposing a small amount of in-lieu fee credit purchase (9 credits) at the Johnson Farm ILF site to offset impacts associated with the Proposed Project consistent with the 2008 Wetland Mitigation Rules. Therefore, the majority of the wetland mitigation will be permittee responsible mitigation. To mitigate for unavoidable impacts to streams, Micron is also proposing permittee responsible compensatory mitigation since the USACE has indicated that mitigation banking and in-lieu fee purchase of stream credits, the preferred mitigation strategies pursuant to the 2008 USEPA and USACE Wetland Mitigation Rules, are currently not viable options.

Micron considered a combination of on-site and off-site mitigation, however, there were very limited on-site areas suitable for mitigation that would adequately replace the functions and services lost as a result of the Proposed Project, so Micron proposes off-site, in-kind, permittee responsible mitigation. The Proposed Project requires a large footprint that will take up the majority of the site south of the transmission line, and a small portion of the site northwest of the transmission line. The remainder of the site including approximately 225 acres of high-quality wetlands north of the transmission line, 25 acres east of Burnet Road and 2,000 LF of stream, will remain undisturbed, and is therefore not suitable for significant wetland or stream mitigation. As wetland and stream mitigation on-site is not practical, Micron proposes to replace the functions and services of wetlands lost by re-establishing/restoring wetlands where they do not currently exist (, and by rehabilitating/enhancing existing low-quality wetlands in the cover types and quantities described in **Section 6**. Micron will replace wetland habitat in-kind. Micron also

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proposes to replace the functions and services of streams lost by restoring streams within the Oneida River Watershed, also described in Section 6.

Micron considered developing mitigation or hiring a consultant to develop mitigation to offset impacts associated with the Proposed Project but elected to instead hire a local wetland-focused nonprofit conservation group. Micron has retained TWT (a 501 (c)(3) corporation, nonprofit New York conservation organization dedicated to the protection and restoration of freshwater wetland ecosystems) to assist with development of this mitigation plan, to secure the sites proposed for mitigation, to construct the mitigation, and to own and manage the mitigation sites fee simple, in perpetuity. TWT currently owns more than 100 properties covering 3,800 wetland acres and has approved in-lieu fee programs throughout New York State. This extensive background in local wetland and habitat establishment and re-establishment provides the scientific expertise of in-lieu fee mitigation which will increase the likelihood for ecological success and sustainability of the wetland and stream mitigation developed to offset the impacts of the Proposed Project. TWT prioritized the acquisition of large, active agricultural sites (see **Table 3-2**) where wetland creation acreage could be consolidated and stream mitigation could be incorporated while reducing the impact to other habitat types (i.e. grasslands and forests), maximizing the value of the mitigation within the watershed and further reducing uncertainty over mitigation success. Micron proposes to mitigate within the same Oneida River 10-digit HUC as the Micron Site. **Table 3-2** provides sites that TWT considered for wetland mitigation within the watershed, along with an indication of the reason each site was not pursued further. **Table 3-3** provides sites that TWT considered for stream mitigation within the watershed, along with an indication of the reason each site was not pursued further. **Section 3.2** provides additional information regarding the mitigation area selection.

The USACE requested that Micron consider adjacent sites north of the Micron property along Youngs Creek for wetland and stream mitigation. TWT attempted to obtain adjacent parcels immediately north of the Micron Site. While TWT engaged with each owner, the owners of two of the properties chose not to sell. The owners of the third property sold to a competing bidder.

3.2 MITIGATION AREA SELECTION

TWT is following protocols described in 33 C.F.R. § 332.4(c)(5)-(6) to develop a technically and legally sufficient mitigation plan to meet both USACE and NYSDEC requirements for this project, as well as additional requirements specifically requested by the agencies. The site selection protocols were:

- To search in an expanding radius beginning in the Oneida River watershed (12-digit HUC 041402020905) containing the Micron Site, followed by the 10-digit HUC (0414020209), then within four Onondaga Townships (Clay, Cicero, Lysander, and

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Van Buren) and lastly in the southern portion of Oswego County. TWT was able to secure all sites within the 12 or10 digit HUC.

- All sites approved by regulating agencies
- Sites were targeted that could provide a net wetland gain, by USACE definition meaning established or re-established wetlands or by NYSDEC definition created wetlands. Sites were targeted that could provide functional uplift to existing streams. TWT was able to stay within those criteria
- Sites were selected to offset impacts by replicating the frequency of wetland types (e.g., PEM, PSS, PFO) between impact and mitigation sites, with a total wetland credit target as described in Section 6.
- Sites were analyzed and mapped for existing wetlands to be avoided, soil characteristics pertinent to wetland development (e.g., soil moisture, depth to groundwater), and topography
- Priority was given to sites closer to the Micron Site and larger sites that more readily retain or enhance functionality for similar attributes found on the Micron Site, such as flood attenuation, groundwater recharge, stormwater infiltration, wildlife habitat, habitat connectivity, carbon sequestration, and long-term sustainability

The site selection process resulted in the selection of six sites including:

- Fish Creek (wetlands and streams)
- Buxton Creek (wetlands and streams)
- Upper Caughdenoy Creek (wetlands)
- Lower Caughdenoy Creek (Route 37) (wetlands)
- Sixmile Creek (wetlands)
- Oneida River (wetlands)

Existing conditions at each site are described in Section 5.2.

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Table 3-2 Sites TWT Considered for Wetland Mitigation

Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
Johnson Farm Area Central (JFAC)									
JFAC A	257.00-01-01.01	Oswego	Palermo	9.39	041402020905	86.47	86.47	13.14	Not interested in selling
JFAC B	257.00-01-11.04	Oswego	Palermo	9.4	041402020905	36.34	36.34	7.8	Not interested in selling
JFAC C	257.00-01-10	Oswego	Palermo	9.21	041402020905	54.75	51.63	3.47	Not interested in selling
JFAC I	257.00-02-15.111	Oswego	Hastings	8.59	0414020209	54.71	54.71	25.01	Not interested in selling
Johnson Farm Area North (JFAN)									
JFAN A	240.00-04-02	Oswego	Palermo	10.21	0414020209	41.49	41.49	17.13	Not interested in selling
JFAN B	240.00-04-03	Oswego	Palermo	10.06	0414020209	72.29	59.00	23.41	No response
JFAN C	240.00-04-05	Oswego	Palermo	9.84	0414020209	117.71	111.39	17.78	Not interested in selling
JFAN D	257.00-01-01.01	Oswego	Palermo	9.61	0414020209	28.14	24.12	10.5	Not interested in selling
JFAN E	240.00-03-01.1	Oswego	Palermo	9.52	0414020209	36.15	31.96	8.59	Not interested in selling
JFAN F	240.00-03-02.1	Oswego	Palermo	9.4	0414020209	15.45	15.45	6.13	Not interested in selling
Johnson Farm Area Southeast (JFASE)									

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Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
JFASE A	257.00-02-03.02	Oswego	Schroeppel	8.51	041402020905	18.92	18.92	10.51	Too small
JFASE B	257.00-02-03.01	Oswego	Schroeppel	8.36	041402020905	12.29	5.74	1.92	Too small
JFASE C	257.00-02-10	Oswego	Schroeppel	8.06	0414020209	23.68	23.68	0.94	Not interested in selling
JFASE D	257.00-02-09	Oswego	Schroeppel	7.98	0414020209	122.67	117.90	10.82	Not interested in selling
JFASE E	257.00-02-12.01	Oswego	Schroeppel	7.98	041402020905	61.33	58.63	20.31	Not interested in selling
JFASE F	274.00-02-06.01	Oswego	Schroeppel	7.74	041402020905	42.96	41.16	12.36	Too small
JFASE G	274.00-02-15	Oswego	Schroeppel	7.61	041402020905	57.87	48.23	3.46	Not interested in selling
JFASE H	274.00-02-09.05	Oswego	Schroeppel	7.5	041402020905	70.59	70.59	8.14	Too small
Johnson Farm Area Southwest (JFASW)									
JFASW A	274.00-02-04.08	Oswego	Schroeppel	8.37	041402020905	8.08	8.08	0.48	Too small
JFASW D.1	274.00-02-15	Oswego	Schroeppel	7.7	041402020905	10.91	10.91	1.41	Not interested in selling
JFASW D.2	274.00-02-15	Oswego	Schroeppel	7.44	041402020905	100.87	100.87	58.42	Not interested in selling
JFASW E	274.00-02-17	Oswego	Schroeppel	7.17	041402020905	27.48	27.48	12.17	No response

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Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
Area of Interest 5 (AOI5)									
AOI5 A	255.00-03-12.09	Oswego	Schroeppel	10.49	0414020209	19.21	19.21	4.38	No response
AOI5 B	272.00-02-01	Oswego	Schroeppel	10.35	0414020209	88.52	88.52	34.76	No response
AOI5 C	256.00-04-28	Oswego	Schroeppel	10.11	0414020209	38.84	38.84	13.93	No response
AOI5 D	273.00-01-01.03	Oswego	Schroeppel	9.95	0414020209	50.76	50.76	9.04	No response
AOI5 E	273.00-01-02	Oswego	Schroeppel	9.76	0414020209	61.28	61.28	14.39	No response
Area of Interest 18 (AOI18)									
AOI18	272.00-03-03.1	Oswego	Schroeppel	9.26	0414020209	81.70	81.70	36.44	No response
Area of Interest 25 (AOI25)									
AOI25 A	304.13-02-01	Oswego	Schroeppel	7.43	041402020905 & 0414020209	32.66	30.58	9.28	No response
AOI25 B	304.00-04-17	Oswego	Schroeppel	7.17	041402020905	12.70	12.70	6.35	No response
AOI25 C.1	304.00-04-15	Oswego	Schroeppel	6.87	041402020905	30.36	30.36	7.32	No response
AOI25 C.2	304.00-04-15	Oswego	Schroeppel	6.99	041402020905	7.61	7.61	2.11	No response

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Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
AOI25 D	314.00-01-01	Oswego	Schroeppel	7.14	041402020905	39.72	27.00	8.51	No response
Area of Interest 29 (AOI29)									
AOI29	072.-01-08.4	Onondaga	Lysander	5.84	Search Area 3	231.10	206.55	53.59	No response
Area of Interest 30 (AOI30)									
AOI30 A	027.-01-02.0	Onondaga	Clay	4.06	041402020905 & 0414020209	66.89	66.89	21.45	Not interested in selling
AOI30 B	026.-01-06.1	Onondaga	Clay	3.87	041402020905	53.53	53.53	24.73	No response
AOI30 C	026.-01-13.1	Onondaga	Clay	3.55	041402020905 & 0414020209	57.89	56.32	26.81	No response
AOI30 D	027.-01-09.1	Onondaga	Clay	3.5	041402020905 & 0414020209	94.91	94.91	42.7	No response
Area of Interest 40 (AOI40)									
	043.-01-08.0	Onondaga	Clay				92.64		Not interested in selling
	043.-01-10.2	Onondaga	Clay				89.99		Not interested in selling
	048.-01-18.0	Onondaga	Clay	adjacent			52.04		Not interested in selling
	048.-01-19.0	Onondaga	Clay	adjacent			10.73		Not interested in selling

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Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
	048.-01-11.0	Onondaga	Clay	adjacent			116.76		Not interested in selling
	048.-01-13.0	Onondaga	Clay	adjacent			116.77		Not interested in selling
	043.-01-44.0	Onondaga	Clay	adjacent			11.77		Not interested in selling
	043.-01-01.0	Onondaga	Clay	adjacent			108.51		Not interested in selling
	042.-01-14.0	Onondaga	Clay	adjacent			6.49		Not interested in selling
		Onondaga	Clay	adjacent					Sold to a competing bidder
	307.00-01-01	Oswego	Hastings						Contiguous with, and same owner as, 293.00-04-14.02; together equal total area of interest. Formerly the Riverside Country Club. Owner not interested in selling.
	293.00-04-14.02	Oswego	Hastings						Contiguous with, and same owner as, 307.00-01-01; together equal total area of interest. Formerly the Riverside Country Club. Owner not interested in selling.

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Property Locator	Parcel Tax ID	County	Town	Distance from Micron (in miles)	HUC	Total Parcel Acres	Acres to Buy	Potential Wetland Acres	Notes and Comments
	128.83-02-01	Oswego	City of Oswego						Ferlito muck farm. For sale. Deemed too far away.
	290.00-02-54	Oswego	Schroeppel						Northeastern corner of Peter Scott Swamp. For sale. Preservation only so deemed unsuitable.

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Table 3-3 Sites TWT Considered for Stream Mitigation

Parcel Tax ID	Catchments	County	Town	Approximate distance from Micron (miles)	Linear ft	Notes and Comments
032.-02-10.1	204187881	Onondaga	Clay	1.3	2247	Bat mitigation area
	204187899	Onondaga	Clay	1.3	431	Bat mitigation area
	204187947	Onondaga	Clay	1.3	16	Bat mitigation area
043.-01-01.0	204187899	Onondaga	Clay	0.67	4701	Not interested in selling
048.-01-09.0	204187899	Onondaga	Clay	boundary adjacent to	544	Sold to a competitive bidder
	204187975	Onondaga	Clay	boundary adjacent to	510	Sold to a competitive bidder
048.-01-10.0	204187975	Onondaga	Clay	boundary adjacent to	360	Sold to a competitive bidder
	204187911	Onondaga	Clay	boundary adjacent to	3730	Sold to a competitive bidder
	204187896	Onondaga	Clay	boundary adjacent to	206	Sold to a competitive bidder
	204187899	Onondaga	Clay	boundary adjacent to	1465	Sold to a competitive bidder
048.-01-11.0	204187900	Onondaga	Clay	boundary adjacent to	545	Not interested in selling
	204187896	Onondaga	Clay	boundary adjacent to	4525	Not interested in selling

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Parcel Tax ID	Catchments	County	Town	Approximate distance from Micron (miles)	Linear ft	Notes and Comments
	204187911	Onondaga	Clay	boundary adjacent to	626	Not interested in selling
257.00-02-05.02	204187502	Oswego	Hastings	7.2	3052	Stream mitigation not practicable
315.00-01-39	204187963	Oswego	Schroeppel	3.23	2485	Wetland mitigation site
315.00-01-29	204187963	Oswego	Schroeppel	3.23	1040	Wetland mitigation site
315.00-01-01.05	204187907	Oswego	Schroeppel	3.23	3335	Wetland mitigation site
315.00-01-03	204187907	Oswego	Schroeppel	3.23	151	Wetland mitigation site
305.00-04-17.01	204187842	Oswego	Schroeppel	3.23	390	Wetland mitigation site
257.00-01-10	204187461	Oswego	Palermo	8.1	908	Not interested in selling
257.00-01-10.01	204187461	Oswego	Palermo	8	359	Not interested in selling
257.00-01-28.03	204187461	Oswego	Schroeppel	8	177	Not interested in selling
257.00-01-28.04	204187461	Oswego	Schroeppel	8	42	Not interested in selling
257.00-01-05	204187461	Oswego	Schroeppel	7.9	30	Not interested in selling
257.00-02-23	204187461	Oswego	Schroeppel	7.85	613	Not interested in selling

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Parcel Tax ID	Catchments	County	Town	Approximate distance from Micron (miles)	Linear ft	Notes and Comments
257.00-02-01.2	204187461	Oswego	Schroeppel	7.45	1282	Not interested in selling
257.00-02-15	204187560	Oswego	Schroeppel	7.2	2176	Not interested in selling
257.00-02-14.03	204187560	Oswego	Schroeppel	7	580	Not interested in selling
257.00-02-14.04	204187560	Oswego	Schroeppel	6.75	0	Stream mitigation not practicable
274.00-02-04.09	204187560	Oswego	Schroeppel	6.6	0	Stream mitigation not practicable
274.00-02-15	204187560	Oswego	Schroeppel	6.25	2140	Stream mitigation site that became available after September 20, 2024
274.00-02-17	204187560	Oswego	Schroeppel		0	Stream mitigation not practicable
274.00-03-04	204187560	Oswego	Schroeppel	5.8	208	Not interested in selling
274.00-03-04	204187576	Oswego	Schroeppel	5.8	3680	Not interested in selling
274.00-03-12	204187576	Oswego	Schroeppel	5.3	0	Stream mitigation not practicable
292.00-01-10	204187616	Oswego	Hastings	4.18	178	Wetland mitigation site
292.00-01-10	204187580	Oswego	Hastings	4.18	2437	Wetland mitigation site
292.00-01-02	204187580	Oswego	Hastings	4.18	6014	Wetland mitigation site

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Parcel Tax ID	Catchments	County	Town	Approximate distance from Micron (miles)	Linear ft	Notes and Comments
292.00-01-02	204187616	Oswego	Hastings	4.18	559	Wetland mitigation site
256.00-04-14	204187602	Oswego	Schroeppel	8.1	5775	Stream Mitigation Site
274.00-02-04.06	204187546	Oswego	Schroeppel	6.75	5518	Stream Mitigation Site
257.00-02-08.01, 257.00-01-09, 257.00-02-22	204187513	Oswego	Palermo/Hastings/Schroeppel	7.6	3519	Stream Mitigation Site
257.00-01-08	204187513	Oswego	Palermo	7.6	1594	Stream Mitigation Site
257.00-01-08	204187461	Oswego	Palermo	7.6	1444	Stream Mitigation Site
256.00-04-14, 256.00-04-14.01	204187602	Oswego	Schroeppel	8.1	8936	Stream Mitigation Site

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4 Site Protection Instruments

TWT is a 501(c)(3) corporation, nonprofit whose mission is the protection, conservation, and restoration of wetlands and other vital habitats. TWT presently owns fee simple and plans to own in perpetuity, the mitigation sites proposed to compensate for wetlands and streams impacted because of the Proposed Project. In addition, each site will be protected through a permanent protection instrument (e.g., conservation easement) as described in the TWT Stream/Wetland Mitigation Overview Plan **(CWSMP Attachment B)**. **Section 8** of the TWT Stream/Wetland Mitigation Overview Plan includes details on the long-term management of mitigation sites.

