Appendix B

Natural Heritage Report

DILLON CONSULTING

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City of Hamilton

Rymal Road

(Upper James St to Dartnall Rd) Municipal Class Environmental Assessment Phases 1 to 4

November 2024

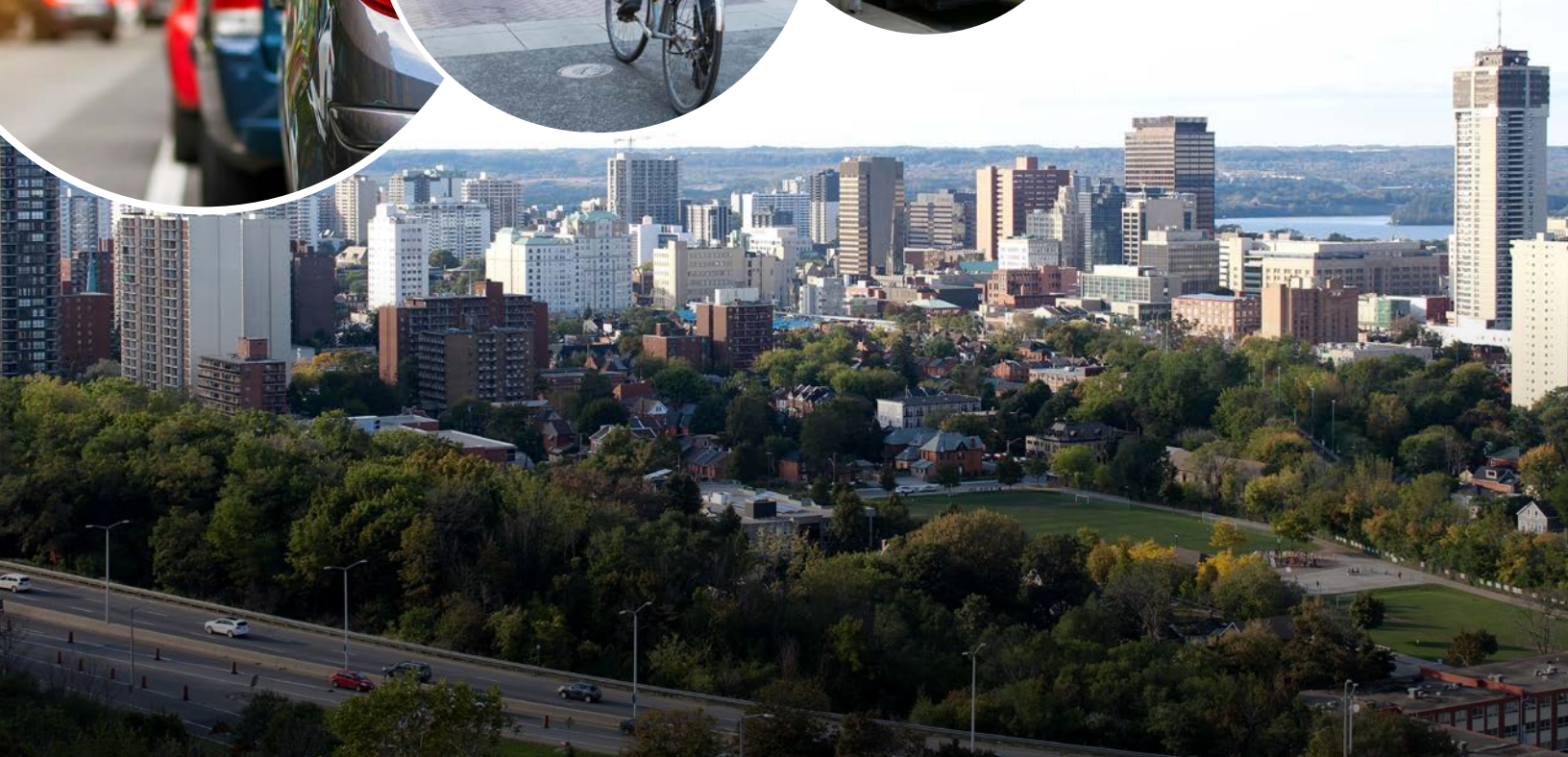


Table of Contents

Figures

Tables

Appendices

1.0 Introduction

Dillon Consulting Limited (Dillon) was engaged by the City of Hamilton (the City) to complete Phases 1 through 4 of the Municipal Class Environmental Assessment (MCEA) process for improvements to Rymal Road (the project). The project limits extend along Rymal Road between Upper James Street and Dartnall Road.

1.1 Natural Heritage Study Area

For the purposes of this natural environment review and assessment, the Study Area is identified as the lands extending 120 m from the Rymal Road centreline between Upper James Street and Dartnall Road. The tree inventory study was limited to City-owned trees in the Rymal Road right-of-way (ROW) to a maximum of 20 m from the road centreline and private trees with driplines that extend into the ROW. The project boundary and Natural Heritage Study Area (the Study Area) are illustrated on Figure 1, provided at the end of this report.

2.0 Policy Context

Secondary source information was used to identify known environmental constraint areas; significant natural heritage features such as watercourses, woodlands, and wetlands; and potential wildlife occurrences in relation to the Study Area (Figure 1). Information sources that were reviewed to provide an understanding of the Study Area in the context of the surrounding area are listed in Table 1.

Table 1: Policies, Legislation and Background Resources Reviewed

Source	Record Reviewed/Requested
Provincial	
Provincial Policy Statement, 2020	Policies within Section 2.1, specifically 2.1.1 and 2.1.2 related to natural heritage features and Section 2.2 related to water
Growth Plan for the Greater Golden Horseshoe, 2020	Policies within Section 2.2.2 related to built-up areas
Greenbelt Act, 2005	Greenbelt Plan, 2017
Niagara Escarpment Plan, 2017	Policies for the Niagara Escarpment Parks and Open Spaces System
Endangered Species Act, 2007	MNRF Species at Risk in Ontario (SARO) List (*Ontario Regulation 230/08*) and General (*Ontario Regulation 242/08*)
Ministry of Natural Resources and Forestry (MNRF)	• MNRF Natural Heritage Information Centre (NHIC) database (Square: 17NH9183; MNRF, 2019b) • MNRF Make a Map: Natural Heritage Areas (MNRF, 2019a) Land Information Ontario (LIO) • Natural Heritage Reference Manual (MNRF, 2010) • MNRF Significant Wildlife Habitat Technical Guide (MNRF, 2000) • Significant Wildlife Habitat Ecoregion 7E Criteria Schedules (MNRF, 2015)
Hamilton Conservation Authority (HCA)	• Upper Ottawa Creek Subwatershed Stewardship Action Plan (HCA, 2013) • Upper Ottawa Creek Watershed Report (HCA, 2013) • Online Regulated Areas Tool mapping (HCA, 2021) created under the HCA's Development, Interference with Wetlands, and Alterations to Shorelines and Watercourses Regulation (*Ontario Regulation 161/06*)

Source	Record Reviewed/Requested
Municipal	
City of Hamilton	• Urban Hamilton Official Plan (October, 2019) – Chapter C (2.7) • Hamilton Natural Areas Inventory Project 3rd Edition Site Summaries Document (2014) • Hamilton Natural Areas Inventory Project 3rd Edition – Species Checklist Document (2014) • City of Hamilton Environmental Impact Study (EIS) guidelines (March, 2015) • City of Hamilton Linkage Assessment (LA) guidelines (March, 2015) • Topographic Survey provided by the City (Received March 12, 2020) • By-law No. R00-054 Woodland Conservation to Restrict and Regulate the Destruction of Trees in the Regional Municipality of Hamilton-Wentworth • By-law No. 06-151 To Regulate the Planting, Maintenance, and Preservation of Trees on or Affecting Public Property (June, 2006) • By-law No. 15-125 To Regulate Trees on or Affecting Public Property (May, 2015)
Wildlife Atlases	
Wildlife Atlases	• Ontario Breeding Bird Atlas (Square 17NH98; Cadman et al., 2007) • Christmas Bird Count (National Audubon Society, 2018) • Ontario Butterfly Atlas (Square 17NH9183; Toronto Entomologists Association, 2019) • Ontario Reptile and Amphibian Atlas (Square 17NH9183; Ontario Nature, 2019) • Mammals of the Western Hemisphere (NatureServe, 2007) • Fisheries and Oceans Canada (DFO) Species at Risk Online Mapping (DFO, 2019)

2.1 Provincial Policy Statement

The *Provincial Policy Statement* (PPS), 2020 provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS provides for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment.

Policies in Section 2.1 of the PPS, Natural Heritage, provide for the protection and management of natural heritage resources. Section 2.1 specifies that natural features and areas shall be protected for the long term. The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

Natural heritage systems shall be identified in Ecoregions 6E and 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas. Development and site alteration shall not be permitted in:

- Specific natural heritage features and areas specified by the PPS or on the lands adjacent to those features, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions;
- Fish habitat except in accordance with provincial and federal requirements; and,
- Habitat of endangered species and threatened species, except in accordance with provincial and federal requirements.

Policies in Section 2.2 of the PPS, Water, provide for the protection and management of water resources. Section 2.2 specifies that planning authorities shall protect, improve, or restore the quality and quantity of water by:

1. Using the watershed as the ecologically meaningful scale for integrated and long-term planning, which can be a foundation for considering cumulative impacts of development;
2. Minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts;
3. Evaluating and preparing for the impacts of a changing climate to water resource systems at the watershed level;
4. Identifying water resource systems consisting of ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas, which are necessary for the ecological and hydrological integrity of the watershed;
5. Maintaining linkages and related functions among ground water features, hydrologic functions, natural heritage features and areas, and surface water features including shoreline areas;
6. Implementing necessary restrictions on development and site alteration to:
    6.1. Protect all municipal drinking water supplies and designated vulnerable areas; and,
    6.2. Protect, improve, or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features, and their hydrologic functions.
7. Planning for efficient and sustainable use of water resources, through practices for water conservation and sustaining water quality;
8. Ensuring consideration of environmental lake capacity, where applicable; and,
9. Ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

Section 2.2 also states that development and site alteration shall be restricted in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved, or restored. Mitigation measures and/or alternative development approaches may be required to protect, improve, or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions.

2.2 City of Hamilton Official Plan

The City of Hamilton Official Plan (2019) delegates specific policies to both rural and urban areas within the City as separate Official Plan versions. The Study Area is located within the City's urban boundary; therefore, the Urban Hamilton Official Plan (UHOP) (City of Hamilton, 2019), including relevant schedules, was reviewed for this project.

Portions of the Study Area adjacent to Rymal Road are designated as "Parks & General Open Space" and "Linkages" in UHOP Schedule B – Natural Heritage System (Appendix A). The Linkage within the Study Area is currently undergoing Linkage Assessment separately.

A "Key Hydrologic Feature" on UHOP Schedule B-8 – Key Hydrologic Feature Streams is mapped outside, and to the east, of the Study Area. A "Key Natural Heritage Feature - Significant Woodlands" is also mapped outside, and to the east, of the Study Area.

In the City's Official Plan (Chapter C, Section 2.3.2, and Chapter G), Core Areas include "key natural heritage features, key hydrologic features, and local natural areas.". Key Natural Heritage Features are defined as:

"a) Significant habitat of endangered and threatened species;

b) Fish habitat;

c) Wetlands;

d) Life Science Areas of Natural and Scientific Interest (ANSI)s;

e) Significant Valleylands;

f) Significant Wildlife Habitat;

g) Sand Barrens, savannahs, and tallgrass prairies;

h) Significant woodlands; and,

i) Alvars."

Key Hydrologic Features are defined as:

"a) Permanent and intermittent streams;

b) Lakes (and their littoral zones);

c) Seepage areas and springs; and,

d) Wetlands."

Local Natural Areas are defined as *"Environmentally Significant Areas (ESAs) as identified by the City, unevaluated wetlands, and Earth Science ANSI."* There is a Local Natural Area ESA mapped outside, and to the east, of the Study Area.

Core Areas are considered *"the most important components in terms of biodiversity, productivity, and ecological and hydrological function."* As per Chapter C, subsection 2.3.3, *"the natural features and ecological functions of Core Areas are to be protected and where possible and deemed feasible to the satisfaction of the City, enhanced."* The intent of the policy is to protect, restore and enhance linkages to sustain the NHS (and Core Areas) wherever possible. Under this policy, *"Vegetation removal and encroachment"* to Core Areas is *"generally not permitted"* by the City; and appropriate vegetation protection zones (VPZ) should be applied. Core Areas are mapped outside of and to the east of the Study Area.

As per subsection 2.5.2 through subsection 2.5.4 of Chapter C, *"new development and site alteration shall not be permitted"* within features identified as Core Area *"unless it has been demonstrated that there shall be no negative impacts on the natural features or on their ecological functions."*

Under Chapter C – City Wide Systems and Designations, Section 2.7 describes linkages as: *"Natural areas within the landscape that ecologically connect Core Areas. Connections between natural areas provide opportunities for plant and animal movement, hydrological and nutrient cycling, and maintain ecological health and integrity of the overall Natural Heritage System."* Core Areas include key natural heritage features, key hydrological features locally, and provincially significant natural areas that are identified on Schedules B-1 to B-8 – Detailed Natural Heritage Features. This report, *"shall propose a VPZ which has a sufficient width to protect the Core Area and its ecological functions during and after construction"* (Subsection 2.5.9, Chapter C).

Based on the definitions above, Core Areas also include provincially mapped woodlands, wetlands, and streams that are not mapped in the UHOP. Several watercourses and woodlands were identified by provincial mapping within the Study Area, and one unevaluated wetland (Figure 1). For the purposes of this study, these areas are considered Core Areas.

Appropriate VPZs for Core Areas are listed under Chapter C, subsection 2.5.10 of the UHOP. Key VPZs considered relevant to Core Areas of the Study Area include:

> *"...c) Provincially Significant Wetlands – 30 m VPZ, measured from the boundary of the wetland, as approved by the Conservation Authority or Ministry of Natural Resources.*
>
> *d) Unevaluated wetlands – Unevaluated wetlands and locally significant wetlands require a 15 m VPZ, measured from the boundary of the wetland, as approved by the Conservation Authority or Ministry of Natural Resources, unless an EIS recommends a more appropriate VPZ.*
>
> *e) [Non-significant] Woodlands – 10 m VPZ, measured from the edge (dripline) of the woodland.*

f) Significant Woodlands – 15 m VPZ, measured from the edge (dripline) of the significant woodland.

…i) Significant Habitat of Threatened or Endangered Species and Significant Wildlife Habitat: the minimum VPZ shall be determined through EISs, dependent on the sensitivity of the feature."

Widths of VPZ greater or less than those identified in the list above may be determined through an approved natural heritage study and shall be determined on a site-specific basis, through a consideration of the features sensitivity, potential impacts, and proposed adjacent land use (Subsection 2.5.11, Chapter C).

2.3 Greenbelt Plan

The Greenbelt Plan (2017) enhances the protection afforded to agricultural and environmental areas under previous plans, and identifies areas where urbanization is prohibited to protect the agricultural land base and the ecological features and functions occurring throughout the greenbelt. The Plan seeks to permanently protect agriculture and the environment while simultaneously providing for a diverse range of economic and social activities.

The Study Area falls within *"Settlement Areas Outside the Greenbelt"* (Maps 95, 105, Appendix A) and; therefore, regulations default to municipal policies.

2.4 Niagara Escarpment Plan

The purpose of the Niagara Escarpment Plan (NEP) is to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment. A small area at the eastern limit of the Study Area (east of Dartnall Road) falls within the NEP designation (Figure 1H).

2.5 Conservation Authorities Act

The *Conservation Authorities Act* (1990) governs programs and services that further the conservation, restoration, development, and management of natural resources in watersheds in Ontario. In accordance with Section 28 of the *Conservation Authorities Act*, the Act defaults to municipal conservation authorities to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation under *Ontario Regulation (O. Reg.) 161/06*.

The HCA regulates development, interference with wetlands, and alterations to shorelines and watercourses in accordance with *O. Reg. 161/06* made under the *Conservation Authorities Act*. The regulation applies to natural or hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes) in HCA Regulated Areas. Portions of the Study Area are within the HCA regulated area (HCA, 2021) (Figure 1).

2.6 Endangered Species Act

With the enactment of the provincial *Endangered Species Act* (ESA), 2007, Ontario has strong policies in place for the protection and recovery of Species at Risk (SAR). The ESA protects species and their habitats. When a species is listed as Endangered (END) or Threatened (THR) under the ESA, its habitat is afforded protection under the Act. There are two applicable regulations under the ESA: *O. Reg. 230/08* - the Species at Risk in Ontario (SARO) List, and *O. Reg. 242/08* - General. These regulations serve to identify which species and habitats receive protection and provide direction on the current implementation of the ESA.

2.7 Species at Risk Act

The federal *Species at Risk Act* (SARA), 2002, was enacted to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of wildlife species listed as END or THR under SARA. Endangered or Threatened species are considered SAR under Schedule 1 of SARA, which are protected under the provisions of SARA, including protection for the species and their residence (e.g., nest, den). While SARA applies to species on federal land, such as Canadian oceans and waterways, national parks, national wildlife areas, some migratory bird sanctuaries, and First Nations reserve lands, it also applies to SAR migratory birds protected under the *Migratory Birds Convention Act* (MBCA) and aquatic species (fish and mussels) anywhere they occur. There are no federal lands located within the Study Area. Therefore, SARA applies only to SAR migratory birds and SAR aquatic species for the project.

2.8 Fisheries Act

The federal *Fisheries Act,* last amended in 2019, and its fisheries protection provisions establish authorities for the prohibition of killing of fish and of harmful alteration, disruption, and destruction of fish habitat. Fish habitat refers to spawning grounds and any other areas, including nursery, rearing, food supply, and migration areas, on which fish depend directly or indirectly to carry out their life processes. The protection of fish habitat in Canada is the responsibility of Fisheries and Oceans Canada (DFO) and its partners.

2.9 Migratory Birds Convention Act

The MBCA, 1994 and associated regulations protect and conserve migratory birds, their eggs, and their nests. The Canadian Wildlife Service branch of Environment and Climate Change Canada administers the policies and regulations of the MBCA. Activities that are harmful to migratory birds, their eggs, and their nests are prohibited under the MBCA's regulations. Migratory birds are species that meet three criteria: species referred to in Article 1 of the Migratory Birds Convention as amended under the 1995 protocol, species that are native or naturally occurring in Canada, and species known to have regularly occurred in Canada.

2.10 Tree Protections Policies

The City has several guidelines, by-laws and regulations that apply to the protection and removal and/or injury of trees. Relevant by-laws are discussed below.

2.10.1 By-Law No. R00-054 – Woodland Conservation to Restrict and Regulate the Destruction of Trees in the Regional Municipality of Hamilton-Wentworth

The City's (former Regional Municipality of Hamilton Wentworth) Woodland Conservation By-law No. R00-054 applies to woodlands throughout Hamilton. This By-law restricts tree removal in woodlands greater than 0.81 hectares (ha) with the following density requirements:

- 1,000 trees of any size per hectare;
- 750 trees measuring over five (5) centimetres in Diameter-at-Breast-Height (DBH) per hectare;
- 500 trees measuring over twelve (12) centimetres in DBH per hectare; or,
- 250 trees measuring over twenty (20) centimetres in DBH per hectare.

As woodlands meeting the density and size requirements listed above are not present within the Study Area, this by-law does not restrict tree removals for this project.

2.10.2 By-Law No. 15-125 – To Regulate Trees on or Affecting Public Property

Municipally owned trees are protected under the City's By-law No. 15-125, which applies to any land owned by, leased to, controlled by, or vested in by the City. This By-law states that, *"no person shall injure or destroy a public tree, or permit the injury or destruction of a public tree."* Under this by-law, a tree is defined as any *"self-supporting woody perennial plant which has reached, or can reach, a height of at least 3 metres at physiological maturity."* As a large percentage of the Study Area covers the municipal ROW of Rymal Road and small sections of side streets, this by-law applies to the project.

By-law No. 06-151 - To Regulate the Planting, Maintenance, and Preservation of Trees on or Affecting Public Property.

The City's By-law 06-151 applies to public trees and private trees which pose a threat or hazard to persons or property on public property. No person shall injure or remove a public tree without prior approval from the City. The By-law outlines planting and maintenance considerations for the trees on public property as well.

3.0 Background Review

This section summarizes the background review that was completed to inform the biophysical inventory for this report.

3.1 Natural Features Records and Mapping

Natural heritage features and land use designations identified in the UHOP were reviewed in preparation of this Natural Heritage Report and are presented on Figure 1. Relevant natural heritage features associated with the Study Area identified in the background review are summarized in this section to provide context for this report, and are further detailed in the biophysical inventory section.

3.1.1 Aquatic Summary

The Study Area is located in the Upper Ottawa Creek subwatershed within the greater Red Hill Creek Watershed, which is within the HCA's jurisdiction. The Upper Ottawa Creek subwatershed is 14.44 km^2 in area and is comprised of four catchment basins: Headwaters, Central, Quinndale – Berrisfield, and Trenhlme – Albion Falls (HCA, 2018). The Study Area is within the Central catchment basin.

There are several features in the Study Area mapped as *"watercourses"* in the HCA Regulated Areas mapping (Appendix A). However, most of these features appear to be constructed surface and subsurface drainage features and are not representative of natural heritage features. Five of these features within the Study Area were confirmed to be watercourses and are within HCA Regulated Areas. These five watercourses are therefore considered part of the natural heritage system:

- Tributary 1 is mapped east of Upper Wellington Street. Based on review of aerial photography, the watercourse appears to be a headwater feature originating just south of Rymal Road in a low-lying area within Mount Hamilton Cemetery. The watercourse flows generally northerly, entering a subsurface drainage system under Rymal Road and Massena Drive;
- Tributary 2 is mapped south of Rymal Road, west of Miles Road. The watercourse appears to be a headwater feature that flows generally south-easterly and exits the Study Area;
- Tributary 3 is mapped east of Miles Road and appears to be a headwater feature originating just south of Rymal Road in a low-lying area. The watercourse flows generally in a southerly direction and exits the Study Area;
- Tributary 4 is mapped west of Dartnall Road and just west of the Chippewa Trail (which is part of the Trans Canada Trail). The watercourse originates on the north side of Rymal Road and flows generally northerly before exiting the north side of the Study Area. This feature appears to generally coincide with a *"Stream"* feature mapped on Schedule B-8 of the UHOP (Appendix A) and a *"Watercourse"* feature mapped by the MNRF LIO. It is a tributary to Red Hill Creek. This feature is considered a Key Hydrologic Feature and; therefore, a Core Area. Based on review of aerial photography and HCA Regulated Areas mapping, this watercourse appears to be associated with a stormwater drainage

system under Rymal Road that is conveyed through the majority of the Study Area by a subsurface drainage system. The watercourse appears to emerge as an open channel at a location approximately 115 m north of the centreline of Rymal Road; and

- Tributary 5 is mapped west of Dartnall Road and just east of the Chippewa Trail. The watercourse appears to originate on the north side of Rymal Road as a surface drainage feature and flows generally in a northerly direction along the east side of the trail before exiting the Study Area.

An additional watercourse feature was identified in the Study Area on the MNRF LIO mapping but appears to no longer be present. This feature is mapped as entering the south side of the Study Area west of Upper Ottawa Street, flowing generally northeasterly and exiting the north side of the Study Area east of Nebo Road. Based on review of aerial photography and HCA Regulated Areas mapping, this watercourse appears to no longer be present as shown in the MNRF LIO mapping, but rather is now conveyed by a series of surface and subsurface drainage features.

There are no waterbody features mapped within the Study Area on the reviewed Schedule B-5 of the UHOP (Key Hydrologic Features - Lakes and Littoral Zones) or on MNRF LIO mapping. There is one *"Inland Lake / Pond"* feature mapped in the Study Area in the reviewed HCA Regulated Areas mapping. This feature is located south of Rymal Road, east of Upper Wellington Street, at 308 Rymal Road East. Based on review of aerial photography and field observations, the feature appears to be a stormwater management pond and as such is not considered fish habitat (as defined under the *Fisheries Act*) or regulated under *O. Reg. 161/06*.

3.1.2 Fish Habitat

The various watercourses and streams discussed above have the potential to provide direct or indirect habitat for fish. The stormwater management pond feature noted above is considered municipal infrastructure, not fish habitat for the purposes of natural heritage feature assessment.

3.1.3 Landforms, Soils, and Geology

The Study Area falls within the Haldimand Clay Plains physiographic region (Chapman and Putnam, 1984). Bedrock geology of the area consists of Middle and Lower Silurian sandstone, shale, dolostone and siltstone of the Lockport formation (Ontario Geological Survey, 1991).

3.1.4 Wetlands

Wetlands within the vicinity of the Study Area are considered southern wetlands as they are south of the northern limit of Ecoregions 5E, 6E, and 7E as shown on Figure 1 of the PPS. No unevaluated or Provincially Significant Wetlands (PSWs) were identified within the Study Area in available data from the City (Schedule B-4 of the UHOP, 2019; Appendix A), or MNRF (NHIC interactive mapping, 2019). The Upper Twenty Mile Creek Wetland Complex (PSW) is located approximately 1 km south of the Study Area.

3.1.5 Woodlands

No significant woodlands were identified within or adjacent to the Study Area through a review of background mapping provided in the UHOP, Schedule B (2019; Appendix A). Based on the MNRF LIO mapping, it appears there are wooded areas within the project boundary; however, aerial photo interpretation suggests that there are five small remnant wooded features in the Study Area (Figure 1):

1. West of Atessa Drive, north of Rymal Road;
2. West of Miles Road, south of Rymal Road;
3. East of Miles Road, south of Rymal Road;
4. East of Upper Sherman Avenue, south of Rymal Road; and,
5. West of Dartnall Road, north of Rymal Road (area adjacent to the Chippewa Trail).

Based on the MNRF woodland layer, the wooded feature east of Upper Sherman Avenue and adjacent to the Chippewa Trail overlap the project boundary.

Under the Forestry Act, "woodlands" means land with at least:

- 1,000 trees of any size per hectare;
- 750 trees measuring over 5 centimeters in diameter, per hectare;
- 500 trees measuring over 12 centimeters in diameter, per hectare; or,
- 250 trees measuring over 20 centimeters in diameter, per hectare.

Furthermore, Chapter G of the UHOP (2019) defines significant woodlands as forest vegetation communities meeting two or more of the criteria referenced in Table 2.

Table 2: Significant Woodland Criteria of the City as Identified in Chapter G of the UHOP (2019)

Criterion	Description	
Size	Forest Cover (by planning unit)	Minimum patch size for significance
	<5%	1 ha
	5-10%	2 ha
	11-15%	4 ha
	16-20%	10 ha
	21-30%	15 ha
	Woodlands shall meet a minimum average width of 40 m.	
Interior Forest	Woodlands that contain interior forest habitat. Interior forest habitat is defined as 100 m from edge.	

Criterion	Description
Proximity/Connectivity	Woodlands that are located within 50 m of a significant natural area (defined as wetlands 0.5 ha or greater in size, Environmentally Significant Areas (ESA), PSWs, and Life Science Areas of Natural and Scientific Interest (ANSIs)).
Proximity to Water	Woodlands where any potion is within 30 metres of any hydrological feature, including all streams, headwater areas, wetlands, and lakes.
Age	Woodlands with 10 or more native trees/hectare greater than 100 years old.
Rare Species	Any woodland containing Threatened, Endangered, Special Concern, provincially or locally rare species.

Based on review of aerial photos, the size and composition of the woodland features identified within the Study Area may meet significant woodland status according to the criteria shown in Table 2. An assessment to determine whether the woodlands meet the criteria for significance has not been completed as part of this study.

3.1.6 Valleylands

Significant valleylands are not identified within schedules of the UHOP (2019); however, it is important to note that these features have not been mapped. Significant valleylands have not been identified through review of LIO mapping. Lands within the Study Area appear generally flat through reviewing aerial photographs and topographic surveys provided by the City. Based on this review, no significant valleylands are present within or adjacent to the Study Area.

3.1.7 Areas of Natural and Scientific Interest

Review of available online mapping did not identify ANSIs within the Study Area. Furthermore, no life science or earth science ANSIs were identified within the Study Area in Schedule B-1 or B-7 in the UHOP (2019; Appendix A).

3.2 Species of Conservation Concern & Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) includes Seasonal Concentration Areas of Animals, Rare Vegetation Communities or Specialized Habitat for Wildlife, Habitat for Species of Conservation Concern (excluding Threatened or Endangered species), and Animal Movement Corridors.

The Significant Wildlife Habitat Technical Guide (MNRF, 2000) defines Species of Conservation Concern (SCC) as species listed as Threatened or Endangered under the federal SARA, but not under the provincial ESA; species that are provincially rare/tracked (i.e., have a Sub-national (provincial) Rank of S1 – Critically Imperilled, S2 – Imperilled or S3 – Vulnerable) and/or are listed as Special Concern under the ESA.

A search of the NHIC database and other available wildlife atlases was conducted to identify possible occurrences of SCC within or adjacent to the Study Area. Species habitat requirements were compared with the existing habitat within the Study Area to determine the potential for species occurrence(s).

Appendix B provides a list of SCC with occurrence records in the area and the rationale used to determine the potential for these species and/or their habitat to occur in the Study Area. Table 3 identifies the SCC with the potential to occur within the Study Area.

Table 3: Species of Conservation Concern with Potential to Occur within the Study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	NAI[4]	Source[5]
Birds						
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	C	eBird
Hirundo rustica	Barn Swallow	THR	SC	S4B	C	OBBA
Insects						
Danaus plexippus	Monarch	SC	SC	S2N, S4B	C	OBA

[1]Federal Species at Risk Act, 2002. [2]Provincial Endangered Species Act, 2007. [3]Provincial Conservation Ranking (SRank) where S2= Very Rare, S3= Rare, S4= Apparently Secure and S5= Secure, B= Breeding, N= Non-breeding, ?= Some uncertainty with the classification due to insufficient information. [4]Hamilton Natural Areas Inventory Project 3rd Edition – Species Checklist Document (2014): R = Rare; C = Common. [5]Sources: OBA = Ontario Butterfly Atlas; eBird = https://ebird.org/explore; OBBA = Ontario Breeding Bird Atlas

Criteria for determining SWH follow the guidelines outlined in the Natural Heritage Reference Manual (MNRF, 2010), the Significant Wildlife Habitat Technical Guide (MNRF, 2000) and the Ecoregion 7E Criteria Schedules (MNRF, 2015), where applicable. Through reviewing the potential habitat and SCC, the following candidate SWHs were identified for the Study Area:

- Seasonal Concentration Areas of Animals: Bat Maternity Colonies; and
- Habitat for Species of Conservation Concern: Special Concern and Rare Wildlife Species (Eastern Wood-pewee, Barn Swallow, Monarch).

An evaluation of SWH using the MNRF SWH Criteria Schedules for Ecoregion 7E (2015) is included in Section 5.8.

3.3 Species at Risk

A search of the NHIC database and other available wildlife atlases was conducted to identify possible occurrences of federal and/or provincial SAR and/or provincially rare species in proximity to the Study Area. SAR are defined as those listed as Endangered or Threatened under the ESA. Appendix B includes a list of SAR with occurrence records in proximity to the Study Area and the rationale used to determine the potential for these species and/or their habitat to occur in the Study Area. Table 4 identifies the SAR with the potential to occur within the Study Area.

Table 4: Species at Risk with Potential to Occur within the Study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	NAI[4]	Source[5]
Birds						
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	U	OBBA
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	U	OBBA, CBC
Mammals						
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	---	MWH
Myotis lucifugus	Little Brown Myotis	END	END	S4	---	MWH
Myotis septentrionalis	Northern Myotis	END	END	S3	---	MWH
Pipstrellus subflavus	Tri-colored Bat	END	END	S3?	---	MWH
Plants						
Juglans cinerea	Butternut	END	END	S3?	---	City

[1]Federal Species at Risk Act, 2002. [2]Provincial Endangered Species Act, 2007. [3]Provincial Conservation Ranking (SRank) where S2= Very Rare, S3= Rare, S4= Apparently Secure and S5= Secure, B= Breeding, N= Non-breeding, ?= Some uncertainty with the classification due to insufficient information. [4]Hamilton Natural Areas Inventory Project 3rd Edition – Species Checklist Document (2014): R = Rare, U = Uncommon, C = Common. [5]Sources: CBC = Christmas Bird Count; OBBA = Ontario Breeding Bird Atlas; MNRF Reg. Habitat = MNRF Regulated Habitat (Ontario Regulation 242/08); MWH = Ontario Mammals Atlas; NHIC = Natural Heritage Information Centre; City = Correspondence with the City of Hamilton.

4.0 Field Study Methods

The results of the background review were used to confirm the scope of the field study program. After consultation with the City, it was determined that field studies would include botanical surveys, a tree inventory that included a search for bat habitat (snag/cavity trees), aquatic assessment and sampling, breeding bird surveys, amphibian breeding surveys, incidental wildlife observation, and significant wildlife habitat assessment.

