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Appendix D : NATURAL ENVIRONMENT ASSESSMENT REPORT

City of Mississauga

Intersection Improvements – Clarkson Road and Lakeshore Road, Ontario

Natural Environmental Assessment

CIMA+

CIMA+ file number: B001126
17 March 2022 – Review 00

City of Mississauga

Intersection Improvements – Clarkson Road and Lakeshore Shore Road, Ontario

Natural Environmental Assessment

Prepared by:

Casey Little, DipEM
Biologist

Reviewed by:

Kai Markvorsen, B.Sc.
Environmental Specialist

240 Catherine Street, Suite 110, Ottawa, Ontario
Canada K2P 2G8

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1. Introduction

CIMA+ was retained by the *City of Mississauga* to complete a Natural Environmental Assessment (NEA) to support a 'Schedule B' Class Environmental Assessment (Class EA) for the improvements at the intersections of Clarkson Road North and Lakeshore Road West within the City of Mississauga. The purpose of the assessment was to document existing conditions and evaluate potential impacts to the natural environment associated with the various alternatives developed to improve operation and safety at the intersections of Clarkson Road North and Lakeshore Road West within the City of Mississauga.

1.1 Study Area

The intersection is located within the Clarkson Village community node and the site encompasses a section approximately 0.16 km^2. The approximate centre of the site is the intersection of Clarkson Road North and Lakeshore Road West and includes a 250 meters search radius around the intersection, within the City of Mississauga. The intersections of Lakeshore Road West and Clarkson Road North / Clarkson Road South offset with the northerly approach intersecting Lakeshore Road West approximately 75 meters east of the southerly approach.

The site is located within Concession A, Lot K and specifically on Lot 78 of Plan 314 (PIN 04041-0201), in the City of Mississauga.

The "Study Area" for the purpose of the NEA consists of the adjacent (i.e., within 120 meters) land around the perimeter of the site.

The adjacent lands consist of the following:

+ Northeast: CIBC in a multi-tenant plaza and natural corridor running along Turtle Creek;
+ Northwest: Gas station (ESSO), real estate office, and natural corridor running along Turtle Creek;
+ Southeast: Royal Bank of Canada (RBC);
+ Southwest: Multi-tenant plaza.

The Study Area and the features described above are presented on Figure 1 provided in **Appendix A**.

1.2 Existing and Past Land Use

Based on a review of available air photo imagery, the Study Area is predominantly residential with a natural corridor running along Turtle Creek, northwest of the intersection, and commercial development is present both north and south along Lakeshore Road West. A rail corridor also runs parallel to Lakeshore Road West approximately 370 meters north of the intersection. Land use within the Study Area and in surrounding areas have not changed significantly over the past 15 years.

1.3 Description of Alternatives

The intersections of Lakeshore Road West and Clarkson Road North / Clarkson Road South are offset with the northerly approach intersecting Lakeshore Road West approximately 75 meters east of the southerly approach. This results in two (2) closely spaced signalised intersections with short left turn lane facilities for northbound and southbound vehicles from Lakeshore Road West. The short auxiliary lane lengths can result in left turn queues spilling back into the Lakeshore Road West through lanes in peak periods. In response to ongoing concerns raised by residents regarding the operation of the two closely spaced intersections and interspersed commercial entrances, the City is undertaking a Class EA Study to investigate several alternatives to improve operation and safety at the intersections. This project will build upon the outcomes established in the Lakeshore Road Transportation Master Plan study and identify opportunities to improve the right-of way including sidewalk and cycling facilities, streetscape and natural features, transit stops, intersections and all other road infrastructure.

As part of the Class EA Study, five alternatives have been developed as summarized below.

Do Nothing

In this alternative the status quo is maintained. Traffic signals will be monitored and further optimized when required.

Solution 1 – Realign Clarkson Road North

In this alternative Clarkson Road North is realigned to tie into the intersection at Clarkson Road South/Lakeshore Road. The existing intersection at Clarkson Road North/Lakeshore Road is closed.

Solution 2 – Centre Median and Widen Lakeshore Road

In this alternative Lakeshore Road is widened to accommodate eastbound and westbound left-turn lanes between Clarkson Road North and Clarkson Road South. A raised centre median is constructed on Lakeshore Road.

Solution 3 – Centre Median and Eastbound Left Turn via ‘Laneway’

In this alternative, eastbound left turns from Lakeshore Road to Clarkson Road North are prohibited. Eastbound vehicles on Lakeshore Road will use a ‘laneway’ to access Clarkson Road North. A raised centre median is constructed on Lakeshore Road.

Solution 4 – Centre Median and Prohibit Left Turns at Clarkson Road South

In this alternative the intersection at Clarkson Road South/Lakeshore Road is reconfigured to right-in/right-out. A raised centre median is constructed on Lakeshore Road. No left turn movements can be made at the Clarkson Road South/Lakeshore Road intersection.

Conceptual plans of the above noted alternatives are provided in **Appendix B**.

Following analysis, two alternatives have been identified as preferred for the interim and longer-term, respectively. Solution 2 involves the construction of a centre median and widening of Lakeshore Road West and was identified as the 'Interim Preferred Solution'. Solution 1: Realign Clarkson Road North was identified as the 'Preferred Solution' and this would accommodate the transportation needs for the long term. Due to the large socio-economic impacts and cost of Solution 1, there is currently no timeframe for implementation, and it will be dependant on future redevelopment and/or funding. As such, this NEA considers the impacts associated with the Interim Preferred Solution (Solution 2), which is anticipated to be constructed in an Integrate Road Project for Lakeshore Road West.

In future, as part of the detailed design phase of Solution 1, an updated assessment will be required to assess existing environmental conditions as they exist at the time. It is anticipated that Solution 1 will likely have some edge impacts to the Turtle Creek natural corridor, which meets the criteria of a significant woodland and valley land, and it is recommended the detailed design minimize the footprint of the new construction, to the extent possible.

1.4 Purpose of the Natural Environmental Assessment

The objective of this NEA is to assess the existing natural heritage features, identify any potentially significant environmental features and functions, and determine the potential impacts of the proposed undertaking on the existing natural environment. This report contains recommendations and measures to maintain, mitigate or enhance the natural heritage features in relation to the proposed undertaking.

2. Methods for Data Gathering and Analysis

The Study Area and adjacent natural heritage features were examined and analyzed by the review of available information from desktop research, consultation with the applicable authorities and on-site ecological surveys.

2.1 Background Information

The following publicly available sources were reviewed and analyzed for site specific applicable information as part of the desktop research process:

2.1.1 Federal Sources

+ Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2021);
+ Natural Resources Canada (NRC) Topographic Map 030M03 (NRC, 2020).

2.1.2 Provincial Sources

+ AgMaps - Ministry of Agriculture, Food and Rural Affairs (AFRA, 2020);
+ Geographic information from Land Information Ontario (LIO, 2021);
+ The Ministry of Northern Development, Mines, Natural Resources and Forestry's (MNDMNRF) Natural Heritage Information Center (NHIC) database for squares #17PJ1118 & #17PJ1119 – search completed December 2021, (NHIC, 2019);

- Atlas of Breeding Birds of Ontario square #17PJ11 (Cadman et al., 2007);
- Herps of Ontario Project square #17PJ11 (iNaturalist, 2020);
- Ontario Butterfly Atlas Online square #17PJ11 (Toronto Entomologists' Association, 2020);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Species at Risk in Ontario (MECP, 2021);
- Ecosystems of Ontario, Part 1 Ecozones and Ecoregions (MNRF, 2009);
- Ecological Land Classification for Southern Ontario (MNRF, 1998);
- Significant Wildlife Habitat Technical Guide (MNRF, 2000);
- A Place to Grow Growth Plan for the Greater Golden Horseshoe (Office Consolidation 2020);
- Ontario Geological Survey Map MRD128 (OGS, 2010);
- The Credit Valley Conservation Authority Regulation Mapping (CVC, 2021).

2.1.3 Municipal Sources

- Mississauga Official Plan (April 8, 2021).

2.1.4 Other Sources

- Aerial/Satellite Imagery (ERIS, 2021);
- Phase One Environmental Site Assessment – Intersection Improvements – Clarkson Road and Lakeshore Shore Road, Mississauga, Ontario (**CIMA+**, 2021).

2.2 Consultation

Information requests for the Study Area were submitted to the NDMNRF (Aurora District), the Ontario Ministry of Environment, Conservation and Parks (MECP), and the Credit Valley Conservation Authority (CVC) (**Appendix C**).

2.3 Site Characterization

The on-site and adjacent characterization of the natural heritage features was conducted by qualified **CIMA+** employees (i.e., biologist and technologist) by visual assessment of the terrestrial and aquatic components within the Study Area during two (2) site visits. **Table 1** presents the details of those visits in terms of date, times, survey focus and weather conditions.

Table 1: Site Investigations

Date	Start/End Time	Field Surveys	Weather Conditions	Investigators
2020/10/15	08:00 – 11:00	• Vegetation / ELC • Species at Risk Assessment • General Wildlife	Temperature: 17*C Wind (Beaufort scale): 2 Cloud cover: 90%	Cécile de Sérigny, biologist Jamieson-Lee Scott, technologist
2020/10/20	10:00 – 4:00	• Tree Inventory	Temperature: 7*C partly sunny	Sean Nailer, ISA Certified Arborist Vincent Bouchard, junior technician

2.3.1 Ecological Lands Classification

Ecological community characterization was completed in general accordance with the NDMNRF Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998). During the field investigations, vegetation was characterized using ELC to classify and map ecological communities to the vegetation level. The ecological community boundaries were generally defined through the review of aerial photography and further refined during field investigations. The protocol recommends that a vegetation community be a minimum of 0.5 hectares (ha) in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described (if required), provided they clearly fit within an ELC vegetation type. The information was documented and classified according to species and locational data was gathered using a hand-held GPS.

2.3.2 Aquatic Habitat Assessment

An aquatic habitat assessment was completed within the Study Area along Turtle Creek which included the collection of general aquatic habitat information such as substrate type, watercourse morphology and aquatic vegetation, as well as an overall determination of the presence/absence and quality of fish habitat.

2.3.3 General Wildlife and Species at Risk Survey

Incidental wildlife and wildlife habitat observations (auditory, visual, tracks, scat, burrows, nests, etc.) were compiled within the Study Area on October 15th, 2020, to determine presence/absence. This field investigation also included the collection of bird data through incidental observations following in general accordance with the Ontario Breeding Bird Atlas survey protocols (OBBS, 2001).

Field surveys were conducted to ground truth the background information collected as well as to expand upon the knowledge of terrestrial species at risk (SAR) and SAR habitat existing conditions within the Study Area. Incidental SAR wildlife observations were based on visual confirmation, auditory confirmation, or by way of indicators (i.e., tracks, scat, feeding signs) during the field investigation.

2.3.4 Tree Inventory

A tree inventory was completed on October 20th, 2020, in accordance with the City of Mississauga's Tree Conservation Report Guidelines (City of Mississauga, 2020). All trees within the right-of-way and all trees over 15 cm diameter at breast height (dbh) within the Study Area were inventoried. The information was documented and classified according to species, condition, and health. A total of 100 trees were surveyed. An Arborist Report was drafted (Clarkson Road Arborist Report, Mississauga, ON, **CIMA+**, 2020) and sent the City of Mississauga on December 4th, 2020.

3. Site Description and Existing Natural Heritage Components

3.1 Background Review and Consultation Results

3.1.1 Vegetation

The Study Area and adjacent properties are located within Ecoregion 7E (Lake Erie-Lake Ontario), the most southern ecoregion of Ontario, which extends from Windsor and Sarnia east to the Niagara Peninsula and Toronto, with shoreline on Lakes Huron, Erie, and Ontario. About 78% of the ecoregion has been converted to cropland and pasture, and developed land (e.g., urban areas and road networks) encompasses more than 7% of the ecoregion. Of the remaining forest remnants, dense deciduous forest covers 10.3%, sparse deciduous forest covers 1.0%, and mixed deciduous forest covers 0.8% of the ecoregion. The flora and fauna of this ecoregion are the most diverse in Canada. For example, remnants of Carolinian forests contain species such as the tulip-tree (*Liriodendron tulipifera*), black gum (*Nyssa sylvatica*), sycamore (*Platanus occidentalis*), Kentucky coffee-tree (*Gymnocladus dioicus*), pawpaw (*Asimina triloba*), various oaks (*Quercus* sp.) and hickories (*Carya* sp.), and common hackberry (*Celtis occidentalis*), in addition to the more widespread sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), eastern hemlock (*Tsuga canadensis*), and eastern white pine (*Pinus strobus*). This ecoregion also supports the largest remnants of tall-grass prairie in the province (Crins, 2009).

The Study Area is dominated by hardened landscaped areas due to the commercial and residential presence within the neighbourhood, with planted deciduous trees surrounding buildings and residences on both sides of Lakeshore Road West. A dense forested riparian area borders Turtle Creek on both sides of Clarkson Road. The mature forest is comprised mainly of deciduous trees. There is a green open space at the northeast extent of the Study Area, comprised of various sports fields and associated parking areas.

3.1.2 Geology and Topography

The Study Area is located within the floodplain of Turtle Creek. The generalized surficial geology predominantly consists of coarse textured glaciolacustrine deposits of sand, gravel, minor silt, and clay with Foreshore and basinal deposits. A small portion of modern alluvial deposits of clay, silt, sand, gravel, and potential organic remains are found towards the northern portion of the Study Area. (Google Earth/OGS, 2020)

Bedrock geology consists of shale, limestone, dolostone and siltstone of the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member and Eastview Member. (Google Earth/OGS, 2020)

Bedrock and Surficial geology mapping are provided in **Appendix A – Figure 2 and Figure 3**.

3.1.3 Surface Water, Groundwater, and Fish Habitat

The Credit River watershed, located within the jurisdiction of the Credit Valley Conservation Authority (CVC), is comprised of 1,000 km^2 of land, drained by the Credit River and its 1,500 km of tributaries. The Study Area is situated within the Lake Ontario Shoreline West Tributaries sub-watershed and has an approximate drainage area of 33.05 km^2. This sub-watershed is within the lower physiographic zone and has relatively flat topography with a gentle southward slope towards Lake Ontario. The lower zone is currently, highly urbanized and is continuing to grow and includes the western edge of Brampton and most of Mississauga. Many of the tributaries in this lower zone have been channelized. Approximately 75 species of fish are dependent on the CVC watershed. (CVC, 2015).

The only aquatic feature present within the Study Area is Turtle Creek, which flows from west to east towards Lake Ontario, and runs parallel to Lakeshore Road West approximately 130 meters northwest of the intersection. According to the CVC Regulation Mapping, Turtle Creek is within the watershed's Regulated Areas as per Ontario Regulation 160/06 (CVC, 2021).

The Department of Fisheries and Oceans' (DFO) aquatic species at risk (ASAR) map indicated no known ASAR or associated critical habitat within a 1 km buffer of the Study Area.

3.1.4 Natural Heritage Features

Turtle Creek and the surrounding wooded area are designated as a Significant Natural Area, and Natural Green Space and Natural Hazards as per Schedule 3 – Natural System of the Mississauga Official Plan (2021). Schedule 10 – Land Use Designations of the Mississauga Official Plan (2021) identify the lands surrounding Turtle Creek within the Study Area as Greenlands with a Natural Hazards overlay.

