DILLON CONSULTING

MONTGOMERY SISAM ARCHITECTS INCORPORATED

Environmental Impact Statement

1161 Old Montreal Road

City of Ottawa, ON

November 2021 – 21-2647

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References

1.0 Introduction

1.1 Background and Purpose

Dillon Consulting Limited (Dillon) was retained by Montgomery Sisam Architects Incorporated (MSAI) to complete an Environmental Impact Statement (EIS) and a Tree Conservation Report (TCR) in support of Site Plan Control Approvals for the proposed development of a Long Term Care home located at 1161 Old Montreal Road in the City of Ottawa (referred to herein as the "Property"), legally described as Part of Lot 28 Concession 1, City of Ottawa (the "City") (**Figure 1**). The landowner is planning to sever the property into two lots for development. The 1.19 ha lot has been proposed for the development of a Long Term Care (LTC) facility; while the 0.81 ha lot is planned to be used for low-density housing.

The purpose of the EIS is to document existing conditions of the natural environment, determine the potential limits of development, and evaluate potential for environmental impacts associated with the proposed development of the LTC facility. The EIS will further outline recommendations for mitigation, restoration, enhancement measures, and/or compensation measures, where necessary, to avoid impacts to the natural environment as a result of the proposed development. The EIS has been prepared in general accordance with the City's Environmental Impact Statement Guidelines (2015) and Policies of the City's Official Plan (OP; 2003). This EIS has also incorporated a Tree Conservation Report (TCR) within its contents, the purpose of which is to summarize the results of the tree inventory for trees documented within the Property and to demonstrate how tree cover will be retained within the Property, including mature trees, stands of trees using a design with nature approach to planning and engineering where feasible. The EIS and TCR will form one comprehensive report in accordance with applicable City guidelines. The TCR contained within this EIS has been prepared following the City's Tree Protection By-law (No. 2020-340) policies as a guideline, and was completed in general accordance with Schedule E – Tree Conservation Report Guidelines of By-law No. 2020-340.

1.2 Property Information

Owner:	City of Ottawa
Address:	1161 Old Montreal Road, Ottawa, ON K4A 3N6
Lot and concession:	Lot 28, Concession 1
Property Identification Number(s):	145300473
Zoning:	Rural Institutional (RI5)
OP designation:	General Urban Area

ORLEANS LONG TERM CARE HOME

ENVIRONMENTAL IMPACT STATEMENT

PROJECT LOCATION

FIGURE 1

- Property Boundary
- Highway
- Major Road
- Local Road
- Watercourse
- Waterbody

0 25 50 100 Meters

N W E S

SCALE 1:5,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, OPEN OTTAWA

MAP CREATED BY: MEC
MAP CHECKED BY: CE
MAP PROJECTION: NAD 1983 UTM Zone 18N

DILLON CONSULTING

PROJECT: 21-2647

STATUS: DRAFT

DATE: 2021-11-19

FILE LOCATION:G:\GIS\212647\Product\Client\First_Figs\F1_ProjectLocation.mxd

2.0 Planning Context

The following sections have been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established a number of policies with the purpose of protecting ecological features and functions. **Table 1** lists the relevant policies and legislation that apply to the protection of natural heritage features within the City, as well as supporting guidance documents and resources consulted respective to each policy. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Ecoregion 6E specifically. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below should be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Property.

Table 1: Policies, Legislation and Background Resources Searched

Policy/Regulations	Guidelines and Supporting Documents
Federal Government of Canada	
Migratory Birds Convention Act (1994)	Environment and Climate Change Canada (ECCC)
Species at Risk Act (2002)	Federal Species at Risk Public Registry, accessed (accessed November 2021) Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map (August 2019), accessed July 2021
Province of Ontario	
Planning Act, 1990: Provincial Policy Statement (2020)	Policies within Section 2.1 and 2.2 related to natural heritage features
	Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) Make a Map LIO Mapping Application square #: 18VR6639; 18VR6640; 18VR6739; 18VR6740; 18VR6741; 18VR6839; 18VR6840; 18VR6841; 18VR6938; 18VR6939; 18VR6940; 18VR6941; 18VR7038; 18VR7039; 18VR7040; 18VR7041. • Species of Conservation Concern • Species at Risk • Natural heritage features.
	Ecological Land Classification for Southern Ontario, Second Approximation, 2008
	Natural Heritage Reference Manual, Second Edition, March 2010
	MNRF Significant Wildlife Habitat Technical Guide (2000) • Significant Wildlife Habitat Eco-region 6E Criterion Schedules, 2015
Endangered Species Act (2007)	Ministry of the Environment, Conservation and Parks (MECP) Species at Risk (SAR) in Ontario (SARO) List (O. Reg. 230/08), October 2021
	MNRF's Land Information Ontario (LIO) Database (MNRF, 2019) NHIC Squares #: 18VR6639; 18VR6640; 18VR6739; 18VR6740; 18VR6741; 18VR6839; 18VR6840; 18VR6841; 18VR6938; 18VR6939; 18VR6940; 18VR6941; 18VR7038; 18VR7039; 18VR7040; 18VR7041

Policy/Regulations	Guidelines and Supporting Documents
	• SAR occurrence records. Accessed November 2021.
	Ontario Breeding Birds Atlas (OBBA) Square #18VR63; 18VR64; 18VR73; 18VR74 - online data accessed November 2021.
	Ontario Reptile and Amphibian Atlas - online data accessed November 2021
	Ontario Butterfly Atlas - online data accessed November 2021
	Mammals of the Western Hemisphere v3.0, released in 2007 and compiled in 2010
City of Ottawa	
City of Ottawa Official Plan (2003)	Schedules B, K, and L1 City of Ottawa's "geoOttawa" online mapping service
	Protocol for Wildlife Protection During Construction (2015)
	City Of Ottawa, 2011. Characterization of Ottawa's Watersheds
	City of Ottawa, 2020. Tree Protection (By-law No. 2020-340)
Conservation Authority	
Conservation Authorities Act, Ontario Regulation 174/06	Rideau Valley Conservation Authority (RVCA) • RVCA Regulation Area online mapping application • Summary of the Ottawa East Subwatershed Existing Conditions, RVCA.

2.1 Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (PPS) provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS sets forth a vision for Ontario's land use planning system by managing and directing land use to achieve efficient development and land use patterns, wise use and management of resources, and protecting public health and safety. This report deals specifically with Policy 2.1, Natural Heritage, and Policy 2.2, Water, which provides for the protection and management of natural heritage and water resources, which include the following:

- Significant wetlands
- Significant coastal wetlands
- Significant woodlands
- Significant valleylands
- Significant wildlife habitat
- Significant areas of natural and scientific interest (ANSIs)
- Fish habitat
- Sensitive surface water features
- Sensitive ground water features.

The PPS defines "significant" to mean:

- In regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time

- In regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources
- In regard to other features and areas in policy in 2.1, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system".

The PPS defines "sensitive" to mean:

- In regard to surface water features and ground water features, means areas that are particularly susceptible to impacts from activities or events, including, but not limited to, water withdrawals, and additions of pollutants.

Potential significance of natural heritage features may be evaluated based on size, age, presence of rare or sensitive species, species diversity, and linkage functions, taking into consideration factors such as adjacent land use and degree of disturbance. Criteria for determining significance follow guidance outlined in the Natural Heritage Reference Manual (MNRF, 2010) and the Significant Wildlife Habitat Technical Guide Ecoregion 6E Criterion Schedules (MNRF, 2015), where applicable.

Significance of natural features identified within the Property is further discussed in **Section 5.0** of this report.

2.2 Endangered Species Act, 2007

In June 2008, the Endangered Species Act (ESA), 2007 came into effect in Ontario. The purpose of the ESA is to identify Species at Risk (SAR) based on the best available scientific information; to protect SAR and their habitats, to promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario. There are two applicable regulations under the ESA; Ontario Regulation 230/08 (the SARO List); and, Ontario Regulation 242/08 (General). These regulations serve to identify which species and habitat receive protection and provide direction on the current implementation of the ESA by the MECP.

The potential for SAR and SAR habitat to be impacted within the Property is discussed further in **Section 5.5** of this report.

2.3 City of Ottawa Official Plan, 2003

The City of Ottawa Official Plan (OP) provides a vision for the future growth of the City and a policy framework to guide the City's physical development to the year 2031 (City of Ottawa 2019). The OP was adopted in 2003 and applies city wide. The OP also includes Secondary Plans and Site Specific Policies to provide more detailed guidance in specific circumstances or locations. Based on the most recent

consolidation of the City's Official Plan (OP), the Property is designated as General Urban Area in Schedule B. Cardinal Creek and the City's Natural Heritage System occurs well outside of and west of the Property as shown in Schedule K and Schedule L1, respectively (**Appendix A**).

2.4 Rideau Valley Conservation Authority (Ontario Regulation 174/06)

In accordance with Section 28 of the Conservation Authorities Act, 1990, the Rideau Valley Conservation Authority (RVCA) is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 174/06). Section 2(1) of this Regulation lists areas within the RVCA's jurisdiction where development is prohibited without proper permissions from the RVCA. Such areas include, but are not limited to, river or stream valleys, hazardous lands, and wetlands.

The Property occurs nearby Cardinal Creek, however it remains outside of the RVCA's Regulated Area.

ORLEANS LONG TERM CARE HOME
ENVIRONMENTAL IMPACT STATEMENT

DESIGNATED NATURAL HERITAGE FEATURES
FIGURE 2

- Property Boundary
- Highway
- Major Road
- Local Road
- Watercourse
- Candidate ANSI, Life Science
- Provincially Significant Wetland
- Unevaluated Wetland
- MNRF Wooded Area

0 25 50 100 Meters

N W E S

SCALE 1:4,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, OTTAWA

MAP CREATED BY: MEC
MAP CHECKED BY: PK
MAP PROJECTION: NAD 1983 UTM Zone 18N

DILLON CONSULTING

PROJECT: 21-2647
STATUS: DRAFT
DATE: 2021-11-19

FILE LOCATION:G:\GIS\212647\Product\Client\First_Figs\F2_DesignatedNaturalHeritageFeatures.mxd

3.0 Natural Heritage Background Review

A desktop review of aerial imagery indicates that the Property contains a meadow with strip of wooded area along the eastern boundary. The surrounding area directly adjacent to the Property consists of a residential subdivision and rural residential properties. Further west of the adjacent residential areas woodlands and a watercourse are present; further south and southeast beyond Highway 34 woodlands and agricultural fields occur. Based on a review of historical aerial imagery dating back to 1976, the Property was previously part of a larger agricultural property until approximately 2005, when it was left to fallow and transitioned to meadow, and has remained generally unchanged since that time.

The following sections provide a brief summary of the existing environmental conditions within the Property. This information provides the background information upon which the EIS was based.

3.1 Aquatic Environment

3.1.1 Watershed Summary

The Property is located within the Rideau Valley Watershed which covers an area of 4,234 km^2 and includes seven subwatersheds. More specifically, the Property is located within the Cardinal Creek Catchment of the Ottawa River East subwatershed, which cover areas of 265 km^2 and is located at the northern-most portion of the larger Rideau Valley watershed. The Cardinal Creek catchment is composed of approximately 56% crop and pasture land, 4% meadow and thicket, 16% settlement, and 10% wooded areas, and 6% evaluated and unevaluated wetland. The rest of the land use for this catchment is under transportation and unclassified (RVCA, n.d.). Cardinal Creek occurs approximately 200 m west of the Property and generally meandering north where flow discharges into the Ottawa River.

3.2 Terrestrial Environment

3.2.1 Landforms, Soils, and Geology

The Property includes geology from the Paleozoic Era with middle Ordovician bedrock consisting of limestone, dolostone, shale, arkose, and sandstone (Ontario Geologic Survey, 1980). The entirety of the Property lies within the Ottawa Valley Clay Plains physiographic region (Chapman and Putnam, 1984). The Ottawa Valley Clay Plains region is described by Chapman & Putnam (1984) as an area containing clayey abandoned river channel deposits with silt and silty clay as well as sand lenses underlain by unmodified marine clay.

Physiographic mapping reveals that the Property lies within a clay plain with an undrumlinized till plain feature that partially transects the lower half of the Property in a southwest to northeast orientation (Chapman and Putnam, 1984). A review of Report 33 of the Ontario Soil Survey of Russell County indicates that the Property consists of Wendover clay, which is stone free, grey clay soils with non-

calcareous layered, red and grey clay parent material. This type of soil has imperfect drainage, and is known to be good cropland for hay, pasture, and grain.

3.2.2 Wetlands

Wetlands within the City of Ottawa area are considered southern wetlands based on their location south of the northern limit of Ecoregions 5E, 6E, and 7E as shown on Figure 1 of the PPS, 2014. No wetlands were identified within or adjacent to the Property based on the MNRF Land Information Ontario (LIO) online mapping application as shown on **Figure 2**.

3.2.3 Woodlands

A review of available aerial imagery and background resources indicates that woodlands may occur within the Property. A narrow strip of trees that align with a portion of the eastern Property boundary occur in relation to the MNRF wooded area as shown on **Figure 2**.

Assessment of this wooded area as a woodland is further investigated as part of the ELC and vegetation surveys and is discussed further in **Section 5.3**.

3.2.4 Valleylands

No significant valleylands were identified within or adjacent to the Property.

3.2.5 Areas of Natural and Scientific Interest

No Areas of Natural and Scientific Interest (ANSI) were identified as occurring within or adjacent to the Property.

3.2.6 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNRF, 2000) defines Species of Conservation Concern as globally, nationally, provincially, regionally, or locally rare (S-Rank of S1, S2, or S3) as well as federally endangered and threatened species, but do not include SAR (listed as endangered or threatened under the ESA, 2007). Through background review, several Species of Conservation Concern have been identified with the potential to occur within or adjacent to the Property (**Table 2**). The species listed in **Table 2** helped to identify that potential for Significant Wildlife Habitat (SWH) as defined in the Ecoregion 6E Criterion Schedules (MNRF, 2015) within the Property.

Table 2: Species of Conservation Concern with potential to occur within the Property

Scientific Name	Common Name	SARA[1]	ESA[2]	S-RANK[3]	Info Source[4]
Avian					
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	OBBA
Herpetozoa					
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	ON
Lepidoptera					
Danaus plexippus	Monarch	SC	SC	S2N, S4B	TEA

[1]Federal Species at Risk Act (THR= *Threatened*, END= *Endangered*, SC = *Special Concern*); [2]Provincial Endangered Species Act (SC= Special Concern); [3]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common; N= Non-Breeding pop., B= Breeding pop. [4]Information sources include: OBBA = Ontario; Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; TEA = Toronto Entomologists' Association; --- denotes no information or not applicable.

A review of the MNRF background data suggests that there is low likelihood for SWH to occur within or adjacent to the Property given the lack of natural features (i.e., wetlands, woodlands, etc.). As a result, no specific types of SWH have been brought forward; however there is still the potential for the Property to provide Habitat for Special Concern and Rare Wildlife Species, should SCC be observed on site or other types of habitats not readily identified through background review (i.e., snake hibernacula). It should be noted that due to the linear nature of the wooded area (fencerow), SWH for bat maternity colonies are not likely to be present within the Property. Bats will however be considered under SAR in **Section 3.2.7**.

The potential for SWH is discussed further in **Section 5.4**.

3.2.7 Species at Risk

A number of SAR listed as *endangered* and *threatened* under the ESA have been identified with potential to occur within the vicinity of the Property (see **Table 3**).

Table 3: Species at Risk with potential to occur within the Property

Scientific Name	Common Name	SARA[1]	ESA[2]	S-RANK[3]	Info Source[4]
Vascular Plants					
Juglans cinerea	Butternut	END	END	S3?	NHIC, TOC
Platanthera leucophaea	Eastern Prairie Fringed-orchid	END	END	S2	MECP
Avian					
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	NHIC, OBBA
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	NHIC, OBBA
Hirundo rustica	Barn Swallow	THR	THR	S4B	OBBA
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	OBBA
Mammals					
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH
Pipistrellus subflavus	Tri-coloured Bat	END	END	S3?	MWH
Herpetozoa					
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	ON

[1]SARA= Federal Species at Risk Act 2004 (THR = *Threatened*, END = *Endangered*); [2]ESA = Ontario Endangered Species Act 2007 (THR = *Threatened*, END = *Endangered*); [3]S-Rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common. These provincial ranks may further be modified; ? - A question mark following the rank indicates that there is some uncertainty with the classification due to insufficient information; S2S3 - Indicates that an element is rare, but insufficient information exists to accurately assign a single rank; N= Non-Breeding pop., B= Breeding pop. [4]Information sources include: MECP = Ministry of Environment, Conservation and Parks; NHIC = MNRF's Natural Heritage Information Centre; MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere; OBBA = Ontario Breeding Bird Atlas; ON = Ontario Nature: Ontario Reptile and Amphibian Atlas; TOC = Trees of Canada; --- denotes no information or not applicable.

Based on further background review as part of this EIS the following SAR and/or SAR habitat may be found within the Property and warranted further consideration as part of the EIS:

- Butternut
- Barn Swallow
- Eastern Meadowlark and Bobolink
- SAR bats.

Further discussion related to SAR is included in **Section 5.5**.

4.0 Field Work Methodology

The results of the background review were used to assist in scoping the 2021 field program. The fieldwork conducted for the EIS consisted of a SWH/SAR habitat search, Ecological Land Classification (ELC) of vegetation communities, botanical surveys, a tree inventory and breeding bird surveys (BBS). Incidental wildlife observations made during the surveys were also documented during field surveys. Fieldwork conducted for the EIS occurred between June 2021 and September 2021 when weather conditions and timing were deemed suitable based on the survey protocols being implemented (**Table 4**).

Table 4: Dates and Weather Conditions of Field Surveys (2021)

Date	Time	Weather Conditions	Air Temp (°C)	Purpose of Visit
June 14, 2021	06:31	Partly Cloudy, Calm	18	BBS, Incidental Wildlife Observations
June 25, 2021	06:50	Overcast, Light Breeze	20	BBS, Incidental Wildlife Observations
September 16, 2021	10:01	Slightly Cloudy, Calm	13	ELC, Vegetation Inventory, Tree Inventory, Incidental Wildlife Observations
November 17, 2021	11:30	Overcast, Moderate Breeze	-2	Tree Inventory, Incidental Wildlife Observations

4.1 Ecological Land Classification

During the field investigations, vegetation was characterized using the ELC System for Southern Ontario (Lee et al., 1998) in September 2021 in order to classify and map ecological communities to the vegetation level. The ecological community boundaries were determined through the review of aerial photography and then further refined through on site vegetation surveys and soil sampling.

The ELC protocol recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. Based on the composition of vegetation communities within the Property, patches of vegetation less than 0.5 ha or disturbed/planted vegetation will be described, provided they clearly fit within an ELC vegetation type.

Results of the ELC surveys are discussed in **Section 5.1.**

4.2 Vegetation Inventory

Vegetation surveys were conducted during the ELC survey in September 2021, and consisted of wandering transects and/or area searches to determine the presence, richness and abundance of floral species within the Property as well as presence/absence of botanical SAR. Species nomenclature recorded is based on the Ontario Plant List (Newmaster et al,. 1998).

Results of the vegetation survey are discussed in **Section 5.2**.

4.3 Tree Inventory

On September 16, 2021 and November 17, 2021 a Dillon biologist approved by the City of Ottawa to conduct arborist work as a qualified professional, conducted an inventory of trees within the Property. City owned trees are protected regardless of size as per Part 2 of the City's Tree Protection By-law No. 2020-340. Therefore, City owned trees that are recommended for removal to accommodate the development were also inventoried. The following information was collected during the inventory of trees that would need to be removed to facilitate the development or be preserved and therefore protected during construction activities:

- Identification of species
- Measurement of diameter-at-breast-height (DBH) at 1.38 m from the ground
- A Level 2 (basic) qualitative visual assessment to obtain an opinion of the health condition of each tree over 10 cm diameter-at-breast-height (DBH), or stand of trees/groupings following the condition health rating system detailed in **Table 5**
- The locations of individual trees were recorded using an ArcGIS Collector mobile data collection application
- If determinable and/or applicable, providing recommendations regarding preservation, protection, or removal.

Further, stand classification was conducted for dense groupings of trees, which involved a tally of each tree and range of diameters, and individual trees with a DBH of 10 cm or greater. Large Trees with a DBH of 50 cm or greater that occur within the City's suburban area (urban lands outside the greenbelt) or 30 cm DBH or greater within the inner urban area (urban lands inside the greenbelt) are considered Distinctive Trees as outlined in the Tree Protection By-law No. 2020-340. The Property is considered within the City's suburban area, therefore as per Tree Protection By-law No. 2020-340 and for the purposes of this TCR to aid in the identification of candidate trees for preservation, trees with a 50 cm DBH or greater were surveyed by an approved professional as outlined in the City's TCR guidelines and were considered Distinctive Trees. The survey for all Large Trees included the identification of species, DBH, condition, and location. Trees measuring less than 50 cm DBH were estimated based on their density, average size, and overall health.

A Level 2 (basic) health assessment was completed for inventoried trees and consisted of a visual inspection of the tree and surrounding area to obtain an opinion of the health condition of each tree. It included a non-invasive inspection of each tree, and an assessment of immediate surrounding site conditions, buttress roots, trunk, and branches. This Level 2 (basic) health assessment is the standard assessment that is performed by arborists, and only includes conditions that are readily detected from ground level. As such, it should be noted that the results obtained from a Level 2 (basic) health assessment should not be relied on for internal, below-ground, and/or upper-crown conditions or defects as these areas may be difficult to see and/or assess from ground-level. The condition rating designated to each tree will be based on the results of the Level 2 basic health assessment. The hazard potential of trees were assessed using the method outlined in the International Society of Arboriculture

publication, A Photographic Guide to the Evaluation of Hazard Trees in Urban Area - 2nd Edition (Mattheny and Clark, 1994). Using this guide, an overall condition rating (i.e., dead, poor, fair, good or excellent) was given to each tree inventoried. In the event of a significant change in site conditions prior to development activities, such as severe weather events (i.e., ice storm, tornado, etc.) or if considerable time passes (i.e., approximately five to seven years) since the original assessment, it will be recommended that all inventoried trees be reassessed.

Table 5: Tree/Grouping Condition Rating Categories

Condition	Description
Dead	A specimen tree/grouping is considered dead when it has no living tissue.
Hazard	The specimen tree could either be alive or dead but the tree in its part could pose an imminent hazard to people or property during normal weather conditions. These trees have the potential for splitting, breaking and/or falling over during inclement weather, and because of their proximity to various targets (i.e., people or property), could cause personal injury and/or severe damage to municipal infrastructure and/or private property.
Poor	Trees in poor condition show major symptoms of decline. At least 50% of main scaffold branches are dead, missing or in diseased state. The trunk shows evidence of advanced rot, deadwood or is hollow throughout. Twig development on the main branches or throughout the canopy is poor and may have limited sucker growth. Callus growth around wounds is minimal. A tree in poor condition could decline further to become a safety hazard. Removal prior to development should be considered if it is considered a hazard tree.
Fair	Trees in fair condition show moderate symptoms of decline in lower canopy or scaffold branches, but more than 50% of scaffold branches are present and viable. The trunk shows limited evidence of rot or insect damage. Good callus growth is present near wound areas. Trees that have scaffold branches that are healthy, but are in a "Y" formation, may also be included in this category, if “included-bark” is evident as the risk of splitting or breakage increases as the tree matures. Removal or preservation of these trees depends on the location of the specimen and associated target potential, and would depend on the species, and its tolerance to grading, trenching and surviving in an urban environment. Some major arboricultural maintenance may be required and may include major scaffold or secondary branch removal, bracing and/or cabling.
Good	Trees in good condition show no symptoms of decline in the trunk, and all scaffold branches are present and are in good condition. Most scaffold branches are at right angles to the trunk, and show good vigour. Small amounts of dead wood may be present in secondary branches, but account for less than 25% of the canopy. Depending on the grading in the immediate area, a tree in good condition would be recommended for preservation. Such a tree would typically survive to maturity without major arboricultural maintenance.
Excellent	Trees in excellent condition show no symptoms of decline in trunk, scaffold or secondary branches. Trees in this condition have an excellent growth habit and should typically survive to maturity without major arboricultural maintenance.