Field studies were conducted within publicly accessible areas in the Study Area by Dillon staff with qualifications and experience conducting the applicable surveys, following the methods outlined below. Field surveys were conducted on the dates listed in Table 5. Weather conditions are listed for surveys where specific weather conditions are required under the survey methods.

Table 5: Dates and Times of Field Surveys

Date	Weather Conditions	Temperature	Purpose of Visit	Surveyor
April 7, 2021	60% cloud cover, light air[1], no precipitation	9°C	Amphibian Breeding Survey #1	Caitlin Vandermeer
May 10, 2021	-	-	Spring Vegetation Survey	Mike Wolosinecky
May 31, 2021	60% cloud cover, light air[1], no precipitation	12°C	Breeding Bird Survey #1	Caitlin Vandermeer
June 23, 2021	30% cloud cover, light air[1], no precipitation	10°C	Breeding Bird Survey #2	Caitlin Vandermeer
June 30, 2021	100% cloud cover, 10 mm rain overnight	-	Aquatic Habitat Assessment	Trevor Goulet
July 7, 9, 12, 2021	0 - 50% cloud cover, light air[1], no precipitation	20°C	Tree Inventory	Mike Wolosinecky
September 21, 2021	30% cloud cover, light air[1], no precipitation	12°C	Fall Vegetation Survey	Mike Wolosinecky

4.1 Botanical Surveys

Botanical surveys were conducted in the spring and fall of 2021 to inventory the vegetation within publicly accessible areas in the Study Area, as well as identify any potential SAR or SCC species. Surveys consisted of wandering transects through the Study Area to determine the presence, richness, and abundance of floral species within the Study Area as well presence/absence of botanical SAR. Species nomenclature is recorded based on the Ontario Plant List (Newmaster et al., 1998).

4.2 Tree Inventory

A tree inventory was conducted for the project by a Dillon arborist certified by the International Society of Arboriculture (ISA). Details of the tree inventory methods are outlined below, and results are outlined in Section 5.2.

The inventory focused on trees surveyed by the City and provided to Dillon. The tree inventory area consisted of the Municipal ROW of Rymal Road within the project limits plus an additional 6 m onto adjacent private property where applicable. As private property access was not permitted at the time of the survey, trees located on private property were assessed from adjacent ROW.

Private trees with a DBH of 10 cm or greater were individually documented in the inventory, consistent with the minimum size threshold outlined in the Hamilton Tree Protection Guideline (TPG). For each tree included in the inventory, the relevant data outlined in the TPG were documented, including:

- Identification of species using reasonable assumptions based on location, leaves, bark, buds, branches, and growth habit, or identification of genus where species was indeterminable;
- Measurement of DBH at 1.4 metres from the ground for tree;
- A canopy crown radius estimate measured in meters;
- Tree location for trees that were not captured by the City surveyors; and,
- A Level 2 (basic) qualitative visual assessment to determine tree health condition, following the condition and health rating system detailed in Table 6.

Table 6: Tree Condition Rating Categories

Condition	Description
Dead	A specimen tree/stand is considered dead when it has no living tissue.
Hazard	The specimen tree could either be alive or dead but the tree in its part could pose an imminent hazard to people or property during normal weather conditions. These trees have the potential for splitting, breaking and/or falling over during inclement weather, and because of their proximity to various targets (i.e., people or property), could cause personal injury and/or severe damage to municipal infrastructure and/or private property.
Poor	Tree in poor condition show major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in a diseased state. The trunk shows evidence of advanced rot, deadwood or is hollow throughout. Twig development on the main branches or throughout the canopy is poor and may have limited sucker growth. Callus growth around wounds is minimal. A tree in poor condition could decline further to become a safety hazard. Removal prior to development should be considered if it is considered a hazard tree.

Condition	Description
Fair	Tree in fair condition show moderate symptoms of decline in lower canopy or scaffold branches, but over 50% of scaffold branches are present and viable. The trunk shows limited evidence of rot or insect damage. Good callus growth is present near wound areas. Trees that have scaffold branches that are healthy, but are in a "Y" formation, may also be included in this category, if "included-bark" is evident as the risk of splitting or breakage increases as the tree matures. Removal or preservation of these trees depends on the location of the specimen and associated target potential, and would depend on the species, and its tolerance to grading, trenching, and surviving in an urban environment. Some major arboricultural maintenance may be required and may include major scaffold or secondary branch removal, bracing and/or cabling.
Good	Tree in good condition show no symptoms of decline in the trunk, and all scaffold branches are present and are in good condition. Most scaffold branches are at right angles to the trunk, and show good vigor. Small amounts of dead wood may be present in secondary branches, but account for less than 25% of the canopy. Depending on the grading in the immediate area, a tree in good condition would be recommended for preservation. Such a tree would typically survive to maturity without major arboricultural maintenance.
Excellent	Tree in excellent condition show no symptoms of decline in trunk, scaffold, or secondary branches. Trees in this condition have an excellent growth habit and should typically survive to maturity without major arboricultural maintenance.

The basic qualitative visual health assessment is a detailed visual inspection of the tree and surrounding area to obtain a professional opinion of the health condition of each tree. It includes a non-invasive inspection of each tree looking at the site conditions as well as the root taper, trunk, and scaffold branch arrangement at the union and the condition of the secondary branches and leaves. This approach is the standard assessment that is performed by arborists, but only includes conditions that are detected from the ground. The results should not be relied on for internal, below-ground, and/or upper-crown condition or defects as these areas may be impossible to see or difficult to assess from ground-level.

The hazard potential of the trees was assessed using the methods outlined in the International Society of Arboriculture publication, “A Photographic Guide to the Evaluation of Hazard Trees in Urban Area - 2nd Edition” (Mattheny and Clark, 1994). Using this guide, an overall condition rating (i.e., dead, poor, fair, good, or excellent) was given to each tree with a DBH of 10 cm or greater. These condition ratings are useful when evaluating the retention and/or replacement value of individual trees.

4.3 Aquatic Habitat Assessment

Field assessments were completed in June 2021 to assess the 5 watercourses identified during the background review. The assessment included the documentation of aquatic habitat features and potential to contain direct or indirect fish habitat. Information collected during the habitat assessment included (where applicable): channel form, presence/absence of flow, substrate type, channel dimensions, and surrounding vegetation. Aquatic conditions were also documented by photographs.

4.4 Breeding Bird Surveys

Two diurnal breeding bird surveys were conducted within the Study Area following the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Cadman et al., 2007). Surveys were completed in May and June 2021. Specifically, the surveys consisted of five ten-minute point counts conducted between dawn and five hours after sunrise in suitable habitat types within the Study Area to determine species richness and abundance, as well as the potential for the Study Area to function as bird breeding habitat. During the surveys, evidence of breeding bird behaviour was recorded which generally includes, but is not limited to: males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

To supplement the survey, area searches of the habitat were completed using binoculars to observe species presence and breeding activity between point counts. Area searches involved noting individual bird species and their corresponding breeding evidence while traversing the habitat on foot. Point count locations are displayed on Figure 1.

4.5 Breeding Amphibian Surveys

One breeding amphibian survey was completed on April 17, 2021 following the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). The survey point is displayed on Figure 1H.

The calling activity of individuals estimated to be within 100 m of the observation point were documented. All individuals beyond 100 m were recorded as outside the count circle and calling activity was not recorded. Calling activity was then ranked using one of the three abundance code categories:

- Code 1: Calls not simultaneous, number of individuals can be accurately counted;
- Code 2: Some calls simultaneous, number of individuals can be reliably estimated; or,
- Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

4.6 Incidental Wildlife

Incidental observations of wildlife made during the above-noted field surveys were noted, as well as other wildlife evidence such as dens, tracks, and scat. For each observation, notes and, when possible, photos were taken. These observations helped to determine species occurrences and potential ecological functions, linkages, and sensitivities within the project study area.

4.7 Significant Wildlife Habitat Assessment

The Significant Wildlife Habitat Technical Guide (MNRF 2000) and associated Ecoregion 7E Criteria Schedule (MNRF 2015) are the guidance documents for the identification and evaluation of SWH in this area of the province. There are policies under the PPS (2020) which potentially afford protections for SWH. Potential presence of candidate SWH types was assessed using results from the field surveys noted above.

5.0 Biophysical Inventory

5.1 Vegetation Surveys

Vegetation surveys were conducted in the spring and fall of 2021 as outlined in Section 4.1. The primary objectives of the surveys were to:

- Characterize the composition of vegetation communities in the Study Area; and,
- Identify the presence of SAR, provincially rare, and locally rare or uncommon vegetation species.

For each species documented, its status under the ESA was reviewed, its provincial rarity status was reviewed based on NHIC S-Rank listings, and its local rarity (L-Rank) status was reviewed based on the Hamilton Natural Areas Inventory: 3rd Edition (Schwetz, 2014).

A total of 111 plant species were documented during 2021 field studies (Appendix C). Of the 111 species, 37% (41 species) are listed as native species in the province of Ontario, and 55% (61 species) are listed as introduced species. Introduced species do not receive a status ranking as the species is not a suitable target for conservation activities (S-Rank of SE or SNA). Six percent (6%) of plants (7 genera) could only be identified to genus level due to the plant structures present; therefore, an S-Rank was not assigned.

One species, Eastern Redbud (Cercis canadensis), has an S-Rank of SX, meaning it is believed extirpated from the province. However, this plant has been re-naturalized in southern Ontario due to its popularity as a landscaping plant. Due to its location within an urban manicured setting, it is assumed that Eastern Redbud plants within the Study Area are plantings, and not naturally occurring. One Ornamental Juniper hybrid was also identified within the Study Area (*Juniperus x media*), which was not assigned an S-Rank.

Three provincially rare species were observed within the Study Area: Beautiful Serviceberry (*Amelanchier amabilis*, S2S3), Kentucky Coffee-tree (*Gymnocladus dioicus*, S2), and Butternut (*Juglans cinerea*, S3). Two locally rare species were also observed. Rare species of federal, provincial, or regional conservation concern are listed in Table 7.

Table 7: Vegetation Species of Federal, Provincial, and/or Local/Regional Conservation Concern

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Amelanchier amabilis	Beautiful Serviceberry	---	---	S2S3	N/A	---
Gymnocladus dioicus	Kentucky Coffee-tree	THR	THR	S2	Introduced	6
Juglans cinerea	Butternut	END	END	S3?	Endangered	6
Liriodendron tulipifera	Tulip Tree	---	---	S4	Rare	8
Platanus occidentalis	Sycamore	---	---	S4	Rare	8

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007); [4]Local (Hamilton) Rank (Source: Hamilton Natural Areas Inventory Project 3rd Ed., 2014).

Kentucky Coffee-tree is listed as Threatened under SARA and the ESA; however, all individuals are considered planted (not naturally occurring) due to their size and location within an urban manicured setting. Kentucky Coffee-tree is a commonly planted street or landscape tree in urban municipalities. Additionally, the Study Area is located outside the accepted historic range for the species. As these trees are not considered to occur naturally (or be naturalized), they are not afforded protection under the ESA and not addressed further in this report with regard to SAR or SAR habitat. Similarly, although this species has an S-Rank of S2, the Kentucky Coffee-trees observed in the Study Area are not addressed further in this report with regard to rare vegetation species.

Beautiful Serviceberry has an S-Rank of S2S3. However, like the Kentucky Coffee-trees in the Study Area, Beautiful Serviceberry plants observed within the Study Area are presumed to be planted. Landscaped plants are not considered naturally occurring and are therefore do not constitute SWH and are not afforded protection.

Butternut is listed as Endangered under SARA and the ESA. Details of Butternut observed in the Study Area are discussed further in Section 5.7.1 of this report.

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple (Acer negundo) that demonstrate little fidelity to any remnant natural community, i.e., may be found almost anywhere. The mean CC value for the Study Area was 3.7 out of a possible 10, indicating a disturbed landscape.

5.2 Tree Inventory

The tree inventory documented 698 trees within the Study Area. Detailed tree inventory results and figures denoting tree locations can be found on Figure 2.

A total of 76 different tree species were documented within the Study Area, with the most abundant species observed (>10 observations) comprised of:

- Black Pine (*Pinus nigra*), 44;
- Black Walnut (*Juglans nigra*), 10;
- Blue Spruce (*Picea pungens*), 14;
- Common Buckthorn (*Rhamnus cathartica*), 13;
- Eastern White Cedar (*Thuja occidentalis*), 78;
- Japanese Tree Lilac (*Syringa reticulata ssp. reticulata*), 13;
- Little-leaf Linden (*Tilia cordata*), 22;
- Manitoba Maple (*Acer negundo*), 22;
- Norway Maple (*Acer platanoides*), 107;
- Norway Spruce (*Picea abies*), 12;

- Siberian Crabapple (*Malus baccata*), 11;
- Siberian Elm (*Ulmus pumila*), 10;
- Silver Maple (*Acer saccharinum*), 20;
- Smooth Serviceberry (*Amelanchier laevis*), 12;
- Sweet Cherry (*Prunus avium*), 11;
- Thornless Honey-locust (*Gleditsia triacanthos inermis*), 68;
- White Ash (*Fraxinus americana*), 11; and,
- Wych Elm (*Ulmus glabra*), 10.

The majority of the tree species documented during the field assessment are designated by the NHIC as having a sub-national ranking (SRank) of very common (S5), common (S4), or non-native (SNA) in southern Ontario. With the exception of one Butternut tree, two Beautiful Serviceberry, and three Kentucky Coffee-trees, none of the tree species observed are considered to be rare (S1–S3) or are listed on the SARO list under the provincial ESA or on Schedule 1 of the federal SARA. Butternut is listed as Endangered under the provincial ESA and federal SARA and is designated with a SRank of "S3" by the NHIC. One potential Butternut (ID #1132) was identified, on private property south of Rymal Road, southwest of the intersection of Rymal Road and Acadia Drive (Figure 2H). As private property access was not permitted, this specimen was assessed from the municipal ROW. The three Kentucky Coffee-trees observed were located within the municipal boulevard and did not arise from a natural origin.

A summary of trees by their observed conditions is provided in Table 8. Typical defects of individual trees included stem wounds, decay pockets, poor growth habit (e.g., lean, or corkscrew form), and dieback because of competition with adjacent trees or vegetation. Several ash trees (*Fraxinus sp.*) were also observed to be affected by Emerald Ash Borer (*Agrilus planipennis*) (EAB), a prevalent tree pest in southern Ontario.

Table 8: Summary of Tree Inventory Results

Scientific Name	Common Name	Dead	Poor	Fair	Good	Grand Total
Abies alba	Silver Fir	-	-	-	2	2
Acer campestre	Hedge Maple	-	-	-	5	5
Acer ginnala	Amur Maple	-	1	1	7	9
Acer griseum	Paperbark Maple	-	-	-	4	4
Acer negundo	Manitoba Maple	-	-	16	7	23
Acer palmatum	Japanese Maple	-	-	-	1	1
Acer platanoides	Norway Maple	-	6	13	88	107
Acer pseudoplatanus	Sycamore Maple	-	-	-	1	1

Scientific Name	Common Name	Dead	Poor	Fair	Good	Grand Total
Acer rubrum	Red Maple	-	1	1	6	8
Acer saccharinum	Silver Maple	-	1	3	16	20
Acer saccharum	Sugar Maple	-	-	-	2	2
Acer tataricum	Tartarian Maple	-	-	3	3	6
Acer x freemanii 'Armstrong'	Armstrong Maple	-	-	-	1	1
Acer x freemanii	Freeman's Maple	-	1	-	6	7
Aesculus hippocastanum	Horse Chestnut	-	-	-	2	2
Ailanthus altissima	Tree-of-heaven	-	-	-	1	1
Amelanchier amabilis	Beautiful Serviceberry	-	-	-	2	2
Amelanchier laevis	Smooth Serviceberry	-	-	1	11	12
Betula papyrifera	Paper Birch	-	-	1	1	2
Carya ovata	Shagbark Hickory	-	-	2	1	3
Catalpa speciosa	Northern Catalpa	-	-	2	-	2
Celtis occidentalis	Common Hackberry	-	-	-	4	4
Cercis canadensis	Eastern Redbud	-	-	1	2	3
Cornus sericea ssp sericea	Red-osier Dogwood	-	-	-	1	1
Crataegus crus-galli	Cockspur Hawthorn	-	-	-	1	1
Crataegus punctata	Dotted Hawthorn	-	1	2	5	8
Elaeagnus angustifolia	Russian Olive	-	2	1	-	3
Euonymus alatus	Winged Euonymus	-	-	-	1	1
Fabaceae sp.	Locust species	-	-	-	1	1
Fagus sylvatica	European Beech	-	-	1	1	2
Fraxinus americana	White Ash	2	6	-	3	11
Fraxinus excelsior	European Ash	-	-	-	1	1
Ginkgo biloba	Ginko	-	-	-	8	8
Gleditsia triacanthos inermis	Thornless Honey-locust	1	-	3	64	68
Gymnocladus dioicus	Kentucky Coffee-tree	-	-	-	3	3
Juglans cinerea	Butternut	-	-	-	1	1
Juglans nigra	Black Walnut	-	-		10	10

Scientific Name	Common Name	Dead	Poor	Fair	Good	Grand Total
Juniperus virginiana	Eastern Red Cedar	-	-	1	4	5
Juniperus x media	Pfitzer/Ornamental Juniper	-	-	2	5	7
Larix decidua	European Larch	-	-	-	2	2
Liquidambar styraciflua	American Sweetgum	-	-	1	2	3
Liriodendron tulipifera	Tulip Tree	1	-	-	2	3
Lonicera tatarica	Tartarian Honeysuckle	-	-	1	1	2
Malus baccata	Siberian Crabapple	-	-	6	5	11
Malus coronaria	Sweet Crabapple	-	1	1	1	3
Malus pumila	Common Apple	1	-	-	-	1
Morus alba	White Mulberry	-	-	3	3	6
Ostrya virginiana	Eastern Hop-hornbeam	-	-	-	2	2
Parrotia persica	Persian ironwood	-	-	-	3	3
Picea abies	Norway Spruce	2	-		10	12
Picea glauca	White Spruce	-	-	3	4	7
Picea pungens	Blue Spruce	-	-	1	13	14
Pinus nigra	Black Pine	-	-	7	37	44
Pinus strobus	Eastern White Pine	-	-	-	1	1
Pinus sylvestris	Scotch Pine	1	-	6	2	9
Platanus occidentalis	Sycamore	-	-	-	3	3
Prunus avium	Sweet Cherry	-	1	4	6	11
Prunus domestica	European Plum	-	-	-	1	1
Prunus serrulata 'Kwanzan'	Kwanzan Flowering Cherry	-	-	-	3	3
Prunus sp.	Cherry cultivar	-	-	-	5	5
Prunus virginiana	Choke Cherry	-	-	-	1	1
Pyrus calleryana	Callery Pear	-	-	-	9	9
Quercus macrocarpa	Bur Oak	-	-	1	6	7
Quercus robur	English Oak	-	-	-	1	1

Scientific Name	Common Name	Dead	Poor	Fair	Good	Grand Total
Quercus rubra	Northern Red Oak	-	-	3	2	5
Rhamnus cathartica	Common Buckthorn	-	-	1	11	13
Rhus hirta	Staghorn Sumac	-	-	-	4	4
Robinia pseudoacacia	Black Locust	-	-	1	7	8
Salix babylonica	Weeping Willow	-	1	-	1	2
Sorbus aucuparia	European Mountain-ash	-	1	-	2	3
Spiraea prunifolia	Bridal-wreath	-	-	-	1	1
Syringa reticulata ssp. reticulata	Japanese Tree Lilac	-	1	2	10	13
Syringa vulgaris	Common Lilac	-	-	-	1	1
Thuja occidentalis	Eastern White Cedar	1	2	-	75	78
Tilia americana	American Basswood	1	-	-	4	5
Tilia cordata	Little-leaf Linden	-	-	2	20	22
Ulmus americana	American Elm	-	-	1	-	1
Ulmus glabra	Wych Elm	1	-	-	9	10
Ulmus pumila	Siberian Elm	-	2	3	5	10
Grand Total		11		101	557	698

5.3 Aquatic Habitat Assessment

Field assessments were completed in June 2021 to assess the 5 watercourses identified during the background review, as outlined in Section 4.3. Photos from each aquatic assessment can be found in Appendix D.

All five watercourses in the Study Area were dry or mostly dry with some standing water, and do not constitute direct fish habitat. However, during times of flow, the watercourses may constitute indirect fish habitat for downstream reaches within the watershed. Further details are provided below as they relate to each watercourse.

5.3.1 Tributary 1 – East of Upper Wellington Street, South of Rymal Road

Tributary 1 was assessed to be a dry, low-lying area dominated by Reed Canary Grass. The watercourse enters a concrete box culvert (approximately 1 m x 1 m) with a cage cover, extending north under Rymal Road. The area upstream, where the watercourse originates, is a dry, grassy swale dominated by cattails.

It is noted that there is an additional ditch on the east side of the cemetery entrance that was assessed to be mostly dry. Additionally, there is a stormwater management (SWM) pond east of the cemetery, dominated by cattails.

5.3.2 Tributary 2 – West of Miles Road, South of Rymal Road

Tributary 2 originates east of Upper Sherman Road. Under Upper Sherman Road, a newly installed 1200 mm corrugated steel pipe (CSP) culvert conveys flow from the ditch to the west into a small channel approximately 1 m wide. This area was assessed to be standing water (no flow) with cattails at the time of the field visit.

At the junction of this watercourse with Miles Road, a 900 mm plastic pipe culvert that appeared to have been recently installed was observed underneath the road. The watercourse in this area was a dry ditch with rip rap on the west side of the channel at the time of the field visit.

5.3.3 Tributary 3 – East of Miles Road, South of Rymal Road

Tributary 3 was observed to be a grassed swale in a residential yard with surrounding sparse shrubs. At the time of the field visit, this feature was dry, with no obvious channel or water. A concrete catch basin leading to a 200 mm PVC pipe drain underneath Rymal Road was observed.

5.3.4 Tributary 4 – West of Dartnall Road, West of the Chippewa Trail

Tributary 4 coincides with the “stream” feature mapped on Schedule B-8 of the UHOP, as discussed in Section 3.1.1. The watercourse emerges from a large storm sewer headwall into a concrete trapezoidal channel approximately 8 m wide and 3 m deep. Standing water with some slight flow was observed. The watercourse was polluted with household garbage.

Adjacent to Rymal Road (between 0 m and 100 m away from the road), an area of meadow with no channel was observed. On the south side of Rymal Road, a recent SWM pond has been constructed upstream of Watercourse 5.

5.3.5 Tributary 5 – West of Dartnall Road, East of the Chippewa Trail

Tributary 5 originates from a 900 mm CSP which was observed to be approximately half-blocked with gravel and soil. A slight flow was observed into a small ditch channel approximately 20 cm wide by 2 cm deep. This channel was overgrown with Common Buckthorn and became dry approximately 100 m north of Rymal Road.

5.4 Breeding Bird Surveys

A total of 26 bird species were observed in the Study Area during breeding bird surveys (Table 9). All 26 species observed are considered common and secure (S4) to very common (S5) in Ontario based on the provincial conservation rankings assigned by the NHIC. Two locally rare species were observed: Northern Harrier (*Circus cyaneus*) and Trumpeter Swan (*Cygnus buccinator*).

Table 9: Breeding Bird Survey Results

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	Behaviour[5]
Accipiter cooperii	Cooper's Hawk	---	---	S4	Uncommon	F/O
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4	Abundant	H, S, F/O
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B	Common	S, H
Butorides virescens	Green Heron	---	---	S4B	Uncommon	S
Cardinalis cardinalis	Northern Cardinal	---	---	S5	Abundant	H, S
Carduelis tristis	American Goldfinch	---	---	S5B	Abundant	H, S, F/O
Carpodacus mexicanus	House Finch	---	---	SNA	Abundant	H, S
Charadrius vociferus	Killdeer	---	---	S5B,S5N	Abundant	S
Circus cyaneus	Northern Harrier	---	---	S4B	Rare	F/O
Corvus brachyrhynchos	American Crow	---	---	S5B	Common	F/O
Cyanocitta cristata	Blue Jay	---	---	S5	Abundant	S, H
Cygnus buccinator	Trumpeter Swan	---	---	S4	Rare	F/O
Dumetella carolinensis	Gray Catbird	---	---	S4B	Abundant	S, H
Larus delawarensis	Ring-billed Gull	---	---	S5B,S4N	Abundant	F/O
Melospiza melodia	Song Sparrow	---	---	S5B	Abundant	S, H
Molothrus ater	Brown-headed Cowbird	---	---	S4B	Abundant	S, H
Passer domesticus	House Sparrow	---	---	SNA	Abundant	S
Poecile atricapillus	Black-capped Chickadee	---	---	S5	Abundant	H
Quiscalus quiscula	Common Grackle	---	---	S5B	Abundant	H, S, F/O
Sayornis phoebe	Eastern Phoebe	---	---	S5B	Uncommon	H
Setophaga petechia	Yellow Warbler	---	---	S5B	Abundant	H, S, F/O
Spizella passerina	Chipping Sparrow	---	---	S5B	Abundant	S, H
Sturnus vulgaris	European Starling	---	---	SNA	Abundant	S, H, F/O
Turdus migratorius	American Robin	---	---	S5B	Abundant	F/O, S, CF

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	Behaviour[5]
Vireo olivaceus	Red-eyed Vireo	---	---	S5B	Common	H
Zenaida macroura	Mourning Dove	---	---	S5	Abundant	H, S, F/O

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007); [4]Local (Hamilton) Rank (Source: Hamilton Natural Areas Inventory Project 3rd Ed., 2014)

[4]Breeding Bird Codes from Breeding Bird Atlas of Ontario (Cadman *et al.* 2007)

Observed
X Species observed in its breeding season (no breeding evidence)
Possible
H Species observed in its breeding season in suitable nesting habitat
S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season
Probable
P Pair observed in suitable nesting habitat in nesting season
T Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season.
D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
V Visiting probable nest site
A Agitated behaviour or anxiety calls of an adult
B Brood Patch on adult female or cloacal protuberance on adult male
N Nest-building or excavation of nest hole, except by a wren or a woodpecker
F/O Flyover

Confirmed
NB Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
DD Distraction display or injury feigning
NU Used nest or egg shells found (occupied or laid within the period of the survey)
FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
AE Adult leaving or entering nest sites in circumstances indicating occupied nest
FS Adult carrying fecal sac
CF Adult carrying food for young
NE Nest containing eggs
NY Nest with young seen or heard

5.5 Breeding Amphibian Surveys

Potential amphibian breeding habitat was identified within the Study Area. In accordance with the Ecoregion 7E Criterion Schedule (MNRF, 2015), the Study Area was considered for amphibian breeding habitat given the potential for amphibian breeding in association with the woodland and wetlands in and around the Study Area. Consistent with the Criterion Schedule, for amphibian breeding habitats to be significant, they must contain:

- One or more of the listed newt/salamander species;
- At least two or more of the listed frog/toad species with at least 20 individuals (adults or egg masses) of each species; or,
- At least two of the listed frog/toad species with Call Code 3.

A single amphibian survey was conducted on April 17, 2021. No amphibians were detected during the survey, and it was determined that no suitable habitat was present within the Study Area. No further amphibian surveys were completed.

5.6 Incidental Wildlife

Incidental wildlife species observed within the Study Area are listed in Table 10. Both incidental species observed within the Study Area are common and secure in Ontario (S5).

Table 10: Incidental Wildlife Species Observed in the study Area

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank
Sciurus carolinensis	Eastern Gray Squirrel	---	---	S5	Common
Sylvilagus floridanus	Eastern Cottontail	---	---	S5	Common

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007); [4]Local (Hamilton) Rank (Source: Hamilton Natural Areas Inventory Project 3rd Ed., 2014)

5.7 Species at Risk

5.7.1 Butternut

One Butternut tree was identified on private property south of Rymal Road East, southwest of the intersection of Rymal Road and Acadia Drive, as noted in Section 5.2. As private property access was not permitted, this specimen was assessed from the municipal ROW.

Butternut trees are protected under the ESA and have a critical root zone (CRZ) that extends in areas suitable for seed dispersal and establishment surrounding the tree. The CRZ for Butternut trees is the area extending in a 25 m radius around the tree. As per *O. Reg. 830/21*, permanent structures should not be constructed or installed within the 25 m CRZ. The Root Harm Prevention Zone (RHPZ) pertains to Butternut trees that are to be retained; the size of the RHPZ depends on the DBH of the tree. The Butternut tree in the Study Area had a DBH of 30 cm, therefore, the RHPZ for the tree is 18 m. No temporary work should be undertaken within 18 m of the tree.

The Butternut is on private property in good condition and is expected to be retained during project construction. However, a section of the Butternut RHPZ overlaps with Rymal Road within the project limits (Figure 2H). Any temporary or permanent works that encroach into the Butternut RHPZ will require compensation following the requirements listed under *O. Reg. 830/21*. In addition, the Butternut tree was located on private property where access was not permitted and therefore a Butternut Health Assessment (BHA) was not completed. A BHA could be completed if access is granted to confirm the retainable status of the Butternut.

5.7.2 Birds

No SAR birds were observed during breeding bird surveys within the Study Area. The SAR birds identified in background review (Bobolink and Eastern Meadowlark) are grassland birds that require large tracts of undisturbed habitat (e.g., hayfields, meadows). No suitable habitat for Bobolink or Eastern Meadowlark was observed during field studies within the Study Area.

5.7.3 Bats

While specific bat surveys were not conducted, potential SAR bat habitat exists within the Study Area in the woodlands, and within the urban structures (i.e., attics, roofs) along Rymal Road. It is; therefore, assumed that SAR bats may be found within the Study Area. Details on habitat protection for SAR bats are provided in Section 8.2.

5.8 Significant Wildlife Habitat

Criteria for determining SWH follow the guidelines outlined in the Natural Heritage Reference Manual (MNRF, 2010), the Significant Wildlife Habitat Technical Guide (MNRF, 2000) and the Ecoregion 7E Criteria Schedules (MNRF, 2015), where applicable. Based on the results of the field surveys and the SWH assessment, one SWH type has been identified:

- Detailed snag density surveys to determine the absence of use of the trees as roosting habitat were not conducted, therefore, to be conservative, the wooded areas in the Study Area are assumed to be SWH for Bat Maternity Colonies.

Potential habitat for SCC for Special Concern and Rare Wildlife Species (Eastern Wood-pewee, Barn Swallow, Monarch) were ruled out based on the breeding bird surveys and incidental surveys where these species were not observed.

6.0 Proposed Works

The recommended design widens Rymal Road within the project limits to a 5-lane cross-section with a total ROW width of 36 m. The design includes a 3.5 m wide multi-use path on the north side of the roadway and a 2 m wide sidewalk on the south side. Vegetated boulevards are proposed on both sides of the roadway. Transit queue jump lanes are included at each corner of the intersection of Rymal Road and Upper James Street.

The conceptual design and natural heritage constraints within the Study Area are shown on Figure 3, provided at the end of this report.

7.0 Impact Assessment

7.1 Potential Direct Impacts

Direct impacts are those that are immediately evident as a result of a development. Typically, direct impacts are most evident during the site preparation and construction phase of a development. Potential direct impacts of the project include those listed below, which are further described in the following sections.

- Diversion of surface water flows;
- Erosion and sedimentation into natural features;
- Tree and vegetation removal; and,
- Loss of/disturbance to wildlife and wildlife habitat.

7.1.1 Diversion of Surface Water Flows

The potential impacts of changes to land use and land cover on the health of a watershed can include changes to groundwater infiltration, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat.

The most notable change that is proposed is the removal of vegetation and addition of impervious surfaces (i.e., additional road lanes, multi-use path, and sidewalk). Throughout the project limits, impervious surface area is anticipated to increase by approximately 3.34 ha as a result of the project. Impervious surfaces prevent infiltration of water into the soils and the removal of the vegetation removes the evapotranspiration component of the natural water balance.

The Toronto and Region Conservation Authority Stormwater Management Criteria (TRCA, 2012) requires that at minimum, a 5 mm rainfall event be retained/stored within the Study Area to promote water balance for the area. The final runoff volume to meet water balance criteria will be based on the detailed design, and should be agreed upon in consultation with the HCA.

7.1.2 Erosion and Sedimentation of Natural Features

Construction activity, especially operations involving the handling of earthen material, increases the availability of sediment for erosion and transport into adjacent natural features including watercourses. There are five watercourses within the Study Area, discussed in Section 5.3. Potential impacts to these features may include disturbance to or loss of additional ground vegetation due to the deposition of dust and/or overland mobilization of soil.

To mitigate the adverse impacts caused by the release of sediment-laden runoff during construction, an erosion and sediment control (ESC) plan should be developed during detailed design as outlined in Section 8.3.