Natural Hazard Lands, as defined by the Mississauga Official Plan (2021), are generally unsafe and development and site alteration will generally not be permitted due to the naturally occurring processes of erosion and flooding associated with river and stream corridors and the Lake Ontario shoreline.

3.1.1 Significant Woodlands

Although no significant woodlands are identified within the Mississauga Official Plan's mapping (2021) criteria are defined within the text. The wooded area adjacent to Turtle Creek meets the criteria of significant woodlands as this area *supports a significant linkage function* and *is located within 30 meters of a watercourse or significant wetland.*

The boundaries of these woodlands in relation to the Study Area is included in **Appendix A – Figure 4**.

3.1.2 Significant Valleylands

Although no significant valleylands are identified within the Mississauga Official Plan's mapping (2021) criteria are defined within the text. The valleyland and watercourse feature associated with Turtle Creek meets the criteria of valleylands as this area *are associated with the main branches, major tributaries and other tributaries and watercourse corridors draining directly Lake Ontario.*

The City of Mississauga's 2017 NAS Database identifies the Turtle Creek landform as a Significant Valleyland in fair to poor condition (City of Mississauga, 2017).

3.1.3 Significant Wetlands

There is no provincially significant wetland within the Study Area.

However, the western extent of the Rattray Marsh Wetland Complex is located approximately 1.1 km east of the intersection. The western extent of Fudger's Marsh, a non-provincially significant wetland, is located approximately 1.3 km northeast of the intersection.

No other wetlands are present within or adjacent to the Study Area.

3.1.1 Significant Wildlife Habitat

The CVC provided a copy of mapping data for the area on November 6th, 2020, to indicate that the Study Area is within boundaries of a Foraging Area with Abundant Mast, fish collection records, and a Migratory Land Bird Stopover. All these features are associated with Turtle Creek and the surrounding wooded area.

3.1.2 Areas of Natural and Scientific Interest

There is no Area of Natural and Scientific Interest (ANSI) within the Study Area.

The western extent of the Rattray Coastal Marsh Life Science Provincially Significant ANSI is located approximately 585 meters east of the intersection, and the southern extents of the Lorne Park Prairie Life Science Regionally Significant ANSI is located approximately 550 meters north of the intersection (NHIC, 2019).

3.1.3 Species at Risk

The *Ontario Endangered Species Act, 2007* (ESA) prohibits killing or damaging the habitat of species that are listed on the species at risk (SAR) in Ontario list. The background information review resulted in a list of 23 SAR that have been previously documented to have potential to occur within the Study Area. **Appendix D** provides this list of potential SAR including their common and scientific name, status under federal *Species at Risk Act* (SARA) and provincial ESA, information source which determined historic presence, and a general description of their preferred habitat based on federal/provincial SAR registry species profiles.

3.1.4 Consultation Results

Neither the Aurora District NDMNRF or MECP responded to our information requests.

The CVC responded on November 6th, 2020, providing a copy of mapping data for the area to indicate that the Study Area is partially within the CVC's Regulatory Limit. The mapping data also included boundaries for deer wintering habitat, fish collection records, Migratory Land Bird Stopover, and all topographic features.

All correspondence is included in **Appendix C**.

3.2 Field Observations

3.2.1 Ecological Land Classification

The Ontario ELC system enables planners and ecologists to organize ecological information into logical integrated units to enable landscape planning and monitoring. The Study Area was classified and mapped to the vegetation level in accordance with the ELC for Southern Ontario (Lee et al., 1998). Six (6) ELC community classes were identified within the Study Area. A summary of community class findings is outlined below**,** and the locations of the various vegetation communities present within the Study Area are outlined in **Appendix A - Figure 5**. The ELC designations below were used in subsequent analyses to identify potential habitat that may be used by species of interest (i.e., SAR) occurring or potentially occurring in the Study Area.

Both Clarkson Road (North and South), and Lakeshore Road West are classified as CVI_1 – Transportation. The commercial businesses that line Lakeshore Road West are classified as CVC_1 – Business Sector. These lands are used for commercial businesses comprised of retail stores, restaurants, a gas station, banks, and an auto repair centre. The remaining developed lands are classified as CVR_3 – Single Family Residential.

The riparian forested area adjacent to Turtle Creek is classified as a FODM7-3 – Fresh – Moist Willow Lowland Deciduous Forest Type. These areas are dominated by willow (*Salix* sp.), Manitoba maple (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), red oak (*Quercus rubra*), and common buckthorn (Rhamnus cathartica). These forests are often a result of cultural influences (i.e., historical clearing and planting, and/or shoreline disturbances), and are typically associated with riparian zones, streams and riverbanks, and floodplains.

There is a small CGL – Green Lands ecosite present in the northeast extent of the Study Area, south of the railway tracks, comprised of various sports fields and associated parking areas.

A small portion of a CVS_1 – Education ecosite (Clarkson Public School) is situated at the southwest corner of the Study Area, along the western side Clarkson Road South.

3.2.2 Aquatic Habitat

Turtle Creek runs through a 3-meter concrete box culvert easterly under Clarkson Road, approximately 135 meters north of the intersection. In-stream substrates consisted of cobble, stones, muck, and detritus. The water levels were low during the survey and therefore, the bottom of the culvert was observed to be perched above the water level in the Creek, creating a short drop-off. It is likely during higher flow periods that the culvert is passable by fish. A proportion of the south shoreline that backs onto private lots was landscaped with armour stone and rip rap to prevent erosion, and no visible signs of bank erosion along the Creek was observed. Although no fish were observed during the survey, based on review of background information, Turtle Creek provides fish habitat.

3.2.3 Wildlife

Wildlife habitat observed within the Study Area was typical of an urban setting and based on field observation common species are expected to be present within these habitat features. One (1) Raccoon (*Procyon lotor*) was observed sleeping in a tree along the creek.

No incidental observations of herpetofauna or associated tracks were made during the wildlife survey, however, Turtle Creek does provide suitable habitat features for amphibians and turtles within the Study Area.

During the October 15th, 2020, site visit, no bird species or bird nests were identified; the rainy weather conditions are likely to explain this result. The trees and shrubs along Turtle Creek as well as the isolated trees within the residential and commercial areas provide habitat for migratory birds within the Study Area.

Suitable bat maternity roosting and foraging habitat may be present along Turtle Creek.

3.2.4 Species at Risk

No SAR were identified within the Study Area during the 2020 site visit, however, the riparian area along Turtle Creek provides suitable habitat for at risk species. The 3-meter concrete box culvert under Clarkson Road may provide Barn Swallow (*Hirundo rustica*) nesting habitat, though no birds or evidence of nesting was noted during the site visit.

Upon completion of the 2020 field investigations, the list of the 23 SAR identified during the background review (**Appendix D**) was assessed and updated to determine which SAR have the potential to be impacted by this project. As per the interim preferred solution selected for this project (**Appendix B**), the outcome of this assessment determined that no SAR and/or their habitat will be impacted because of this project. Refer to **Table 2** below for a summary of the SAR and associated habitat within the Study Area.

Table 2: Assessment of Potential SAR

Common Name Scientific Name Status	Species Observed in Study Area	Suitable Habitat in Study Area	Potential for Impact as a Result of Project	Comments
Monarch *Danaus plexippus* Federal – **SC** Provincial – **SC**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Redside Dace *Clinostomus elongatus* Federal – **END** Provincial – **END**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Blanding's Turtle *Emydoidea blandingii* Federal – **THR** Provincial – **THR**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Eastern Milksnake *Lampropeltis triangulum* Federal – **SC** Provincial – **Not Listed**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.

Common Name Scientific Name Status	Species Observed in Study Area	Suitable Habitat in Study Area	Potential for Impact as a Result of Project	Comments
Eastern Ribbonsnake *Thamnophis sauritus* Federal – **THR** Provincial – **SC**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Midland Painted Turtle *Chrysemys picta marginate* Federal – **SC** Provincial – **Not Listed**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Northern Map Turtle *Graptemys geographica* Federal – **SC** Provincial – **SC**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Snapping Turtle *Chelydra serpentina* Federal – **SC** Provincial – **SC**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Western Chorus Frog (Great Lakes – St. Lawrence Population *Pseudacris triseriata* Federal – **THR** Provincial – **Not listed**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Bank Swallow *Riparia riparia* Federal – **THR** Provincial – **THR**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Barn Swallow *Hirundo rustica* Federal – **THR** Provincial – **THR**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the box culvert under Clarkson Road, therefore impacts to this species are not anticipated.
Bobolink *Dolichonyx oryzivorus* Federal – **THR** Provincial – **THR**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.

Common Name Scientific Name Status	Species Observed in Study Area	Suitable Habitat in Study Area	Potential for Impact as a Result of Project	Comments
Chimney Swift *Chaetura pelagica* Federal – **THR** Provincial – **THR**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the CVR ecosite, therefore impacts to this species are not anticipated.
Common Nighthawk *Chordeiles minor* Federal – **THR** Provincial – **SC**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Eastern Meadowlark *Sturnella magna* Federal – **THR** Provincial – **THR**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Eastern Wood-Pewee *Contopus virens* Federal – **SC** Provincial – **SC**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Henslow's Sparrow *Ammodramus henslowii* Federal – **END** Provincial – **END**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Peregrine Falcon *Falco peregrinus anatum/tundrius* Federal – **SC** Provincial – **SC**	No	No	No	This species and/or its habitat was not observed within the Study Area, therefore impacts to this species are not anticipated.
Wood Thrush *Hylocichla mustelina* Federal – **THR** Provincial – **SC**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.

Common Name Scientific Name Status	Species Observed in Study Area	Suitable Habitat in Study Area	Potential for Impact as a Result of Project	Comments
Eastern Small-footed Bat *Myotis leibii* Federal – **Not listed** Provincial – **END**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Little Brown Myotis *Myotis lucifugus* Federal – **END** Provincial – **END**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Northern Myotis *Myotis septentrionalis* Federal – **END** Provincial – **END**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.
Tri-colored Bat *Perimyotis subflavus* Federal – **END** Provincial – **END**	No	Yes	No	Although this species was not observed during the 2020 field investigations habitat is available within the Study Area; however, no impacts are expected to occur to the Turtle Creek corridor, therefore impacts to this species are not anticipated.

END – Endangered THR – Threatened SC – Special Concern

Based on results of the SAR screening assessment through background data review coupled with on-site investigations, it is assumed that no SAR and their habitat will be impacted by construction activities within the Study Area. Regardless, avoidance and mitigative strategies to address potential impacts to wildlife and SAR because of this project are identified in **Section 6**.

4. Assessment of Design Options

Following analysis, two alternatives have been identified as preferred for the interim and longer-term, respectively. Solution 2 involves the construction of a centre median and widening of Lakeshore Road West and was identified as the 'Interim Preferred Solution'. Solution 1: Realign Clarkson Road North was identified as the 'Preferred Solution' and this would accommodate the transportation needs for the long term. Due to the large socio-economic impacts and cost of Solution 1, there is currently no timeframe for implementation, and it will be dependant on future redevelopment and/or funding. As such, this NEA considers the impacts associated with the Interim Preferred Solution (Solution 2), which is anticipated to be constructed in an Integrate Road Project for Lakeshore Road West, expected around 2026.

In future, as part of the detailed design phase of Solution 1, an updated assessment will be required to assess existing environmental conditions as they exist at the time. It is anticipated that Solution 1 will likely have some edge impacts to the Turtle Creek natural corridor, which meets the criteria of a significant woodland and valley land, and it is recommended the detailed design minimize the footprint of the new construction, to the extent possible.

It is anticipated that the increase in permanent footprint and temporary construction activities associated with Solution 2 will not result in impacts to vegetated areas, fish habitat, and potential SAR habitat associated with Turtle Creek. A high-level assessment was completed to determine that Solutions 1 and 3 have edge impacts to vegetation adjacent Turtle Creek and potential extension/replacement of the culvert that conveys flow of the creek under Clarkson Road North. As the ultimate improvements (Solution 1) currently do not have a timeframe, impacts associated with the phasing of Solution 1 will need to be evaluated at Detail Design and should aim to minimize footprint impacts to the natural heritage features associated with Turtle Creek to the extent possible.

While the "do nothing" alternative, will result in the fewest impacts to the natural environment as it retains existing conditions across the Study Area, this alternative does not address any of the ongoing concerns raised by residents regarding the operation of the two (2) closely spaced intersections and interspersed commercial entrances with the other proposed alternatives. Solution 2 will result in the fewest impacts to the natural environment as it will occur on already developed lands associated with existing roadways, intersections, and commercial lands, as well as addresses the capacity issues and benefits associated with the other proposed alternatives.

It is anticipated that any potential impacts to natural heritage features within the Study Area can be minimized or mitigated through the implementation of construction best management practices outlined below in **Section 6**.

5. Regulatory Context

This section includes a summary of the relevant federal, provincial, and regional policies and regulations that apply to the proposed development and provides a brief description of the implications the policies and regulations may have for planning development of this project.

5.1 Federal Designations

Species at Risk Act

Federally protected species are listed in 'Schedule 1' of the *Species at Risk Act* (SARA). To ensure the protection of species at risk, SARA contains general prohibitions that make it an offence to kill, harm, harass, capture, or take an individual of a species listed in Schedule 1 of SARA as endangered, threatened or extirpated. The general prohibitions do not apply to species of special concern. SARA is applicable on lands under federal jurisdiction, and within areas defined as 'critical habitat' on lands under provincial jurisdiction. Where it is deemed that protection measures under a provincial law fail to adequately protect a species, the federal government may issue an emergency order.

Based on results of the SAR screening assessment there is potential for one (1) federally listed SAR and its habitat within the Study Area: Midland Painted Turtle (not listed under the ESA, listed as special concern under SARA.

It is anticipated that implementation of standard best management practices and mitigations measures prior to and during construction will prevent impacts to this federally list SAR because of the project. Impacts, mitigation measures and approval requirements related to SAR are discussed further in **Section 6.4** below.

Migratory Birds Convention Act

The *Migratory Birds Convention Act, 1994* (MBCA) regulates the protection and conservation of migratory birds as populations and individuals and protects their nests. The Act applies to any areas that provide potential for nesting habitat of migratory birds. Section 6 of the Migratory Bird Regulations (2020) prohibits the disturbance, destruction of nests, eggs of migratory birds (Government of Canada, 1994).

Suitable migratory bird habitat is present within the FODM7-3, CVR_3, and CVC_1 ecosites. To comply with MBCA requirements, if vegetation clearing activities are necessary, it is recommended that project construction adhere to established timing windows to prevent impacts to breeding birds. Refer to **Section 6.3** below.

Fisheries Act

The *Fisheries Act, 1985* is administered by the Department of Fisheries and Oceans Canada (DFO) and is intended to provide a framework for the management of threats to fish and fish habitat, including the prevention of pollution, regardless of their attachment to a fishery. Section 34.4 of the Act prohibits the carrying on of any work, undertaking or activity, that results in the death of fish or the "harmful alteration, disruption or destruction of fish habitat" (HADD). Fish habitat is defined as spawning grounds and any other areas frequented by fish, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly to carry out their life processes (Government of Canada, 1985).

It also gives authorities the ability to establish standards and codes of practice for all phases of the project's development cycle (Section 34.2), ensure free passage of fish or fish habitat concerning existing obstructions (Section 34.3), and develop a streamlined process that designates certain undertakings as likely to cause death of fish or HADD (Section 35.1).

