

Glendale Secondary Plan

Appendix A

Natural Heritage System

October 30, 2024



The recommended Natural Heritage System (NHS) for the Glendale Secondary Plan area has been developed following a comprehensive review of background information, and completion of original field surveys, as part of the Glendale Scoped Subwatershed Study (SWS). The SWS development followed a phased approach, allowing for review and comments of the SWS findings and recommendations at specified milestones by key stakeholders including members of the SWS Technical Advisory Committee and Secondary Plan area landowners.

Phase 1 of the SWS involved the collection and compilation of existing natural heritage information resources with the results of field surveys to accurately characterize and map natural feature coverage within the Glendale SWS study area. Phase 2 incorporated an impact assessment and recommendation of a NHS for the Glendale SWS study area. Phase 3 provided further detail and recommendations on the management and implementation of the Glendale NHS in conjunction with future land development applications and site-specific studies.

Development of the NHS was based around an assessment of the most significant and sensitive natural features and habitats present within the Glendale SWS, based on background information review and field survey results. This assessment also had close regard for existing policies, and natural heritage designations and mapping, associated with the Niagara Region Official Plan (2022), Town of Niagara-on-the-Lake Official Plan (2017), the Growth Plan for the Greater Golden Horseshoe (OMMAH 2020), the Greenbelt Plan (OMMA 2017), and the Niagara Escarpment Plan (MNR 2021).

As a result of this assessment, as summarized in the Phase 2 SWS report, the following significant and sensitive natural feature and area types were categorized and recommended to represent “Core Areas” of the Glendale NHS:

- Significant Woodlands;
- Wetlands, including the following:
 - Provincially Significant Wetlands (PSW);
 - Evaluated, non-PSW wetlands;
 - Unevaluated wetlands;
- Significant Valleylands;
- Fish Habitat;
- Habitat for Endangered and Threatened Species;
- Significant Wildlife Habitat, and
- Other woodlands (i.e., non-significant woodlands).

The individual components of the Glendale NHS were mapped in the Phase 2 SWS report, and are attached in Appendix I (Maps 3-5). Where property access was permitted to the SWS Study Team, the boundaries of woodland and wetland features were accurately delineated and mapped. Woodland boundaries were delineated according to their driplines as determined by experienced biologists. Wetland boundaries were delineated according to the Ontario Wetland Evaluation System (OWES) guidelines, as applied by biologists experienced with OWES. See

Appendix II for mapping showing the locations of properties that were directly accessed. Where site access was not possible, feature boundaries were determined based on air photo interpretation and, where applicable, existing property-specific environmental studies/data.

In conformance with the natural heritage policies of the 2022 Regional Official Plan, the Glendale NHS was also recommended to including supporting environmental features that would enhance the ecological form and function of the NHS Core Areas. Thus, the NHS also includes the following elements:

- Buffers;
- Linkages, and
- Supporting Features and Areas, which include Enhancement Areas.

See Appendix III for mapping of the recommended Glendale NHS, which represents a composite of the Core Areas and their associated buffers, linkages, and Supporting Features and Areas.

Buffers

Buffers have been recommended and identified as components of the Glendale NHS to set-back and mitigate the effects of future adjacent land uses on the protected Core Areas. Two classes of buffer have been identified for the SWS study area, with regard for existing Provincial and Regional policies and guidelines:

- Within the provincial NHS (i.e., NHS for the Growth Plan for the Greater Golden Horseshoe (OMMAH 2020) and the Greenbelt Plan (OMMA 2017)), prescribed 30m minimum buffers from the following Key Natural Heritage and Key Hydrologic Features:
 - Wetlands;
 - Seepage areas and springs;
 - Fish habitat;
 - Permanent and intermittent streams; and
 - Significant Woodlands.
- Outside of the provincial NHS and within the Glendale settlement area, preliminary buffer widths have been identified and recommended as the following:
 - 30m buffers from PSW;
 - 30m buffers from significant Areas of Natural and Scientific Interest (ANSI);
 - 20m buffers from Significant Woodlands;
 - 15m buffers from non-PSW and unevaluated wetlands;
 - 15m buffers (on each side) from Type 2 and 3 Fish Habitat/intermittent flow watercourses; and
 - 10m buffers from other woodlands.
 - In addition to the above, a special 20m wide buffer from the limits of a Gray Dogwood Cultural Thicket (CUT1-4; a form of NHS Supporting Feature/Area) south of the Niagara Corporate Business Centre has been recommended to preserve SWH (see below).

Preliminary buffer widths have been recommended with consideration for the ecological sensitivity of the protected feature, potential buffer functions and management strategies (e.g., water runoff attenuation toward adjacent wetland), and based on current industry standards and practices. It is intended that the width of the buffers identified in the SWS may be further refined through completion of site-specific EISs.

Buffers to Provincial NHS features are limited to a small portion of the Glendale Secondary Plan area, specifically within the northeastern extent where shown on Appendix I Map 1.

A small portion of the southeast study area (specifically within the Niagara College property) is located immediately adjacent to Escarpment Natural Area and Escarpment Protection Area as mapped in the Niagara Escarpment Plan (MNRF 2021) (Appendix I, Map 1b). Lands within the southeast study area may therefore be subject to the requirements of the Niagara Escarpment Plan, whereby a natural heritage evaluation may be required if proposed development or site alteration is within 120m of a Key Natural Heritage Feature or Key Hydrologic Feature as defined in the Plan. As part of these evaluations, an appropriate Vegetation Protection Zone (VPZ; i.e., buffer) must be determined to protect, and where possible, enhance the adjacent natural feature. Minimum buffers widths established within this portion of the study area must conform with Niagara Escarpment Plan requirements for VPZs, and must comprise naturally vegetated areas where no construction or site alteration is permitted.

The buffers illustrated in Appendix III have been measured from the mapped Core Area natural feature boundaries in accordance with the buffer width recommendations listed above. The buffer widths depicted in Appendix III therefore vary according to the category of underlying Core Area type (e.g., Significant Woodland vs non-significant woodland; PSW vs unevaluated wetland). With the exception of the prescribed minimum buffers from Provincial NHS features as listed above, the recommended NHS buffers are to be considered as a default or starting point in the determination of suitable buffers as part of EISs to be completed for individual development applications. The EIS will consider site-specific characteristics of the natural features and the degree of impact potential from the proposed development to determine the refined buffer width at a given site. However, ecological rationale should be provided in the EIS if buffer widths of less than the recommended widths listed above are proposed.

Three Special Buffer Management Zones have been identified and are discussed in the SWS Phase 3 report. Special buffer management measures are required for these to maintain suitable habitat conditions for provincially rare vegetation species that they contain. Two of the Special Buffer Management Zones coincide with recommended 10m Significant Woodland buffers (see Appendix III Maps 1e and 1k). The other Special Buffer Management Zone, shown on Appendix III Map 1j, is a dedicated buffer specific to the need to preserve significant vegetation habitat. It is a recommended 20m wide buffer from the western boundary of a Gray Dogwood Cultural Thicket community (which itself is mapped as a Supporting Feature/Area). Unlike other recommended buffers in the Glendale NHS, it does not buffer a Core Area natural feature. The specific location and configuration of this buffer may be refined subject to the recommendations of an EIS, provided it can be demonstrated that the management actions to

preserve habitat for the rare vegetation species at this location (Rigid Sedge (*Carex tetanica*)) can be effectively implemented.

Supporting Features and Areas

The Regional Official Plan identifies that “Supporting Features and Areas” represents a component of the Regional NHS. Supporting Features and Areas are defined as “*lands that have been restored or have the potential to be restored*” and include the following (Region of Niagara 2022):

- Grasslands, thickets, and meadows that support the ecological functions of the adjacent Key Natural Heritage Features, Key Hydrologic Features and/or Natural Heritage Features and Areas;
- Valleylands, which includes lands that may have ecological and/or hydrological functions, that are not Significant Valleylands, and are not the site of a permanent or intermittent stream that is regulated by the Conservation Authority;
- Wildlife habitat that is not considered to be Significant Wildlife Habitat; and
- Enhancement Areas, which are the subject of Section 3.1.16 of the OP.

These early successional lands comprise cultural thicket (CUT) and cultural meadow (CUM) communities that have established within previously cleared lands that have been left fallow or undeveloped as mapped in Appendix III. These adjacent lands are anticipated to provide supporting ecological functions that benefit the adjacent Core Area.

These areas have been delineated with consideration for the significance and sensitivity of the adjacent Core Area based on the results of background information review and field surveys, and where the adjacent lands can enhance the ecological value or function of the Core Area. In many cases, the Supporting Features and Areas are limited to the recommended ecological buffers from Core Areas. In several locations these extend beyond the buffers to coincide with floodplain hazards that must be maintained outside of development envelopes, and thus represent restoration opportunities. In certain locations, additional adjacent lands beyond recommended buffers or floodplain limits have been identified as Supporting Features/Areas due to the benefit that they can provide to the adjacent Core Area. For example, this includes areas of adjacent land that fill “embayments” within Core Area natural features. Incorporating these additional areas into the NHS results in a more robust natural feature configuration that is more resilient to adjacent land use disturbances (e.g., “edge effects”), increases interior habitat and lessens the negative effects caused by ecological fragmentation. Certain Supporting Features and Areas have been recommended to enhance ecological connectivity, or potential future connectivity, on the landscape (e.g., on either side of the QEW), or where good ecological restoration potential exists within adjacent lands.

It is intended that the specific extent and boundaries of the Supporting Features and Areas identified in the SWS may be refined through completion of site-specific EISs. Schedule 3 of the Secondary Plan does not incorporate Supporting Features and Areas as part of the mapped Environmental Protection designation. However, future EISs must have regard for the recommendations of the SWS and the mapped Glendale NHS, which includes preliminary mapping of Supporting Features and Areas.

Linkages

Linkages are connections between natural heritage features that provide movement opportunities for species between habitat patches that would otherwise be isolated. They enhance and maintain the viability of specific species populations by providing habitats for various life processes (e.g. breeding habitat vs summer foraging habitat), preserving genetic variability, and allowing populations to recolonize areas where they are no longer found. Linkages also provide some foraging and breeding habitat, as well as provide a buffer function along watercourses and other features.

Linkages are identified as a component of the Regional NHS as defined in Section 3.1 of the ROP (2022). Linkages were identified for the Glendale study area as shown on Appendix III Maps 1a and 1b. These comprise existing functional linkages within natural feature corridors as well as potential linkages that cross existing barriers (e.g. roads), but may be realized through future implementation of measures that enhance connectivity (e.g., ecopassages). The mapped linkages include connections to natural features and corridors that are external to the Glendale study area, such as the Homer Escarpment Life Science ANSI to the south and narrow riparian corridors to the north.

Three primary linkages are identified for the study area. These are associated with the riparian corridors of the Six Mile Creek main branch, the Six Mile Creek West Branch, and Eight Mile Creek. The significance and function of these linkages varies at the study area scale, ranging from the ecologically significant and robust Six Mile Creek main branch corridor to the very localized linkage function provided by the Eight Mile Creek corridor. The functional value of these linkages, when considering the broader landscape context, will require ecological enhancements and enlargements of the riparian linkages where they extend north of the study area; this is particularly relevant to the narrow riparian corridors associated with the Six Mile Creek West Branch and Eight Mile Creek.

Special Considerations and Exclusions to Natural Heritage System Mapping

Modero Estate Subdivision Lands

The approved Modero Estates Plan of Subdivision underwent a planning approval process that was subject to the previous (2014) Niagara Region Official Plan policies. Since Draft Plan Approval was issued for the Plan of Subdivision prior to the Region's adoption of the 2022 Official Plan, the 2014 Official Plan natural heritage policies apply with respect to those lands. Natural features within the Modero Estate lands were therefore mapped in the SWS Phase 1 report with an overlay of the relevant 2014 Official Plan Core NHS. This included mapping of Environmental Protection Area, corresponding to Significant Woodland within the Greenbelt Plan area, and Environmental Conservation Area, corresponding to other significant natural features within the Settlement Area portion of the Modero Lands properties (E&E Solutions and LCA Environmental 2022). The Environmental Protection Areas and Environmental Conservation Areas as mapped by Modero (E&E Solutions and LCA Environmental 2022), have been incorporated into the Core Areas of the Glendale NHS. The Glendale NHS mapping (Appendix III, Map 1f) incorporates updated boundaries of the Modero Estates Core Areas based on the approved Draft Plan of Subdivision (The Larocque Group 2024).