7.1.3 Tree and Vegetation Removal

Tree and vegetation removal will be required to facilitate grading and construction of the project. On a site level, the impacts of tree and vegetation removal may include:

- Direct loss of trees;
- Decreased floral species richness and abundance;
- Negative edge effects, include altered soil conditions and water availability;
- Loss of native seed banks; and,
- Physical injury, root damage, and compaction of trees not intended for removal that may result from construction operations.

A total of 115 trees and shrubs are anticipated to be removed as part of the project, based on impact to the tree crowns or roots (estimated by DBH). This includes 15 trees that were identified as dead or in poor condition as part of the tree inventory. A total of 1,042 healthy trees and shrubs within the tree inventory area are not expected to be impacted by the project.

Mitigation and compensation measures for tree and vegetation removals are discussed further in Section 8.1.

7.1.4 Loss of and/or Disturbance to Wildlife and Wildlife

The wildlife identified in Section 5.0 may be impacted due to vegetation clearing during construction within the proposed development area. More specifically, wildlife may be impacted by construction in the following ways:

- Displacement, injury, or death resulting from contact with heavy equipment during construction activities;
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods; and,
- Loss of general wildlife habitat.

Mitigation measures to address potential impacts to wildlife are included in Section 8.2.

7.2 Potential Indirect Impacts

Indirect impacts are those that do not always manifest in the core project area, but in the lands adjacent to the project. Sensitive surrounding natural features include the woodlands, watercourses, and wetland as described in prior sections. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Potential indirect impacts of the proposed development include anthropogenic disturbance and colonization of non-native and/or invasive species.

7.2.1 Anthropogenic Disturbance

Indirect impacts on the lands adjacent to the project limits could result in disturbance to local wildlife communities described in Section 5.0 (e.g., birds, bats) if left unmitigated. Noise, light, vibration, and human presence are indirect impacts that can adversely influence the population size and breeding success of local wildlife. These effects are more pronounced for projects in undisturbed areas. As lands within the proposed project are already disturbed, anthropogenic disturbance a result of the project is expected to be minimal.

7.2.2 Colonization of Non-Native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Invasive flora can establish in disturbed sites and can encroach onto adjacent undisturbed lands more efficiently than native flora. This type of colonization is currently occurring within the natural features in the Study Area (e.g., Common Buckthorn, Garlic Mustard). To maximize ecological function, removal of invasive species paired with planting of native tree and shrub species is recommended.

Mitigation measures related to control of invasive species are addressed in Section 8.1.

8.0 Mitigation Measures

Mitigation involves avoiding or minimizing impacts through design, construction practices, and/or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within, and adjacent to, the Study Area.

This section recommends mitigation measures to address the impacts discussed in Section 7.0. These measures include enhancement of the natural areas through a Landscaping and Planting Plan as well as the preparation of a Wildlife Impact Mitigation Plan, Erosion and Sediment Control Plan, and an Environmental Monitoring Plan. Mitigation measures for the project will be further developed and refined in consultation with Hamilton Conservation Authority and City during detailed design.

8.1 Landscaping and Planting Plan

The proposed road corridor improvements will require the removal of vegetation within the Study Area. As a result, a Landscaping and Planting Plan should be prepared to offset vegetation removals through enhancements to natural areas where feasible. Compensation plantings of trees, if required, are generally based on the number of removals required to facilitate construction of the project. The Landscaping and Planting Plan should have consideration for invasive species removal and control where necessary. The exact number of compensation plantings and locations, if required, should be determined during detailed design.

The one Butternut, which is located on private property within the Study Area, is expected to be retained during project construction. However, a section of the Butternut RHPZ overlaps with the anticipated area of impact (Figure 2H). Any temporary or permanent encroachment into the Butternut RHPZ will require compensation following the requirements listed under *O. Reg. 830/21*. If property access is granted, a BHA is recommended to confirm the retainable status of the Butternut.

8.2 Wildlife Impact Mitigation Plan

Strategies to mitigate impacts to general wildlife prior to and during construction may include (but are not limited to):

- Clearing ground vegetation, shrubs, or trees outside the breeding bird season (April 1 to August 31);
  - Should any clearing be required during the breeding bird season (April 1 to August 31), nest searches should be conducted by a qualified person 48 hours prior to clearing activities. If active nests are found, work within approximately 10 m (depending on the associated bird species) of the nest should cease until the young of year have fledged or until the nest is determined to be inactive. If no nests are present, clearing may occur. This is in accordance with the federal MBCA;
- Clearing trees outside the active bat season (May 1 to September 30);

- Where feasible, maximize the distance from construction activities to the woodland/wetland edges to avoid disturbing wildlife as per the VPZs described in Chapter C, Section 2.5.10 of the UHOP; namely:
  - A 15 m VPZ applies to the woodlands throughout the Study Area (the woodlands are assumed to be significant as assessment to determine their significance was not completed as part of this study); and,
  - A 15 m VPZ applies to the unevaluated wetland at the eastern limit of the Study Area (it is noted this wetland is approximately 220 metres from the anticipated area of impact).
- Limit the use of lighting during construction, where possible;
- Installation of appropriate fencing to delineate work areas, which will direct wildlife away from the construction area and to more suitable habitat in areas adjacent to woodland/wetland/watercourse, as applicable;
- Visual monitoring for wildlife species and avoidance where encountered, if possible;
- If wildlife is found within the construction area, they should be allowed to leave the area on their own accord or re-located to an area outside of the development into an area of appropriate habitat;
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and,
- Should an animal be injured or found injured during construction they should be transported to (or contact made with) an appropriate wildlife rehabilitation center.

8.3 Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan should be developed as part of detailed design. The plan may include, but is not limited to:

- Installation of geotextile silt fences, rock check dams, ditch checks, and mud mats;
- Temporary sediment ponds;
- Designated topsoil stockpile areas;
- Cut-off swales and ditches to divert surface flows to the appropriate sediment control area; and,
- Provisions for re-vegetating the area as soon as construction is completed.

More specifically, the plan may include the following measures:

- Standard duty silt fencing (OPSD 219.110) and/or other equivalent erosion and sediment controls should be installed around the perimeter of the work area to clearly demarcate the construction area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified, they should be dealt with promptly;

- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any soil piles to prevent sedimentation into adjacent areas. Further, stockpiling of excavated materials will not occur within 30 m of watercourses; and,
- A spill response plan should be developed and implemented as required.

ESC measures must be appropriate for the erosion potential of the site. It is important that the control measures be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore, inspection and maintenance is required.

ESC measures should be regularly monitored and are likely to require periodic cleaning (e.g., removal of accumulated silt), maintenance and/or re-construction. Inspections of the ESC on the construction site should be undertaken by a certified sediment and erosion control monitor. If damaged control measures are observed they should be repaired and/or replaced promptly. Site inspection staff and construction managers should refer to the Erosion and Sediment Control Inspection Guide (*Greater Golden Horseshoe Area Conservation Authorities*, 2008). This guide provides information related to the inspection reporting, problem response, and proper installation techniques.

8.4 Environmental Monitoring Plan

An Environmental Monitoring Plan (EMP) should be developed during detailed design and implemented through the duration of construction activities. The purpose of the EMP is to ensure that the ESC measures operate effectively and to monitor the potential impact, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, lawns have been sodded, and restoration plantings have been completed.

The EMP should be implemented during active construction periods for the development with the following frequency:

- On a bi-weekly basis; and/or,
- After every 10 mm or greater rainfall event.

Protected vegetation areas will require periodic monitoring to check that they are not being impacted by construction activities. Should impacts be observed, necessary steps should be taken to confirm that the impacted vegetation is either restored or replaced.

9.0 Summary and Conclusion

This Natural Heritage report was prepared as part of a Municipal Class Environmental Assessment for improvements to Rymal Road between Upper James Street and Dartnall Road in the City of Hamilton. A detailed biophysical inventory has been included in this Natural Heritage report based on consultation with Hamilton Conservation Authority. The inventory incorporated a review of background natural heritage data and field investigation surveys. Key natural heritage features identified include the following:

- One Butternut (END) tree;
- Birds and bird habitat;
- Bat Maternity Colonies and other bat habitat; and,
- General wildlife habitat.

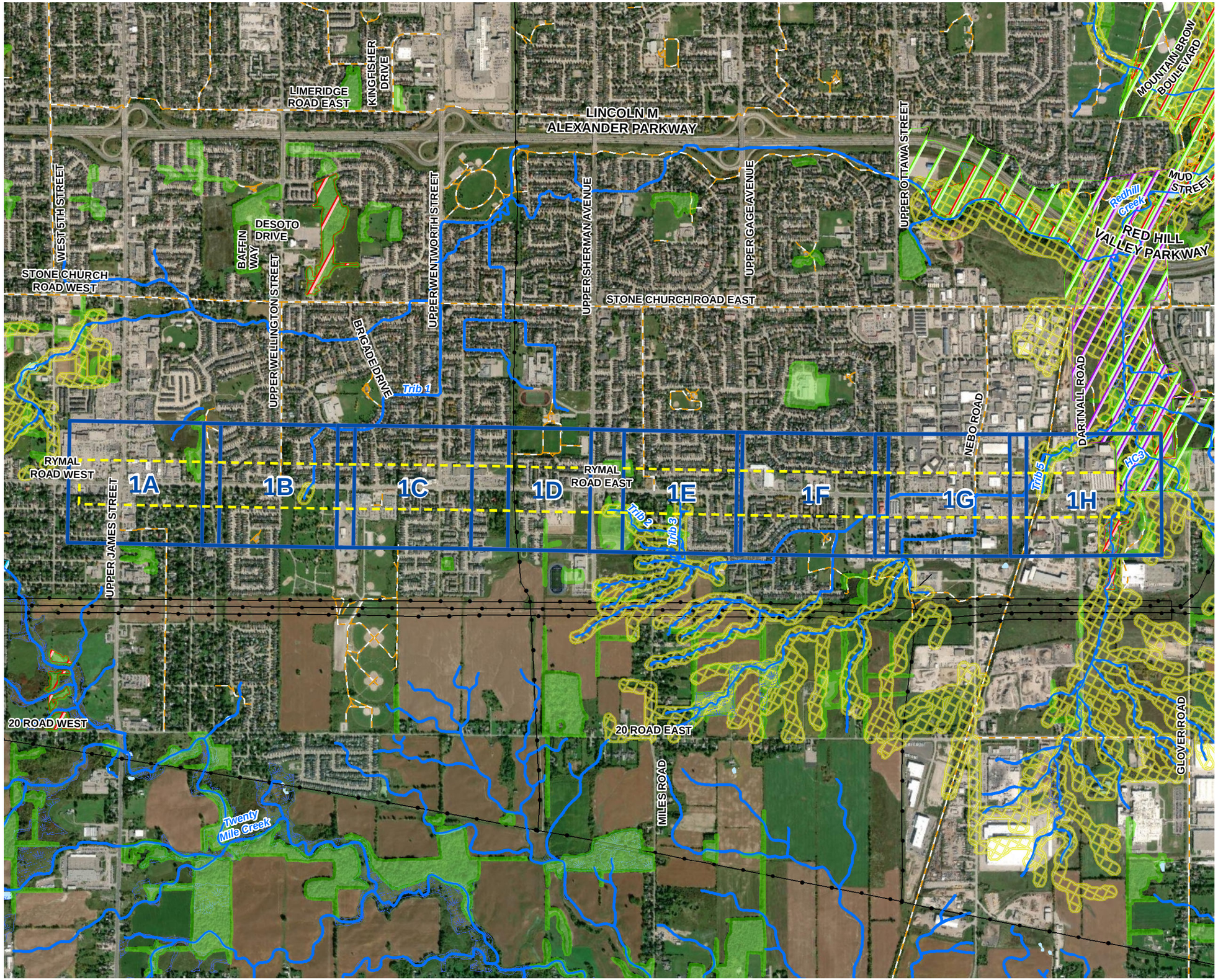
An assessment and analysis of potential impacts to these natural features and their associated ecological functions was completed based on preliminary project details and assumptions about extents and timing of the works. Based on this preliminary assessment, it is expected that the majority of the potential impacts to these natural features can be effectively mitigated using standard mitigation measures for construction that aim to minimize the disturbance to wildlife, natural heritage features, and the natural heritage system. For residual impacts that cannot be fully mitigated, landscaping and planting is recommended to offset tree/vegetation removals.

Any encroachment into the Butternut RHPZ will require compensation following the requirements listed under *O. Reg. 830/21*. It is recommended (where site access permits) that a BHA be completed to confirm the retainable status of the Butternut. Additionally, any encroachment into the woodlands may require an Information Gathering Form (IGF) through the MECP as encroachment may impact potential SAR bat habitat. Consultation with regulatory agencies (HCA and MECP) under various environmental permitting and approval processes has and will continue to inform the mitigation, restoration, and monitoring measures recommended in this Natural Heritage report.

Figures

Figure 1

Natural Heritage Features



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

NATURAL HERITAGE FEATURES
FIGURE 1

- Natural Heritage Study Area (120m)
- Page
- Utility Line
- Watercourse
- Water Body
- Wetland
- Woodland (Potential for Species At Risk)
- Hamilton Conservation Authority Regulated Area

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

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MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/ MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

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RYMAL ROAD
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PAGE 1A

- Project Boundary
- Natural Heritage Study Area (120m)
- Trail
- Utility Line
- Watercourse
- Water Body
- Wetland
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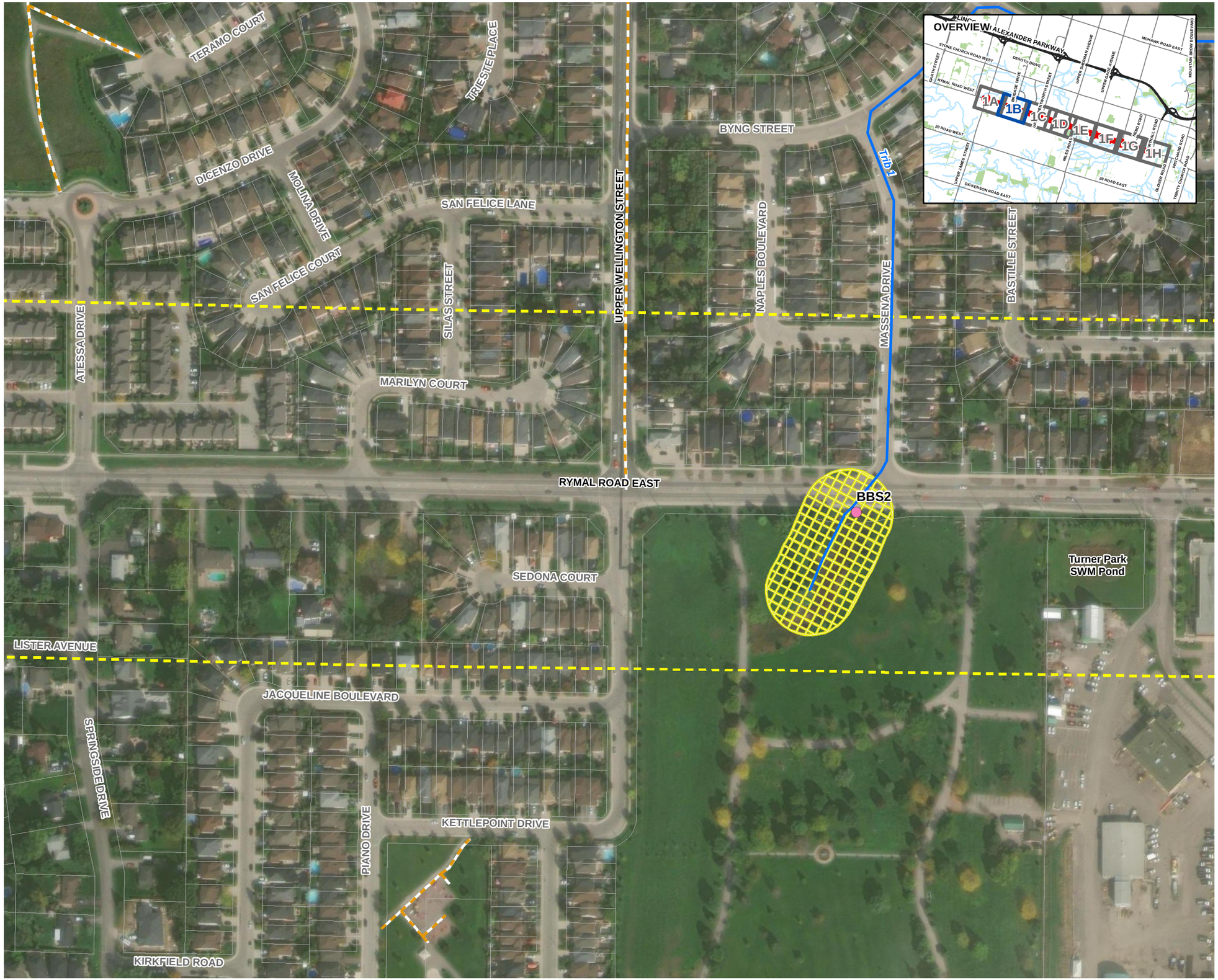

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PAGE 1B

- Project Boundary
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- Watercourse
- Water Body
- Wetland
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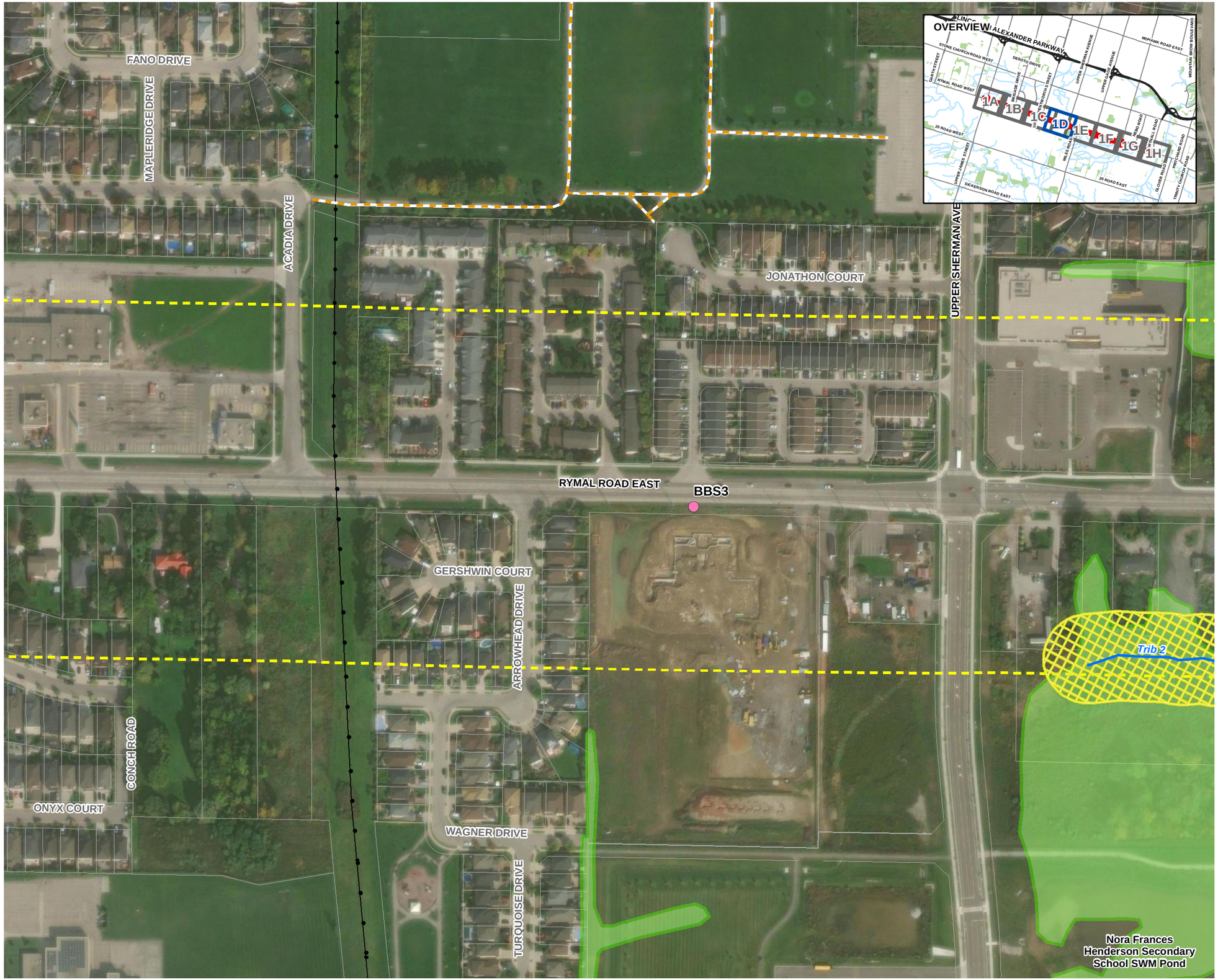

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PAGE 1D

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- Utility Line
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- Water Body
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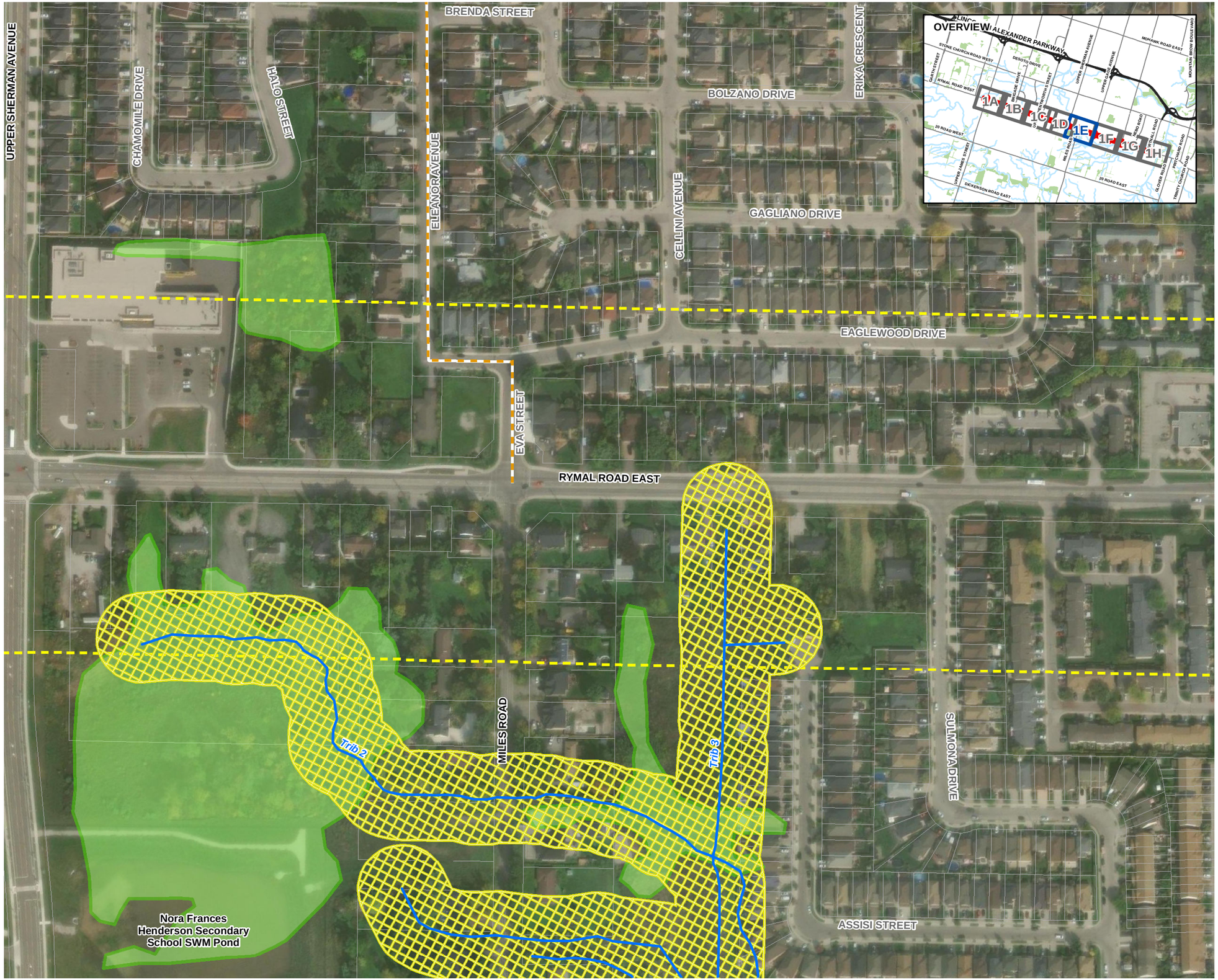

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PAGE 1E

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- Trail
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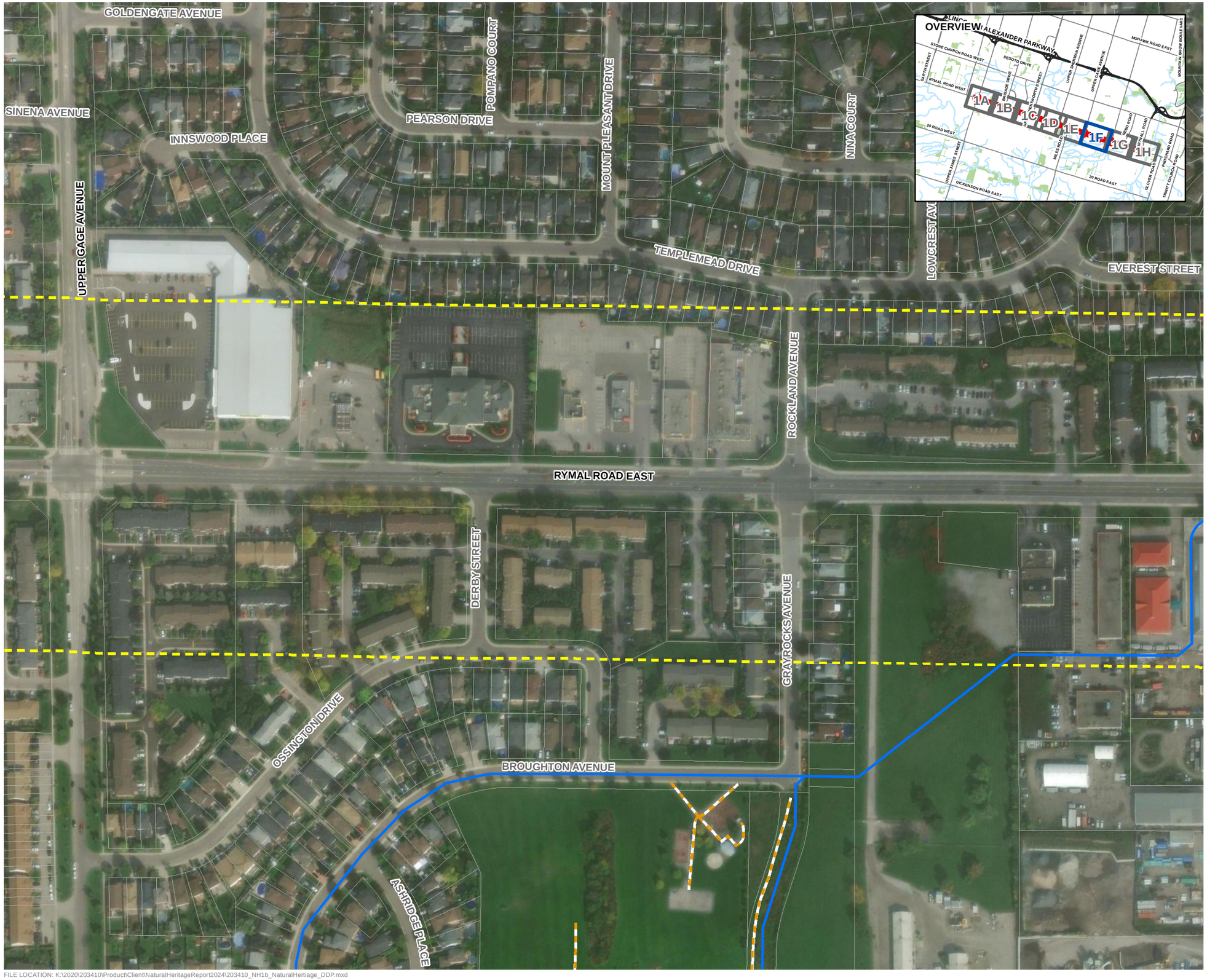

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PAGE 1F

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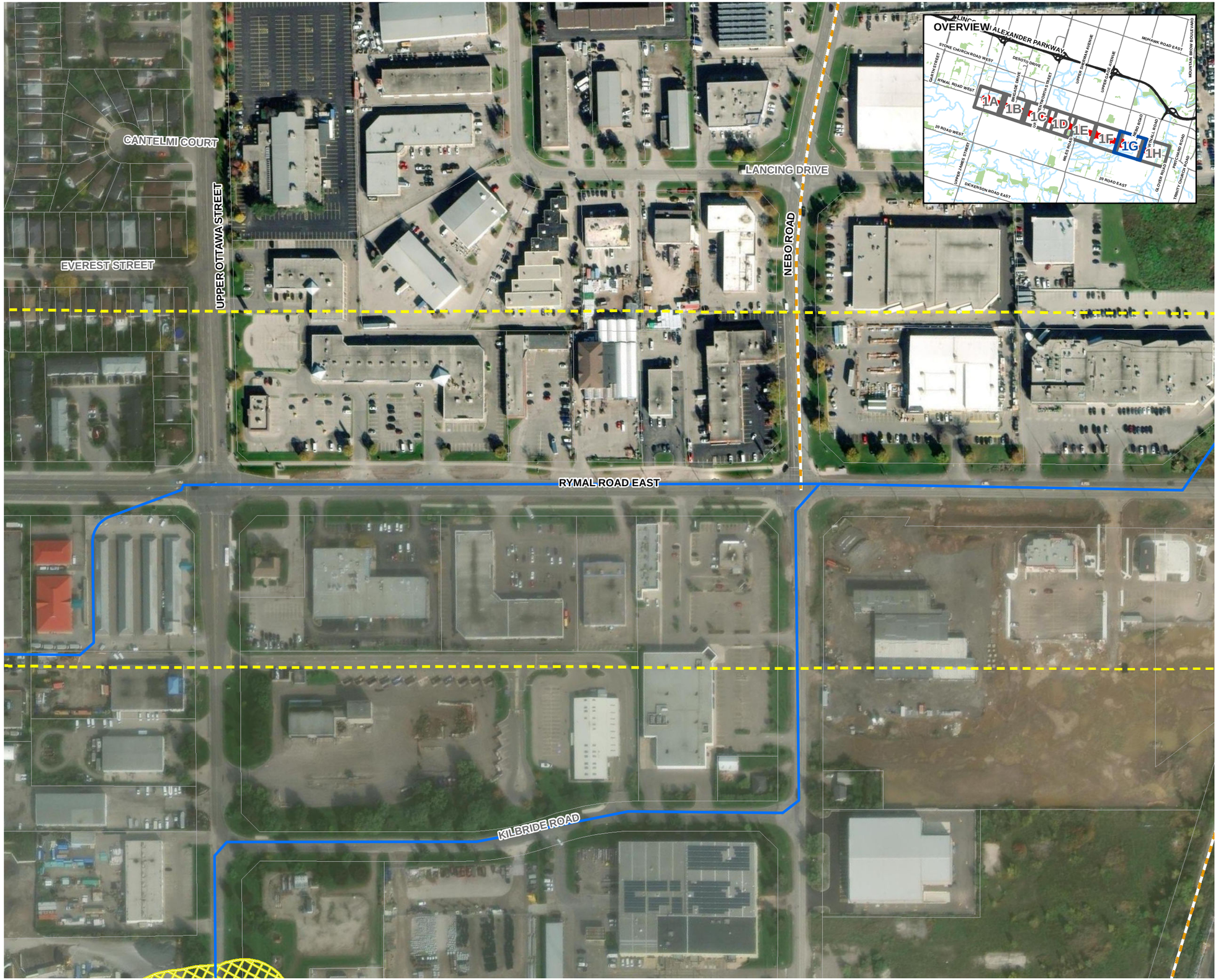

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PAGE 1G

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- Woodland (Potential for Species At Risk)
- Hamilton Conservation Authority Regulated Area
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations
- Amphibian Breeding Survey (AMPH)
- Breeding Bird Survey (BBS)