It is anticipated that the project will not involve impacts to fish and fish habitat as there is no work planned within Turtle Creek. While there is identified fish habitat in Turtle Creek, it is anticipated that required riparian setbacks and industry standard best management practices will be implemented, therefore, impacts to this feature and associated fish habitat will not occur because of this project. Refer to **Section 6.2** below.

5.2 Provincial Designations

Provincial Policy Statement

The Provincial Policy Statement (PPS) was issued under Section 3 of the *Planning Act* (1990). The current PPS came into effect on May 1st, 2020 and provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. Natural features are afforded protections under Section 2.1- Natural Heritage, of the PPS. These protections restrict development and site alteration in significant natural areas (e.g., woodlands, wetlands, wildlife habitat) unless it can be demonstrated that there will be no negative effects on the features and ecological functions of those natural areas. Technical guidance for implementing the natural heritage policies of the PPS is found within the second edition of the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. This manual recommends the approach and technical criteria for protecting natural heritage features and areas in Ontario.

As no work is planned to occur within the Turtle Creek corridor where woodlands, valleylands and wildlife habitat is present, it is anticipated that no negative effects on the features and ecological functions of those natural areas will occur because of this project. Refer to **Section 6** below.

Places to Grow Act

A Place to Grow is the Ontario government's initiative to plan for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life. The *Places to Grow Act, 2005* enables the development of regional growth plans that guide government investments and land use planning policies.

A *Place to Grow Growth Plan for the Greater Golden Horseshoe Office Consolidation 2020*, builds upon the success of the initial Growth Plan, 2006, and responds to the key challenges that the region continues to face over the coming decades with enhanced policy directions.

The Study Area falls within the Greater Golden Horseshoe Growth Plan Area. Growth Plan policies typically require the completion of a Natural Heritage Evaluation (NHE) when development and/or site alteration is proposed within 120 meters of a Key Natural Heritage Feature (KNHF) and/or Key Hydrologic Feature (KHF). Regional policies similarly require the completion of an Environmental Impact Study (EIS) when development and/or site alteration is proposed within 120 meters of PSW and within 50 meters of SWH/Significant Woodland. Further, Growth Plan policies also require that a minimum 30 meters Vegetation Protection Zone (VPZ) as measured from the outside boundary of a KNHF/KHF be established as natural self-sustaining vegetation. Development and/or site alteration is not permitted within a KNHF/KHF or its VPZ.

As per the interim preferred solution selected for this project (**Appendix B**), no alteration and/or disturbance are anticipated to the significant woodlands, significant valleyands, and significant wildlife habitat (i.e., KNHF) and/or aquatic habitat (i.e., KHF) associated with Turtle Creek.

Credit Valley Conservation Authority (CVC)

In accordance with Section 28 of the *Conservation Authorities Act, 1990*, CVC is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (O. Reg. 42/06). Section 2(1) of this Regulation lists the areas within a conservation authority's jurisdiction where development is prohibited without proper permission from CVC. Such areas include, but are not limited to, rivers or stream valleys, hazardous lands, and wetlands.

As per the interim preferred solution selected for this project (**Appendix B**), no alteration and/or disturbance are anticipated to occur within the regulated limit associated with Turtle Creek, therefore, a permit from CVC will likely not be required. However, CVC should be contacted upon detail design to review the construction limits in relation to the regulatory limits of Turtle Creek.

Endangered Species Act

The Ontario ESA prohibits killing or damaging the habitat of species that are listed on the SAR in Ontario list. Endangered (END) indicates that the species lives in the wild in Ontario but is facing imminent extinction or extirpation. Threatened (THR) indicates the species lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it. Special Concern (SC) means the species lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

Only species which are considered endangered or threatened receive specific protections under the ESA. Some exemptions exist under O. Reg. 242/08 of the Act, related to particular species and activities. If a proposed undertaking is covered under one of the exemptions, a streamlined notification process applies. If none of the exemptions apply, a permit under section 17(1) of the Act is required.

As per the interim preferred solution selected for this project (**Appendix B**), the outcome of the SAR screening assessment determined that no SAR and/or their habitat will be impacted because of this project.

Regardless, due to the projects proximity to Turtle Creek it is anticipated that implementation of standard best management practices, and mitigations measures prior to and during construction will reduce any potential impacts to SAR because of the project. Impacts, mitigation measures related to SAR are discussed further in **Section 6.4** below.

5.3 Regional Designations

Mississauga Official Plan

Mississauga Official Plan (2021) provides a new policy framework to protect, enhance, restore, and expand the Natural Heritage System, to direct growth to where it will benefit the urban form, support a strong public transportation system, and address the long-term sustainability of the city. According to Schedule 3 – Natural System, the Turtle Creek corridor is designated as Significant Natural Area and Natural Green Space and Natural Hazards. Schedule 10 – Land Use Designations identify the lands surrounding Turtle Creek within the Study Area as Greenlands with a Natural Hazards overlay.

As all work will be planned within the already disturbed Lakeshore Road West corridor, no impacts are anticipated to occur to the significant woodlands, significant valleylands, and/or aquatic habitat features associated with Turtle Creek.

6. Potential Impacts, Environmental Constraints and Mitigation Measures

This section analyzes the results of the valued ecosystem/existing natural heritage components identified from the desktop review (i.e., information and consultation) and field observation. The analysis is to determine where the project interacts with those components, what environmental constraints are applicable and to identify measures to eliminate, avoid or mitigate those impacts. Potential direct and indirect impacts have been considered during construction and operation of the intersection improvements (**Appendix B**).

The interim preferred solution (i.e., Solution 2) is not within the footprint of any valued ecosystem components or the boundaries of the Turtle Creek floodplain, including the 30 meters setback, although construction of a centre median and widening of Lakeshore Road West has the potential to cause ecological impacts. As a result, it is anticipated that most impacts will be associated with site preparation, demolition, and construction activities.

6.1 Vegetation Cover, Tree Protection, and Significant Woodlands

The interim preferred solution (i.e., Solution 2) is anticipated to have minimal impact to vegetation within the Study Area. As per the design (**Appendix B**), the FODM7-2 ecosite, which meets the criteria of significant woodlands as per the Mississauga Official Plan (2021), will not be impacted by project construction as it is approximately 75 meters from the limits of construction. As a result, it is anticipated that most impacts will be associated with Site preparation, demolition, and construction activities within the CVI_1, and CVC_1 ecosites exclusively.

Tree removal is anticipated to occur in advance of construction to facilitate access, grading, and to provide set up and laydown space, etc. These impacts will occur within the existing commercial lands in the CVC_1 ecosite and along Clarkson Road North, and Lakeshore Road West. Vegetation in this ecosite consists of isolated planted street trees. The exact extent of the tree removal is unknown currently.

The following general mitigation measures are proposed to mitigate potential impacts to trees within the Study Area:

+ Develop a Tree Protection Plan which identifies locations to be preserved;
+ Vegetation removal will be minimized and clearly delineated on construction drawings;
+ The root system, trunk or branches of any tree not designated for removal will be protected from damage;
+ In the event of accidental damage to trees, or unexpected vegetation removal, vegetation shall be replaced / restored with native species;
+ Material or equipment will not be placed within the critical root zone of any tree;
+ The existing grade will not be raised/lowered within the critical root zone without approval;
+ Signs, notices, or posters will not be attached to any tree;

- Exhaust fumes from equipment will not be directed towards any tree's canopy; and
- Construction vehicles will have designated access routes from and to the construction area.

6.2 Drainage, Erosion, Sediment Control and Protection of Aquatic Habitat

The project site does not encompass any waterways, or fish habitat; however, it is located approximately 100 meters from Turtle Creek which does provide fish habitat. Construction work associated with the intersection improvements, is proposed south of Turtle Creek, and is planned within the previously developed area.

The CVC is required to review development and alteration applications under the *Conservation Authorities Act* (O. Reg. 174/06) for projects located within the regulatory limit of CVC. As per the interim preferred solution selected for this project (**Appendix B**), no alteration and/or disturbance are anticipated to occur within the regulated limit associated with Turtle Creek, therefore, a permit from CVC will likely not be required. However, CVC should be contacted upon detail design to review the construction limits in relation to the regulatory limits of Turtle Creek.

It is anticipated that any impacts to water quality and fish habitat in the nearby Turtle Creek which may occur will be because of site preparation, demolition and construction activities (e.g., accidental spills and malfunctions). These activities may result in impacts due to improper site drainage, erosion, and sedimentation if improperly managed. Therefore, the following mitigation measures are proposed to avoid or mitigate impacts to the nearby aquatic habitat:

- An erosion and sediment control (ESC) plan will be developed by the contractor with the goal of controlling erosion and the movement of sediment laden water offsite;
- The contractor will be responsible to ensure that the ESC measures chosen are appropriate for the site and are functioning as intended;
- The contractor will maintain and monitor ESC measures, provide the results of monitoring, and ensure adjustments as needed are made on a continuous basis;
- No work should occur within 30 meters of the water course;
- Work will stop if sedimentation issues occur outside of work areas until the cause of sedimentation is identified and addressed;
- The sediment fencing will not be removed until the terrestrial vegetation has become re-established and/or all exposed soils are stabilized;
- Construction activities will be suspended during periods of heavy rains;
- Machinery will arrive at the site clean and free of leaks;
- If blasting activities are required, they will follow Measures to Avoid Causing harm to Fish and Fish Habitat for explosives;
- Dust particles created during concrete crushing, demolition, excavation, stockpiling etc. will be suppressed using the appropriate method (i.e., tarps);
- The existing vegetated buffer will be maintained. If required, any removal of riparian vegetation will be minimized, and removal will be completed using small machinery;
- Where possible, vehicle traffic will be restricted to access roads;

- If required, wash-out stations for concrete trucks will be indicated by signage, located in an area where all precautions have been taken to contain wastewater and leftover concrete;
- There will be no use of herbicides in clearing of vegetation;
- Refueling of equipment and maintenance shall be conducted off slopes and away from water bodies on impermeable pads (drip tray) or buried liners to allow full containment of spills;
- Emergency spill kits will be located on site;
- The contractor crew will be fully trained on the use of clean-up materials to minimize impacts of any accidental spills;
- The area will be monitored for leaks and spills. In the unlikely event of a minor spillage, the contractor will halt the activity and corrective measures will be implemented. Any spills will be immediately reported to the MECP Spills Action Centre (1-800-268-6060) and CVC.

6.3 Wildlife, Significant Wildlife Habitat, and Migratory Birds

Several wildlife species were documented through background data review and have been confirmed through field investigations. Wildlife and associated habitat observed within the Study Area was typical of a disturbed setting and based on field observation common species are expected to be present within these habitat features all with secure habitats in Ontario. No significant wildlife habitat has been identified within the proposed construction footprint.

Several bird species have been previously recorded in the Study Area and the street trees provide suitable breeding bird habitat. Vegetation removal planned as part of the proposed intersection improvements has the potential to impact migratory birds and their nesting activities unless planned in accordance with the appropriate timing windows.

Project construction has the potential to directly impact the CVI_1, and CVC_1 ecosites. Use of heavy machinery, increased human presence, noise and light pollution, soil compaction, stockpiled earth, and sedimentation of existing terrestrial habitat has the potential to indirectly impact common wildlife and wildlife habitat in adjacent areas. However, with proper implementation of avoidance and mitigations such as site clearing outside of the active season, and proper isolation of the construction areas, these impacts are anticipated to be temporary and methods to restore the disturbed areas post-construction should be implemented.

The following mitigation measures are proposed to avoid or mitigate impacts to breeding birds, wildlife, and associated wildlife habitat:

- Removal of any woody vegetation and/or existing trees will not occur during the breeding bird season from April 15 - August 31 inclusive, unless a qualified biologist has searched the site for nests and concluded that no nests are present, no more than 2 days prior to clearing. If nests are found, a protective buffer around the location will be required until such time that the nest is abandoned;
- Removal of natural vegetation will be minimized and clearly delineated on construction drawings;
- Workforce will be educated on potential wildlife which could occur in the vicinity of the work area and measures to avoid wildlife;
- Harassment and/or harm to wildlife during construction is prohibited;

- When possible, work will be completed during daylight hours. If nighttime lights are used, they will be installed to illuminate the work area only to minimize impacts to nighttime activities of wildlife;
- Vehicles and equipment will have the appropriate mufflers installed;
- Vehicle and equipment engine idling will be minimized;
- Construction vehicles will have designated access routes from and to the construction area;
- Stockpiled materials will be surrounded by sediment control fencing to prevent usage by wildlife;
- Existing access roads will be used as much as possible and speed limits will be clearly posted on site access and construction roads to minimize the potential for wildlife road mortality; and
- If an unexpected, rare plant or animal species are encountered, construction activities will be halted, and MECP will be contacted to provide advice on additional mitigation measures or permits which may be required.

6.4 Species at Risk

At this time, no SAR or their habitats have been identified in the buildable area within the Study Area; however, there is potential for SAR (i.e., birds, bats, and turtles) to travel through the Study Area during construction activities, therefore, standard wildlife mitigation recommended in **Section 6.3** will be implemented.

To ensure compliance under Section 9 and/or Section 10 of the ESA, and to protect SAR and SAR habitat during development and operations of the proposed project activities, the following general mitigation measures are recommended:

- A worker awareness program shall be provided to all on-site personnel that includes species at risk identification and habitat characteristics and provides general species-specific guidance with respect to appropriate actions to be taken whenever these species are encountered;
- A daily pre-construction search of the machinery and the work area shall be implemented to identify presence of species at risk, as animals may be found hiding or basking around equipment, rocks, debris piles etc;
- If endangered or threatened species are observed in or near the study area, work shall stop immediately, a photograph shall be taken of the species (if possible) and the SAR shall be allowed to move out of the work area on its own. The MECP shall be notified (as required).

6.5 Related General Considerations

Construction activities may impact air quality because of noise, fugitive dust or vehicle/equipment exhaust. This potential impact could affect terrestrial and aquatic species and features and water quality within Turtle Creek. The following mitigation measures are proposed to avoid or mitigate impacts:

- Dust Management Plan will be developed by the contractor prior to construction;
- All equipment and vehicles will be equipped with dust collectors and mufflers as appropriate;
- During concrete removal, tarps will be used to contain airborne dust particles;

- Water will be applied, at a minimum, daily, to all inactive disturbed surface areas. Water will be applied more frequently if required to prevent the visible emissions of fugitive dust;
- Water will be applied to all unpaved roads used for vehicular traffic at a frequency enough to prevent the visible emissions of fugitive dust;
- Clean gravel with low fines content will be chosen as material to top unpaved roads. Unpaved roads will be regularly graded and maintained to avoid wash boarding and rutting that can increase fugitive dust emissions;
- All loads on haul trucks will be covered;
- During very windy conditions, material handling/transfer activity that generates fugitive dust will be avoided or reduced. If it is not possible to reschedule the activity, increased application of water for dust suppression may be used;
- A sprinkler or spray system will be considered for areas requiring frequent wetting;
- Water will be applied to all open stockpiles daily when there is evidence of wind driven fugitive dust;
- Wetted stockpiles will be surrounded with sediment and erosion control measures (i.e., fencing);
- Materials with the potential to generate dust will be sprayed with water 15 minutes prior to handling and/or at points of transfer;
- Disturbed areas will be re-vegetated following a re-vegetation plan which will utilize native shrubs and trees, based on local conditions, to promote the quick re-growth of a natural habitat and minimize fugitive dust.