Properties with Approved or Substantially Complete Development Plans

Special considerations were made for properties or lands for which development plans have already been approved (e.g., Niagara-on-the-Green subdivision) or for which development applications had been submitted but not yet approved at the time of the SWS reporting. NHS Core Area features depicted within these properties are consistent with existing background mapping prepared for these properties/developments, such as described above for the Modero Estate lands. Since these properties have undergone their own approvals processes, recommended buffers and Supporting Features and Areas have not been illustrated for these properties.

Currently Developed Properties

NHS Core Area natural features are located outside of currently built-out land cover areas (e.g., buildings, roads, associated impervious surfaces and manicured lawns). Although stormwater management infrastructure may contain natural vegetated cover (e.g., adjacent to ponds), the NHS Core Areas are also intended to be maintained outside of stormwater management infrastructure. The delineation of buffers as shown on NHS mapping (Appendix III) is not intended to extend into currently developed properties, recognizing the existing land use of these sites. Supporting Features and Areas are not intended to be shown within currently built-out land cover areas that have an existing land use and cannot feasibly be ecologically restored or enhanced.

However, should an application be submitted for the redevelopment of a currently developed property, an EIS will be required that will establish the limits of an ecological buffer. It is recommended that buffer widths be established on redevelopment sites to be consistent with, or exceed, the buffer recommendations made for the Glendale NHS. EISs should also consider inclusion of Supporting Features and Areas (i.e., enhancement areas) within the land use plan to provide supporting ecological functions to the adjacent NHS Core Area natural features.

Glendale Secondary Plan – Environmental Protection Designation

The Environmental Protection designation illustrated on Schedule 3 is based on the recommended Glendale NHS as presented in the SWS, and comprises the following components:

- NHS Core Areas, including the following mapped sub-components:
 - Significant Woodlands;
 - Wetlands
 - Significant Valleylands;
 - Fish Habitat;
 - Significant Wildlife Habitat, and
 - Other woodlands (i.e., non-significant woodlands).
 - Specific to the Modero Lands – lands designated as Environmental Protection Area and Environmental Conservation Area as per the 2014 Regional Official Plan.

- Preliminary ecological buffers
- Floodplain hazard lands

Note that no PSWs or evaluated non-PSWs are located within the Glendale Secondary Plan area; all wetlands within this area are unevaluated wetlands. Also note that no confirmed habitat for Endangered or Threatened species was mapped as part of the SWS that forms a part of the mapped NHS. Although Significant Valleyland forms a part of the mapped NHS, along the Six Mile Creek main branch corridor, it is entirely contained within a larger block of Significant Woodland.

As described above, Supporting Features and Areas have been omitted from the Environmental Protection designation mapping. However, these areas, as mapped in the SWS, must be considered for inclusion as part of future land use planning, subject to the recommendations of an EIS. Linkages do not form a separate mapped component of the NHS in and of themselves, but rather co-occur with other mapped NHS Core Areas and Supporting Feature/Areas. They are therefore represented within the mapped Environmental Protection designations.

Schedule 3 includes an “Adjacent Lands Overlay” which is not a part of the Glendale NHS. Rather, it illustrates areas that are within 120m of the Environmental Protection designated lands that may be subject to requirement of an EIS as part of land development applications. For example, “adjacent lands” are recommended as lands up to 120m from certain natural feature types (e.g., Significant Woodland) in the provincial Natural Heritage Reference Manual (OMNR 2010). The requirement for an EIS will be determined by Regional and Town staff in completion of pre-consultation for individual development applications.

References

Ecological and Environmental Solutions (E&E) and LCA Environmental. 2022. Modero Estates, Glendale Village Secondary Plan Area. Environmental Impact Study. Prepared for Hummel Properties Inc. March 2022.

The Larocque Group. 2024. Draft Plan of Subdivision. Modero Estates. February 5, 2024.

Ontario Ministry of Municipal Affairs (OMMA). 2017. Greenbelt Plan (2017). May 2017.

Ontario Ministry of Municipal Affairs and Housing (OMMAH). 2020. A Place to Grow: Growth Plan for the Greater Golden Horseshoe. Office Consolidation 2020.

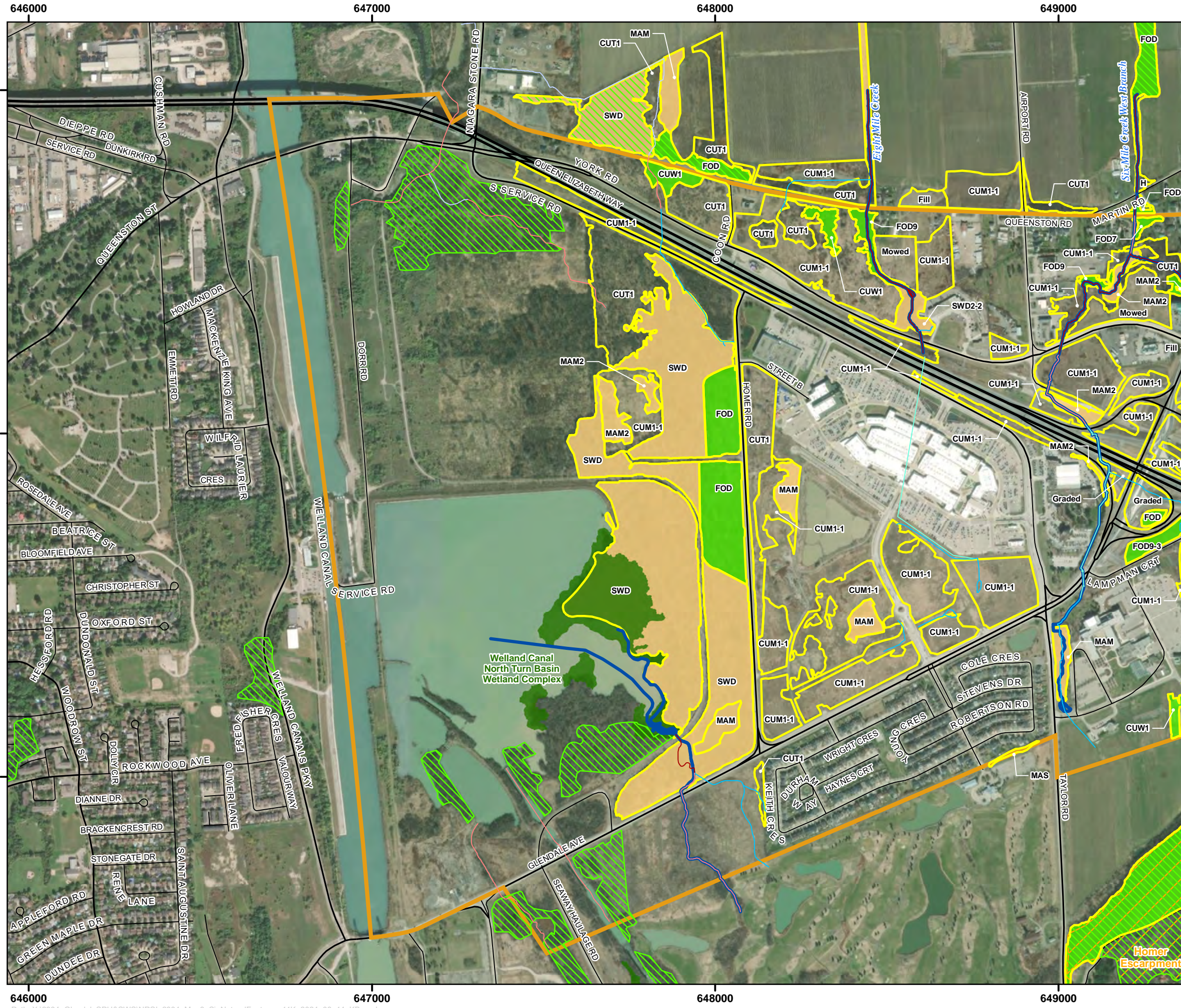
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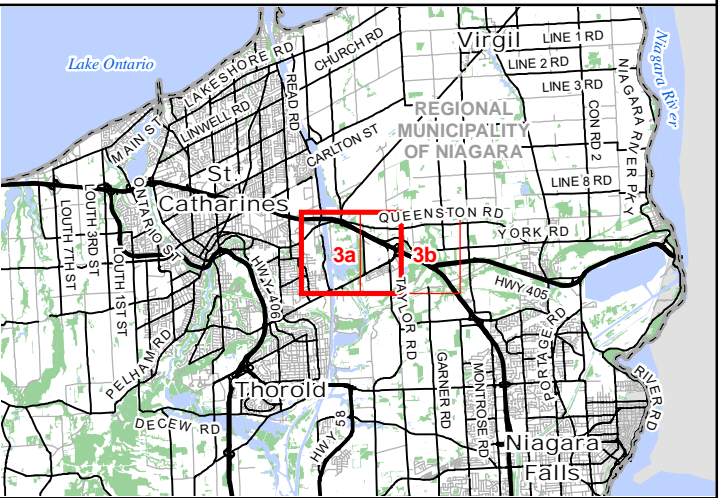
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Town of Niagara-on-the-Lake. 2017. Town of Niagara-on-the-Lake Official Plan. As amended to July 17, 2017.



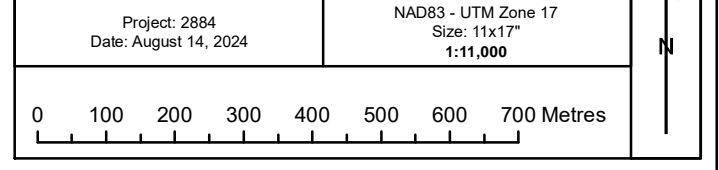
Map 3a
Glendale Secondary Plan
Update and SWS
Significant Natural Features