The wetlands and streams that will remain unimpacted on the Micron Campus will not be placed into a conservation easement and will therefore not be counted as preservation credits for the USACE. However, Micron has committed, to the agencies, to monitor and, when necessary, apply adaptive management to remaining on-site wetlands to maintain their existing functions and services as proposed in the Wetland Assessment and Monitoring Plan, provided as **Appendix O** of the JPA Addendum 1 submission.

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5 Baseline Information

The following section characterizes the baseline ecological information of the wetlands and streams, both on-site and off-site, that are associated with this proposed mitigation project.

5.1 MICRON SITE

The Micron Site was field evaluated for the potential presence of wetlands and other waters, as regulated by the USACE and the NYSDEC. The delineation was conducted by Ramboll wetland biologists trained in wetlands and stream identification and delineation in the fall of 2021; summer of 2022; spring, summer and fall of 2023; and in 2024 in accordance with:

- *The* USACE *Wetlands Delineation Manual* (Y-81-1, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (USACE 2012)
- USACE *Jurisdictional Determination Form Instructional Guidebook* (USACE 2008)
- *Regulatory Guidance Letter No 05-05 – Ordinary High Water Mark Identification* (USACE 2005)

In addition, site visits were conducted in 2023 and 2024 with USACE Buffalo District and NYSDEC Region 7 personnel, to observe, verify and supplement delineations conducted by Ramboll. In 2024, the USACE and NYSDEC provided jurisdictional determinations for wetlands and streams at the Micron Site based on Ramboll field delineations and agency field observations.

Figures in **Appendix H** of the JPA depict WOTUS (USACE jurisdictional wetlands, streams, and ponds) and New York State Freshwater Wetlands (NYSFW) at the Micron Site. **Table 5-1** lists the federal with acreages, assigned cover types (Cowardin et al.) and impact acreages and **Table 5-2** lists the state jurisdictional wetlands with acreages, assigned cover types (Edinger et al.) and impact acreages. Hydrologic flow within Micron Site streams is generally from south to north with discharge to the Youngs Creek system. Additional information, including individual data sheets and photographs, for each of the on-site jurisdictional wetlands and streams is provided in the delineation reports included as **Appendix H** of the JPA.

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TABLE 5-1. Jurisdictional USACE Wetland (WOTUS) Impacts by Construction Phase

Wetland ID	Cover Type	USACE Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*								Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1B - Permanent	Phase 1B - Temporary	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2B - Permanent	Phase 2B - Temporary			
W1	PEM	5.75	18.34	5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	0.00	18.34
	PFO	10.55		10.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.55	0.00	
	POW	0.03		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	
	PSS	2.01		2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	0.00	
W2	PEM	12.35	38.53	5.17	0.32	0.00	0.00	0.00	0.00	0.00	0.00	5.17	0.32	26.80
	PFO	25.66		21.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	21.09	0.03	
	POW	0.19		0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	
	PSS	0.33		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
W3	PEM	5.47	5.96	4.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65	0.00	5.14
	PFO	0.49		0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	
W5	PEM	2.39	7.75	2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	0.00	7.75
	PFO	0.21		0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	
	POW	0.31		0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	
	PSS	4.84		4.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.84	0.00	
W6a	PFO	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38
W11	PEM	17.57	19.20	17.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.57	0.00	19.2
	PFO	1.32		1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	
	POW	0.24		0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	
	PSS	0.07		0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	

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Wetland ID	Cover Type	USACE Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*								Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1B - Permanent	Phase 1B - Temporary	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2B - Permanent	Phase 2B - Temporary			
W12	PEM	0.20	0.50	0.05	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.20	0.00	0.5
	PSS	0.30		0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	
W13	PEM	0.43	0.81	0.32	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.43	0.00	0.81
	PSS	0.38		0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	
W14	PSS	0.35	0.35	0.33	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.35	0.00	0.35
W26	PEM	0.81	1.30	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.00	0.81	0.00	1.3
	PSS	0.49		0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.49	0.00	
W28	PFO	0.49	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.49	0.00	0.49
W29	PFO	1.08	1.08	0.00	0.00	0.00	0.00	0.24	0.00	0.84	0.00	1.08	0.00	1.08
W34	PEM	77.37	109.71	0.12	0.00	5.82	0.00	48.54	0.00	0.00	0.00	54.48	0.00	76.36
	PFO	15.17		0.23	0.00	0.36	0.00	10.09	0.00	0.96	0.00	11.64	0.00	
	POW	0.93		0.00	0.00	0.00	0.00	0.93	0.00	0.00	0.00	0.93	0.00	
	PSS	16.24		0.00	0.00	0.44	0.00	8.87	0.00	0.00	0.00	9.31	0.00	
W35	PEM	92.77	181.86	1.36	0.95	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.95	24.50
	PFO	87.32		20.54	1.64	0.00	0.00	0.00	0.00	0.00	0.00	20.54	1.64	
	PSS	1.77		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
W40	PEM	0.88	0.88	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.88	0.00	0.88
W49 (Rail Spur)	PFO	16.61	17.27	8.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.42	0.00	8.91
	POW	0.40		0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	
	PSS	0.26		0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	
W53	PEM	0.35	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
	PFO	4.43		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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Wetland ID	Cover Type	USACE Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*								Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1B - Permanent	Phase 1B - Temporary	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2B - Permanent	Phase 2B - Temporary			
W54	PEM	6.45	8.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
	PSS	1.81		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
W55	PFO	4.71	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
W61	PFO	1.61	1.97	1.16	0.00	0.00	0.00	0.00	0.00	0.27	0.00	1.43	0.00	1.79
	PSS	0.36		0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	
W62	PSS	0.95	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.95
W63	PSS	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
W69	PSS	0.07	0.07	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
W70	PEM	0.23	0.38	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.38
	PFO	0.15		0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.15	0.00	
W71	PEM	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
SUMMARY BY COVER TYPE	PEM	223.04		37.40	1.28	6.86	0.00	49.68	0.00	0.00	0.00	93.94	1.28	**95.21**
	PFO	170.18		64.39	1.67	0.51	0.00	10.33	0.00	2.56	0.00	77.79	1.67	**79.46**
	POW	2.10		1.17	0.00	0.00	0.00	0.93	0.00	0.00	0.00	2.10	0.00	**2.10**
	PSS	30.56		9.66	0.00	1.00	0.00	8.89	0.00	0.00	0.00	19.55	0.00	**19.55**
TOTALS		**425.88**		**112.62**	**2.95**	**8.37**	**0.00**	**69.83**	**0.00**	**2.56**	**0.00**	**193.38**	2.95	**196.33**

*Temporary Impacts include construction laydown areas and areas of ground disturbance to be returned to pre-disturbance conditions. Permanent Impacts include building envelopes and areas of site grading.

[1]Phased Total Impacts by Cover Type, Total Impacts, and Summary by Cover Type values are rounded from the computed GIS values and therefore may differ slightly from reported phase Total when summed.

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TABLE 5-2. Jurisdictional New York State Wetland (WOTUS) Impacts by Construction Phase

Wetland ID	Cover Type	NYSDEC Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*												Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts by Cover Type (acres) 1 - Forest Conversion	Total Impacts (permanent and temp) (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1A - Forest Conversion	Phase 1B - Permanent	Phase 1B - Temporary	Phase 1B - Forest Conversion	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2A - Forest Conversion	Phase 2B - Permanent	Phase 2B - Temporary	Phase 2B - Forest conversion				
W1	Farm Pond/Artificial Pond	0.03	18.34	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	18.34
	Red Maple-Hardwood Swamp	10.55		10.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.55	0.00	0.00	
	Shallow Emergent Marsh	5.75		5.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	0.00	0.00	
	Shrub Swamp	2.01		2.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	0.00	0.00	
W2	Farm Pond/Artificial Pond	0.19	38.98	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	27.25
	Floodplain Forest	0.28		0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	
	Hemlock-Hardwood Swamp	3.14		3.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00	0.00	
	Red Maple-Hardwood Swamp	22.52		18.14	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.14	0.00	0.03	
	Shallow Emergent Marsh	12.29		5.01	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.01	0.32	0.00	
	Shrub Swamp	0.56		0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	
W3	Floodplain Forest	0.49	5.96	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	5.14
	Shallow Emergent Marsh	4.58		4.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.58	0.00	0.00	
	Shrub Swamp	0.89		0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	
W5	Farm Pond/Artificial Pond	0.31	7.75	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	7.75
	Floodplain Forest	0.21		0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	

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Wetland ID	Cover Type	NYSDEC Jurisdictional Wetland by Cover Type (acres)	Total Acres by Wetland	Project Impacts by Phase (acres)*												Total Impacts by Cover Type (acres)[1] - Permanent	Total Impacts by Cover Type (acres)[1] - Temporary	Total Impacts by Cover Type (acres) 1 - Forest Conversion	Total Impacts (permanent and temp) (acres)[1]
				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1A - Forest Conversion	Phase 1B - Permanent	Phase 1B - Temporary	Phase 1B - Forest Conversion	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2A - Forest Conversion	Phase 2B - Permanent	Phase 2B - Temporary	Phase 2B - Forest conversion				
	Shallow Emergent Marsh	2.39		2.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	0.00	0.00	
	Shrub Swamp	4.84		4.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.84	0.00	0.00	
W6a	Hemlock-Hardwood Swamp	0.04	0.38	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.38
	Red Maple-Hardwood Swamp	0.34		0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	
W11	Deep Emergent Marsh	0.24	19.2	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	19.2
	Floodplain Forest	1.32		1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	0.00	
	Shallow Emergent Marsh	17.57		17.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.57	0.00	0.00	
	Shrub Swamp	0.07		0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	
W28	Floodplain Forest	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.00	0.04
W29	Floodplain Forest	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.38	0.00	0.00	0.38
W34	Deep Emergent Marsh	60.26	106.43	0.00	0.00	0.00	0.01	0.00	0.00	40.73	0.00	0.00	0.00	0.00	0.00	40.74	0.00	0.00	73.06
					0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00				
					0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00				
	Farm Pond/Artificial Pond	0.13		0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	
	Floodplain Forest	6.94		0.00	0.00	0.00	0.36	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	4.35	0.00	0.00	
	Red Maple-Hardwood Swamp	8.23		0.23	0.00	0.00	0.00	0.00	0.00	6.09	0.00	0.00	0.96	0.00	0.00	7.28	0.00	0.00	
	Shallow Emergent Marsh	15.07		0.12	0.00	0.00	3.45	0.00	0.00	8.12	0.00	0.00	0.00	0.00	0.00	11.69	0.00	0.00	
	Shrub Swamp	15.8		0.00	0.00	0.00	0.00	0.00	0.00	8.87	0.00	0.00	0.00	0.00	0.00	8.87	0.00	0.00	
W35	Deep Emergent Marsh	91.43	181.86	0.03	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.95	0.00	24.50

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				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1A - Forest Conversion	Phase 1B - Permanent	Phase 1B - Temporary	Phase 1B - Forest Conversion	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2A - Forest Conversion	Phase 2B - Permanent	Phase 2B - Temporary	Phase 2B - Forest conversion				
	Floodplain Forest	75.59		10.61	0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.61	0.00	1.48	
	Red Maple-Hardwood Swamp	11.73		9.93	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.93	0.00	0.17	
	Shrub Swamp	3.11		1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.00	
W40	Shallow Emergent Marsh	0.88	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.88
W53	Floodplain Forest	4.43	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
	Shallow Emergent Marsh	0.35		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
W54	Shallow Emergent Marsh	6.45	8.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
	Shrub Swamp	1.81		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
W55	Floodplain Forest	4.71	4.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
W63	Shrub Swamp	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.33
W69	Shrub Swamp	0.07	0.07	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.07
W70	Floodplain Forest	0.15	0.38	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.38
	Shallow Emergent Marsh	0.23		0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	
W71	Shallow Emergent Marsh	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
SUMMARY BY COVER TYPE	Deep Emergent Marsh	151.93		0.27	0.95	0.00	0.01	0.00	0.00	40.73	0.00	0.00	0.00	0.00	0.00	41.01	0.95	0.00	**41.96**
	Farm Pond/Artificial Pond	0.66		0.53	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00	**0.66**
	Floodplain Forest	94.54		12.91	0.00	1.48	0.51	0.00	0.00	3.99	0.00	0.00	0.42	0.00	0.00	17.83	0.00	1.48	**19.31**
	Hemlock-Hardwood Swamp	3.18		3.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00	**3.08**
	Red Maple-Hardwood Swamp	53.37		39.19	0.00	0.20	0.00	0.00	0.00	6.09	0.00	0.00	0.96	0.00	0.00	46.24	0.00	0.20	**46.43**

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				Phase 1A - Permanent	Phase 1A - Temporary	Phase 1A - Forest Conversion	Phase 1B - Permanent	Phase 1B - Temporary	Phase 1B - Forest Conversion	Phase 2A - Permanent	Phase 2A - Temporary	Phase 2A - Forest Conversion	Phase 2B - Permanent	Phase 2B - Temporary	Phase 2B - Forest conversion				
	Shallow Emergent Marsh	65.58		35.44	0.32	0.00	3.68	0.00	0.00	9.00	0.00	0.00	0.00	0.00	0.00	48.12	0.32	0.00	**48.45**
	Shrub Swamp	29.49		8.89	0.00	0.00	0.07	0.00	0.00	8.87	0.00	0.00	0.00	0.00	0.00	17.83	0.00	0.00	**17.83**
TOTALS		**398.75**		**100.31**	**1.28**	**1.67**	**4.27**	**0.00**	**0.00**	**68.81**	**0.00**	**0.00**	**1.38**	**0.00**	**0.00**	**174.77**	**1.28**	**1.67**	**177.72**

*Temporary Impacts include construction laydown areas and areas of ground disturbance to be returned to pre-disturbance conditions. Permanent Impacts include building envelopes and areas of site grading.

[1]Phased Total Impacts by Cover Type, Total Impacts, and Summary by Cover Type values are rounded from the computed GIS values and therefore may differ slightly from reported phase Total when summed.

[2]Phase impact to W35 Deep Emergent Marsh is 0.001 AC, but is reported as 0 as impacts are only reported to the hundredth of an acre.

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Generally, federal jurisdiction of Micron Site wetlands was determined by the USACE based on continuous surface connections of wetlands to the Youngs Creek and Shaver Creek systems, which are tributaries to the Oneida River, a traditionally navigable water (TNW), through relatively permanent waters and/or adjacency to these waters. New York State (NYS) jurisdiction was based on connection of Micron Site wetlands to two NYSFW Class 2 wetlands, BRE-14 and BRE-11, which are mapped adjacent to, within, and north of the overhead electric utility right-of-way located on the northern portion of the Micron Site. Jurisdictional determination letters for the Micron Site from the USACE and NYSDEC are included as **Appendix H** of the JPA.

The Micron Site wetlands are a mix of forested, scrub-shrub, emergent and open water habitat consisting of several old farm ponds as well as active and inactive beaver ponds. Based on review of historical aerial photographs from the 1930s, 1950s, 1970, 1980s and 2000s, the Micron Site has historically been in agricultural production. Some areas have even been in agricultural production until as recent as the early 2020s. Portions of the site are now in a successional stage (scrub-shrub and forested). Based on the presence of observed clay drain tile and apparent ditched areas, Micron Site wetlands and streams have likely been historically influenced by agriculture activities.

Based on *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and *Ecological Communities of New York State, Second Edition* (Edinger et al. 2014), the wetlands found on the Micron Site are classified as palustrine in nature. Palustrine wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergent plants, and emergent mosses or lichens. More specific classifications include palustrine forested wetlands (typified by red maples, green ash, and American elms); palustrine scrub-shrub wetlands (typified by various dogwood species); and palustrine emergent wetlands (typified by goldenrods, asters, purple loosestrife, and ferns. **Table 5-1** and **Table 5-2** identify federal and state jurisdictional wetland acreages by cover type for the Micron Site wetlands.

A functional assessment of the freshwater wetland resources which may be impacted by the development of the Micron Site was performed in accordance with the USACE Highway Methodology Workbook Supplement (USACE 1999) and is included as **Appendix I** of the JPA. Additional information as requested through the EPA 404q process and subsequent meetings was submitted to all Agencies on November 26, 2024. Use of The Highway Methodology is consistent with the following excerpt from the Final Mitigation Rule:

(f) Amount of compensatory mitigation. (1) If the district engineer determines that compensatory mitigation is necessary to offset unavoidable impacts to aquatic resources, the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional

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or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio must be used. As stated in the Highway Methodology Supplement, this assessment tool "can be used for any project where the characterization of wetland resources is necessary for Section 404 permit requirements." Consistent with this statement, this methodology has been used and approved under the Clean Water Act by the USACE and NYSDEC for a wide range of projects since its publication that involve significant impact to, and mitigation of, aquatic resources for the purpose of commercial and industrial development.

Based on the results of the functional assessment, the principal functions for the wetlands identified at the Micron Site are Wildlife Habitat, Floodflow Alteration, and Sediment/Toxicant Retention. Wetlands at the Micron Site are utilized by songbirds, birds of prey, waterfowl, amphibians, reptiles, and mammals including two federally listed bat species, the Indiana bat and the northern long-eared bat (*Myotis septentrionalis*), and two State-listed bird species, the northern harrier (*Circus hudsonius*) and the short-eared owl (*Asio flammeus*). The remaining principal functions are based on the presence of larger wetlands, located on the northern and eastern portions of the Micron Site, that have diffuse boundaries and a mix of open water and dense vegetation that receive the majority of runoff from Micron Site uplands and wetlands.