7. Summary and Recommendations/Conclusions

This NEA provides an analysis of the potential impacts to the valued ecosystem components that may result from the proposed intersection improvements located at Clarkson Road North and Lakeshore Road West. Based on the design (**Appendix B**) project construction is proposed solely within the CVC_1, and CVC_1 ecosites where no impacts are anticipated to the natural heritage features (i.e., Turtle Creek, significant woodlands, significant valleylands, SAR and SAR habitat) identified within the Study Area. However, there are some minor and temporary impacts anticipated within the CVC_1, and CVC_1 ecosites because of the project. A summary of the ecological features and functions identified within the Study Area which may be impacted by this development include the following:

- Damage or loss of trees and vegetation during construction;
- Potential loss of migratory bird nest, eggs and nestling due to tree cutting, vegetation clearing or building demolition activities;
- Temporary disruption to wildlife and potential SAR within and adjacent to Study Area during construction activities;
- Increased potential sediment and erosion into Turtle Creek because of temporary construction activities;
- Changes in air quality including of noise, fugitive dust or vehicle/equipment exhaust.

The CVC is required to review development and alteration applications under the Conservation Authorities Act (O. Reg. 174/06) for projects located within the regulatory limit of CVC. As per the interim preferred solution selected for this project (**Appendix B**), no alteration and/or disturbance are anticipated to occur within the regulated limit associated with Turtle Creek, therefore, a permit from CVC will likely not be required. However, CVC should be contacted upon detail design to review the construction limits in relation to the regulatory limits of Turtle Creek.

Consultation with NDMNRF and MECP and CVC should be completed once detailed design to confirm permitting and approval requirements.

It is anticipated that the interim alternative selected (i.e., Solution 2) will result in the fewest impacts to the natural environment as it will occur on already developed lands associated with existing roadways, intersections, and commercial lands, as well as addresses the capacity issues and benefits associated with the other proposed alternatives. However, as the Project will be eventually phased to include the ultimate improvements (Solution 1), an updated natural heritage assessment in support of Solution 1 will be required at the time of its implementation and should aim to minimize impacts to the natural heritage features associated with Turtle Creek to the extent possible. Studies may include vegetation surveys, breeding bird surveys, invasive species surveying and species specific surveys as appropriate. The assessment should include delineation of the natural heritage system sin coordination with City Forestry and CVC.

This NEA provides recommended avoidance techniques and mitigation measures for implementation in the design and construction of the proposed interim solution. Our assessment of the potential for impacts to the natural heritage features within the Study Area is based on the application of these avoidance techniques and mitigation measures. It is our professional opinion that the proposed development will have no significant negative impacts on the natural heritage features or their ecological functions if all mitigation measures provided within this report are followed.

7.1 Study Limitations and Constraints

CIMA+ completed diligent and reasonable research in the conduct of this evaluation, with respect to the recognized laws and standards of practice.

The facts presented in this report are strictly limited to the period of investigation. The conclusions presented in this report are based on the available information and documents, the observations made during the Site visit and the information obtained from communications with various contacts. The interpretation presented in this report is limited to this data.

CIMA+ is not responsible for erroneous conclusions due to voluntary abstention or the non-availability of pertinent information. Any opinion expressed in relation to legal or regulatory conformity is technical and should not be, in any case, considered as legal advice.

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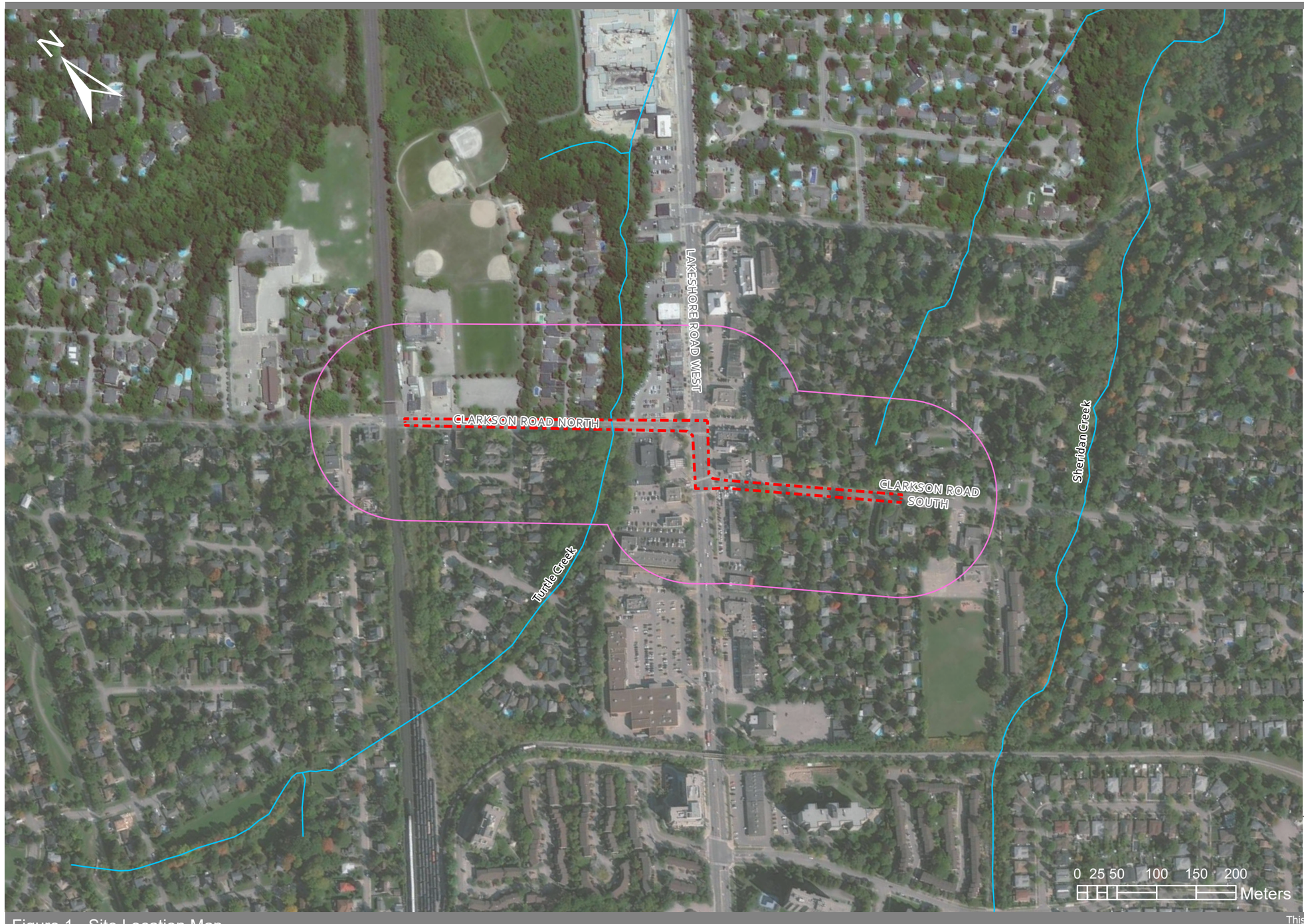
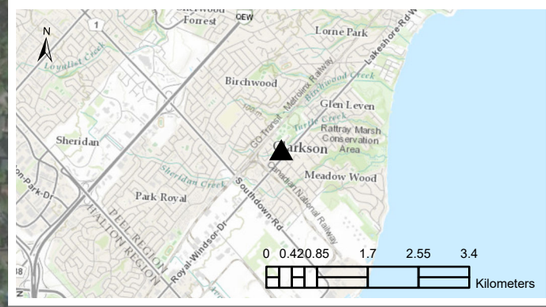
A

Appendix A
Figures



Site Boundary
120 m - Study Area
Watercourse



Spatial Reference:
Name: NAD 1983 UTM Zone 17N
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Scale: 1:5,000

Sources:
- Basemap : Town of Oakville, Maxar, York University, City of Toronto, Town of Oakville, Region of Peel, Province of Ontario, Ontario MNR, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA, AAFC, NRCan

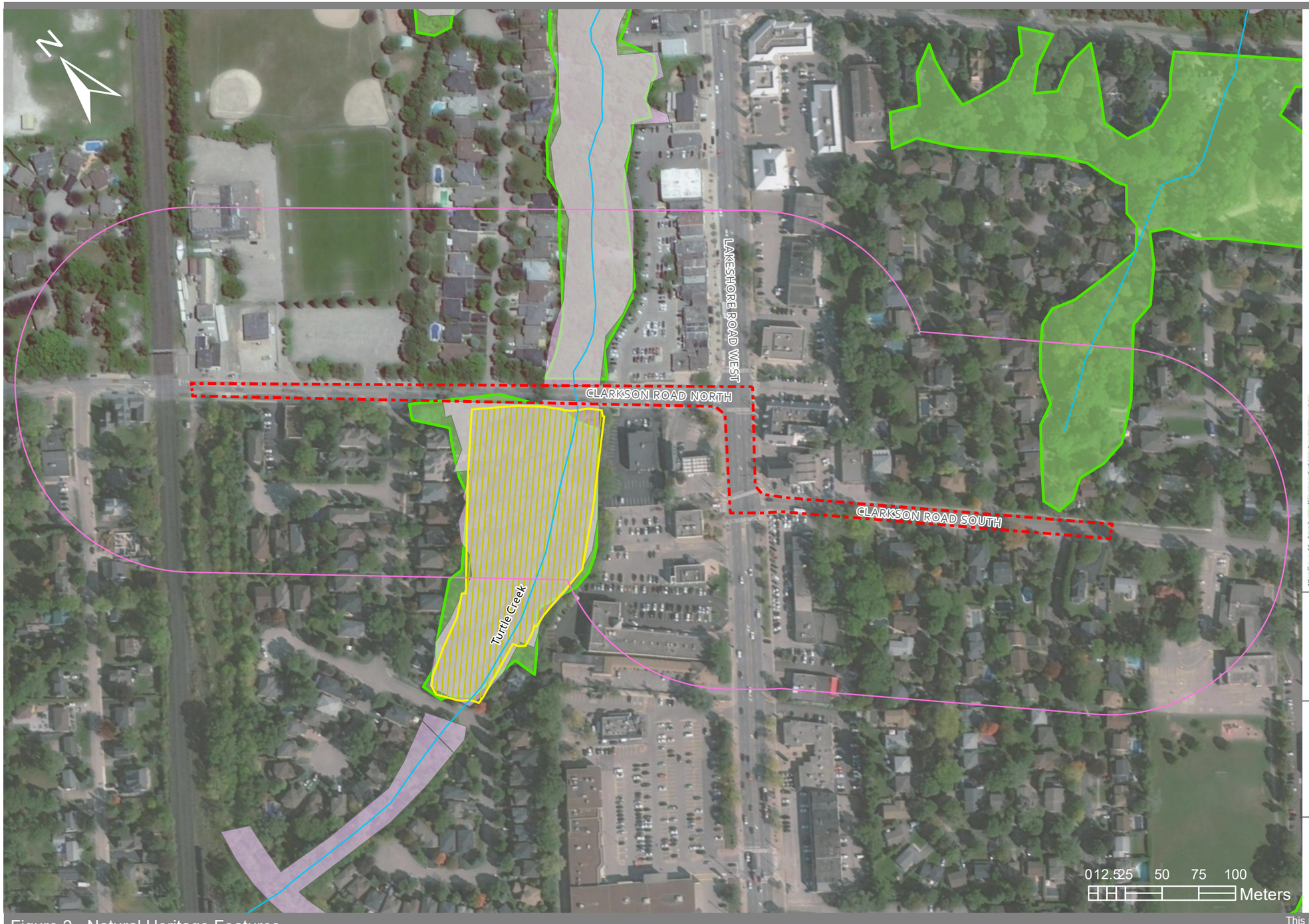
General Notes:
Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.

Figure 1 - Site Location Map

Environmental Impact Statement
Intersection Improvements - Clarkson Road and Lakeshore Road, ON
City of Mississauga

Ref # : B001266-202-080

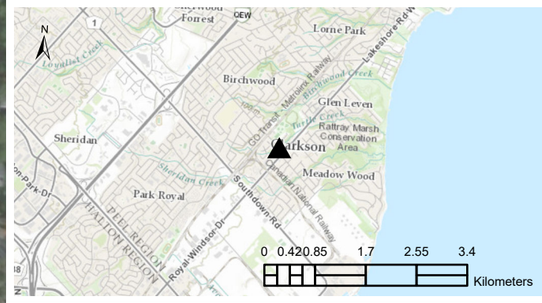
Survey by : C. DeFranceDeSerigny
Figure by : J. Scott
Concept by : J. Scott
Verified by : K. Markvorsen



Site Boundary
120 m - Study Area
Watercourse
Wooded Area

Significant Wildlife Habitat

Foraging areas with abundant mast
Migratory Land Bird Stopover



Spatial Reference:
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GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Scale: 1:2,700

Sources:
- Significant Wildlife Habitat, CVC, 2020
- Watercourse, OHN, 2021
- Wooded Area, LIO, 2021
- Basemap : Town of Oakville, Maxar, Microsoft, York University, City of Toronto, Town of Oakville, Region of

General Notes:
Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.

Figure 2 - Natural Heritage Features

Environmental Impact Statement
Intersection Improvements - Clarkson Road and Lakeshore Road, ON
City of Mississauga

Ref # : B001266-202-080

Survey by : -
Figure by : J. Scott
Concept by : J. Scott
Verified by : K. Markvorsen

Site Boundary

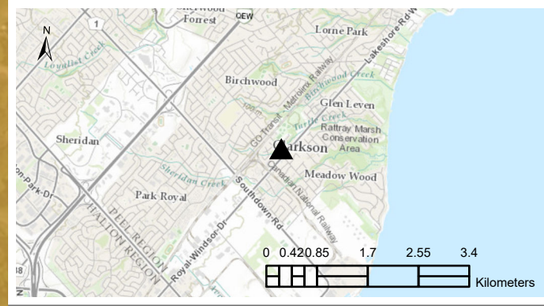
120 m - Study Area

Surficial Geology

3: Paleozoic bedrock

9c: Foreshore-basinal deposits

19: Modern alluvial deposits



Spatial Reference:
Name: NAD 1983 UTM Zone 17N
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Scale: 1:4,000

Sources:
- Terrestrial Survey, CIMA+, 2020
- Ontario Geological Survey 2010, Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128--Revised
- Basemap : Town of Oakville, Maxar, York University, City of Toronto, Town of Oakville, Region of Peel,

General Notes:

Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.