The results of the tree inventory have been included in **Section 5.2.1.**

4.4 Wildlife Habitat Assessment

Based on the list of SAR and SCC with potential to be found within the Property, during the site visits from June 2021 to September 2021, the Property was surveyed to identify the potential for natural heritage features including woodlands, wetlands, SWH as well as SAR habitat.

Observations recorded included presence of snags, cavity trees, and other mature trees with evidence of loose, peeling bark etc. which may be suitable for bat maternity roosts and/or colonies; potential for amphibian breeding habitat (woodland) in the form of vernal pools, wetland pockets, etc., potential sunny canopy openings that could foster habitat for Butternut tree, and other incidental wildlife observations.

The results of the habitat assessment have been incorporated into **Section 5.4** and **5.5**.

4.5 Breeding Bird Surveys

Diurnal breeding bird surveys took place in June 2021, and were conducted within the Property followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001).

Specifically, surveys consisted of point counts generally conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Property. During the surveys evidence of breeding behaviour was recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity between point counts. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot.

Results of breeding bird studies are discussed in **Section 5.4.1**.

4.6 Incidental Wildlife

A general wildlife assessment was completed within the Property through incidental observations made during the field surveys in 2021. Incidental observations of wildlife were noted, as well as other wildlife evidence such as dens, tracks, and scat where possible. For each observation, notes, and when possible, photos were taken. These observations helped to determine potential ecological functions, linkages, etc., within the Property.

Results relating to incidental wildlife within the Property have been included in **Section 5.6.**

5.0 Results of Biophysical Inventory

A biophysical inventory of natural features within the Property was completed in accordance with the methods detailed in **Section 4.0**. The analysis of data collected from secondary source information and during field studies in 2021 was used to evaluate the significance of natural heritage features within the Property. Results of these field studies is summarized below.

5.1 Ecological Land Classification

A total of two ecological communities were observed within the Property during ELC surveys, both of which are considered natural vegetation communities. The location, type, and boundaries of these communities are delineated on **Figure 3**. All vegetation communities surveyed within the Property are considered common in Ontario. **Table 6** outlines the communities documented during ELC surveys and summarizes the dominant vegetation cover. Reference photos for each of the plant communities observed can be found in **Appendix B**.

Vegetation communities within the Study have been disturbed based on the Property's historical use as an agricultural field and the recent development that has occurred adjacently within the last few years, further the Property contains a high occurrence of botanical species recognized as invasive and/or noxious in Ontario including Common Buckthorn (*Rhamnus cathartica*), Reed Canary Grass (*Phalaris arundinacea),* Annual Ragweed (*Ambrosia artemisiifolia*), Rydberg's Poison Ivy (*Toxicodendron rydbergii),* Brown Knapweed (*Centaurea jacea*) and Bull Thistle (*Cirsium vulgare*).

Table 6: Ecological Land Classification

ELC Code	Classification	Vegetation	Photo Appendix B
MEG	Graminoid Meadow	This meadow consisted predominately of graminoid species such as: • Reed Canary Grass (*Phalaris arundinacea*) • Common Panicgrass (*Panicum capillare*) • Redtop (*Agrostis gigantea*) • Green Foxtail (*Setaria viridis*) • Yellow Foxtai (*Setaria pumila*) • Large Barnyard Grass (*Echinochloa crus-galli*) • Kentucky Bluegrass (*Poa pratensis ssp. pratensis*). Occasional abundance of forbs such as: • Bird's-foot Trefoil (*Lotus corniculatus*) • Canada Goldenrod (*Solidago canadensis var. canadensis*) • Wild Carrot (*Daucus carota*) • Prickly Lettuce (*Lactuca serriola*) • Bull Thistle (*Cirsium vulgare*). A row of six Thornless Honey-locust (*Gleditsia triacanthos inermis*) trees occurs within the northern extent of the community believed to be a remnant of landscaping plantings. A gravel ditch parallel to Famille-Laporte Avenue directs surface water flows to a municipal sewer grate within the northwest extent of the Property.	1, 2, 3, 4, 5, 6, 7, 8
TAGM5	Fencerow	This community consisted of a strip of trees aligned with the eastern boundary of the Property demarcated by a wooden plank fence and a post and wire fence. The canopy of this community was dominated by young to mature Bur Oak (*Quercus macrocarpa*) with occasional Green Ash (*Fraxinus pennsylvanica*), Black Ash (*Fraxinus nigra*), American Elm (*Ulmus Americana*) associates and rare young to mid-age Trembling Aspen (*Populus tremuloides*). The understory of this community was dominated by Common Buckthorn (*Rhamnus cathartica*) and the ground layer contained occasional seedlings and saplings of the trees observed within the community as well as seedling Common Buckthorn and Reed Canary Grass.	1, 6, 9, 10

ORLEANS LONG TERM CARE HOME
ENVIRONMENTAL IMPACT STATEMENT

SURVEY LOCATIONS AND FIELD INVESTIGATION RESULTS
FIGURE 3

- Property Boundary
- Major Road
- Local Road
- Watercourse
- Breeding Bird Survey Locations

Ecological Land Classification

- MEG - Graminoid Meadow
- TAGM5 - Fencerow

Tree Inventory

- Individual Inventoried Tree
- Tree Grouping Inventory
- Distinctive Tree

0 12.5 25 50 Meters

N W E S

SCALE 1:1,700

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, OPEN OTTAWA

MAP CREATED BY: MEC
MAP CHECKED BY: CE
MAP PROJECTION: NAD 1983 UTM Zone 18N

DILLON CONSULTING

PROJECT: 21-2647
STATUS: DRAFT
DATE: 2021-11-19

FILE LOCATION:G:\GIS\212647\Product\Client\First_Figs\F3_SurveyLocationsFieldInvestigation.mxd

5.2 Vegetation

A total of 45 plant species were documented during the 2021 field studies. Of the 45 species, approximately 82% are listed as native species considered to be common (S4) to very common (S5) in the province of Ontario; and approximately 18% are listed as introduced species, therefore a status ranking is not applicable as the species is not a suitable target for conservation activities (SE or SNA rank).

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Property. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple that demonstrate little fidelity to any remnant natural community (i.e., may be found almost anywhere). Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fructicosa*) that are almost always restricted to a pre-settlement remnant, (i.e., a high quality natural area). Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 45 species identified within the Property, the average CC value recorded is 2.5 which is typical of an altered landscape (i.e., historical agricultural field); although several species were recorded with CC values of greater than six, including, but not limited to; Daisy Fleabane (*Erigeron hyssopifolius*), Black Ash (*Fraxinus nigra*), and Slippery Elm (*Ulmus rubra*). A full list of the vegetation species observed within the Property has been included in **Appendix C**.

Potential impacts related to vegetation within the Property are included in **Section 8.1.3**.

5.2.1 Tree Inventory

An inventory of trees 10 cm DBH or greater on the subject Property and within the Property resulted in the identification of one tree grouping (Grouping 1) contained with the Fencerow (TAGM5) community and 15 individually inventoried trees based on the solitary location of the trees and/or due to the tree being qualified as a Distinctive Tree based on size and condition of health. In total seven species and 155 live and dead trees were inventoried as part of a tally count within Grouping 1 and as part of the individually inventoried trees. **Table 7** below includes a consolidated list of tree species documented within the Property. Detailed Tree Inventory results of individual trees and groupings, including species, DBH, condition and other relevant information recorded during the Tree Inventory survey are provided in **Appendix D**.

Table 7: Tree Species Documented within the Property

Scientific Name	Common Name	SARA[1]	ESA[2]	SRank[3]
Fraxinus nigra	Black Ash	---	---	S4
Fraxinus pennsylvanica	Green Ash	---	---	S4
Gleditsia triacanthos inermis	Thornless Honey-locust	---	---	SNA
Populus tremuloides	Trembling Aspen	---	---	S5
Quercus macrocarpa	Bur Oak	---	---	S5
Ulmus americana	American Elm	---	---	S5
Ulmus rubra	Slippery Elm	---	---	S5

In general trees within the Property, primarily Grouping 1 exist as a remnant of trees left to develop along the perimeter of the agricultural field. Individually inventoried trees along the northern portion of the Property (master tree ID #'s 1 – 6, **Appendix D**) are believed to be the remnant of past landscaping based on the aligned/spacing of the trees and the species being a specialized variant (Thornless Honey-locust) popular for urban and residential area planting. Two Distinctive Trees were identified during the inventory both of which are Bur Oak and are part of Grouping 1 identified as master tree ID #07 and #08, **Appendix D**. City owned trees are protected regardless of size as per Part 2 of the City's Tree Protection By-law No. No. 2020-340. Individually inventoried trees master tree ID #'s 9 – 15, **Appendix D** represent municipal trees outside of the Property but were included as per Part 2 of the City's Tree Protection By-law No. 2020-340 in the inventory due to being identified for removal to accommodate the construction of entrances for the proposed development as detailed in the Landscape and Planting Plan (LPP) prepared by Ron Koudys Landscape Architects Inc. dated October, 2021 and available in **Appendix E**.

Grouping 1 – Fencerow (TAGM5) Community

Trees within Grouping 1 were mainly young to mid-age Bur Oak with a few larger mature specimens such as master tree ID #07 and #08. In addition, occasional young Green Ash, Black Ash, and American Elm occurred, however many were observed to be declining in condition ranging from in fair to poor health or dead. The declining condition of these specific trees is likely explained by the lethal influence of the Emerald Ash Borer (*Agrilus planipennis*) (EAB) and European Elm Bark Beetle (*Scolytus multistriatus*), the presence of these pests evidenced by galleries (see Photo 9 – **Appendix B**) and entrance beetle bores consistent with the pest species noted on dead American Elm and Ash tree trunks. The evidence of galleries on American Elm trunks indicates that Elm trees within the woodlot were likely exposed to Dutch Elm Disease (DED) fungus (*Ophiostoma spp.*). Rare occurrence of Slippery Elm and Trembling Aspen occur within this grouping. The understory of this grouping is dominated by Common Buckthorn.

Based on the current preliminary design all trees inventoried are planned to be removed as removal is necessary to accommodate the proposed development plans. Removal of tree groupings and individual trees are recommended to be compensated for by installing landscape and restoration plantings, to be

finalized during the detailed design phase in a finalized LPP. Landscape and restoration plantings are detailed in the preliminary LPP (October 2021) (**Appendix E**). The LPP (October 2021) also shows the surveyed location and approximated size of live trees that forms part of the inventory for trees within Grouping 1.

Potential impacts related to tree removal within the Property have been included in **Section 8.1.3.**

5.3 Woodlands

Guidelines for Identification, Evaluation, and Impact Assessment (City of Ottawa, 2018), Significant Woodlands within the urban area are defined as the following:

i. Any trees area meeting the definition of woodlands in the Forestry Act, R.S.O. 1990, c. F. 26 or forest in the ELC for Southern Ontario.
ii. In the urban area, any area 0.8 hectares (ha) in size or larger, supporting woodland 60 years of age and older at the time of evaluation.

Tree Grouping 1 was characterized as a Fencerow (TAGM5) community (**Figure 3**) which would not be considered a forest based on ELC and does not achieve a size of 0.8 ha, therefore, no woodlands occur within the Property.

5.4 Significant Wildlife Habitat

The Property was further considered SWH through field work and incidental observations during the 2021 field program. No SWH types were identified within the Property. The results of the baseline breeding bird surveys are presented below.

5.4.1 Breeding Bird Surveys

A total of 14 avian species were observed during breeding bird surveys in 2021 (**Table 8**). Of the 14 species observed, all are considered secure (S4) to very common (S5) in the province of Ontario, with the exception of species with SNA S-Ranks. Of these species no SAR were observed.

Table 8: 2021 Breeding Bird Survey Results

Scientific Name	Common Name	SRank[2]	SARA[3]	ESA[4]
Passer domesticus	House Sparrow	SNA	---	---
Sturnus vulgaris	European Starling	SNA	---	---
Turdus migratorius	American Robin	S5B	---	---
Carduelis tristis	American Goldfinch	S5B	---	---
Corvus brachyrhynchos	American Crow	S5B	---	---
Spizella passerina	Chipping Sparrow	S5B	---	---
Agelaius phoeniceus	Red-winged Blackbird	S4	---	---
Poecile atricapillus	Black-capped Chickadee	S5	---	---

Scientific Name	Common Name	SRank[2]	SARA[3]	ESA[4]
Cardinalis cardinalis	Northern Cardinal	S5	---	---
Larus delawarensis	Ring-billed Gull	S5B,S4N	---	---
Cyanocitta cristata	Blue Jay	S5	---	---
Melospiza melodia	Song Sparrow	S5B	---	---
Quiscalus quiscula	Common Grackle	S5B	---	---
Geothlypis trichas	Common Yellowthroat	S5B	---	---

[1]Federal Species at Risk Act, 2002; [2]Ontario Endangered Species Act, 2007; [3]Ontario SRank; S5= secure; S4= apparently secure; SNA = Not Applicable - a conservation status rank is not applicable because the species is not a suitable target for conservation activities; N = non-breeding population; B = breeding population; --- denotes no information or not applicable.

Potential impacts to wildlife are discussed in **Section 8.1.4**.

5.5 Species at Risk

Specific surveys for bat maternity colonies were not conducted as part of this EIS. However, during other field work the Dillon Biologist noted that several dead Ash and Elm trees were observed but upon closer inspection most were found to be too small in DBH to be considered bat habitat and/or did not contain suitable bat maternity roost features (i.e., cracks, crevices and cavities). Furthermore, larger live trees with a suitable size to potentially support bat maternity habitat did not contain defining features for bat roosting such as cracks, crevices and cavities. As a result, the likelihood for SAR bats to be utilizing the Property is low. No other SAR were identified within the Property as the result of the 2021 field studies.

Potential impacts to wildlife are discussed in Section **8.1.4**.

5.6 Incidental Wildlife

Incidental wildlife species observed within the Property during the 2021 field season are listed in **Table 9** below. All species observed are common in the Province of Ontario and have an S-Rank of SNA or S5.

Table 9: Incidental Wildlife Observations

Scientific Name	Common Name	SRank[1]	SARA[2]	ESA[3]
Avian				
Corvus brachyrhynchos	American Crow	S5B	---	---
Cyanocitta cristata	Blue Jay	S5	---	---
Meleagris gallopavo	Wild Turkey	S5	---	---
Dryocopus pileatus	Pileated Woodpecker	S5	---	---
Passer domesticus	House Sparrow	SNA	---	---

[1]Federal Species at Risk Act, 2002; [2]Ontario Endangered Species Act, 2007; [3]Ontario SRank; S5= secure; S4= apparently secure; N= non-breeding population; B= breeding population; --- denotes no information or not applicable.

6.0 Ecological Function

As part of this EIS, natural features within the Property were analyzed to determine their ecological function. At a broader landscape scale, the Property exists as part of the Cardinal Creek catchment of the Rideau Valley Watershed and the natural heritage system of the St. Lawrence River and Ottawa River Valleys. The Property occurs within a landscape that has been historically and is currently disturbed due to agricultural activity and residential development, limiting the suitability of the Property in general to sensitive wildlife species.

As stated in **Section 5.2**, the vegetation documented within the Property reflects current and historical disturbances with a mean CC value for the site as 2.5 out of a possible 10, indicating an altered landscape containing many invasive or non-native species, although several higher CC value plants exist on site indicating a historical connectivity with the lands native state. This score is typical of disturbed environments as compared to naturally occurring environments. Nonetheless, the meadow and Fencerow (TAGM5) community within the Property still provide some ecological function by providing habitat to a number of common native plant and wildlife species including avian wildlife, insects and mammals that are tolerant to proximity to anthropogenic influence.

General ecological functions of the natural portions within the Property include prevention of erosion and runoff, facilitating hydrological and nutrient cycling, and improving localized soil, water and air quality. Within the Property, the woodlands and meadow may provide cover, foraging, refuge, and nesting habitat for avian and mammalian terrestrial wildlife.

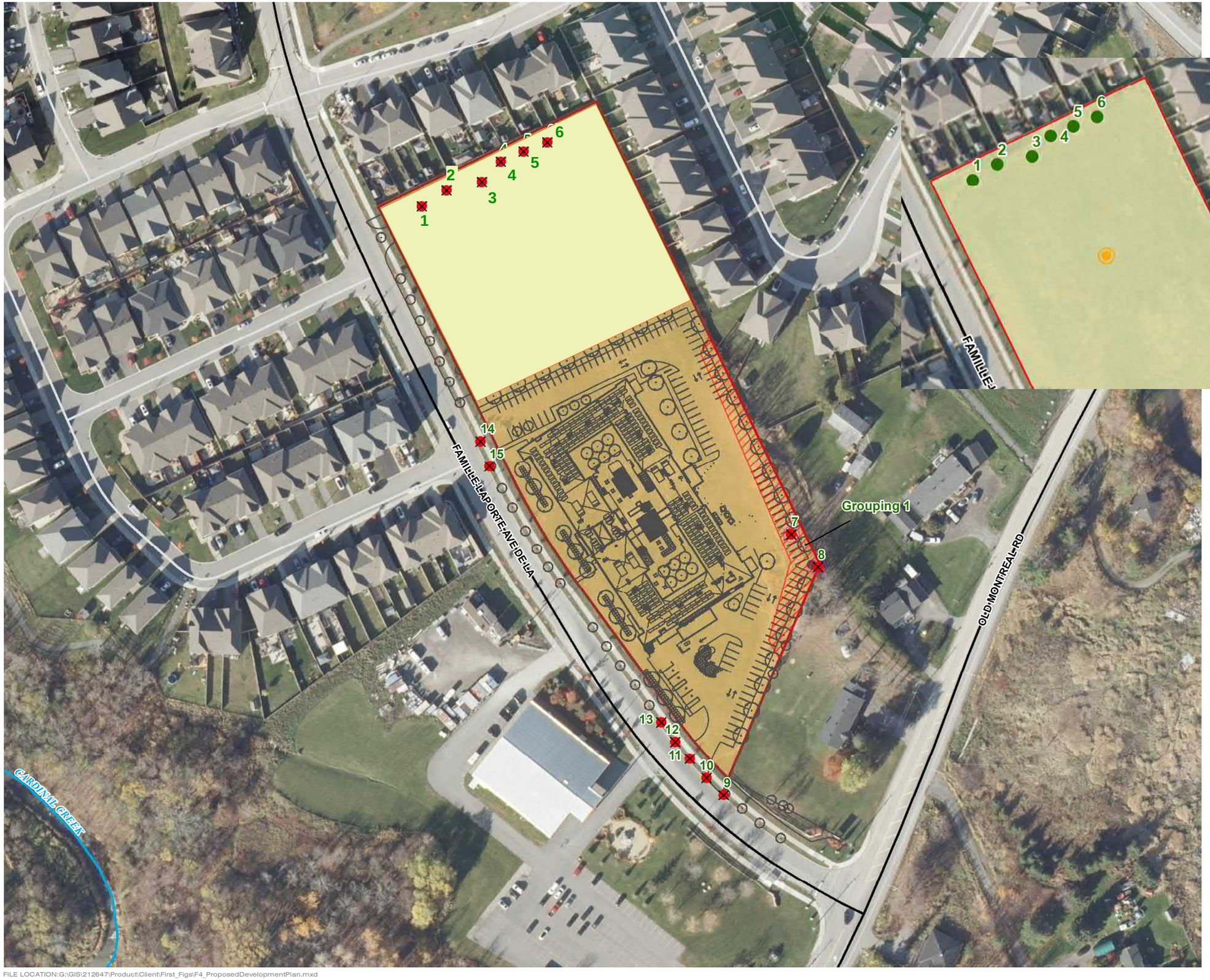
7.0 Description of Development

The proposed development, as shown on **Figure 4**, includes a mix of uses including the following:

- An LTC facility (0.32 Ha)
- Parking lot, yards etc. (0.87 Ha)
- Low Density Development (LDD) Housing (0.81 Ha).

Access points into the development are proposed via Laporte Avenue (**Figure 4**). Plans of the proposed development include the removal of existing trees and vegetation along the boundary of the Property, and construction of dwellings, placement of hardscape (parking spaces), and underground servicing for stormwater and sanitary water. Landscaping may include, but is not limited to, the insallation of patios, fencing, sod, and tree/vegetation plantings.

The potential impacts of the development and the mitigation measures are discussed in **Sections 8** and **9.**



ORLEANS LONG TERM CARE HOME
ENVIRONMENTAL IMPACT STATEMENT

PROPOSED DEVELOPMENT PLAN AND POTENTIAL IMPACTS
FIGURE 4

- Property Boundary
- Major Road
- Local Road
- Watercourse
- Proposed Development Plan
- Distinctive Tree
- Individual Inventoried Tree to be removed
- Tree Grouping Inventory to be removed
- Approximate Vegetation Removal Area (~2.0 ha)

0 12.5 25 50 Meters

N W E S

SCALE 1:1,400

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, OPEN OTTAWA

MAP CREATED BY: MEC
MAP CHECKED BY: CE
MAP PROJECTION: NAD 1983 UTM Zone 18N

DILLON CONSULTING

PROJECT: 21-2647
STATUS: DRAFT
DATE: 2021-11-19

FILE LOCATION:G:\GIS\212647\Product\Client\First_Figs\F4_ProposedDevelopmentPlan.mxd

8.0 Potential Impact Assessment

8.1 Direct Impacts

Direct impacts are those that are immediately evident as a result of development. Typically, the adverse effects of direct impacts are most evident during the site preparation and construction phase of a development. At a high level, potential direct impacts of future development of the Property may include, but are not limited to, the following:

- Diversion of surface water flows
- Erosion and sedimentation of adjacent areas
- Tree and vegetation removal
- Loss of/disturbance to wildlife and wildlife habitat.

Each of these potential impacts is discussed in subsequent sections.

8.1.1 Impacts to Surface Water Flows

The potential impacts of changes to land use and land cover on the health of a watershed have been well documented and can include changes to groundwater infiltration, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat (TRCA, 2008). More specifically, changes may include:

- Direct "footprint" effects such as the loss of natural land cover
- Direct effects from effluent discharge such as change in flow volumes and water chemistry of receiving water bodies
- Indirect "flow related" effects such as increased frequency of high stream flows, accelerated stream channel erosion and deterioration of water quality
- Cumulative effects such as changes in aquatic community composition that may arise from a combination of changes affecting upstream areas (North-South Environmental, 2009).

The most notable difference is the addition of impervious surfaces (i.e., roads, parking lots, rooftops, etc.). Impervious surfaces prevent infiltration of water into the soils and the removal of the vegetation removed the evapotranspiration component of the natural water balance. These changes affect the watersheds capacity to infiltrate precipitation and attenuate stream flow (TRCA, 2008).

Refer to **Section 9.1** for mitigation relating to surface flows.

8.1.2 Erosion and Sedimentation

Construction activity, especially operations involving the handling of earthen material, dramatically increases the availability of sediment for erosion and transport by surface drainage. In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff into receiving watercourses, measures for erosion and sediment control are required for construction sites. This is an

extremely important component of projects that plays a large role in the protection of downstream watercourses and aquatic habitat.