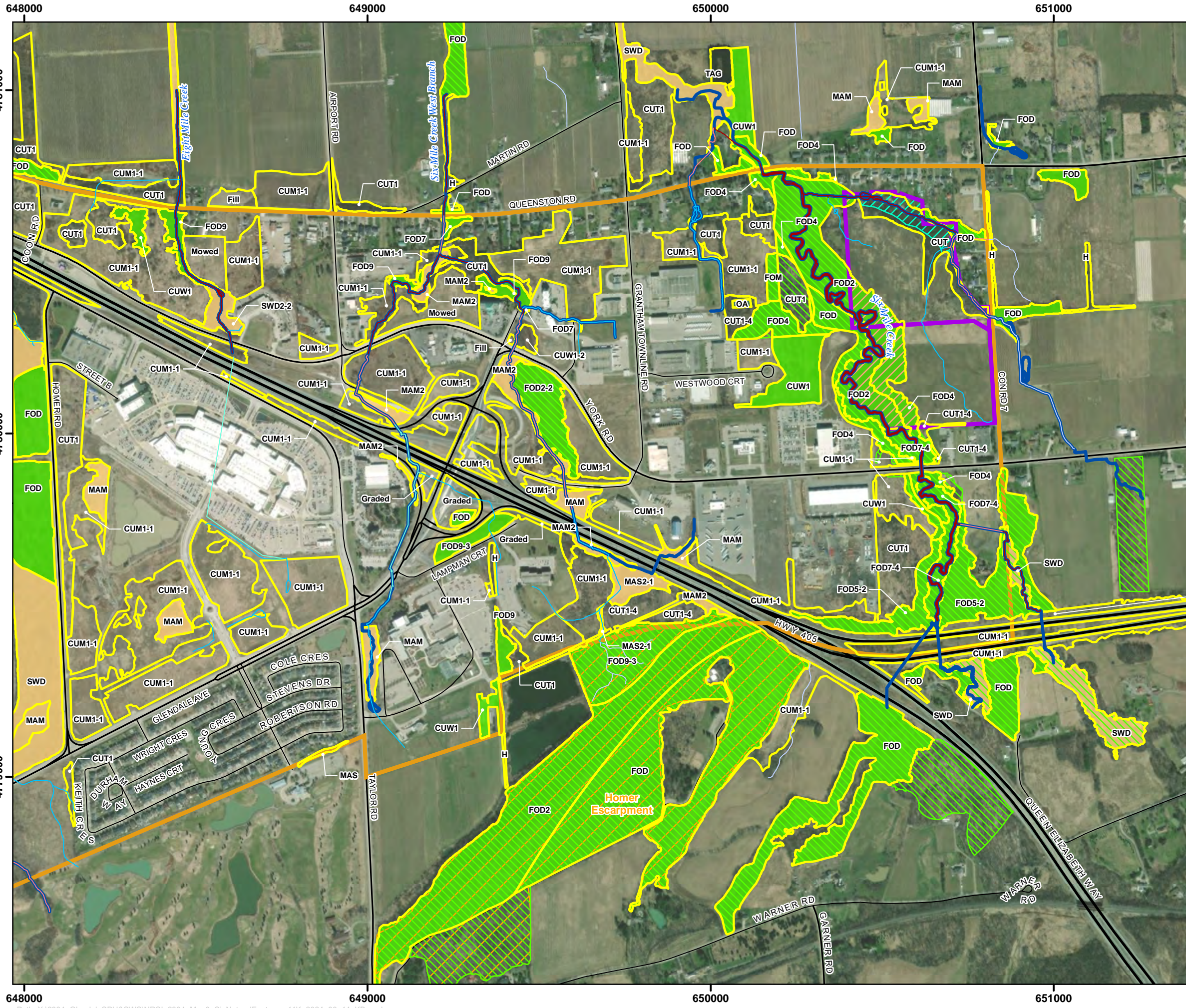


- Legend**
- Study Area
 - Highway
 - Primary Road
 - Secondary Road
 - Provincially Significant Wetland (PSW)
 - Other Wetland
 - Terrestrial Woodland
 - Significant Woodland (2022 ROP; approximated)
 - ANSI, Life Science
 - Ecological Land Classification
 - Important Fish Habitat (NPCA)
- Watercourse & Headwaters (Matrix Solutions)**
- Watercourse - High Constraint
 - Watercourse - Medium Constraint
 - Headwater Drainage Feature (HDF)
 - Watercourse - Other
 - Watercourse - Conduit

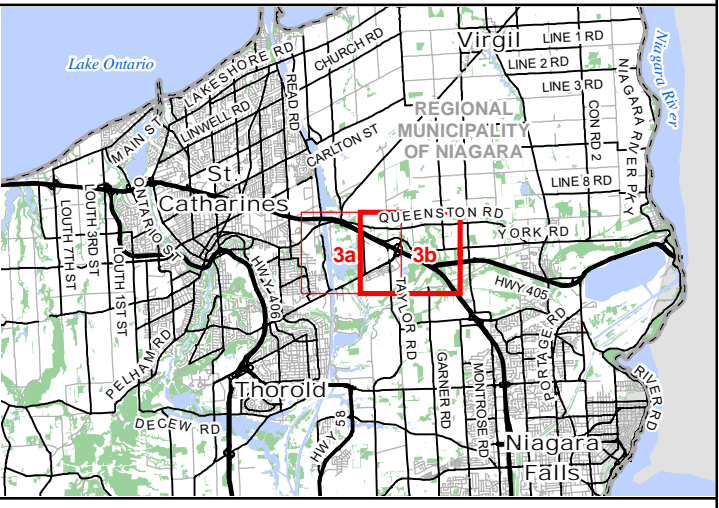


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Map 3b
Glendale Secondary Plan Update and SWS
Significant Natural Features



- Legend**
- Study Area
 - Modero Estates Lands
 - Highway
 - Primary Road
 - Secondary Road
 - Other Wetland
 - Terrestrial Woodland
 - Significant Woodland (2022 ROP; approximated)
 - ANSI, Life Science
 - Ecological Land Classification
 - Regional Core Natural Heritage Overlay (2014 OP)**
 - Environmental Protection Area (EPA)
 - Environmental Conservation Area (ECA)
 - Important Fish Habitat (NPCA)
 - Watercourse & Headwaters (Matrix Solutions)**
 - Watercourse - High Constraint
 - Watercourse - Medium Constraint
 - Headwater Drainage Feature (HDF)
 - Watercourse - Other
 - Watercourse - Conduit

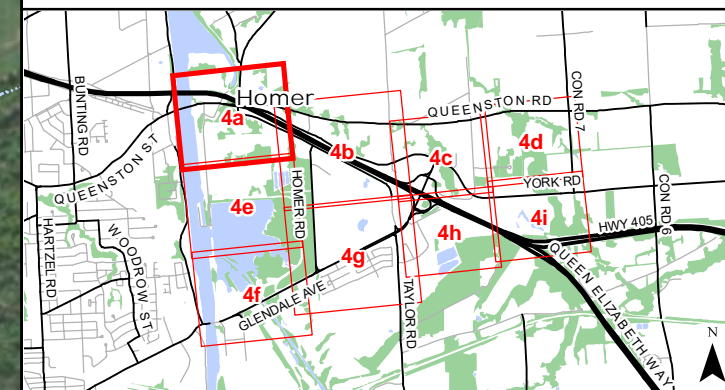
NATURAL RESOURCE SOLUTIONS INC.
 Aquatic, Terrestrial and Wetland Biologists

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Project: 2884 Date: August 14, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:11,000

Glendale Secondary Plan Update and SWS

Fish Habitat



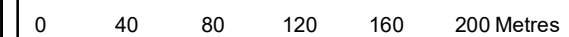
- Legend**
- Study Area
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Watercourse (Unclassified)
 - Watercourse Classification (MNRF)**
 - Type 3: Marginal Fish Habitat



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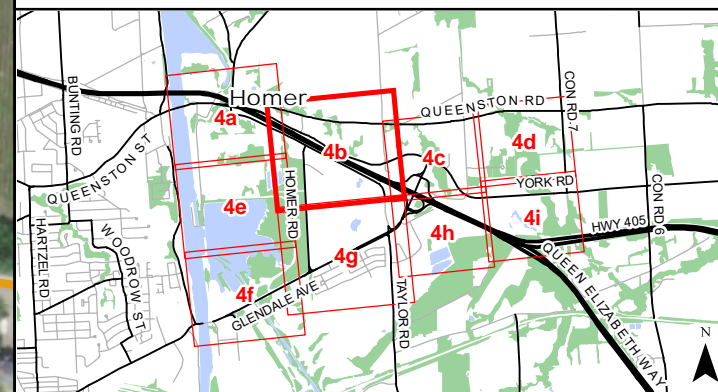
Project: 2884
Date: August 11, 2023

NAD83 - UTM Zone 17
Size: 11x17"
1:3,500



Glendale Secondary Plan Update and SWS

Fish Habitat



- Legend**
- Study Area
 - Water Body (MNR)
 - Watershed Boundary (MNR)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Conduit
 - Watercourse Classification (MNR)**
 - Type 1: Critical Fish Habitat
 - Type 2: Important Fish Habitat
 - Type 3: Marginal Fish Habitat

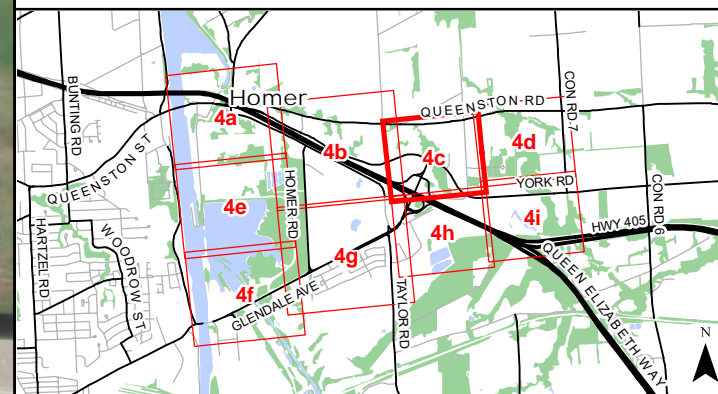
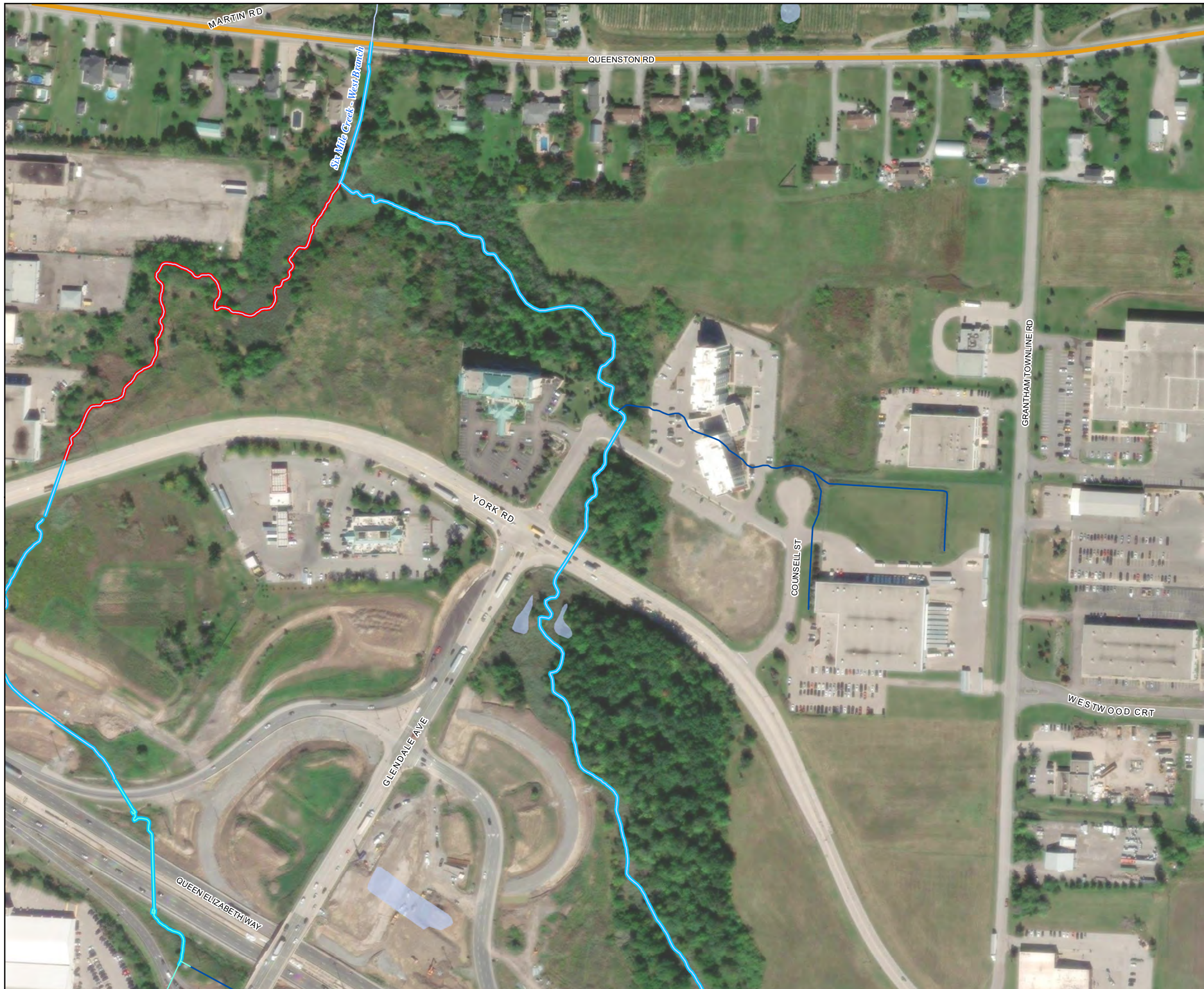


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Project: 2884 Date: August 11, 2023	NAD83 - UTM Zone 17 Size: 11x17" 1:4,000