An exiting wetlands mitigation easement can be found on tax parcel 48.-01-23.1 (Military Lot #28) within the boundaries of the Micron Site. The easement, approximately 20.34 acres in size, was developed by Niagara Mohawk Power Corporation (doing business as National Grid) as a wetlands mitigation project to accomplish compensatory mitigation for impacts to wetlands regulated by NYSDEC. On June 14, 2017, the Buffalo District of the United States Army Corps of Engineers (USACE) issued Permit Number LRB-2016-00616 to National Grid. The permit authorized the discharge of fill material to WOTUS associated with National Grid's Clay-Teall Clay-Dewitt Line 10 Rebuild and Reconductor Project, located in the Town of Clay & Town of Salina, Onondaga County, New York. Specifically, the permit authorized:

- The discharge of 2.29 acres of fill to Waters of the United States (1.75 acres emergent wetlands, 0.08 acres of scrub-shrub wetlands, and 0.46 acre of forested wetlands) associated with work to reconductor and reconstruct two existing 115kV overhead transmission lines consisting of approximately 12.95 miles of the Clay-DeWitt Line 3 and 15.5 miles of the Clay-Teall Line 10

The permit included two special conditions; the first required 4.13 wetland credits be purchased from The Wetland Trust In-Lieu Fee Mitigation Program Finger Lakes Service Area as compensation for USACE regulated wetlands. There is also a NYSDEC wetland mitigation requirement of 4.86 acres based on anticipated permanent impacts to New York State (NYS) wetlands (0.19 acres), conversion of forested NYS wetlands to other wetland cover types (4.48 acres), and conversion of forested adjacent areas of NYS wetlands to other upland cover types

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(0.19 acres). As approved by the NYSDEC, this easement will be removed as a part of the project development. The compensatory wetland area will be replaced as part of the Proposed Project mitigation program.

In the fall of 2023 and spring of 2024, Ramboll biologists conducted environmental surveys of Youngs Creek within the Micron Site (**JPA Appendix K and L**). The results of this survey indicate that a majority of the Youngs Creek system within the Micron Site has been altered by historic agricultural, utilities, road corridors and recent and past beaver activities. Channelization and draining and ponding of the creek and its tributaries has diffused or flooded the main channel of Youngs Creek as mapped on the Environmental Resource Mapper, resulting in a system functioning primarily as a wetland habitat. Stream channels that remain are either intermittent or ephemeral with a small portion of perennial stream channel (main channel of Youngs Creek) located within the overhead electric utility right-of-way on the northeastern portion of the Micron Site.

Ramboll conducted biological sampling of fish and aquatic macroinvertebrates along multiple sections of Youngs Creek and its associated tributaries within the confines of the Micron property from June 5 through June 7, 2024. This effort focused on the reaches identified as potentially supporting benthic macroinvertebrates and fishes based on information provided in the Micron Semiconductor Fabrication Facility (Clay, NY), Aquatic Resources Supplemental Delineation Report (Ramboll 2023) and the Environmental Surveys of Youngs Creek technical memorandum prepared in 2024 (Ramboll 2024).

The fish and benthic macroinvertebrate communities documented in the sampled reaches within the Youngs Creek system were consistent with those often associated with low energy streams and shallow ponded habitats (lentic habitats). Fish communities were dominated by brook stickleback and central mudminnow, both of which are tolerant of hypoxic or low oxygen conditions (Klinger et al. 1982; Stewart et al. 2007) such as those observed within the ponded wetland area. Communities consisted solely of insectivorous forage species at all locations except for the perennial stream portion of the Youngs Creek system, where juvenile northern pike and green sunfish were observed. The perennial portion of Youngs Creek is not within the LOD for the Proposed Project and will therefore remain unimpacted. As noted in the Qualitative Environmental Survey of Youngs Creek conducted in December 2023 (as documented in Ramboll 2024), the perennial portion of Youngs Creek is separated from the ponded wetland area to the south by a series of beaver dams that significantly restrict fish movements upstream.

5.2 MITIGATION SITES

The Wetland Trust, on behalf of Micron, has acquired six properties, totaling approximately 1,441 acres, on which wetlands will be re-established/restored/rehabilitated/enhanced to offset the permanent loss of 193.38 acres of wetlands at the Micron Site. Streams will also be re-established

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on two of the six mitigation sites to offset the loss of 6,283 linear feet of streams. The specific properties are briefly described below. Plans for each property, which show existing topography and work areas where wetlands will be re-established/restored or rehabilitated/enhanced and streams will be re-established, are included in **CWSMP Attachment B**. Additional information regarding the land use history, soils, wildlife, invasive species, existing wetlands, and hydrology are provided in **CWSMP Attachment B**. Each of the mitigation sites are actively used for agriculture and exhibit evidence of hydrology that has been significantly altered from its natural state to support agricultural activities. At some of the sites, natural streams historically traversed the areas but have been redirected to drainage ditches, effectively altering the natural hydrologic and hydraulic patterns.

Micron, in coordination with TWT, has designed a CWSMP that incorporates stream/wetland/upland complexes that include variety of habitats to compensate for the impacted functions and values at the Micron Site. The associated streams and wetlands are expected to be hydrologically connected to NYSDEC-jurisdictional resources and/or within 50-feet of the adjacent resources. Further, the land within the parcels where mitigation will occur will be protected in perpetuity via conservation easements that will be reviewed by the involved agencies. For these reasons, the CWSMP is consistent with 6NYCRR Part 663.

As discussed during the December 18, 2024 meeting, features like vernal pools that, by definition, cannot be hydrologically connected to either on-site or off-site aquatic resources, will be incorporated into the design where appropriate without consideration of acreage.

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Table 5-3: Summary of Proposed Mitigation Sites

Table 5-3: Summary of Proposed Mitigation Sites							
Mitigation Property	**Stream Restoration (linear feet)**	**Re-establishment/ Restoration Acres**	**Rehabilitation/ Enhancement Acres**	**Existing Wetland Acres Preserved**	**Upland Buffer Acres Preserved**	**Total Protected Wetland & Buffer Habitat Acres**	**Total Draft Conservation Easement Acres**
Buxton Creek	8617	88.8	27.5	5.1	76.1	197.5	187.7
Fish Creek	5413	18.9	1	4.5	38.2	62.6	180.2
Upper Caughdenoy Creek	0	49.1	37.6	10.9	80.7	178.3	224.6
Lower Caughdenoy Creek	0	51.5	6.5	5	28.7	91.7	109.1
Sixmile Creek	0	44.1	0.4	31.7	69.8	146	233.8
Oneida River	0	137.2	41	35	146.3	359.5	405
TOTALS	**14030**	**389.6**	**114**	**92.2**	**439.8**	**1035.6**	**1340.4**

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Buxton Creek (wetlands and streams)

The Buxton Creek site is located at the intersection of County Route 10 and Bell Road in the Town of Schroeppel, Oswego County, New York (Parcels 274.00-02-04.06 and 274.00-02-04.09), approximately 7.75 miles northwest of the Micron Site. The combined acreage of the parcels TWT acquired is 254 acre. Most of the site is currently active agricultural land (row crops), and the remainder of the property is existing wetlands successional upland fields, and forests. A tributary to Buxton Creek flows through the eastern portion of the parcel north of Bell Road while the main stem of Buxton Creek flows through the parcel south of Bell Road. The on-site reaches of both Buxton Creek and its tributary have been extensively modified (moved, straightened, and channelized). The existing Buxton Creek channel is approximately 20 feet wide x 5 feet deep with vertical banks and flows under Bell Road through a 10-ft concrete box culvert. The existing tributary to Buxton Creek is approximately 8 feet wide x 3 feet deep and flows under Bell Road in a 4-foot diameter corrugated plastic pipe.

The site includes approximately 89 acres of wetland re-establishment/restoration, 27.5 acres of wetland rehabilitation/enhancement, 5.1 acres of existing wetland preservation, and 76.1 acres of upland buffer preservation. In addition, there will be 8,617 LF of stream re-establishment, all of which will be placed under a conservation easement totaling 187.7 acres (**CWSMP Attachment B**).

Fish Creek (wetlands and streams)

The Fish Creek site is located near the intersection of Perry Road and Godfrey Road in the Town of Schroeppel, Oswego County, New York (Parcels 256.00-04-14 and 256.00-04-14.01), approximately 9 miles northwest of the Micron Site. The combined acreage of the parcels acquired by TWT is approximately 239 acres. Most of the site is currently active agricultural land, and the remainder of the property is existing wetlands, successional upland fields and forest, and mature forest. A tributary extends through the site that has been excavated to an average depth of 7-ft to receive discharge from agricultural drainage tiles that influence the hydrology in the adjacent fields. This unnatural condition has significantly destabilized the channel, disconnected it from the adjacent floodplain, and minimized its habitat quality.

Fish Creek forms the eastern and southeastern boundary of the site. The site includes approximately 19 acres of wetland re-establishment/restoration, 1 acre of wetland rehabilitation/enhancement, 4.5 acres of existing wetland preservation, and 38.2 acres of upland buffer preservation. In addition, there will be 5,413 LF of stream re-establishment all of which will be placed under a conservation easement totaling 180.2 acres (**CWSMP Attachment B**).

Upper Caughdenoy Creek (wetlands)

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The Upper Caughdenoy Creek site is located along Route 33 near the intersection of Route 33 and Goettel Road in the Town of Hastings, Oswego County, New York (Parcel 257.00-02-05.02), approximately 8.5 miles northwest of the Micron Site. TWT acquired approximately 238 acres. The site is currently active agricultural land with a narrow, broken windrow of trees along the southern boundary of the site and former muckland. The site is approximately 900 feet west of Caughdenoy Creek. The site includes 49.1 acres of wetland re-establishment/restoration, 37.6 acres of wetland rehabilitation/enhancement, 10.9 acres of existing wetland preservation, and 80.7 acres of upland buffer preservation all of which will be placed under a conservation easement totaling 224.6 acres (**CWSMP Attachment B**).

Lower Caughdenoy Creek (Route 37) (wetlands)

The Lower Caughdenoy Creek site is located along County Route 37 south of County Route 12 in the Town of Hastings, Oswego County, New York (Parcels 292.00-01-02 and 292.00-01.10), approximately 5 miles north of the Micron Site. TWT acquired 118 acres. Most of the site is currently active agricultural land, and the remainder of the property is existing wetlands and successional upland fields and forests. Caughdenoy Creek forms the northwestern boundary of the site and crosses the northeastern portion of the site, and the Oneida River is approximately 200 feet west of the site. The site includes 51.5 acres of wetland re-establishment/restoration, 6.5 acres of wetland rehabilitation/enhancement, 5 acres of existing wetland preservation, and 28.7 acres of upland buffer preservation all of which will be placed under a conservation easement totaling 109.1 acres (**CWSMP Attachment B**).

Sixmile Creek (wetlands)

The Sixmile Creek site is located west and east of NY - 264 near the intersection of Biddlecum Road in the Town of Schroeppel, Oswego County, New York (Parcels 272.00-02-01, 273.00-01-02, 273.00-01-01.03, and part of 256.00-04-28), approximately 9 miles northwest of the Micron Site. The combined acreage of the parcels is approximately239 acres. Most of the site is currently active agricultural land with extensive floodplain wetlands and ponds through the middle of the property associated with Sixmile Creek from the southeast to the northwest. The site includes 89 acres of wetland re-establishment/restoration, 0.4 acres of wetland rehabilitation/enhancement, 31.7 acres of existing wetland preservation, and 69.8 acres of upland buffer preservation all of which will be placed under a conservation easement totaling 233.8 acres (**CWSMP Attachment B**). **Oneida River (wetlands)**

The Oneida River site is located at the intersection of Oneida River Road and Center Road in the Town of Schroeppel, Oswego County, New York (Parcels 315.00-01-39, 315.00-01-29, 315.00-01-03, 315.00-01-04, 315.00-04-17.01), approximately 4 miles northwest of the Micron Site. TWT acquired 407 acres. Most of the site is currently active agricultural land, and the remainder of the property is existing wetlands and successional upland fields, shrubs, and forests. The Oneida River is

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approximately 400 feet west of the site. The site includes 137.2 acres of wetland re-establishment/restoration, 41 acres of wetland rehabilitation/enhancement, 35 acres of existing wetland preservation, and 146.3 acres of upland buffer preservation all of which will be placed under a conservation easement totaling 405 acres (**CWSMP Attachment B**).

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6 Determination of Credits

"Credits" are a unit of measure (*e.g.*, functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved. This section provides a description of the resource types and amounts that will be provided, the method of compensation (*i.e.*, re-establishment, restoration, , rehabilitation, and enhancement,), and the way the resource functions of the compensatory mitigation project will address the needs of the watershed.

6.1 WETLANDS MITIGATION

The Proposed Project involves the unavoidable permanent loss of 193.38 acres of federal wetland due to the necessary and practical construction of the four fabrication facilities and associated appurtenances such as wastewater facilities, utility construction, parking and access routes, and stormwater facilities. Approximately 232.5 ac of on-site jurisdictional wetlands will be avoided including over 90 ac of forested wetland habitat. The permanent impact includes the loss of palustrine emergent (PEM), palustrine forested (PFO), palustrine scrub shrub (PSS), and palustrine open water (POW) wetlands.

In addition to avoiding over 232.5 ac of wetlands on-site, Micron proposes a series of off-site mitigation projects that will fully compensate for the loss of on-site wetlands. Overall, the in-kind replacement of wetland classifications, functions and services as compensatory mitigation as ratio of the proposed permanent impacts is set forth below for both federal and state jurisdictional wetland impacts and detailed in **CWSMP Attachment A**:

Federal (WOTUS) Impact Mitigation with /Re-establishment and Rehabilitation

- 240 credits of PFO mitigation to replace permanent PFO habitat loss of 77.79 acres (3.08:1 weighted replacement ratio)
- 151.96credits of PEM mitigation to replace permanent PEM habitat loss of 93.94 acres (1.62:1 weighted replacement ratio)
- 28.08 credits of PSS mitigation to replace permanent PSS habitat loss of 19.55 acres (1.44:1 weighted replacement ratio)
- 2.1 credits deeper PEM mitigation to replace permanent POW habitat loss of 2.1 acres (1:1 weighted replacement ratio)

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- 9 In lieu fee credits purchased at the TWT Johnson Farm Preserve

In all, Micron proposes to re-establish and rehabilitate approximately 422.14 USACE credits of wetland mitigation of varying habitat types across six properties to replace the permanent wetland habitat loss of 193.38 acres on the Micron Site. In addition, Micron proposes to purchase 9 ILF credits from the TWT Johnson Farm Preserve for an **overall average weighted replacement ratio of 2.23:1.**

State (NYS Freshwater Wetlands) Impact Mitigation with Restoration and Enhancement

- 164.64 adjusted acres of Red Maple-Hardwood Swamp mitigation to replace permanent Red Maple –Hardwood Swamp habitat loss of 47.66 acres (3.45:1 average weighted replacement ratio)
- 64.91 adjusted acres of Floodplain Forest mitigation to replace permanent Floodplain Forest habitat loss of 17.83 acres (3.64:1 average weighted replacement ratio)
- 10.44 adjusted acres of Hemlock-Hardwood Swamp mitigation to replace permanent Hemlock–Hardwood Swamp habitat loss of 3.08 acres (3.39:1 average weighted replacement ratio)
- 80.67 adjusted acres of Deep Emergent Marsh mitigation to replace permanent Deep Water Emergent Marsh habitat loss of 42.78 acres (1.89:1 average weighted replacement ratio)
- 72.73 adjusted acres of Shallow Emergent Marsh mitigation to replace permanent Shallow Water Emergent Marsh habitat loss of 48.68 acres (1.49:1 average weighted replacement ratio)
- 28.08 adjusted acres of Scrub Shrub mitigation to replace permanent Scrub Shrub habitat loss of 17.83 acres (1.57:1 average weighted replacement ratio)
- 0.66 acres of additional Deep Emergent Marsh mitigation to replace permanent Farm Pond/Artificial Pond habitat loss of 0.66 acres

In all, Micron proposes to restore and enhance approximately 422.14 adjusted acres of NYSDEC wetlands of varying habitat types across six properties to replace the permanent wetland habitat loss of 176.44 acres on the Micron Site for an **overall average weighted replacement ratio of 2.39:1.**

The above summary of mitigation acres for each wetland classification, is further justified for each designated wetland on-site in **CWSMP Attachment A**. The justification of impacted

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wetland replacement ratios was based on the functional assessment completed for Micron Site wetlands which included the review of both on-site data gathered during delineation and habitat assessment efforts, off-site review of natural and cultural resource information, and best professional judgement. Data reviewed in preparation of the functional assessment was provided to the agencies in November 2024 as part of a request for additional information.

The derived replacement ratios represent the status of site wetlands functions and services as determined through on-site observations made by Ramboll biologists during numerous field visits and review of available historical information. Historical aerial imagery was reviewed to evaluate the historical land use at the Micron Site and its potential impacts on wetland functions and services. Aerial images were obtained from online archives from the United States Geological Survey (USGS) and the United States Department of Agriculture (USDA) for years between 1938 and 2019 and past site due diligence activities. Aerial imagery from 1938 indicated that a large portion of the Micron Site was actively farmed. Agricultural activities on the northern portion of the site, north of the current overhead electric utility right-of-way, diminished after 1938, although previous activities (e.g. drainage ditches) likely continue to impact site wetland and water resources in that area and throughout the Micron Site. Agricultural activities south of the National Grid/NYPA ROW access road were evident through 2019 on a majority of the Micron Site which likely influenced hydrologic conditions and vegetative cover, including within wetlands and streams. Remnant evidence of historic agricultural activities that persist today and affects current site conditions include:

- Plow furrows in open successional fields, successional shrubland and successional and mature forestland areas
- Several inactive bermed farm ponds
- Straight line drainage ditches (observed on aerials as well as during site activities)
- Clay drain tiles – historically used to manipulate site drainage for agricultural use
- Old farm equipment and farm debris areas.