In addition, the potential impacts of changes to land use and land cover can include changes to surface water infiltration, run off, stream flow regime, water quality, downstream channel erosion, and wildlife habitat. As a result, there is the potential for impacts to occur if construction best management practices are not implemented.

Potential impacts to these features may include, but are not limited to:

- Reduced water quality and degradation of nearby watercourses or drainage ditches with potential to contain fish habitat
- Disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil.

Refer to **Section 9.2** for mitigation measures related to erosion and sedimentation.

8.1.3 Tree and Vegetation Removal

The proposed development plan indicates tree and ground vegetation removal limited to the development area as shown on **Figure 4**.

The proposed development will result in approximately 2 ha of vegetation removal, all of which is Graminoid Meadow (MEG) and Fencerow (TAGM5) as the site plan indicates the removal of trees within the Property as it is necessary to accommodate the development plans (**Figure 4**). This will result in loss of marginal wildlife habitat and alteration of soil conditions. On a site level, the impacts of tree and vegetation removal may include:

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

Refer to **Section 9.3** for mitigation and enhancement opportunities associated with trees and vegetation documented within the Property.

8.1.4 Loss of and/or Disturbance to Wildlife and Wildlife Habitat

Although no specific SAR / SWH wildlife or habitat were identified within the Property, there is potential for wildlife and general wildlife habitat to be impacted in the following ways:

- Loss of wildlife habitat

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods
- Conflict between wildlife and humans or domestic pets following development, including predation, mortality from vehicles, and poisoning.

Accordingly, general wildlife impact mitigation measures have been recommended and are included in **Section 9.4**.

8.2 Indirect Impacts

Indirect impacts are those that do not always manifest in the core development area, but in the lands adjacent to the development. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Potential indirect impacts of a development include anthropogenic disturbance and colonization of non-native and/or invasive species.

8.2.1 Anthropogenic disturbance

Disturbance to local wildlife communities due to indirect impacts on lands adjacent to a proposed development could result if left unmitigated. Noise, light, vibration and human presence are indirect impacts that can adversely influence the population size and breeding success of local wildlife. These effects are more pronounced when new development is introduced in non-urban areas. The Property currently experiences anthropogenic disturbance given it is located within a residential subdivision.

Mitigation measures that further address anthropogenic disturbance have been included in **Section 9.0.**

8.2.2 Colonization of Non-native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Invasive flora can establish in disturbed sites more efficiently than native flora and can then encroach into adjacent undisturbed areas. Although invasive species are already present within the Property, given natural features of the City's Natural Heritage System occurs nearby in association with Cardinal Creek, mitigation measures to address impacts associated with colonization of invasive species are recommended.

Mitigation measures related to control of invasive species are addressed in **Section 9.0**.

9.0 Potential Mitigation Measures

Mitigation involves the avoidance or minimization of developmental impacts through good design, construction practices and/or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within and adjacent to the Property. The impact assessment highlighted four potential direct impacts: diversion of surface water flows, erosion and sedimentation of natural features, tree and vegetation removal, and loss of and/or disturbance to wildlife.

A variety of mitigation techniques can be used to minimize or eliminate the above-mentioned impacts. These measures include implementation of a Landscaping and Planting Plan, a Functional Servicing Report, Erosion and Sediment Control Plan and an Environmental Monitoring Plan. Mitigation measures recommended for the proposed development are introduced below. Detailed mitigation measures will be confirmed in consultation with the RVCA and the City as part of the Detailed Design of the development.

9.1 Functional Servicing and Stormwater Management

A Functional Servicing Report (FSR) was prepared by Dillon in October 2021, which includes details and servicing strategy including the required supporting studies and related information for the transportation, sanitary, stormwater management, and water main servicing for the site. More specifically, the plan includes the following measures:

- The future detailed design of the sanitary sewer and service is to be consistent with the requirements of the City of Ottawa and the MECP
- All sanitary flows from within the proposed development will be conveyed via local sanitary sewers. It is proposed that the local sanitary sewer will outlet to the existing Private Drain Connection Manhole located at the Famille-Laporte Avenue right-of-way limit
- It is proposed that the site's stormwater outlet to the existing storm sewer that is currently located within the Famille-Laporte Avenue right-of-way, located west of the site
- Onsite detention will be provided in accordance with City of Ottawa and RVCA's Design Guidelines
- Pre-consultation with the City is required, but in general the site storm outlet rate is to be restricted to the pre-development outlet rates for the two, five and 100 year storm events
- The site will be graded to allow for overland flow to be captured onsite and directed to the storm sewer network. Rain events in excess of the 100 year event will spill over the site entrances and drain overland within the existing City road network
- The watermain servicing for the proposed development states that the new building will be serviced by a new domestic watermain connected to the existing main on Famille-Laporte Avenue
- Both fire hydrants will be connected to the existing main on Famille-Laporte Avenue.

Please refer to the full FSR (Dillon, 2021) in **Appendix F** for more details.

9.2 Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan will be required for the project. The plan may include, but is not limited to measure such as installation of geotextile silt fences, rock check dams, ditch checks, temporary sediment ponds, designated topsoil stockpile areas, and cut-off swales and ditches to divert surface flows to the appropriate sediment control area. More specifically, the plan may include the following measures:

- Standard duty silt fencing (OPSD 219.110) and/or other equivalent erosion and sediment controls should be installed around the perimeter of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas. Further, stockpiling of excavated materials will not occur within 30 m of watercourses or wetlands
- A spill response plan should be developed and implemented as required
- The use of silt socks, dewatering ponds, etc. should be implemented to avoid sedimentation and erosion in adjacent areas as required. If dewatering requires more than 50,000 L of water to be pumped per day, appropriate permits must be obtained from the MECP prior to the dewatering.

9.3 Landscaping and Planting Plan

The proposed development plan will require the removal of trees and other woody and non-woody vegetation within the Property. A preliminary LPP has been prepared by Ron Koudys Landscape Architects Inc. which includes proposed live tree removal as well as the locations of proposed restoration plantings (**Appendix E**). The LPP is required for the proposed development to off-set any vegetation removal using native tree and shrub species. The finalize LPP should include restoration / compensation plantings of trees generally based on the number of removals required to facilitate construction of the development. The exact number of compensation plantings and locations is to be determined through final Detailed Design in coordination with the finalized LPP.

The following monitoring and maintenance measures may also be recommended:

- Removal of invasive tree and shrubs, where applicable
- Watering and weeding of newly planted areas as required for proper establishment of plantings
- Replacement of dead material from previous year's planting.

Furthermore, in accordance with the City Tree Protection By-law No. 2020-340, the following measures should be followed as per the City's Tree Protection Specification (**Appendix G**) where trees are to be retained:

- Erect a fence at the critical root zone (CRZ) of trees to be retained
- Do not place any material or equipment within the CRZ of the tree (or the 10 m retained woodland buffer)
- Do not attach any signs, notices or posters to any tree
- Do not raise or lower the existing grade within the CRZ without approval
- Tunnel or bore when digging within the CRZ of a tree
- Do not damage the root system, trunk or branches of any tree
- Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

9.4 Wildlife Impact Mitigation Plan

The best practices outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015) should be followed during all construction activities associated with a development. The following measures are consistent with the City protocol:

- Minimize impacts to breeding birds by clearing naturalized vegetation outside of the breeding bird season (April 1 – August 31). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within the vicinity of the nest should cease until the nest has fledged. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act*
- Tree removal should be conducted outside of the bat active window (May - October) to avoid impacts to bat maternal roosts
- Pre-stress the area on a regular basis leading up to construction to encourage wildlife to leave the area before construction starts. Other recommendations for pre-stressing are outlined in the *Protocol for Wildlife Protection during Construction* (City of Ottawa, 2015)
- Orange snow fencing should be installed around the perimeter of the work area to clearly demarcate the development area and prevent wildlife from entering the construction zone. Fencing should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly
- Ensure perimeter fencing does not prevent wildlife from leaving the site during clearing activities by clearing the area prior to installing the fence
- Wildlife located within the construction area will be re-located to an area outside of the development into an area of appropriate habitat, as necessary
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife
- Should an animal be injured or found injured during construction, they should be transported to an appropriate wildlife rehabilitation center for care (i.e., Rideau Valley Wildlife Sanctuary).

9.5 Environmental Monitoring Plan

An Environmental Monitoring Plan (EMP) should be carried out through the duration of construction activities on-site to ensure that the erosion and sediment control measures operate effectively and to monitor the potential impact, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, buildings have been built, lawns have been sodded, and restoration plantings have been completed.

The EMP would consist of monitoring the erosion and sediment measures and the restoration/compensation plantings. Erosion and sediment control measures would be regularly monitored, and they will require periodic cleaning (i.e., removal of accumulated silt), maintenance and/or re-construction. Inspections of all of the erosion and sediment controls on the construction site should be undertaken by a certified sediment and erosion control monitor. If damaged control measures are found they should be repaired and/or replaced promptly.

The EMP would be implemented during active construction periods in the development area with the following frequency:

- On a bi-weekly basis
- After every 10 mm or greater rainfall event.

Restoration planting and protected vegetation areas will require periodic monitoring to ensure that they are not impacted by adjacent development. Should any impacts be observed, necessary steps would be taken to ensure that the impacted vegetation is either restored or replaced.

10.0 Summary and Next Steps

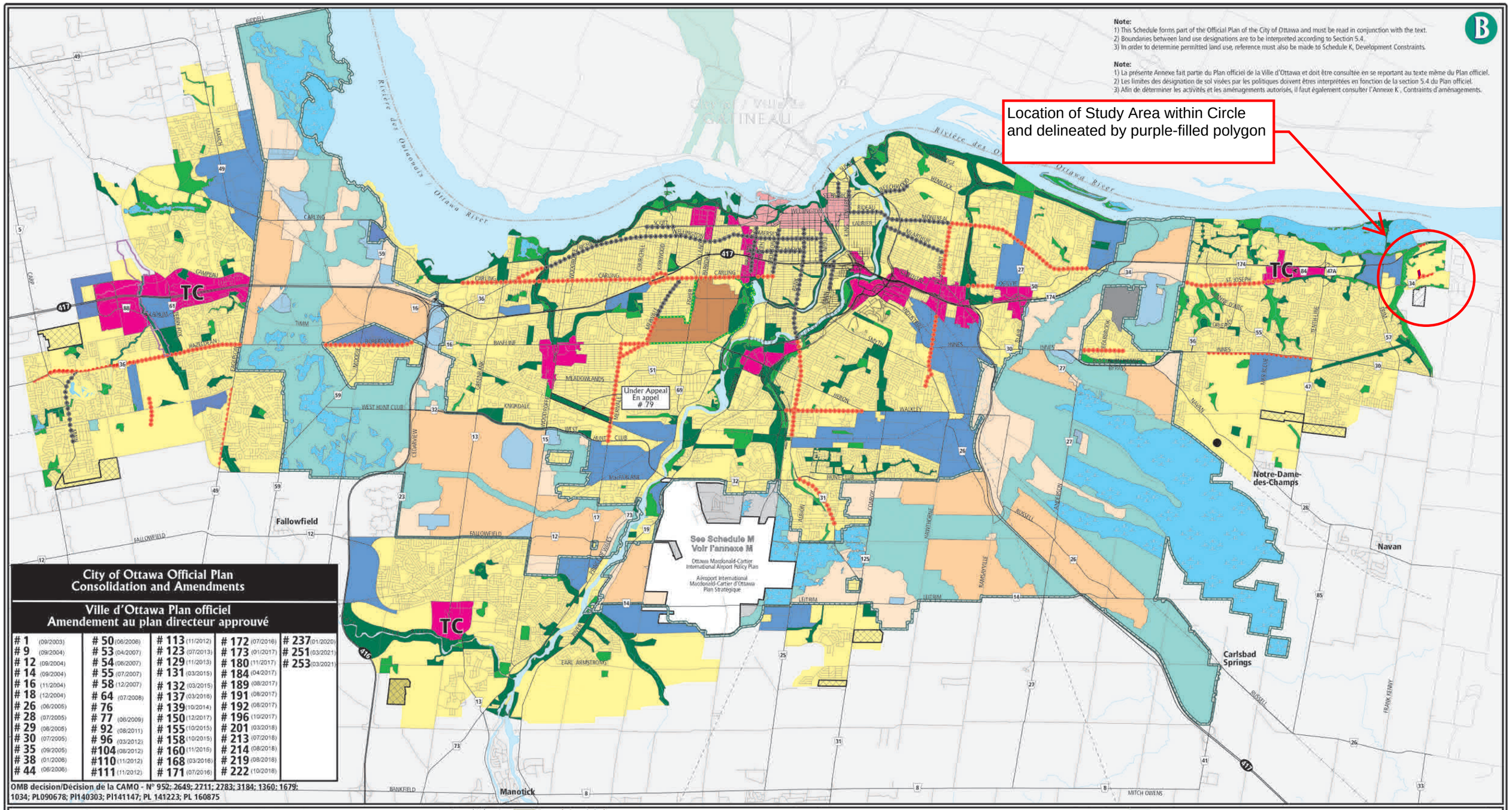
This EIS and TCR was prepared in support of Site Plan Control Approvals for the proposed development of a Long Term Care home located at 1161 Old Montreal Road in the City of Ottawa, Ontario. The findings of the background review, and field program including BBS, ELC, vegetation inventory, SAR/SWH wildlife habitat assessments and tree inventory form one combined comprehensive report containing both an EIS and TCR in accordance with applicable City guidelines.

Lands within the proposed development area mainly consist of a Graminoid Meadow (MEG) with Fencerow (TAGM5) along the eastern boundary of the Property. Woody vegetation including a total of 155 trees documented individually and as a tally count within Tree Grouping 1 (two of which were identified as Distinctive Trees) will be removed to accommodate the proposed development footprint. Compensation/restoration plantings for the removal of trees associated with the proposed development as conceptualized within the LPP will be finalized during detailed design aimed at restoring the original amount of tree cover within the Property.

Potential ecological impacts of development may include tree and vegetation removal, diversion of surface water flows and the loss general wildlife habitat. These impacts will be avoided or minimized by implementing the mitigation, restoration, and management measures described in this report.

Appendix A

Official Plan Schedules


Note:
1) This Schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.
2) Boundaries between land use designations are to be interpreted according to Section 5.4.
3) In order to determine permitted land use, reference must also be made to Schedule K, Development Constraints.
Note:
1) La présente Annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
2) Les limites des désignation de sol visées par les politiques doivent êtres interprétées en fonction de la section 5.4 du Plan officiel.
3) Afin de déterminer les activités et les aménagements autorisés, il faut également consulter l'Annexe K , Contraints d'aménagements.
B
Location of Study Area within Circle and delineated by purple-filled polygon
Under Appeal
En appel
79
See Schedule M
Voir l'annexe M
Ottawa Macdonald-Cartier International Airport Policy Plan
Aéroport International Macdonald-Cartier d'Ottawa Plan Stratégique
Fallowfield
Manotick
Notre-Dame-des-Champs
Navan
Carlsbad Springs
TC
Rivière des Outaouais / Ottawa River
Ottawa River
City of Ottawa Official Plan Consolidation and Amendments
Ville d'Ottawa Plan officiel Amendement au plan directeur approuvé
1 (09/2003)
9 (09/2004)
12 (09/2004)
14 (09/2004)
16 (11/2004)
18 (12/2004)
26 (06/2005)
28 (07/2005)
29 (06/2005)
30 (07/2005)
35 (09/2005)
38 (01/2006)
44 (06/2006)
50 (06/2006)
53 (04/2007)
54 (06/2007)
55 (07/2007)
58 (12/2007)
64 (07/2008)
76
77 (06/2009)
92 (08/2011)
96 (03/2012)
#104 (08/2012)
#110 (11/2012)
#111 (11/2012)
113 (11/2012)
123 (07/2013)
129 (11/2013)
131 (03/2015)
132 (03/2015)
137 (03/2016)
139 (10/2014)
150 (12/2017)
155 (10/2015)
158 (10/2015)
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171 (07/2016)
172 (07/2016)
173 (01/2017)
180 (11/2017)
184 (04/2017)
189 (08/2017)
191 (08/2017)
192 (08/2017)
196 (10/2017)
201 (03/2018)
213 (07/2018)
214 (08/2018)
219 (08/2018)
222 (10/2018)
237 (01/2020)
251 (03/2021)
253 (03/2021)
OMB decision/Décision de la CAMO - N° 952; 2649; 2711; 2783; 3184; 1360; 1679; 1034; PL090678; PI140303; PI141147; PL 141223; PL 160875
Official Plan - Schedule B
Urban Policy Plan
Prepared by: Planning, Infrastructure and Economic Development Department
Plan officiel - Annexe B
Plan des politiques en milieu urbain
Preparé par : Services de la planification, de l'infrastructure et du développement économique
General Urban Area
Zone urbaine générale
Urban Expansion Study Area
Zone d'étude d'expansion urbaine
Central Area
Zone centrale
Town Centre
TC
Centre ville
Traditional Mainstreet
Rue principale traditionnelle
Arterial Mainstreet
Artère principale
Mixed Use Centre
Centre polyvalent
Carp River Restoration Policy Area Overlay
Zone sous-jacente de restauration de la rivière Carp
Developing Community (Expansion Area)
Communauté en développement (zone d'expansion)
Natural Environment Area
Zone écologique naturelle
Agricultural Resource Area
Zone de ressources agricoles
Agricultural Research Area
Zone de recherche agricoles
Macdonald-Cartier International Airport
Aéroport international Macdonald-Cartier
Greenbelt Employment and Institutional Area
Zone d'emploi et d'équipement collectif de la Ceinture de verdure
Urban Employment Area
Zone d'emploi urbaine
Greenbelt Rural
Ceinture de verdure secteur rural
Sand and Gravel Resource Area
Zone de ressources de sable et de gravier
Major Open Space
Grand espace vert
Urban Natural Features
Caractéristiques naturelles zone urbaine
Bedrock Resource Area
Zone de ressources en substrat rocheux
Significant Wetlands
Terres humides d'importance
Central Experimental Farm
Ferme expérimentale centrale
Greenbelt Boundary
Limite de la Ceinture de verdure
Solid Waste Disposal Site
Site d'enfouissement des déchets solides
Lands leased by the Ottawa International Airport Authority
Terrains Loués par l'administration de l'aéroport international d'Ottawa
Ottawa
(10/2021)
Scale / Échelle
23km 2 0 1 2 3 4km

Location of Study Area within Circle and delineated by purple-filled polygon

L1

or/ou Identified Natural Heritage System Features Overlay /Zone sous-jacente du Système du patrimoine naturel

NOTE: this Schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text. It provides a partial map of the City's natural heritage system, including designated significant wetlands, urban natural features and Earth Science ANSIs as well as certain other features believed or proven to meet the definitions established in Section 2.4.2 of the Plan. This schedule does not represent the entire natural heritage system for the City of Ottawa. The policies in Section 2.4.2 will be applied to all features meeting the definitions in Section 2.4.2 regardless of whether or not they are included on this schedule. Detailed on-site analysis and interpretation is required to confirm and delineate individual features and the City will update this schedule by Official Plan Amendment as more detailed information becomes available.

AVIS : cette annexe fait partie intégrante du Plan officiel de la Ville d'Ottawa et doit être lue en même temps que le texte. Elle présente une carte partielle du Système du patrimoine naturel d'Ottawa, comprenant des zones désignées terres humides d'importance et caractéristiques urbaines naturelles et éléments topographique de la ZINS , ainsi que d'autres caractéristiques dont on estime ou possède la preuve qu'elles correspondent aux définitions établies dans la section 2.4.2 du Plan officiel. Cette annexe ne présente pas le Système du patrimoine de la Ville d'Ottawa au complet. Les politiques énoncées à la section 2.4.2 s'appliqueront à toutes les caractéristiques correspondant aux définitions à la section 2.4.2, qu'elles fassent ou non partie de cette annexe. La détermination des différentes caractéristiques suppose une analyse sur place ainsi qu'une interprétation détaillées, et la Ville mettra cette annexe à jour, par voie de modification du Plan officiel lorsque des renseignements plus précis seront disponibles.

The following features are designated on other schedules in this Plan, and are shown on this schedule for information purposes only.

- Floodplain / Plaine inondable (See Schedule K / voir Annexe K)
- Village / Village (See Schedule A / voir Annexe A)
- Greenbelt / Ceinture de verdure (See Schedule B / voir Annexe B)
- Urban Boundary / Limite de la zone urbaine (See Schedule A / voir Annexe A)

Cumberland
Sarsfield
Notre-Dame-des-Champs
Navan
Carlsbad Springs
Vars
Fallowfield
Greely
Metcalfe
Kenmore
Manotick
Ottawa River

Official Plan for the City of Ottawa Consolidation and Amendments

Plan officiel de la Ville d'Ottawa Amendement au plan directeur approuvé

# 129 (11/2013)	# 162 (01/2016)
# 141 (12/2017)	# 192 (08/2017)
# 150 (12/2017)	# 251*

Ottawa

OFFICIAL PLAN - Schedule L1

NATURAL HERITAGE SYSTEM OVERLAY (EAST)

Prepared by: Planning and Growth Management Department, Mapping & Graphics Unit, 2012

PLAN OFFICIEL - Annexe L1

ZONE SOUS-JACENTE DU SYSTÈME DU PATRIMOINE NATUREL (EST)

Service de l'urbanisme et de la gestion de la croissance, Unité de la cartographie et des graphiques, 2012

0 1,250 2,500 5,000 7,500 10,000 Meters

K

Location of Study Area within Circle

City of / Ville de GATINEAU

McNAB/ BRAESIDE

MISSISSIPPI MILLS

BECKWITH

MONTAGUE

NORTH GRENVILLE

NORTH DUNDAS

RUSSELL

CLARENCE-ROCKLAND

THE NATION

Fitzroy Harbour

Constance Bay

Galetta

Dunrobin

Kinburn

Carp

Fallowfield

Richmond

Ashton

Munster

Manotick

Greely

Cumberland

Sarsfield

Navan

Carlsbad Springs

Vars

Metcalfe

Kenmore

Marionville

Vernon

Kars

Osgoode

North Gower

Burrit's Rapids

Note:
1) This schedule forms part of the Official Plan of the City of Ottawa and must be read in conjunction with the text.

Note:
1) La présente annexe fait partie du Plan officiel de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.

Official Plan for the City of Ottawa
Consolidation and Amendments

Plan officiel de la Ville d'Ottawa
Amendement au plan directeur approuvé

 # 233*

OFFICIAL PLAN - Schedule K

ENVIRONMENTAL CONSTRAINTS

Prepared by: City of Ottawa, Planning and Growth Management Department

PLAN OFFICIEL - Annexe K

CONTRAINTES ÉCOLOGIQUES

Preparé par: Ville d'Ottawa, Service de l'urbanisme et de la gestion de la croissance

Ottawa

4 2 0 4 8 12 Km

Scale / Échelle 1 : 250,000

Village	Village
Flood Plain	Zone inondable
Two Zone Flood Plain	Plain inondable en deux zones
Organic Soils	Sols organiques
Wellhead Protection Area (Vulnerability Scores)	Zone de protection des têtes de puits (Indices de vulnérabilité)
Intake Protection Zone (Vulnerability Scores 10,9,8,8.1)	Zones de protection des prises d'eau (Indices de vulnérabilité 10,9,8,8.1)
Unstable Slopes	Terrains en pente instables
Landform Feature	Caractéristiques topographiques
Provincially Significant Earth Science Area of Natural And Scientific Interest	Zone d'intérêt naturel et scientifique (ZINS) d'impotance provinciale liée aux sciences de la terre

Appendix B

Photographic Inventory

Photo Comments	Photo
Photo #1 **June 14, 2021** **Notes:** Facing east from at Graminoid Meadow (MEG) (foreground) and the Fencerow (TAGM5) (background) from Famille-Laporte Avenue.	
Photo #2 **September 16, 2021** **Notes:** Facing north from central portion of the Graminoid Meadow (MEG).	