Figure 3 - Surficial Geology Map

Environmental Impact Statement
Intersection Improvements - Clarkson Road and Lakeshore Road, ON
City of Mississauga

Ref # : B001266-202-080

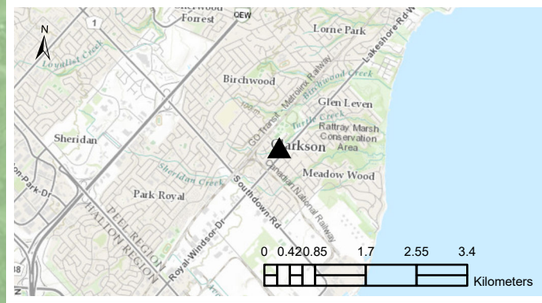
Survey by : C. DeFranceDeSerigny
Figure by : J. Scott
Concept by : J. Scott
Verified by : K. Markvorsen

Site Boundary

120 m - Study Area

Bedrock Geology

55b,Shale, limestone, dolostone, siltstone



Spatial Reference:
Name: NAD 1983 UTM Zone 17N
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Scale: 1:4,000

Sources:
- Terrestrial Survey, CIMA+, 2020
- Ontario Geological Survey 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous REIease--Data 126 Rev 1
- Basemap : Town of Oakville, Maxar, York University,

General Notes:

Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.

Figure 4 - Bedrock Geology Map

Environmental Impact Statement
Intersection Improvements - Clarkson Road and Lakeshore Road, ON
City of Mississauga

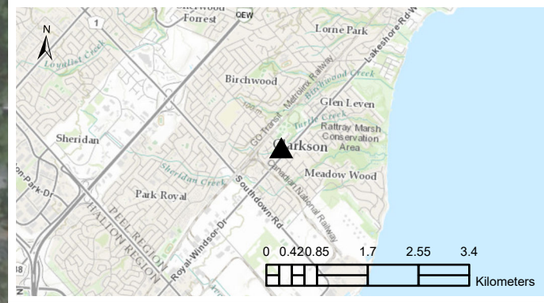
Ref # : B001266-202-080

Survey by : C. DeFranceDeSerigny
Figure by : J. Scott
Concept by : J. Scott
Verified by : K. Markvorsen

Site Boundary
120 m - Study Area

ELC Communities

- CGL - Green Lands
- CVC_1 - Business Sector
- CVI_1 - Transportation
- CVR_3 - Residential
- CVS_1 - Education
- FODM7-3 - Fresh - Moist Willow Lowland Deciduous Forest



Spatial Reference:
Name: NAD 1983 UTM Zone 17N
GCS: GCS North American 1983
Datum: North American 1983
Projection: Transverse Mercator
Scale: 1:2,700

Sources:
- Terrestrial Survey, CIMA+, 2020
- Basemap : Town of Oakville, Maxar, Microsoft, York University, City of Toronto, Town of Oakville, Region of Peel, Province of Ontario, Ontario MNR, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/ NASA, NGA, EPA, USDA, AAFC, NRCan

General Notes:
Dimensions on the plan should be read and not measured.
Any errors or omissions should be reported to CIMA +. The boundaries, areas, and title deeds must be verified by a surveyor.

Figure 5 - Ecological Land Classification Map

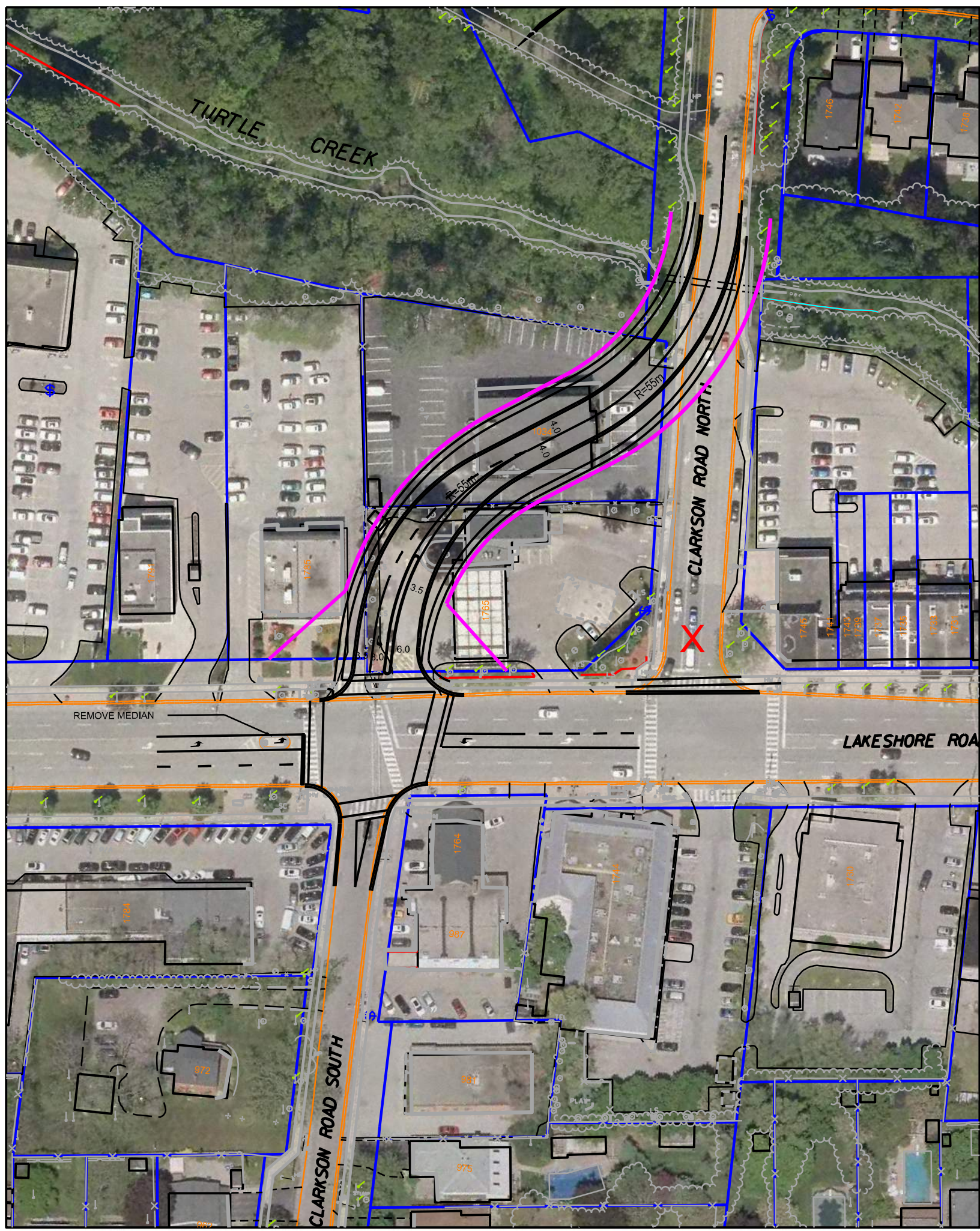
Environmental Impact Statement
Intersection Improvements - Clarkson Road and Lakeshore Road, ON
City of Mississauga

Ref # : B001266-202-080

Survey by : C. DeFranceDeSerigny
Figure by : J. Scott
Concept by : J. Scott
Verified by : K. Markvorsen

