June 22, 2018 (revised April 24, 2019)

Our File Ref.: 180205

Luc Landry
1919 Forced Road
Vars, Ontario K0A 3H0

Subject: Environmental Impact Statement - Significant Woodland & Wetland
Proposed Two (2) Rural Lot Creation, Concession 5, Lot 26, Vars (Ottawa), ON

Dear Mr. Landry,

LRL Associates Ltd. (LRL) has carried out an Environmental Impact Statement (EIS) for the proposed severance of the parcel of land legally described as Concession 5, Lot 26 in Vars (Ottawa), Ontario (herein referred to as the "Site"). The location of the Site is shown in the attached **Figure 1**. Two (2) lots, approximately 2.6 and 4.6 acres in size, are anticipated to be severed from the northern portion of the main approximate 89 acre property. It is anticipated that the proposed severed lots will be developed with residential dwellings and associated structures. For discussion purposes, it will be assumed that the proposed retained lot will also be developed with a residence and associated features.

According to the City of Ottawa's Official Plan (OP) as well as the Ontario Ministry of Natural Resources and Forestry (MNRF) 2011 significant woodland geographic information system (GIS) layer, the woodland covering the Site is considered a Natural Heritage System Feature. According to the MNRF Land Information Ontario topographic mapping system, the lands covering the site and the adjacent properties are identified as a wetland.

The OP states that development and site alterations may be permitted within a Natural Heritage System Feature if it has been demonstrated through an EIS that there will be no negative impacts on the natural features or ecological functions. The OP and the MNRFs Natural Heritage Polices of the Provincial Policy Statement states that development and site alterations may be permitted within 120 m of significant woodlands if it has been demonstrated through an EIS that there will be no negative impacts on the natural features or ecological functions.

1 SCOPE OF WORK

The EIS will focus on the woodland area across the Site and that of the adjacent properties. A detailed review of the wetland features identified on, or in proximity to the Site is not part of the scope of this assessment. The areas of the proposed severances include the northwest portion and the north central portion of the Site. Proposed severed Lot A, is proposed to encompass the northwestern portion of the Site, and will have an approximate frontage along Devine Road of 62 m (east-west) and a depth of approximately 170 m (north-south) for an area of 10,540 m² (2.6 acre). Proposed severed Lot B, at the northcentral portion of the Site has an approximate

frontage along Devine Road of 100 m (east-west) and an approximate depth of 195 m (north-south) for a surface area of 19,500 m² (4.6 acres).

According to the City of Ottawa's Official Plan, a significant woodland is defined as:

- "*Any treed area meeting the definition of woodlands in the Forestry Act, R.S.O. 1990, c. F.26 or forest in the Ecological Land Classification for Southern Ontario; and*
- *In the rural area, meeting any one of the criteria in the Natural Heritage Reference Manual, as assessed in a subwatershed planning context and applied in accordance with Council-approved guidelines, where such guidelines exist; or In the urban area, any area 0.8 hectares in size or larger, supporting woodland 40 years of age and older at the time of evaluation."*

The Forestry Act, R.S.O. 1990, defines woodlands as "*a) 1,000 trees, of any size, per hectare, b)750 trees, measuring over five centimeters in diameter, per hectare, c) 500 trees, measuring over 12 centimetre in diameter per hectare, or c) 250 trees, measuring over 20 centimetres in diameter, per hectare*". The wooded area encompassing the Site conforms to these criteria and is therefore considered a woodland.

The MNRF defines a wetland as "*lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants*."

According to the Ontario MNRF's *"Natural Heritage Polices of the Provincial Policy Statement, 2014"* the province identifies lands adjacent to a Natural Heritage Feature as follows:

- *"the Province recommends that adjacent lands are those within 120 meters of a significant woodland. This distance is recommended since development and land uses within 120 meters of woodlands have a reasonable probability of affecting the ecological functions of the woodlands."*
- *"The Province recommends that adjacent lands are those lands within 120 metres of individual significant wetlands or significant coastal wetlands or, in the case of wetland complexes, within 120 metres of individual wetlands that make up the complex. This recommended adjacent lands width was chosen because it is known that a reasonable probability exists that developments within 120 metres of wetlands will affect the ecological functions of the wetlands that they surround, and because wetland species are often dependent on adjacent lands for activities such as nesting, resting, and feeding or for shelter."*

This statement is not intended to be an identification or evaluation of the natural heritage features but to investigate if any negative impacts on the identified features may occur due to development. The proposed developments on the Site are located within the identified significant woodland and wetland area.