Photo Comments	Photo
Photo #3 **September 16 2021** **Notes:** Facing north from western central portion of the Graminoid Meadow (MEG) at a dirt/gravel ditch that occurs parallel to Famille-Laporte Avenue and directs surface water flows north into a municipal sewer grate.	
Photo #4 **September 16 2021** **Notes:** Facing south from northwest portion of the Graminoid Meadow (MEG) at a dirt/gravel ditch that occurs parallel to Famille-Laporte Avenue and directs surface water flows north into a municipal sewer grate.	

Photo Comments	Photo
Photo #5 **September 16 2021** **Notes:** Facing southwest at municipal sewer grate located at north end of dirt/gravel ditch.	
Photo #6 **September 16 2021** **Notes:** Facing east from at Graminoid Meadow (MEG) (foreground) and the Fencerow (TAGM5) / Tree Grouping 1 (background) from Famille-Laporte Avenue.	

Photo Comments	Photo
Photo #7 **September 16 2021** **Notes:** Facing north within the northern portion of the Property at a flock of Wild Turkeys foraging.	
Photo #8 **September 16 2021** **Notes:** Facing east at Graminoid Meadow (MEG) and individually inventoried Trees # 1 – 6.	

Photo Comments	Photo
Photo #9 **September 16 2021** **Notes:** Emerald Ash Borer Beetle gallery on Ash tree within Fencerow (TAGM5).	
Photo #10 **September 16 2021** **Notes:** Facing south from north extent of Fencerow (TAGM5) at Fencerow (TAGM5) adjacent to Graminoid Meadow (MEG).	

Appendix C

Vegetation Inventory

Appendix C - Vegetation Inventory

Scientific Name	Common Name	*SARA*[1]	*ESA*[2]	SRank[3]	CC[4]	CW[5]	Invasive Ranking[6]	Noxious[7]
Ulmus americana	American Elm	---	---	S5	3	-2	---	---
Ambrosia artemisiifolia	Annual Ragweed	---	---	S5	0	3	---	Y
Bromus inermis	Awnless Brome	---	---	SNA	---	5	4	---
Echinochloa crus-galli	Large Barnyard Grass	---	---	SNA	---	-3	---	---
Artemisia biennis	Biennial Wormwood	---	---	SNA	---	-2	---	---
Fraxinus nigra	Black Ash	---	---	S4	7	-4	---	---
Gleditsia triacanthos inermis	Thornless Honey-locust	---	---	SNA	3	0	---	---
Centaurea jacea	Brown Knapweed	---	---	SNA	---	5	---	Y
Cirsium vulgare	Bull Thistle	---	---	SNA	---	4	---	Y
Quercus macrocarpa	Bur Oak	---	---	S5	5	1	---	---
Solidago canadensis var. canadensis	Canada Goldenrod	---	---	S5	1	3	---	---
Cirsium arvense	Canada Thistle	---	---	SNA	---	3	6	---
Cichorium intybus	Chicory	---	---	SNA	---	5	---	---
Toxicodendron rydbergii	Rydberg's Poison Ivy	---	---	S5	5	-1	---	Y
Rhamnus cathartica	Common Buckthorn	---	---	SNA	---	3	9	Y
Taraxacum officinale	Common Dandelion	---	---	SNA	---	3	---	---
Oenothera biennis	Common Evening Primrose	---	---	S5	0	3	---	---

Scientific Name	Common Name	*SARA*[1]	*ESA*[2]	SRank[3]	CC[4]	CW[5]	Invasive Ranking[6]	Noxious[7]
Asclepias syriaca	Common Milkweed	---	---	S5	0	5	---	---
Panicum capillare	Common Panicgrass	---	---	S5	0	0	---	---
Sonchus oleraceus	Common Sow-thistle	---	---	SNA	---	3	---	---
Echium vulgare	Common Viper's-bugloss	---	---	SNA	---	5	---	---
Rumex crispus	Curly Dock	---	---	SNA	---	-1	---	---
Erigeron hyssopifolius	Daisy Fleabane	---	---	S5	10	-3	---	---
Hesperis matronalis	Dame's Rocket	---	---	SNA	---	5	4	---
Carex vulpinoidea	Fox Sedge	---	---	S5	3	-5	---	---
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---	1	---	---
Euthamia graminifolia	Grass-leaved Goldenrod	---	---	S5	2	-2	---	---
Fraxinus pennsylvanica	Green Ash	---	---	S4	3	-3	---	---
Setaria viridis	Green Foxtail	---	---	SNA	---	5	---	---
Poa pratensis ssp. pratensis	Kentucky Bluegrass	---	---	S5	0	1	6	---
Stachys byzantina	Lamb's Ears	---	---	SNA	1	3	---	---
Symphyotrichum novae-angliae	New England Aster	---	---	S5	2	-3	---	---
Lactuca serriola	Prickly Lettuce	---	---	SNA	---	0	---	---
Trifolium pratense	Red Clover	---	---	SNA	---	2	---	---
Agrostis gigantea	Redtop	---	---	SNA	---	0	---	---
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0	-4	9	---

Scientific Name	Common Name	*SARA*[1]	*ESA*[2]	SRank[3]	CC[4]	CW[5]	Invasive Ranking[6]	Noxious[7]
Vitis riparia	Riverbank Grape	---	---	S5	0	-2	---	---
Ulmus rubra	Slippery Elm	---	---	S5	6	0	---	---
Amaranthus hybridus ssp. hybridus	Smooth Amaranth	---	---	SNA	---	5	---	---
Rhus hirta	Staghorn Sumac	---	---	S5	1	5	---	---
Cyperus strigosus	Straw-colored Flatsedge	---	---	S5	5	-3	---	---
Populus tremuloides	Trembling Aspen	---	---	S5	2	0	---	---
Vicia cracca	Tufted Vetch	---	---	SNA	---	5	---	---
Daucus carota	Wild Carrot	---	---	SNA	---	5	3	---
Setaria pumila	Yellow Foxtail	---	---	SNA	---	0	---	---

1 – as designated under Schedule 1 of the federal *Species at Risk Act*, 2002; 2 – as designated under the provincial *Endangered Species Act*, 2007; 3 – provincial conservation rankings as determined by the NHIC , S1 - Extremely rare in Ontario; usually 5 or fewer occurrences in the province, or only a couple remaining hectares , S2 - Very rare in Ontario; usually between 6 and 20 occurrences in the province, or only a few remaining hectares, S3 - Rare to uncommon in Ontario; usually between 21 and 80 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining , S4 - Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province, S5 - Indicates that a species is widespread in Ontario. It is demonstrably secure in the province - A question mark (?) following the rank indicates that there is some uncertainty with the classification due to insufficient information. These provincial ranks may further be modified, S2S3 - Indicates that an element is rare, but insufficient information exists to accurately assign a single rank, SNR - Unranked — conservation status Not Ranked, SNA - Not Applicable – a conservation status rank is not applicable because the species is not a suitable target for conservation activities, SX - Indicates that an element is extirpated from the province, SU - Indicates that the status is uncertain due to insufficient information, SE - Exotic species, non-native to Ontario; 4 - Coefficient of Conservatism (CC) as determined by the NHIC's Floristic Quality Assessment System for Southern Ontario (1995); 5 - Coefficient of Wetness (CW) as determined by the NHIC's Floristic Quality Assessment System for Southern Ontario (1995); 6 – Invasive Ranking as determined by the *Invasive Exotic Plant Species Rankings for Southern Ontario (Draft - Urban Forest Associates/MNRF, 2014),* species that are designated as 4,5,6 are more locally invasive and tend to be naturalized whereas 7,8,9 are highly invasive often forming monocultures; 7 – Noxious designation as determined by the Schedule of Noxious Weeds under the Ontario Weed Control Act, RSO 1990

Appendix D

Detailed Tree Inventory

LTC Detailed Tree Inventory Table

Master ID[1]	Scientific Name	Common Name	Ownership	DBH (cm)	Tally	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation	Protection Measures[2]
1	*Gleditsia triacanthos inermis*	Thornless Honey-locust	Private	23	1	Fair/poor	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback and rare branch dieback.	Remove	Trees occur within the development footprint.	n/a
2				25	1	Fair/poor	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback and rare branch dieback.			
3				23	1	Fair/poor	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback and rare branch dieback.			
4				21	1	Fair	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback.			
5				23	1	Fair	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback.			
6				23	1	Fair	Occasional to abundant epicormic growth present, foliage in canopy is stressed with frequent twig dieback.			
Grouping 1 Including Tree # 7 and Tree # 8	*Fraxinus nigra*	Black Ash		10 – 29	12	Fair (of the live tree <10 cm DBH)	The condition of live trees that occurred ranged from poor to good with many believed to have been or currently being affected by Emerald Ash Borer (*Agrilus planipennis*) (EAB) based on the galleries present on dead trees as well as entrance bores characteristic of EAB. All of the larger trees (approximately 10 – 29 cm DBH) were dead. Some regeneration growth present sized at 7 – 9 cm DBH.	Remove	Trees occur within the development footprint.	n/a
	Fraxinus pennsylvanica	Green Ash		10 – 29	14	Fair (of the live tree <10 cm DBH	The condition of live trees that occurred ranged from poor to good with many believed to have been or currently being affected by Emerald Ash Borer (*Agrilus planipennis*) (EAB) based on the galleries present on dead trees as well as entrance bores characteristic of EAB. All of the larger trees (approximately 10 – 29 cm DBH) were dead. Some regeneration growth present sized at 7 – 9 cm DBH.			
	Populus tremuloides	Trembling Aspen		10 - 25	5	Good	All trees were in good condition with the exception to one dead tree.			
	Quercus macrocarpa	Bur Oak		10 – 50 (all trees) *50 (Tree #7) *55 (Tree #8)	87	Fair to Good	The condition of live trees that occurred ranged from fair to good. Several smaller (10 – 15 cm DBH) trees occurred as dead. Many of the trees contained epicormic growth and the larger mid-age to			

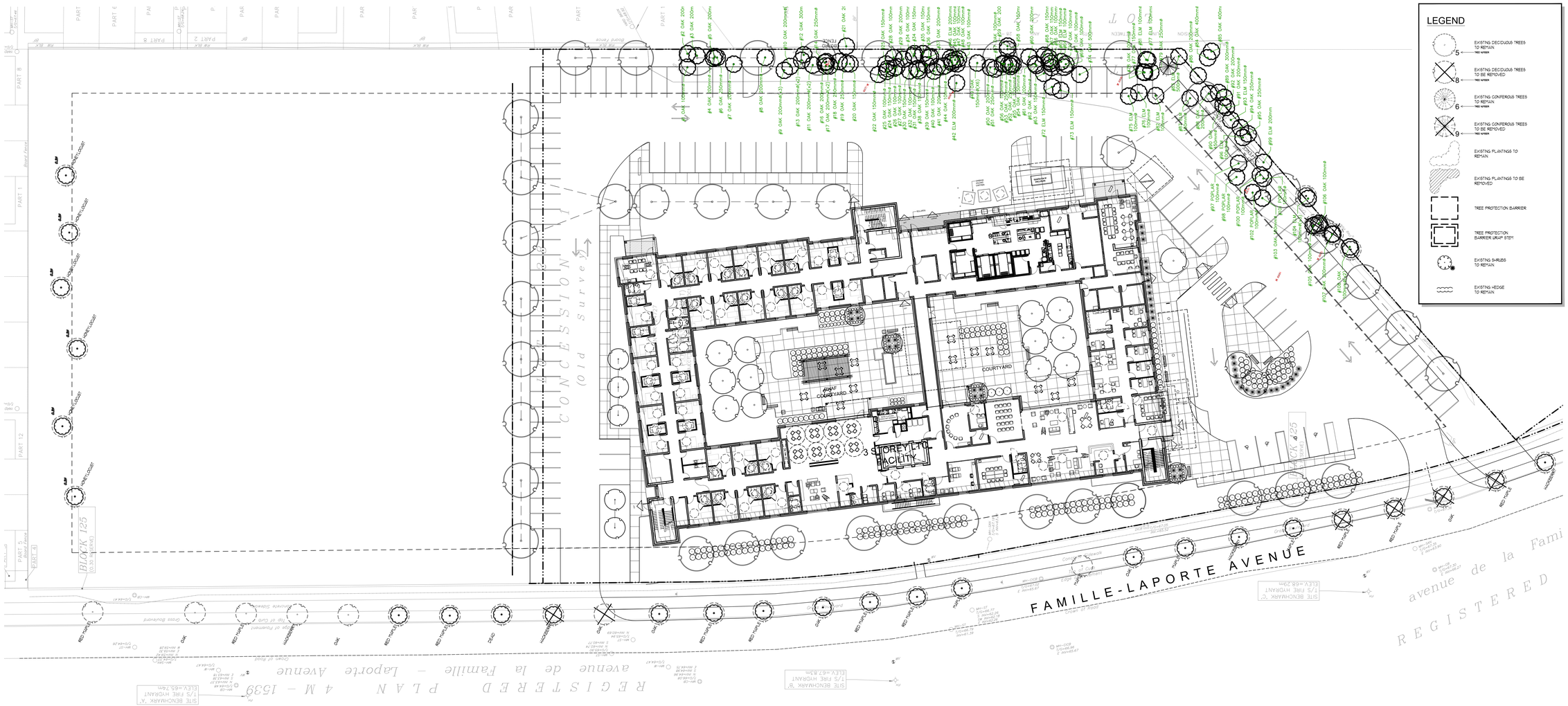
LTC Detailed Tree Inventory Table

Master ID[1]	Scientific Name	Common Name	Ownership	DBH (cm)	Tally	Condition	Level 2 Assessment Notes	Action	Rationale for Removal or Preservation	Protection Measures[2]
							mature trees contained two or three stems. Both Tree #7 and Tree #8 were assessed as being in good condition.			
	Ulmus americana	American Elm		10 - 15	20	Poor to Good	The condition of live trees that occurred ranged from poor to good with many believed to have been or currently being affected by Dutch Elm Disease (DED) fungus (*Ophiostoma spp.*) based on the entrance bores characteristic of Elm Bark Beetle (*Scolytus multistriatus*).			
	Ulmus rubra	Slippery Elm		10 - 15	4	Poor to Good	The condition of live trees that occurred ranged from fair to good.			
9	*Celtis occidentalis*	Common Hackberry	City of Ottawa	8	1	Good	---	Remove	Trees occur within the development footprint.	n/a
10	*Acer rubrum*	Red Maple		9	1	Fair	Epicormic growth at base.			
11	*Quercus rubra*	Northern Red Oak		7	1	Excellent/Good	---			
12	*Acer rubrum*	Red Maple		6	1	Good	---			
13	*Acer rubrum*	Red Maple		9	1	Fair/Poor	Abundant epicormic growth at base. Sparse foliage in canopy.			
14	*Celtis occidentalis*	Common Hackberry		9	1	Good	---			
15	*Quercus rubra*	Northern Red Oak		7	1	Good	---			

[1] – Master Tree/Group ID for reference in **Figure 3** and **Figure 4**; [2] – For individual trees: CRZ = Critical Root Zone, as defined by the City of Ottawa: CRZ = Diameter of trunk in centimetres (cm) x 10 cm; For woodlots: where possible, a standard 10 m buffer from the canopy dripline is recommended. * Larger Trees (50 cm DBH or greater) within the suburban area are considered “Distinctive Trees” as per the City’s Tree Protection By-law No. 2020-340

Appendix E

Preliminary Landscape and Planting Plan



TREE PRESERVATION PLAN

SCALE =1:250

RON KOUDYS LANDSCAPE ARCHITECTS INC.

ALL DRAWINGS REMAIN THE PROPERTY OF THE LANDSCAPE ARCHITECT AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE LANDSCAPE ARCHITECTS WRITTEN PERMISSION.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION OR TENDER PURPOSES UNLESS SIGNED AND DATED BY RONALD H. KOUDYS, OALA, CSLA, LANDSCAPE ARCHITECT, LONDON, ONTARIO (519) 697-3322.

Ronald H. Koudys, O.A.L.A. C.S.L.A. DATE

#	date:	revision:	by:
2.	OCT.22.2021	ISSUED FOR 50% DD	MCB
1.	AUG.26.2021	ISSUED FOR 100% SD	MCB

revisions

ARCH CORP LTC ORLEANS

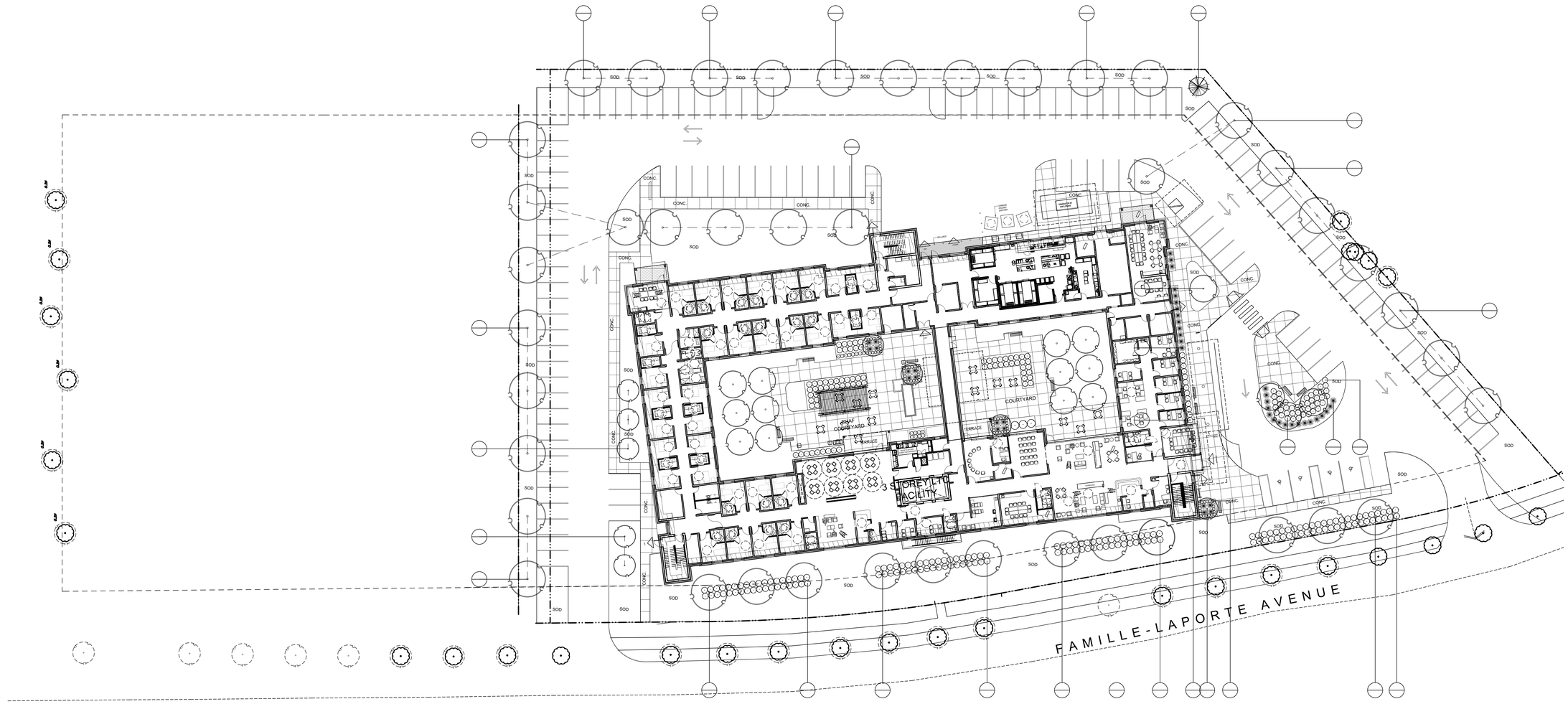
FAMILIE LAPRITE AVE
ORLEANS, ON

LANDSCAPE PLAN

scale:	AS NOTED
drawn by:	MCB
reviewed by:	MCB
job number:	21-164Lb
plot date:	2021-10-22

drawing number:

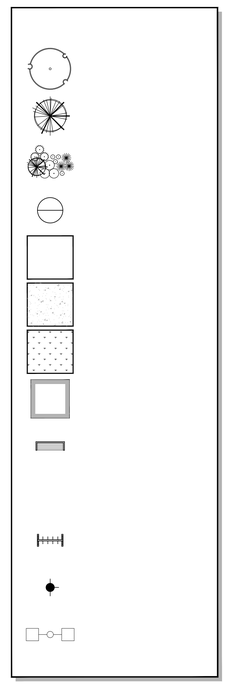
L-1



OVERALL LANDSCAPE PLAN
SCALE =1:250

PLANT MATERIAL

KEY	COMMON NAME	BOTANICAL NAME	QTY	SIZE	COND
Ag	AMUR MAPLE	Acer ginnala (multi-stem)	4	40mmcal	WB
Am	MULTI-STEM SERVICEBERRY	Amelanchier canadensis multi-stem	7	150cm	POT
Ar	RED MAPLE	Acer rubrum 'Sunset'	9	60mmcal	WB
Bt	ROSE GLOW BARBERRY	Berberis thungergii 'Monoria'	48	40cm	POT
Cc	SINGLE - STEM REDBUD	Cercis canadensis single-stem	3	45mmcal	POT
Co	HACKBERRY TREE	Celtis occidentalis	7	60mmcal	WB
Dl	PARDON ME DAYLILY	Hemerocallis 'Pardon Me'	51	1yrgal	POT
Ea	WINTER CREEPER EUONYMUS	Euonymus fortunei 'Coloratus'	46	60cm	POT
Gt	SHADEMASTER LOCUST	Gleditsia triacanthos 'Shademaster'	7	60mmcal	WB
Lt	TULIP TREE	Liriodendron tulipifera	6	60mmcal	WB
Pl	WHITE SPRUCE	Picea glauca	15	150cm	WB
Qa	WHITE OAK	Quercus alba	6	60mmcal	WB
Sj	LITTLE PRINCESS SPIREA	Spiraea japonica 'Little Princess'	56	60cm	POT
Ta	BASSWOOD	Tilia americana	4	60mmcal	WB
Th	HICK'S YEW	Taxus x media 'Hicksii'	33	60cm	POT
Tm	DENSE YEW	Taxus x media 'Densiformis'	12	40cm	POT



RON KOUDYS LANDSCAPE ARCHITECTS INC.

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THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION OR TENDER PURPOSES UNLESS SIGNED AND DATED BY RONALD H. KOUDYS, OALA, CSLA, LANDSCAPE ARCHITECT, LONDON, ONTARIO (519) 667-3322.