Glendale Secondary Plan Update and SWS

Fish Habitat



- Legend**
- Study Area
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Headwater Drainage Feature
 - Conduit
 - Watercourse Classification (MNRF)**
 - Type 1: Critical Fish Habitat
 - Type 2: Important Fish Habitat

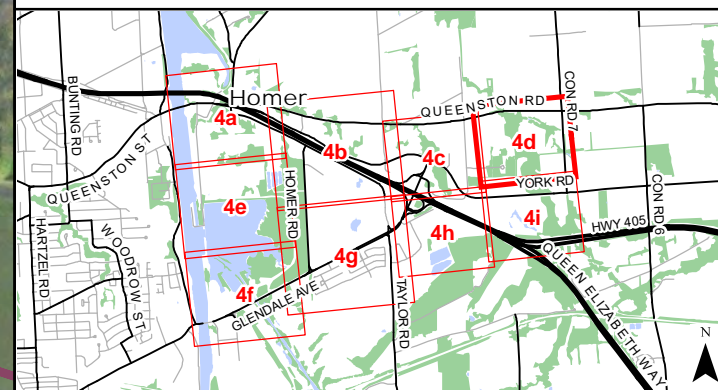
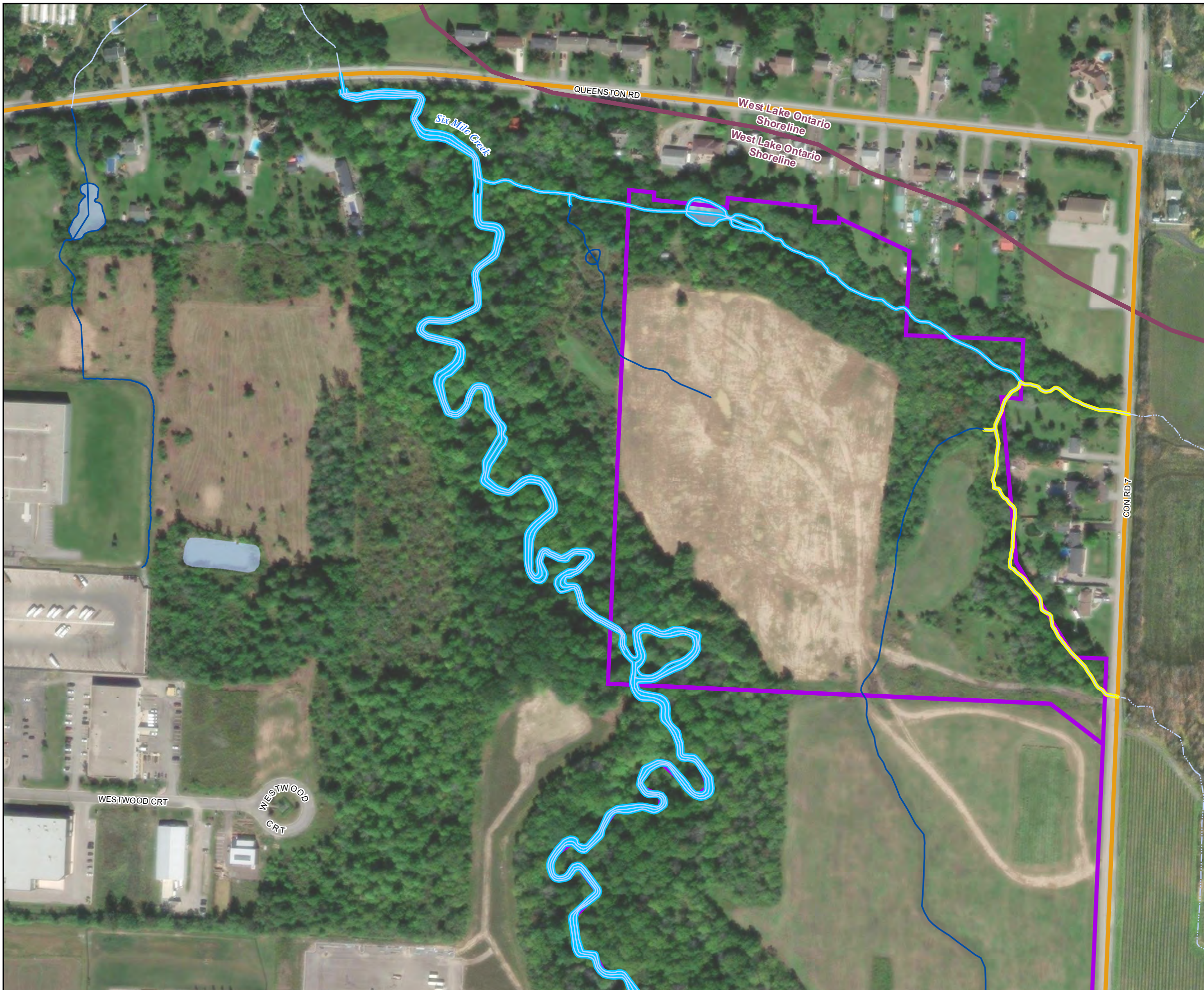


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Glendale Secondary Plan Update and SWS

Fish Habitat



- Legend**
- Study Area
 - Modero Estates Lands
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Watercourse Classification (MNRF)**
 - Type 2: Important Fish Habitat
 - Type 3: Marginal Fish Habitat

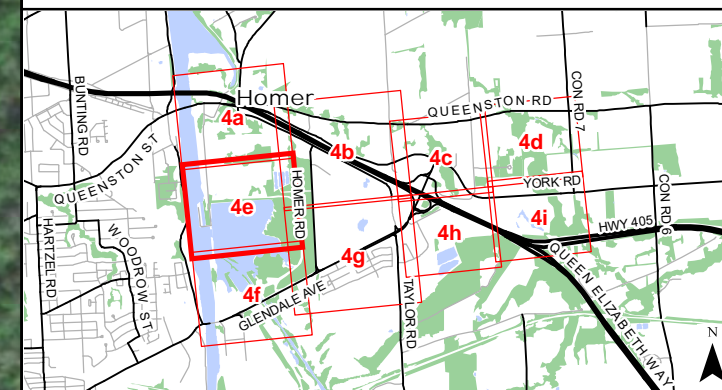




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Glendale Secondary Plan Update and SWS

Fish Habitat

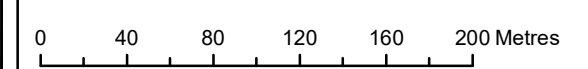


- Legend**
-  Study Area
 -  Watershed Boundary (MNRF)



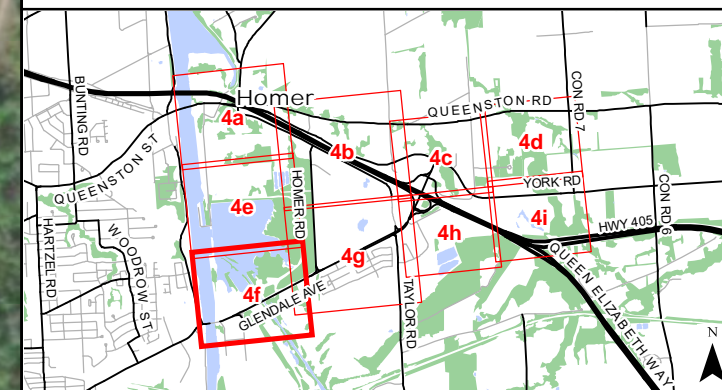
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Glendale Secondary Plan Update and SWS

Fish Habitat

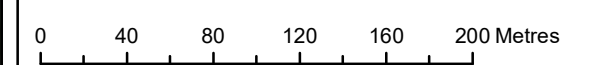


- Legend**
- Study Area
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Headwater Drainage Feature
 - Watercourse Classification (MNRF)**
 - Type 2: Important Fish Habitat
 - Unclassified



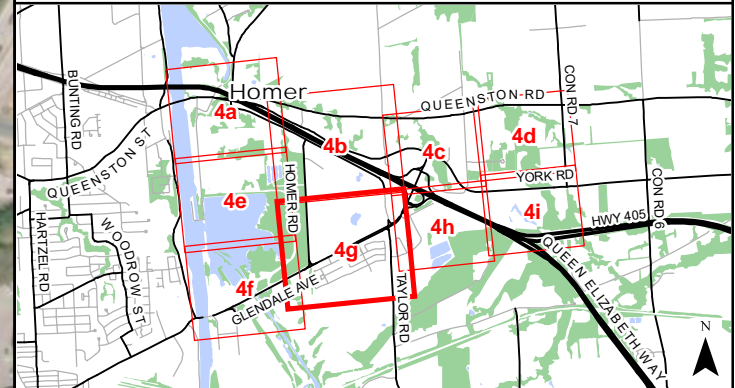
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Glendale Secondary Plan Update and SWS

Fish Habitat



Legend

- Study Area
- Water Body (MNRF)
- Watershed Boundary (MNRF)
- Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Headwater Drainage Feature
 - Conduit
- Watercourse Classification (MNRF)**
 - Type 2: Important Fish Habitat



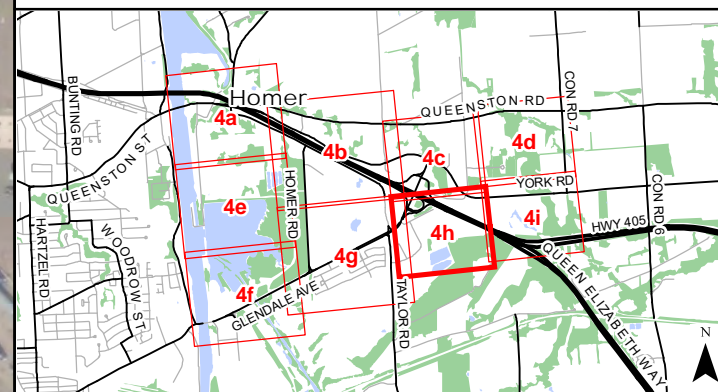
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0 40 80 120 160 200 240 Metres

Glendale Secondary Plan Update and SWS

Fish Habitat



- Legend**
- Study Area
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Conduit
 - Watercourse Classification (MNRF)**
 - Type 2: Important Fish Habitat



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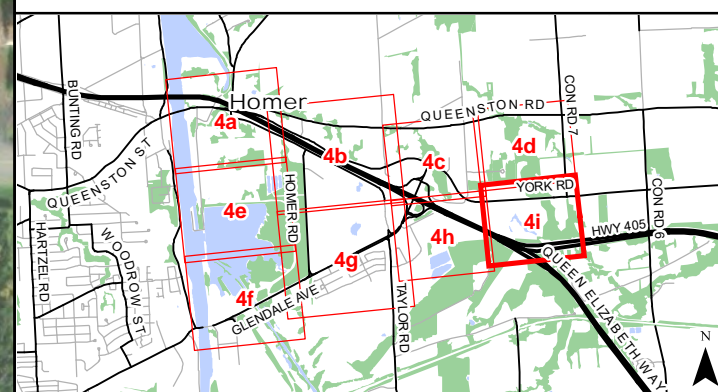
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Date: August 11, 2023

NAD83 - UTM Zone 17
Size: 11x17"
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Glendale Secondary Plan Update and SWS

Fish Habitat

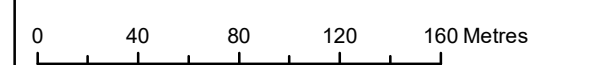


- Legend**
- Study Area
 - Modero Estates Lands
 - Water Body (MNRF)
 - Watershed Boundary (MNRF)
 - Watercourse & HDF (Matrix Solutions)**
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Watercourse Classification (MNRF)**
 - Type 2: Important Fish Habitat