SCALE 1:2,500

0 15 30 60 m

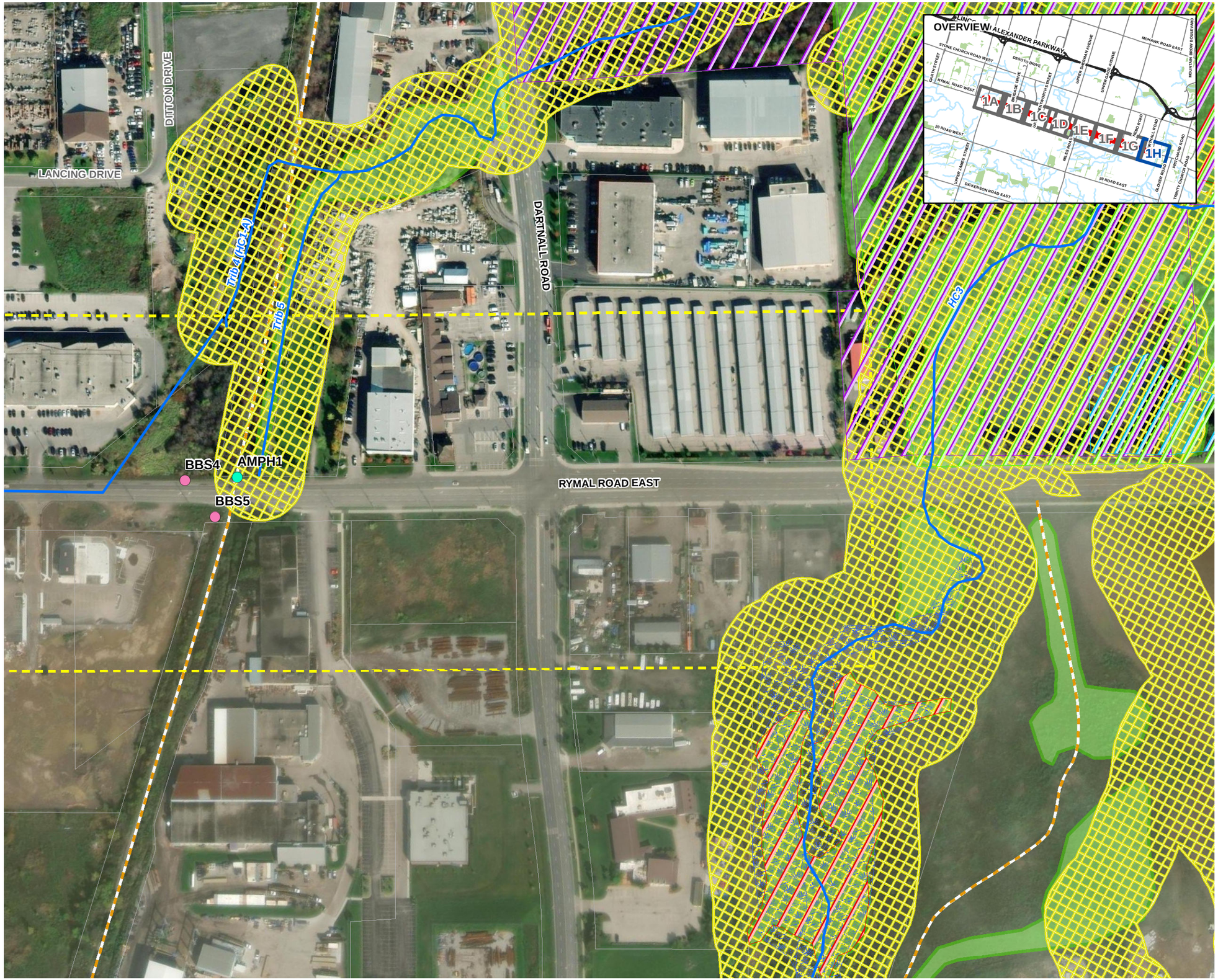
MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority. ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH1b_NaturalHertiage_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

NATURAL HERITAGE FEATURES
PAGE 1H

- Project Boundary
- Natural Heritage Study Area (120m)
- Trail
- Utility Line
- Watercourse
- Water Body
- Wetland
- Woodland (Potential for Species At Risk)
- Hamilton Conservation Authority Regulated Area
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations
- Amphibian Breeding Survey (AMPH)
- Breeding Bird Survey (BBS)

SCALE 1:2,500

0 15 30 60 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority. ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

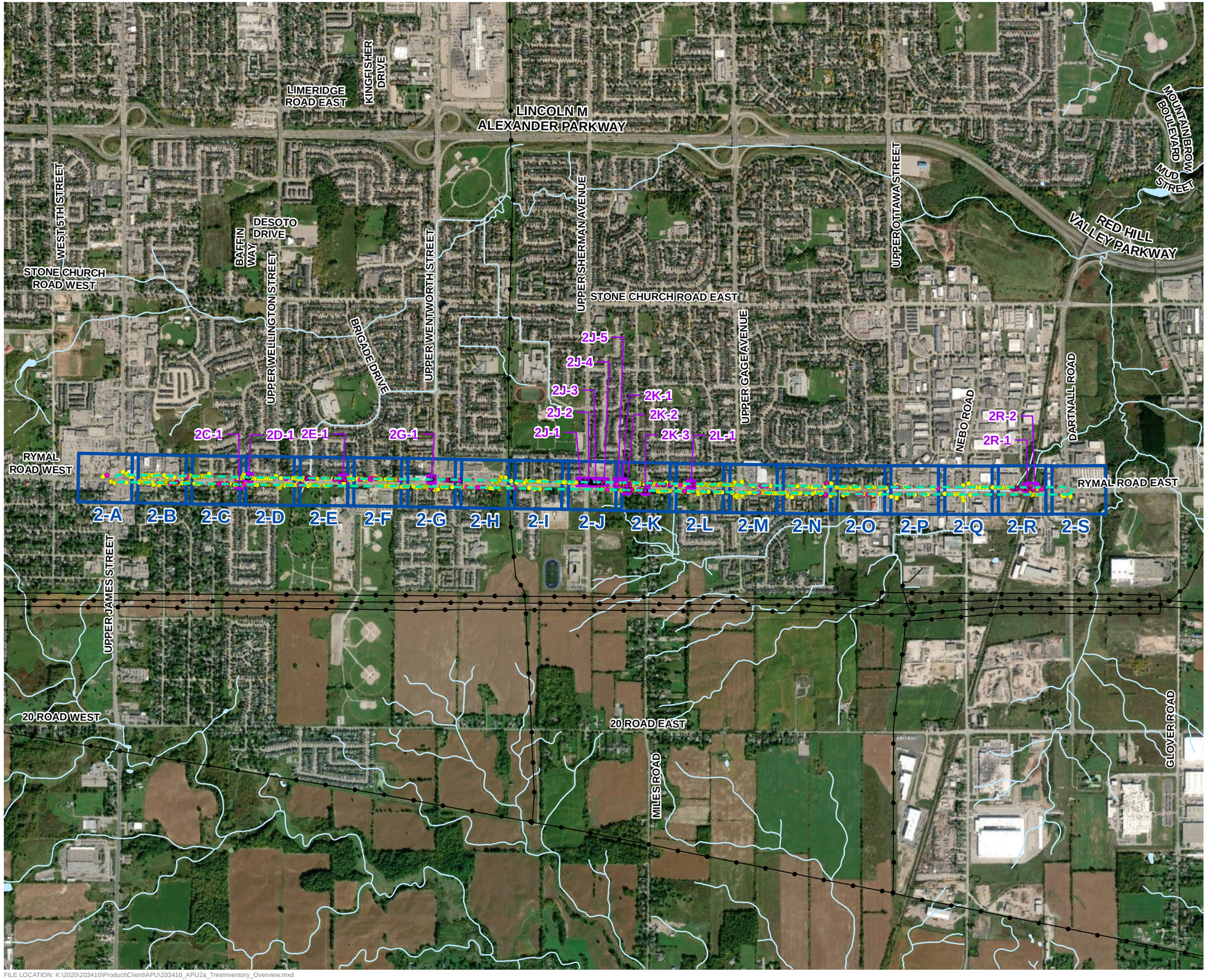
DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport\2024\203410_NH1b_NaturalHertiage_DDP.mxd

Figure 2

Tree Inventory



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2 OVERVIEW

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Page Extent
- Inset Page Exent
- Utility Line
- Watercourse
- Water Body

NOTES:
Karst is ubiquitous in the area and not considered a constraint

SCALE 1:20,000

0 125 250 500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

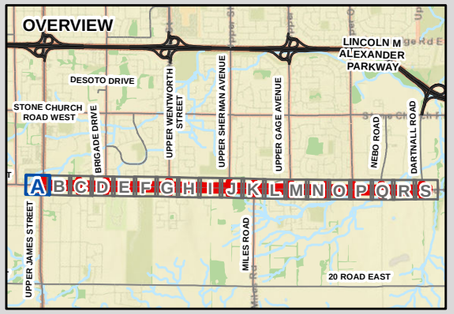
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2a_TreeInventory_Overview.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2A

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

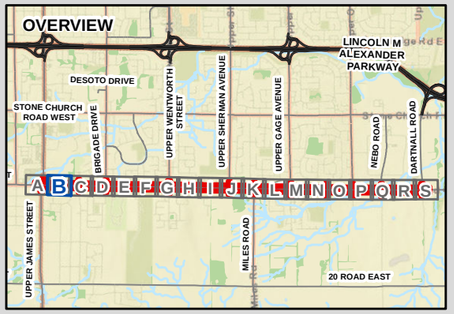
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2B

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

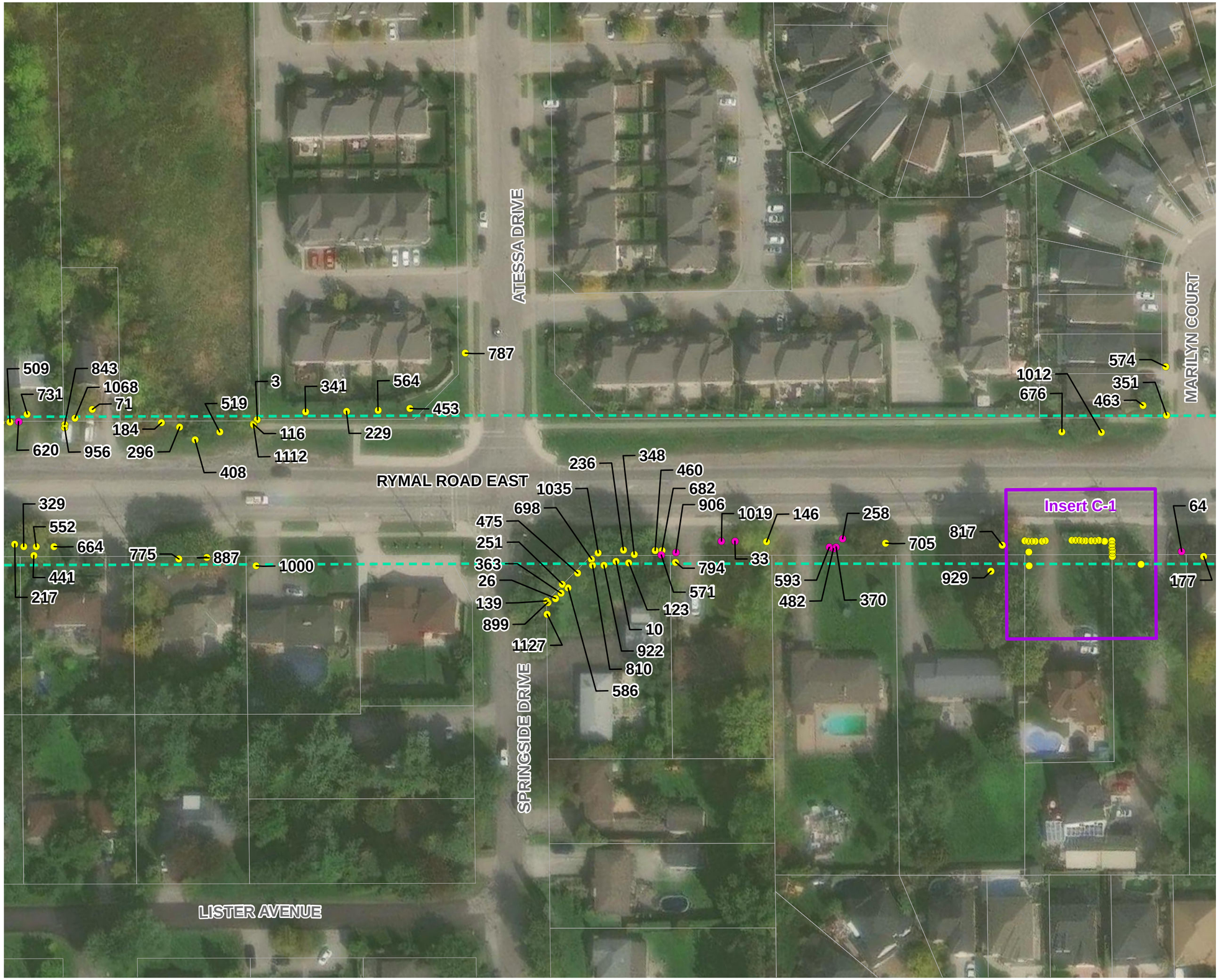
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2C

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Property Parcel

SCALE 1:1,000

0 5 10 20 m

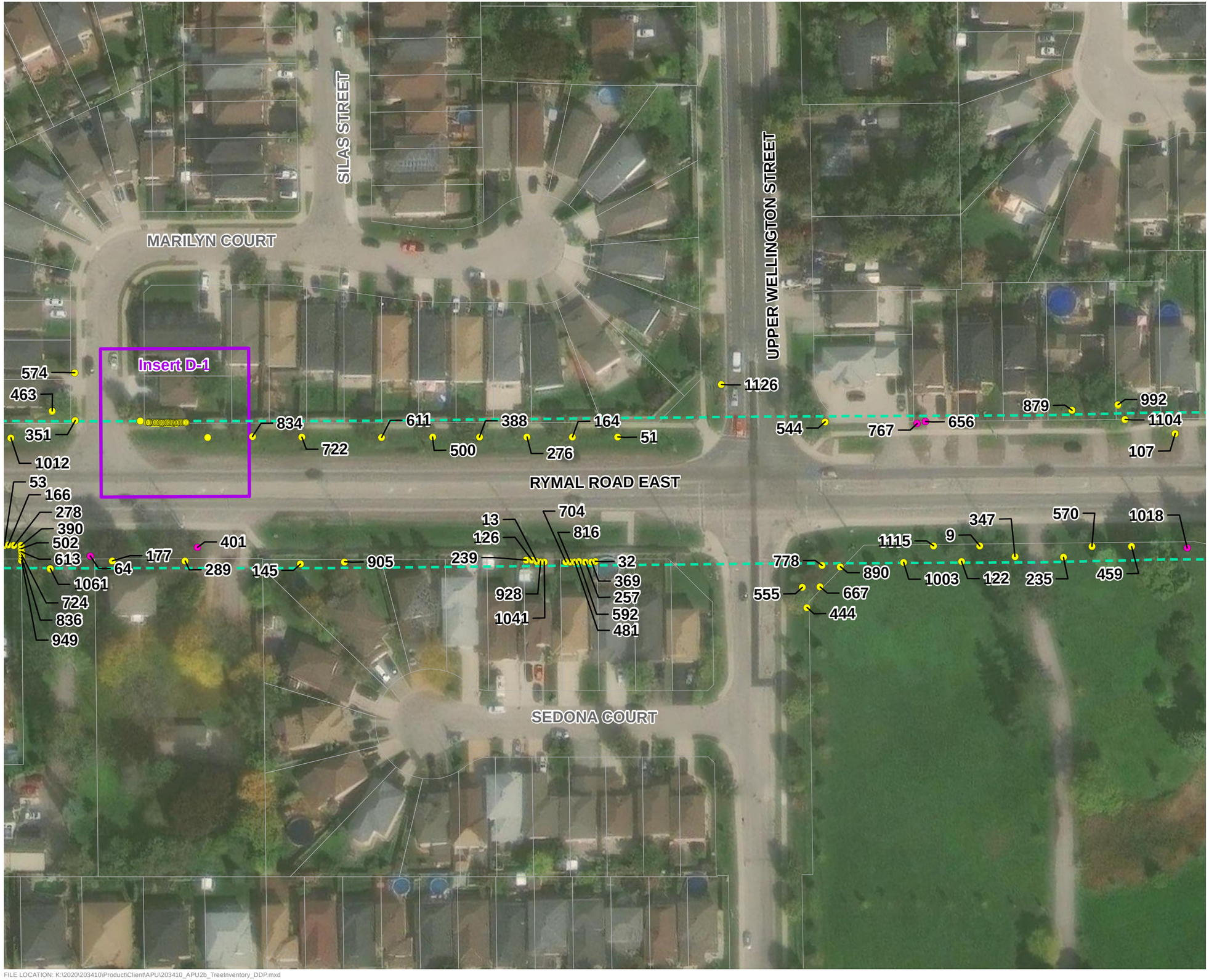
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

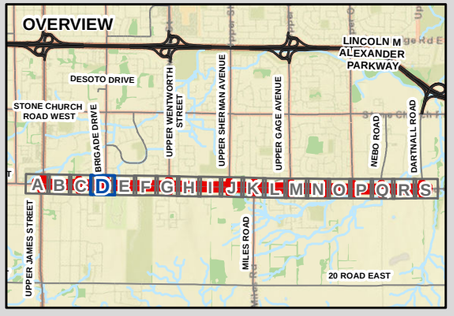
FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2D

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

NAPLES BOULEVARD

BASTILLE STREET

MASSENA DRIVE

Trib 1

RYMAL ROAD EAST

Insert E-1

992 1104 220 107 332 1021 908 484 684 796 148 35 372 260 595 462 706 1044 818 570 931 241 459 15 1018 128 793 573 1131 238 125 1004 1116 12 350 576 465 687 911 353 799 38 1024 556 891 668 779 108 1105 221 333 434 445 657 993 880 768 545 1072 960 735 847 75 624

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2E

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Watercourse
- Property Parcel

SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

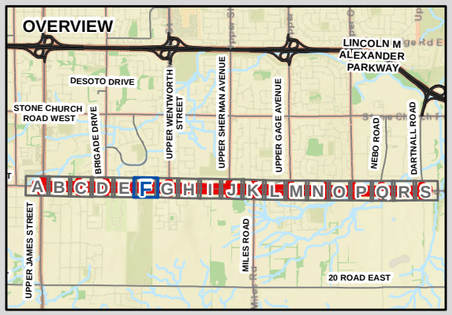
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2F

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

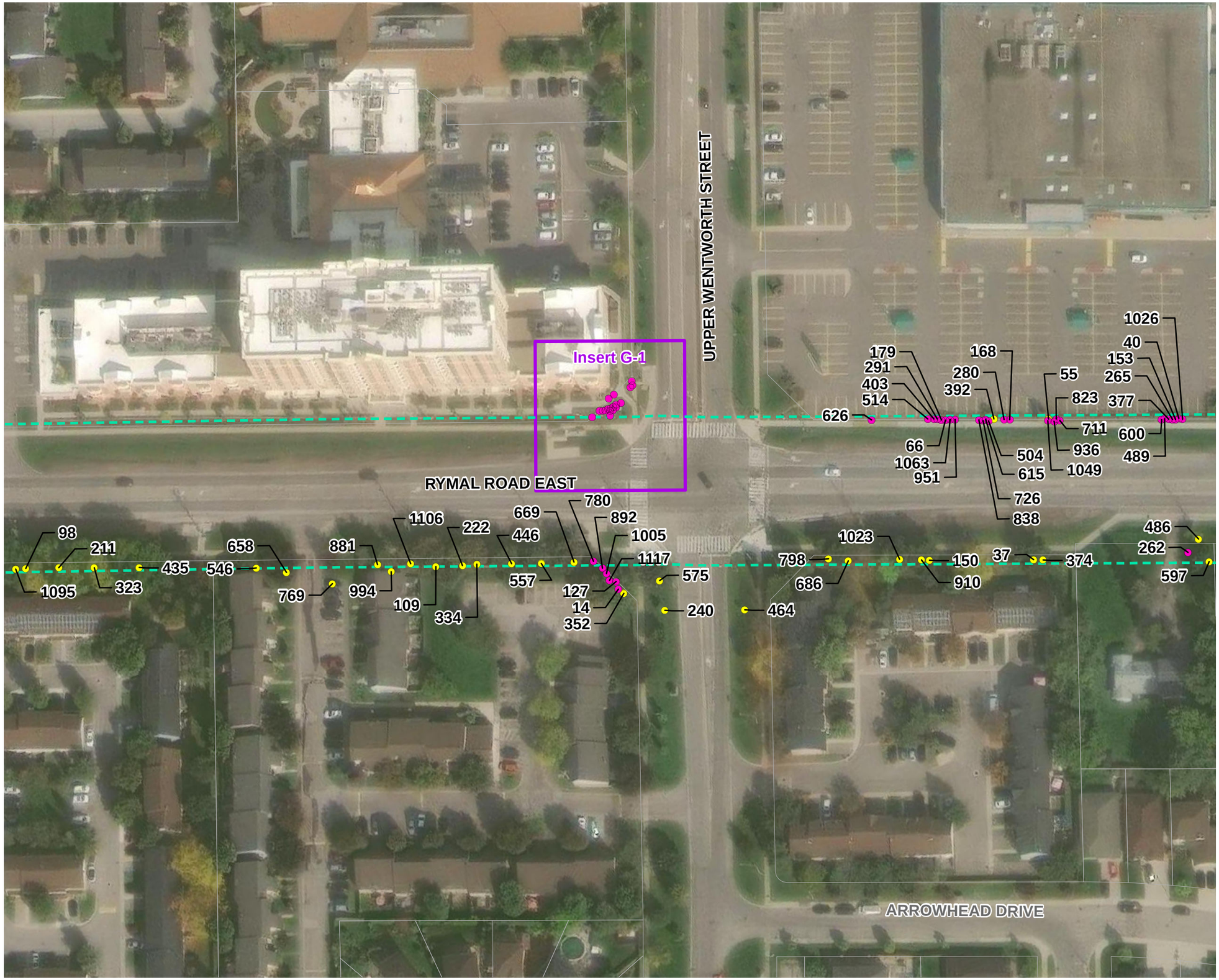
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

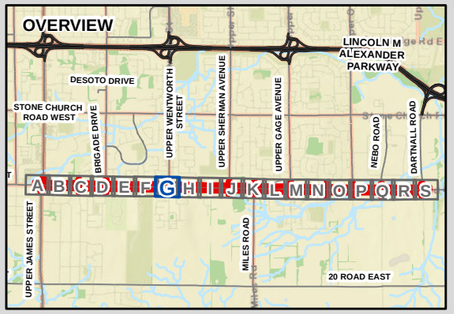
FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2G

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

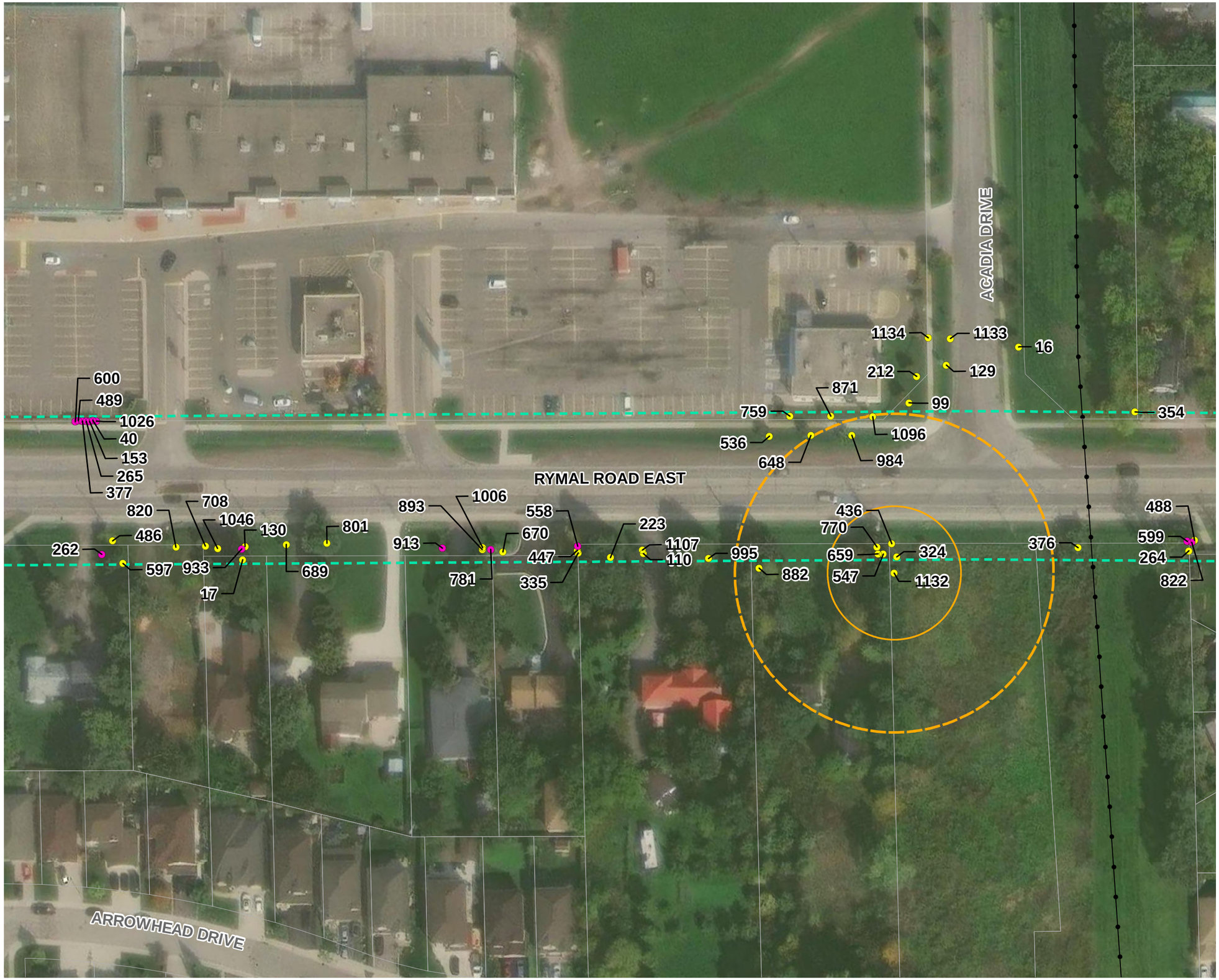
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2H

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Utility Line
- Property Parcel
- Butternut Setback (18 m)
- Butternut Setback (25 m)

SCALE 1:1,000

0 5 10 20 m

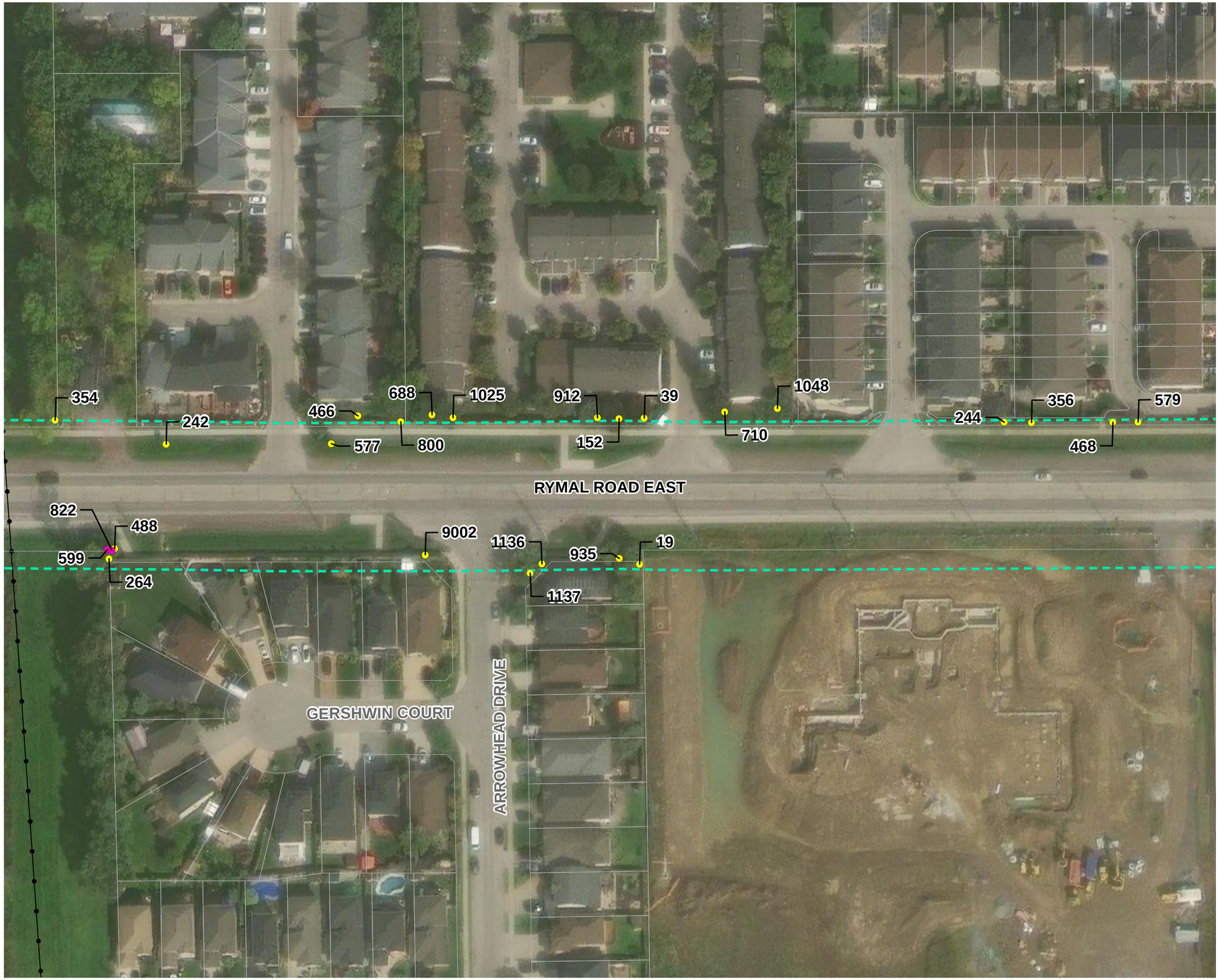
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

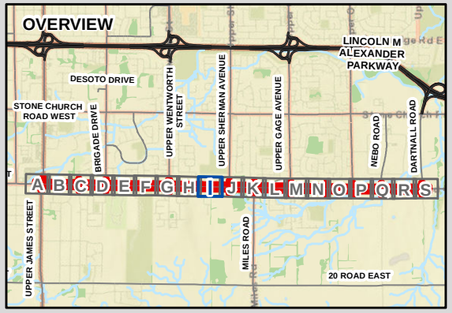
FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2I

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Utility Line
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

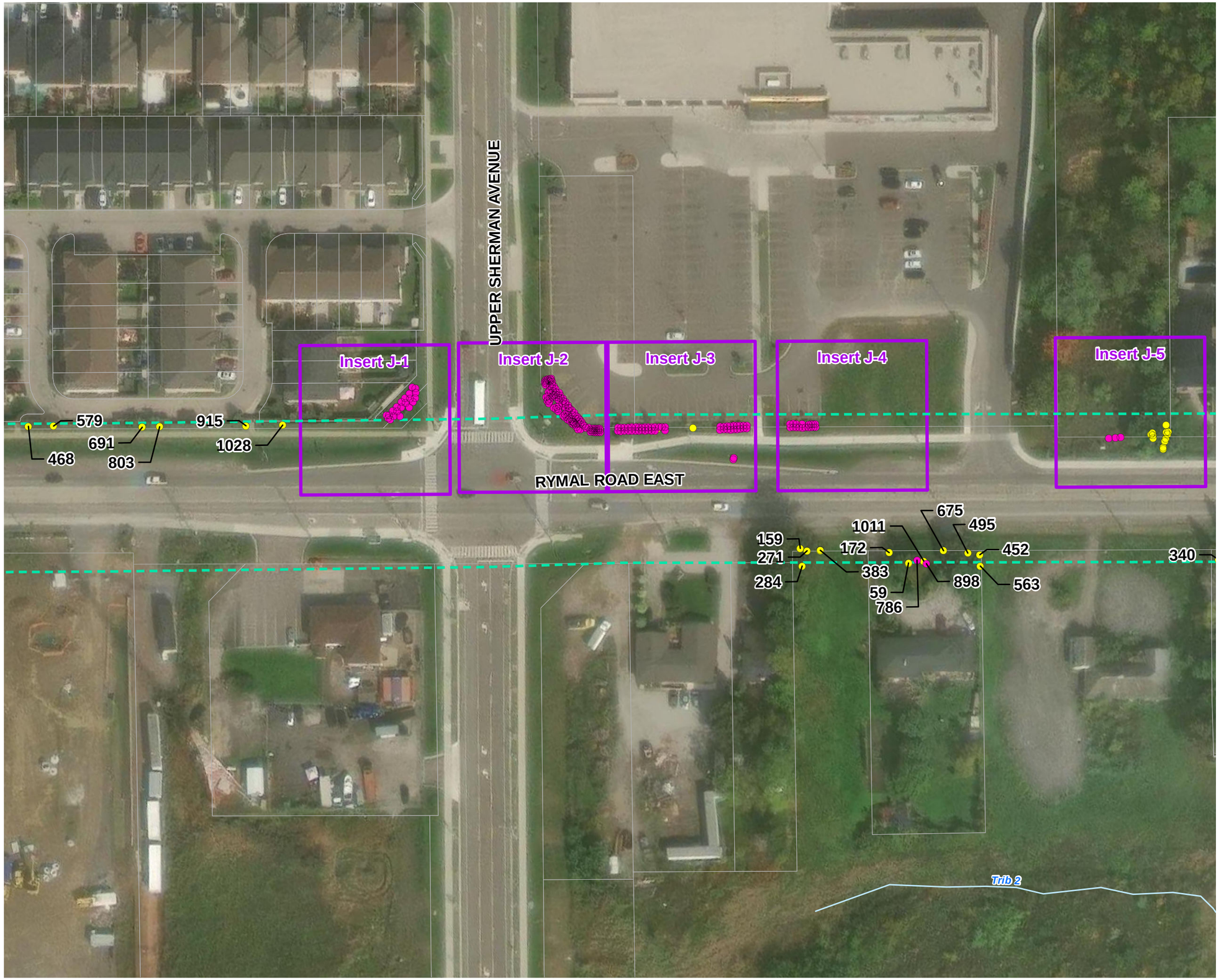
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