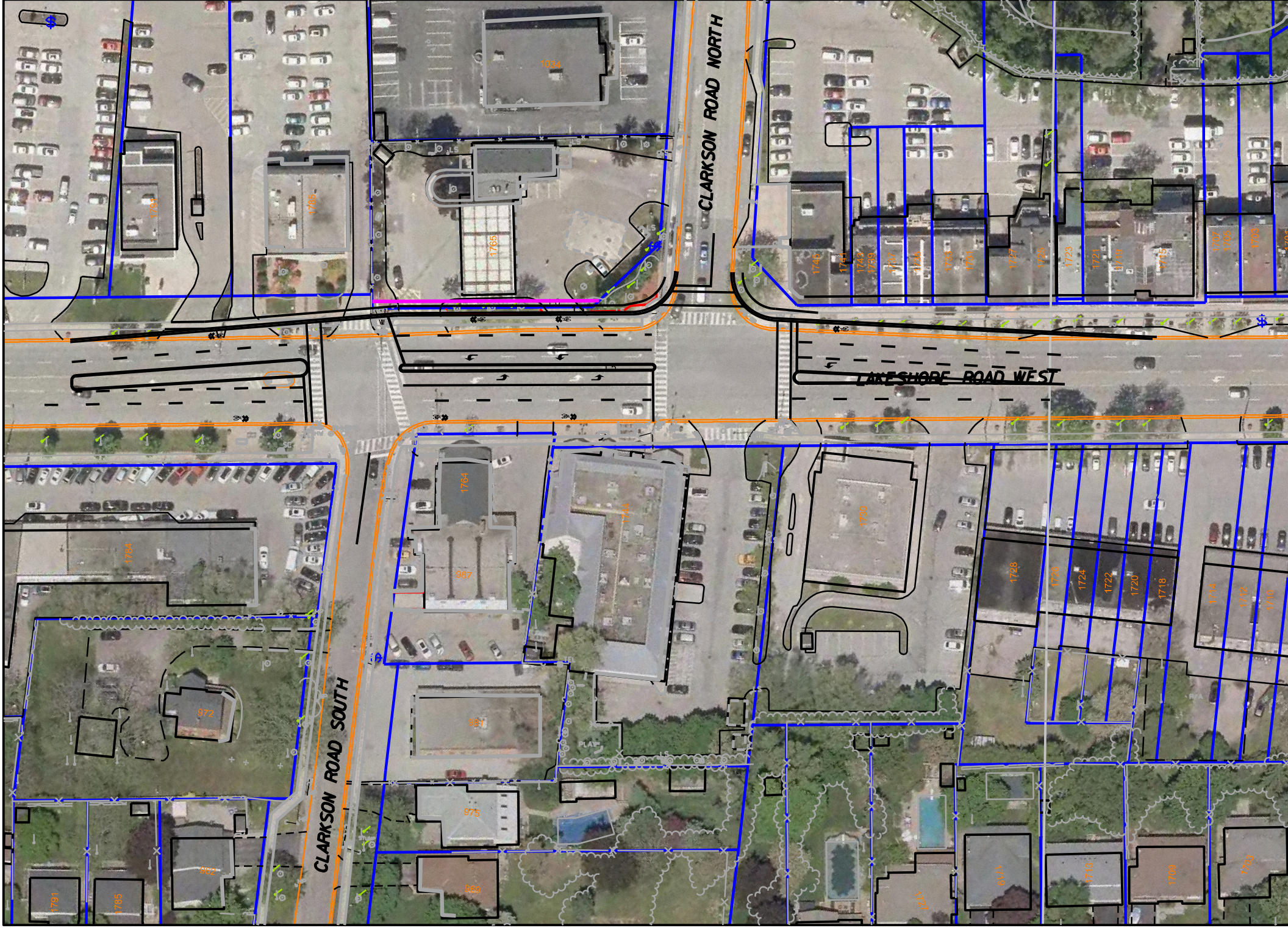
B

Appendix B
Project Design

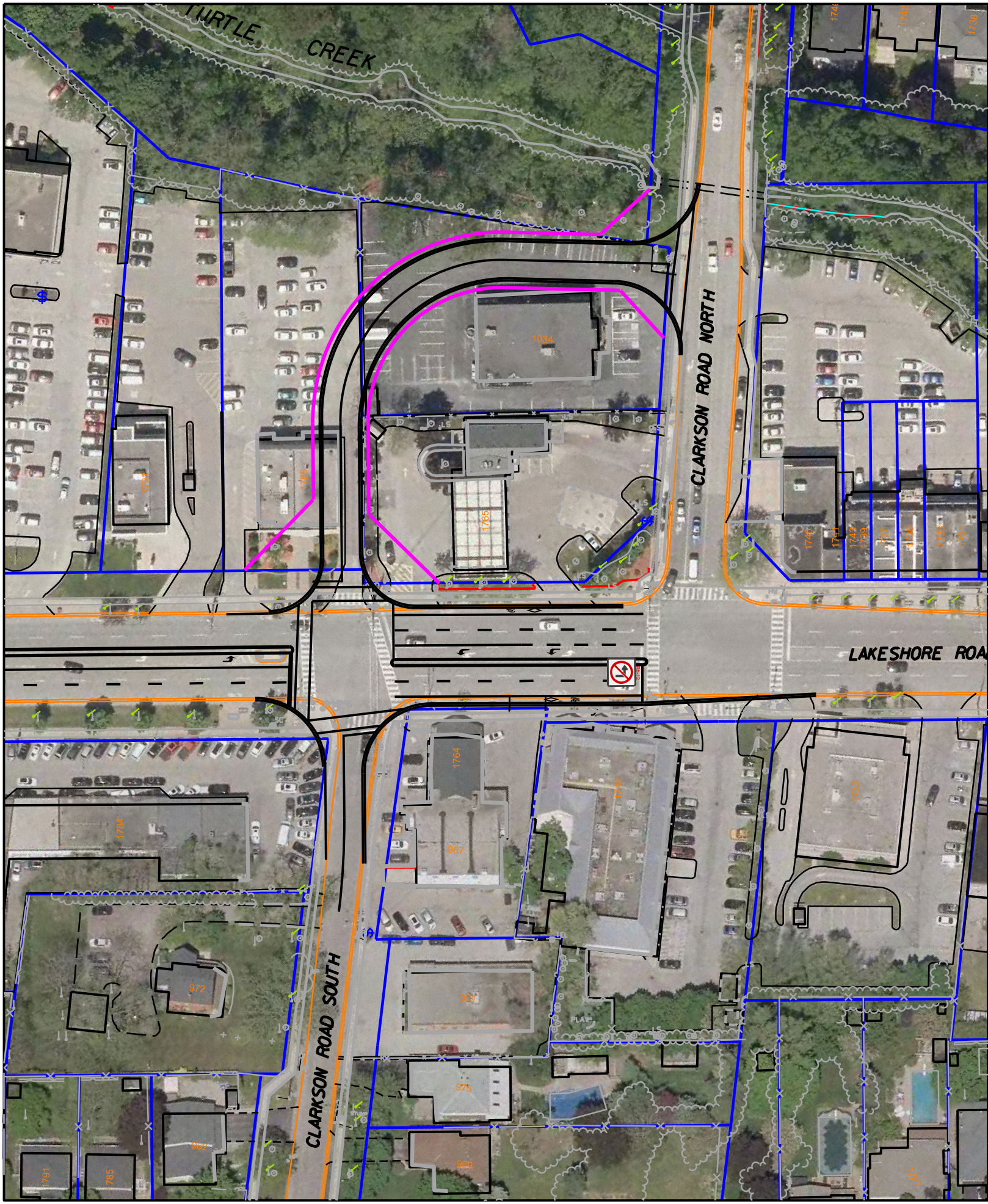


Solution 1

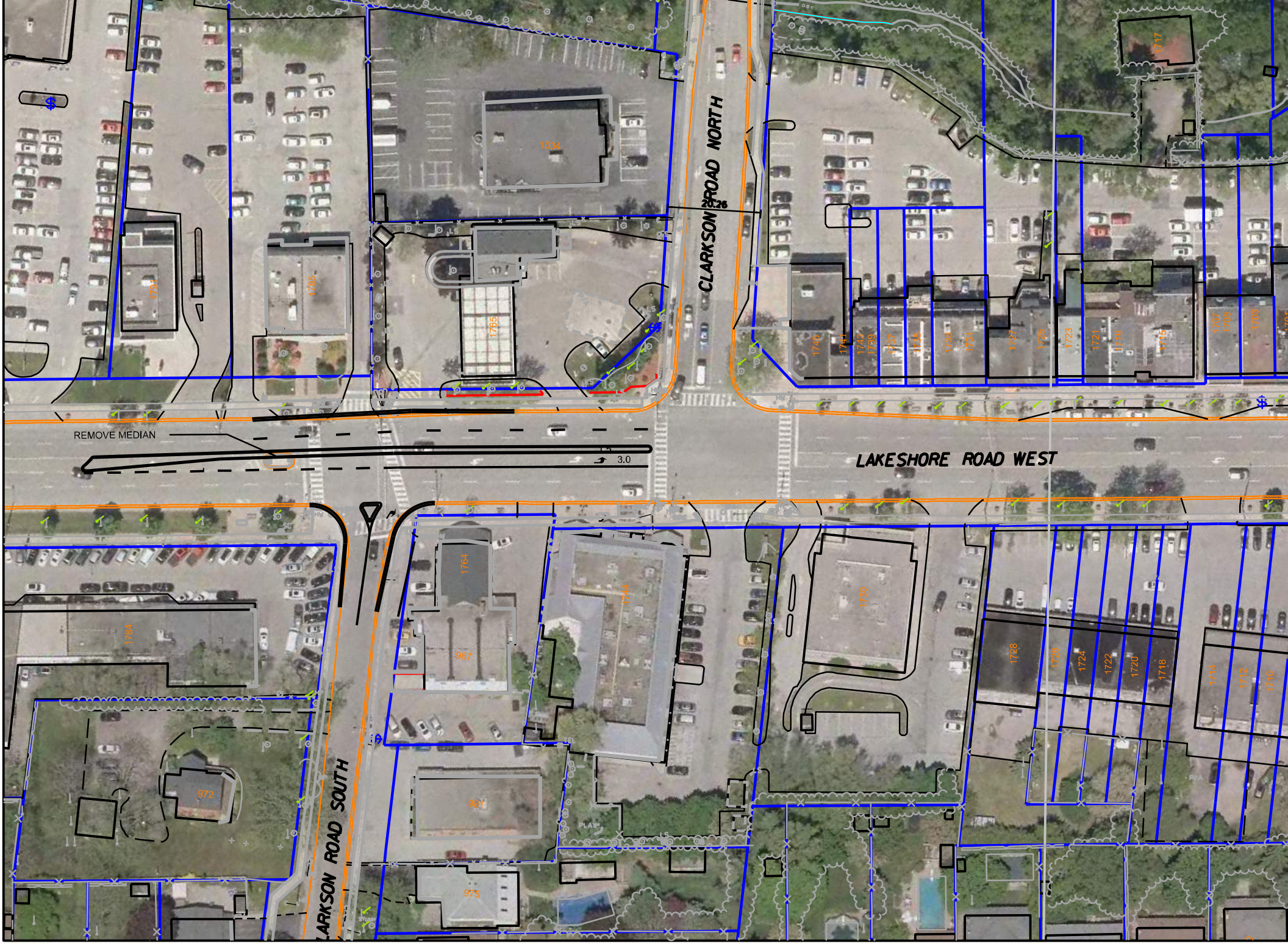
Design speed is 40km/h with horizontal curve radius of 55m. Normal Crown at curves, tangent between curves, intesecting angle 82 degree, may not impact on Culvert


CLARKSON ROAD NORTH
LAKESHORE ROAD WEST
CLARKSON ROAD SOUTH

Solution 2


TURTLE CREEK
CLARKSON ROAD NORTH
LAKESHORE ROA
CLARKSON ROAD SOUTH

Solution 3


CLARKSON ROAD NORTH
LAKESHORE ROAD WEST
CLARKSON ROAD SOUTH
REMOVE MEDIAN
3.0

Solution 4

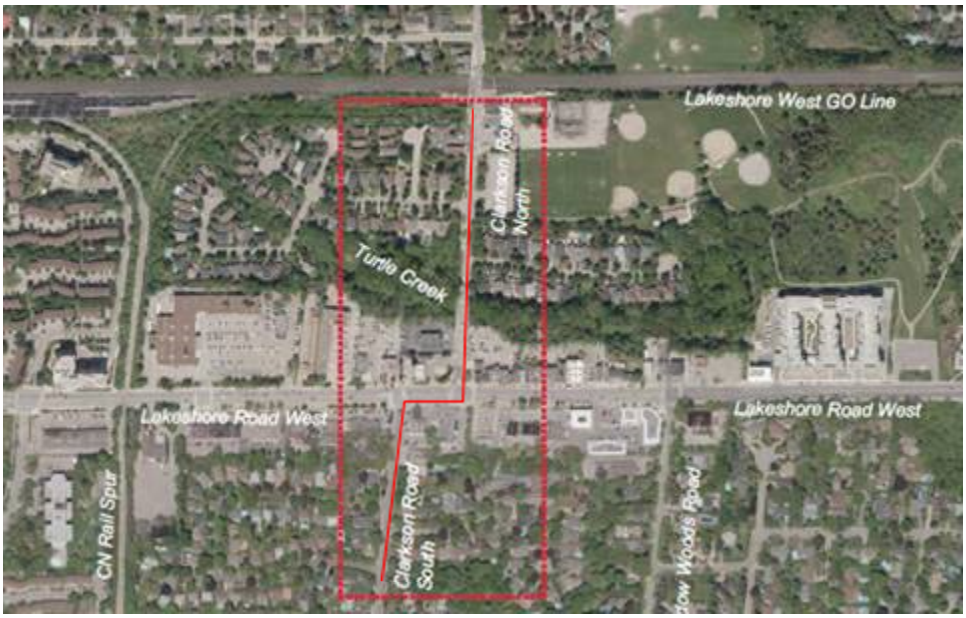
C

Appendix C
Consultation & Correspondence

From: Jamieson-Lee Scott
Sent: October 5, 2020 11:17 AM
To: 'planning@cvc.ca'
Subject: RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.



Coordinates for the approximate center of the intersection are:

- Latitude: 43.517093°; Longitude: - 79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-Floodplain boundaries/high water mark along Turtle Creek;
-LTC regulatory limit;
-Fisheries and species specific inventories; and
-Available SAR information

Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

KINCENTRIC
Best Employer
CANADA 2019

From: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Sent: October 7, 2020 11:56 AM
To: Jamieson-Lee Scott
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Hello,

Thank you for your email. In order to process the data request, please confirm the following information:

- Project name: Environmental Impact Statement (EIS) - Clarkson Rd N and Lakeshore Rd W
- Proponent's name: City of Mississauga
- User's name: CIMA+
- Intended use and publications: Environmental Impact Statement (EIS)

Please note that a Data Sharing Agreement will be required and the process can take up to 4 weeks from the date of receipt of the above information.

Please feel free to reach out if you have any questions.

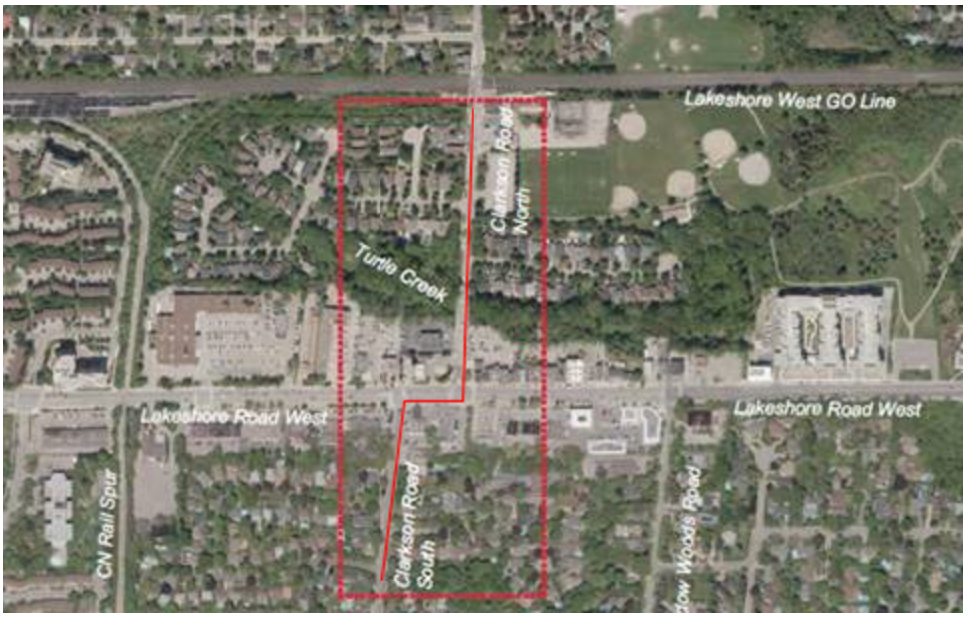
Best regards,

Mishaal Rizwan
Technician, Planning | Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 220 | 1-800-668-5557
mishaal.rizwan@cvc.ca | cvc.ca

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: Monday, October 5, 2020 11:17 AM
To: ZZG-CVC-Planning <planning@cvc.ca>
Subject: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.



Coordinates for the approximate center of the intersection are:

- Latitude: 43.517093°; Longitude: - 79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-Floodplain boundaries/high water mark along Turtle Creek;
-LTC regulatory limit;
-Fisheries and species specific inventories; and
-Available SAR information

Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

From: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Sent: November 6, 2020 9:42 AM
To: Jamieson-Lee Scott
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Hi Jamieson,

Thank you for the signed Data Sharing Agreement. The data can be found at the following link.
https://cvcca-my.sharepoint.com/:f:/g/personal/mishaal_rizwan_cvc_ca/EsfWHIMi2ulLisirBzxmKo4BBilQohVWPXXtWwsKiS77lA?email=jamieson-lee.scott%40cima.ca&e=ezi1xq

Please find CVC's ecology comments below:
Please consult the Mississauga NAS and MECP for any SAR records.

If you have any questions, please feel free to reach out.

Thank you,

Mishaal Rizwan
Technician, Planning | Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 220 | 1-800-668-5557
mishaal.rizwan@cvc.ca | cvc.ca

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: Tuesday, November 3, 2020 12:10 PM
To: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

Per your request, here is the signed data sharing form.

Let me know if there are any issues.

Cheers,
Jamieson

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme

Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

Engineering for people

30 YEARS

KINCEN
Best E
CANADA 2

From: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Sent: October 28, 2020 10:50 AM
To: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Hi Jamieson-Lee,

Please complete Schedule 2, sign, and return the attached Data Sharing Agreement at your earliest convenience.

Best regards,

Mishaal Rizwan
Technician, Planning | Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 220 | 1-800-668-5557
mishaal.rizwan@cvc.ca | cvc.ca

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: Wednesday, October 7, 2020 1:06 PM
To: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good afternoon,

Thank-you for the reply. I can confirm the aforementioned information.

As for the data sharing agreement, could you provide the form?

Much appreciated,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

From: Rizwan, Mishaal <mishaal.rizwan@cvc.ca>
Sent: October 7, 2020 11:56 AM

To: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Subject: RE: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Hello,

Thank you for your email. In order to process the data request, please confirm the following information:

- Project name: Environmental Impact Statement (EIS) - Clarkson Rd N and Lakeshore Rd W
- Proponent's name: City of Mississauga
- User's name: CIMA+
- Intended use and publications: Environmental Impact Statement (EIS)

Please note that a Data Sharing Agreement will be required and the process can take up to 4 weeks from the date of receipt of the above information.

Please feel free to reach out if you have any questions.

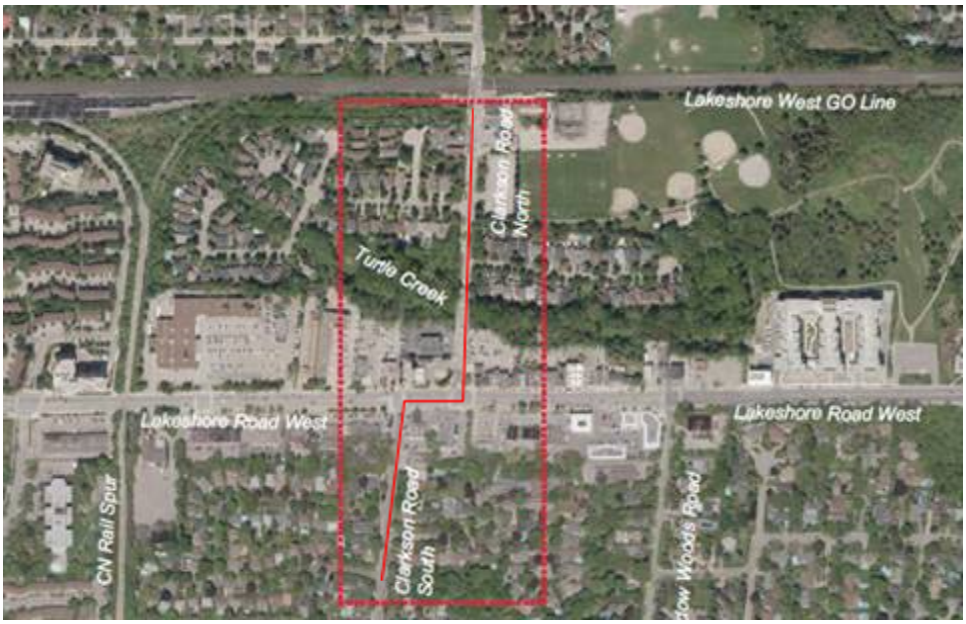
Best regards,

Mishaal Rizwan
Technician, Planning | Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 220 | 1-800-668-5557
mishaal.rizwan@cvc.ca | cvc.ca

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: Monday, October 5, 2020 11:17 AM
To: ZZG-CVC-Planning <planning@cvc.ca>
Subject: [External] RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.



Coordinates for the approximate center of the intersection are:

- Latitude: 43.517093°; Longitude: - 79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-Floodplain boundaries/high water mark along Turtle Creek;
-LTC regulatory limit;
-Fisheries and species specific inventories; and
-Available SAR information

Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Jamieson-Lee Scott

From: Kai Markvorsen
Sent: November 3, 2020 12:00 PM
To: Jamieson-Lee Scott
Subject: FW: B001266 - Data Sharing Form
Attachments: lgl_dsa20054_dsa20201028.pdf

Signed form attached.

KAI MARKVORSEN
Environment Professional / Urban Planning and Environment

T 613-860-2462 ext. 6644 **M** 343-996-4951 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

From: Rory O'Sullivan <Rory.OSullivan@mississauga.ca>
Sent: Tuesday, November 3, 2020 11:18 AM
To: Stephen Keen <Stephen.Keen@cima.ca>
Cc: Kai Markvorsen <Kai.Markvorsen@cima.ca>; Jessica Dorgo <Jessica.Dorgo@cima.ca>; Lin Rogers <Lin.Rogers@mississauga.ca>
Subject: RE: B001266 - Data Sharing Form

Hi Steve,

See attached.

Regards,

Rory

From: Stephen Keen [mailto:Stephen.Keen@cima.ca]
Sent: Tuesday, November 3, 2020 10:09 AM
To: Rory O'Sullivan <Rory.OSullivan@mississauga.ca>
Cc: Kai Markvorsen <Kai.Markvorsen@cima.ca>; Jessica Dorgo <Jessica.Dorgo@cima.ca>
Subject: FW: B001266 - Data Sharing Form

Hi Rory
CVC requests a signature from a responsible person from the proponent. Assuming you are responsible, would you mind signing and returning to us please.
Cheers
Steve

From: Kai Markvorsen <Kai.Markvorsen@cima.ca>
Sent: November 3, 2020 10:04 AM
To: Stephen Keen <Stephen.Keen@cima.ca>
Subject: FW: B001266 - Data Sharing Form

Hello Stephen,

CVC is requiring that we complete a data sharing agreement in response to our data request which will require a signature from the client (see attached).