Ronald H. Koudys, O.A.L.A. C.S.L.A. DATE

#	date:	revision:	by:
2.	OCT.22.2021	ISSUED FOR 50% DD	MCB
1.	AUG.26.2021	ISSUED FOR 100% SD	MCB

revisions

ARCH CORP LTC ORLEANS

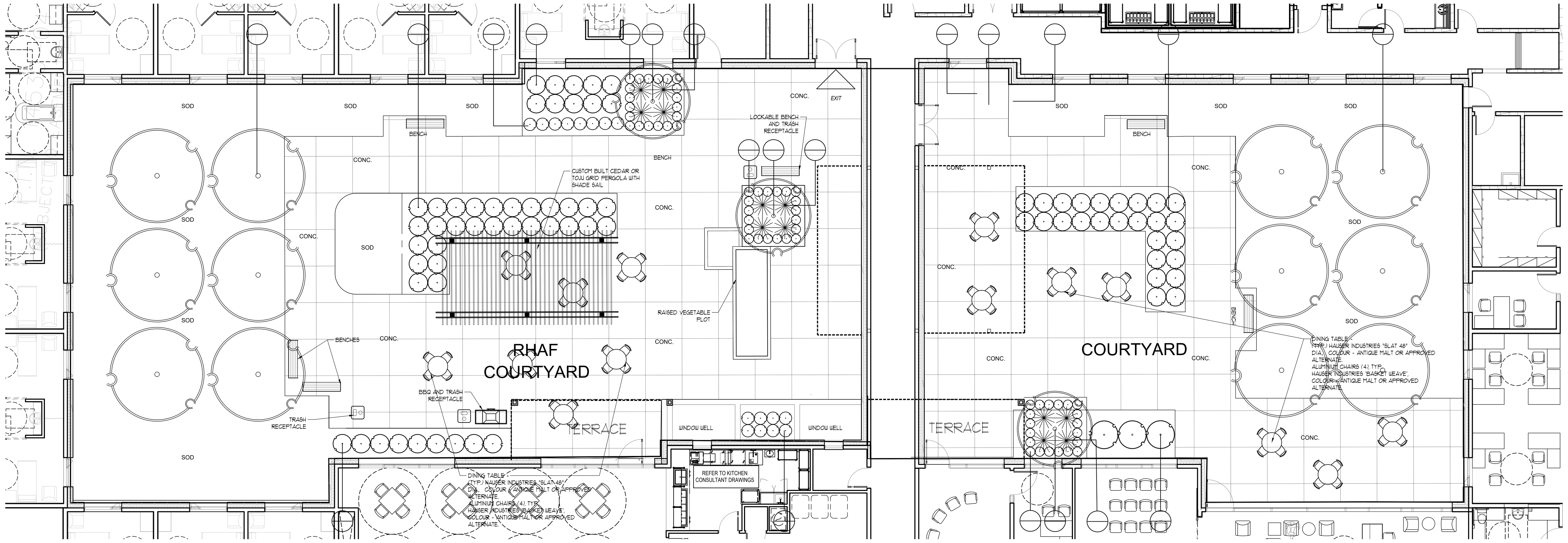
AVENUE DE LES FAMILLE
ORLEANS, ON

LANDSCAPE PLAN

scale:	AS NOTED
drawn by:	MCB
reviewed by:	MCB
job number:	21-164Lb
plot date:	2021-10-22

drawing number:

L-1



COURTYARD LANDSCAPE PLAN

SCALE = 1:100

PLANT MATERIAL

KEY	COMMON NAME	BOTANICAL NAME	QTY	SIZE	COND
Am	MULTI-STEM SERVICEBERRY	Amelanchier canadensis multi-stem	6	150cm	POT
Ap	BLOODGOOD JAPANESE MAPLE	Acer palmatum 'Bloodgood'	2	150cm	WB
Bt	ROSE GLOW BARBERRY	Berberis thungergii 'Monomb'	4	40cm	POT
Cj	KATSURA TREE	Cercidiphyllum japonicum	16	60mmcal	WB
Ha	ANNABELLE HYDRANGEA	Hydrangea arborescens 'Annabelle'	6	2yr5gal	POT
Hb	BOO BOO HYDRANGEA	Hydrangea paniculata 'ILVOBO'	108	2yrlgal	POT
Kf	KARL FOERSTER REED GRASS	Calamagrostis acutifolia 'Karl Foerster'	50	2yrlgal	POT
Rr	KNOCK OUT DOUBLE PINK ROSE	Rosa 'Radtkopink'	58	60cm	POT
Se	AUTUMN JOY SEDUM	Sedum spectabile 'Autumn Joy'	38	2yrlgal	POT

GENERAL PLANTING SPECIFICATIONS:

1. BASE INFORMATION SUPPLIED BY MONTGOMERY SISAM ARCHITECTS INC.
2. ENGINEERING INFORMATION SUPPLIED BY DILLON.
3. CONTRACTOR TO MAKE THEMSELVES FAMILIAR WITH ALL RELATED SPECIFICATIONS.
4. CONTRACTORS ARE RESPONSIBLE FOR REVIEW OF ALL SPECIFICATIONS AND RELATED DRAWINGS WITH SELECTED SUB-CONTRACTORS AS THEY PERTAIN TO WORK AS OUTLINED ON LANDSCAPE ARCHITECTURAL WORKING DRAWINGS AND SPECIFICATIONS.
5. REPORT ALL DISCREPANCIES TO THE LANDSCAPE ARCHITECT DURING TENDERING PROCESS. ERRORS AND/OR OMISSIONS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. CONTRACTOR SHALL MAINTAIN ALL LANDSCAPED AREAS UNTIL OWNER ACCEPTANCE OF PROJECT. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IN WRITING ON COMPLETION OF PROJECT FOR A SITE WORK COMPLETION CERTIFICATE AS WELL AS THE COMMENCEMENT OF THE ACCEPTANCE OF PROJECT.
7. ALL WORKMANSHIP TO BE WARRANTIED FOR ONE YEAR UNLESS OTHERWISE STATED. WARRANTY PERIOD WILL BEGIN ON FINAL ACCEPTANCE OF PROJECT.
8. ALL WORKMANSHIP TO COMPLY WITH THE CANADIAN LANDSCAPE STANDARDS.
9. ALL NURSERY STOCK TO BE #1 NURSERY GROWN AND MUST COMPLY WITH THE CANADIAN NURSERY LANDSCAPE ASSOCIATION'S "CANADIAN NURSERY STOCK STANDARD", LATEST EDITION.
10. ALL LANDSCAPING IS TO BE INSTALLED PRIOR TO THE END OF THE FIRST GROWING SEASON FOLLOWING THE OCCUPANCY OF THE SITE DEVELOPMENT UNLESS OTHERWISE STATED.
11. CONTRACTOR IS RESPONSIBLE FOR ALL UNDERGROUND UTILITIES AND MUST SUPPLY THE LANDSCAPE ARCHITECT WITH COPIES OF LOCATE CERTIFICATES PRIOR TO COMMENCEMENT OF WORK.

GRADING

1. CONTRACTOR TO ENSURE POSITIVE DRAINAGE IN ALL AREAS.
2. ALL GRADING TO BE IN ACCORDANCE WITH SITE ENGINEERS DRAWINGS.
3. SOIL SHALL BE SCARIFIED FREE OF ALL STONES, ROOTS, BRANCHES LARGER THAN 1" (25MM) AND COMPACTED TO 85% S.P.D.
4. ALL SUBSOIL TO BE SCARIFIED TO A DEPTH OF 6" (150 MM) PRIOR TO THE INSTALLATION OF TOPSOIL TO ENSURE NO HARDPAN CONDITIONS.
5. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF TOPSOIL TO APPROVE SUBBASE.
6. DIRECT ALL RAINLEADERS AND SUMP LEADERS AWAY FROM PLANTING BEDS AND TO THE DESIGNATED SWALES.
7. NOTIFY LANDSCAPE ARCHITECT IN WRITING OF ANY SUBSTANTIAL WET CONDITIONS.

TOPSOIL

1. AT THE CONTRACTORS EXPENSE A SOIL TEST IS TO BE COMPLETED BY A REPUTABLE LABORATORY. THE SOIL TEST IS TO BE COMPLETED AND IF NECESSARY, RECOMMENDATIONS FROM THE LABORATORY ARE TO BE INCLUDED. THE RESULTS OF SOIL TESTS AND RECOMMENDATIONS ARE TO BE PROVIDED TO THE LANDSCAPE ARCHITECT FOR APPROVAL ONE WEEK PRIOR TO WORK COMMENCING.
2. TOPSOIL FOR PLANTING BEDS IS TO BE A FERTILE, FRIABLE, NATURAL LOAM TO A MINIMUM DEPTH OF 18" (450MM), AND A MINIMUM DEPTH OF 4" (100MM) FOR TURF AREAS - UNLESS OTHERWISE STATED - TOPSOIL SHALL CONTAIN NOT LESS THAN 4% ORGANIC MATTER FOR CLAY LOAMS AND NOT LESS THAN 2% ORGANIC MATTER± FOR SANDY LOAM TO A MAXIMUM OF 15%, AND CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH, FREE OF SUBSOIL CONTAMINATION, ROOTS AND STONES OVER 50MM DIAMETER, REASONABLY FREE OF WEEDS, AS DETERMINED BY THE LANDSCAPE ARCHITECT , AND HAVING A pH RANGING FROM 6.0 TO 7.0.
3. IF TOPSOIL IS TO BE STOCKPILED FOR USE ON SITE DEVELOPMENT, AVOID MIXING TOPSOIL WITH SUBSOIL. LIMIT HEIGHT OF STOCKPILE TO 3M TO RETAIN SOIL MICROORGANISMS AND SOIL VIABILITY AND FERTILITY.
4. IF APPLICABLE, ALL WORK IN ANY ROAD ALLOWANCE SHALL MEET THE MINIMUM SPECIFICATIONS OF THE MUNICIPALITY. ENSURE A MINIMUM OF 100MM TOPSOIL IS INSTALLED IN BOULEVARDS.
5. PROTECT THE MUNICIPALITY OWNED ROAD ALLOWANCE(S)/BOULEVARD(S) FROM COMPACTION OR SOIL CONTAMINATION.

MULCH

1. ALL TREEPITS, SHRUB PITS AND PLANTING AREAS ARE TO BE MULCHED UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO INSTALL 3" (75MM) OF 'GRO-BARK' MEDIUM MULCH IN ALL AREAS.
3. ALTERNATIVES MAY BE ACCEPTED - CONTRACTOR TO PROVIDE 3 SAMPLES FOR WRITTEN APPROVAL TO THE LANDSCAPE ARCHITECT.

PLANT MATERIALS

1. CONTRACTOR TO VERIFY ALL PLANT MATERIAL ON DRAWING(S) AND PLANT MATERIAL LIST(S). REPORT ALL DISCREPANCIES AT TENDERING PROCESS.
2. SUBSTITUTIONS WILL NOT BE ACCEPTED WITHOUT WRITTEN CONFIRMATION BY THE LANDSCAPE ARCHITECT.
3. PLANTINGS MAY BE ADJUSTED TO SUIT UTILITIES STRUCTURES AND AESTHETIC CONCERNS, ADJUSTMENTS ARE TO BE MADE UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT. ADJUSTMENTS TO PLANTING WITHOUT CONSENT OF LANDSCAPE ARCHITECT AND OR PROJECT MANAGER MAY NOT MEET INTENT OF DESIGN AND OR MUNICIPAL APPROVALS. PLANT MATERIAL THAT HAS TO BE RELOCATED AS A RESULT WILL BE AT THE COST OF THE CONTRACTOR.
4. LANDSCAPE ARCHITECT TO INSPECT ALL PLANT MATERIAL ON SITE OR AT ITS SOURCE PRIOR TO INSTALLATION. CONTRACTOR IS TO GIVE LANDSCAPE ARCHITECT 48 (HRS) NOTICE FOR INSPECTION.
5. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IN WRITING IF ADVERSE WEATHER MAY IMPACT THE HEALTH OF THE PLANT MATERIALS AT TIME OF PLANTING. IE. TEMPERATURE, PRECIPITATION.
6. ALL TREE PITS SHALL BE AT LEAST 2 FT. (600MM) WIDER THAN BALL OF THE TREE TO BE PLANTED AND SHALL BE DEEP ENOUGH SO THAT THE TOP OF BALL IS AT THE SAME LEVEL AS SURROUNDING GRADE. A MINIMUM OF 6" (150MM) OF BACKFILL SHALL BE PLACED UNDER BALL. TREE PITS ARE NOT TO BE LEFT OPEN OVER NIGHT.
7. SHRUB BEDS SHALL BE EXCAVATED TO A DEPTH OF 18" (450MM) AND FILLED WITH APPROVED BACKFILL MATERIAL. SHRUB BEDS ARE NOT TO BE LEFT OPEN OVER NIGHT.
8. ALL TREES SHALL HAVE AN EARTH SAUCER AT ITS BASE WITH A DIAMETER AS LARGE AS EXCAVATED AREA AND SHAPED TO RETAIN WATER (SEE DETAIL). EARTH SAUCER TO HAVE APPROVED MULCH INSTALLED TO A MINIMUM DEPTH OR 2.5" (63MM).
9. ALL BURLAP SHALL BE CUT AND BURIED BELOW SURFACE DURING PLANTING.
10. ALL EVERGREENS ARE TO WRAPPED THE FIRST WINTER AT THE EXPENSE OF THE LANDSCAPE CONTRACTOR.
11. ALL SHRUBS PLANTED WITHIN 1m OF SALTED ROADWAYS, PARKING AND SIDEWALKS TO BE PROTECTED WITH SILT FENCING THROUGHOUT THE FIRST WINTER AFTER INSTALLATION AT THE EXPENSE OF THE LANDSCAPE CONTRACTOR. (OPTIONAL)
12. DIRECT ALL RAINLEADERS AND SUMP LEADERS AWAY FROM PLANTING BEDS AND TO DESIGNATED DRAINAGE SWALES.
13. DO NOT INSTALL PLANT MATERIAL IN DRAINAGE SWALES.
14. CONTRACTOR IS TO REMOVE ALL STAKES AND GUY WIRES AFTER 2 FULL GROWING SEASONS.

SOD

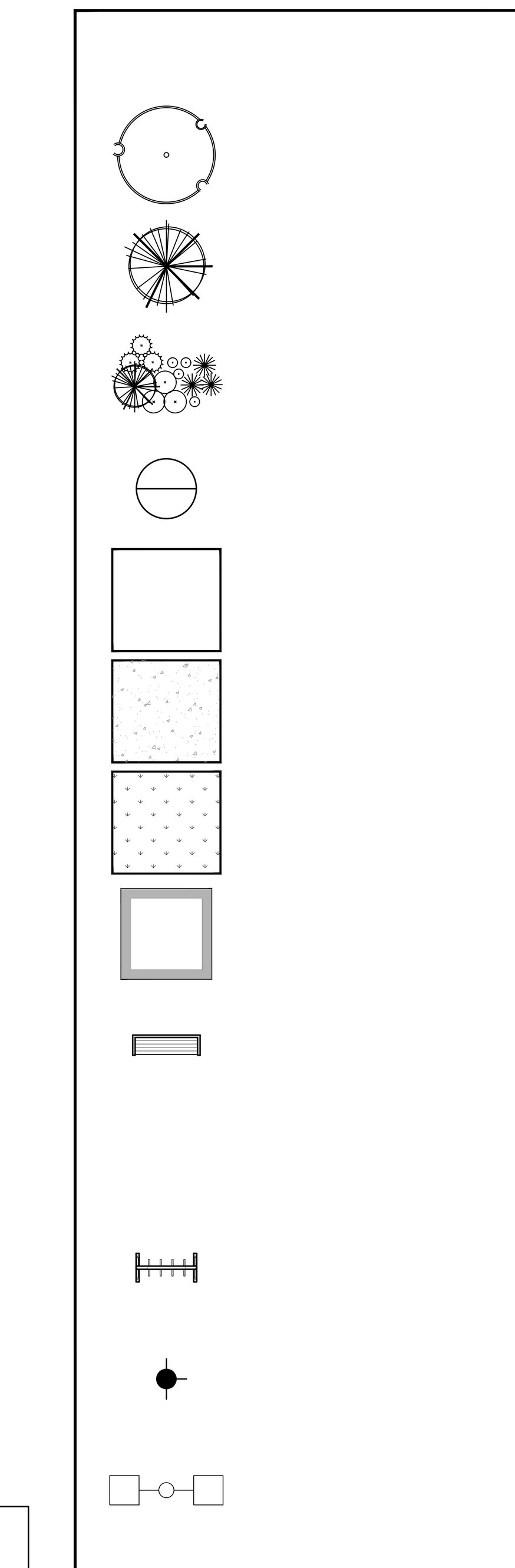
1. ALL LANDSCAPED AREAS TO BE SODDED TO THE STREET CURB (S) UNLESS OTHERWISE STATED.
2. CONTRACTOR TO ENSURE (WHERE APPLICABLE) ALL PLANTING BEDS ADJACENT TO TRAFFIC ISLANDS, INTERIOR SITE CURBING, AND SIDEWALKS HAVE A 3'0"(1.0M) SOD MAINTENANCE STRIP INSTALLED.
3. ANY SODDING OR WORKS ON LANDS ABUTTING THE PROPERTY FROM THE LOTLINES TO SIDEWALK AND CURBING, SHALL BE COMPLETED OR REPAIRED TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT, CITY, AND OR REGIONAL MUNICIPALITY UNLESS OTHERWISE STATED.
4. SOD SHALL BE CERTIFIED # 1 CULTIVATED TURF GRASS, GROWN AND SOLD IN ACCORDANCE WITH THE CLASSIFICATIONS OF THE NURSERY SOD GROWERS ASSOCIATION OF ONTARIO. AT TIME OF SALE IT SHALL HAVE A STRONG FIBROUS ROOT SYSTEM AND SHALL BE CUT IN PIECES APPROXIMATELY ONE SQ.YD (900 M2) IN AREA WITH THE SOIL PORTION BEING 3/4" IN.(19MM).
5. SOD TO BE FERTILIZED AT THE APPROPRIATE RATES AS INDICATED BY SOIL TESTS COMPLETED BY A REPUTABLE SOILS LABORATORY.
6. UPON INSTALLATION AREAS SHOULD BE WATERED SO AS TO SATURATE SOD AND THE UPPER 4" (100MM) OF BACKFILL TOPSOIL. AFTER SOD AND SOIL HAVE DRIED SUFFICIENTLY TO PREVENT DAMAGE, IT SHALL BE ROLLED WITH A ROLLER PROVIDING 1 500 LBS. (681KG) PRESSURE PER SQ.FT.
7. CONTRACTOR TO REPAIR ALL DAMAGED AREAS TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT AND OR CLIENT.

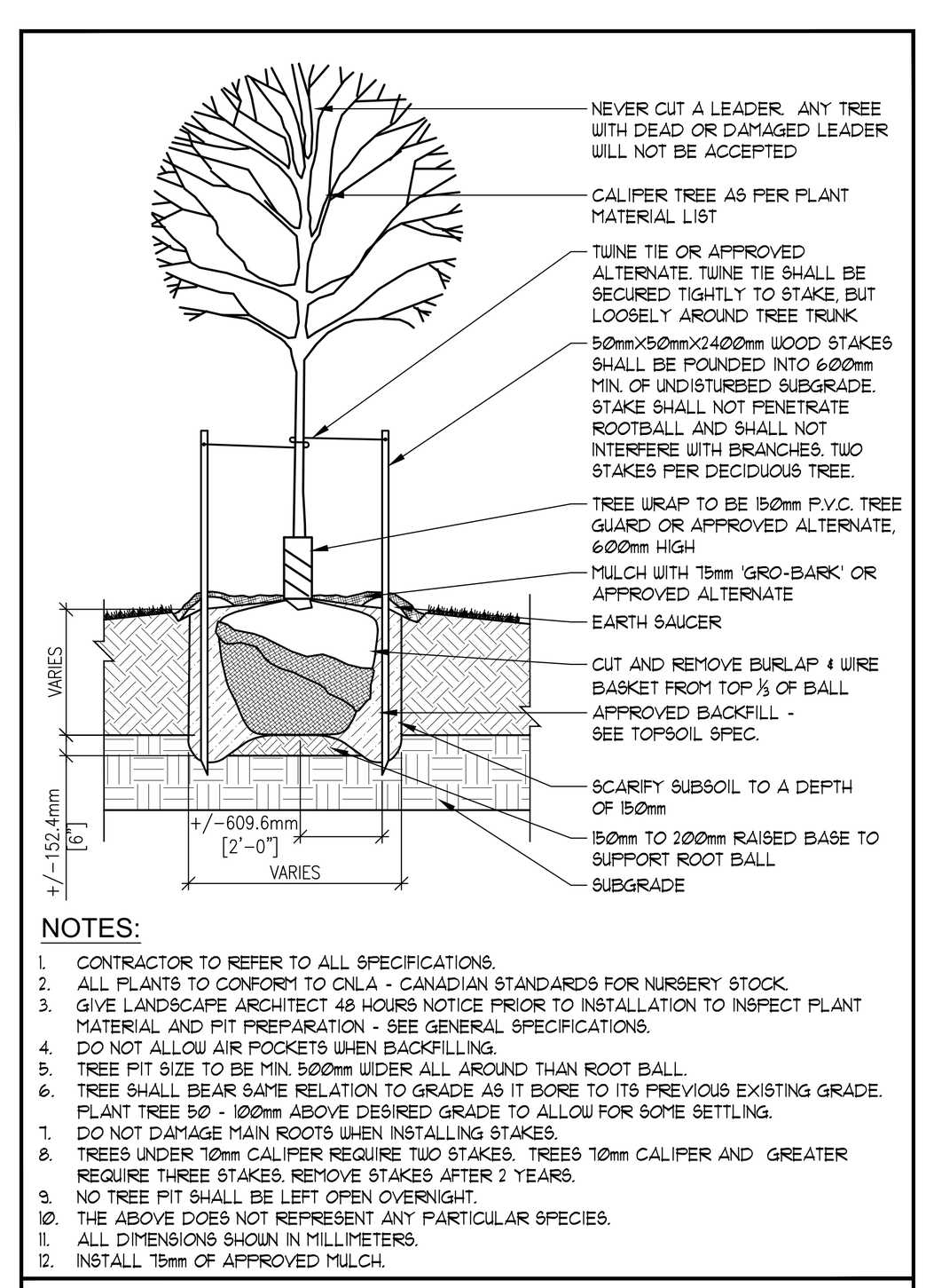
WATERING

1. DURING THE WARRANTY PERIOD, BETWEEN MAY 15 AND SEPTEMBER 15 OF EACH YEAR, WATERING OF ALL PLANTS SHALL BE CARRIED OUT NO LESS THAN 6 TIMES PER YEAR, IN ACCORDANCE WITH THE WATERING SCHEDULE TO BE DETERMINED BY THE OWNER, UNLESS OTHERWISE STATED ON THE DRAWINGS. CRITICAL WATERING MONTHS ARE JUNE, JULY & AUGUST.
2. IF NO AUTOMATED IRRIGATION SYSTEM HAS BEEN PROVIDED FOR WATERING OPERATIONS, CONTRACTOR TO PROVIDE WATER TO THE SITE IF HOSE BIBS WITHIN THE BUILDING ENVELOPE ARE NOT AVAILABLE.
3. MANUAL WATERING SHOULD ENSURE DEEP WATERING OF TREES, SHRUBS, GROUND COVERS AND GRASSED AREAS. WATERING OF GRASSED AREAS TO COMMENCE ON A REGULAR BASIS AND CONTINUE WITH INTENSITY DEPENDING ON AMOUNT OF RAINFALL. NEW SOD THAT HAS BEEN LAID SHOULD BE KEPT MOIST FOR 4 TO 5 WEEKS OR UNTIL IT HAS FIRMLY ROOTED INTO THE EXISTING SOIL.
4. ALL CONIFEROUS TREES SHALL BE WATERED IN LATE FALL, JUST PRIOR TO FREEZE-UP.
5. WATER SHALL BE APPLIED SO THAT THE WASHING OF THE SOIL OR DISLODGING OF MULCH OR TREE GUARDS DOES NOT OCCUR. DAMAGE SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.