Impacts to wetlands providing higher functional value based on their current state, stability, resilience to past land uses and/or lack of past or current land use impacts, were also considered in the development of the replacement ratios.

In addition to the above proposed wetland mitigation, the Micron mitigation plan will provide additional benefits, as follows:

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- Protecting in-perpetuity, through a conservation easement, approximately 1,340 acres of land at six sites within the Oneida River watershed
- Re-establishing 14,030 linear ft of streams,
- Preserving 440 acres of upland buffer habitat
- Preserving 92 acres of existing wetland acres of varying habitat types
- Providing 157.1 acres of bat mitigation habitat at the Sixmile and Fish Creek sites
- Providing 25.4 acres of grassland mitigation habitat at the Fish Creek site

The anticipated credits/adjusted acres generated at the six wetland mitigation sites are provided in **Table 6-1** along with the wetland cover types. The schedule for development of each site is summarized below in **Section 7** and described in greater detail in **CWSMP Attachment B**.

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Table 6-1 Anticipated Credits/Adjusted Acres Generated at the Mitigation Sites by Wetland Type

Site	Mitigation Type	Credit Ratio (acres:credit)	Mitigation Acres of Specific Wetland Cover Type (acres)						Total (acres)	Total Adjusted Acres (credits)
			PEM		PSS	PFO				
			Shallow em. marsh	Deep em. marsh	Scrub shrub	Floodplain forest	RMH swamp	HH swamp		
Buxton Creek	Re-establishment/ Restoration	1:1	11.20	18.70	0.00	31.70	24.30	2.90	**88.80**	**96.66**
	Rehabilitation / Enhancement	3.5:1	0.50	1.80	0.00	24.60	0.50	0.10	**27.50**	
Fish Creek	Re-establishment/ Restoration	1:1	2.10	0.70	2.40	9.20	4.50	0.00	**18.90**	**19.19**
	Rehabilitation / Enhancement	3.5:1	0.10	0.00	0.00	0.80	0.10	0.00	**1.00**	
Upper Caughdenoy Creek	Re-establishment/ Restoration	1:1	14.80	19.10	2.50	0.00	12.70	0.00	**49.10**	**59.84**
	Rehabilitation / Enhancement	3.5:1	1.40	3.30	32.70	0.00	0.20	0.00	**37.60**	
Lower Caughdenoy Creek	Re-establishment/ Restoration	1:1	3.30	2.40	0.35	11.20	34.20	0.00	**51.45**	**53.32**
	Rehabilitation / Enhancement	3.5:1	0.30	0.30	0.05	0.20	5.70	0.00	**6.55**	
Oneida River	Re-establishment/ Restoration	1:1	20.50	20.60	12.70	0.00	76.20	7.20	**137.20**	**148.91**
	Rehabilitation / Enhancement	3.5:1	0.50	2.80	2.70	0.00	33.90	1.10	**41.00**	
Sixmile Creek	Re-establishment/ Restoration	1:1	20.00	17.40	0.00	5.50	1.20	0.00	**44.10**	**44.21**
	Rehabilitation / Enhancement	3.5:1	0.10	0.30	0.00	0.00	0.00	0.00	**0.40**	
Total Acres			**74.80**	**87.40**	**53.40**	**83.20**	**193.50**	**11.30**	**503.60**	
NYSDEC Total Adjusted Acres (Credits)			**72.73**	**81.33**	**28.08**	**64.91**	**164.64**	**10.44**	**422.14**	**422.14**
USACE Total Adjusted Acres (Credits)			**154.06**		**28.08**	**240.00**			**422.14**	

[1]Wetland rehabilitation (3:1) and enhancement (4:1) we combined for this exercise as those categories are subjective and we used 3.5:1

[2]ILF Credits purchased from the TWT Johnson Farm Preserve are not included in USACE Total Adjusted Acres (Credits)

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6.2 STREAM MITIGATION

The following sections outline the methods and results of calculating credits for the stream mitigation aspect of the Proposed Project.

6.2.1 Methodology

The NYSROA is a tool that provides information on the health of existing streams and their associated riparian buffers within the watersheds, sub-watersheds, and catchments across New York State which allows for the prioritization of sites for restoration efforts. Consistent with its goals, the NYSROA was used herein to evaluate and identify potential areas in the vicinity of the Micron Site that are impaired and would benefit from mitigation as prescribed in the NYSROA.

When developing the NYSROA, the NHP evaluated the condition of existing streams, their riparian buffers, and associated subwatersheds and catchments throughout New York State using the Ecological Health and Ecological Stress indicators that are summarized in **Table 6-2** and **Table 6-3** and illustrated in **Figure 6-1**. The Microsoft Excel file that contains the results of the analyses are in **CWSMP Attachment C**.

Riparian condition scores were calculated by the NHP for each sub-watershed and catchment throughout the state and are available for download in shapefile format on the NYSROA website, as well as accessible online via the Data Explorer.

6.2.2 Indicators Used in Analysis

For this analysis, indicators directly influencing stream and riparian health, and associated functions and services were used to score catchments within the HUC10 watershed. In the Ecological Health and Stress categories, the indicators identified in **Table 6.2** were evaluated from the NYSROA dataset.

As stated in Section 2, the shapefile downloaded via the NYSROA was used to obtain riparian scores for both existing on-site stream reaches that will be impacted and candidate mitigation reaches within nearby catchments and sub-watersheds.

6.2.3 Indicators and Scoring

This approach uses the NYSROA to quantify impacts to existing resources and calculate mitigation credits in a consistent manner. The high-level approach for calculating the on-site impacts and potential off-site mitigation credits is as follows. A more detailed description will be provided in subsequent subsections.

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Table 6.2. Ecological Health and Ecological Stress indicators used in the assessment	
Ecological Health Indicators	**Ecological Stress Indicators**
Canopy Cover (Riparian)	Landscape Condition Assessment (Riparian)
Natural Cover (Riparian)	Impervious Surface (Riparian)
Matrix Forest Blocks (Riparian)	Erosion Index
Floodplain Complexes	Known Water Impairments
Ecological Significance (Riparian)	

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Table 6-3. Ecological Health and Stress Indicators

Indicators	Definition + Justification
Ecological Health	
Canopy Cover	Average canopy cover within delineated riparian buffers.
Natural Cover	Percentage of natural cover types (i.e., non-crop, non-impervious surface) within the delineated riparian buffers.
Floodplain Complexes	Proportion of the delineated riparian buffer that is within a Floodplain Complex (i.e., a diversity of habitat types within a floodplain, including natural upland and wetland patches), that provides an indication of vegetative and riparian connectivity independent of large tracts of forest).
Matrix Forest Blocks	Proportion of riparian buffer that consists of large, unfragmented forested area. Riparian buffers with higher values of this indicator likely have better forest connectivity and will be more resilient to disturbance.
Ecological Significance	Presence or absence of rare species occurrences of higher quality and habitat suitable for rare species. A higher value indicates higher biodiversity and higher ecological health.
Ecological Stress	
Impervious Surface	Percentage of riparian buffer that is impervious surface.
Landscape Condition Assessment	A grouping of landscape stressors that includes the distribution and abundance of transportation, urban, industrial, and agricultural land use. Higher values indicate higher levels of development related stress.
Known Water Impairments	Identified water quality impairments within the riparian buffer.
Erosion Index indicators	Areas that receive runoff from large contributing drainage areas with steep slopes that are at greater risk for erosion.

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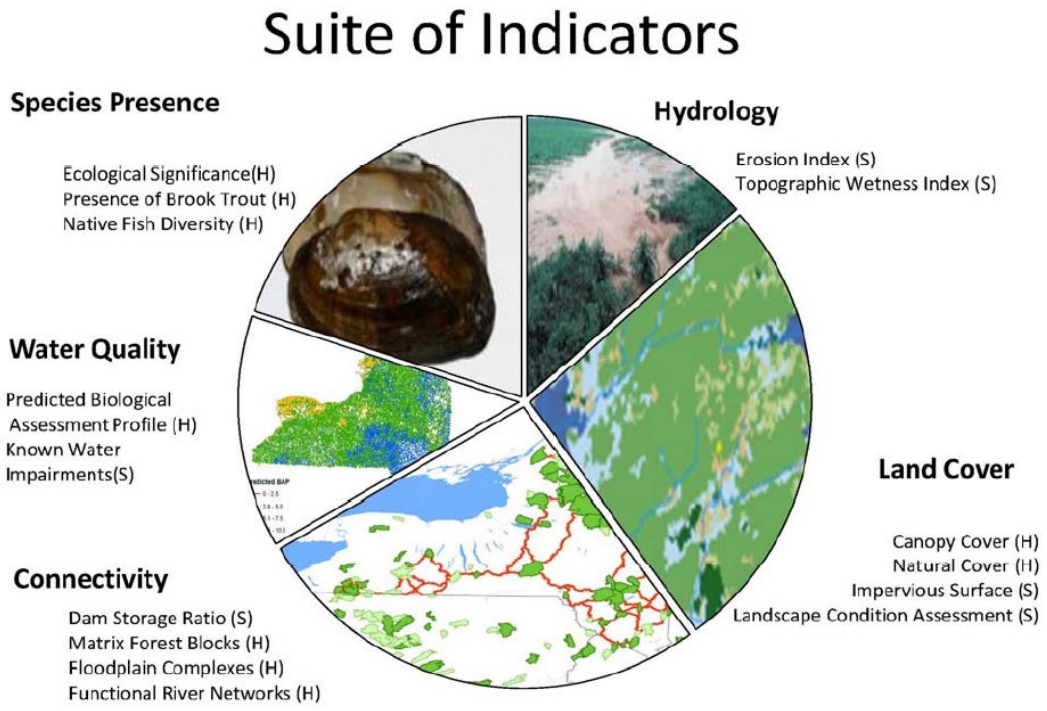
Figure 6-1. Suite of NYSROA Indicators.



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- Identify impacted on-site stream length and potential off-site mitigation stream reaches and measure linear footage of each reach. (**Tables 6-4** and **6-5**)
- Calculate the credit requirement of impacted streams by increasing or decreasing the linear footage value based on the relative quality of each stream in comparison to other streams in the watershed (based on NYSROA data). (Section 6.2.1)
- Reduce the creditable linear footage value of mitigation reaches based on the proportion available for improvement ("weighted linear footage" described below). (Section 6.2.1)
- Calculate the credit value of each mitigation stream reach by increasing or decreasing weighted linear footage values based on the relative quality of each stream in comparison to other streams in the watershed (based on NYSROA data). (Section 6.2.5)
- Generate Credit Ratios by three different means for consideration: Total Linear Footage/Impacted Linear Footage; Discounted Linear Footage/Impacted Linear Footage; Credits Achieved/Credits Required (Section 6.2.6)

Several terms that will be used in subsequent Subsections to describe the process used herein are defined here to facilitate review. The terms are generally listed in the order in which they are used in the process:

- Study Area: Oneida River Watershed HUC_041402020905
- Ecological Health Score: The sum of all raw scores for the Ecological Health Indicators noted in **Table 6-3**. Each stream within the Study Area is assigned a stream-specific Ecological Health Score based on data from the NYSROA
- Ecological Stress Score: The sum of all raw scores for the Ecological Stress Indicators noted in **Table 6-3**. Each stream within the Study Area is assigned a stream-specific Ecological Stress Score based on data from the NYSROA
- Raw Composite Score: The difference between the Ecological Health and Ecological Stress Scores. This difference is calculated for each stream in the Study Area
- Raw Percent Rank: The percentile value of each stream's Raw Composite Score compared to all streams within the Study Area

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Table 6-4: Calculation of Required Stream Credits Based on NYSROA Raw Composite Scores							
	Flow Regine[1]	Substrate	Catchments	Raw Composite Score	Linear Feet (USACE Jurisdictional)	Normalized Score[2]	Stream Credits Required
ES11	Ephemeral/R6	Silt	204187966	-119.3	466	1.7	812.7
ES15	Ephemeral/R6	Silt	204188000	-395.9	298	1.2	347.5
ES16	Ephemeral/R6	Silt	204187975	-407.3	430	1.1	491.1
ES20	Ephemeral/R6	Silt	204188007	-471.9	795	1	823.6
ES21	Ephemeral/R6	Silt	204188007	-471.9	209	1	216.5
ES6	Ephemeral/R6	Silt	204188012	-205.8	321	1.6	504
ES8	Ephemeral/R6	Silt and Vegetation	204188012	-205.8	1045	1.6	1640.7
ES8a	Ephemeral/R6	Silt and Vegetation	204188012	-205.8	134	1.6	210.4
IS1	Intermittent/Riverine Stream Bed (R4SB)	Silt	204187975	-407.3	1411	1.1	1611.4
IS2	Intermittent/Riverine Stream Bed (R4SB)	Silt	204187975	-407.3	607	1.1	693
IS3	Intermittent/Riverine Stream Bed (R4SB)	Silt and Vegetation	204187975, 204187911	-407.3	0	1.1	0
IS4	Intermittent/Riverine Stream Bed (R4SB)	Silt and Vegetation	204188007	-471.9	337	1	349.1
IS4a	Intermittent/Riverine Stream Bed (R4SB)	Silt and Vegetation	204188007	-471.9	150	1	155.4
PS1	Perennial/Upper Perennial Unconsolidated Bottom (R3UB)	Silt and Vegetation	204187966	-119.3	0	1.7	0
RD4a	Ephemeral/R6	Silt	204188007	-471.9	72	1	74.6
RD4b			204188007	-471.9	8	1	8.3
TOTAL					6283		7938
AVG Raw Percent Rank (Study Area)			0.5				

[1]Consistent with the request from Micron, stream reach and extent verified via preliminary jurisdictional determination (PJD)from USACE, which merely verifies the boundaries and extent of the waters. No final determination was made by USACE regarding flow regime or jurisdictional status. Consistent with Regulatory Guidance Letter 16-01, permit applications evaluated using a PJD treat all identified waters as regulated under the Clean Water Act.

[2] For details on how these scores were calculated, please refer to section 6.2.5 of this CWSMP. The NYSROA data sheets and raw calculations can be found in Attachment C.

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Table 6-5. Calculation of mitigation credits based on NYSROA Raw Composite Scores. The Sites and associated creeks included in this table are those proposed by The Wetland Trust as Mitigation Areas.

Site	Catchments	Linear Feet	Raw Composite Score	Raw Percent Rank w/in study area	Normalized Score	Stream Credits Achieved
Sixmile-Fish Creek	204187602	5413	-181	0.811	1.62	8780
Buxton Creek	204187560	3592	-322	0.668	1.34	4799
Buxton Creek Tributary	204187546	5025	-293	0.692	1.38	6955
	TOTAL	**14030**				**20534**
Credit Ratio	**2.23**					**2.59**

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- Normalized Score: Rescale Raw Percent Rank relative to 1 for each stream in the Study Area (Raw Percent Rank/0.5). The value of 0.5 is used because that is the median Raw Percent Rank within the Study Area. The Normalized Score is used as an indicator of relative stream quality in the Study Area. Values greater than 1 indicate streams that are above the median in terms of Raw Composite Score (i.e., higher quality than the median). Values less than 1 indicate that the stream is below the median in terms of Raw Composite Score (i.e., lesser quality than the median)

- Length of stream impact: length of USACE jurisdictional stream within the proposed limits of disturbance on the Micron Site

- Length of candidate mitigation reach: total linear footage of candidate reach

- Weighted Linear Feet of mitigation reach: discounted linear footage based on footage available for mitigation (further details in Section 6.2.3)

- Stream Credits Required: calculated by multiplying the jurisdictional length by the Normalized Score. When Normalized Score values are greater than 1 the Scream Credits Required are increased in comparison to the impacted length. When Normalized Score values are less than 1 the Scream Credits Required are reduced in comparison to the impacted length

    - Stream Credits required = Normalized Score x length of stream impact

- Stream Credits Achieved: calculated by multiplying the Weighted Linear Feet of mitigation by the Normalized Scores for each candidate mitigation stream. When Normalized Score values are greater than 1 the Scream Credits Required are increased in comparison to the Weighted Linear Feet. When Normalized Score values are less than 1 the Stream Credits Required are reduced in comparison to the Weighted Linear Feet

    - Stream credits achieved = Normalized Score x Weighted Linear Feet

6.2.4 Study Area

The overall study area used in this analysis is the Oneida River Watershed HUC_041402020905 and the eight adjacent watersheds, which includes catchments within the Micron Site and the candidate off-site mitigation sites that have been identified by TWT. The total linear footage of each stream reach that was evaluated was measured using GIS and aerial photography and field checked by the team. The Weighted Linear Footage for each reach is based on the length of each reach that could benefit from riparian enhancement and/or channel improvement.

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Considerations in estimating stream reaches that are candidates for mitigation consistent with the NYSROA include:

- Only that portion of the reach that could benefit from channel improvement and/or riparian enhancement was included in the mitigation footage.
    - Presence of anthropogenic influence within 100-ft of the reach. This includes agricultural tillage or grazing, periodic mowing, and impervious surface (pavement or gravel)
    - Lack of woody vegetation
    - Lack of sinuosity

For example, if all the particular reach is surrounded by undisturbed woody vegetation, with little to no anthropogenic influence within 100-ft, the Weighted Linear Footage is 0-ft. If one side of a 100-ft reach is wooded and one side is farmed to the top of bank, the Weighted Linear Footage is 50-ft.