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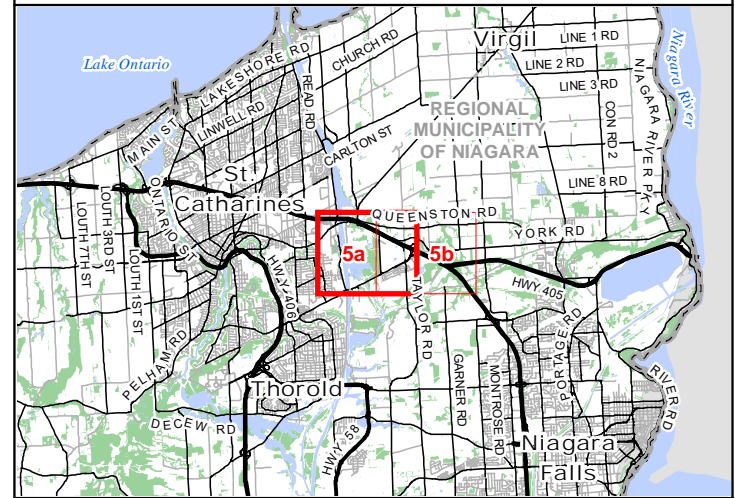
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Glendale Secondary Plan Update and SWS

Significant Wildlife Habitat

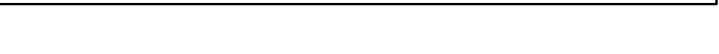


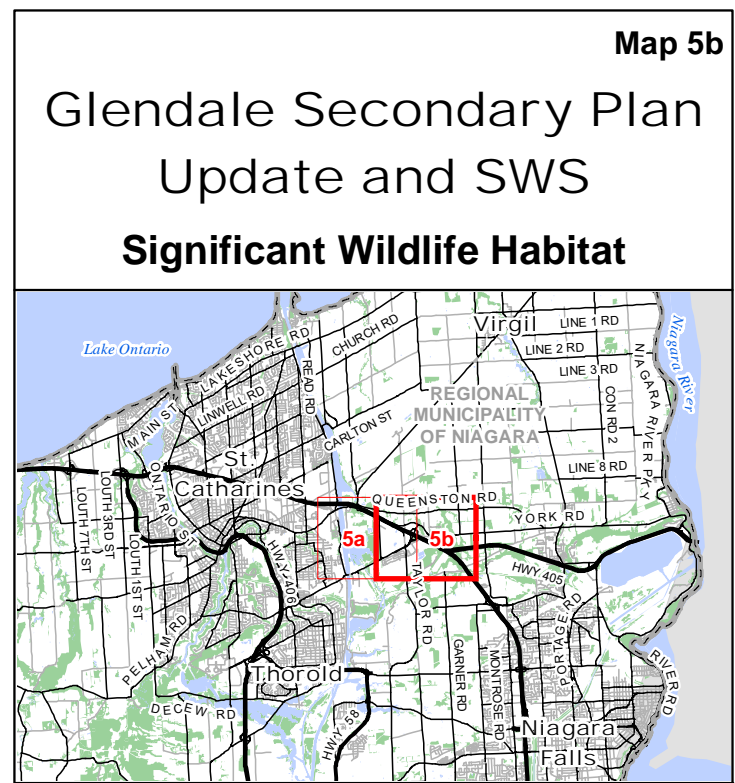
- Legend**
- Study Area
 - Highway
 - Primary Road
 - Secondary Road
 - Ephemeral or Intermittent Watercourse
 - Deer Wintering Congregation Area SWH (MNRf-mapped)



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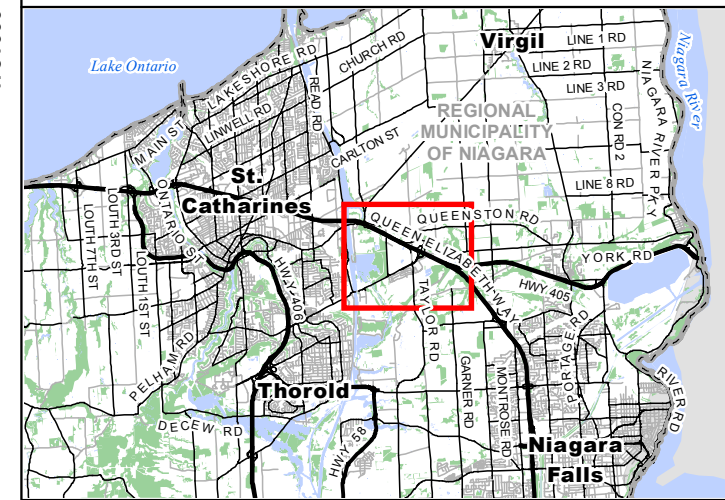
- #### Legend
- Study Area
 - Highway
 - Primary Road
 - Secondary Road
 - Permanent or Intermittent Watercourse
 - Ephemeral or Intermittent Watercourse
 - Seeps and Springs
 - Rare Vegetation Community
 - Special Concern/Rare Species Habitat - Willdenow's Sedge
 - Special Concern/Rare Species Habitat - Hairy Green Sedge
 - Special Concern/Rare Species Habitat - Rigid Sedge
 - Special Concern/Rare Species Habitat - Pawpaw
 - Deer Wintering Congregation Area SWH (MNRF-mapped)



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Map 1
**Glendale Secondary Plan
 Update and SWS
 Participating Properties and
 Development Approval Status**



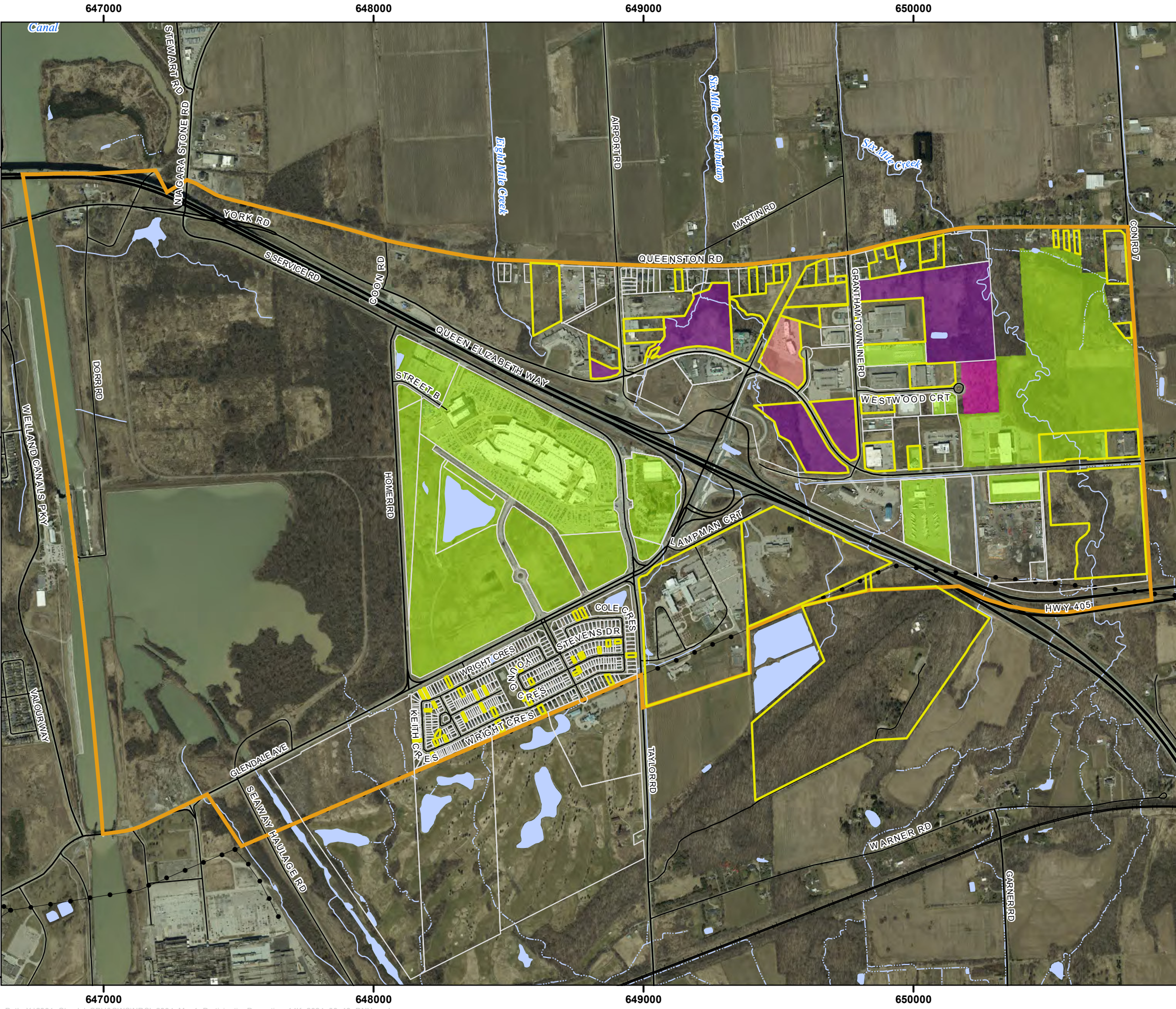
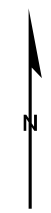
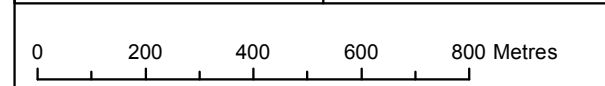
Legend

- Study Area
- Application Submitted but Not Approved
- Development Application Approved
- Development Application in Progress
- EIS Study Scoped / In Progress
- Property Boundary
- Participating Property
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Water Body



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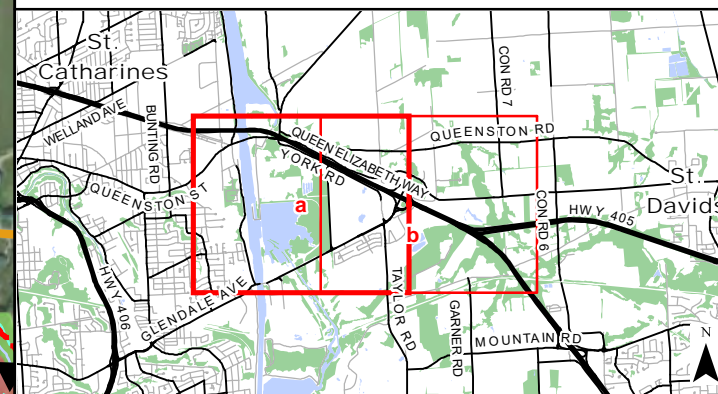
Project: 2884 Date: October 25, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:14,000
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Appendix III

Glendale Subwatershed Study Phase 3 - Map 1 (Natural Heritage System)

Glendale Secondary Plan Update and SWS Glendale Natural Heritage System



- Legend**
- Study Area
 - Privately-Owned SWM Facility**
 - Subject to Review
 - Regulated Floodplain
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Conduit
 - Preliminary Ecological Buffer
 - Development Application Approved
- Preliminary Natural Heritage System**
- Core Area
 - Supporting Feature/Area
 - Linkage

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.