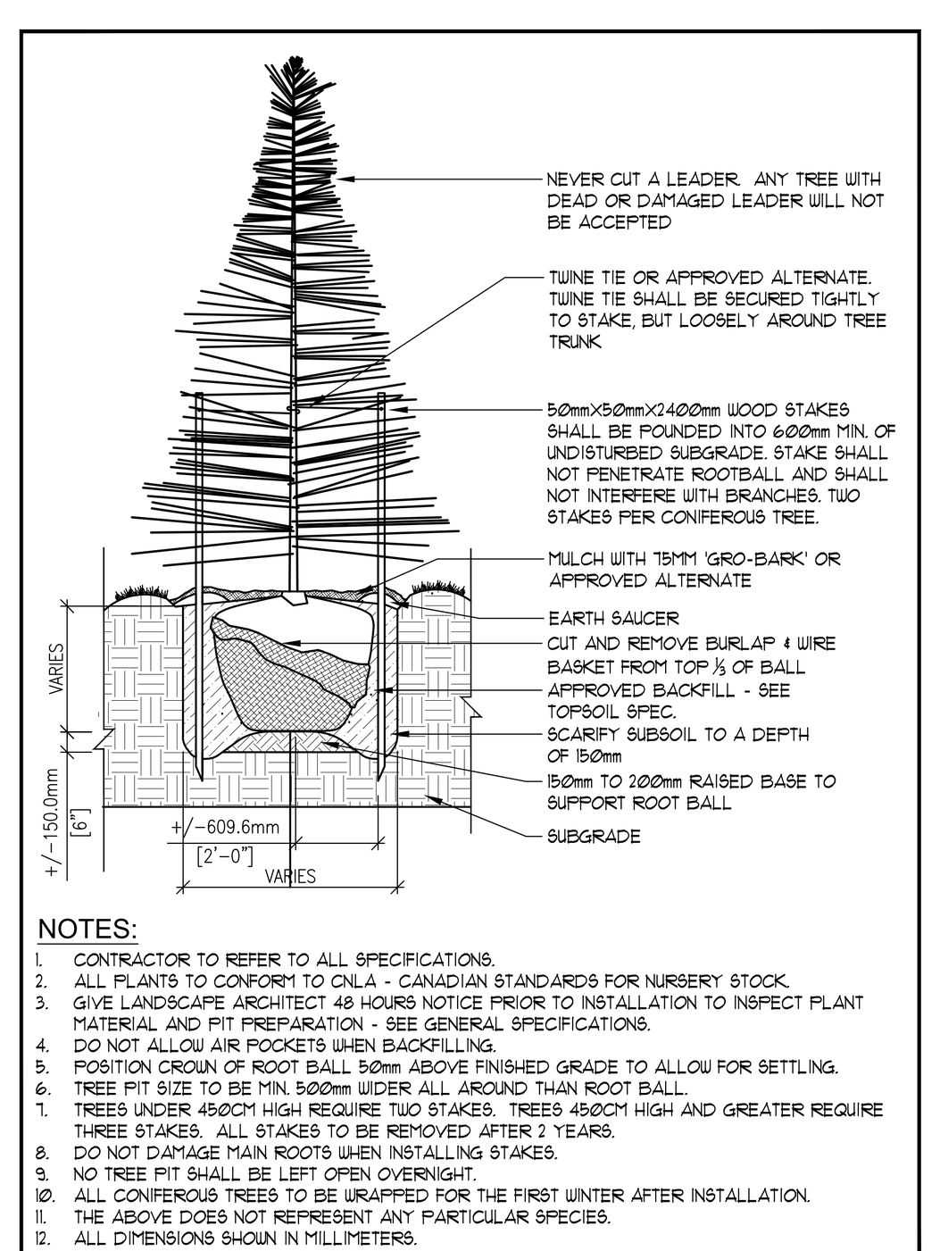
SEED

1. ALL LANDSCAPED AREAS TO BE SEEDED TO THE STREET(S) CURB UNLESS OTHERWISE STATED.
2. ANY WORKS ON LANDS ABUTTING THE PROPERTY FROM THE LOTLINES TO SIDEWALK AND CURBING, SHALL BE TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT, CITY, AND OR REGIONAL MUNICIPALITY.
3. SEED TO BE:
4. FIBREMATRIX SUCH AS FLEXTERRA OR APPROVED ALTERNATE TO BE USED ON ALL SLOPES GREATER THAN OR STEEPER THAN 3:1.

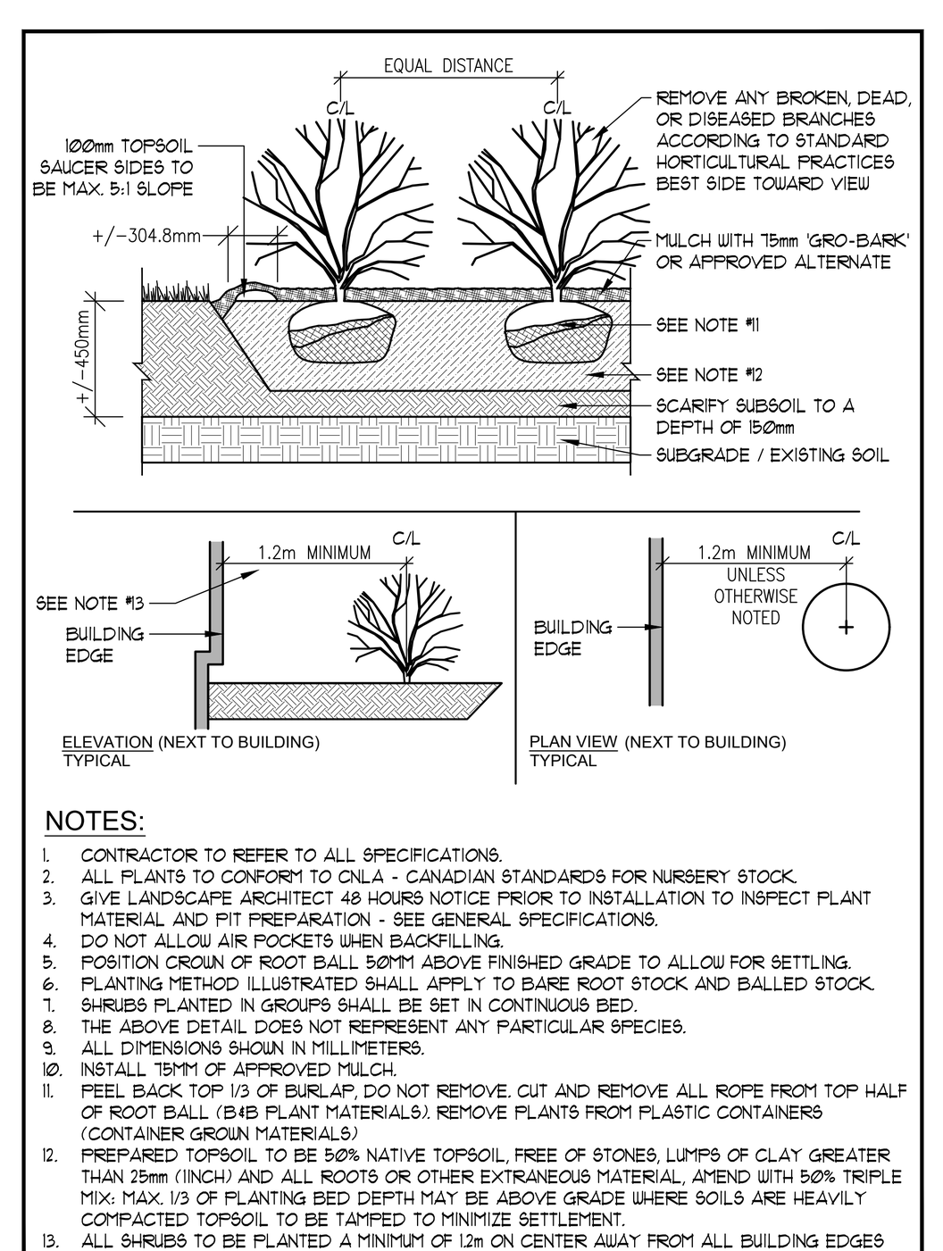




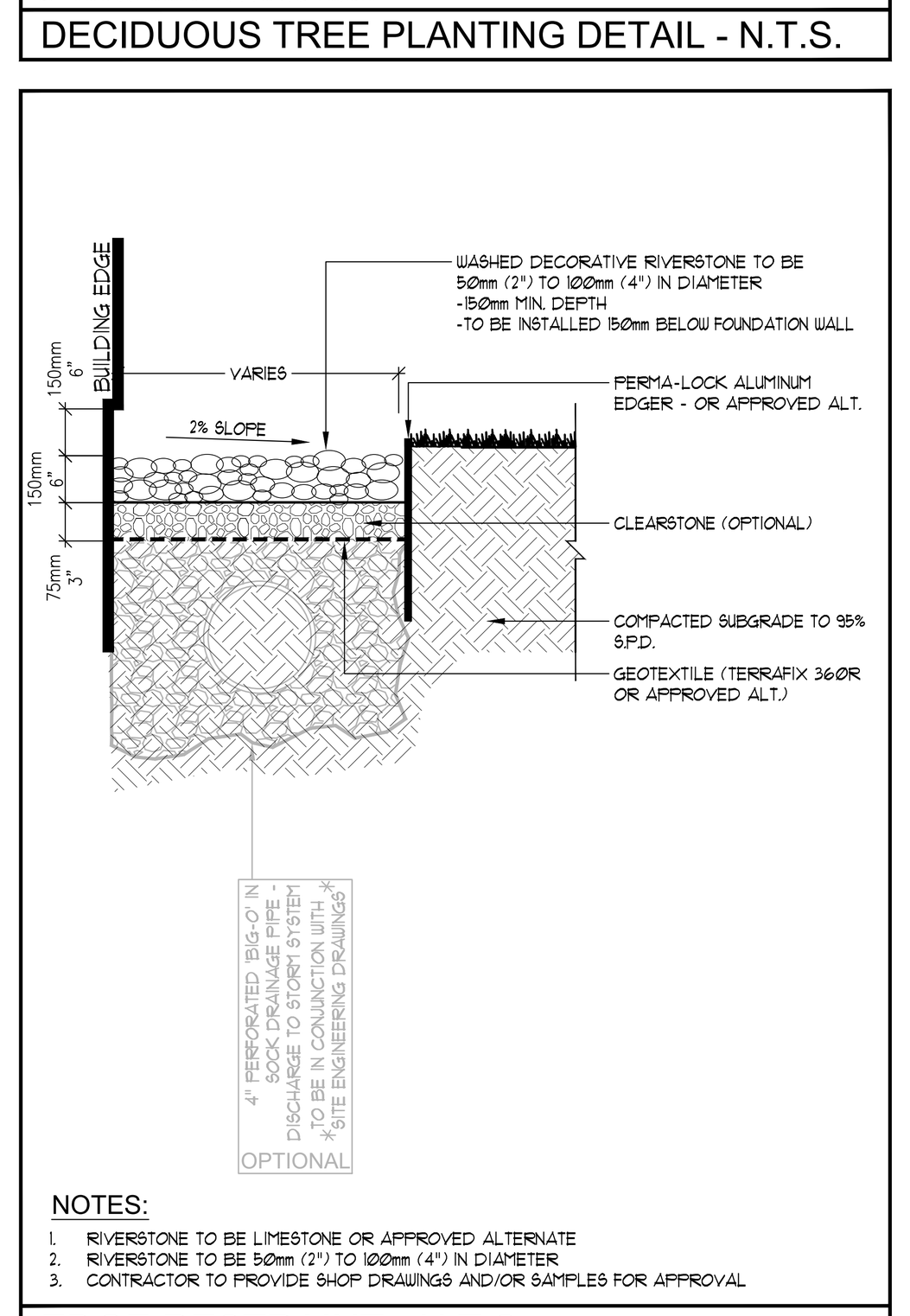
DECIDUOUS TREE PLANTING DETAIL - N.T.S.



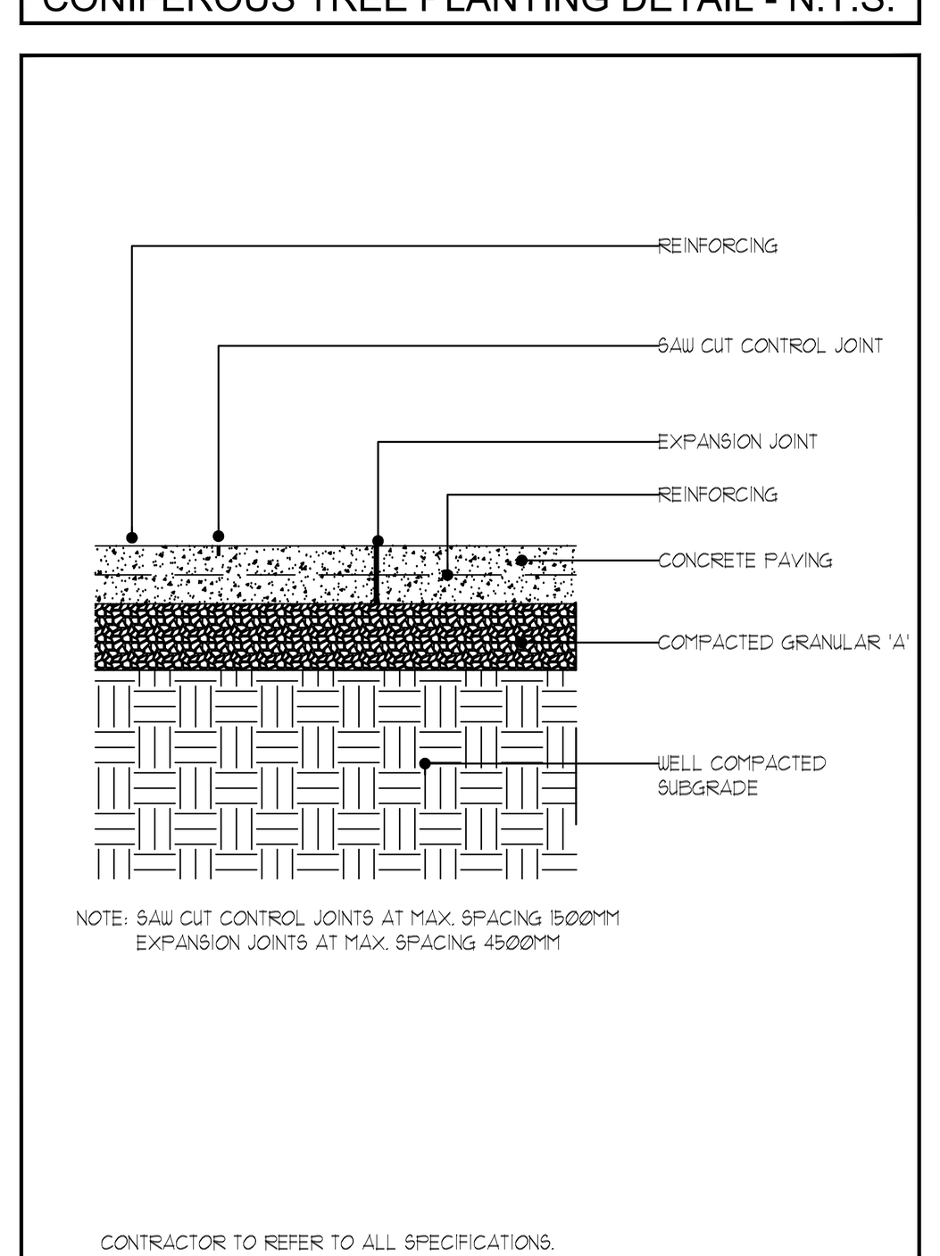
CONIFEROUS TREE PLANTING DETAIL - N.T.S.



SHRUB PLANTING DETAIL - N.T.S.



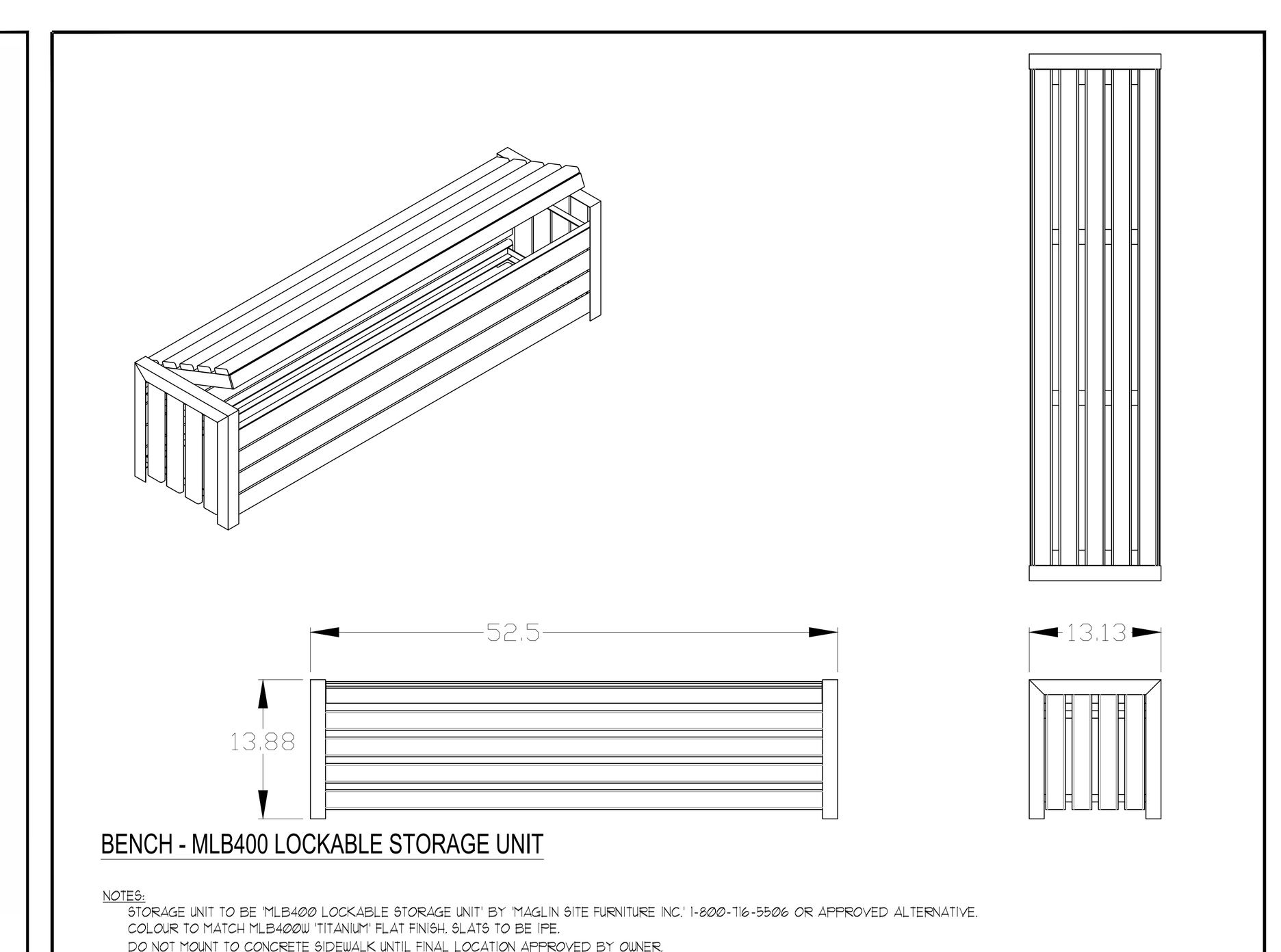
EDGE RESTRAINT - N.T.S.



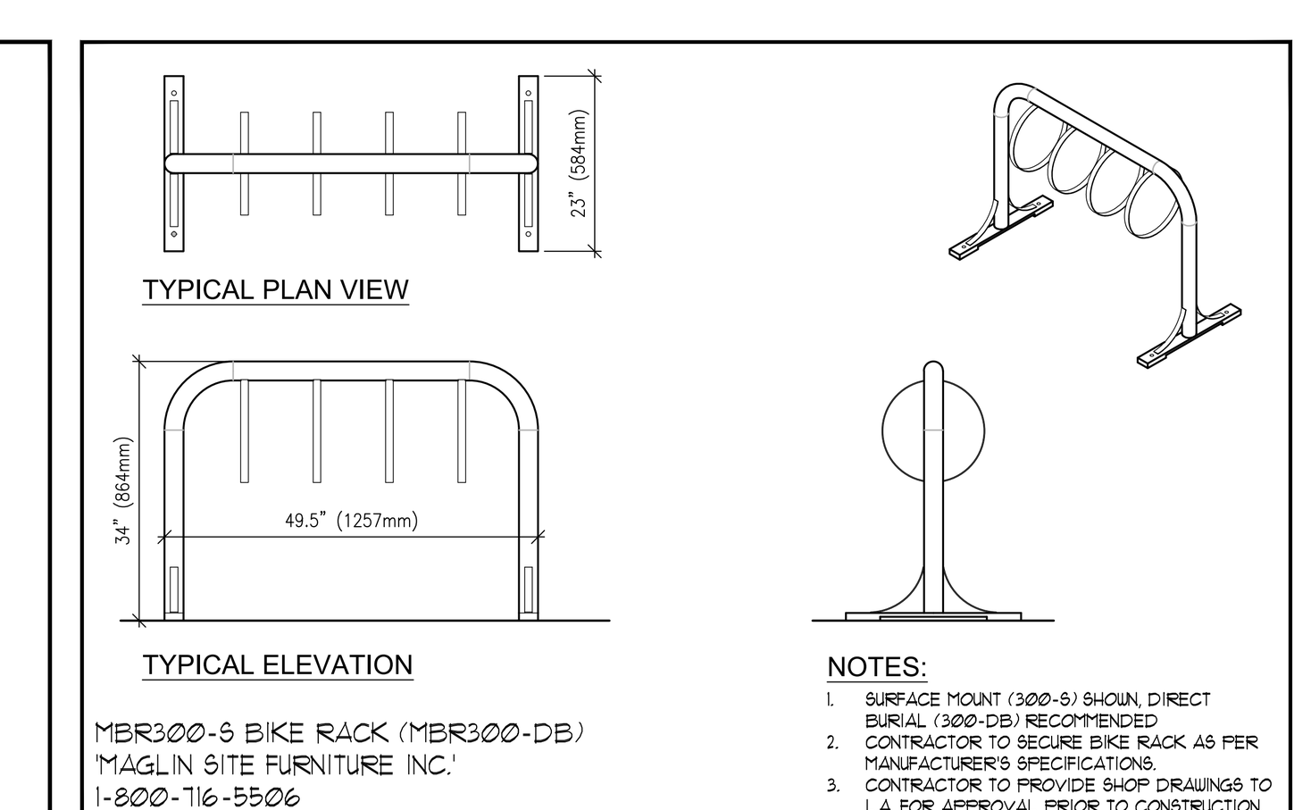
TYPICAL CONCRETE PAVING DETAIL N.T.S.

BENCH N.T.S.