Please let me know if you have any questions,

Kai

KAI MARKVORSEN
Environment Professional / Urban Planning and Environment

T 613-860-2462 ext. 6644 **M** 343-996-4951 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: Friday, October 30, 2020 2:13 PM
To: Kai Markvorsen <Kai.Markvorsen@cima.ca>
Subject: B001266 - Data Sharing Form

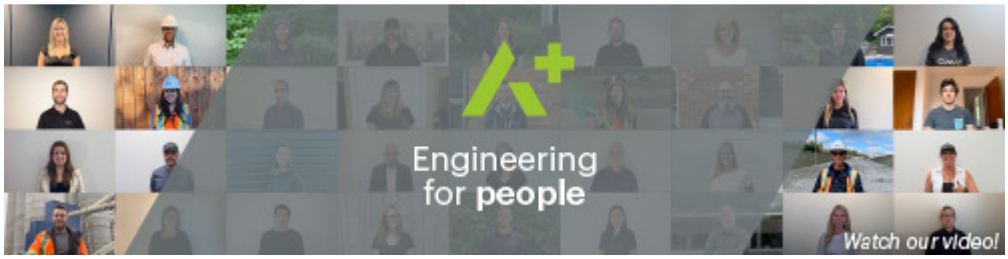
Hi Kai,

We received a data sharing request form from CVC. To complete it, we'll need the name and signature of the proponent.

I've filled out the rest of the form already.

Cheers,
Jamieson

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.



T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

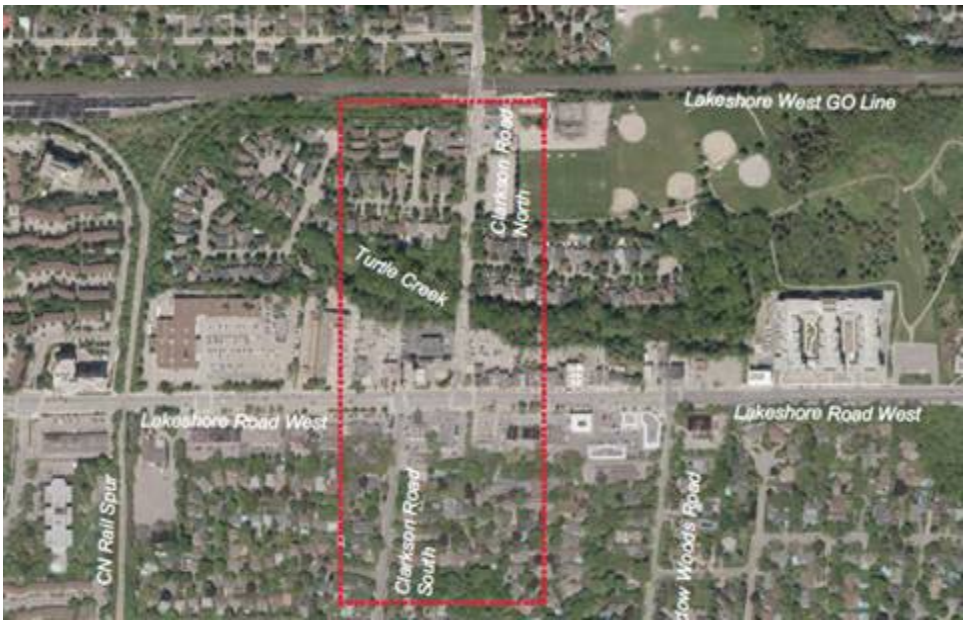
CIMA+ Engineering for people 30 YEARS

KINCENTRIC Best Employer CANADA 2019

From: Jamieson-Lee Scott
Sent: October 5, 2020 11:09 AM
To: maria.jawaid@ontario.ca
Subject: RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.



The geographical coordinates for the site are:
- Coordinates for approximate centre of intersection are Latitude: 43.517093°; Longitude: -79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-ANSI and Significant Wildlife Habitats; and
-Woodland and Wetlands

Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

KINCENTRIC
Best Employer
CANADA 2019

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: January 18, 2021 3:14 PM
To: Jamieson-Lee Scott
Subject: Automatic reply: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Thank you for your inquiry to the Permissions and Compliance team, Species at Risk Branch, Ministry of the Environment, Conservation and Parks.

What's New?

- The Ministry of the Environment, Conservation and Parks (MECP) has responsibility for the administration of the Ontario Endangered Species Act (ESA). In MECP, work associated with ESA authorizations has been centralized from Ministry of Natural Resources and Forestry district offices into one Permissions and Compliance team within the new Species at Risk Branch in MECP.

What Next?

- Your email is being reviewed by branch staff to determine the nature of your inquiry or submission. Your inquiry or submission will then be actioned to someone from our team for follow up as required.
- We strive to follow up with a response to your inquiry within 15 business days to confirm that your submission has been actioned out and to provide contact information.

Do you think you may need an ESA permit or authorization?

- Please visit https://www.ontario.ca/page/species-risk to learn more about protecting and recovering species at risk, then navigate to the Resources and Permits section, including Register or Get a Permit for more information about permits and authorizations under the ESA.
- You only need an authorization under the ESA (e.g. a permit or other type of authorization) if your work is going to contravene the ESA (e.g. if the activity you are proposing is going to kill, harm or harass a species at risk or damage or destroy their habitat). If you are able to undertake your work in a manner that does not contravene the ESA, that is what we call "avoidance" of impacts to

species at risk or their habitat and it is the ideal scenario for clients and the species-the species aren't adversely impacted, and you don't need an authorization.

Do you want to know if any species at risk are at, or near, your project site? Do you need help determining if you need an ESA permit or authorization?

- We have developed a guide to help clients work through the preliminary screening process, including providing advice to clients on how they can gather information you have requested from publicly available information sources. The guide provides advice on how you can determine if any species at risk are likely to exist at your site. If you are seeking information regarding species at risk likely to occur at or near your site, please send an email to sarontario@ontario.ca and include "request for preliminary screening guide" in the subject line.To provide the most efficient service, it is recommended clients read this guide and explore applicable information sources prior to contacting sarontario@ontario.ca to begin discussions with the Permissions and Compliance team about your proposed project.

Do you want to report a suspected violation of the ESA?

- Please call the MECP Tips/Pollution Hotline at 1-866-663-8477 and provide the details requested. Someone may follow up with you directly to request additional information. We may not be able to follow up with you to provide you an update on the status of your tip as the status of any ongoing inspections or investigations is confidential until resolved.

We also receive a high volume of inquiries related to Butternut (an endangered tree) to this email address. The following information can assist you if you have some of the more common questions regarding the ESA and impacts to Butternut.

Do you think you may need an ESA permit or authorization to cut down a Butternut tree?

1. If a Butternut tree has been identified, a Butternut Health Assessment will need to be completed to assess the health of the tree in accordance with the document titled Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the Endangered Species Act, 2007. This will determine if the tree is Category 1, 2 or 3.
2. Please note that Section 4.2 (Timing of Assessment) on page 10 of the Butternut Assessment Guidelines states that "A complete and accurate assessment of a Butternut tree can only be conducted during the leaf-on season." It also notes that "For the purposes of the ESA, an assessment will be considered to have been conducted during the leaf-on season if it was conducted between the dates of May 15 and August 31." For this reason, a Butternut Health Assessment

should not be conducted until May 15 in order to get an accurate assessment of the live crown.

3. Once a Butternut Health Assessment has been completed and submitted to the MECP and 30 days have elapsed, ESA requirements can be identified as per below:
    1. If a BHA identifies a tree as a hybrid, no authorization under the ESA is required to remove the tree, as it is not a pure Butternut and not protected under the ESA.
    2. If a BHA identifies a tree as a Category 1 tree,no authorization under the ESA is required to remove the tree, as it is affected by Butternut canker (a fungal disease) to such an advanced degree that retaining the tree would not support the protection or recovery of Butternuts in the area.
    3. If a BHA identifies a tree as a Category 2 tree, Registration is enabled under section 23.7 of the Ontario Regulation 242/08 so long as all requirements of the Regulation are met.
    4. If a BHA identifies a tree as a Category 3 tree, then a 17(2)(c) Permit is likely required.

    If you are proposing to rely on section 23.7 of the Regulation 242/08 for the removal of Category 1 trees or hybrids, please note that you are eligible to do so 30 days after you have submitted your BHA to MECP at SAROntario@ontario.ca unless the MECP has indicated otherwise prior to the end of the 30 day period.

    If you are proposing to rely on section 23.7 of the Regulation 242/08 for the removal of a maximum of 10 Category 2 (retainable) trees, after the 30 days you must register a Notice of Impact with the ESA Registry, and follow additional rules. Once you have registered and received a reply in regards to your Notice of Impact, you may remove up to 10 Category 2 trees.

Are you submitting a Butternut Health Assessment?

1. Please submit your Butternut Health Assessment Forms to sarontario@ontario.ca. In the subject line, clearly indicate that the email contains a BHA and the municipality within which the BHA was conducted. Once received, the submission will be triaged and actioned.

Did you submit a BHA assessment where Category 1, 2 or hybrid trees are impacted?

2. If after the 30 days, you have not received a response from MECP, you may remove Category 1, 2 or hybrid trees so long as all requirements of the Regulation in regards to Category 2 trees are met.

Did you recently see a species at risk?

- Please visit https://www.ontario.ca/page/report-rare-species-animals-and-plants for information on how to report a species at risk sighting.

Would you like to learn more about species at risk and the ESA and its related policies?

- Please visit https://www.ontario.ca/page/species-risk.
- Policies under the ESA, ministry-endorsed survey protocols and a number of best-management practices related to how you can avoid or minimize impacts to species at risk can be found online at https://www.ontario.ca/page/species-risk-guides-and-resources.
- General inquires related to the ESA or species at risk can be directed to SAROntario@ontario.ca

Jamieson-Lee Scott

Subject: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

From: Jamieson-Lee Scott
Sent: October 5, 2020 3:14 PM
To: SARontario@ontario.ca
Subject: RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.

The geographical coordinates for the site are:

- Coordinates for approximate centre of intersection are Latitude: 43.517093°; Longitude: - 79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-ANSI and Significant Wildlife Habitats; and
-Woodland and Wetlands

Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
Technologist / Environnement et urbanisme
Technologiste / Environnement et urbanisme
CIMA Info inc.

T 613-860-2462 ext. 6662 **M** 343-961-3309 **F** 613-860-1870
110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

Notice to our customers on the COVID-19

Jamieson-Lee Scott

From: Snell, Shamus (MECP) <Shamus.Snell@ontario.ca>
Sent: January 28, 2021 2:28 PM
To: Jamieson-Lee Scott
Subject: MECP SARB Review: Information Request Intersection of Clarkson Rd N and Lakeshore Rd W
Attachments: Client Guide to Preliminary Screening-May 2019.pdf

EXTERNAL EMAIL

Hi Jamieson-Lee,

The Ministry of Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB) has conducted a review of the intersection of Clarkson Road North and Lakeshore Road West, and the areas adjacent to it for Species at Risk (SAR) occurrences and have detected the following SAR occurrences:

- Bank Swallow (*Riparia riparia*);
- Blanding's Turtle (*Emydoidea blandingii*);
- Bobolink (*Dolichonyx oryzivorus*);
- Butternut (*Juglans cinerea*);
- Canada Warbler (*Cardellina canadensis*);
- Chimney Swift (*Chaetura pelagica*);
- Common Nighthawk (*Chordeiles minor*);
- Eastern Ribbonsnake (*Thamnophis sauritus*);
- Eastern small-footed myotis (*Myotis leibii*);
- Eastern Wood-pewee (*Contopus virens*);
- Horned Grebe (*Podiceps auritus*);
- Little brown myotis (*Myotis lucifugus*);
- Northern Map Turtle (*Graptemys geographica*);
- Peregrine Falcon (*Falco peregrinus*);
- Prothonotary Warbler (*Protonotaria citrea*);
- Redside Dace (*Clinostomus elongatus*);
- Rusty Blackbird (*Euphagus carolinus*);
- Snapping Turtle (*Chelydra serpentine*);
- Tricolored Bat (*Perimyotis subflavus*);
- Wood Thrush (*Hylocichla mustelina*);

While this review represents MECP's best currently available information, it is important to note that a lack of information for a site does not mean that SAR or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in areas not previously surveyed. On-site assessments and surveys are required to better verify site conditions, identify and confirm presence of SAR and/or their habitats.

Please note that MECP is not tasked with confirming non-SAR related information or reviewing aspects of projects that fall outside of the ESA legislative requirements. I would recommend you reach out to the

Ministry of Natural Resources and Forestry (MNRF) as they remain the ministry responsible for reviewing and confirming features like Significant Wildlife Habitat and Provincially Significant Wetlands. The local conservation authority may also be able to provide information on non-SAR related features.

Prior to the submission of any future information requests please review the suggested information sources within the attached "Client's Guide to Preliminary Screening " for any SAR occurrences within your study area. Then provide the list of SAR occurrences with your information request. It is the responsibility of the requestor to provide this information to assist in SARB's review. Failure to provide a list of SAR occurrences in future requests will result in delays as SARB will not complete its review until this information has been provided.

It is the responsibility of the proponent to ensure that SAR are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the proposed activities to be carried out on the site. If the proposed activities can not avoid impacting protected species and their habitats then the proponent will need to apply for a authorization under the Endangered Species Act.

Please be advised that it is also the proponent's responsibility to be aware of and comply with all other relevant provincial or federal legislation, municipal by-laws, or required approvals from other agencies.

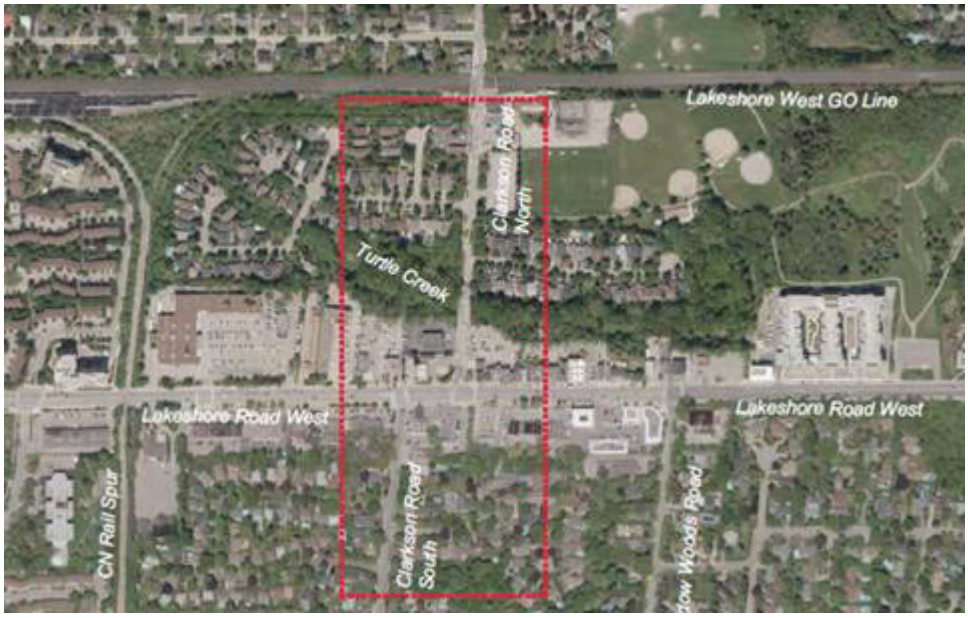
Regards,

Shamus Snell
A/ Management Biologist
Species at Risk Branch
Ministry of the Environment, Conservation and Parks
Email: shamus.snell@ontario.ca

From: Jamieson-Lee Scott <Jamieson-Lee.Scott@cima.ca>
Sent: January 18, 2021 3:14 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: RE: BP20148 - Information Request - Intersection of Clarkson Rd N and Lakeshore Rd W, City of Mississauga

Good day,

CIMA+ has been contracted by the City of Mississauga (the "City") to prepare an Environmental Impact Statement (EIS) for a site encompassing an area approximately 0.16 km^2 with an approximate centre at the intersection of Clarkson Rd N and Lakeshore Rd W within the City of Mississauga (see red outline in attached image). The City is currently undertaking a Class EA study to investigate a number of alternatives to improve operation and safety at the intersections.