6.2.5 Credit calculation

For each stream within the Study Area, Ecological Health, Ecological Stress and Raw Composite Scores were derived from the NYSROA dataset (**Figure 6-2**). Higher Raw Composite Scores are attributed to streams with relatively high Health and low Stress.; catchments with lower Ecological Health and Stress were targeted for inclusion in this CWSMP. **Figure 6-2** shows catchments in the study area based on their Ecological Health and Stress Scores, their Raw Composite Scores, and highlights both the catchments on the Micron Site and on potential mitigation sites. Consistent with the objective of the NYSROA, catchments with lower Ecological Health and Stress were targeted for inclusion in this CWSMP.

The intent of using the Raw Composite Score was to be able to characterize the quality of each stream in a quantitative manner by using the NYSROA analysis, and then use those values to weight both the magnitude of stream impact as well as the magnitude of stream mitigation. To implement such a weighting process the Raw Composite Scores were rescaled relative to 1 in two steps.

- First, The Raw Percent Rank was calculated by calculating the percentile of each Raw Composite Score in the Study Area, which resulted in values ranging from 0 to 1.

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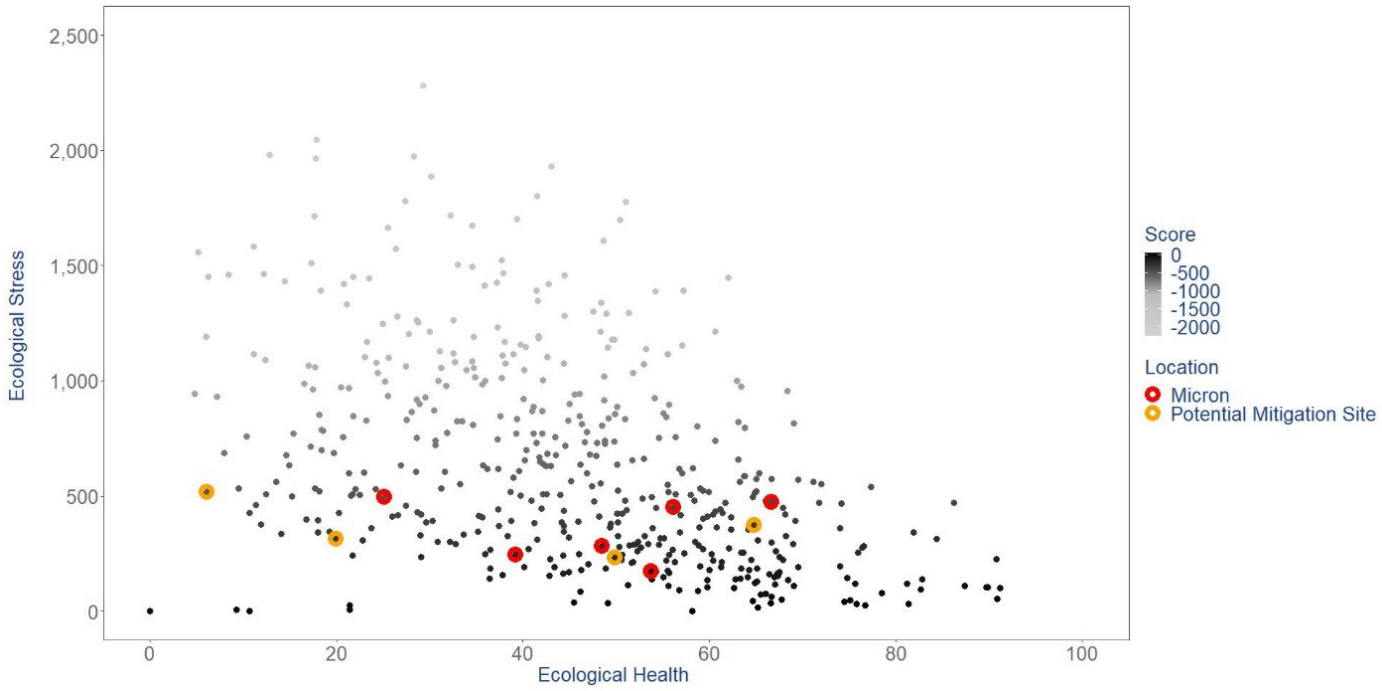

Figure 6-2. This Figure plots Raw Composite Scores with respect to Ecological Health (X-Axis) and Ecological Stress (Y-Axis) values from the NYSORA. Each point on the Figure depicts the Raw Composite Score for different streams in the study area. Raw Composite Scores are shown as the grayscale ramp, with higher Raw Composite Scores having darker values. Note that streams with high Ecological Health tended to have Stress scores below 500. This Figure demonstrates that the Micron and proposed mitigation sites tended to fall within the same range for Ecological Stress with values below 500 which means that the Potential Mitigation Sites have good potential for uplift without Ecological Stress factors (e.g., catchment impervious surfaces, general landscape condition, See Also **Table 6-3**) limiting overall success of the proposed mitigation sites.

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- Second, to develop a quantitative factor that could be used to say which streams were "better" or "worse" than the typical stream in the Study Area, each stream's Raw Percent Rank value was divided by 0.5 (the median). This process resulted in Normalized Score values greater than 1 for streams that were "better" than the average and values less than 1 for streams that were "below" the average

The Normalized Score used herein is comparable to the Comprehensive Score calculated in the NYSROA. However, the Comprehensive Score calculated by the NYSROA includes a broad suite of habitat indicators, whereas the analysis completed herein uses only riparian specific indicators so that the scores generated more specifically pertain to the impact on riparian and stream reaches. For example, no brook trout habitat has been identified on-site and introduction of brook trout into proposed mitigation reaches is not practicable as part of this mitigation effort.

Further, the Comprehensive Scores calculated in the NYSROA are normalized at the sub-watershed level, only allowing for comparison of catchments within each sub-watershed. A catchment with a low Comprehensive score in a healthy sub-watershed may in fact represent overall better-quality habitat than the catchment with the highest Comprehensive Score in a sub-watershed with high ecological stress (Conley et al. 2018). For this analysis a larger Study Area was used to compare catchment scores across sub-watersheds, so the Normalized Scores calculated herein are normalized based on the scores from the entirety of the Oneida River Watershed. By normalizing based on the entire watershed rather than the sub-watershed, catchment scores can be compared across sub-watersheds without bias.

Stream credits required were then calculated by multiplying the linear footage of impact by the corresponding Normalized Scores for each impacted stream. Stream Credits achieved were calculated by multiplying the Weighted Linear Feet of the candidate mitigation reaches by the corresponding Normalized Score. Therefore, a higher normalized score for an impacted reach means a higher impact and more credit required. A higher normalized score for a candidate mitigation reach results in more credit achieved.

6.2.6 Results

The compensatory stream mitigation credits and resultant mitigation ratio has been assessed using three different methods. Each method suggests that the proposed compensatory stream mitigation package achieves sufficient compensation of the impacted ecological functions and services.

NYSROA Method

As shown in **Table 6-4** and **Table 6-5**, application of the NYSROA method to the proposed stream impacts on the Micron Site results in a total Stream Credits Required of 7,938 credits. The current

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Stream Credits that can be achieved through mitigation on TWT identified mitigation parcels is 14,030 credits.

This represents a ratio of **2.59:1** based on credits calculated using the weighting system described herein.

For a full explanation of these notes and what they represent, see Section 6.2.

Linear Footage Method

The mitigation ratio using total linear footage acquired and total impacted linear footage of Micron streams is **2.23:1**.

USACE Method

Per the guidance in the USACE method, the following credits should be required based on the proposed impacts based on the documented flow regime and substrate:

- 3,698 LF of Ephemeral Stream with silt dominated substrate x 1:1 ratio = 3,698 Credits
- 2,505 LF of Intermittent Stream with silt dominated substrate x 1.5:1 ratio = 3,758 Credits

➔ 7,456 CREDITS REQUIRED

Table 11-1. Suggested Debit Ratios

GROUP	STREAM TYPE	Debit Ratio
1	Ephemeral streams with sand/silt/muck/clay/artificial dominated substrates	1:1
1	Limited Resource Waters	1:1
1	Ephemeral streams with bedrock/boulder/cobble/gravel/sand mixed substrates	1.5:1
1	Intermittent streams with sand/silt/muck/clay/artificial dominated substrates	1.5:1
1	Modified Warmwater and Modified Warmwater Habitat Equivalent	1.5:1
2	Intermittent with bedrock/boulder/cobble/gravel/sand mixed substrates	2:1
2	Warmwater and Warmwater Habitat Equivalent	2:1
3	Headwater Perennial/Interstitial - Cold Water Habitat Equivalent (generally less than 3 square mile drainage area)	3:1
3	Coldwater and Coldwater Habitat Equivalent	3:1
3	Seasonal Salmonid	3:1
3	Special Waters	3:1
3	Exceptional Warmwater	3:1

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The recommended crediting for the restoration or enhancement of perennial, intermittent, and ephemeral stream through Channel Restoration (i.e., Activity Level 3) as included in the proposed mitigation plan is up to 1.5:1. Applying this ratio to the proposed 14,030 LF of mitigation, this equates to 21,045 credits. Assuming that the minimum credit ratio for this is 1:1 (i.e., the credit ratio for Activity Level 4, Channel Enhancement), the proposed 14,030 LF of proposed mitigation equates to 14,030 credits. Therefore, no matter the accounting, through the NYSROA Method, the USACE Method, or the Linear Foot methodology, the proposed mitigation meets the ratios provided by the guidance documents.

Table 11-2. Suggested Credit Ratios

MITIGATION TYPE	ACTIVITY LEVEL	CREDIT RATIO
1. Restoration/Enhancement Efforts	1	Up to 2:1
	2	Up to 1.75:1
	3	Up to 1.5:1
	4	Up to 1:1
2. Preservation	1	Up to 1:3
Note: All preservation must comply with 33CFR332.3(h)	2	Up to 1:6
3. Buffer Work Only	Re-establishment	Up to 1:2
	Rehabilitation	Up to 1:4
4. Extra Buffer	Re-establishment	Up to 1:4
	Rehabilitation	Up to 1:8
	Preservation	Up to 1:16

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7 Financial Assurances

Micron will work to ensure that all financial assurances required from the NYSDEC and USACE are met for short-term management and understands that as the permittee, Micron must provide financial assurances, not the mitigation provider.

Micron will work with TWT through their verified contacts at Great American Insurance Group through the following steps.

Micron will provide financial assurances as described in CWSMP **Attachment B**.

Micron will provide financial assurances in the form of a casualty insurance policy in Micron's name to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with the performance standards and obligations set forth in the final instrument, and in accordance with items (a) through (i) below.

a) The casualty insurance policy will contain the information described in 33 CFR 332.3(n) and will be submitted to the USACE for review and approval prior to execution. The policy will have Micron as the policy holder.

b) The original, executed casualty insurance policy document(s) will be provided to the USACE at the following address after approval of the Mitigation Plan, prior to commencing activities authorized by any Department of Army permit associated with implementation of the Mitigation Plan: USACE Buffalo District, Regulatory Branch, Attn: Peter Krakowiak, US Army Corps of Engineers, 478 Main Street, Buffalo, NY 14202.

c) Once executed, the casualty insurance policy will be incorporated into and made part of the final permit.

d) The proposed financial assurance is a casualty insurance policy through Great American Insurance Group as follows:

Casualty Insurance Schedule	
Schedule Item	Insured Amount*
After mitigation plan is approved and until as-built report is approved by USACE.	**
After as-built report is approved and until first interim performance standards are met with credit release granted.	
After first interim report approval and until second interim performance standards are met with credit release granted.	
After second interim report approval and until third interim performance standards are met with credit release granted.	
After the third interim report approval and until final performance standards are met and final credit release granted.	

*Amount to be insured until the subsequent schedule item performance standards are met.
**Specific dollar amounts to be added in subsequent plan submittals once full quote is obtained.

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e) Micron will notify the USACE at least 120 days in advance of any termination, revocation, or modification of the casualty insurance policy. Modification of the policy, including the amount, terms, and holder, requires prior written USACE approval.

f) Micron will ensure that the casualty insurance policy does not lapse.

g) In the event that the USACE determines that the Permittee is in noncompliance with or has defaulted on obligations set forth in the final permit, and the Permittee has failed to remedy the noncompliance in a timely manner, the USACE may make a claim on the insurance policy by providing written notice to the sponsor and the insurance company.

h) The USACE cannot itself directly accept, retain, or draw upon financial assurance funds. If the USACE makes a claim on the insurance policy, the funds shall be directed to a standby trust. Prior to any transfer of funds to a standby trust, the USACE shall have the opportunity to review and approve the financial or legal institution proposed to serve as
trustee as well as the terms and conditions of the standby trust. Any funds deposited into the standby trust shall remain secure until the USACE approves a designee to receive the funds that will develop and implement a proposal for completing the outstanding compensatory mitigation or provide replacement compensatory mitigation. The sponsor will make every effort to identify a trustee and a designee agreeable to the USACE.

i) After review of all required monitoring reports, a final site visit by the USACE, and evaluation of compliance with the terms and conditions of the final permit, the USACE will provide written notification to the Permittee stating that the requirements of the final permit have been satisfied and the sponsor may be fully released from the financial assurance requirements described herein.

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Attachment A

Wetland Impact Mitigation Ratio and Acreage Justification

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Table A-1: Mitigation Ratios and Acreages for Federal Jurisdictional Wetlands (Weighted/F&V Derived)

Wetland ID	General Time to F&V Replacement (Years) based on cover type	Acreage	Federally Impacted Acreage	Phase 1 Impacted Acreage (Years 1-10)	Phase 2 Impacted Acreage (Years 10-20)	F & V Assessment (Principal)	F & V Assessment (Suitability)	Mitigation Ratio (Based on F&V condition and qualifiers in justification and notes columns)	Mitigation Acres (Weighted)	Justification	Notes
W1_PEM	1-3	5.75	5.75	5.75	0	Habitat		1.25:1	7.19	Recently active agricultural field, in agriculture within last 5 to 10 years. Significant presence of Invasive common reed and purple loosestrife.	Majority of W1 has been influenced and/or degraded by past human activity (agricultural use). This was evident by the presence of old furrows, successional vegetative growth in scrub shrub and forested areas, farm debris areas, and culverted drainages.

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W1_PFO	5+	10.55	10.55	10.55	0	Habitat	Endangered Species	2.5:1	26.38	Relatively young successional woods; historic images indicate agricultural activity as recent as the late 1970s/mid-1980s. Western portions of PFO dominated by invasive common buckthorn, central and eastern portions are narrow fragments surrounded by inactive ag fields and residential properties.	
W1_POW	1	0.03	0.03	0.03	0	Habitat		1:1	0.03	Old farm pond	
W1_PSS	3-5	2.01	2.01	2.01	0	Habitat		1.25:1	2.51	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the late 1970s/mid-1980s.	

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W2_PEM	1-3	12.35	5.17	5.17	0	Habitat	Flood flow Alteration (northern portions)	1:1	5.17	Northern portions of PEM within maintained over-head electric ROW. Eastern portion within recently active agricultural field (within last 5 to 10 years); portions of PEM wetlands within old farm furrows. Significant presence of invasive species including reed canary grass and purple loosestrife.	

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W2_PFO	5+	25.66	21.09	21.09	0	Habitat	Endangered Species, some Flood flow Alteration (central and northwestern portions)	3:1	63.27	Northeastern and northern portions of W2 relatively young successional woods; historic images indicate these areas cleared of trees as recent as the late 1970s for agriculture. Central and northwestern portions relatively undisturbed dating back to 1938; however, fragmented habitat surrounded by agriculture and bisected by utility ROW.	
W2_PSS	3-5	0.33	0	0.00	0	Habitat	Flood flow Alteration (northern portions)	1.25:1	0.00		
W2_POW	1	0.19	0.19	0.19	0	Habitat		1:1	0.19	Old farm pond	

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W3_PEM	1-3	5.47	4.65	4.65	0	Habitat		1:1	4.65	Recently active agricultural field within last 5 to 10 years; portions of PEM wetlands within old farm furrows.	Majority of W3 has been influenced and/or degraded by past human activity (agricultural use). This was evident by the presence of old furrows, successional vegetative growth in forested areas.
W3_PFO	5+	0.49	0.49	0.49	0	Habitat	Endangered Species	3:1	1.47	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the late 1970s/mid-1980s.	
W5_PEM	1-3	2.39	2.39	2.39	0	Habitat		1:1	2.39	Recently active agricultural within last 10 to 15 years.	

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W5_PFO	5+	0.21	0.21	0.21	0	Habitat	Endangered Species	3:1	0.63	Relatively young successional woodland; historic images indicate portions of this PFO cleared for agricultural activity as recent as the mid-1950s.	
W5_POW	1	0.31	0.31	0.31	0	Habitat		1:1	0.31	Old farm pond	
W5_PSS	3-5	4.84	4.84	4.84	0	Habitat		1.25:1	6.05	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the mid-2000s.	
W6a_PFO	5+	0.38	0.38	0.38	0	Habitat	Endangered Species	3:1	1.14	Relic farm furrows observed within the southern portion of this PFO indicating past agricultural disturbance; historic images indicate portions of this PFO were actively farmed. Wetland is a mosaic of	

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										wetland and upland, partially due to past ag. activity.	
W11_PEM	1-3	17.57	17.57	17.57	0	Habitat	Flood flow Alteration	1.25:1	21.96	Majority of this wetland occurs in recently active agricultural field (within last 5 to 10 years); portions of PEM wetlands within old farm furrows. Invasive species (purple loosestrife and reed canary grass) present. Northern portion consists of recent wetland mitigation area for National Grid utility project.	Majority of W11 has been influenced and/or degraded by past human activity (agricultural use). This was evident by the presence of old furrows, successional vegetative growth in scrub shrub and forested areas, farm debris, and relic drainage ditches.