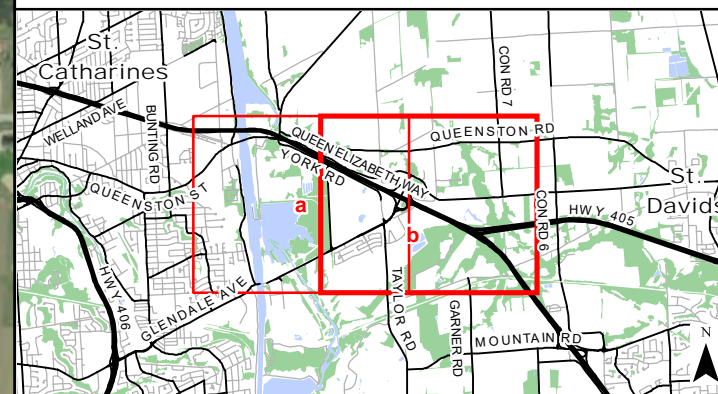
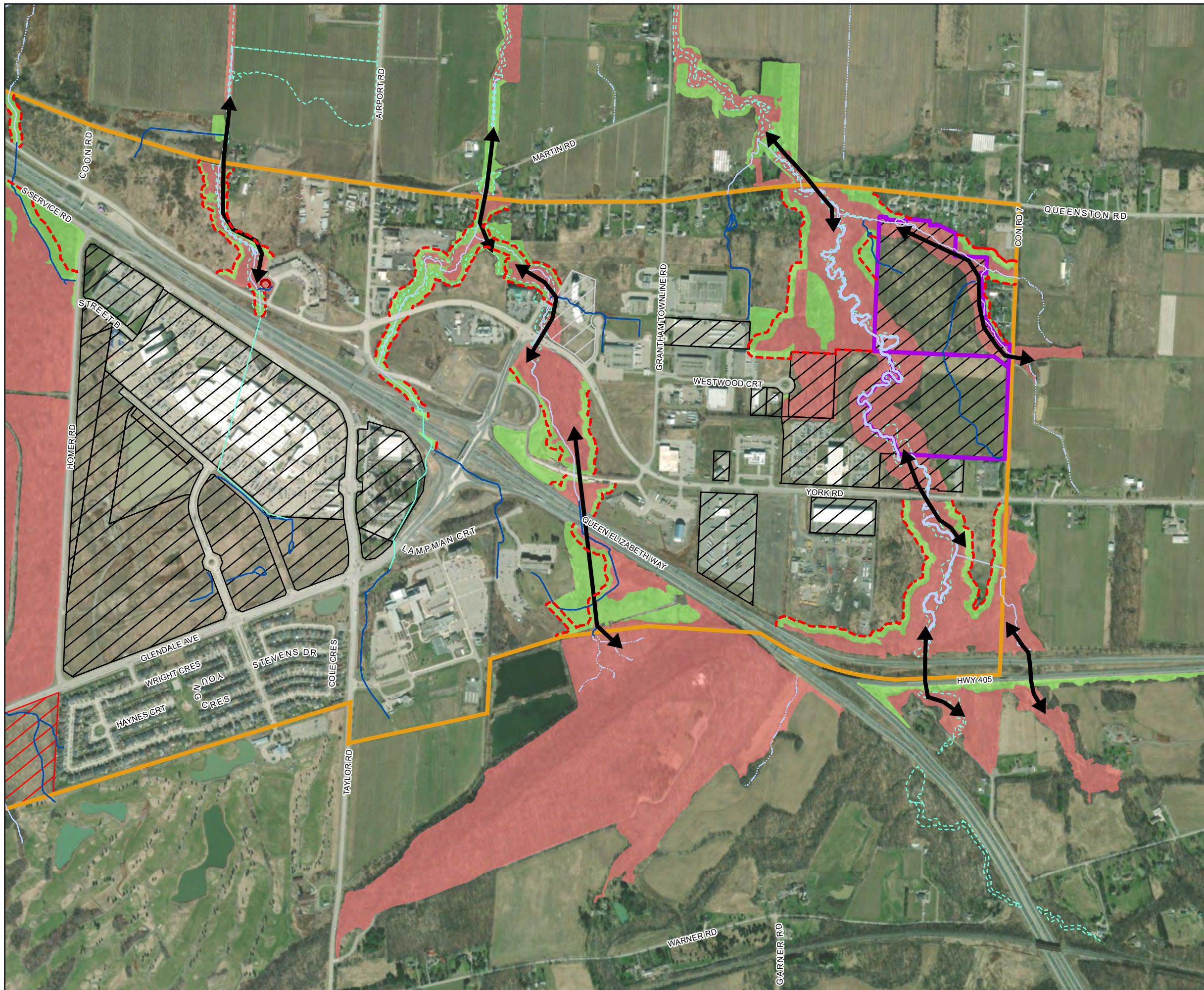
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Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



- Legend**
- Study Area
 - Privately-Owned SWM Facility**
 - Modero Estates Lands
 - Subject to Review
 - Regulated Floodplain
 - Watercourse
 - Watercourse (Unclassified)
 - Headwater Drainage Feature
 - Conduit
 - Preliminary Ecological Buffer
 - Development Application Approved
 - Application Submitted But Not Yet Approved
- Preliminary Natural Heritage System**
- Core Area
 - Supporting Feature/Area
 - ↔ Linkage

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.

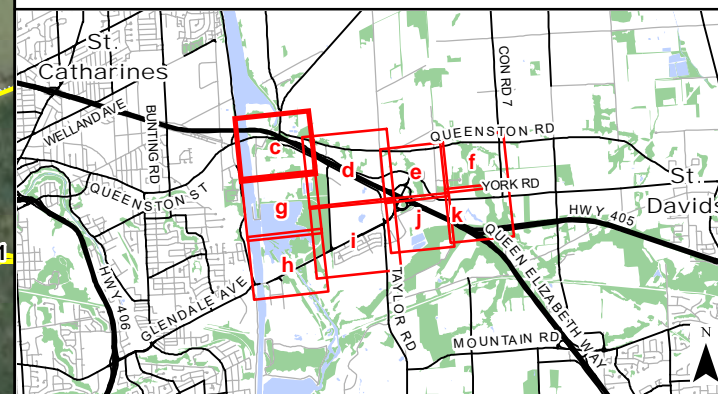


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0 100 200 300 400 500 600 700 Metres	

Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



- Legend**
- Study Area
 - Watercourse
 - Watercourse (Unclassified)
 - Type 3: Marginal Fish Habitat
 - Preliminary Ecological Buffer
 - Core Area
 - Supporting Feature/Area
 - Ecological Land Classification
 - (CUM1-1) Dry - Moist Old Field Meadow Type
 - (CUT1) Mineral Cultural Thicket Ecosite
 - (CUW1) Mineral Cultural Woodland Ecosite
 - (SWD) Deciduous Swamp

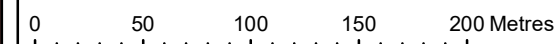
*Natural Heritage System illustrated outside of Study Area shown for context only.
**To be located outside of the Natural Heritage System.



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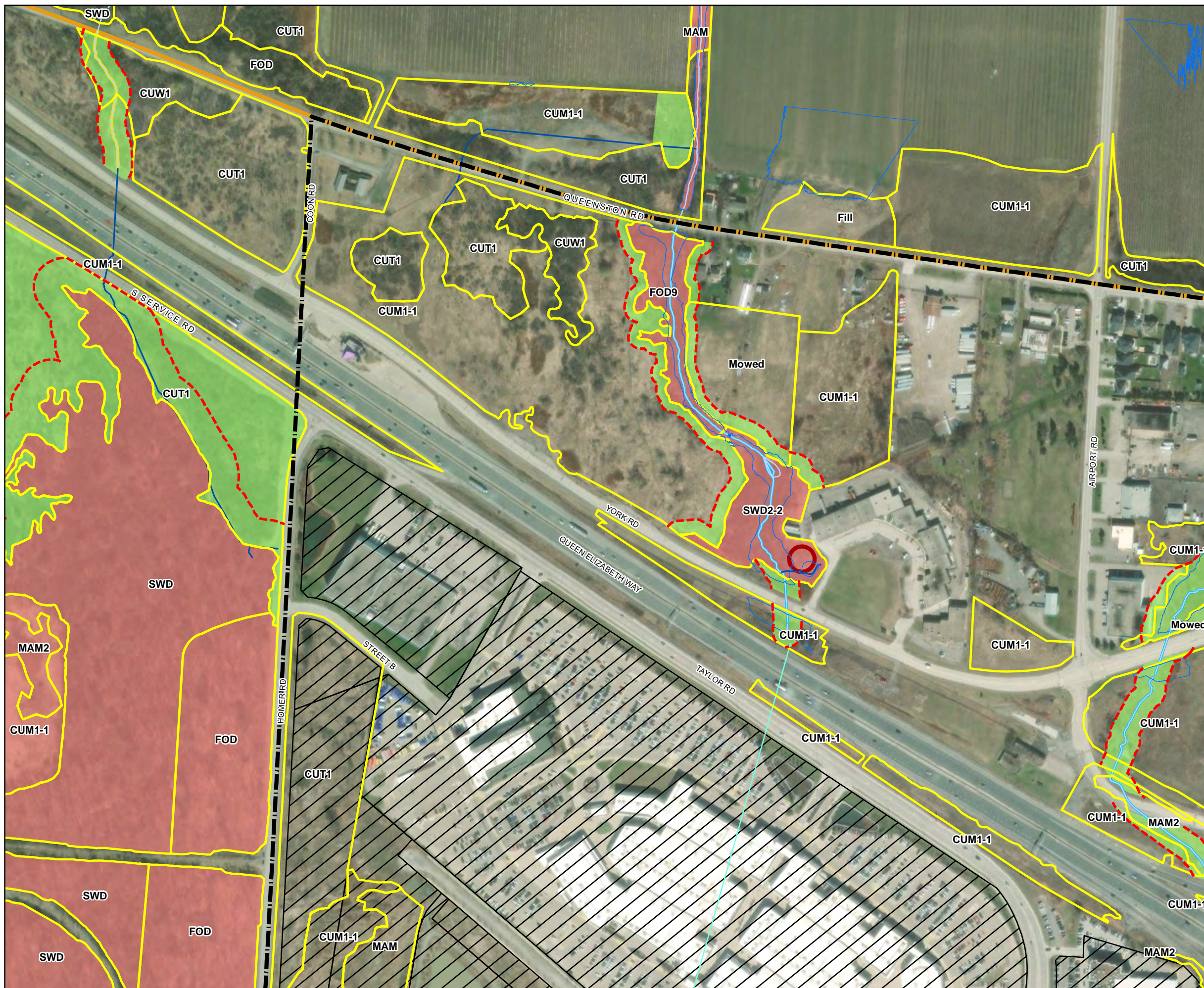
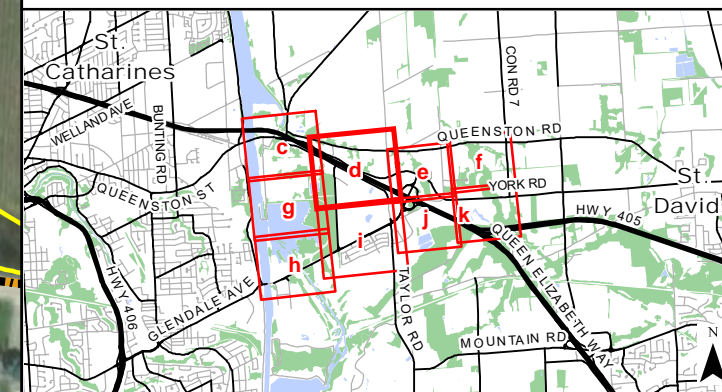
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NAD83 - UTM Zone 17
Size: 11x17"
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Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



Legend

Study Area	Ecological Land Classification
Privately-Owned SWM Facility**	(CUM1-1) Dry - Moist Old Field Meadow Type
Glendale Secondary Plan Area	(CUT1) Mineral Cultural Thicket Ecosite
Development Application	(CUW1) Mineral Cultural Woodland Ecosite
Flood Plain (100 year)	(FOD) Deciduous Forest
Watercourse	(FOD9) Fresh - Moist Oak-Maple - Hickory Deciduous Forest Ecosite
Watercourse (Unclassified)	(MAM) Meadow Marsh
Headwater Drainage Feature	(MAM2) Mineral Meadow Marsh Ecosite
Conduit	(SWD) Deciduous Swamp
Type 2: Important Fish Habitat	(SWD2-2) Green Ash Mineral Deciduous Swamp Type
Type 3: Marginal Fish Habitat	
Preliminary Ecological Buffer	

Preliminary Natural Heritage System

- Core Area
- Supporting Feature/Area

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.