2 METHODOLOGY

The EIS was carried out in general accordance to the City of Ottawa Official Plan (2010), Section 4.8, with reference to the Natural Heritage Reference Manual (2010). The Site work and research with respect to the EIS was conducted by a senior environmental technician with more than 10 years of knowledge in the environmental field and worked directly alongside a Senior Professional Engineer with a focus in environmental engineering.

The purpose of the EIS is namely to confirm the existing on-Site characteristics of the Site and assess the proposed impacts to the site's environmental functions as a result of the proposed land severance and development activities. Areas of focus for the EIS included to confirm the terrestrial features of the Site; if there any potential or actual aquatic habitats at the Site which may intrude into the proposed developments; potential mitigation measures for development; and are any species at risk or additional natural heritage features present on the Site or in proximity.

3 BACKGROUND

3.1 Significant Woodland

The Natural Environment Area identified within Schedules A and L1 of the City of Ottawa's OP were established using a variety of more detailed mapping sources. These maps were prepared to provide municipal planning the best available natural heritage information to help with informed decision making. The system gives points to features that can be established from aerial photographs such as patch size, forest interior, proximity to woodland, and proximity to water, slope and islands. The wooded areas with highest points were labelled as significant woodlands. This system is based on interpretation of aerial photography and the former Region's Natural Environment Systems Strategy (NESS) which involved extensive field assessments confirm ecologically important data such as special features, rare or endangered species, uncommon vegetation, wildlife habitat, vegetation type, vegetation age, etc. Therefore, woodlands labelled "significant" shall be considered "significant" unless a detailed on-site of the woodland determines otherwise.

According to the City of Ottawa's OP:

> *"The Natural Environment Area designation applies to land having a high environmental value as assessed through federal, provincial and municipal studies. The lands within this designation typically contain several components of the City's natural heritage system, including wetlands, significant woodlands, and wildlife habitat. These areas are among the most significant in Ottawa in terms of maintaining biodiversity and ecological functions. As such, development within and adjacent to these areas could unduly stress significant natural features and their ecological functions and careful management, restoration and enhancement are required."*

According to the Provincial Policy Statement (PPS) (2014), woodlands are defined as:

> *"treed areas that provide environmental and economic benefits such as erosion prevention to both the private landowner and general public such as water retention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products"*

Section 2.1 (Natural Heritage Policy) of the PPS states that development and site alteration may not take place in significant woodlands south and east of the Canadian Shield unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. The PPS defines significant woodlands as:

> *"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"

Section 2.1 (Natural Heritage Policy) of the PPS states that development and site alteration may not take place in a wetland unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

According to the City of Ottawa's OP (Section 3.2.2) development may be permitted in accordance with the underlying land use designation in significant woodlands and wetlands only if it has been demonstrated that there will be no negative impacts on the natural features or on the ecological functions for which the area is identified.

Based on the Ontario MNRF 2011 significant woodland GIS layer, the woods covering Site are considered a Natural Heritage System Feature. The locations of the identified significant woodlands relative to the site are shown in in the attached **Figure 2**.

3.2 Wetland

According to the MNRF Land Information Ontario Topographic Mapping system, the lands covering the majority of the Site and the adjacent lands to the north, east and west are identified as Unevaluated Wetlands. The ponds at the southcentral portion of the Site are identified as Provincially Significant Wetlands. The location and extent of the identified wetland relative to the Site is shown in the attached **Figure 3**.

The Provincial Policy Statement (PPS) (2014) defines wetlands as:

"lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens."

The Ontario MNRF's *"Natural Heritage Polices of the Provincial Policy Statement, 2014"* identifies lands adjacent to a Wetland Natural Heritage Feature as follows:

- *"The Province recommends that adjacent lands are those lands within 120 metres of individual significant wetlands or significant coastal wetlands or, in the case of wetland complexes, within 120 metres of individual wetlands that make up the complex. This recommended adjacent lands width was chosen because it is known that a reasonable probability exists that developments within 120 metres of wetlands will affect the ecological functions of the wetlands that they surround, and because wetland species are often dependent on adjacent lands for activities such as nesting, resting, and feeding or for shelter."*

4 SITE DESCRIPTION

4.1 Property Information

The subject site is located within the City of Ottawa, approximately 1.1 km east of the "urban" extents of the Village of Vars. An irregular shaped parcel of land, being approximately 100 m wide along Devine Road, intercepts the northeastern extent of the Site from the southwest corner of the Devine Road and Dunning Road intersection. The location of the Site is presented in **Figure 1**. The property does not have a civic address but is rather referred to as Concession 5, Lot 26, in Ottawa.