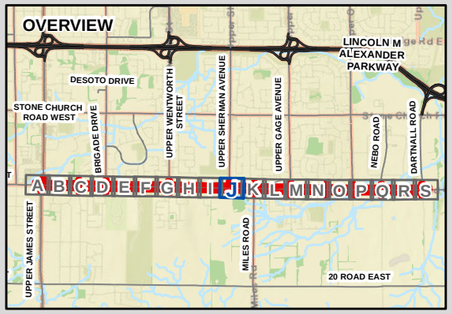
FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2J

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Watercourse
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

ELEANOR AVENUE
EAGLEWOOD DRIVE
EVA STREET
RYMAL ROAD EAST
MILES ROAD
Trib 2
Trib 3
Insert K-1
Insert K-2
Insert K-3
382
45
270
605
494
828
729
954
1054
651
1066
716
841
606
717
829
340
1077
80
528
751
25
305
640
417
863
976
1099
987
102
428
539
762
874
215
327
550
439
998
1110
885
773
662
384
272
160
496
718
607
943
418
306
81
830
529
641
752
429
864
70
1089
317
774
1056
194
977
205
92
1111
886
999
955
47
1067
842
730
619
508
396

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2K

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Watercourse
- Property Parcel

OVERVIEW
LINCOLN M ALEXANDER PARKWAY
DESOTO DRIVE
STONE CHURCH ROAD WEST
BRIGADE DRIVE
UPPER WENTWORTH STREET
UPPER SHERMAN AVENUE
UPPER GAGE AVENUE
WEBO ROAD
DARTNALL ROAD
UPPER JAMES STREET
MILES ROAD
20 ROAD EAST
A B C D E F G H I J K L M N O P Q R S

SCALE 1:1,000
0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

EAGLEWOOD DRIVE

Insert L-1

RYMAL ROAD EAST

SULMONA DRIVE

Trib 3

774 440 551 663 328 216 886 999 1111 92 205

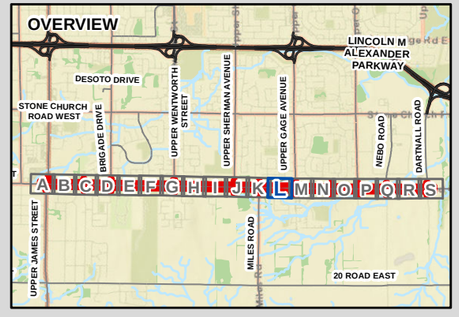
696 808 295 1033 920 339 227 1 114 562 785 451 674 1010 897 144 480 31 256 368 591 703 815

396 758 870 983 132 1118 183 1135 540 652 763 875 1100 988 137 24 361 249 584

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2L

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Watercourse
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

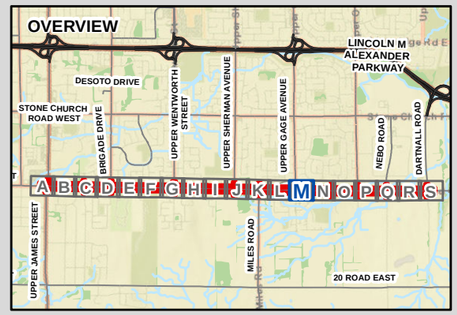
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2M

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

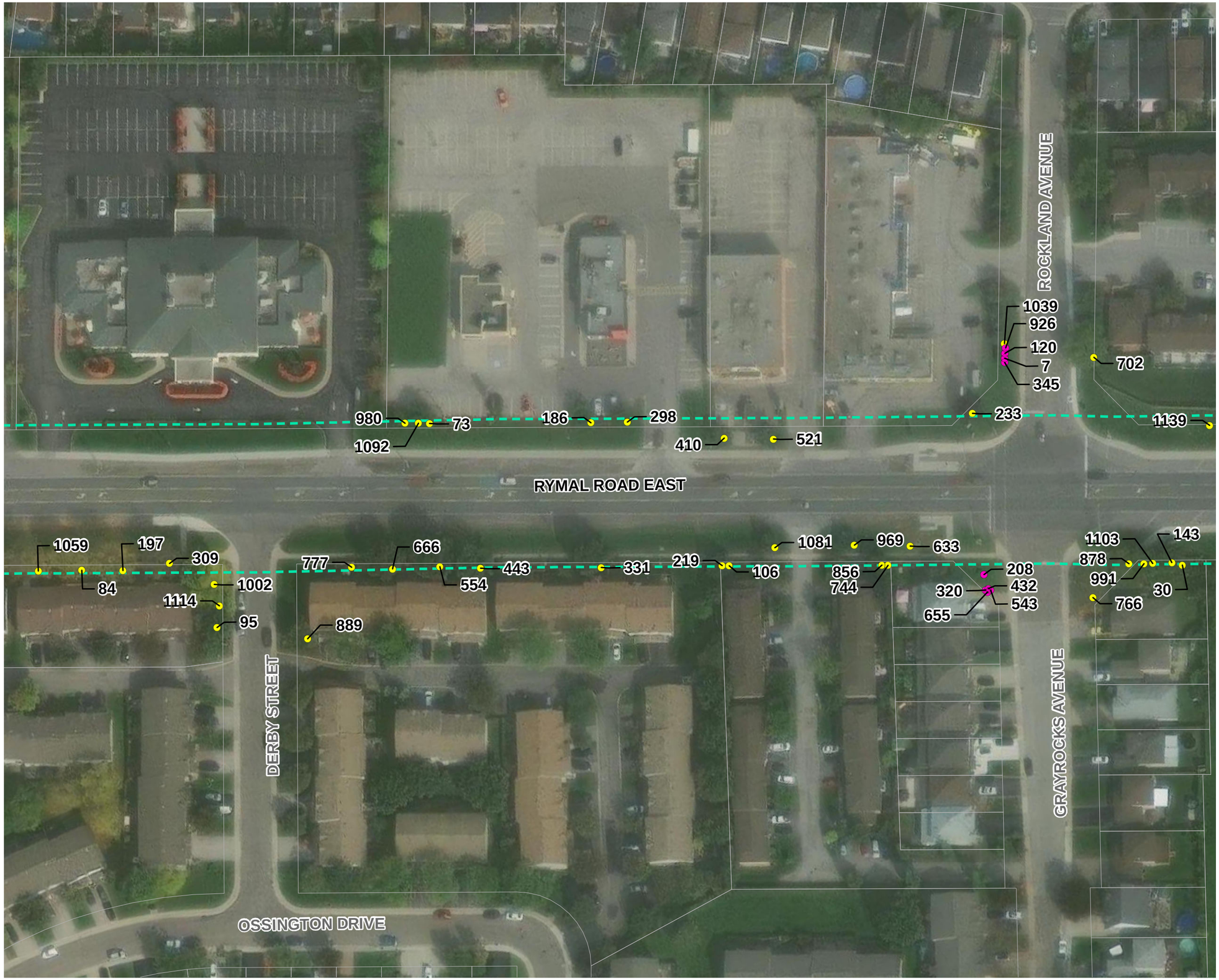
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

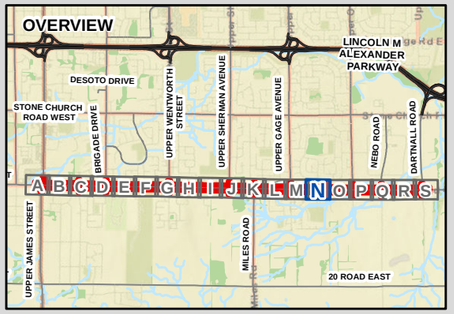
FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2N

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

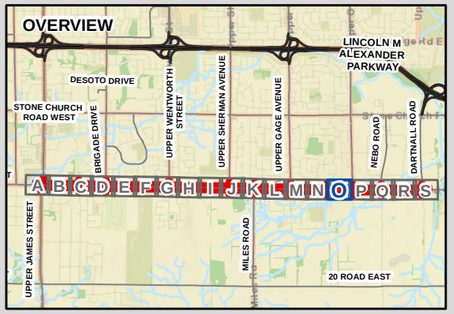
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2O

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Watercourse
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

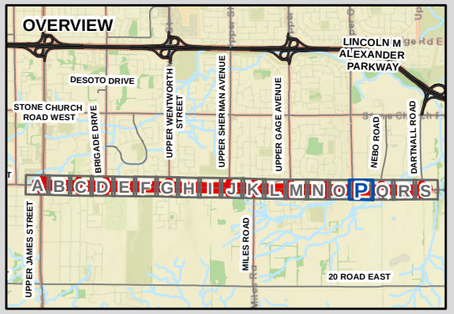
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2P

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Watercourse
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

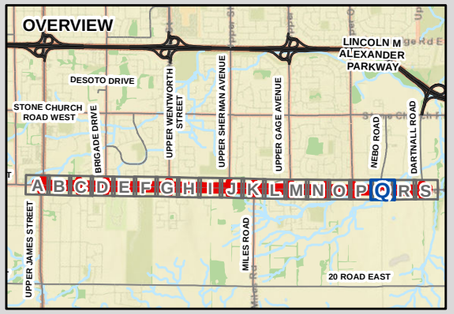
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2b_TreeInventory_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2Q

- Tree
- Tree Inventory Study Area (20m)
- Watercourse
- Property Parcel



SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

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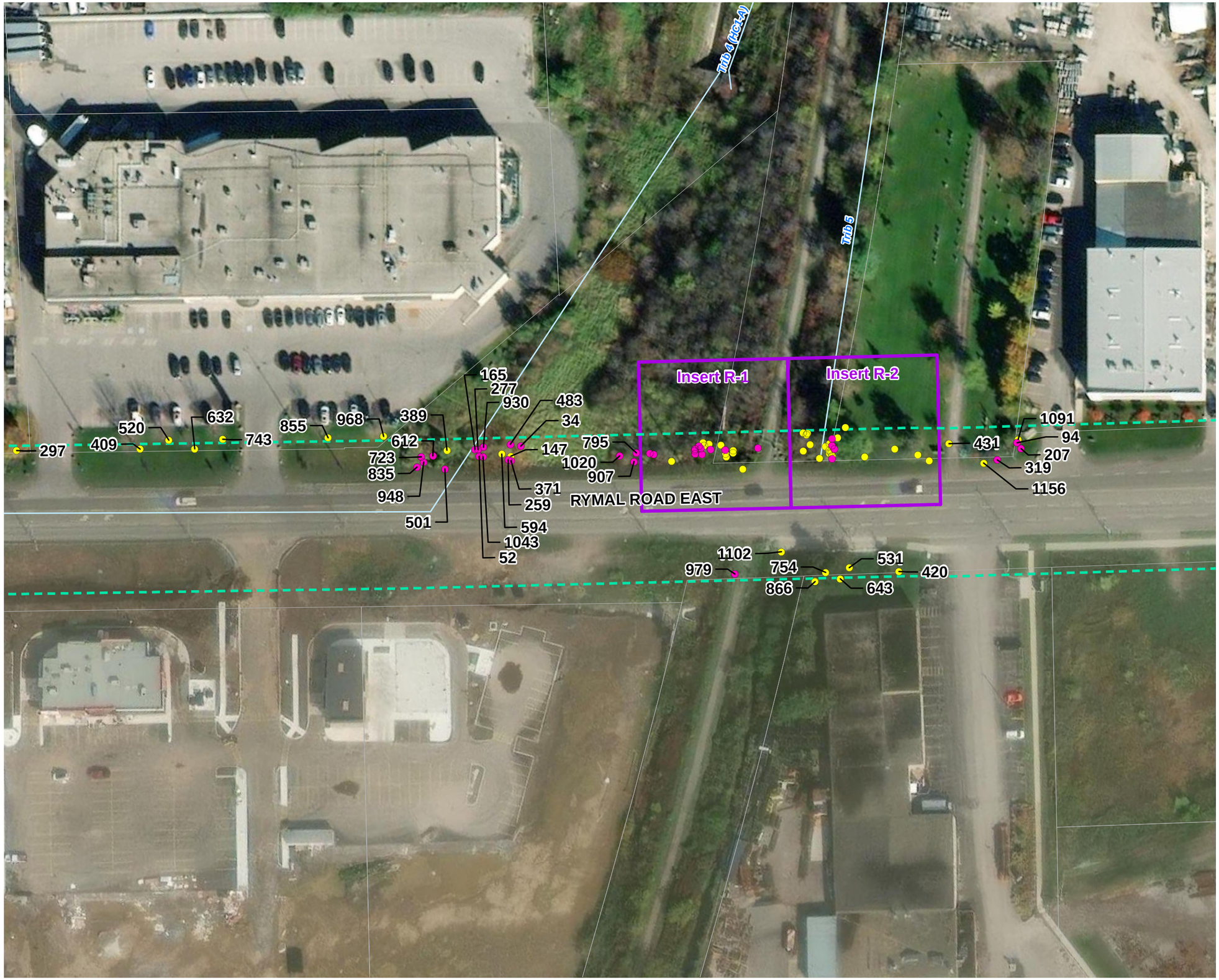

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2R

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Inset Page Exent
- Watercourse
- Property Parcel

SCALE 1:1,000

0 5 10 20 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

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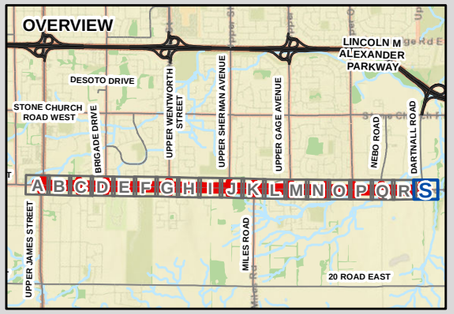
RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
FIGURE 2S

- Tree
- Tree Inventory Study Area (20m)
- Watercourse
- Property Parcel



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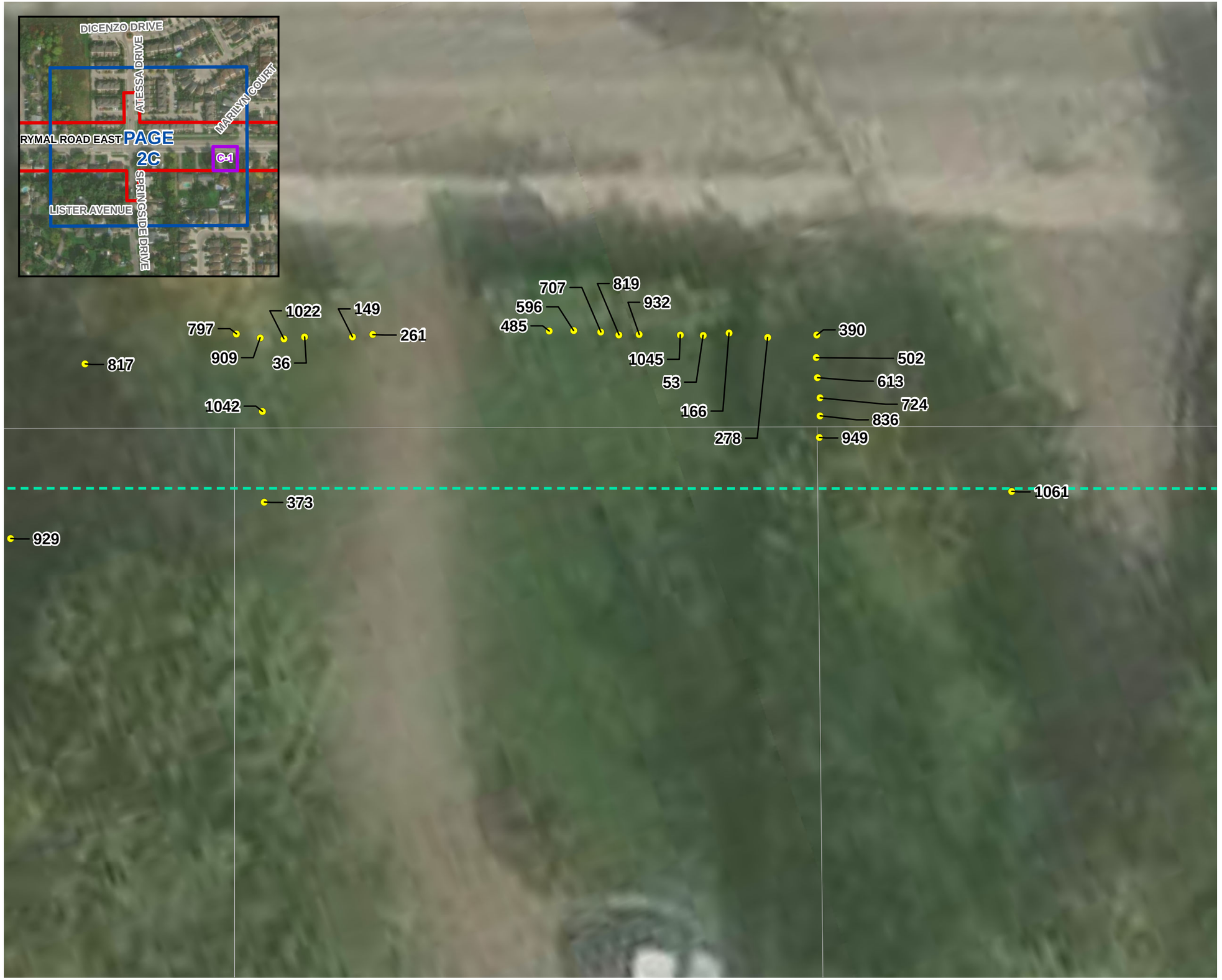
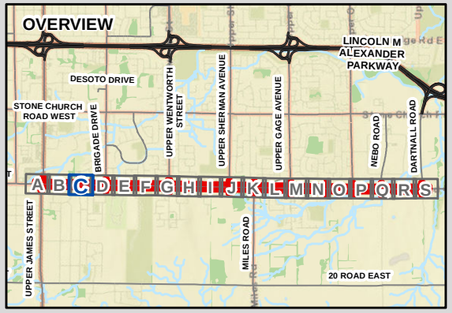


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2C-1

- Tree
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

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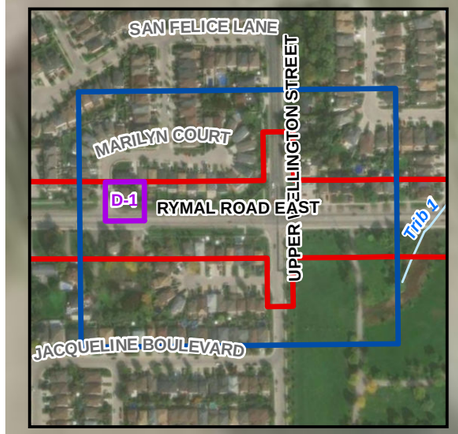
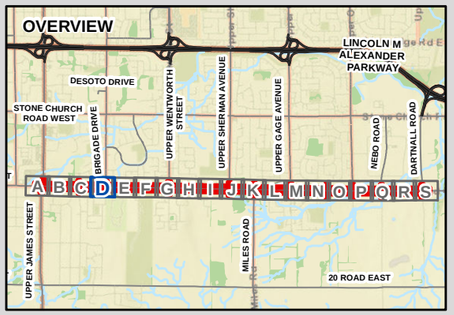


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2D-1

- Tree
- Tree Inventory Study Area (20m)
- Property Parcel



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DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
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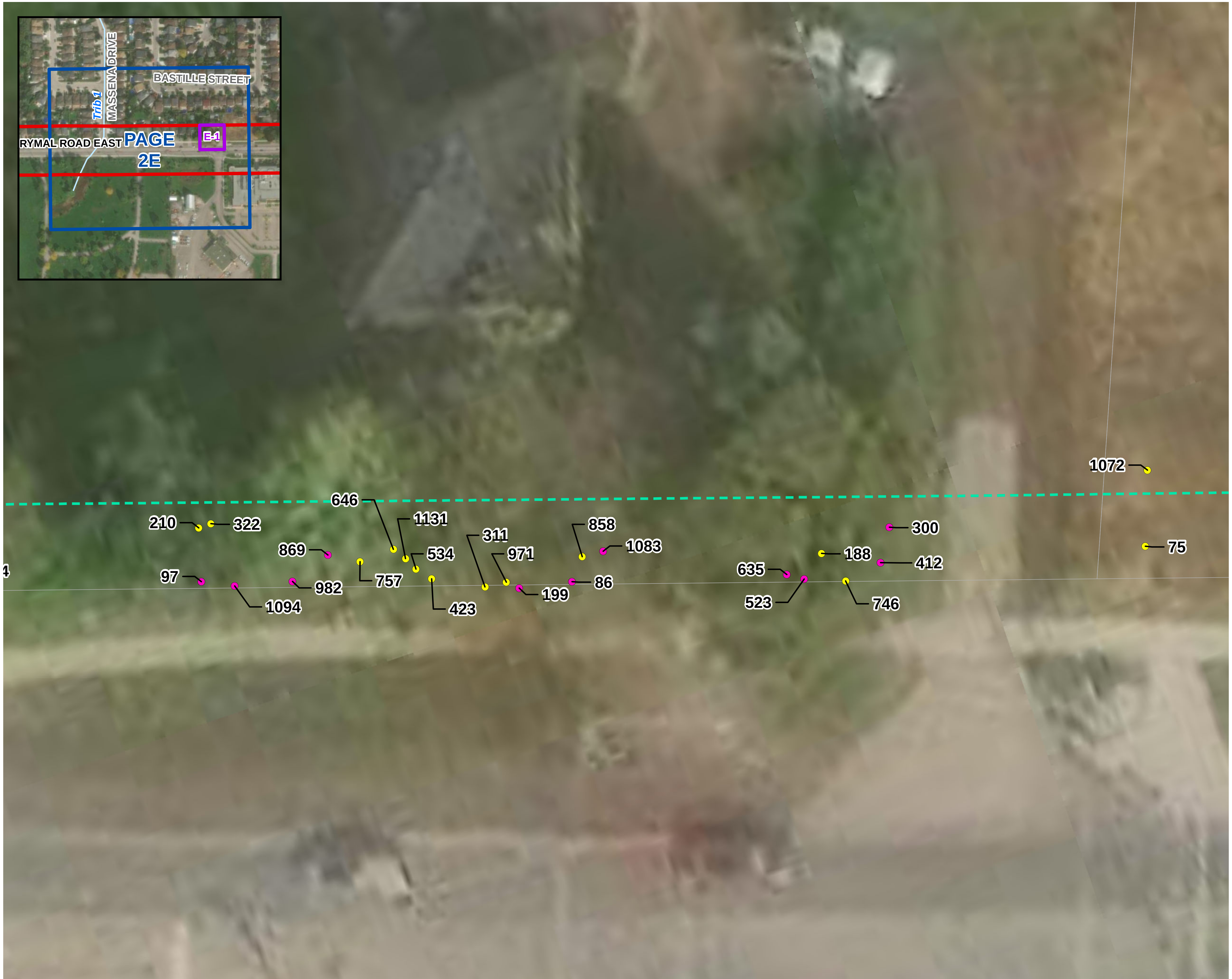
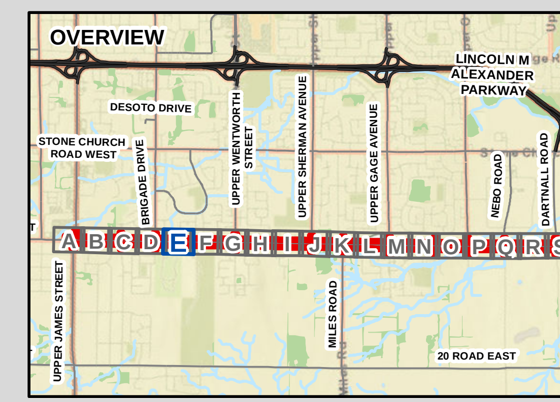


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2E-1

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

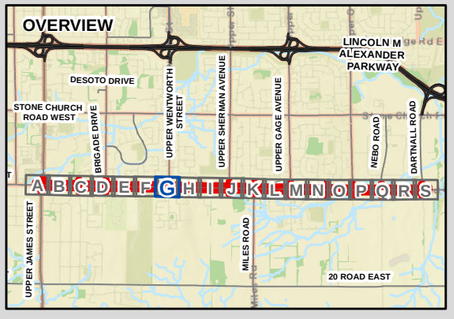
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2c_TreeInventory_DDP_InsetPage.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2G-1

- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

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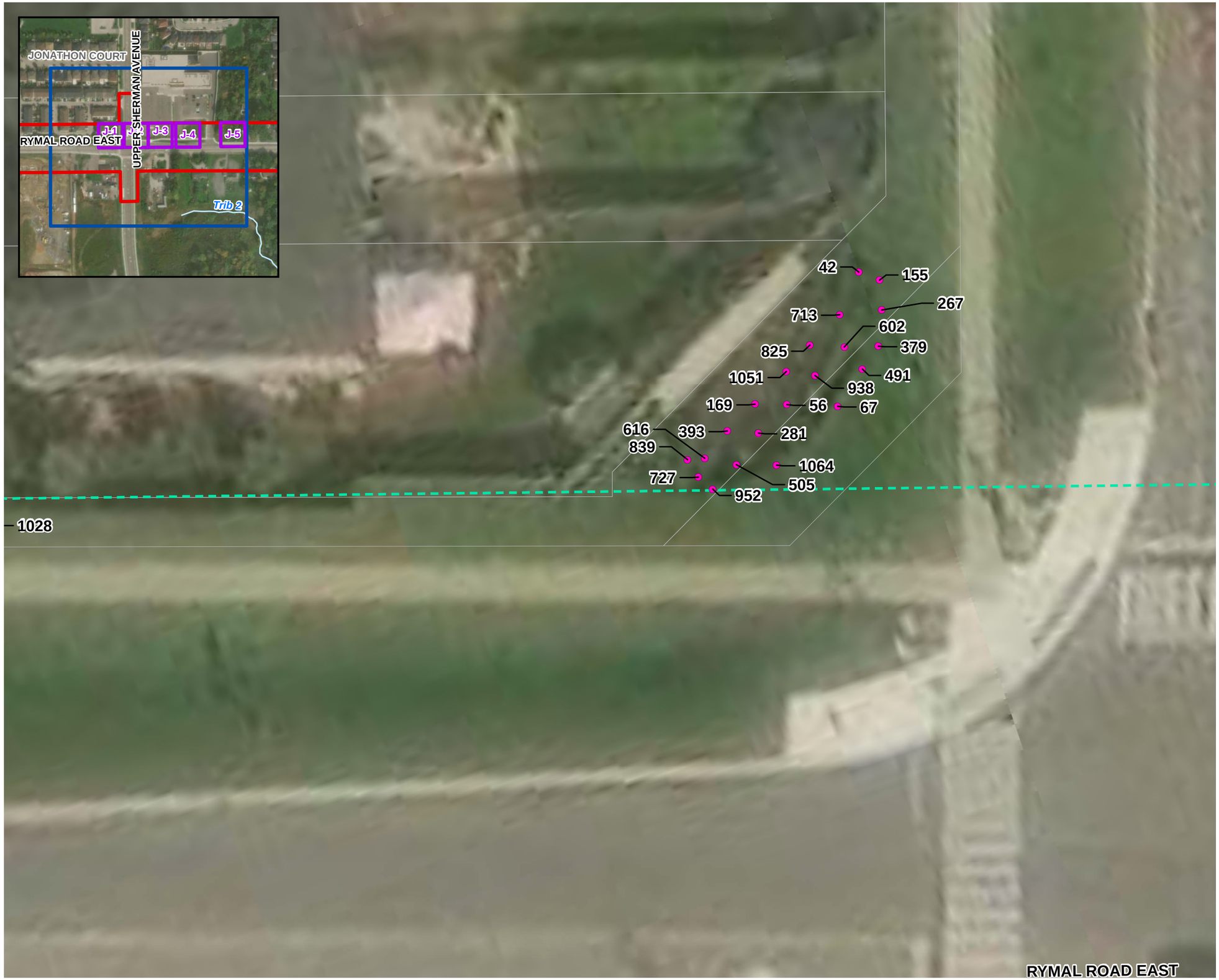
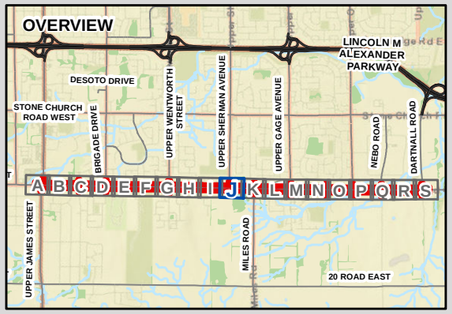


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2J-1

- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



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MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

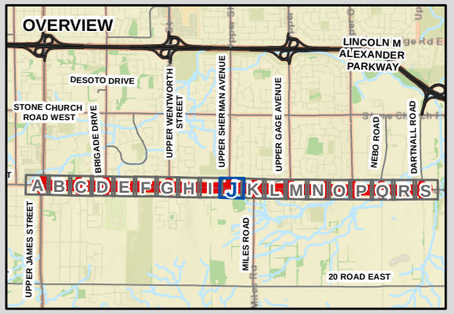
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2c_TreeInventory_DDP_InsetPage.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2J-2

- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



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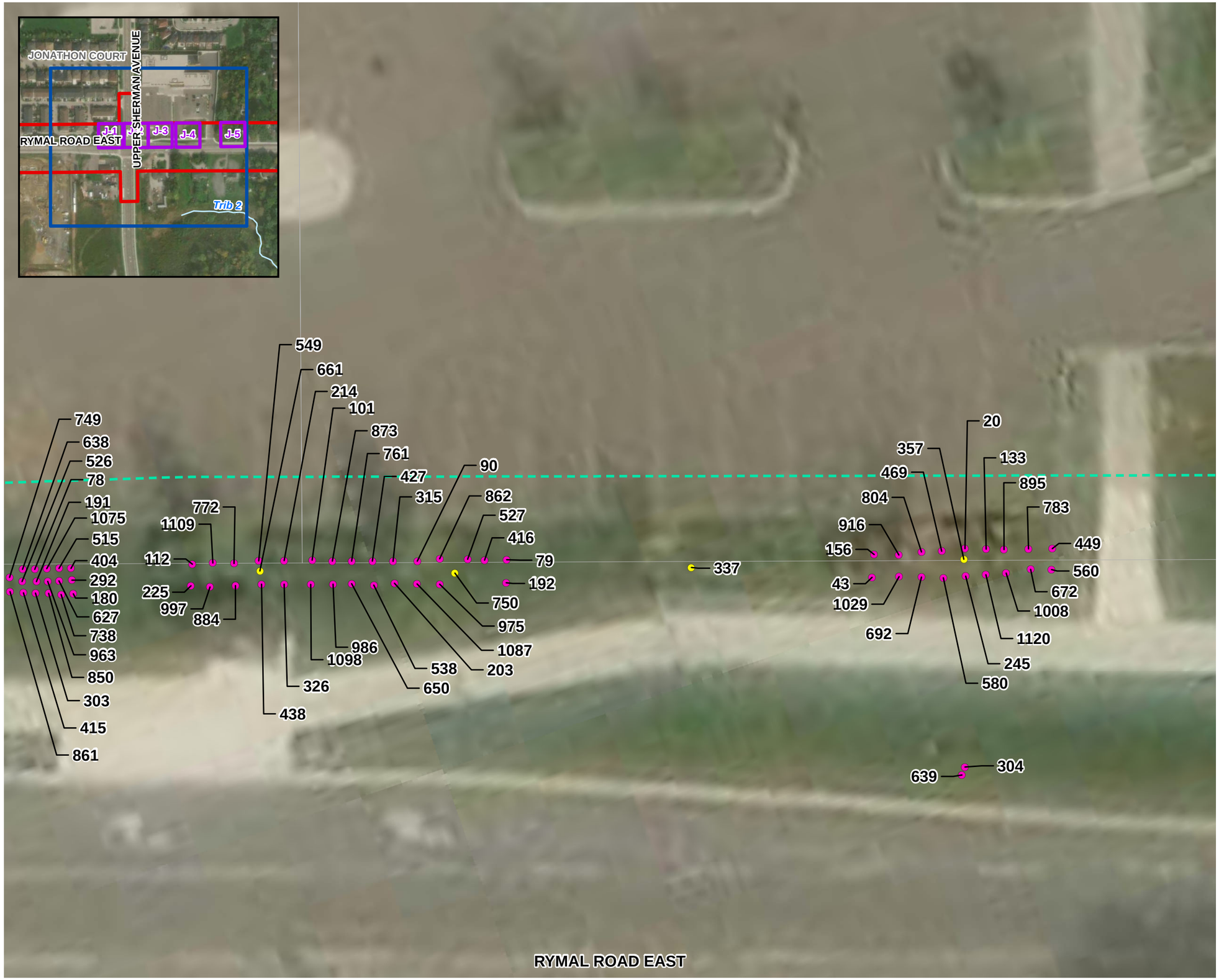
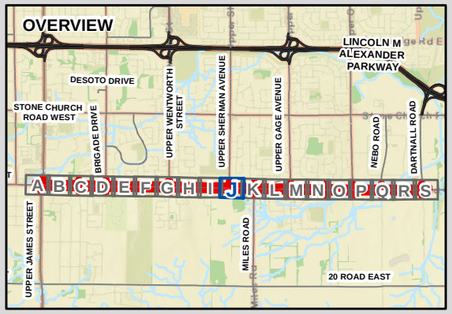