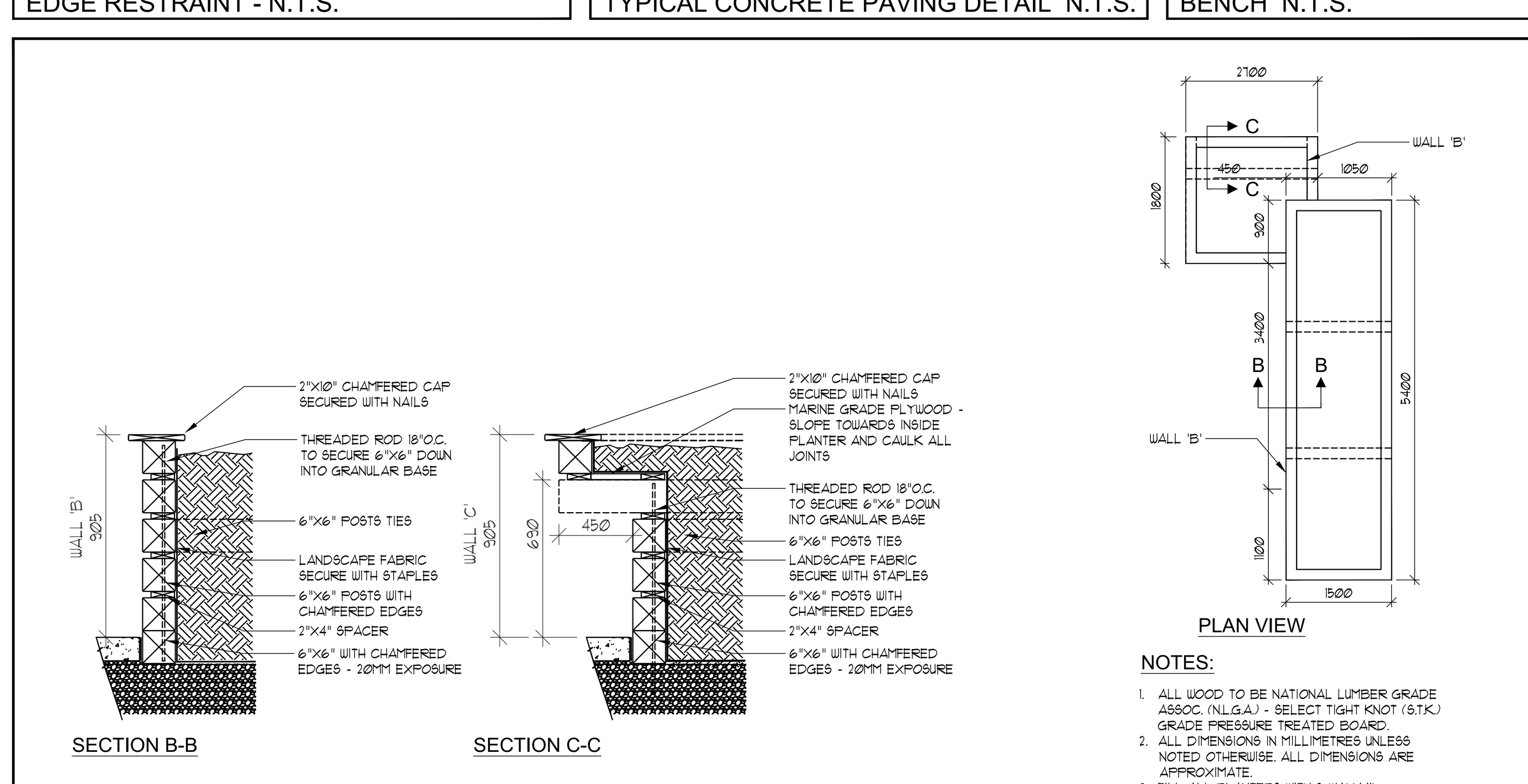
GARBAGE - RECYCLING UNIT N.T.S.



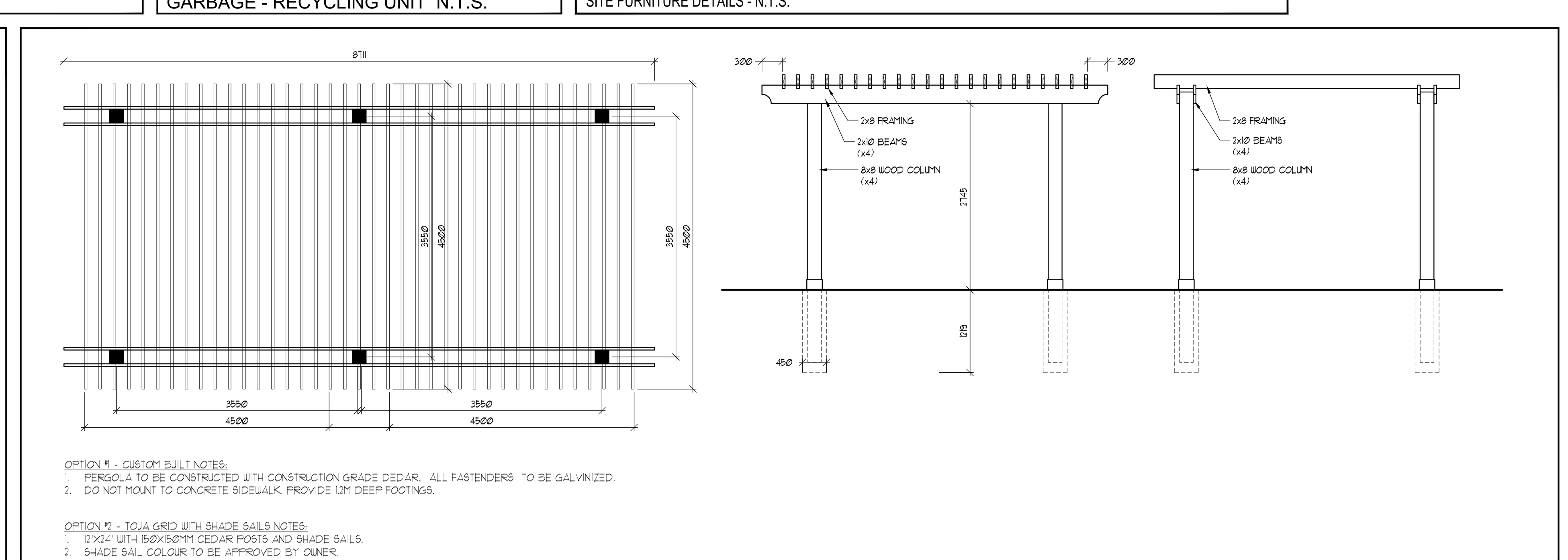
SITE FURNITURE DETAILS - N.T.S.



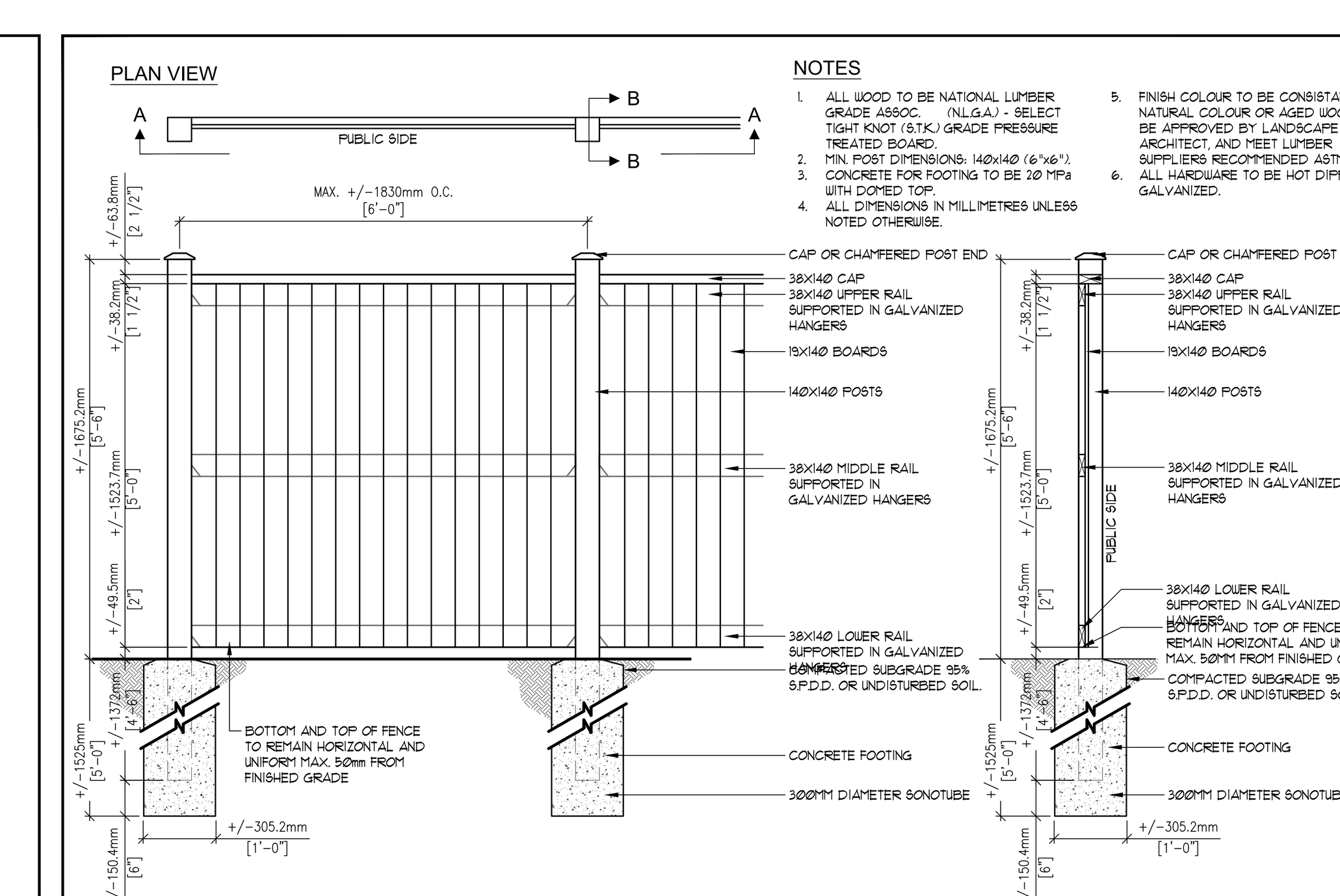
BIKE RACK DETAIL - N.T.S.



RAISED VEGETABLE PLANTERS - N.T.S.



PERGOLA DETAIL N.T.S.



5'-0" (+/-1524mm) HIGH SOLID BOARD WOOD FENCE - N.T.S.

6'-0" (1829mm) POST CENTER TO CENTER

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Ronald H. Koudys, O.A.L.A. C.S.L.A. DATE

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — MARTHA C. BERKVENS — OALA — MEMBER

#	date:	revision:	by:
2.	OCT.22.2021	ISSUED FOR 50% DD	MCB
1.	AUG.26.2021	ISSUED FOR 100% SD	MCB

revisions

ARCH CORP LTC LEAMINGTON

1628 COUNTY ESSEX ROAD 22
LAKESHORE, ON

LANDSCAPE PLAN

scale:	AS NOTED
drawn by:	MCB
reviewed by:	MCB
job number:	21-164Lb
plot date:	2021-10-22

drawing number:

L-1

Appendix F

Functional Servicing Report

DILLON CONSULTING

MONTGOMERY SISAM ARCHITECTS INC.

Orleans Long Term Care Facility Functional Servicing Report

City of Ottawa

November 2021 – 21-2647

Table of Contents

Tables

Appendices

1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by Montgomery Sisam Architects Inc. to develop a functional servicing strategy for the undeveloped property fronting Famille-Laporte Avenue, located at 1161 Old Montreal Road in the City of Ottawa. This document outlines the servicing strategy including supporting studies and related information for the transportation, sanitary, stormwater management, and water main servicing for the site.

The total area of the entire site is approximately 2.01 Ha. The Developer is planning on severing the property into two separate development lots. The proposed Long Term Care development site is approximately 1.22 Ha, and the remaining undeveloped lands area are approximately 0.79 Ha. The overall site is presently zoned RI5 Rural Institutional and currently consists of a vacant/grassed field. The proposed Long Term Care Facility development will be located on the southern portion of the site within the limits of the vacant field.

1.1 Reference Documents

The following documents and drawings were referenced when completing this study:

- City of Ottawa– Sewer Design Guidelines (Ottawa, 2012)
- City of Ottawa – GIS Interactive Mapping (Ottawa)
- Design Guidelines for Sewage Works (MOE, 2008)

2.0 Transportation Servicing

2.1 Existing Conditions

There is no existing access to the proposed development. The property is bounded on the north limit, east limit, and south limit by residential homes.

2.2 Proposed Roadways

The proposed access points to this development will be from Famille-Laporte Avenue at the west limit of the site. Staff, visitors, EMS, services and deliveries will access the site via Famille-Laporte Avenue. The site layout is shown in *Appendix A*. The pavement structure of the proposed internal roads will be consistent with geotechnical recommendations and the City's Development Manual. A Traffic Impact Study (TIS) is required for this project and is currently underway.

3.0 Sanitary Servicing

3.1 Existing Conditions

Currently, there is an existing 200 mm diameter sanitary sewer located underneath Famille-Laporte Avenue, which is located west of the proposed development. The existing sanitary sewer heads northwards, ultimately discharges to the City of Ottawa Robert O. Pickard Environmental Centre treatment plant.

3.2 Design Criteria

The following sanitary sewer design criteria for this property are outlined in Table 1. The design criteria was established by the City of Ottawa's Design Guidelines (2012).

Table 1: Sanitary Sewer Design Criteria

Criteria	City of Ottawa's Design Guidelines (2012)
Hydraulic Sewer Sizing	Manning's Equation
Minimum Sewer Size (mm)	135 mm diameter
Minimum Cover Depth (m)	2.0
Manning's Roughness Coefficient 'n'	0.013
Velocity: Minimum (m/s) Maximum (m/s)	 0.60 3.00
Hydraulic Losses Across Manholes: • Straight Run (m) • 45 degree turn of less (m) • Greater than 45 degree turn to 90 degree turn (m)	 Grade of Sewer 0.03 0.06
Infiltration Allowance/Peak Extraneous Flow	0.28 L/Ha/s
Peaking Factor	Based on Harmon Formula
Population Densities For Facility:	224 Bed Facility Assumed 30 Staff Members Total Population = 254 ppl
Average Daily Sewage	50,000 L/Gross Ha/Day [Per City Sewer Guidelines for Institutional Lands] 350 L/Cap/Day [Residential Average Flow]
Sewer Surcharging	Maximum hydraulic grade line

3.3 Proposed Servicing

Refer to the attached *Appendix A* which illustrates the proposed sanitary servicing layout. The sanitary servicing for the proposed development is as follows:

- All sanitary flows from within the proposed development will be conveyed via local sanitary sewers.
- It is proposed that the local sanitary sewer will outlet to the existing Private Drain Connection Manhole located at the Famille-Laporte Avenue right-of-way limit. The existing PDC sewer is 200mm in diameter, connects to an existing sanitary manhole within the Famille-Laporte right-of-way, and drains northerly via an existing 250mm diameter sewer.

The sanitary sewer functional design sheets are provided in *Appendix B*. Criteria used in flow calculation is listed in Table 1.

The future detailed design of the sanitary sewer and service is to be consistent with the requirements of the City of Ottawa and the Ministry of Environment, Conservation and Parks (MECP).

4.0 Stormwater Servicing

4.1 Background Information

The proposed development is of approximately 1.21 Ha and is zoned RI5 Rural Institutional, currently consists of a vacant field. The City of Ottawa has previously installed a storm sewer stub for the proposed development at this location. There is an existing 1200 mm diameter municipal storm sewer within the Famille-Laporte Avenue right-of-way along east side of the road heading northwards, which outlets to the Ruisseau Cardinal Creek and ultimately discharges to the Ottawa River.

4.2 Design Criteria

The following storm sewer design criteria for this property are outlined in Table 2. The design criteria were established by the City of Ottawa's Design Guidelines (2012).

Table 2: Storm Sewer Design Criteria

Criteria	City of Ottawa's Design Guidelines (2012)
Hydraulic Sewer Sizing	Rational Method / Mannings Equation
Sewer Sizing Rainfall Event	5 year storm event
Minimum Cover Depth (m)	2
Manning's Roughness Coefficient 'n'	0.013
Velocity: • Minimum (m/s) • Maximum (m/s)	 0.80 3.0
Roof Downspouts	May be connected directly to underground sewer system network or directed to surface
Rooftop Storage	Permitted (maximum 0.3m depth)
Inlet Times: • Institutional	 15 minute maximum
Runoff Coefficients: • Paved and Roof Surfaces • Landscaped/Open Space	Calculated per Site Conditions 0.90 0.20
Sewer Surcharging	• No surface ponding during 5 year storm event • 100 year Hydraulic Grade Line 0.3m below building footing
Stormwater Storage Requirements	• Storage of 100 year storm event • Outlet rate to be confirmed through consultation with City

Criteria	City of Ottawa's Design Guidelines (2012)
Water Quality Treatment	Required per Rideau Valley Conservation Authority (RVCA)

4.3 Proposed Servicing

It is proposed that the site's stormwater outlet to the existing 1200 mm diameter storm sewer that is currently located within the Famille-Laporte Avenue right-of-way, located west of the site.

Refer to *Appendix A* for the proposed servicing. The stormwater servicing for the proposed development is as follows:

- The proposed site, and paved area will be serviced through a new storm sewer network constructed within the site.
- Onsite detention will be provided in accordance with City of Ottawa and Rideau Valley Conservation Authority Design Guidelines. Pre-consultation with the City is required, but in general the site storm outlet rate is to be restricted to the pre-development outlet rates for the 2, 5 and 100 year storm events.
- The site will be graded to allow for overland flow to be captured onsite and directed to the storm sewer network. Rain events in excess of the 100 year event will spill over the site entrances and drain overland within the existing City road network.

Refer to *Appendix B* for the sanitary sewer and storm sewer design and *Appendix C* for the Stormwater Management Calculations.

5.0 Watermain Servicing

5.1 Existing Conditions

An existing 400 mm diameter watermain is located within the Famille-Laporte Avenue right-of-way, located in the west boulevard. The site currently does not have any service connections.

5.2 Proposed Servicing

Please refer to the attached *Appendix A* which illustrates the proposed watermain servicing. The watermain servicing for the proposed development is as follows:

- The new building will be serviced by a new 150 mm diameter domestic watermain connected to the existing main on Famille-Laporte Avenue. The building service lines are split prior to entering the building into a 100mm diameter domestic service, and a 150mm diameter fire service. A backflow preventer will be installed inside the building mechanical room.
- Two (2) new fire hydrants and 150 mm diameter leads are proposed for the site. One is located in the south parking area to be in close proximity to the building FDC connection, the second is located in the north boulevard. Both fire hydrants will be connected to the existing main on Famille-Laporte Avenue.
- All water crossings of Famille-Laporte Avenue will be completed via directional drill, with no open cuts to the roadway.

Fire hydrant flow testing has been completed for this development. Refer to *Appendix D* for the fire hydrant flow testing result.

The detailed design of the watermain service are to be consistent with the requirements of the City of Ottawa and will be coordinated during the detailed design process.

6.0 Utilities

6.1 Gas

Existing natural gas infrastructure is located along the Famille-Laporte Avenue right-of-way, located west of the site. There is no existing natural gas service currently servicing the proposed site. During detailed design, future conversation on loading will be required with Enbridge.

6.2 Telecommunications

The existing site is not currently serviced by telecommunications. It is anticipated that existing telecommunications infrastructure exists within the Famille-Laporte Avenue right-of-way, located west of the site. Detailed design, additional consultation will be held with utility owner to confirm internal servicing requirements.

6.3 Hydro

Existing hydro infrastructure is buried along the east side of the Famille-Laporte Avenue right-of-way. There is no existing hydro currently servicing the proposed site. During detailed design, future conversation on loading will be required with the hydro provider.

7.0 Conclusion

The review of the adjacent services have been found to be sufficient for the proposed development. The design of the proposed internal services will be finalized during detailed design.

Yours sincerely,

DILLON CONSULTING LIMITED

Chris Patten, P.Eng.
Project Manager

Appendix A

Functional Servicing Plan

Appendix B

Sanitary Sewer and Storm Sewer Design Sheets

ORLEANS LONG TERM CARE FACILITY - CITY OF OTTAWA
SANITARY SEWER DESIGN SHEET

Project Name: Orleans LTC
Project No: 21-4926

City of Ottawa

The Peaking Factor was derived:
Using Harmon Formula= Y (Y or N)
From a Table= N
Value from table=

Residential Average Daily Flow= 350 L/Cap.D
Peak Extraneous Flow= 0.280 L/Ha.S

Outlet Invert Elevation= 60.740
Mannings 'n'= 0.013
Total Area= 1.220

Basement Floor Elevation = 0.000
or
Hydraulic Grade Line Cover = 2.00

Ground Elevation at Outlet = 66.790
HGL at Outlet = 61.590

Location			Flow Characteristics								Sewer Design/Profile										Cover			Hydraulic Grade Line		
ROAD/STN	LOCATION FROM MH	LOCATION TO MH	INDIVIDUAL POP	INDIVIDUAL AREA (ha.)	CUMULATIVE POP	CUMULATIVE AREA (ha.)	PEAKING FACTOR M	POP FLOW Q(p) (L/s)	PEAK EXTR. FLOW Q(i) (L/s)	PEAK DESIGN FLOW Q(d) (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE DIA. (mm)	Wall Thickness (mm)	SLOPE (%)	UPPER INVERT (m)	LOWER INVERT (m)	FALL (m)	VELOCITY (m/s)	DROP IN LOWER MANHOLE (m)	Ground Elevation Upper MH	Cover @ Up MH (m)	Cover @ Low MH (m)	HGL Elev at Upstream MH	HGL Elev vs. Grnd Elev @ Up MH	HGL Elev vs. Obvert @ Up MH
LTC	BLDG	EX MH	254.0	1.22	254	1.22	4.108	4.227	0.342	**4.57**	**23.19**	7.2	200	15	0.50	63.341	63.305	0.036	0.74	0.025	67.450	3.894	3.660	61.598	OKAY	
Fam. Laporte	EX MH	MAIN	0.0	0.00	254	1.22	4.108	4.227	0.342	**4.57**	**92.77**	16.9	200	15	8.00	63.280	61.928	1.352	2.95	0.538	67.180	3.685	4.647	61.597	OKAY	

Dillon Consulting Ltd.