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W11_PFO	5+	1.32	1.32	1.32	0	Habitat	Endangered Species	3:1	3.96	Portions of this PFO are relic pond based on 1938 historic image which indicate PFO devoid of trees. Portion of PFO within relic hedgerow.	
W11_POW	1	0.24	0.24	0.24	0	Habitat		1:1	0.24	Old farm pond	
W11_PSS	3-5	0.07	0.07	0.07	0	Habitat		1.25:1	0.09	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the mid-2000s.	

W12_PEM	1-3	0.2	0.2	0.05	0.15	Habitat		1:1	0.20	PEM portion nearest Burnet Road appears to have been active agricultural as late as mid-1980's. Wetland disturbance apparent for utilities and / or residential development through 2020s. Presence of invasive species purple loosestrife and common reed.	
W12_PSS	3-5	0.3	0.3	0.00	0.3	Habitat		1.25:1	0.38	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the mid-1990s.	

W13_PEM	1-3	0.43	0.43	0.32	0.11	Habitat		1:1	0.43	PEM portion nearest Burnet Road appears to have been active agricultural as late as late-1970's. Wetland disturbance apparent for utilities and/or residential development through 2020s. Presence of invasive species purple loosestrife and common reed.	
W13_PSS	3-5	0.38	0.38	0.38	0	Habitat		1.25:1	0.48	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the mid-1990s.	
W14_PSS	3-5	0.35	0.35	0.33	0.02	Habitat		1.25:1	0.35	Relatively young successional shrubland; historic images indicate agricultural activity as recent as the mid-1990s.	

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W26_PEM	1-3	0.81	0.81	0.81	0	Habitat		1:1	0.81	Wetland part of active agricultural field as recent as the mid-1960s.	
W26_PSS	3-5	0.49	0.49	0.49	0	Habitat		1.25:1	0.61	Wetland part of active agricultural field as recent as the mid-1960s. Habitat fragmented to east from recent development activities off-site.	
W28_PFO	5+	0.49	0.49	0.00	0.49	Habitat	Endangered Species	2.5:1	1.23	Relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as late-1970s and in agricultural activity as recent as the mid-to late-1960s.Wetland also impacted by underground utility (water main). Significant presence of invasive	

										common buckthorn.	

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W29_PFO	5+	1.08	1.08	0.00	1.08	Habitat	Endangered Species	2.5:1	2.70	Relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as late-1970s and in agricultural activity as recent as the mid-to late-1960s.Wetland also impacted by underground utility (water main). Significant presence of invasive common buckthorn.	

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W34_PEM	1-3	77.37	54.48	5.94	48.54	Habitat, Flood flow Alteration, Sediment/Toxicant Retention	GW Recharge/Discharge, Fish habitat(?), Nutrient Removal, Production Export, Sediment/Shoreline Stabilization	1.75:1	95.34	Southern portions of PEM in active agriculture as recent as late 2010s. Central portions in or subject to agricultural activities as recent as mid-1980s. Northern portions in ag or manipulated for ag activities as recent as the early-1960s. Portions subject to past ditching for ag as well as past and ongoing beaver activity. Ag activities for a majority of the W34 PEM occurred greater than 30 to 40 years ago and have become relatively stable. Based on this, replacement ratios are set at 1.75:1 vs. 1:1 for most other PEM occurring in areas	Large wetland complex on eastern portion of site providing several functions. W34 associated with Youngs Creek. W34 includes portions of historic Youngs Creek channel. Creek is predominantly a wetland due to apparent past channel manipulation, utility crossings, and beaver activity.

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										recently subject to ag activities.	

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W34_PFO	5+	15.17	11.64	0.59	11.05	Habitat	Endangered Species, Flood flow Alteration, GW Recharge/Discharge, Nutrient Removal, Production Export	2.75:1	32.01	Majority of PFO wetland devoid of trees from farming activity in mid-1950s with evidence of agricultural impacts through mid- to late 1960s. Higher replacement ratio applied vs. other site PFO based on association with large wetland complex offering several functions.	
W34_POW	1	0.93	0.93	0.00	0.93	Habitat		1:1	0.93	Portions of old ag pond.	

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W34_PSS	3-5	16.24	9.31	0.44	8.87	Habitat, Flood flow Alteration	GW Recharge/Discharge, Nutrient Removal, Production Export	1.5:1	13.97	Majority of PSS wetland apparently devoid of woody vegetation from farming activity in mid-1950s with evidence of agricultural impacts through mid- to late 1970s for northern and southern portions of PSS. Significant presence of invasive common buckthorn. however higher replacement ratio applied vs. other site PSS based on association with large wetland complex offering several functions.	

W35_PEM	1-3	92.77	1.36	1.36	0	Habitat, Flood flow Alteration, Sediment/Toxicant Retention	GW Recharge/Discharge, Fish habitat, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization	1.75:1	2.38	Portions subject to past ditching for ag . Ag activities for a majority of the W35 PEM occurred greater than 30 to 40 years ago and have become relatively stable. Based on this, replacement ratios are set at 1.75:1 vs. 1:1 for most other PEM occurring in areas recently subject to ag activities. Majority of impacted PEM within maintained utility ROW - previously disturbed.	Large wetland complex on northern portion of site providing several functions. W35 associated with Youngs Creek. W35 includes portions of historic Youngs Creek channel. Creek is predominantly a wetland due to apparent past channel manipulation, utility crossings, and beaver activity. Impacts to PEM portions of W35 predominantly temporary.

W35_PFO	5+	87.32	20.54	20.54	0	Habitat	GW Recharge/Discharge, Nutrient Removal, Production Export, Sediment/Shoreline Stabilization, Endangered Species	3:1	61.62	Impacted portions of PFO relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as mid-1980s and in agricultural activity as recent as the mid-to late-1970s.	
W35_PSS	3-5	1.77	0	0.00	0	Habitat			0.00		
W40_PEM	1-3	0.88	0.88	0.00	0.88	Habitat	Flood flow alteration	1:1	0.88	Recently active agricultural within last 10 to 15 years. Significant presence of invasive reed canary grass and purple loosestrife.	
W49_PSS	1-3	0.26	0.09	0.09	0	Habitat		1.5:1	0.14		
W49_POW	1-3	0.4	0.4	0.40	0	Habitat		1:1	0.40	Old farm pond	

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W49_PFO	5+	16.61	8.42	8.42	0	Habitat	Flood flow alteration, Endangered Species	2.75:1	23.16	Relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as the late-1960s and in agricultural activity as recent as the early-1970s. Area also recently subject to extensive logging.	
W53_PEM	1-3	0.35	0	0.00	0	Habitat			0.00		
W53_PFO	5+	4.43	0	0.00	0	Habitat	Endangered Species		0.00		
W54_PEM	1-3	6.45	0	0.00	0	Habitat			0.00		
W54_PSS	3-5	1.81	0	0.00	0	Habitat			0.00		
W55_PFO	5+	4.71	0	0.00	0	Habitat	Endangered Species		0.00		

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W61_PFO	5+	1.61	1.43	1.16	0.27	Habitat	Endangered Species	2.5:1	3.58	Relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as the late-1960s and in agricultural activity as recent as the early-1970s.	
W61_PSS	3-5	0.36	0.36	0.36	0	Habitat		1.25:1	0.45	Relatively young successional shrubland; historic images indicate PSS in agricultural activity as recent as the early-1970s.	
W62_PSS	3-5	0.95	0.95	0.95	0	Habitat		1.25:1	1.19	Relatively young successional shrubland; historic images indicate PSS in agricultural activity as recent as the early-1970s. Portions of this wetland subject to disturbance from	

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										neighboring stormwater facility.	
W63_PSS	3-5	0.33	0.33	0.33	0	Habitat		1.25:1	0.41	Relatively young successional shrubland; historic images indicate PSS in agricultural activity as recent as the early-1970s.	
W69_PSS	3-5	0.07	0.07	0.07	0	Habitat		1.25:1	0.09	Common buckthorn dominated PSS, recently disturbed, appears area planted with Norway spruce.	
W70_PEM	1-3	0.23	0.23	0.00	0.23	Habitat		1:1	0.23	Recently maintained field (mowed); agriculture activity within last 5 to 10 years.	

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W70_PFO	5+	0.15	0.15	0.00	0.15	Habitat		2.5:1	0.38	Relatively young successional woodland; historic images indicate portions of this PFO devoid of trees as recent as the late-1970s and in agricultural activity as recent as the early-1970s.	
W71_PEM	1-3	0.02	0.02	0.02	0	Habitat		1:1	0.02	Associated with small drainage that traverses residential property. Evidence of mowing and disturbance within and adjacent to this wetland; separated from larger wetland W2 by man-made berm with culvert.	

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		Existing (ac)	Impacted (ac)					Mitigation by Cover Type (ac)		Overall Replacement Ratio
SUMMARY BY COVER TYPE	**PEM**	223.04	93.94					**PEM**	**141.65**	1.5:1
	PFO	170.18	77.79					**PFO**	**221.51**	2.9:1
	POW	2.1	2.1					**POW**	**2.10**	1:1
	PSS	30.56	19.55					**PSS**	**26.70**	1.4:1
	TOTALS	**425.88**	**193.38**					**Total**	**391.96**	**2:1**

*Does not take into account any credits for preservation, buffers, enhancement.
Approximately 60% of the wetland and stream impacts to occur in Ph 1, 40% in Ph. 2.

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Table A-2: Mitigation Ratios and Acreages for NYS Jurisdictional Wetlands

Wetland ID	NYS Ecological Communities Cover Type	Acreage	State Impacted Acreage - Permanent	State Impacted Acreage - Forest Conversion	Phase 1 Impacted Acreage (Years 1-10)	Phase 2 Impacted Acreage (Years 10-20)	DEC Presented Ratio - Permanent	DEC Presented Ratio - Forest Conversion	Forest Conversion Mitigation Acreage	Total Mitigation Acres
W1	Farm Pond/Artificial Pond	0.03	0.03		0.03	0	1.00		0.00	0.03
W1	Red Maple-Hardwood Swamp	10.55	10.55		10.55	0	2.75	1.00	0.00	29.01
W1	Shallow Emergent Marsh	5.75	5.75		5.75	0	1.5		0.00	8.63
W1	Shrub Swamp	2.01	2.01		2.01	0	1.50		0.00	3.02
W2	Farm Pond/Artificial Pond	0.19	0.19		0.19	0	1		0.00	0.19
W2	Floodplain Forest	0.28	0.28		0.28	0	3.00	1.00	0.00	0.84
W2	Hemlock-Hardwood Swamp	3.14	3.04		3.04	0	3.00	1.00	0.00	9.12
W2	Red Maple-Hardwood Swamp	22.52	18.14	0.03	18.14	0	3.00	1.00	0.03	54.45
W2	Shallow Emergent Marsh	12.29	5.01		5.01	0	1.25		0.00	6.26
W2	Shrub Swamp	0.56	0.23		0.23	0	1.50		0.00	0.35
W3	Floodplain Forest	0.49	0.49		0.49	0	3.00	1.00	0.00	1.47
W3	Shallow Emergent Marsh	4.58	4.58		4.58	0	1.25		0.00	5.73
W3	Shrub swamp	0.89	0.07		0.07	0	1.50		0.00	0.11
W5	Farm Pond/Artificial Pond	0.31	0.31		0.31	0	1.00		0.00	0.31
W5	Floodplain Forest	0.21	0.21		0.21	0	3.00	1.00	0.00	0.63
W5	Shallow Emergent Marsh	2.39	2.39		2.39	0	1.25		0.00	2.99
W5	Shrub Swamp	4.84	4.84		4.84	0	1.50		0.00	7.26
W6a	Hemlock-Hardwood Swamp	0.04	0.04		0.04	0	3.00	1.00	0.00	0.12
W6a	Red Maple-Hardwood Swamp	0.34	0.34		0.34	0	3.00	1.00	0.00	1.02
W11	Deep Emergent Marsh	0.24	0.24		0.24	0	2.00		0.00	0.48
W11	Floodplain Forest	1.32	1.32		1.32	0	3.00	1.00	0.00	3.96
W11	Shallow Emergent Marsh	17.57	17.57		17.57	0	1.50		0.00	26.36
W11	Shrub Swamp	0.07	0.07		0.07	0	1.50		0.00	0.11
W28	Floodplain Forest	0.04	0.04		0.00	0.04	2.75	1.00	0.00	0.11

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W29	Floodplain Forest	0.38	0.38		0.00	0.38	2.75	1.00	0.00	1.05
W34	Deep Emergent Marsh	60.26	40.74		0.01	40.73	2.00		0.00	81.48
W34	Farm Pond/Artificial Pond	0.13	0.13		0.00	0.13	1.00		0.00	0.13
W34	Floodplain Forest	6.94	4.35		0.36	3.99	3.00	1.00	0.00	13.05
W34	Red Maple-Hardwood Swamp	8.23	7.28		0.23	7.05	3.00	1.00	0.00	21.84
W34	Shallow Emergent Marsh	15.07	11.69		3.57	8.12	2.00		0.00	23.38
W34	Shrub Swamp	15.80	8.87		0.00	8.87	1.50		0.00	13.31
W35	Deep Emergent Marsh	91.43	0.03		0.03	0	1.75		0.00	0.05
W35	Floodplain Forest	75.59	10.61	1.48	10.61	0	3.00	1.00	1.48	33.31
W35	Red Maple-Hardwood Swamp	11.73	9.93	0.17	9.93	0	3.00	1.00	0.17	29.96
W35	Shrub Swamp	3.11	1.34		1.34	0	1.50		0.00	2.01
W40	Shallow Emergent Marsh	0.88	0.88		0.00	0.88	1.25		0.00	1.10
W53	Floodplain Forest	4.43	0.00		0.00	0	2.75	1.00	0.00	0.00
W53	Shallow Emergent Marsh	0.35	0.00		0.00	0	1.25		0.00	0.00
W54	Shallow Emergent Marsh	6.45	0.00		0.00	0	1.25		0.00	0.00
W54	Shrub Swamp	1.81	0.00		0.00	0	1.50		0.00	0.00
W55	Floodplain Forest	4.71	0.00		0.00	0	2.75	1.00	0.00	0.00
W63	Shrub Swamp	0.33	0.33		0.33	0	1.50		0.00	0.50
W69	Shrub Swamp	0.07	0.07		0.07	0	1.50		0.00	0.11
W70	Floodplain Forest	0.15	0.15		0.15	0	2.75	1.00	0.00	0.41
W70	Shallow Emergent Marsh	0.23	0.23		0.23	0	1.25		0.00	0.29
W71	Shallow Emergent Marsh	0.02	0.02		0.02	0	1.25		0.00	0.03
Total		398.75	174.77	1.68	104.58	70.19				**384.52**

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Approximately 60% of the wetland and stream impacts to occur in Ph 1, 40% in Ph. 2.

SUMMARY BY COVER TYPE	Permanent Acres	MITIGATION RATIO	Total Acres
Deep Emergent Marsh	41.01	2:1	82.01
Farm Pond / Artificial Pond	0.66	1:1	0.66
Floodplain Forest	19.31	2.8:1	54.83
Hemlock-Hardwood Swamp	3.08	3:1	9.24
Red Maple-Hardwood Swamp	46.	2.9:1	136.28
Shallow Emergent Marsh	48.68	1.6:1	74.75
Shrub Swamp	17.83	1.5:1	26.75
TOTAL	174.77	2.2:1	384.52

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Attachment B

Off-site Compensatory Mitigation Plan (TWT, 2025)

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Micron Central New York Semiconductor Manufacturing Complex

Overview of Stream/Wetland Mitigation Plan

Oswego County, NY

PREPARED BY:

The Wetland Trust, Inc.

4729 State Route 414

Burdett, NY 14818

www.thewetlandtrust.org

May 2025

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Buxton Creek Stream and Wetland Mitigation Plan

Fish Creek Stream and Wetland Mitigation Plan

Upper Caughdenoy Creek Wetland Mitigation Plan

Lower Caughdenoy Creek Wetland Mitigation Plan

Oneida River Wetland Mitigation Plan

Sixmile Creek Wetland Mitigation Plan

1. Introduction and Objectives

Micron NY Semiconductor Manufacturing, LLC (Micron) is proposing construction of four fabrication facilities and ancillary structures (Micron Campus) in the town of Clay, Onondaga County, New York. Construction of these facilities will result in unavoidable impacts to stream and wetland resources. Micron is providing this Permittee Responsible (PR) Compensatory Mitigation Project (Project) to satisfy stream and wetland mitigation requirements. The Project includes six sites in Oswego County, NY, each of which will have an individual mitigation plan. The Wetland Trust, Inc. (TWT) is the primary service provider facilitating the project, providing and implementing any and all aspects of this project to ensure Micron can meet its PR requirements.

The objective of this plan is to secure, preserve, and protect in perpetuity through conservation easements approximately 1,340 acres of upland and aquatic resources located across six separate sites within the Oneida River watershed, HUC 041402020905, and the southern portion of HUC 0414020209, and to provide a landscape for the development of wetlands and wetland/stream complexes consistent with federal and state regulatory requirements including:

- Restoration of 14,030 linear feet of stream channel to provide compensation for stream impacts on the Micron Campus required by both agencies,
- Develop wetlands that meet the compensation requirements for impacts to 201.12 acres of USACE federal jurisdictional wetlands (e.g., 412 USACE compensatory wetland mitigation credits) and impacts to 182.51 acres of NYSDEC state jurisdictional wetlands (e.g., 402 compensatory wetland acres) on the Micron Campus, as follows:
    - Re-establish/Restore approximately 151 acres of palustrine emergent marsh (PEM) including:
        - 71.9 acres of shallow emergent marsh
        - 78.9 acres of deep emergent marsh
    - Re-establish/Restore approximately 17.9 acres of palustrine scrub shrub (PSS)
    - Re-establish/Restore approximately 220.8 acres of palustrine forest (PFO), including
        - 153.1 acres of red maple-hardwood swamp
        - 10.1acres of Hemlock-hardwood swamp
        - 57.6 acres of floodplain forest
    - Rehabilitate 113.9 acres of existing wetland, including 11.2 acres of PEM, 35.5 acres of PSS, and 67.2 acres of PFO.