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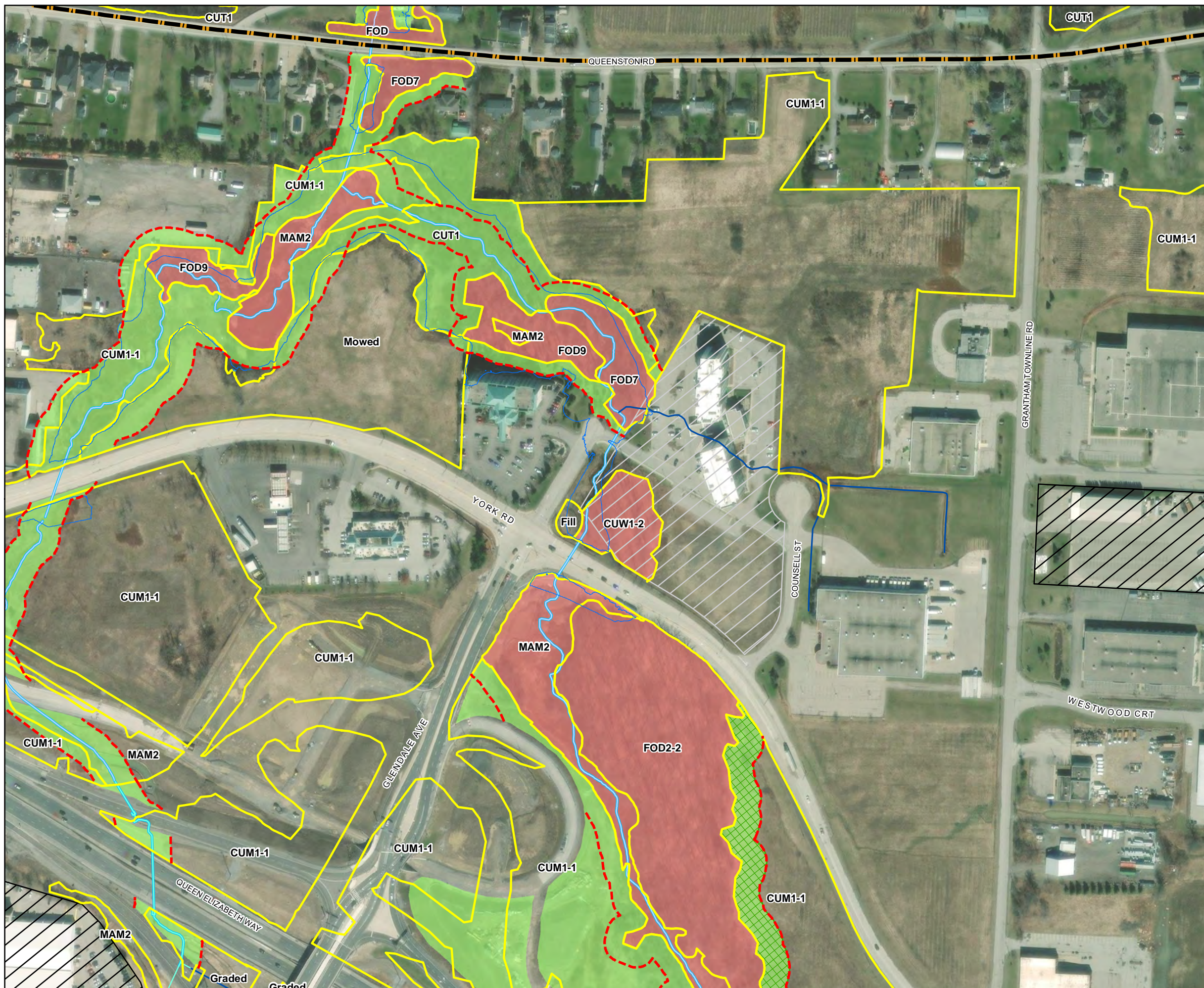
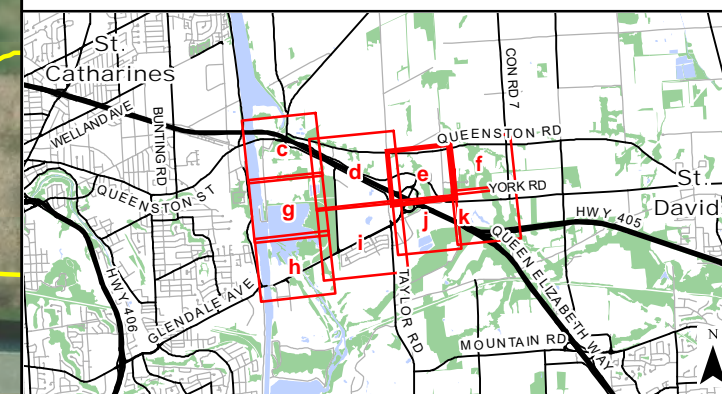
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0 50 100 150 200 Metres

Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



Legend

Study Area	Ecological Land Classification
Glendale Secondary Plan Area	(CUM1-1) Dry - Moist Old Field Meadow Type
Development Application	(CUT1) Mineral Cultural Thicket Ecosite
Application Submitted But Not Yet Approved	(CUW1-2) Dry Red Oak Cultural Woodland Type
Flood Plain (100 year)	(FOD) Deciduous Forest
Watercourse	(FOD2-2) Dry - Fresh Oak - Hickory Deciduous Forest Type
Headwater Drainage Feature	(FOD7) Fresh - Moist Lowland Deciduous Forest Ecosite
Conduit	(FOD9) Fresh - Moist Oak-Maple - Hickory Deciduous Forest Ecosite
Type 2: Important Fish Habitat	(MAM2) Mineral Meadow Marsh Ecosite
Preliminary Ecological Buffer	
Preliminary Natural Heritage System	
Core Area	
Supporting Feature/Area	
Special Buffer Management Zone	

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.



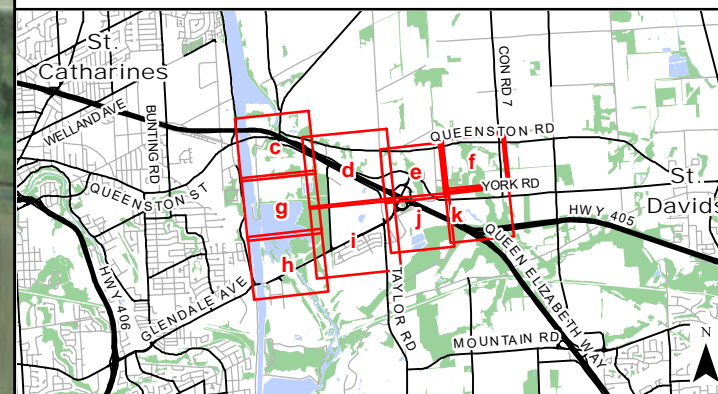
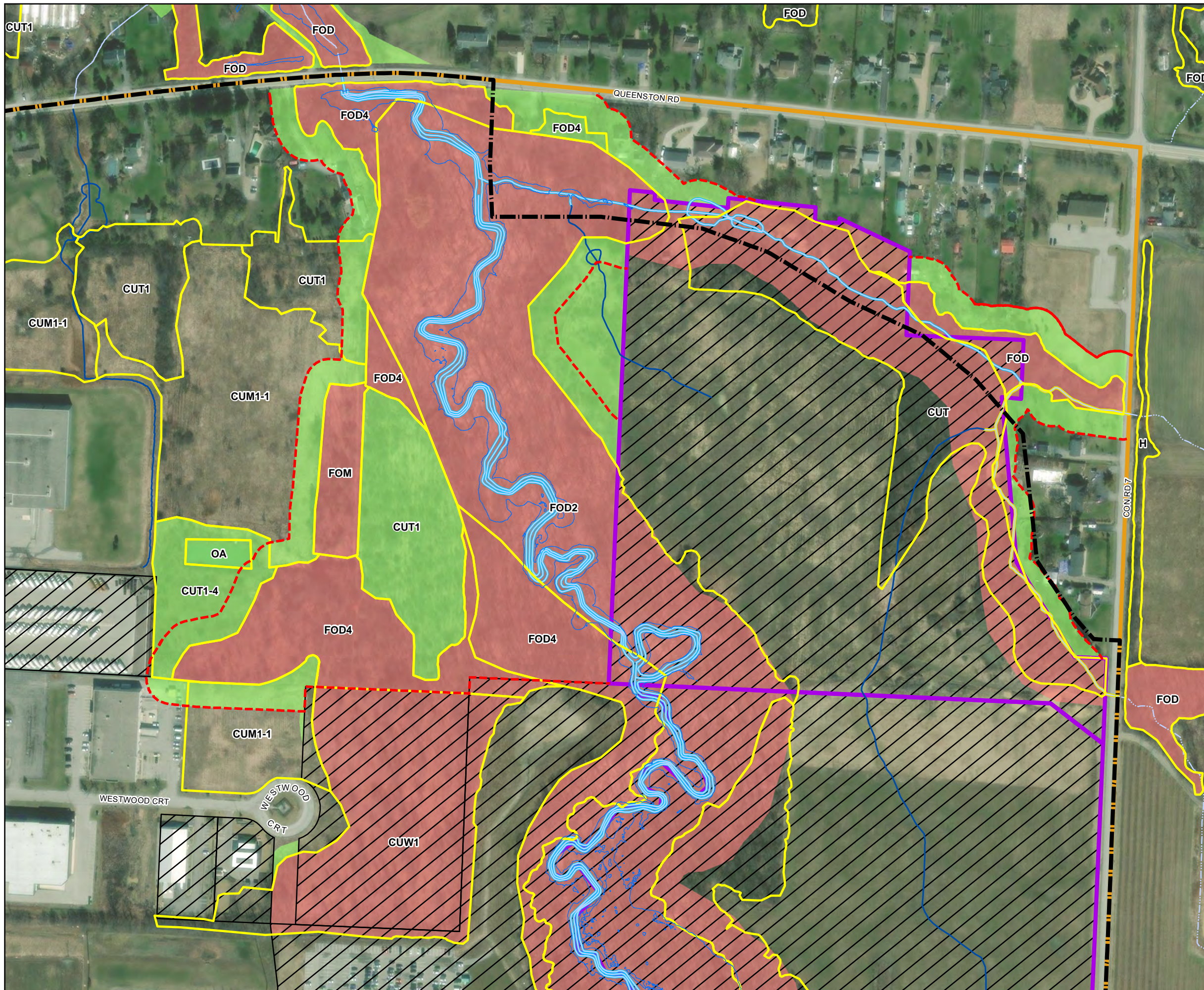
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Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



Legend

Study Area	Ecological Land Classification
Glendale Secondary Plan Area	(CUM1-1) Dry - Moist Old Field Meadow Type
Modero Estates Lands	(CUT) Cultural Thicket
Development Application	(CUT1) Mineral Cultural Thicket Ecosite
Flood Plain (100 year)	(CUT1-4) Gray Dogwood Cultural Thicket Type
Watercourse	(CUW1) Mineral Cultural Woodland Ecosite
Watercourse (Unclassified)	(FOD) Deciduous Forest
Headwater Drainage Feature	(FOD2) Dry - Fresh Oak - Maple - Deciduous Forest Ecosite
Type 2: Important Fish Habitat	(FOD4) Dry - Fresh Deciduous Forest Ecosite
Type 3: Marginal Fish Habitat	(FOM) Mixed Forest
Preliminary Ecological Buffer	(H) Deciduous Hedgerow
Preliminary Natural Heritage System Core Area	(OA) Open Aquatic
Preliminary Natural Heritage System Supporting Feature/Area	

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.



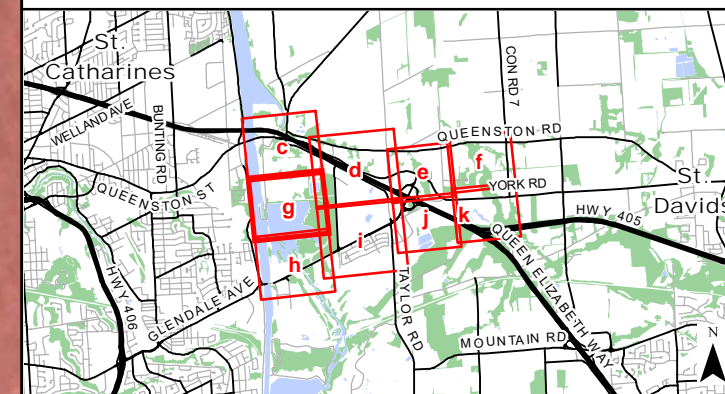
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Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



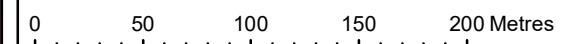
- Legend**
- Study Area
 - Preliminary Ecological Buffer
 - Core Area
 - Supporting Feature/Area
 - Ecological Land Classification
 - (CUM1-1) Dry - Moist Old Field Meadow Type
 - (CUT1) Mineral Cultural Thicket Ecosite
 - (MAM2) Mineral Meadow Marsh Ecosite
 - (SWD) Deciduous Swamp

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.