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2J-3

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



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0 1 2 4 m

MAP DRAWING INFORMATION:
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DILLON CONSULTING

PROJECT: 20-3410
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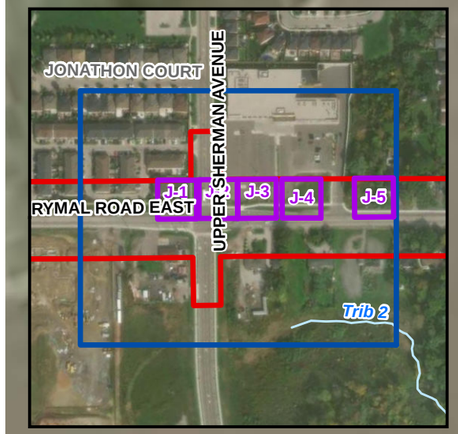


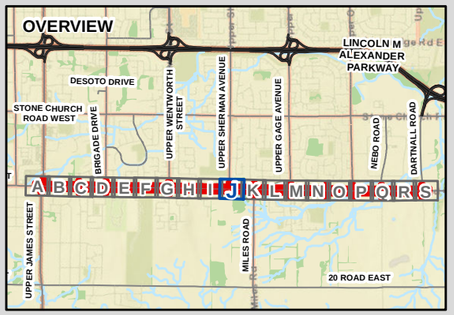
360
380
695
807
46
1032
919
583
472
248
23
714
826
268
603
492
1052
939
136

RYMAL ROAD EAST

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2J-4

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

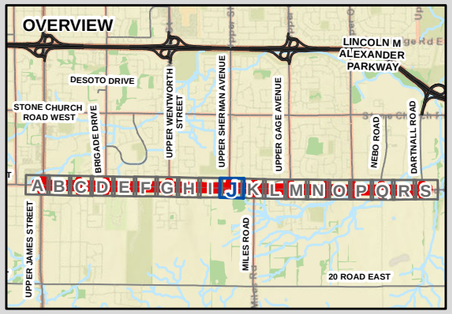
PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2c_TreeInventory_DDP_InsetPage.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2J-5

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

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PROJECT: 20-3410
STATUS: DRAFT
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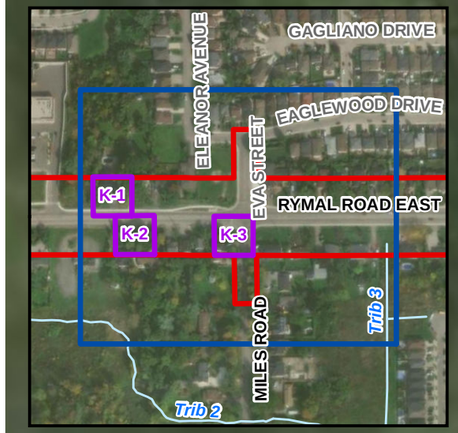

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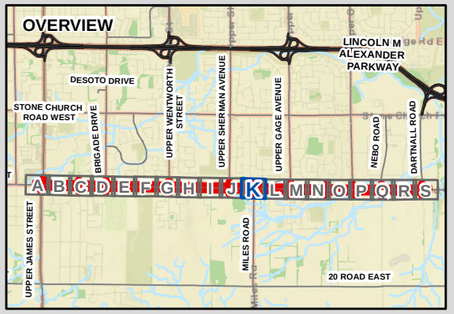
918
694
806
247
359
1055
942
58
582
471
283
395
618
507
45
171
158

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2K-1

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
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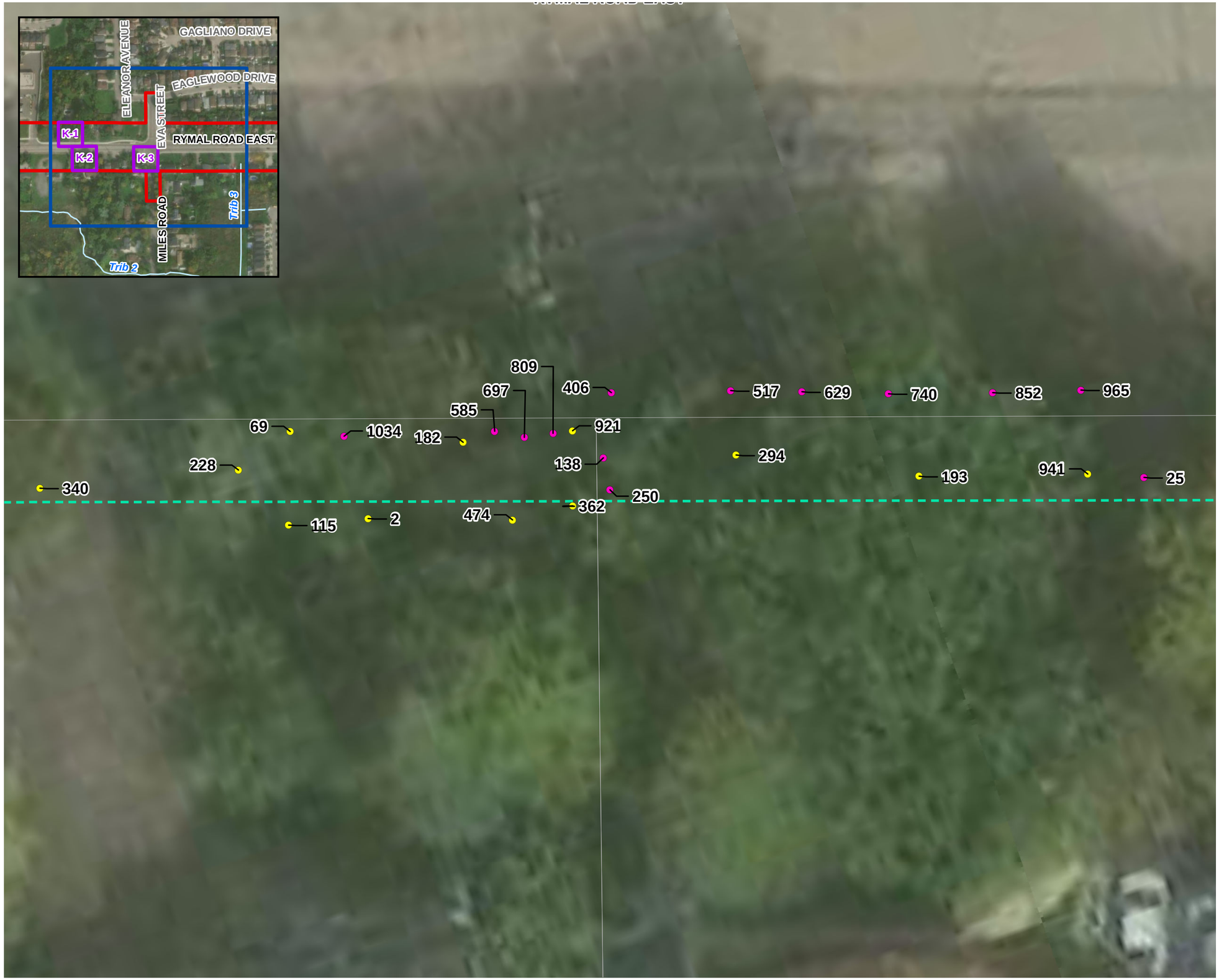
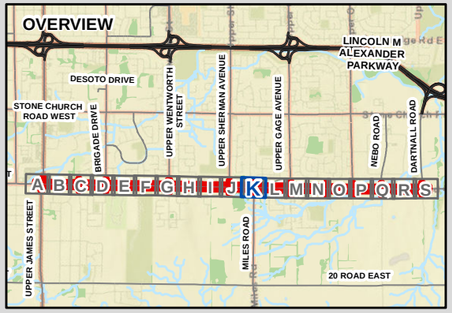


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2K-2

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

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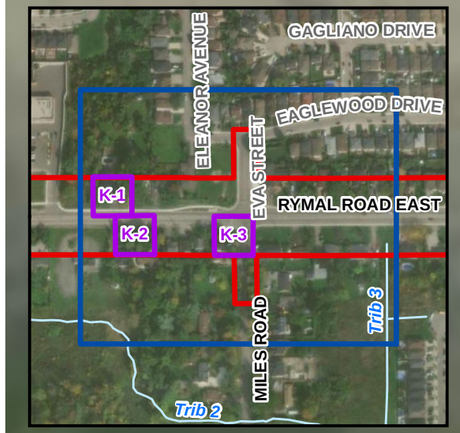


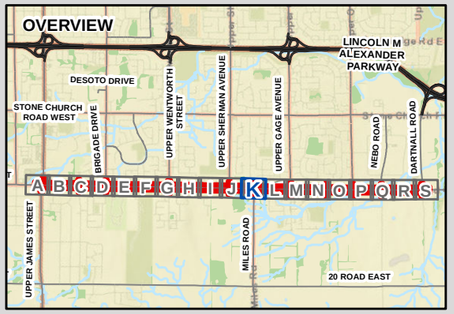
1088 91 204 316 450 561 673 784 338 976 113 135 226 1121 1009 896

MILES ROAD

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2K-3

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

0 1 2 4 m

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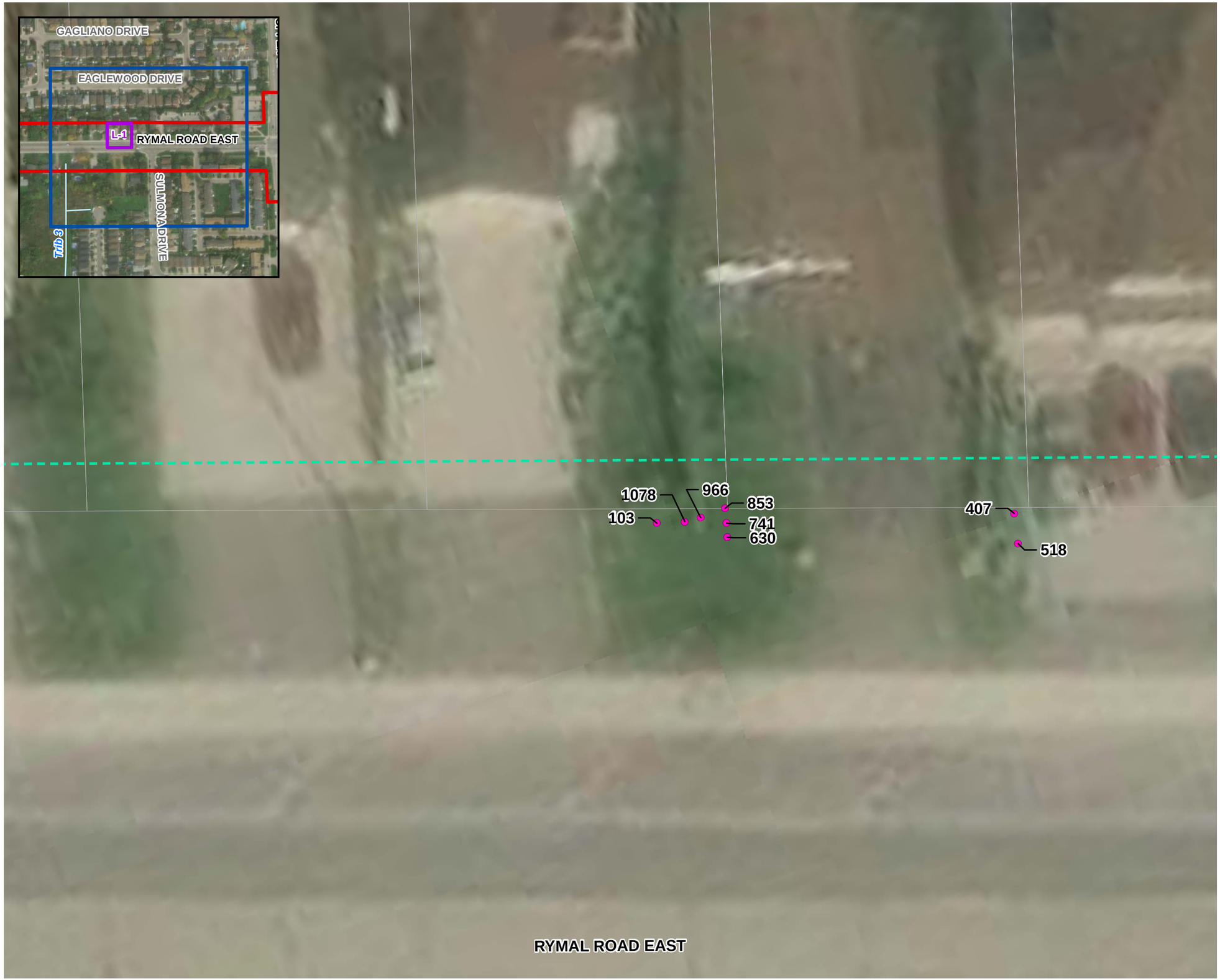
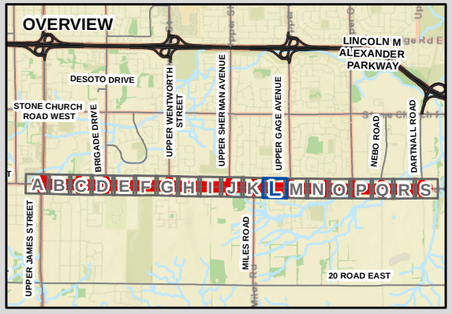


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2L-1

- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel



SCALE 1:150

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MAP DRAWING INFORMATION:
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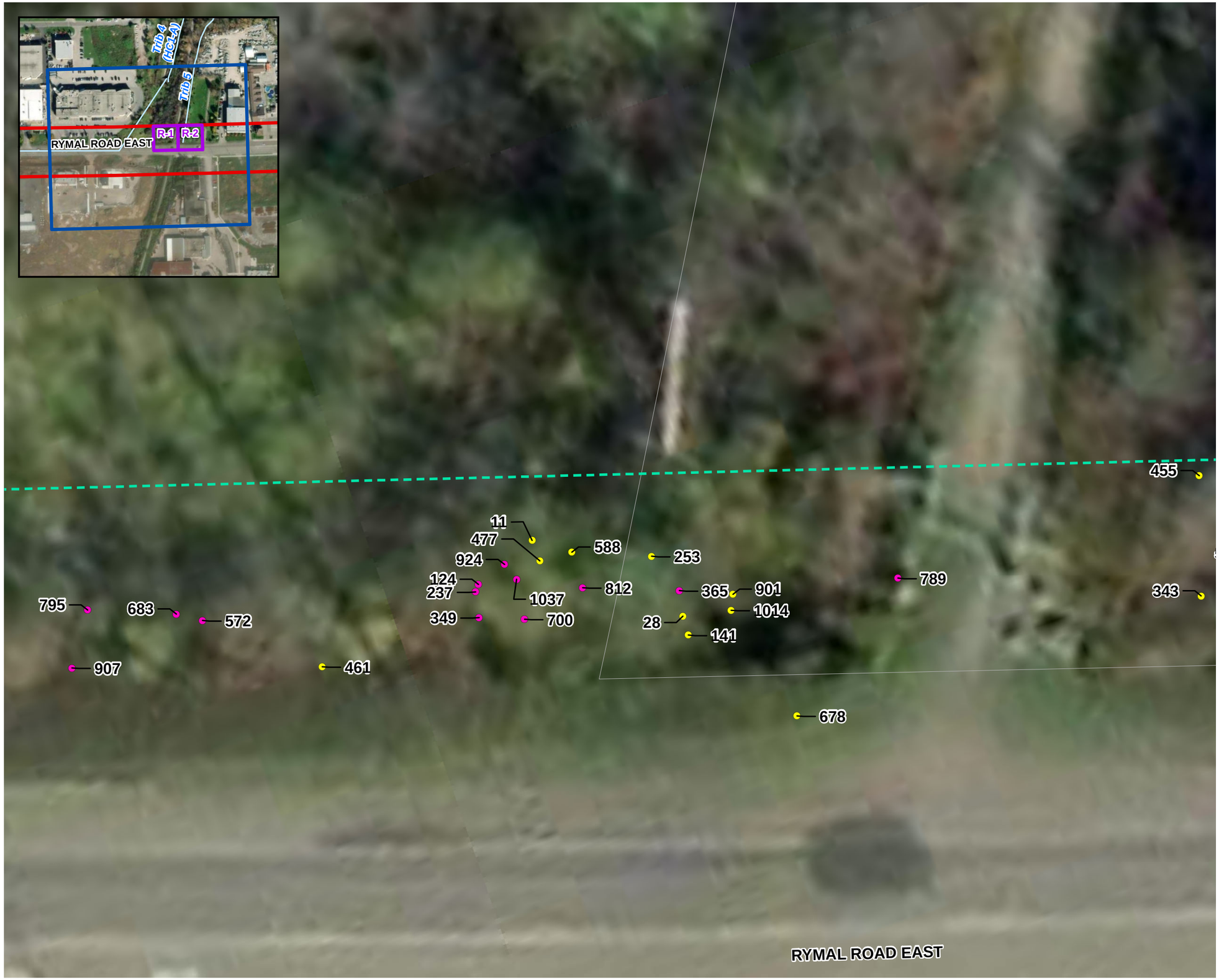

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2R-1

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Property Parcel

SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
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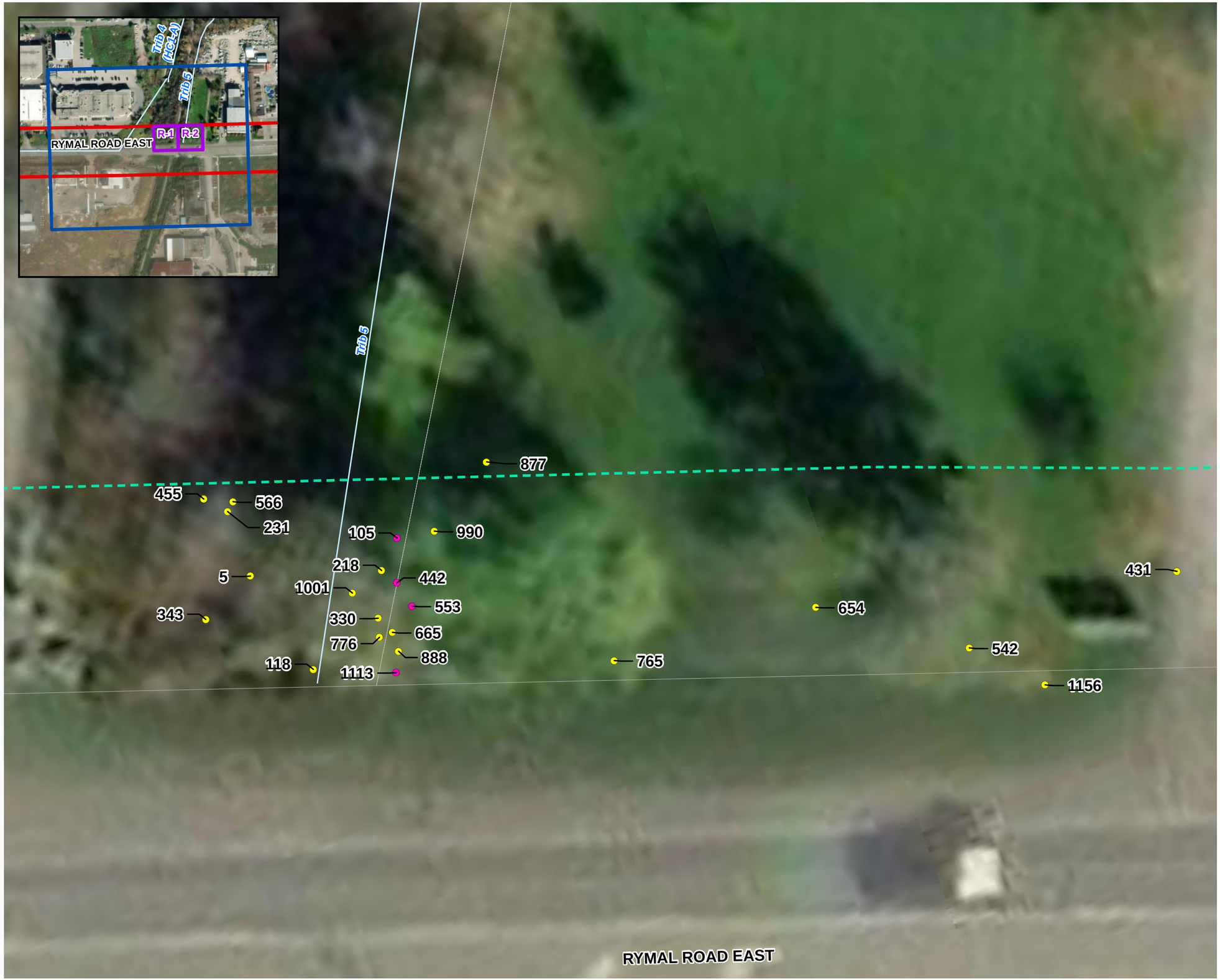

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

TREE INVENTORY
INSET PAGE 2R-2

- Tree
- Shrub
- Tree Inventory Study Area (20m)
- Watercourse
- Property Parcel

SCALE 1:150

0 1 2 4 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
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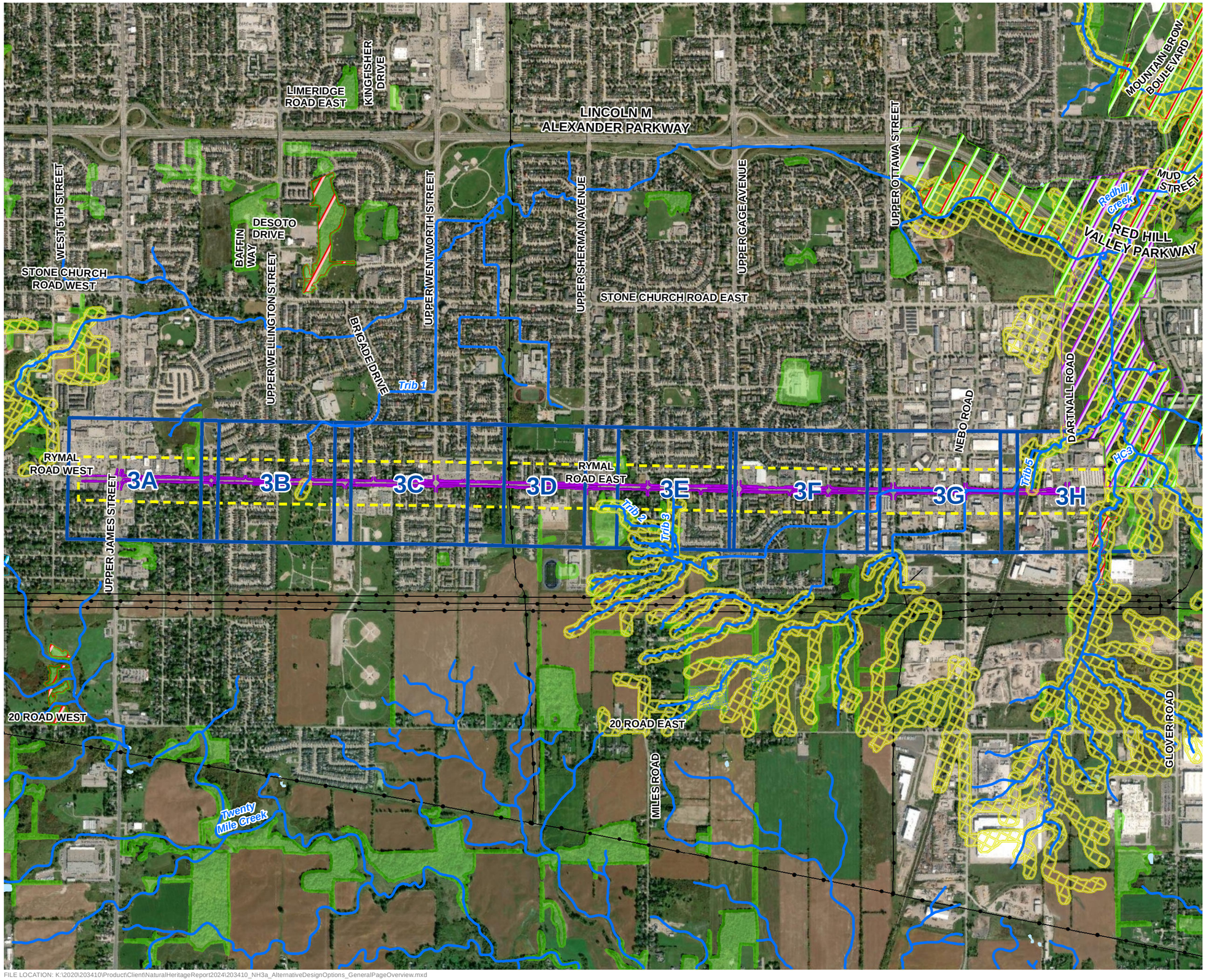
DATE: 2024-09-10

FILE LOCATION: K:\2020\203410\Product\Client\APU\203410_APU2c_TreeInventory_DDP_InsetPage.mxd

Figure 3

Recommended Design and Environmental Constraints



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RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3

- Natural Heritage Study Area (120m)
- Recommended Design
- Page
- Utility Line
- Watercourse
- Water Body
- Wetland
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:20,000

0 130 260 520 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

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MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
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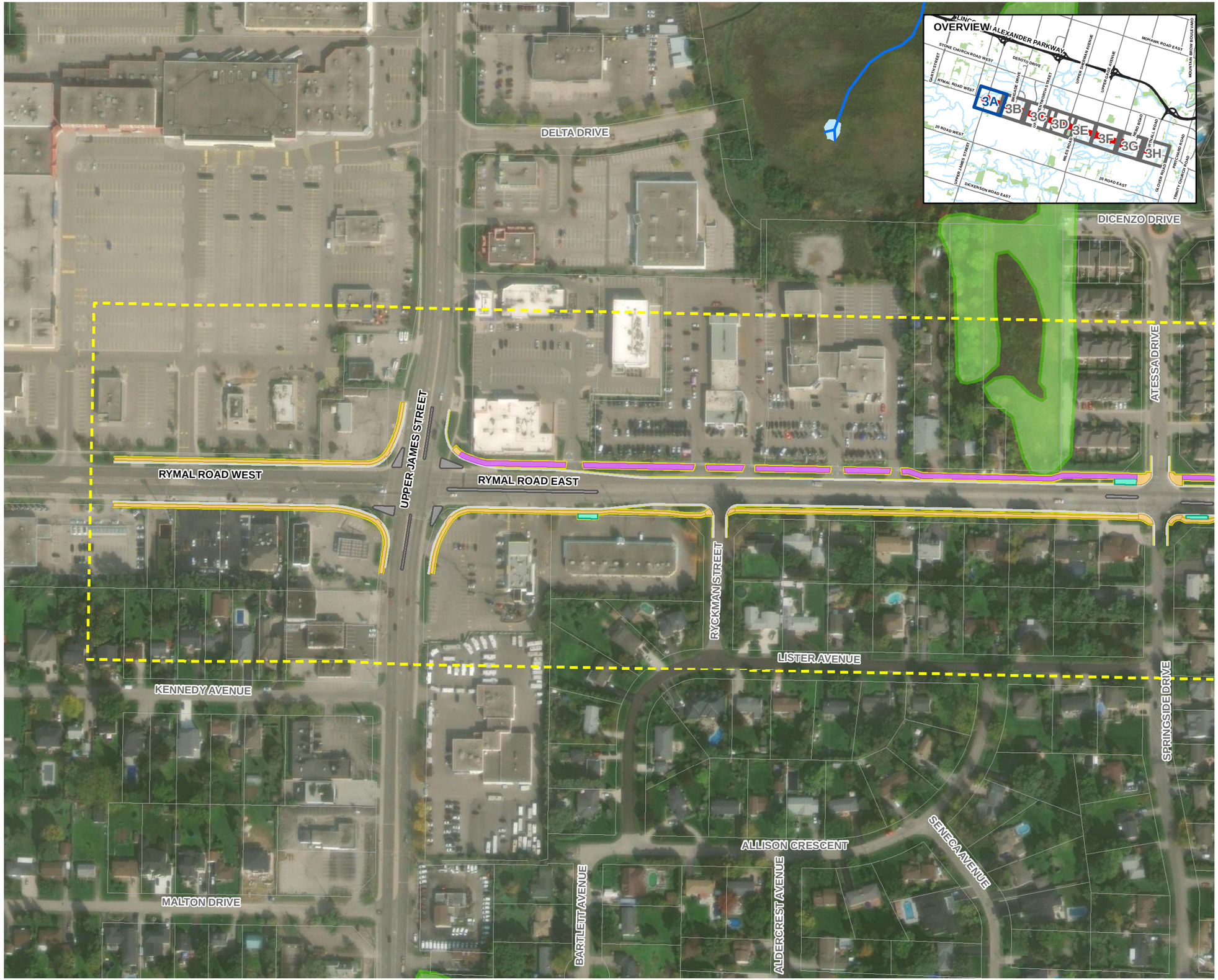
DATE: 2024-09-11



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3A

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Water Body
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

N E S W

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

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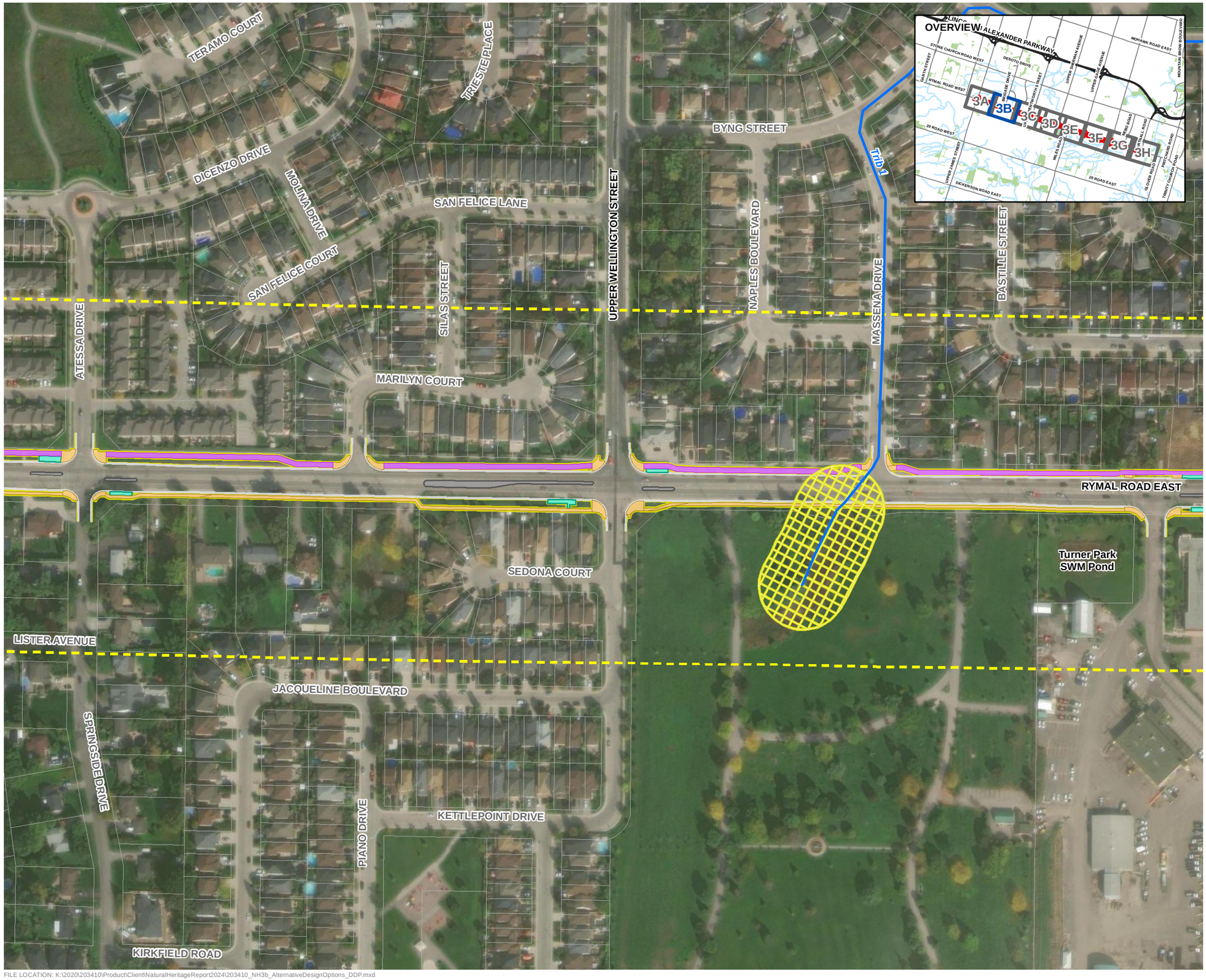