- In addition to the compensatory restoration efforts, the project will preserve in perpetuity 96.5 acres of existing wetlands and approximately 380 acres of established buffer habitat.

This document provides an overview of the approach taken to develop the six individual mitigation sites and the wetland mitigation plan for each, including which sites integrate compensatory mitigation for impacts to both stream channels and wetlands. Each separate mitigation plan includes site-specific baseline data, details on construction and planting plans, performance standards, and timelines for construction, monitoring and management. The entirety of this Mitigation Project is designed to satisfy the requirements of the federal regulations governing compensatory mitigation, 40 C.F.R. Part 332 (2024) and NYSDEC regulations governing wetland mitigation, as outlined in ECL Article 24, 6 NYCRR Part 663 (2024).

Within one of the mitigation sites, there will be a separate area physically marked as the "National Grid Wooding Property Mitigation Compensation Site" and another marked as the "NG Duct Bank" These sites will have their own mitigation section within the appropriate site's plan. This Wooding Plan will follow the DEC-approved National Grid "Wooding Property Wetland Mitigation Plan" dated May 2019, and prepared by ESS Group Incorporated on behalf of National Grid.

2. Description of Mitigation Sites

TWT has secured six mitigation sites to compensate for unavoidable impacts to wetlands and streams. These sites combined will generate approximately 422 USACE wetland credits or 504 NYSDEC wetland acres and 14,030 ft of stream restoration described in Section 1. These sites are summarized in **Table 1** below and will be discussed in detail in their respective mitigation plans.

Table 1. A Synopsis of Proposed Wetland/Stream Development Across Six Mitigation Sites

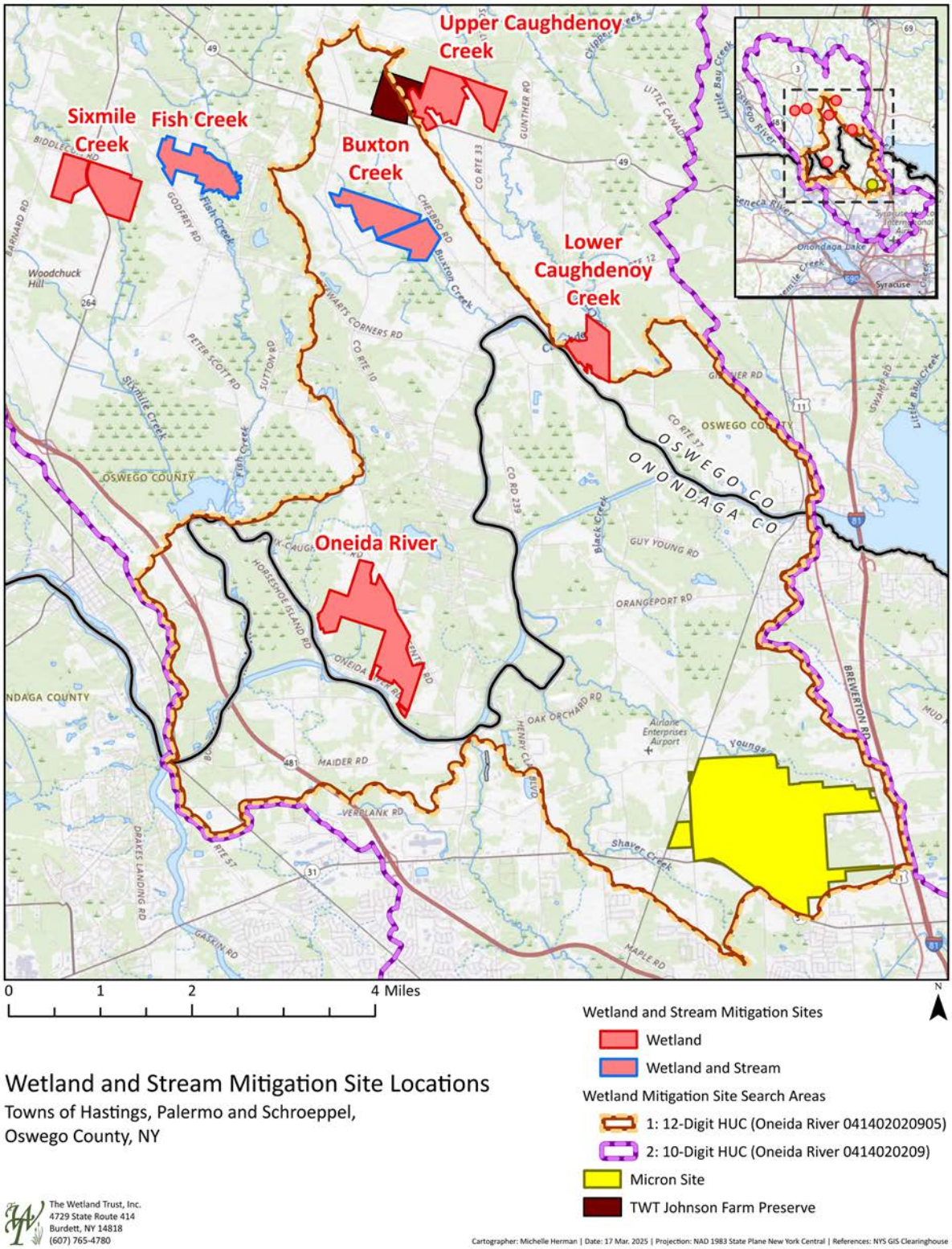
Site #	Site Name	CE size (acres)	Anticipated NYSDEC Wetland Mitigation (acres)	Anticipated USACE Wetland Credits	Anticipated Stream Restoration (linear ft)	Distance to Micron Campus Center (miles)	Oswego County Township
1	Buxton Creek	188	116	97	8,617	7.8	Schroeppel
2	Fish Creek	180	20	19.2	5,413	8	Schroeppel
3	Upper Caughdenoy Creek	225	87	60	-	8.5	Hastings
4	Lower Caughdenoy Creek	109	58	53	-	5	Hastings
5	Oneida River	405	178	149	-	4	Schroeppel
6	Sixmile Creek	234	45	44	-	9	Schroeppel
	Total	**1,341**	**504**	**422**	**14,030**		

2.1 Site Selection Process

TWT followed site selection protocols described in Federal Register 33 C.F.R. §§ 332.3, 332.4(c) to develop a technically and legally sufficient mitigation plan to meet both United States Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) requirements, as well as additional requirements specifically requested by the agencies. The site selection protocols followed include:

1. Sites were selected based on their ecological suitability for providing the desired aquatic resource functions pertaining to hydrologic conditions, watershed-scale features, hydrologic resources, compatibility with adjacent land uses and watershed management plans, reasonably foreseeable effects, and other relevant factors as required in 332.2(d).
2. The search for sites occurred in an expanding radius beginning in the 12-digit HUC (041402020905) containing the proposed Micron Campus, followed by the 10-digit HUC (0414020209), then within four Onondaga Townships; Clay, Cicero, Lysander, and Van Buren and lastly, in the southern portion of Oswego County. TWT was able to secure all mitigation sites within the 12- or 10-digit HUC (**Figure 1**).
3. Prior to selection, all sites were pre-screened by regulatory agencies.
4. Sites were targeted that could provide a net wetland gain meaning, by USACE definition, established or re-established wetlands or by NYSDEC definition, restored wetlands. TWT was able to largely stay within those criteria, with 94 percent of the compensation developed as re-established/restored and the remaining 6 percent as rehab/enhancement.
5. Sites were selected to offset impacts by replicating the frequency of wetland types as classified by Cowardin et al. (1979) and Edinger et al. (2014) between Micron Campus permanent impacts and Mitigation sites and functions (physical, chemical, and biological processes that occur in the ecosystem), with a total wetland credit target to be determined by the agencies.
6. Sites have sufficient stream restoration potential to meet agency stream compensation needs and provide an opportunity to integrate stream and wetland restoration into a functioning complex.
7. Sites were analyzed and mapped for existing wetlands to be avoided, soil characteristics pertinent to wetland development (i.e., soil moisture, depth to groundwater), and topography.
8. Priority was given to sites closer to the Micron Campus, sites within the same watershed, and to larger sites that more readily retain or enhance functionality for similar attributes found on the Micron Campus, such as flood attenuation, groundwater recharge, stormwater infiltration, wildlife habitat, habitat connectivity, carbon sequestration, and long-term sustainability.

Figure 1. Wetland Mitigation Sites and Search Areas



2.2 Site Protection

The Wetland Trust, Inc. (TWT) is a 501(c)(3) nonprofit corporation whose mission is the protection, conservation, and restoration of wetlands and other critical habitat. TWT will own all its mitigation properties fee simple and in perpetuity, with provisions to transfer to other similar nonprofits its lands and stewardship funds should TWT fail. All sites will be protected under this same procedure.

There are two layers of protection for all six sites. First, TWT will own in perpetuity all six mitigation sites. TWT's vested interest in the sites through fee-simple ownership reduces any risk of protection violations.

Second, TWT will file USACE-approved Conservation Easements (CE) with the Oswego County Clerk. The CE holder will be The Wetland Conservancy, Inc. (TWC), P.O. Box 220, Burdett, NY 14818-0220, a 501(c)(3) nonprofit corporation and qualifying conservation organization (NYS ECL). The easements will cite specific prohibitions. The site plans will provide the rationale basis for the easements and assist in their enforcement. Each mitigation plan includes the specific CE boundary and legal description. The CE names the USACE and NYSDEC as third-party enforcement entities.

With the exception of activities approved as part of this Project or other activities approved by the USACE and NYSDEC, no further alterations to the sites shall occur.

3. Credit Generation

The total number of credits needed for impacts associated with the Micron campus will be generated across six sites, each of which will have an individual, site-specific mitigation plan. The USACE and NYSDEC will approve the number of mitigation acres or credits generated based on wetland acres that meet or exceed performance standards and meet agreed-upon credit ratios (**Tables 2 and 3**).

Credit development will occur on each of the six sites. Upon completion of this Project, all six sites together will generate the total credits/acres that address the overall compensation target for the cover types required by the agencies. Stream mitigation requirements will occur at the Buxton Creek and Fish Creek Sites. TWT will submit monitoring results for performance of mitigation regarding vegetation and hydrology standards as specified in each mitigation plan. Delineations and mapping will provide information on the size and quality of constructed wetlands.

Stream compensation is based on linear feet of restoration and will be cumulative with a target of 14,030 feet. Specific monitoring protocols for wetlands and streams are more fully described in each individual site plan.

The credit generation proposal is informed by numerous discussions with regulatory agencies, ensuring that the ratios reflect the anticipated ecological benefits and align with regional mitigation practices. Credit generation will be refined in each mitigation plan to account for additional design considerations such as a higher ratio for restoration in 100-foot property setbacks.

Table 2. Anticipated NYSDEC Wetland Mitigation Acreage by Mitigation site

Site	NYSDEC Mitigation Type	Mitigation Acres of Specific Wetland Cover Type (acres)						Total (acres)
		Shallow em. marsh	Deep em. marsh	Scrub shrub	Floodplain forest	RMH swamp	HH swamp	
Buxton Creek	Restoration	11.2	18.7	-	31.7	24.3	2.9	**88.8**
	Enhancement	0.5	1.8	-	24.6	0.5	0.1	**27.5**
Fish Creek	Restoration	2.1	0.7	2.4	9.2	4.5	-	**18.9**
	Enhancement	0.1	-	-	0.8	0.1	-	**1**
Upper Caughdenoy Creek	Restoration	14.8	19.1	2.5	-	12.7	-	**49.1**
	Enhancement	1.4	3.3	32.7	-	0.2	-	**37.6**
Lower Caughdenoy Creek	Restoration	3.3	2.4	0.35	11.2	34.2	-	**51.5**
	Enhancement	0.3	0.3	0.05	0.2	5.7	-	**6.5**
Oneida River	Restoration	20.5	20.6	12.7	-	76.2	7.2	**137.2**
	Enhancement	0.5	2.8	2.7	-	33.9	1.1	**41**
Sixmile Creek	Restoration	20	17.4	-	5.5	1.2	-	**44.1**
	Enhancement	0.1	0.3	-	-	-	-	**0.4**
Total Compensation (acres)		**74.8**	**87.4**	**53.4**	**83.2**	**193.5**	**11.3**	**503.6**
Total Adjusted (acres) based on 3.5:1 Enhancement ration		**73.53**	**81.3**	**28.1**	**64.91**	**164.64**	**10.41**	
Total Required by NYSDEC (acres)		*74.75*	*82.01*	*26.75*	*54.83*	*136.28*	*9.24*	*383.86*

Table 3. Anticipated USACE Wetland Mitigation Credit Generation by Mitigation site

Site	USACE Mitigation Type	Credit Ratio (acres:credit)	Mitigation Acres of Specific Wetland Cover Type (acres)						Total (acres)	Total (credits)
			Shallow em. marsh	Deep em. marsh	Scrub shrub	Floodplain forest	RMH swamp	HH swamp		
Buxton Creek	Re-establishment	1:1	11.2	18.7	-	31.7	24.3	2.9	**88.8**	**88.8**
	Rehabilitation	3.5:1	0.5	1.8	-	24.6	0.5	0.1	**27.5**	**7.86**
Fish Creek	Re-establishment	1:1	2.1	0.7	2.4	9.2	4.5	-	**18.9**	**18.9**
	Rehabilitation	3.5:1	0.1	-	-	0.8	0.1	-	**1**	**0.29**
Upper Caughdenoy Creek	Re-establishment	1:1	14.8	19.1	2.5	-	12.7	-	**49.1**	**49.1**
	Rehabilitation	3.5:1	1.4	3.3	32.7	-	0.2	-	**37.6**	**10.7**
Lower Caughdenoy Creek	Re-establishment	1:1	3.3	2.4	0.35	11.2	34.2	-	**51.5**	**51.5**
	Rehabilitation	3.5:1	0.3	0.3	0.05	0.2	5.7	-	**6.5**	**1.86**
Oneida River	Re-establishment	1:1	20.5	20.6	12.7	-	76.2	7.2	**137.2**	**137.2**
	Rehabilitation	3.5:1	0.5	2.8	2.7	-	33.9	1.1	**41**	**11.7**
Sixmile Creek	Re-establishment	1:1	20	17.4	-	5.5	1.2	-	**44.1**	**44.1**
	Rehabilitation	3.5:1	0.1	0.3	-	-	-	-	**0.4**	**0.1**
Total Compensation (acres)			**74.8**	**87.4**	**53.4**	**83.2**	**193.5**	**11.3**	**503.6**	
Total Compensation (credits)			**154.05**		**28.1**	**239.9**				**422.1**
Total Compensation (Credits) required by USACE			*141.65*		*26.7*	*221.51*				*389.86*

Table 4. Anticipated Stream Feet and Credits Generated by Mitigation Site			
Site	**Stream Restoration linear feet**	**Credit Ratio**	**Total Credits**
Buxton Creek	8,617	Re-establishment (1:1)	8,617
Fish Creek	5,413	Re-establishment (1:1)	5,413
Total	14,030		14,030

Open water areas (includes deep water aquatic habitats and vegetated shallows) greater than 0.1 contiguous acre will only be credited where they equal 10% or less of the total wetland establishment and reestablishment areas or so long as they are part of a well-integrated complex of open water and emergent vegetation as in a hemi-marsh. As open water areas do not meet the definition of wetland, it is appropriate to credit these areas as buffers as they don't truly represent wetland establishment or reestablishment. Deepwater aquatic habitat is defined as any open water area that is either a) permanently inundated at mean annual water depths >6.6 ft, lacks soil, and/or is either unvegetated or supports only floating or submersed macrophytes, or b) permanently inundated areas ≤6.6 ft in depth that do not support rooted-emergent or woody plant species. Areas ≤6.6 ft mean annual depth that support only submergent aquatic plants are vegetated shallows, not wetlands. The 2 acres of open water (POW) that will be impacted will be accommodated by POW areas within the wetlands where they are not counted toward the credit total. Should this not occur TWT has sufficient land available on the mitigation parcel to construct POW acreage to accommodate permit requirements.

3.1 Credit Development Schedule

The large size of the Project requires phases for construction consistent with regulatory requirements 33 C.F.R. § 332.3(m) "Implementation of the compensatory mitigation project shall be, to the maximum extent practicable, in advance of **or concurrent with the activity causing the authorized impacts**" (emphasis added). The approach is to complete the construction of each mitigation site over the first six years, so the total compensation acreage is built during Phase 1 of the Micron Campus project during which approximately 60% of the existing site wetlands have been impacted. Implementation of the proposed Mitigation Plan achieves not only "no net loss" in wetland functions and values but provides a "temporal gain" in wetland functions and values in Years 5-8 (see temporal credit accounting in **Table 6**). Temporal accounting is also largely addressed through the compensation credit ratios required by the agencies.

This approach provides the latitude to add additional wetland acres, if necessary, on a realistic, adaptive timeline. Planning and development of each site is a separate effort but compiled into one Project. Stream restoration sites are a priority and will be completed early in the timeline. Construction is planned to run for six years in the following order: Buxton Creek, Fish Creek &

Upper Caughdenoy Creek, Lower Caughdenoy Creek, Oneida River (two years), and Six Mile Creek. In addition, a separate 20-acre area will be set aside in one of these sites for the "Wooding Site Compensation Project" with its own mitigation plan. The credits/acres generated for that project are part of the compensation total.