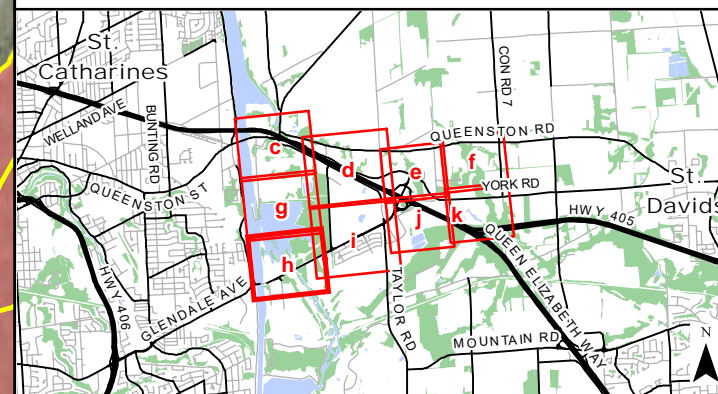


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Glendale Secondary Plan Update and SWS Glendale Natural Heritage System



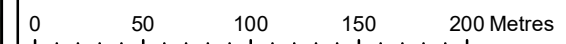
- Legend**
- Study Area
 - Subject to Review
 - Watercourse
 - Headwater Drainage Feature
 - Type 2: Important Fish Habitat
 - Unclassified
 - Preliminary Ecological Buffer
 - Core Area
 - Supporting Feature/Area
 - Ecological Land Classification
 - (MAM) Meadow Marsh
 - (SWD) Deciduous Swamp

*Natural Heritage System illustrated outside of Study Area shown for context only.
**To be located outside of the Natural Heritage System.

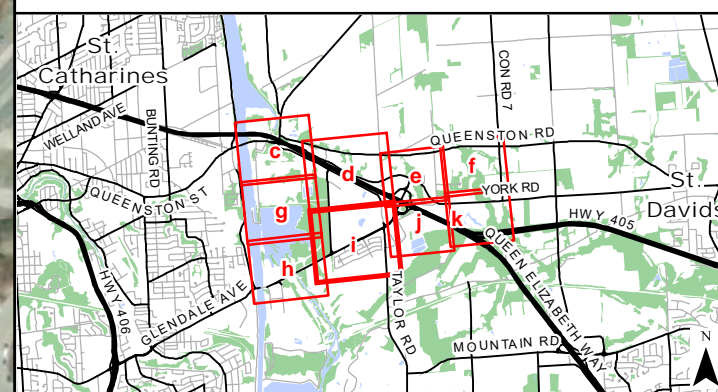


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1:3,500



Glendale Secondary Plan Update and SWS Glendale Natural Heritage System



Legend

Study Area	Ecological Land Classification
Glendale Secondary Plan Area	(CUM1-1) Dry - Moist Old Field Meadow Type
Development Application	(CUT1) Mineral Cultural Thicket Ecosite
Subject to Review	(MAM) Meadow Marsh
Watercourse	(MAS) Shallow Marsh
Headwater Drainage Feature	(SWD) Deciduous Swamp
Conduit	
Type 2: Important Fish Habitat	
Preliminary Natural Heritage System	
Core Area	
Supporting Feature/Area	

*Natural Heritage System illustrated outside of Study Area shown for context only.
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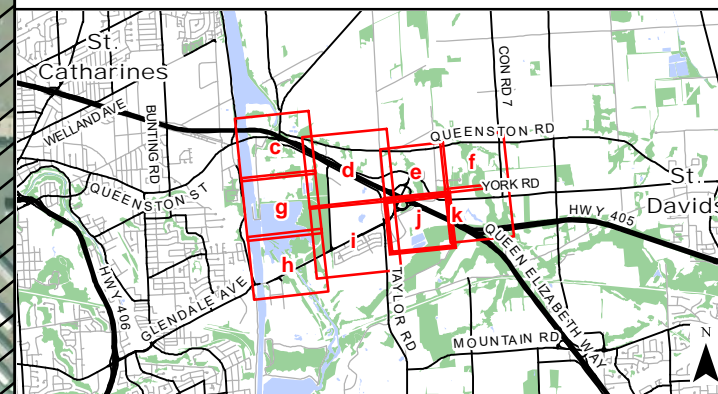
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Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



Legend	
	Study Area
	Glendale Secondary Plan Area
	Development Application
	Watercourse
	Watercourse (Unclassified)
	Headwater Drainage Feature
	Conduit
	Type 2: Important Fish Habitat
	Preliminary Ecological Buffer
Preliminary Natural Heritage System	
	Core Area
	Supporting Feature/Area
	Special Buffer Management Zone
	Ecological Land Classification
	(CUM1-1) Dry - Moist Old Field Meadow Type
	(CUT1) Mineral Cultural Thicket Ecosite
	(CUT1-4) Gray Dogwood Cultural Thicket Type
	(CUW1) Mineral Cultural Woodland Ecosite
	(FOD) Deciduous Forest
	(FOD2) Dry - Fresh Oak - Maple - Deciduous Forest Ecosite
	(FOD2-2) Dry - Fresh Oak - Hickory Deciduous Forest Type
	(FOD9) Fresh - Moist Oak-Maple - Hickory Deciduous Forest Ecosite
	(FOD9-3) Fresh - Moist Bur Oak Deciduous Forest Type
	(H) Deciduous Hedgerow
	(MAM) Meadow Marsh
	(MAM2) Mineral Meadow Marsh Ecosite
	(MAS2-1) Cattail Mineral Shallow Marsh Type

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.

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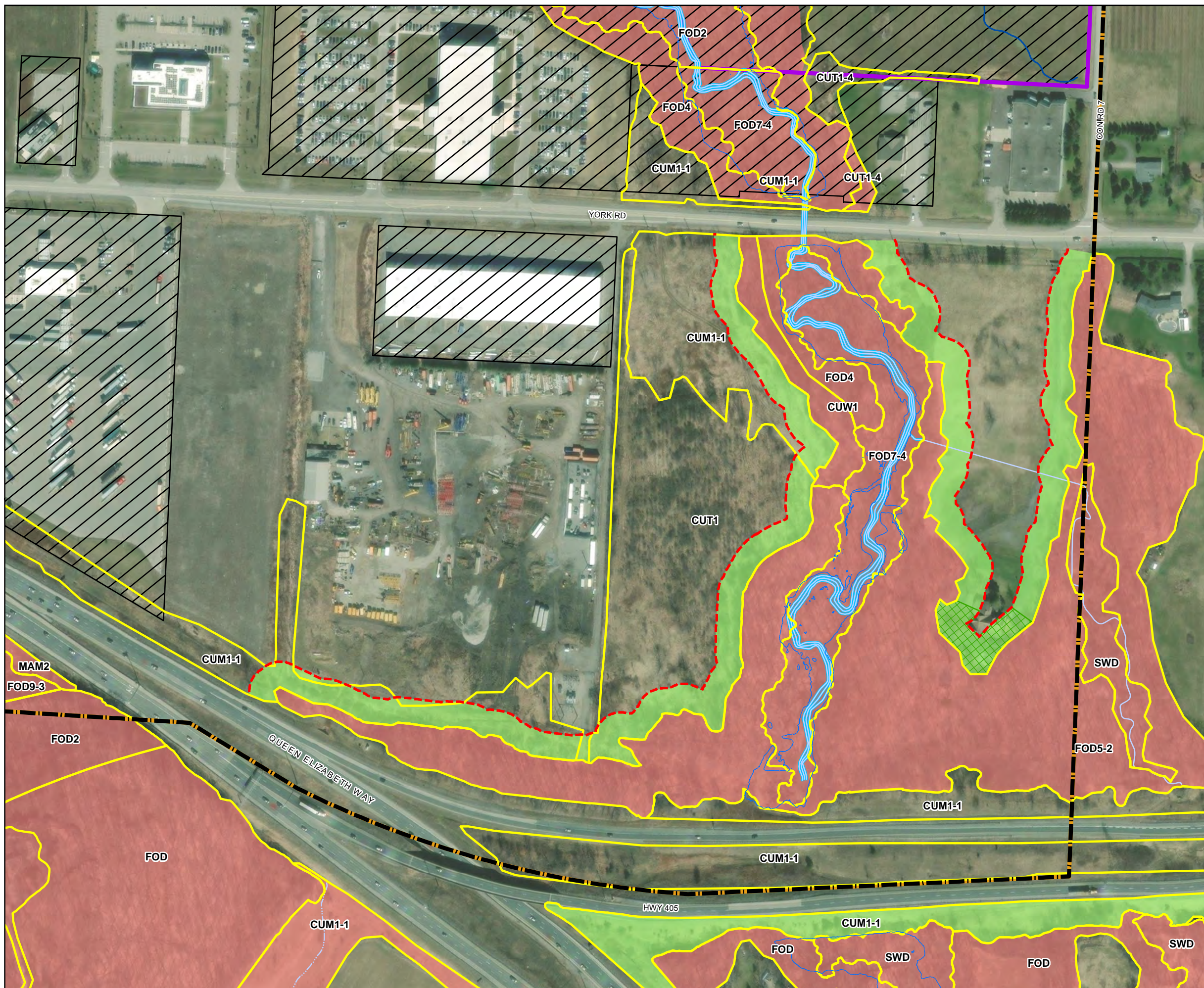
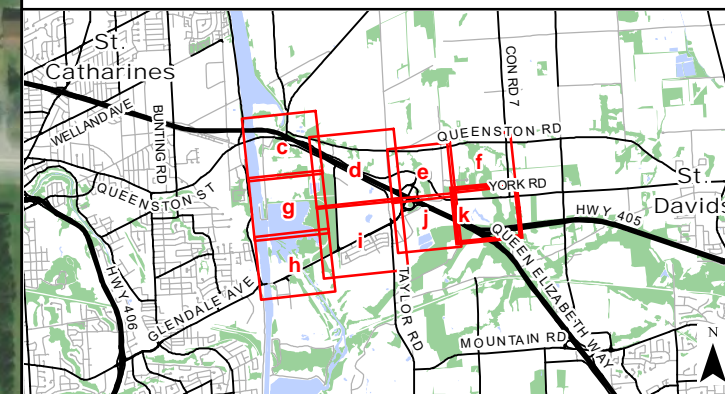
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0 50 100 150 200 Metres

Glendale Secondary Plan Update and SWS

Glendale Natural Heritage System



Legend

Study Area	Ecological Land Classification
Glendale Secondary Plan Area	(CUM1-1) Dry - Moist Old Field Meadow Type
Modero Estates Lands	(CUT1) Mineral Cultural Thicket Ecosite
Development Application	(CUT1-4) Gray Dogwood Cultural Thicket Type
Flood Plain (100 year)	(CUW1) Mineral Cultural Woodland Ecosite
Watercourse	(FOD) Deciduous Forest
Watercourse (Unclassified)	(FOD2) Dry - Fresh Oak - Maple - Deciduous Forest Ecosite
Headwater Drainage Feature	(FOD4) Dry - Fresh Deciduous Forest Ecosite
Type 2: Important Fish Habitat	(FOD5-2) Dry - Fresh Sugar Maple - Beech Deciduous Forest Type
Preliminary Ecological Buffer	(FOD7-4) Fresh - Moist Black Walnut Lowland Deciduous Forest Type
Preliminary Natural Heritage System	
Core Area	(FOD9-3) Fresh - Moist Bur Oak Deciduous Forest Type
Supporting Feature/Area	(MAM2) Mineral Meadow Marsh Ecosite
Special Buffer Management Zone	(SWD) Deciduous Swamp

*Natural Heritage System illustrated outside of Study Area shown for context only.
 **To be located outside of the Natural Heritage System.



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