ORLEANS LTCF
STORM SEWER DESIGN SHEET

Project Name: Orleans LTCF
Project Number: 21-2647

Based on 1:100 Year Storm Event
City of Ottawa

Intensity Option # 1

1) Intensity (i) = a/(t+b)^c
a= 1735.700
b= 6.014
c= 0.820

2) Intensity (i) = a*t^b
a=
b=

3) Insert Intensity
i=

Manning's n = 0.013

Total Area (ha)= 1.21 Outlet Invert Elevation= 65.520 Ground Elevation @ Outlet = 67.25 High Water Level at Outlet=

Location			Sewer Design / Profile																Cover			Hydraulic Grade Line	
Road /Stations	From MH	To MH	Area (ha)	Run. Coef.	2.78AC	Accum. 2.78AC	T of In (min)	T of F (min)	T of Conc. (min)	Intensity (mm/hr)	Exp. Flow (L/s)	Capacity (L/s)	Velocity (m/s)	Wall Thickness (mm)	Length (m)	Pipe Dia. (mm)	Slope (%)	Invert Up MH	Invert Low MH	Fall (m)	Drop Across Low MH (m)	Ground Elev Up MH	Cover @ Up MH (m)	Cover @ Low MH (m)	HGL Elevation at Upstream MH	HGL Elev vs. Grnd Elev @ Up MH
	MH1	MH2	0.04	0.82	0.08	0.08	10.0	0.40	10.00	178.56	**14.25**	**162.54**	1.02	11	24.6	450	0.33	65.94	65.86	0.08		67.150	0.75	1.08	66.39	Okay
	MH2	MH3	0.08	0.82	0.18	0.26	10.0	0.66	10.40	174.97	**45.87**	**161.28**	1.01	11	40.0	450	0.32	65.86	65.73	0.13	0.040	67.400	1.08	1.11	66.31	Okay
	MH3	STORAGE	0.10	0.82	0.23	0.49	10.0	0.03	11.06	169.43	**82.65**	**201.60**	1.27	100	2.5	450	0.50	65.69	65.68	0.01		67.300	1.06	1.27	66.14	Okay
	STORAGE	MH4	0.10	0.82	0.23	0.72	10.0	0.07	11.09	169.16	**121.09**	**127.50**	0.80	100	3.3	450	0.20	65.68	65.67	0.01		67.500	1.27	1.20	66.13	Okay
	MH4	WQU	0.00	0.82		0.72	10.0	1.31	11.16	168.61	**120.69**	**127.50**	0.80	100	63.1	450	0.20	65.67	65.54	0.13		67.420	1.20	1.36	66.12	Okay
	WQU	OUTLET	0.00	0.82		0.72	10.0	0.23	12.47	158.73	**113.62**	**127.50**	0.80	100	11.3	450	0.20	65.54	65.52	0.02		67.450	1.36	1.18	65.99	Okay
	CBMH5	MH6	0.26	0.82	0.59	0.59	10.0	0.89	10.00	178.56	**105.83**	**161.28**	1.01	100	54.1	450	0.32	65.92	65.75	0.17	0.060	67.000	0.53	1.12	66.37	Okay
	MH6	STORAGE	0.00	0.82	0.00	0.59	10.0	0.08	10.89	170.82	**101.28**	**161.28**	1.01	100	4.7	450	0.32	65.69	65.68	0.02		67.420	1.18	1.27	66.14	Okay
	CBMH7	MH8	0.11	0.82	0.25	0.25	10.0	0.45	10.00	178.56	**44.78**	**54.70**	0.77	11	20.8	300	0.32	65.75	65.69	0.07		66.300	65.92	-0.31	0.37	Okay
	MH8	MH9	0.05	0.82	0.10	0.35	10.0	1.38	10.00	178.56	**62.50**	**127.50**	0.80	100	66.5	450	0.20	65.69	65.56	0.13		66.600	65.92	-0.55	0.58	Okay
	MH9	OUTLET	0.05	0.82	0.11	0.48	10.0	0.39	12.71	157.10	**75.41**	**127.50**	0.80	100	18.7	450	0.20	65.56	65.52	0.04		67.300	1.19	1.18	66.01	Okay
	BLDG	STORAGE	0.43	0.82	0.97	0.97	10.0	0.17	10.00	178.56	**172.99**	**46.38**	1.48	11	15.0	200	2.00	65.975	65.675	0.30		67.500	1.31	1.61	70.30	From Mech. Engineer

Appendix C

Stormwater Management Report

DILLON CONSULTING	Stormwater Management Calculations	Project:	Perth LTCF	No.:	212317	
	Rational Method Calculations	By:	SZ	Date:	11/19/2021	Page:
		Checked:	JVM	Scenario:	Existing	1

Calculation of existing runoff rate is undertaken using the Rational Method: **Q = CIA / 360**

Where: Q = Peak flow rate (litres/second)
C = Runoff coefficient
I = Rainfall intensity (mm/hour)
A = Catchment area (hectares)

			Agg Maps
Project Area, A	**1.22** hectares	Soil type	**Silty Clay**	**D**

Composite Runoff Coefficient		
Land Use	Area (m^2)	C
Existing Site	12,232	0.35
Composite Runoff Coefficient	12,232	0.35

Time of Concentration							
Method	Up EL (m)	Down EL (m)	Length (m)	Slope (%)	Area (ha)	C	Min Inlet Time (min)
	69.5	66.25	140	2.32	1.22	0.35	10
Bransby Williams						t_c (min) =	N/A
Airport						t_c (min) =	21.9

Rainfall intensity calculated in accordance with Sault Ste. Marie IDF Parameters:
(if only two paramters are provided, enter B as "0" and C as positive number)

$$I = \frac{A}{(B + t_c)^C}$$

Where: A, B, and C = IDF Parameters From Local Municipality Guidelines
I = Rainfall intensity (mm/hour)
T = Time of concentration (hours)

Return Period (Years)	2	5	10	25	50	100
A	732.951	998.071	1174.184	1402.884	1569.580	1735.688
B	6.199	6.053	6.014	6.018	6.014	6.014
C	0.810	0.814	0.816	0.819	0.820	0.820
T (mins) **	21.9	21.9	21.9	21.9	21.9	21.9
I (mm/hr)	49.1	66.3	77.6	91.8	102.3	113.2
Q (L/s)	**58.5**	**78.9**	**92.3**	**109.2**	**121.8**	**134.7**
Q (m_3/s)	0.058	0.079	0.092	0.109	0.122	0.135

ORIFICE PLATE SIZING CALCULATION

Orifice Coeficient (C) =	0.62	
Allowable Outflow (Q) =	2.05	cfs
Invert =	215.45	
100 Year HWL =	217.95	
Trial D =	0.600	feet
Head (h) =	2.2	
Actual D =	0.595	feet
Actual D =	7 4/32	inches
USE A	**7.14**	**INCH ORIFICE**
	181.3	**mm**

DILLON CONSULTING	Stormwater Management Calculations	Project:	Orleans LTCF	No.:	21-2647	
	Storage Calculations	By:	SZ	Date:	11/19/2021	Page:
		Checked:	JVM	Scenario:	Proposed	2

Calculation of existing runoff rate is undertaken using the Rational Method: **Q = CIA / 360**

Where: Q = Peak flow rate (litres/second)
C = Runoff coefficient
I = Rainfall intensity (mm/hour)
A = Catchment area (hectares)

Project Area, A **1.22** hectares

Composite Runoff Coefficient		
Land Use	Area (m^2)	C
Building	3,034	0.90
Asphalt Pavement	4,630	0.90
Rocks, Misc Landscape	1,211	0.80
Grass	3,357	0.25
Composite Runoff Coefficient	12,232	0.71

Runoff Coefficient Adjustment:	25%
Design Runoff Coefficient:	0.89

Target Discharge (m^3/s):	0.058

Design Event

100-Year Storm - From Ottawa SWM Guidelines 2012

A =	1735.7
B =	6.014
C =	0.820
Time Step =	5 min

(if only two paramters are provided, enter B as "0" and C as positive number)

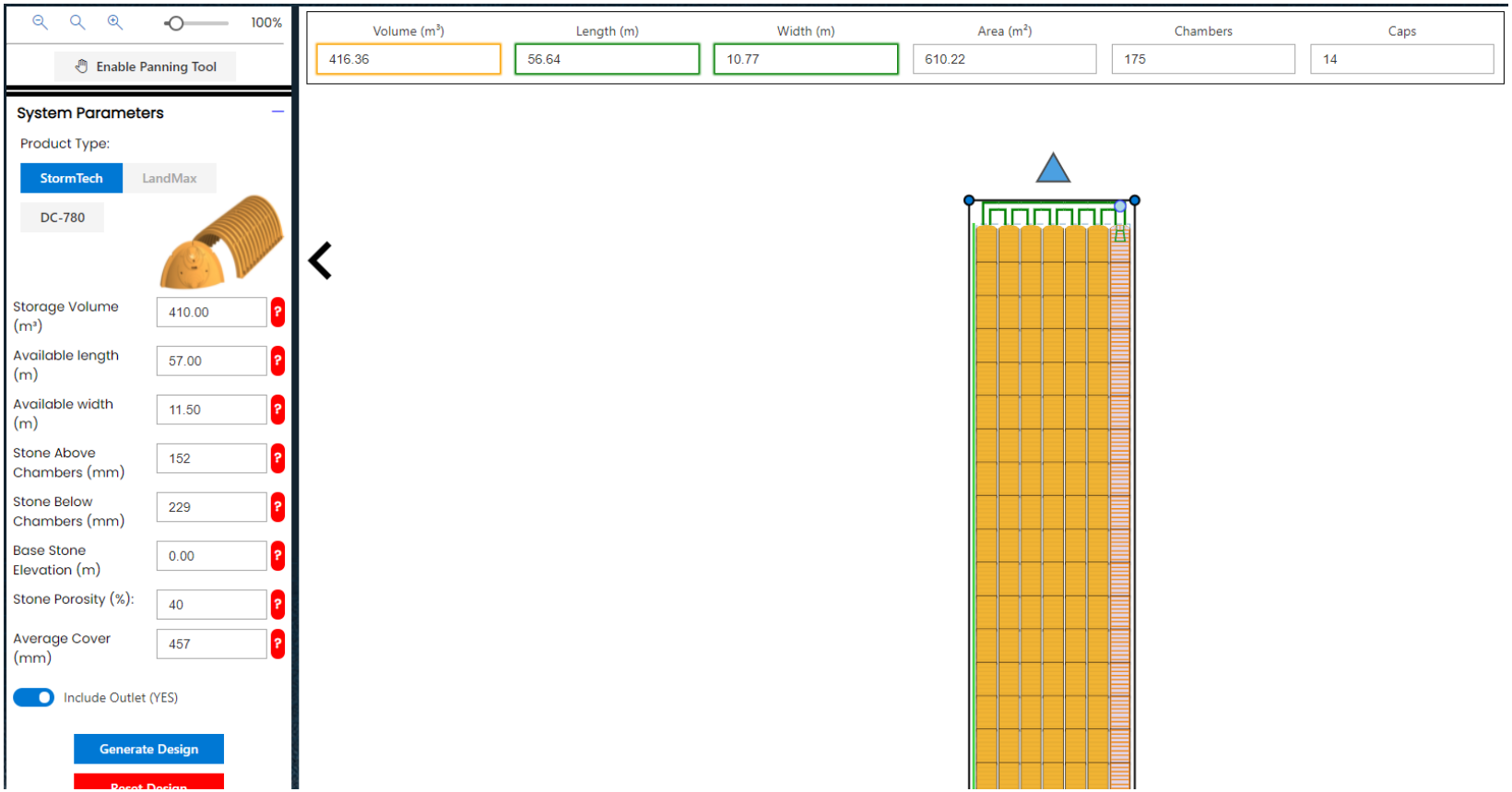
$$I = \frac{A}{(B + t_c)^C}$$

Where: A, B, and C = IDF Parameters From MTO
I = Rainfall intensity (mm/hour)
T = Time of concentration (hours)

Event Duration (mins)	Rainfall Intensity (mm/hr)	Peak Runoff Rate (m3/s)	Total Inflow Volume (m3)	Total Outflow Volume (m3)	Required Storage Volume (m3)
10	178.56	0.54	324.1	35.1	289.0
15	142.89	0.43	389.0	52.6	336.4
20	119.95	0.36	435.4	70.2	365.2
25	103.85	0.31	471.2	87.7	383.5
30	91.87	0.28	500.2	105.3	394.9
35	82.58	0.25	524.6	122.8	401.8
40	75.15	0.23	545.6	140.4	405.2
45	69.05	0.21	564.0	157.9	406.1
50	63.95	0.19	580.4	175.5	404.9
55	59.62	0.18	595.2	193.0	402.2
60	55.89	0.17	608.71	210.6	398.13
65	52.65	0.16	621.1	228.1	393.0

Maximum Required Storage (m^3)	Peak Duration
406.1	45

ADS STORMWATER DETENTION SIZING TOOL



Appendix D

Fire Hydrant Flow Testing Results

FLOW TEST REPORT

OFFICE REPORT: OTTAWA ON

LOCATION: 1123 OLD MONTREAL RD ORLEANS ON.

DATE OF FLOW TEST: JULY 27 2021 **TIME OF FLOW TEST**: 09:00 AM

COMANY CONDUCTING TEST: *Troy Life & Fire safety* **CONDUCTED BY**: *MICH LACHANCE*

WITNESSED BY: MICHEAL McLEESE

W NOZZLE TYPE (HOSE MONSTER/PLAY PIPE): *LITTLE HOSE MONSTER*

WATER MAIN SIZE (IF AVAILABLE): 16”

DRANT ELEVATION COMPARED TO BUILDING: *SAME ELEVATION AS BUILDING*

HYDRANT FLOW DATA

STANDING PRESSURE (HYDR #1):	64PSI			
SIZE OF OPENING:	1”	1-1/8”	1-3/4”	2-1/2”
DISCHARGE COEFICIENT:			0.09	
PITOT READING (HYDRANT #2):			29PSI	
FLOW USGPM:			564GPM	
RESIDUAL PRESSURE (HYDRANT#1):			59PSI	

Google Maps Famille-Laporte Ave

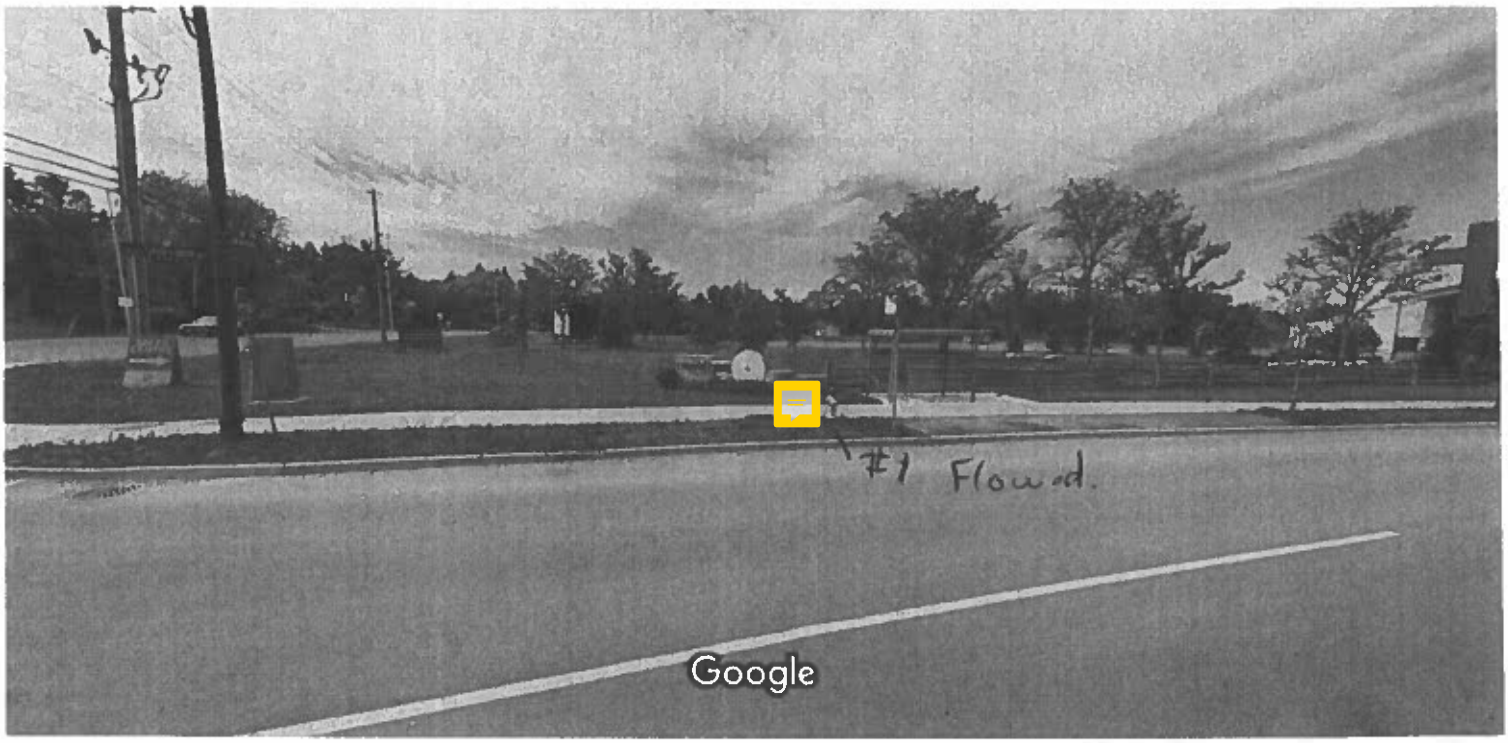


Image capture: Jun 2019 © 2021 Google

Ottawa, Ontario

Google

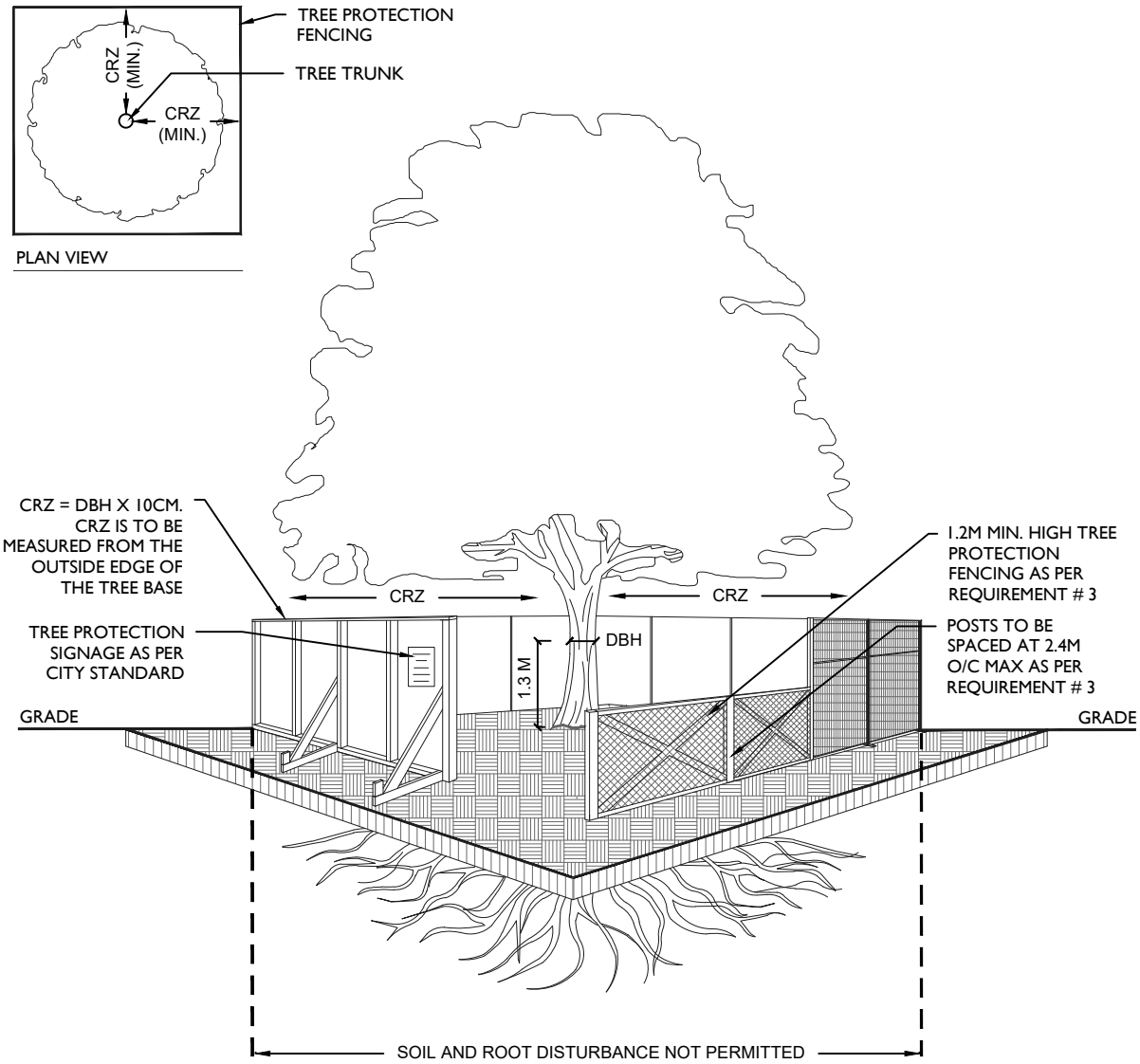
Google Maps 1128 Ch. Old Montréal Rd

Image capture: Jun 2019 © 2021 Google

Appendix G

City of Ottawa

Tree Protection Specification



TREE PROTECTION REQUIREMENTS:

1. PRIOR TO ANY WORK ACTIVITY WITHIN THE CRITICAL ROOT ZONE (CRZ = 10 X DIAMETER) OF A TREE, TREE PROTECTION FENCING MUST BE INSTALLED SURROUNDING THE CRITICAL ROOT ZONE, AND REMAIN IN PLACE UNTIL THE WORK IS COMPLETE.
2. UNLESS PLANS ARE APPROVED BY CITY FORESTRY STAFF, FOR WORK WITHIN THE CRZ:
   - DO NOT PLACE ANY MATERIAL OR EQUIPMENT - INCLUDING OUTHOUSES;
   - DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
   - DO NOT RAISE OR LOWER THE EXISTING GRADE;
   - TUNNEL OR BORE WHEN DIGGING;
   - DO NOT DAMAGE THE ROOT SYSTEM, TRUNK, OR BRANCHES OR ANY TREE;
   - ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARD ANY TREE CANOPY.
   - DO NOT EXTEND HARD SURFACE OR SIGNIFICANTLY CHANGE LANDSCAPING
3. TREE PROTECTION FENCING MUST BE AT LEAST 1.2M IN HEIGHT, AND CONSTRUCTED OF RIGID OR FRAMED MATERIALS (E.G. MODULOC - STEEL, PLYWOOD HOARDING, OR SNOW FENCE ON A 2"X4" WOOD FRAME) WITH POSTS 2.4M APART, SUCH THAT THE FENCE LOCATION CANNOT BE ALTERED. ALL SUPPORTS AND BRACING MUST BE PLACED OUTSIDE OF THE CRZ, AND INSTALLATION MUST MINIMISE DAMAGE TO EXISTING ROOTS. (SEE DETAIL)
4. THE LOCATION OF THE TREE PROTECTION FENCING MUST BE DETERMINED BY AN ARBORIST AND DETAILED ON ANY ASSOCIATED PLANS FOR THE SITE (E.G. TREE CONSERVATION REPORT, TREE INFORMATION REPORT, ETC). THE PLAN AND CONSTRUCTED FENCING MUST BE APPROVED BY CITY FORESTRY STAFF PRIOR TO THE COMMENCEMENT OF WORK.
5. IF THE FENCED TREE PROTECTION AREA MUST BE REDUCED TO FACILITATE CONSTRUCTION, MITIGATION MEASURES MUST BE PRESCRIBED BY AN ARBORIST AND APPROVED BY CITY FORESTRY STAFF. THESE MAY INCLUDE THE PLACEMENT OF PLYWOOD, WOOD CHIPS, OR STEEL PLATING OVER THE ROOTS FOR PROTECTION OR THE PROPER PRUNING AND CARE OF ROOTS WHERE ENCOUNTERED.

THE CITY'S TREE PROTECTION BY-LAW, 2020-340 PROTECTS BOTH CITY-OWNED TREES, CITY-WIDE, AND PRIVATELY-OWNED TREES WITHIN THE URBAN AREA. PLEASE REFER TO WWW.OTTAWA.CA/TREEBYLAW FOR MORE INFORMATION ON HOW THE TREE BY-LAW APPLIES.

ACCESSIBLE FORMATS AND COMMUNICATION SUPPORTS ARE AVAILABLE, UPON REQUEST

Ottawa

TREE PROTECTION SPECIFICATION

TO BE IMPLEMENTED FOR RETAINED TREES, BOTH ON SITE AND ON ADJACENT SITES, PRIOR TO ANY TREE REMOVAL OR SITE WORKS AND MAINTAINED FOR THE DURATION OF WORK ACTIVITIES ON SITE.

SCALE:	NTS
DATE:	MARCH 2021
DRAWING NO.:	1 of 1

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