The focus is on net wetland gain via re-establishment with added wetland rehabilitation/enhancement and preservation of existing wetlands. As of the writing of this Project, TWT anticipates the sites will generate a total of 414 credits. Each site will have a 1-year construction and 10-year maintenance and monitoring period as shown in **Table 6,** with all construction taking place in year one of each project timeline. Construction of all sites will be phased in over the first initial 6-year period. Should additional credits be required, or some wetlands do not meet success criteria, additional acreage will be added within the 6-year building window, or if needed, in the 7th year.

At the end of year-one (construction and planting) for each site or partial site, TWT will develop an as-built report to submit to the agencies. This report will be the basis for each site's yearly vegetation monitoring that tracks all wetland development over the life of the project. The vegetation monitoring will inform any maintenance or adaptive management necessary to keep the sites in compliance with the success criteria for credit development.

The monitoring reports will track the total wetland credits and stream restoration targets and how they are performing. Monitoring will continue until; (1) all final performance goals are met, (2) a funded long-term management plan is approved by USACE and NYSDEC, (3) a conservation easement for each site has been filed with the Oswego County Clerk, and (4) all other obligations in this Project have been met.

Table 5. Micron Campus Impacts

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Construction Phase	Phase 1 A			Phase 1 B					Phase 2 A						Phase 2 B		
Total Wetlands USACE	120.36			8.37					69.83						2.56		
Main site	111.45			8.37					69.83						2.56		
Rail Spur	8.91			0					0						0		
Total Wetlands NYSDEC	108.05			4.27					68.81						1.38		

Table 6. Project Schedule and Temporal Credit Accounting

Site Name	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038 ~	∞ In Perpetuity
Buxton Creek Wetlands	Mobilize	**Construction begins 96.7 cr/ac**				Monitoring, maintenance, and adaptive management for a **15-year period* after construction is completed and as-built approved (not to scale)**									**Permanent stewardship begins after monitoring period ends for each site**
Buxton Creek Stream		**Construction begins 8,617 ft**													
Oneida River Wetlands		**begins 148.9cr/ac**													
Lower Caughdenoy Creek Wetlands		**Construction begins 53.4cr/ac**													
Fish Creek Wetlands	Mobilize		**Construction begins 19.2cr/ac**			Monitoring, maintenance, and adaptive management for a **15-year period* after construction is completed and as-built approved (not to scale)**									
Fish Creek Stream			**Construction begins 5,413 ft**												
Upper Caughdenoy Creek Wetlands	Mobilize			**Construction begins 59.8 cr/ac**		Monitoring, maintenance, and adaptive management for a **15-year period* after construction is completed and as-built approved (not to scale)**									
Six Mile Creek Wetlands	Mobilize				**Construction begins 44.2cr/ac**	Monitoring, maintenance, and adaptive management for a **15-year period* after construction is completed and as-built approved (not to scale)**									
Construction initiated USACE cr/NYSDEC ac		**299 cr/ac**	**318.2 cr/ac**	**378 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	**422.2 cr/ac**	
Mitigation needs including replacement ratio USACE credits impacted NYSDEC Acres impacted		**-287.6 cr -262.23 ac**	**-287.6cr -262.23 ac**	**-287.6cr -262.23 ac**	**-287.6cr -262.23 ac**	**-287.6cr -262.23 ac**	**-287.6cr -262.23 ac**	**-287.6cr 262.23ac**	**-412.03cr -402.17ac**	**-412.03cr -402.17ac**	**412.03cr 402.17ac**	**412.03cr 402.17ac**	**-412.03cr -402.17ac**	**-412.03cr~ -402.17ac~**	
Credit/Acres Balance USACE Credit balance NYSDEC ac balance		**+11.4 cr +36.77 ac**	**+30.6 cr +55.97 ac**	**+90.4 cr +115.77 ac**	**+134.6cr +159.97ac**	**+134.6cr +159.97ac**	**+134.6cr +159.97ac**	**+134.6cr +159.9ac**	**+10.17cr +20.03ac**	**+10.17cr +20.03ac**	**+10.17cr +20.03ac**	**+10.17cr +20.03ac**	**+10.17cr +20.03ac**	**+10.17cr +20.03ac**	

4. Mitigation Work Plan

Each site will have a unique work Plan including invasive species control, grading to reach desired hydrology, and seeding/planting for establishing native vegetative communities. The site plans will discuss the stream and wetland mitigation components of the Micron Compensatory Mitigation only. The detailed, site-specific mitigation work plans will be discussed in each site's individual mitigation plan.

4.1 Selection and Design Criteria

The following characteristics inform the selection priority and design criteria for wetland work areas at all six mitigation sites:

1. Work areas contain few, if any, existing wetlands, which allows for focus on re-establishment and are near or adjacent to existing DEC wetlands. Delineated wetlands will be subsumed into the work area and will be either registered as rehabilitation if the area is marginal, which is usually the case, or will otherwise be subtracted from the total acreage built and corresponding credits generated. The agencies decide which option is selected.
2. Sites are in active soybean production. The sites will stay in active agriculture until construction commences, which helps prevent invasive species and incompatible land uses.
3. Most of the six mitigation sites contain large expanses of fields with slopes of 2 percent or less. Wetlands constructed on steeper slopes will be smaller in size to minimize earthwork and the potential for erosion.
4. NRCS soil maps show poorly drained soils such as clay or silt loam-textured soils. This was field-verified by digging a series of soil test holes by hand using a 2.5-inch open-faced soil auger either 52 or 126 inches long and determining soil texture using the ribbon test.
5. Evidence of historic wetland drainage is visible in historic and recent orthoimagery. This is verified on the ground by examining each site closely to identify signs of hydrologic alteration, including ditches, stream diversions, stream channeling, sloping, filling, surface inlets, or buried drainage structures (e.g., drainage tiles). These landscape components are key for re-establishing wetlands by disabling and reversing historic drainage practices.
6. Some ditches on the property can be filled to restore wetlands without flooding neighboring property or roads.
7. The land adjoins other properties with similar characteristics that present an opportunity to expand the Site.
8. There is potential for stream restoration and the creation of a stream wetland complex.

4.2 Invasive Vegetation Control

Prior to the initiation of earthwork at the mitigation sites, invasive vegetative species management will begin. Efforts will target non-native, invasive plants identified at each site (see ISMP of each individual mitigation plan) that are within the restoration work area, and any area within the TWT ownership boundary that may present a current or future problem. Control methods may include mechanical removal, such as hand-pulling or mowing, and chemical treatments using targeted herbicide treatments or both. These actions will be timed during the appropriate season of the target species to maximize effectiveness. Invasive species control will be completed in a manner that avoids soil disturbance, reduces seed dispersal, and limits impacts on local resources. All treated areas will be monitored to ensure the effectiveness of the control measures, and follow-up treatments will be applied as necessary.

4.3 Construction Methods, Timing, and Sequence

Wetland construction will largely consist of removing or disabling existing drainage tiles, filling, blocking, and disabling ditches, restoring natural wetland basins and rims, restoring microtopography, and loosening compacted soil. These methods will ensure the target hydrology is met and ensure a diverse community of hydrophytic vegetation.

Complete stream channel grading per construction drawings included in the Buxton and Fish Creek plans, generally working from the downstream end to upstream end. Flow shall not be directed into the proposed channel until the proposed channel is stabilized.

Equipment operators will include local construction and farming personnel, including those currently farming the sites, and TWT staff. The on-site experience of farming and local knowledge of the operators will maximize productivity and work quality. Prior to construction, work areas will be mowed and/or crops harvested to increase visibility. Work areas on each site will remain in crops until the year of construction. A parking and staging area for heavy equipment and vehicles will be constructed or designated for each mitigation site. TWT staff will be onsite every day to direct and oversee construction. Should any tree removal be necessary, it will only occur after November 1st.

4.3.1 Timing and Sequence

Construction will occur in phases due to the size of the Project; the wetland mitigation effort will follow a similar approach consistent with regulatory requirements (see 33 C.F.R. § 332.3(m) "Implementation of the compensatory mitigation project shall be, to the maximum extent practicable, in advance of **or concurrent with the activity causing the authorized impacts**."). Site preparation, grading, and planting of each mitigation site is anticipated to be completed concurrently with the construction of Phase 1 of the Micron Project. The timing of the proposed wetland mitigation site construction/development should be completed within six (6) to seven (7)

years of permit issuance and within the 10-year construction window available for mitigation before Micron Phase 2 construction begins:

- Year 1 - Buxton Creek – *wetland/stream complex*
- Year 1 – Oneida River – *wetlands*
- Year 1 - Lower Caughdenoy Creek - *wetlands*
- Year 2 - Fish Creek – *wetland/stream complex*
- Year 3 - Upper Caughdenoy Creek - *wetlands*
- Year 4 - Sixmile Creek - *wetlands*
- Year 5 – Potential for other additional site(s) or additional work on above sites

Staggered mitigation site construction such as this is preferable for the large project size as it allows for an adaptive management framework, ensuring that lessons learned from earlier phases can be applied to later ones, improving overall ecological success. Phased construction can better align with seasonal planting windows and monitoring requirements, ultimately enhancing the long-term viability of mitigation efforts.

Sequencing within each construction site follows the pattern shown in **Table 7**. Each site will be constructed in one year with the following spring dedicated to planting that will initiate the 10-year monitoring and maintenance window to meet success criteria.

Table 7. Example of construction sequence for one site*

Activity	Timing	Phase
Work area layout and preparation, SWPPP implementation.	Spring Year 1	Pre-construction
Invasive management.	Spring Year 1	Pre-construction
Groundwater dam installation, erosion control seeding.	Summer Year 1	Construction Phase I: Earthwork
Final grading to develop microtopography, loosening of soil as necessary, placing woody debris	Summer Year 1	Construction Phase II: Topography Enhancement
Seeding, planting, and mulching per planting plan and SWPPP	Spring Year 2	Construction Phase III: Seeding & Planting
Removal of construction materials.	Spring Year 2	Post-construction

*This table provides the typical sequence for Buxton Creek, which is anticipated to be the first site developed. Each subsequent site will follow the same sequence on a yearly schedule.

4.4 Planting plan and vegetation establishment

The desired wetland plant communities will be established through broadcasting high-quality, native seeds and planting trees and shrubs as per the planting plans detailed in the individual site

mitigation plans. The objective is to re-establish and rehabilitate high-quality emergent, shrub, and forested wetlands of select communities to replace the lost functions at the Micron Site.

Species proposed in individual site plans are based on many factors including commercial availability, typical species present in similar/local plant communities, species present at the Impact Site and Mitigation Sites, species establishment considerations (e.g. rhizomatous), etc. The species provided in each individual plan are not intended to be exclusive and may be supplemented or changed with ecologically similar species.

Spacing depends on site conditions, targeted community types, and will be random and not grid like. Site conditions and topographic features will be utilized in plant placements, such as black willow (*Salix nigra*) along riparian features. TWT staff will coordinate and provide guidance to the planting crew prior to the start of work and will be on-site during operations. Pre-staking of planting locations, used to facilitate instruction to planting staff, will be completed as necessary.

4.5 Sediment and erosion control measures

All erosion and sediment control practices will be installed as specified by the sites' Stormwater Pollution Prevention Plan (SWPPP) prior to any ground disturbance. The limit of disturbance and the spoil deposition areas will be clearly marked to ensure ground disturbances are minimized. Temporary erosion and sedimentation control measures in and around mitigation sites will be properly maintained at all times. Spoil and sediment collected will be removed and placed upland in a manner that prevents erosion and transport to a waterway or wetland. All erosion and sediment control devices and structures will be removed once adequate stabilization is achieved.

5. Maintenance Plan

Periodic maintenance activities will be expected to occur following initial construction and planting to ensure the long-term viability of the restored and protected resources (wetlands and streams) on the project sites. Each individual mitigation site plan will include descriptions outlining the projected maintenance activities during the monitoring period. Any maintenance activities undertaken will be documented in the appropriate monitoring report along with a discussion of any anticipated maintenance to be completed in future years. Any significant adjustments such as earthwork will require USACE and NYSDEC approval.

6. Performance Standards

See site-specific mitigation plans for performance standards based on the characteristics and work plan at each individual site.

7. Monitoring Schedule

After an initial Post-Construction As-Built Report, monitoring reports will be submitted by December 31st of the monitoring year to describe conditions in the growing season (**Table 8**). All reports in digital format will be submitted to USACE, Regulatory Branch, Auburn Office and NYSDEC, Region 7 Headquarters in Syracuse, with any hard copies provided upon request. All monitoring, reporting, requests, and adaptive management implementation are Micron's responsibility; TWT will provide support to ensure all reports are developed and submitted.

Table 8. Anticipated Reporting Schedule

Activity	Description	Year
Post-Construction Report	Year of planting completion	0
1st Monitoring Report	Year following first full growing season after approval of the post-construction report	1
2nd Monitoring Report	Second full year of vegetation growth	2
3rd Monitoring Report	Third full year of vegetation growth	3
4th Monitoring Report	Fourth full year of vegetation growth	4
5th Monitoring Report	Fifth full year of vegetation growth	5
6th Monitoring Report	Seventh full year of vegetation growth	7
7th Monitoring Report	Ninth full year of vegetation growth	9
8th Monitoring Report	Eleventh full year of vegetation growth	11
9th Monitoring Report	Thirteenth full year of vegetation growth	13
Final Monitoring Report	Fifteenth full year of vegetation growth	15

If construction takes more than one growing season to be completed, an interim construction report will be submitted and will describe completed tasks and those remaining. The monitoring timeline will begin following the completion of construction and planting activities described herein.

8. Long Term Management Plan

The purpose of the Long-Term Management Plan (LTMP) is to ensure the long-term sustainability of the protected and restored resources after mitigation performance standards have been achieved. The LTMP for each site will be included as an Appendix to each of the individual mitigation plans. As the site develops and matures, the LTMPs will be amended as needed to include relevant information. After the monitoring period has ended, TWT will prepare a final LTMP to be submitted with the project's final monitoring report that will be reviewed and approved by the USACE and NYSDEC. The final LTMPs will address the site-specific future needs of the project based upon conditions at the time of the active period closeout.

8.1 Responsible Party

As the fee simple owner for all Micron mitigation sites, TWT will be the long-term steward and responsible party for long-term management of the wetland mitigation sites including, but not

limited to, identification of needs, development of recommendations, review with regulatory agencies as required, LTMP implementation, and efficacy measures.

8.2 Long-Term Monitoring and Management Activities

The LTMP includes the anticipated long-term monitoring and management activities and their estimated costs. These activities will be adjusted as needed throughout and after the active ecological monitoring period.

8.3 Long-Term Funding Mechanism

TWT has a director-controlled Stewardship Management Investment Account provided by Micron Semiconductor Manufacturing LLC specifically dedicated to ensuring full implementation and maintenance of the Micron Compensatory Mitigation Sites. This account's investment income (investment instruments are low-risk and broad-based) is used to support permanent long-term management and maintenance as described in the final LTMP. The funding level designed in the Long-Term Management Budget in the LTMP is sufficient to sustain the long-term management of the Micron Compensatory Mitigation Sites.

9. Adaptive Management Plan

Beyond the anticipated maintenance needs for each site, preparedness for unexpected changes in site conditions is imperative to the continued success of the project. An adaptive management strategy for each site will outline the approach for addressing potential challenges and unexpected changes, including those related to fire, climate change, disease, and other factors. Long-term monitoring (minimum quarterly visits) to inform the adaptation of management strategies will ensure that the protected and restored resources remain resilient and meet long-term conservation goals.

10. Financial Assurances

10.1 Short-term

The short-term financial assurances for this compensatory mitigation plan will include individual performance bonds for each mitigation site to ensure compliance with permit requirements and project success. Experienced insurance brokers with the Great American Insurance Group shall assist in preparing these financial assurances by providing guidance on structuring the performance bonds and ensuring they meet regulatory expectations. This approach ensures that each mitigation site is financially secured independently, providing clear accountability and reducing risk for both regulatory agencies and stakeholders. The performance bonds are provided by Micron Semiconductor Manufacturing LLC.

10.2 Long-term

To ensure long-term financial assurance TWT will continue to own the site fee simple in perpetuity. As a 501(c)(3) nonprofit, TWT has received tax-exempt status for the site, which helps assure its long-term protection. TWT has a director-controlled Stewardship Management Investment Account specifically established for the Micron Compensatory Mitigation project with funds provided by Micron Semiconductor Manufacturing LLC. Funds will be deposited into this account with the investment income (investment instruments are low risk and broad-based) used to support permanent long-term management and maintenance. These funds are sufficient to sustain long-term management as outlined in **Table 9**, in which the budget covers long-term management for all six sites combined.

Table 9. Budget estimate for potential long-term management and maintenance tasks, all six Micron Wetland/Stream mitigation sites, a total of 1,328 acres.

Category	Task	Frequency	Estimated Cost per acre	Annualized Cost
Adaptive Management	Replanting	5	$1,800	$7466
	Reshaping terrain	5	$600	$2489
	Invasive species removal	2	$2,100	$21777
Maintenance	Site manipulation	10	$1500	$3111
	Boundary posting	10	$600	$6244
	Other practices	3	$1,320	$9,126
Long-Term Management	Other corrective adaptive management actions to ensure natural stability of site	5	$4,800	$19,910
Monitoring	To determine implementation tasks	1	$18	$25,398
Administration	For all tasks above including tax exempt status	1	$600	$12,444
Total annual budget*				102,500
Total Stewardship investment**				**$4,100,000**

Note: This table is an estimate based on 400 wetland credits @ $8,000 or (equivalent DEC Acres) and 13,500 stream ft @ $60

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