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3B

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH3b_AlternativeDesignOptions_DDP.mxd

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3C

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Utility Line
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:3,000

0 20 40 80 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

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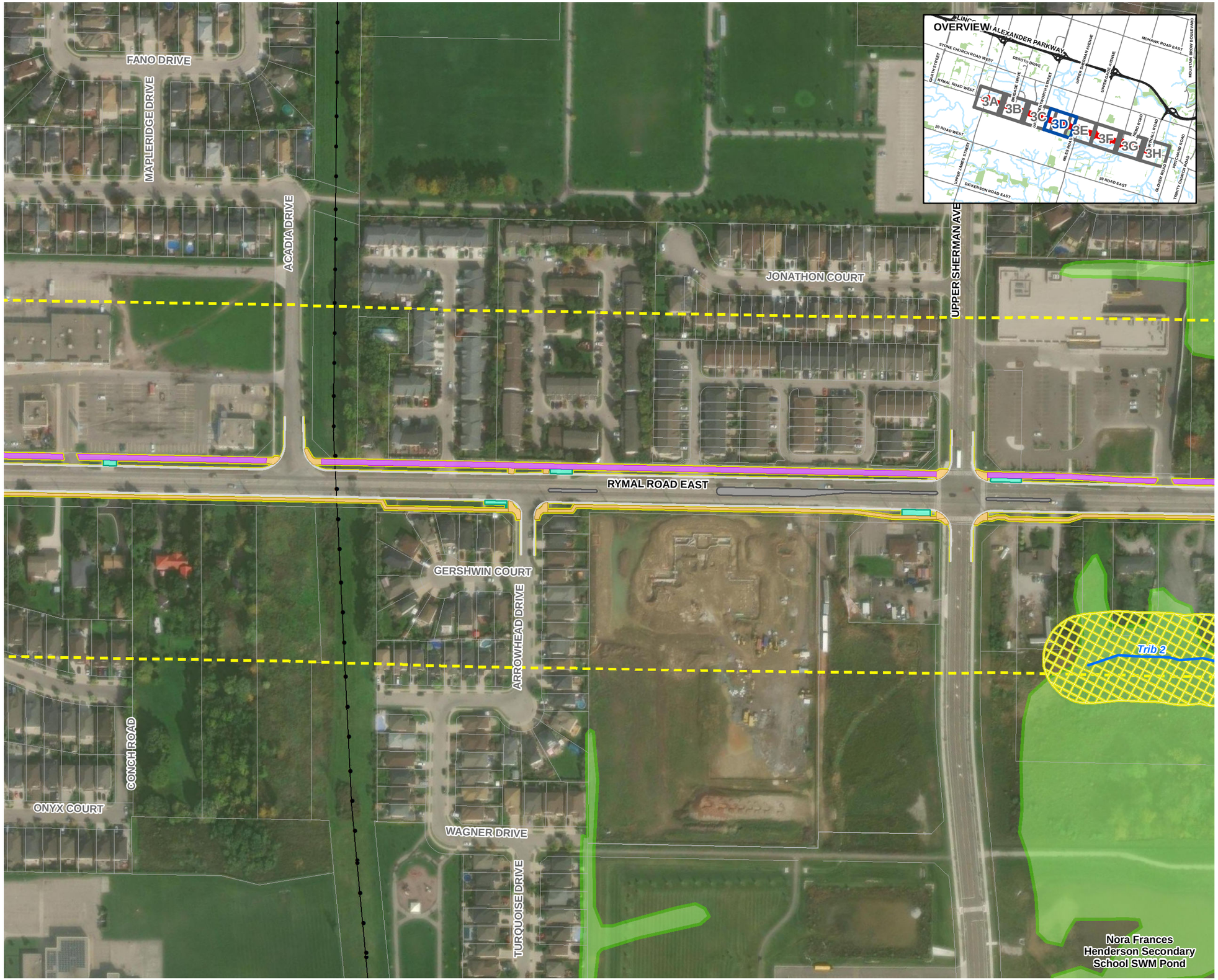

RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3D

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Utility Line
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

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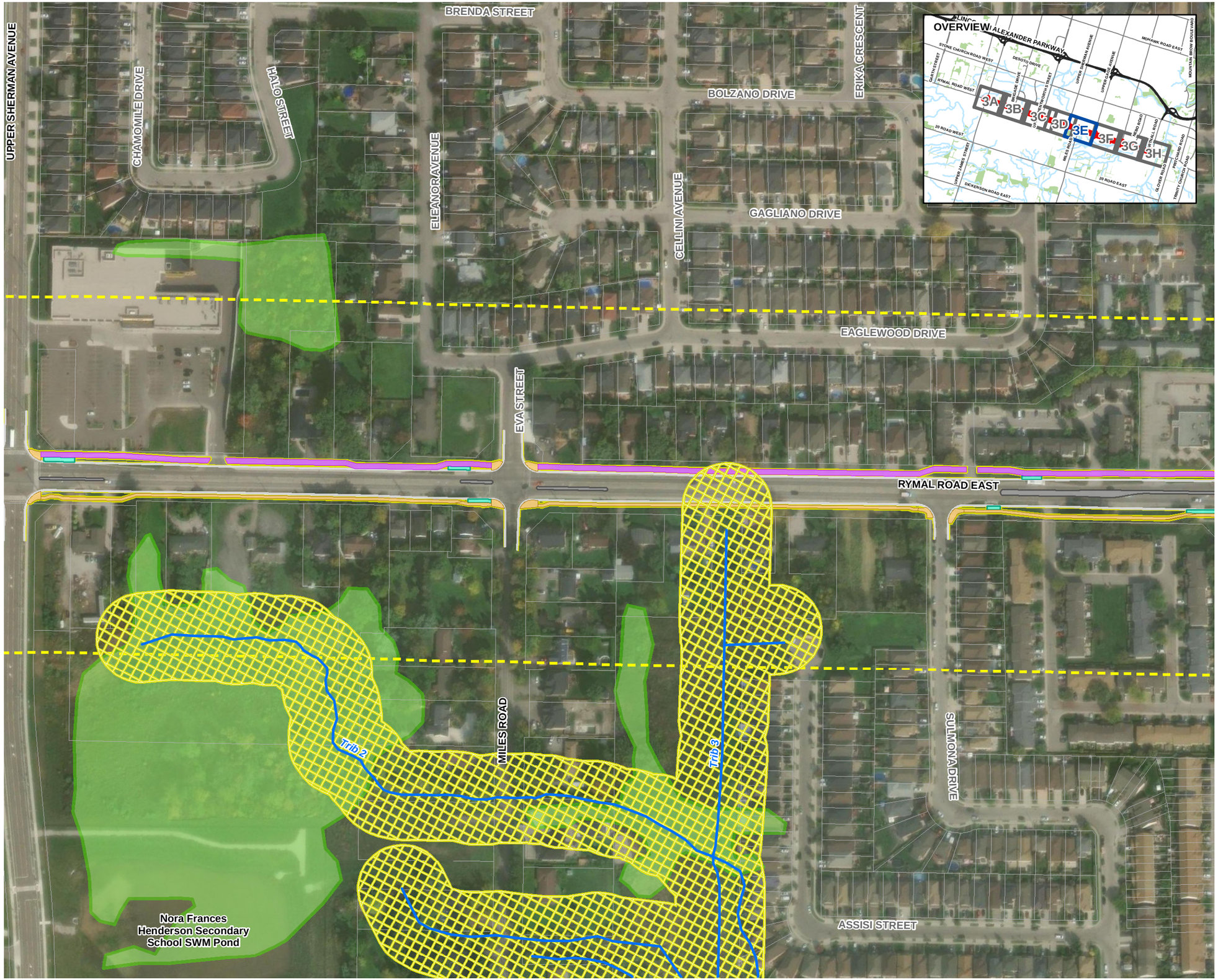


RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3E

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

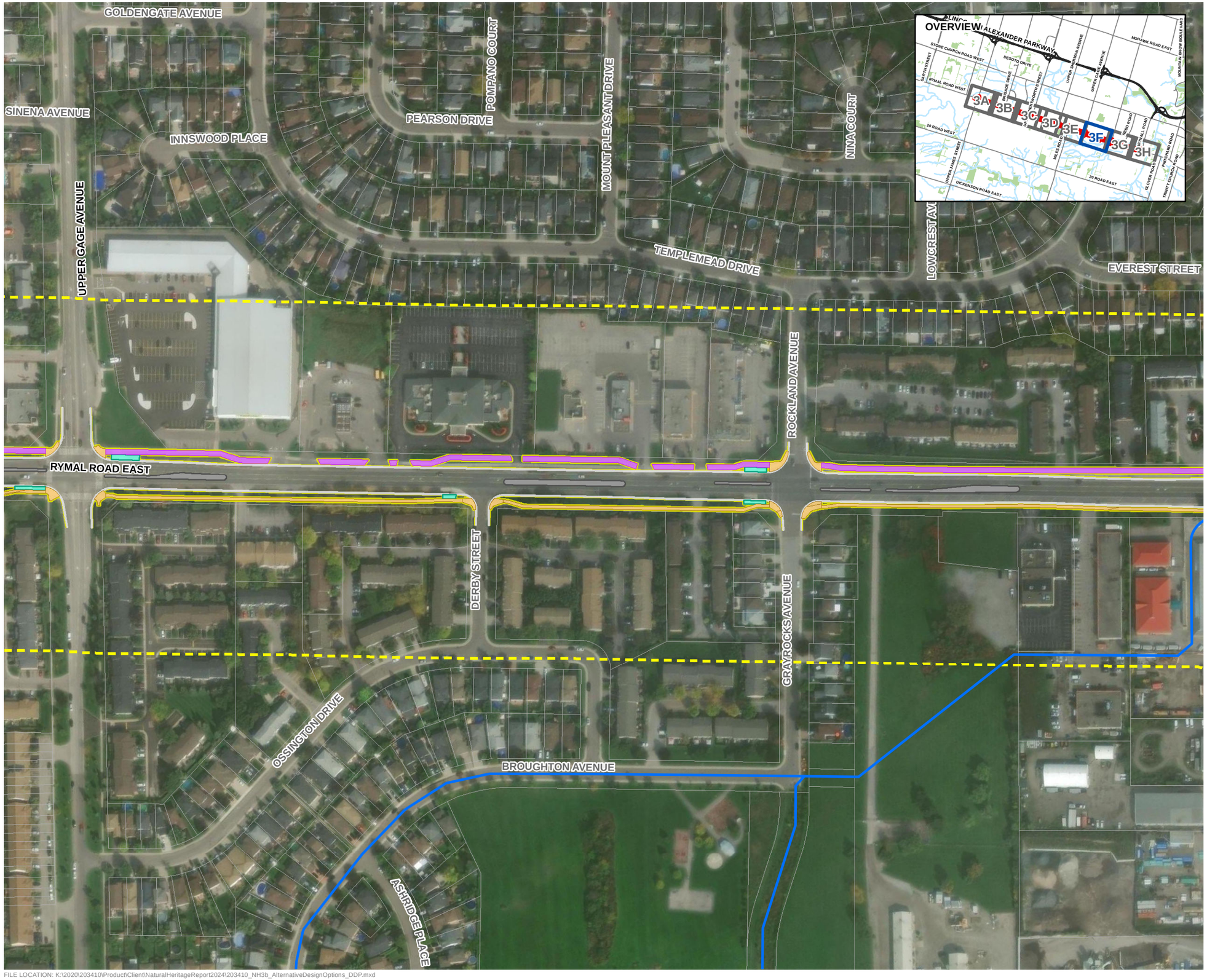
MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH3b_AlternativeDesignOptions_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3F

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

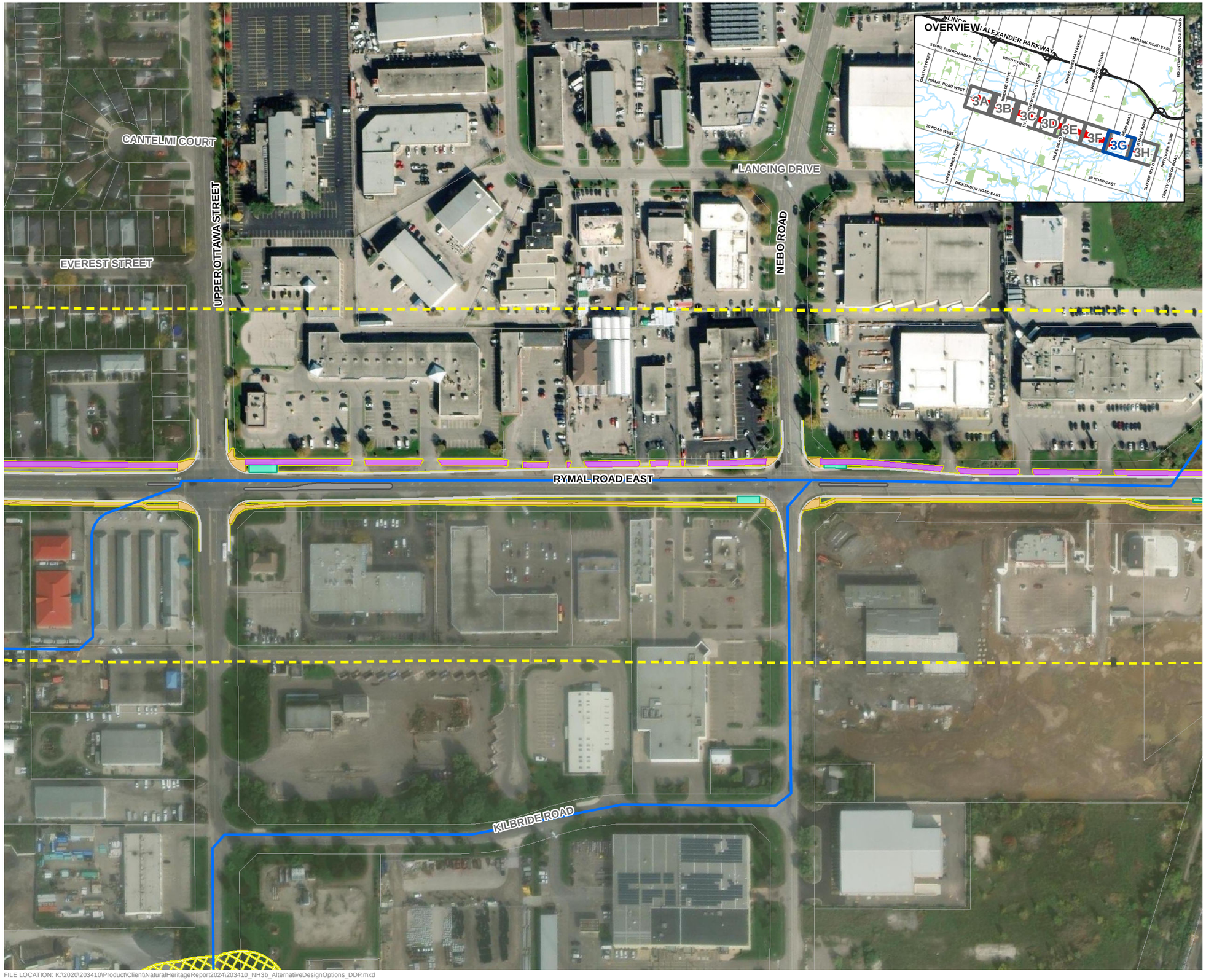
MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH3b_AlternativeDesignOptions_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3G

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

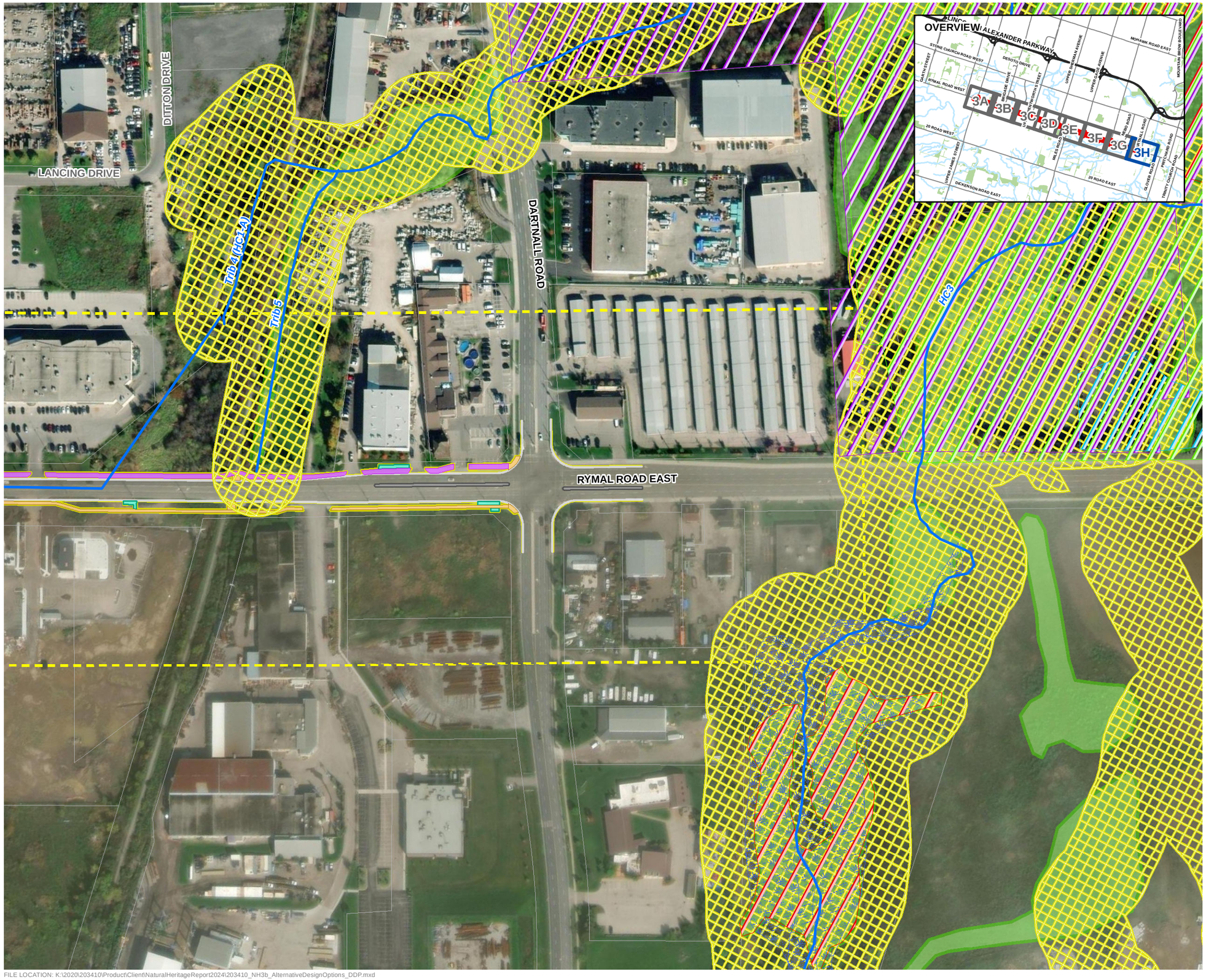
MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH3b_AlternativeDesignOptions_DDP.mxd



RYMAL ROAD
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN AND ENVIRONMENTAL CONSTRAINTS
FIGURE 3H

Recommended Design

- Multi Use Path
- Sidewalk
- Project Buffer 0.5m
- Bus Pad
- Curb
- Median
- Natural Heritage Study Area (120m)
- Watercourse
- Wetland
- Hamilton Conservation Authority Regulated Area
- Woodland (Potential for Species At Risk)
- Property Parcel

Designated Natural Heritage Features (Urban Hamilton Official Plan)

- Key Hydrologic Feature Lakes and Littoral Zones
- Key Natural Heritage Feature Significant Woodlands
- Local Natural Area Environmentally Significant Area
- Niagara Escarpment Plan Designations

SCALE 1:2,500

0 15 30 60 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY LIO/MNRF, City of Hamilton Offical Plan Schedule, Hamilton Region Conservation Authority, ESRI Imagery Basemap

MAP CREATED BY: LMM/DU
MAP CHECKED BY: CC/JB
MAP PROJECTION: NAD 1983 CSRS UTM Zone 17N

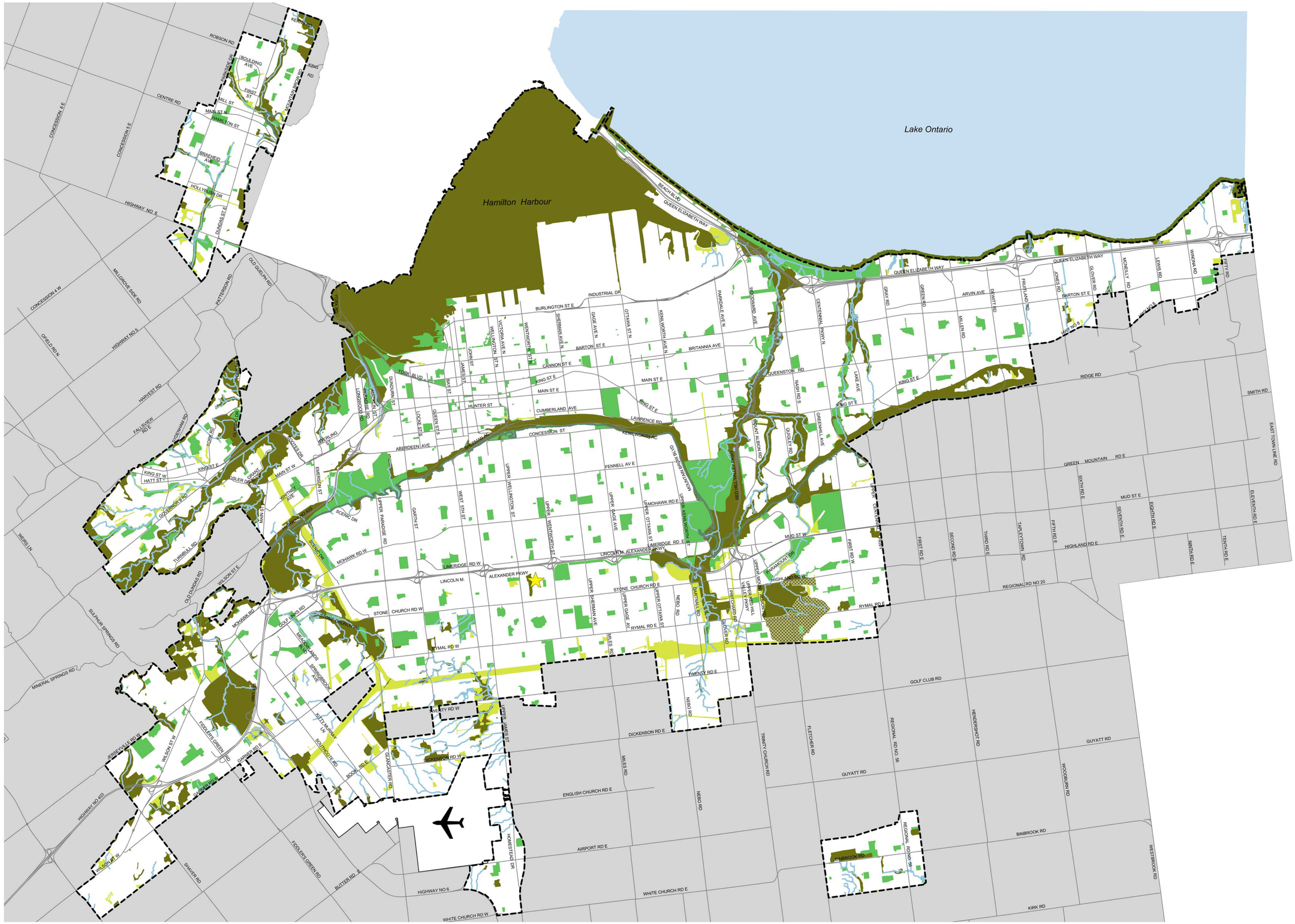
DILLON CONSULTING

PROJECT: 20-3410
STATUS: DRAFT
DATE: 2024-09-11

FILE LOCATION: K:\2020\203410\Product\Client\NaturalHeritageReport2024\203410_NH3b_AlternativeDesignOptions_DDP.mxd

Appendix A

Policy Schedules



Key Map

Note: For Rural Natural Heritage Features refer to Schedule B of the Rural Hamilton Official Plan.

APPEAL

The southern urban boundary that generally extends from Upper Centennial Parkway and Mud Street East in the east, following the hydro corridor and encompassing the Red Hill Business Park to Upper James Street remains under appeal - see illustration on Schedules E and E-1, Volume 1.

★ Lands Under Appeal

- 313 Stone Church Road East & lands bounded by Stone Church Road East, Upper Wellington Street, Lincoln M Alexander Parkway and Upper Wentworth Street

Legend

■	Core Areas
▨	Area Specific Policy - USC-1 and USC-2 in Volume 3
■	Linkages
🟩	Parks & General Open Space (Excluding Parkettes)
—	Streams

Other Features

■	Rural Area
✈	John C. Munro Hamilton International Airport
—	Niagara Escarpment
- - -	Urban Boundary
—	Municipal Boundary

Council Adoption: July 9, 2009
Ministerial Approval: March 16, 2011
Effective Date: August 16, 2013

Urban Hamilton Official Plan
Schedule B
Natural Heritage System

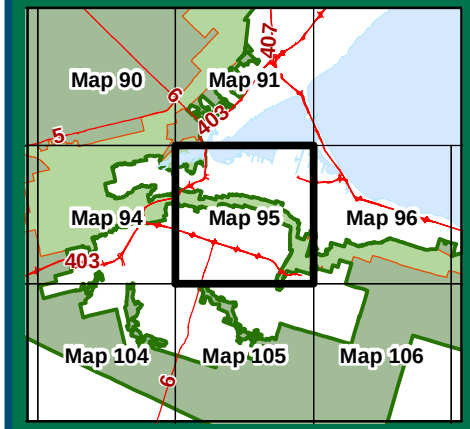
N
Not To Scale

Date: February 2021

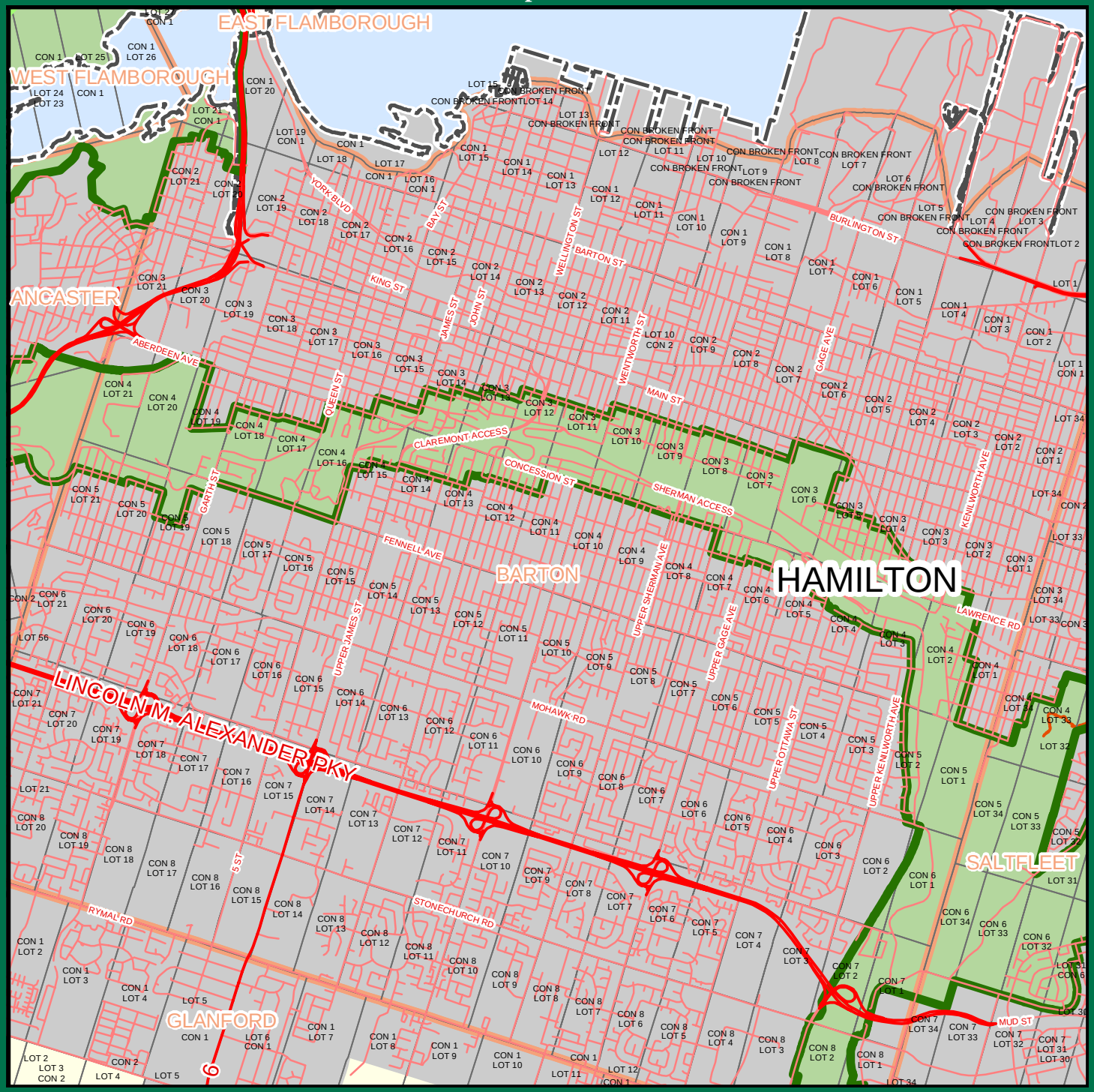
Hamilton

PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT

Greenbelt Plan
Map division and enlargement



Map 95



LEGEND

Ontario

- Greenbelt Area*
  - Protected Countryside
  - Towns and Villages
  - Niagara Escarpment Plan Area
  - Oak Ridges Moraine Area
- Settlement Areas Outside the Greenbelt
- Natural Heritage System
- River Valley Connections
- Upper-tier Municipal Boundaries
- Single-tier Municipal Boundaries
- Lots and Concessions
- Major/Minor Roads
- Geographic Township
- Water

Projection: UTM zone 17 NAD83

Produced and data sources by the Ministry of Agriculture and Food, Ministry of Municipal Affairs and Housing and Ministry of Natural Resources

Additional Data Sources: DMTI Spatial Inc.

Notes:
Settlement boundaries reflect current municipal Official Plans. For precise boundaries and locations of Settlement Areas (Towns/Villages and Hamlets) the appropriate municipalities should be consulted.