The geographical coordinates for the site are:

- Coordinates for approximate centre of intersection are Latitude: 43.517093°; Longitude: - 79.623304° in the Geographic Township of Toronto.

We are contacting you to obtain information on environmental features and/or conditions for and adjacent (within 120 meters) of the site including, but not limited to:

-ANSI and Significant Wildlife Habitats; and
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Do not hesitate to contact me should you want to discuss this request or require further information.

Respectfully,

JAMIESON-LEE SCOTT
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110–240 Catherine Street, Ottawa, ON K2P 2G8 CANADA

D

Appendix D
Potential SAR List

APPENDIX D: Potential SAR within the Clarkson Road EIS Study Area

Common Name Scientific Name Status[i]	Information Source[ii]	Species Specific Information
Monarch *Danaus plexippus* Federal – **SC** Provincial – **SC**	OBA Square # 17PJ11	The Monarch is a showy orange and black butterfly with small white spots, with a relatively large wingspan reaching 93-105 millimeters. The Monarch's caterpillar has black, white and yellow stripes and can be found feeding on milkweed plants. Throughout their life cycle, Monarchs use three different types of habitats. Only the 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.
Redside Dace *Clinostomus elongatus* Federal – **END** Provincial – **END**	NHIC Square # 17PJ1118 & # 17PJ1119	The Redside Dace is a member of the minnow family and reaches up to 12 cm long. Adults are colourful with a red stripe along the front half of the body and a bright yellow stripe above that extends almost to the tail fin. The Redside Dace is 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.
Blanding's Turtle *Emydoidea blandingii* Federal – **THR** Provincial – **THR**	NHIC Square # 17PJ1119 ORAA Square # 17PJ11	The Blanding's Turtle is a medium-sized turtle easily identified by its bright yellow throat and chin. They have a domed shell that resembles an army helmet. The Blanding's Turtle is a semi-aquatic species. They use aquatic habitats for overwintering, mating, foraging, thermoregulation, summer inactivity, and movement. They favour relatively shallow water, soft highly organic substrates, and abundant vegetation such as wetlands, slow flowing rivers, and creeks as well as artificial channels. Terrestrial habitat and especially upland forest, is important for many activities of the Blanding's Turtle during the active season, including nesting, thermoregulation, summer inactivity, and movement. Blanding's Turtles can also use or move through human-altered habitats, generally open areas, such as agricultural fields, road shoulders, and quarries.
Eastern Milksnake *Lampropeltis triangulum* Federal – **SC** Provincial – **Not Listed**	NHIC Square # 17PJ1118 & # 17PJ1119 ORAA Square # 17PJ11	The Eastern Milksnake is grey or tan with alternating red or reddish-brown blotches that are distinctly outlined in black along its back and sides. They are habitat generalists but prefer open habitats, including rock outcrops and meadows. They require suitable microhabitats for specific activities such as egg laying or thermoregulation. Eastern Milksnakes are well known for occupying barns, sheds and houses in rural landscapes. Eastern Milksnake habitat in portions of southwestern Ontario and parts of southwestern Quebec (e.g., urban regions and areas subject to intensive agriculture) is fragmented and consists of relatively small, natural areas

Common Name Scientific Name Status[i]	Information Source[ii]	Species Specific Information
Eastern Ribbonsnake *Thamnophis sauritus* Federal – **THR** Provincial – **SC**	NHIC Square # 17PJ1118 & # 17PJ1119 ORAA Square # 17PJ11	The Eastern Ribbonsnake is a slender snake with three bright yellow stripes running down its back and sides, contrasting sharply with its black back. Eastern Ribbonsnakes have a white chin, whitish-yellow belly and a distinct white crescent in front of each eye that can be used to distinguish it from a gartersnake. Adults grow to about 70 cm long, and females are typically larger than males. The Eastern Ribbonsnake is usually found close to water, especially in marshes, where it hunts for frogs and small fish. A good swimmer, it will dive in shallow water, especially if it is fleeing from a potential predator. At the onset of cold weather, these snakes congregate in underground burrows or rock crevices to hibernate together.
Midland Painted Turtle *Chrysemys picta marginate* Federal – **SC** Provincial – **Not Listed**	ORAA Square # 17PJ11	Midland Painted Turtles have a smooth, gently rounded carapace (upper shell) that is dark green to black in colour with red markings on the sides. The plastron (lower shell) is usually tan to yellow and often has a dark, irregularly shaped blotch in the center. Painted Turtles prefer shallow aquatic habitats with slow-moving water, soft bottoms, aquatic vegetation, and abundant basking sites. Typical habitats include swamps, marshes, permanent or temporary ponds, creeks, rivers and lakes. Females nest in sandy or gravelly soils in open-canopy habitats with high sun exposure, such as in forest clearings, meadows, shorelines, rock outcrops, agricultural fields and the shoulders of roads. The nest sites are typically within 200 m of a water body. They overwinter at the bottom of water bodies or under submerged undercut banks.
Northern Map Turtle *Graptemys geographica* Federal – **SC** Provincial – **SC**	ORAA Square # 17PJ11	The Northern Map Turtle is named for the markings on its shell, which look like the contour lines on a topographical map. The carapace (upper shell) is olive green with fine yellow lines and has a distinct ridge (keel) along the centre and serrations along its back edge. They inhabit both lakes and rivers, showing a preference for slow moving currents, muddy bottoms, and abundant aquatic vegetation. These turtles need suitable basking sites and exposure to the sun for at least part of the day.
Snapping Turtle *Chelydra serpentina* Federal – **SC** Provincial – **SC**	NHIC Square # 17PJ1118 & # 17PJ1119 ORAA Square # 17PJ11	Canada's largest freshwater turtle, Snapping Turtles have large black, olive or brown shells. They typically inhabit shallow waters and hide under the soft mud and leaf litter. From early to mid-summer, females travel overland in search of a suitable nesting site, usually gravelly or sandy areas along streams but they will also nest in man-made structures including the gravel shoulders of roads, dams and aggregate pits.
Western Chorus Frog (Great Lakes – St. Lawrence Population *Pseudacris triseriata* Federal – **THR** Provincial – **Not listed**	ORAA Square # 17PJ11	The Western Chorus Frog is primarily a terrestrial species. In marshes or wooded wetland areas, it is found on the ground or in low shrubs and grass and very rarely in permanent ponds. The Western Chorus Frog requires both terrestrial and aquatic habitats in proximity and it requires seasonally dry temporary ponds devoid of predators, particularly fish for breeding and tadpole development.

Common Name Scientific Name Status[i]	Information Source[ii]	Species Specific Information
Bank Swallow *Riparia riparia* Federal – **THR** Provincial – **THR**	OBBA Square # 17PJ11	The Bank Swallow is a small songbird with brown upperparts, white underparts and a distinctive dark breast band. It averages 12 cm long and weighs between 10 and 18 grams. Males and females are similar in size and colour. Bank swallows' nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable.
Barn Swallow *Hirundo rustica* Federal – **THR** Provincial – **THR**	OBBA Square # 17PJ11	The Barn Swallow is a medium-sized songbird (about 15 to 18 centimeters long). Males have a glossy steel-blue back and upper wings, a rusty-red forehead and throat, a short bill and a broad blue breast band above its tawny underbelly. The male has long tail feathers which form a distinctive, deep fork and a line of white spots across the outer end of the upper tail. Barn Swallows often live-in close association with humans, building their cup-shaped mud nests almost exclusively on human-made structures such as open barns, under bridges and in culverts.
Bobolink *Dolichonyx oryzivorus* Federal – **THR** Provincial – **THR**	OBBA Square # 17PJ11	The Bobolink is a medium sized songbird found in grasslands and hayfields. In their summer breeding season, male Bobolinks are black with a white back and yellow collar. By late summer, males lose their breeding plumage to resemble the female's tan colour with black stripes. Bobolinks often build their small nests on the ground in dense grasses. Bobolinks spend much of their time out of sight on the ground feeding on insects and seeds.
Chimney Swift *Chaetura pelagica* Federal – **THR** Provincial – **THR**	OBBA Square # 17PJ11	The Chimney Swift is a relatively small bird, about 12 to 14 cm long, with a sooty brown, cigar-shaped body, long slender wings and a lighter throat. It can be distinguished by its telltale acrobatic and erratic flight pattern. The Chimney Swift spends most of its time flying and even forages in the air, catching its prey (flying insects) in flight. Primarily found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects that they eat congregate.
Common Nighthawk *Chordeiles minor* Federal – **THR** Provincial – **SC**	OBBA Square # 17PJ11	The Common Nighthawk is a medium-sized bird, 21 to 25 centimetres long, with long, narrow, pointed wings, and a long tail that is slightly notched. Its head and eyes are large for its size. Common Nighthawk habitat consists of open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Although the species also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways, they tend to occupy natural sites.
Eastern Meadowlark *Sturnella magna* Federal – **THR** Provincial – **THR**	NHIC Square # 17PJ1118 & # 17PJ1119	The Eastern Meadowlark is a medium-sized, migratory songbird (about 22 to 28 cm long) with a bright yellow throat and belly, a black "V" on its breast and white flanks with black streaks. They are most common in native grasslands and prairies, but they also occur in pastures, hayfields, agricultural fields, airports, and other grassy areas.

Common Name Scientific Name Status[i]	Information Source[ii]	Species Specific Information
Eastern Wood-Pewee *Contopus virens* Federal – **SC** Provincial – **SC**	OBBA Square # 17PJ11	The Eastern Wood-Pewee is a small forest bird that grows to about 15 cm long. Adults are generally greyish-olive on their upper parts and pale on the under parts with pale bars on their wings. They live in the mid-canopy layer of forest clearings and edges of deciduous and mixed forests. It is most abundant in intermediate-age mature forest stands with little understory vegetation.
Henslow's Sparrow *Ammodramus henslowii* Federal – **END** Provincial – **END**	NHIC Square # 17PJ1118 & # 17PJ1119	The Henslow's Sparrow can be distinguished from other sparrows by its combination of chestnut brown wings, intricately patterned olive-green head and back of neck, black and brown streaked back, and by its flat-headed, short-tailed profile. The Henslow's Sparrow breeds in the northeastern and east-central United States, and reaches its northeastern limit in Ontario. It has been found in abandoned farm fields, pastures, and wet meadows and tends to avoid fields that have been grazed or are crowded with trees and shrubs. It prefers extensive, dense, tall grasslands where it can more easily conceal its small ground nest.
Peregrine Falcon *Falco peregrinus anatum/tundrius* Federal – **SC** Provincial – **SC**	OBBA Square # 17PJ11	The Peregrine Falcon is a crow-sized bird with a slate blue back and a cream-coloured chest covered in dark markings. Peregrine Falcons have pointed wings that span about one metre, a narrow tail and adults have a prominent black "moustache." Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas. Cities offer peregrines a good year-round supply of pigeons and starlings to feed on.
Wood Thrush *Hylocichla mustelina* Federal – **THR** Provincial – **SC**	OBBA Square # 17PJ11	The Wood Thrush is a medium-sized songbird, about 20 cm long – slightly smaller than the American robin and similar in shape. These birds are generally rusty brown on the upper parts with white under parts and large blackish spots on the breast and sides. The Wood Thrush lives in deciduous and mixed forests. They seek moist stands of trees with well-developed undergrowth and tall trees for singing perches. They prefer large mature forests but will also use smaller stands of trees. They build their nests in living saplings, trees, or shrubs, usually in sugar maple or American beech.
Eastern Small-footed Bat *Myotis leibii* Federal – **Not listed** Provincial – **END**	AMO	The Eastern Small-footed Bat is about 8 cm long and weighs just 4-5 grams. Their wing span is 21-25 cm. This bat's fur has black roots and shiny light brown tips, giving it a yellowish-brown appearance. Its face mask, ears and wings are black, and its underside is grayish-brown. Males and females are similar in color and size. In the spring and summer, Eastern Small-footed Bats will roost in a variety of habitats, including in or under rocks, in rock outcrops, in buildings, under bridges, or in caves, mines, or hollow trees. In the winter, these bats hibernate, most often in caves and abandoned mines. They seem to choose colder and drier sites than similar bats and will return to the same spot each year.

Common Name Scientific Name Status[i]	Information Source[ii]	Species Specific Information
Little Brown Myotis *Myotis lucifugus* Federal – **END** Provincial – **END**	AMO	Little Brown Myotis have glossy brown fur and usually weigh between four and 11 grams – about as much as a Canadian loonie or toonie. Little Brown Myotis inhabit forested lands near water but may also be found in dry climates where water is not readily available. They prefer to roost in buildings, trees, under rocks, and in piles of wood.
Northern Myotis *Myotis septentrionalis* Federal – **END** Provincial – **END**	AMO	Northern Long-eared Bats have dull yellow-brown fur with pale grey bellies. They are typically about eight cm long, with a wingspan of about 25 cm. Northern Long-eared Bats usually weigh between six and nine grams. They have long (rounded) ears and look similar to the more common Little Brown Myotis. They can be distinguished by the fleshy projection that covers the entrance to the ear, which is long and thin, with a pointed tip.
Tri-colored Bat *Perimyotis subflavus* Federal – **END** Provincial – **END**	AMO	The Tri-colored Bat is a small pale brown bat that weighs about 7 gm (the weight of a two-dollar coin) and has a wingspan of 23 cm. They are named for the hairs on its back which are black, yellow and brown. The Tri-colored Bat is found in a variety of forested habitats with day roosts and maternity colonies in older forest and occasionally in barns or other structures. They forage over water and along streams in the forest. At the end of the summer, they swarm, generally near the cave or underground location where they will overwinter.

[i] Status under the federal *Species at Risk Act*, and provincial *Endangered Species Act, 2007* – END = Endangered, THR = Threatened, SC = Special Concern

[ii] OBA = Ontario Butterfly Atlas (Toronto Entomologists' Association, 2021), NHIC = Natural Heritage Information Center (Ministry of Natural Resources and Forestry), ORAA = Ontario Reptile and Amphibian Atlas (iNaturalist), OBBA = Ontario Breeding Bird Atlas (Cadman et al., 2007), AMO = Atlas of the Mammals of Ontario (Dobbyn, 1994)