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

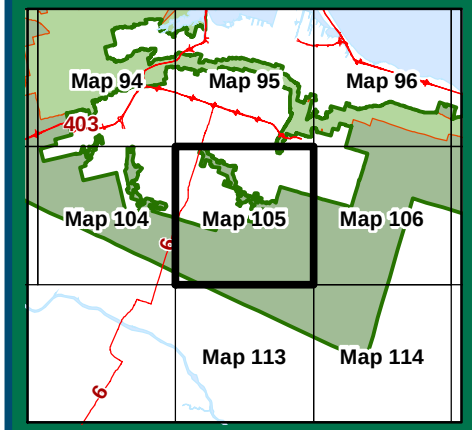
* Ontario Regulation 59/05

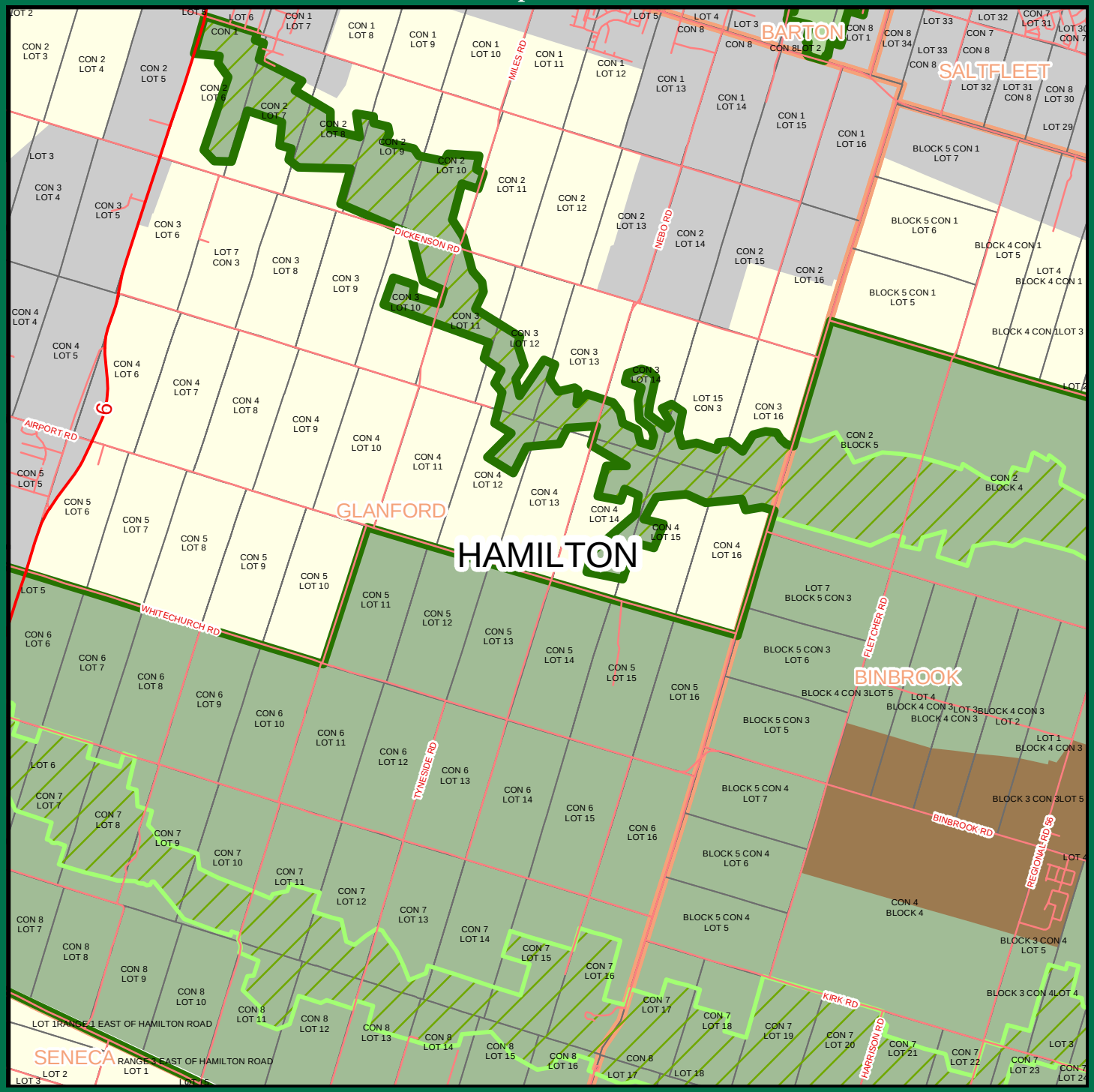
0.5 0.25 0 0.5 1 1.5
Kilometres

greenbelt

Map 105

Greenbelt Plan
Map division and enlargement





LEGEND

Ontario

- Greenbelt Area*
  - Protected Countryside
  - Towns and Villages
  - Niagara Escarpment Plan Area
  - Oak Ridges Moraine Area
- Settlement Areas Outside the Greenbelt
- Natural Hertiage System
- River Valley Connections
- Upper-tier Municipal Boundaries
- Single-tier Municipal Boundaries
- Lots and Concessions
- Major/Minor Roads
- Geographic Township
- Water

Projection: UTM zone 17 NAD83

Produced and data sources by the Ministry of Agriculture and Food, Ministry of Municipal Affairs and Housing and Ministry of Natural Resources

Additional Data Sources: DMTI Spatial Inc.

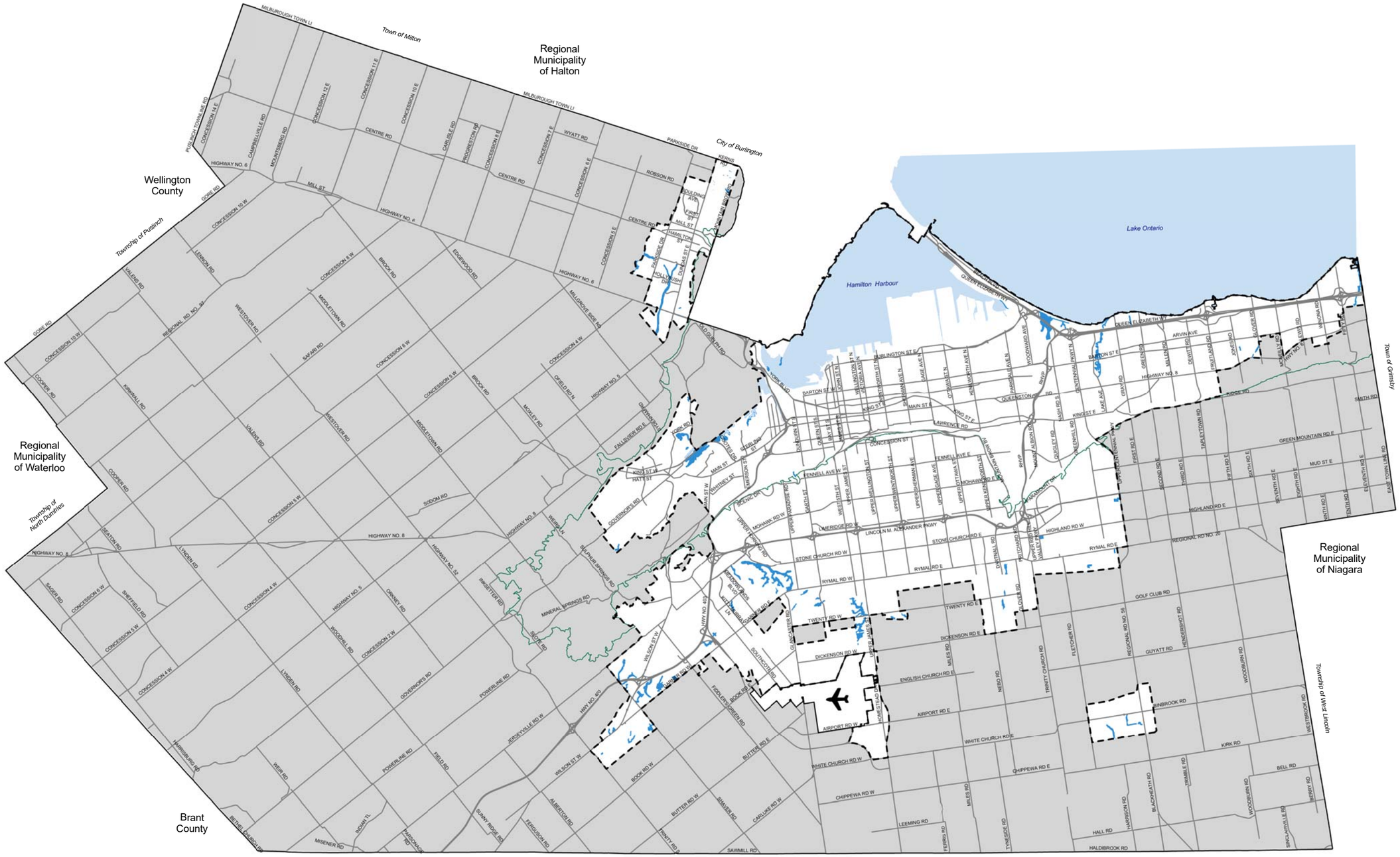
Notes:
Settlement boundaries reflect current municipal Official Plans. For precise boundaries and locations of Settlement Areas (Towns/Villages and Hamlets) the appropriate municipalities should be consulted.

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

* Ontario Regulation 59/05

0.5 0.25 0 0.5 1 1.5
Kilometres

g r e e n b e l t



Key Map

N.T.S.

Rural

Urban

Note: For Rural Detailed Natural Heritage Features refer to Schedule B-4 of the Rural Hamilton Official Plan.

APPEAL

The southern urban boundary that generally extends from Upper Centennial Parkway and Mud Street East in the east, following the hydro corridor and encompassing the Red Hill Business Park to Upper James Street remains under appeal - see illustration on Schedules E and E-1, Volume 1.

Legend

- Key Natural Heritage and Key Hydrologic Feature Wetlands

Other Features

- Rural Area
- John C. Munro Hamilton International Airport
- Niagara Escarpment
- Urban Boundary
- Municipal Boundary

Council Adopted: July 9, 2009
Ministerial Approval: March 16, 2011
Effective Date: August 16, 2013

Urban Hamilton Official Plan Schedule B-4

Detailed Natural Heritage Features
Key Natural Heritage Feature and Key Hydrologic Feature Wetlands

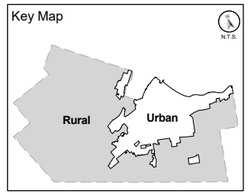
Not To Scale

Hamilton

Date: Sept. 2019

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

Key Map



Note: For Rural Detailed Natural Heritage Features refer to Schedule B-1 of the Rural Hamilton Official Plan.

APPEAL

The southern urban boundary that generally extends from Upper Centennial Parkway and Mud Street East in the east, following the hydro corridor and encompassing the Red Hill Business Park to Upper James Street remains under appeal - see illustration on Schedules E and E-1, Volume 1.

Legend

- Key Natural Heritage Feature Life Science ANSI

Other Features

- Rural Area
- John C. Munro Hamilton International Airport
- Niagara Escarpment
- Urban Boundary
- Municipal Boundary

Council Adopted: July 9, 2009
Ministerial Approval: March 16, 2011
Effective Date: August 16, 2013

Urban Hamilton Official Plan Schedule B-1

Detailed Natural Heritage Features
Key Natural Heritage Feature
Life Science ANSI

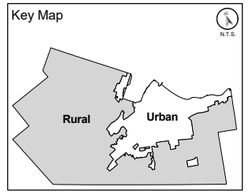
Not To Scale

Date: Sept. 2019

Hamilton

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

Key Map



Note: For Rural Detailed Natural Heritage Features refer to Schedule B-7 of the Rural Hamilton Official Plan.

APPEAL

The southern urban boundary that generally extends from Upper Centennial Parkway and Mud Street East in the east, following the hydro corridor and encompassing the Red Hill Business Park to Upper James Street remains under appeal - see illustration on Schedules E and E-1, Volume 1.

Legend

- Local Natural Area Earth Science ANSI
- Area Specific Policy - USC-1 and USC-2 in Volume 3

Other Features

- Rural Area
- John C. Munro Hamilton International Airport
- Niagara Escarpment
- Urban Boundary
- Municipal Boundary

Council Adopted: July 9, 2009
Ministerial Approval: March 16, 2011
Effective Date: August 16, 2013

Urban Hamilton Official Plan Schedule B-7

Detailed Natural Heritage Features
Local Natural Area
Earth Science ANSI

Not To Scale

Date: Sept. 2019

Hamilton

PLANNING & ECONOMIC DEVELOPMENT DEPARTMENT

Appendix B

SCC and SAR Screening Tables

APPENDIX B: SAR and SCC with the Potential to Occur Within the Study Area

Family	Group	Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Regulated Habitat	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Birds											
Apodidae	Swifts	*Chaetura pelagica*	Chimney Swift	THR	THR	S4B,S4N	OBBA	FALSE	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; fees over open water.	No	Suitable habitat requirements have not been observed in the Study Area.
Caprimulgidae	Goatsuckers	*Chordeiles minor*	Common Nighthawk	THR	SC	S4B	OBBA	FALSE	Open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	Suitable habitat requirements have not been observed in the Study Area.
Hirundinidae	**Swallows**	***Hirundo rustica***	**Barn Swallow**	**THR**	**THR**	**S4B**	**OBBA**	**FALSE**	**Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.**	**Yes**	**Open meadow habitat with man-made structures has the potential to provide suitable habitat for Barn Swallow adjacent to study area.**
Hirundinidae	Swallows	*Riparia riparia*	Bank Swallow	THR	THR	S4B	OBBA	FALSE	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence..	No	Suitable habitat requirements have not been observed in the Study Area.
Icteridae	Blackbirds	*Dolichonyx oryzivorus*	Bobolink	THR	THR	S4B	NHIC, OBBA	FALSE	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	No	Suitable habitat requirements have not been observed in the Study Area.
Icteridae	Blackbirds	*Sturnella magna*	Eastern Meadowlark	THR	THR	S4B	NHIC, OBBA	FALSE	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	No	Suitable habitat requirements have not been observed in the Study Area.
Falconidae	Caracaras and Falcons	*Falco peregrinus*	Peregrine Falcon	SC	SC	S3B	OBBA, CBC	FALSE	Rock cliffs, crags, especially situated near water; tall buildings in urban centres; threatened by chemical contamination; reintroduction efforts have been attempted in numerous locations throughout Ontario.	No	Suitable habitat requirements have not been observed in the Study Area.
Fringillidae	Fringilline and Cardueline Finches and Allies	*Coccothraustes vespertinus*	Evening Grosbeak	---	SC	S4B	CBC	FALSE	Coniferous or mixed forests; deciduous tree stands; parks, orchards.	No	Suitable habitat requirements have not been observed in the Study Area.
Icteridae	Blackbirds	*Euphagus carolinus*	Rusty Blackbird	SC	SC	S4B	CBC	FALSE	Openings in coniferous woodlands bordering bodies of water; tree-bordered marshes, beaver ponds, muskegs, bogs, fends or wooded swamps; stream borders with alder, willow; wooded island on lakes.	No	Suitable habitat requirements have not been observed in the Study Area.
Odontophoridae	New World Quail	*Colinus virginianus*	Northern Bobwhite	END	END	S1	NHIC	FALSE	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges.	No	Suitable habitat requirements have not been observed in the Study Area.

Family	Group	Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Regulated Habitat	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Strigidae	Typical Owls	*Asio flammeus*	Short-eared Owl	SC	SC	S2N,S4B	NHIC	FALSE	Grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra; both diurnal and nocturnal habits; ground nester; destruction of wetlands by drainage for agriculture is an important factor in the decline of this species; home range 25 -125 ha; requires 75-100 ha of contiguous open habitat.	No	Suitable habitat requirements have not been observed in the Study Area.
Turdidae	Thrushes	*Hylocichla mustelina*	Wood Thrush	END	SC	S4B	OBBA	FALSE	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12 m.	No	Suitable habitat requirements have not been observed in the Study Area.
Tyrannidae	**Tyrant Flycatchers**	***Contopus virens***	**Eastern Wood-Pewee**	**SC**	**SC**	**S4B**	**OBBA**	**FALSE**	**Open, deciduous, mixed or coniferous forest; predominated by oak with little understory; forest clearing, edges; farm woodlots, parks.**	**Yes**	**Potential to occur in woodland habitat adjacent to the Study Area.**
Insects											
Nymphalidae	**Butterflies and Moths**	***Danaus plexippus***	**Monarch**	**SC**	**SC**	**S2N,S4B**	**OBA**	**FALSE**	**Caterpillars feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico.**	**Yes**	**Suitable combinations of meadow areas (MEM) and wooded areas exist adjacent to the Study Area, and may provide suitable foraging and breeding habitat for this species.**
Hesperiidae	Butterflies and Moths	Erynnis martialis	Mottled Duskywing	---	END	S2	OBA	FALSE	The mottled duskywing tends to live in dry habitats with sparse vegetation. These include open barrens, sandy patches among woodlands, and alvars. In Ontario, the mottled duskywing will only deposit their eggs on two closely-related plants: New Jersey Tea and Prairie Redroot.	No	Suitable habitat requirements have not been observed in the Study Area.
Pieridae	Butterflies and Moths	Pieris virginiensis	West Virginia White	---	SC	S3	OBA	FALSE	West Virginia White lives in moist, deciduous woodlots. This butterfly requires a supply of toothwort, a small, spring-blooming plant that is a member of the mustard family, since it is the only food source for larvae.	No	Suitable habitat requirements have not been observed in the Study Area.
Fish											
Cyprinidae	Fish and Eels	*Clinostomus elongatus*	Redside Dace	END	END	S2	DFO	TRUE	Found in pools and slow-moving areas of small streams and headwaters with a gravel bottom. They are generally found in areas with overhanging grasses and shrubs, and can leap up to 10 cm out of the water to catch insects. During spawning, they can be found in shallow parts of streams, which are also popular spawning areas for other minnow species.	No	Suitable habitat requirements have not been observed in the Study Area.
Esocidae	Fish and Eels	*Esox americanus vermiculatus*	Grass Pickerel	SC	SC	S3	DFO	FALSE	Grass Pickerel are found in wetlands, ponds, slow-moving streams and shallow bays of larger lakes with warm, shallow, clear water and an abundance of aquatic plants.	No	Suitable habitat requirements have not been observed in the Study Area.
Herptiles											

Family	Group	Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Regulated Habitat	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
Caudata	Newts and Salamanders	*Ambystoma jeffersonianum*	Jefferson Salamander	END	END	S2	OHA,	TRUE	Adults live in moist, loose soil, under logs or in leaf litter. Your best chance of spotting a Jefferson salamander is in early spring when they travel to woodland ponds to breed. They lay their eggs in clumps attached to underwater vegetation. By midsummer, the larvae lose their gills and leave the pond and head into the surrounding forest. Once in the forest, Jefferson salamanders spend much of their time underground in rodent burrows, and under rocks and stumps. They feed primarily on insects and worms.	No	Suitable habitat requirements have not been observed in the Study Area.
Chelydridae	Turtle	*Chelydra serpentina*	Snapping Turtle	SC	SC	S3	OHA	FALSE	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha.	No	Suitable habitat requirements have not been observed in the Study Area.
Colubridae	Snakes	*Thamnophis sauritus*	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	OHA	FALSE	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups.	No	Suitable habitat requirements have not been observed in the Study Area.
Emydidae	Turtle	*Emydoidea blandingii*	Blanding's Turtle	THR	THR	S3	OHA	FALSE	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No	Suitable habitat requirements have not been observed in the Study Area.
Emydidae	Turtle	*Graptemys geographica*	Northern Map Turtle	SC	SC	S3	OHA	FALSE	Inhabits rivers and lakeshores where it basks on emergent rocks and fallen trees throughout the spring and summer. In winter, the turtles hibernate on the bottom of deep, slow-moving sections of river. They require high-quality water that supports the female's mollusc prey. Their habitat must contain suitable basking sites, such as rocks and deadheads, with an unobstructed view from which a turtle can drop immediately into the water if startled.	No	Suitable habitat requirements have not been observed in the Study Area.
Kinosternidae	Turtle	Sternotherus odoratus	Eastern Musk Turtle	SC	SC	S3	OHA	FALSE	Aquatic, except when laying eggs; shallow slow moving water of lakes, streams, marshes and ponds; hibernate in underwater mud, in banks or in muskrat lodges; eggs are laid in debris or under stumps or fallen logs at waters edge; often share nest sites; sometimes congregate at hibernation sites; not readily observed.	No	Suitable habitat requirements have not been observed in the Study Area.
Mammals											
Cricetidae	**Voles, Lemmings and New World Mice**	***Microtus pinetorum***	**Woodland Vole**	**SC**	**SC**	**S3?**	**MWH**	**FALSE**	**Mature deciduous forest in the Carolinian forest zone, with loose sandy soil and deep humus; grasslands,**	**Yes**	**Potential to occur in meadow habitat adjacent to the Study Area.**

Family	Group	Scientific Name	Common Name	SARA Status[1]	ESA Status[2]	SRank[3]	Information Source[4]	Regulated Habitat	Habitat Requirements[2,5]	Potential Habitat in the Study Area	Rationale for Potential to Occur
									meadows and orchards with groundcover of duff or grass.		
Vespertilionidae	Plain-nosed Bats	*Myotis lucifugus*	Little Brown Myotis	END	END	S4	MWH	FALSE	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Yes	Woodland adjacent to Study Area may provide suitable roosting habitat for the species.
Vespertilionidae	Plain-nosed Bats	*Myotis leibii*	Eastern Small-footed Myotis	---	END	S2S3	MWH	FALSE	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Yes	Woodland adjacent to Study Area may provide suitable roosting habitat for the species.
Vespertilionidae	Plain-nosed Bats	*Myotis septentrionalis*	Northern Myotis	END	END	S3	MWH	FALSE	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes	Woodland adjacent to Study Area may provide suitable roosting habitat for the species.
Vespertilionidae	Plain-nosed Bats	*Pipistrellus subflavus*	Tri-colored Bat	END	END	S3?	MWH	FALSE	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Yes	Woodland adjacent to Study Area may provide suitable roosting habitat for the species.
Plants											
Cornaceae	Dogwoods	*Cornus florida*	Eastern Flowering Dogwood	END	END	S2?	MNRF Reg. Habitat	TRUE	Commonly found on floodplains, slopes, bluffs and in ravines growing under taller trees in mid-age to mature deciduous or mixed forests. It has also been observed along roadsides and fencerows.	No	Suitable habitat requirements have not been observed in the Study Area.
Cyperaceae	Sedges	*Trichophorum planifolium*	Few-flowered Club-rush/Bashful Bullrush	END	END	S1	MNRF Reg. Habitat	TRUE	Typically found on steep slopes of oak forests.	No	Suitable habitat requirements have not been observed in the Study Area.
Juglandaceae	**Walnuts**	***Juglans cinerea***	**Butternut**	**END**	**END**	**S3?**	**City**	**FALSE**	**Butternut usually grows alone or in small groups in deciduous forests. Prefers moist, well-drained soil and is often found along streams.**	**Yes**	**Butternut was identified by the City of Hamilton within the Study Area.**
Pyrolaceae	Heaths	*Chimaphila maculata*	Spotted Wintergreen	END	THR	S1	NHIC	FALSE	Spotted Wintergreen grows best in semi-open habitats. Generally occurs in dry oak-pine woodland habitats with sandy soils. Dominant tree species include: White Pine, Red Oak, Black Oak, and American Beech	No	Suitable habitat requirements have not been observed in the Study Area.

1 – Status identified by the Committee on the Status of Endangered Wildlife in Canada under the federal SARA, 2002;

2 – SAR in Ontario List under the provincial ESA, 2007;

3 – Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperilled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario;

4 – NHIC = MNRF Natural Heritage Information Centre, MNRF Reg. Habitat = MNRF Regulated Habitat (O. Reg. 242/08); OBBA = Ontario Breeding Bird Atlas, MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, OHA = Ontario Herpetofaunal Atlas; OBA = Ontario Butterfly Atlas; CBC = Christmas Bird Count; City = Correspondence with City of Hamilton.

5 – MNRF Significant Wildlife Technical Guide - Appendix G (2000).

Appendix C

Botanical Species List

Table C-1: Botanical Inventory Results

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Abies alba	Silver Fir	---	---	SNA	N/A	---
Acer campestre	Hedge Maple	---	---	SNA	N/A	---
Acer ginnala	Amur Maple	---	---	SE1	N/A	---
Acer griseum	Paperbark Maple	---	---	SNA	N/A	---
Acer negundo	Manitoba Maple	---	---	S5	---	0
Acer platanoides	Norway Maple	---	---	SNA	I	---
Acer pseudoplatanus	Sycamore Maple	---	---	SNA	I	---
Acer rubrum	Red Maple	---	---	S5	---	4
Acer saccharinum	Silver Maple	---	---	S5	---	5
Acer saccharum	Sugar Maple	---	---	S5	---	4
Acer tataricum	Tartarian Maple	---	---	SNA	N/A	---
Acer x freemanii	Freeman's Maple	---	---	SNA	---	---
Achillea sp.	Yarrow sp.					
Aesculus hippocastanum	Horse Chestnut	---	---	SNA	I	---
Ailanthus altissima	Tree-of-heaven	---	---	SNA	I	---
Alliaria petiolata	Garlic Mustard	---	---	SNA	I	---
Ambrosia artemisiifolia	Annual Ragweed	---	---	S5	---	0
Amelanchier amabilis	Beautiful Serviceberry	---	---	S2S3	N/A	---
Amelanchier laevis	Smooth Serviceberry	---	---	S5		5
Avens sp.	Avens sp.					
Barbarea vulgaris	Bitter Wintercress	---	---	SNA	I	---
Betula papyrifera	Paper Birch	---	---	S5	---	2
Bidens frondosa	Devil's Beggarticks	---	---	S5	---	3
Bromus inermis	Awnless Brome	---	---	SNA	I	---
Carya ovata	Shagbark Hickory	---	---	S5	---	6
Catalpa speciosa	Northern Catalpa	---	---	SNA	I	---
Celtis occidentalis	Common Hackberry	---	---	S4	Uncommon, 9 sites	8
Centaurea sp.	Knapweed sp.					
Cercis canadensis	Eastern Redbud	---	---	SX	N/A	8
Cirsium arvense	Canada Thistle	---	---	SNA	I	---

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Cornus racemosa	Gray Dogwood	---	---	S5	---	2
Cornus sericea ssp sericea	Red-osier Dogwood	---	---	S5	---	2
Cotinus coggygria	European Smoketree	---	---	SNA	I	---
Crataegus crus-galli	Cockspur Hawthorn	---	---	S5	---	4
Crataegus monogyna	English Hawthorn	---	---	SNA	I	---
Crataegus punctata	Dotted Hawthorn	---	---	S5	---	4
Crataegus sp.	Hawthorn sp.					
Daucus carota	Wild Carrot	---	---	SNA	I	---
Dipsacus fullonum	Fuller's Teasel	---	---	SE5	I	---
Elaeagnus angustifolia	Russian Olive	---	---	SNA	I	---
Elaeagnus umbellata	Autumn Olive	---	---	SNA	I	---
Equisetum arvense	Field Horsetail	---	---	S5	---	0
Euonymus alatus	Winged Euonymus	---	---	SNA	I	---
Fagus sylvatica	European Beech	---	---	SNA	N/A	---
Fragaria virginiana	Wild Strawberry	---	---	S5	---	2
Fraxinus americana	White Ash	---	---	S4	---	4
Fraxinus excelsior	European Ash	---	---	SNA	I	---
Fraxinus pennsylvanica	Green Ash	---	---	S4	---	3
Ginkgo biloba	Ginkgo	---	---	SNA	N/A	---
Gleditsia triacanthos inermis	Thornless Honey-locust	---	---	SNA	I	3
Gymnocladus dioicus	Kentucky Coffee-tree	THR	THR	S2	I	6
Juglans cinerea	Butternut	END	END	S3?	END	6
Juglans nigra	Black Walnut	---	---	S4	---	5
Juniperus virginiana	Eastern Red Cedar	---	---	S5	---	4
Juniperus x media	Pfitzer/Ornamental Juniper	---	---		N/A	---
Larix decidua	European Larch	---	---	SNA	I	---
Liquidambar styraciflua	Sweetgum	---	---	SNA	N/A	---
Liriodendron tulipifera	Tulip Tree	---	---	S4	Rare, 3 native stations, occasionally planted	8

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Lonicera tatarica	Tartarian Honeysuckle	---	---	SNA	I	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	I	---
Malus baccata	Siberian Crabapple	---	---	SNA	I	---
Malus coronaria	Sweet Crabapple	---	---	S4		5
Malus pumila	Common Apple	---	---	SNA	I	---
Medicago lupulina	Black Medic	---	---	SNA	I	---
Melilotus albus	White Sweet-clover	---	---	SNA	I	---
Morus alba	White Mulberry	---	---	SNA	I	---
Ostrya virginiana	Eastern Hop-hornbeam	---	---	S5	---	4
Parrotia persica	Persian Ironwood	---	---	SNA	N/A	---
Phalaris arundinacea	Reed Canary Grass	---	---	S5	---	0
Picea abies	Norway Spruce	---	---	SNA	I	---
Picea glauca	White Spruce	---	---	S5	I/N: Most records appear to be introductions. Native in mixed and conifer swamps in Flamborough	6
Picea pungens	Blue Spruce	---	---	SNA	I	---
Pinus nigra	Black Pine	---	---	SNA	I	---
Pinus strobus	Eastern White Pine	---	---	S5	---	4
Pinus sylvestris	Scotch Pine	---	---	SNA	I	---
Platanus occidentalis	Sycamore	---	---	S4	Rare, 4 sites	8
Poa spp.	Grass spp.					
Prunus avium	Sweet Cherry	---	---	SNA	I	---
Prunus domestica	European Plum	---	---	SNA	I	---
Prunus serrulata	'Kwanzan' (Kwanzan Flowering Cherry)	---	---	SNA	N/A	---
Prunus sp.	Cherry cultivar sp					
Prunus virginiana	Choke Cherry	---	---	S5	---	2
Pyrus calleryana	Callery Pear	---	---	SNA	N/A	---
Quercus macrocarpa	Bur Oak	---	---	S5	---	5

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Quercus robur	English Oak	---	---	SNA	---	---
Quercus rubra	Northern Red Oak	---	---	S5	---	6
Rhamnus cathartica	Common Buckthorn	---	---	SNA	I	---
Rhus hirta	Staghorn Sumac	---	---	S5	---	1
Robinia pseudoacacia	Black Locust	---	---	SNA	I	---
Rosa multiflora	Multiflora Rose	---	---	SNA	I	---
Setaria pumila	Yellow Foxtail	---	---	SNA	I	---
Solanum dulcamara	Climbing Nightshade or Bittersweet Nightshade	---	---	SNA	I	---
Solidago altissima ssp. *altissima*	Eastern Late Goldenrod	---	---	S5	---	1
Sonchus sp.	Sow-thistle					
Sorbus aucuparia	European Mountain-ash	---	---	SNA	I	---
Spiraea prunifolia	Bridal-wreath	---	---	SNA	N/A	---
Symphyotrichum lanceolatum ssp. *lanceolatum*	Panicled Aster	---	---	S5	---	3
Symphyotrichum novae-angliae	New England Aster	---	---	S5	---	2
Syringa reticulata ssp. *reticulata*	Japanese Tree Lilac	---	---	SNA	N/A	---
Syringa vulgaris	Common Lilac	---	---	SNA	I	---
Taraxacum officinale	Common Dandelion	---	---	SNA	I	---
Thuja occidentalis	Eastern White Cedar	---	---	S5	---	4
Tilia americana	American Basswood	---	---	S5	---	4
Tilia cordata	Little-leaf Linden	---	---	SNA	I	---
Trifolium pratense	Red Clover	---	---	SNA	I	---
Tussilago farfara	Colt's-foot	---	---	SNA	I	---
Ulmus americana	American Elm	---	---	S5	---	3
Ulmus glabra	Wych Elm	---	---	SNA	I	---

Scientific Name	Common Name	SARA[1]	ESA[2]	S-Rank[3]	Local Rank[4]	CC[5]
Ulmus pumila	Siberian Elm	---	---	SNA	I	---
Vicia cracca	Tufted Vetch	---	---	SNA	I	---
Vitis riparia	Riverbank Grape	---	---	S5	---	0

[1]Federal Species at Risk Act (Source: SARA Public Registry, 2007); [2]Provincial Endangered Species Act (Source: MNRF website, 2007); [3]Subnational (Provincial) Rank (Source: MNRF National Heritage Information Centre website, 2007; [4]Local (Hamilton) Rank (Source: Hamilton Natural Areas Inventory Project 3rd Ed., 2014 – I = introduced, --- = unranked (common, native), N/A = no available data); [5]Co-efficient of Conservatism

Appendix D

Photographs

Photo 1

Watercourse 1

Photo 2

Watercourse 1

Photo 3

Watercourse 1

Photo 4

Watercourse 1

Photo 5

Watercourse 2

Photo 6

Watercourse 2

Photo 7

Watercourse 2

Photo 8

Watercourse 2

Photo 9

Watercourse 2

Photo 10

Watercourse 3

Photo 11

Watercourse 3

Photo 12

Watercourse 4

Photo 13

Watercourse 4

Photo 14

Watercourse 4

Photo 15

Watercourse 5

Photo 16

Watercourse 5

Photo 17

Watercourse 5

Photo 18

SWM pond above watercourse 5

Photo 19

SWM pond above watercourse 5

Photo 20

SWM pond above watercourse 5

Photo 21

SWM pond above watercourse 5