The Site has an irregular shape, covering an area of approximately 360 170 m^2 (89 acres). The property is between 120 and 640 m wide (east-west) by between 365 and 560 m^2. The property extends north to Devine Road and east to Dunning Road, except for where neighbouring properties are situated, in which results in a "notched" like configuration of the northern and eastern portions of the Site. A City of Ottawa owned parcel of land (approximately 7,950 m^2) is located at the approximate southcentral portion of the main property. The land parcel is occupied by a City of Ottawa water treatment facility. The general configuration of the Site is presented in the included **Figure 4**.The majority of the property is wooded with the exception to an encroaching landscaped area from a neighbouring property along the north (approximately 570 m^2). The City of Ottawa owned facility is accessible by a gravel driveway easement extending south from Devine Road, along the eastern portion of the Site. Immediately south and west of the City of Ottawa owned land parcel are large surface ponds with an approximate footprint of 60 000 m^2. Further details with respect to the ponds are provided below in section 4.3.2 . No structures or development, other than the driveway to the water treatment facility, are present on the Site. A culvert, which intercepts the municipal ditch along Devine Road, is present at the northern extent of the driveway to the water treatment facility.

The wooded area covering the Site is considered significant woodland according to the MNRF database reviewed. The MNRF also identifies the majority of the Site as an unevaluated wetland. Further discussion with respect to the wetland feature identified by the MNRF is provided in Section 6.1.1. The topography of the Site is generally flat. According to the Government of Canada, Atlas of Canada Interactive Maps, Toporama, the general elevation across the Site range between 75 and 77 m above mean sea level (amsl).The extent of the wooded area and the wetland is presented in **Figure 3**. Site features described are presented in **Figure 4**.

The neighbouring land use in the general area of the Site includes low density residential developments to the north east and west, forested to the north following Devine Road, and east following Dunning Road. Agricultural activities occupy the lands to the south. As mentioned above, a City of Ottawa owned parcel of land (C.N. 2512 Devine Road) is located at the southcentral portion of the Site, which is developed with a water treatment facility. According to the MNRF Land Information Ontario Topographic Mapping system, the lands covering the majority of the Site and the adjacent lands to the north, east and west are identified as Unevaluated Wetlands. A ditch is located along the northeast extent of the Site.

4.1.1 Geology

4.1.1.1 Geological Mapping

Geological maps were reviewed to obtain the regional geology and information on the surficial soil and bedrock. The generalized surficial geology[1] was described as Deltaic and Estuarine Deposits: medium- to fine-grained sand. The generalized bedrock[2] was described as Carlsbad Formations: grey shale, sandy shale, some dolomitic layers.

4.1.1.2 Subsurface Investigation

On May 23 2018, five (5) auger holes were completed across the Site, namely on and within proximity to the proposed severed lots, to determine the general upper soil (shallow overburden)

[1] St-Onge, D.A.., Geological Survey of Canada, Surficial Geology, lower Ottawa valley, Ontario-Quebec, Scale 1:125,000, Map 2140A, 2009.
[2] Harrison, J.E.., Geological Survey of Canada, Generalized Bedrock Geology, Ottawa-Hull, Ontario-Quebec, Scale 1:125,000, Map 1508A, 1976.

and shallow groundwater conditions of the Site. Further details are provided below in Section 6.2. In general, the subsurface materials across the Site were found to consist primarily of fine-grained sand, silty to traces of silt and traces of clay. The locations of the auger holes are presented in **Figure 5**.

4.1.2 Surface Water Features

4.1.2.1 Provincially Significant Wetlands

The majority of the southcentral portion of the Site is covered by surface water ponds. The ponds are estimated to have a foot print of approximately 60 000 m², not including the estimated 50 m riparian zone setback. The distance of 50 m is set by the Natural Heritage Policies of the Provincial Policy Statement. The ponds were observed to steep, unstable banks estimated to be between 1.0 and 2.0 m in height. The banks appeared to be of sand deposits with areas of erosion. Young trees, shrub and grasses cover the crown of the banks. According to the MNRF Land Information Ontario Topographic Mapping system, the ponds are considered a Provincially Significant Wetlands.

4.1.2.2 Unevaluated Wetland

As mentioned above, the lands covering the majority of the Site and the adjacent lands to the north, east and west are identified as Unevaluated Wetlands. According to the Provincial Policy Statement (PPS) (2014) a wetland is defined as *"lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens."*

At the time of Site visit (refer to Section 6 for further details), surface water pooling was encountered at throughout the majority of the eastern portion of the Site, and sections of the northcentral portion. This surface water pooling is inferred to be the result of seasonal conditions including recent snow melt and heavy rain fall. Suspected areas of previously saturated or water pooling were observed and identified by compressed surface leaf cover. As detailed in the City of Ottawa's August 13, 2018, Wetland Investigation – 2518 Devine Road memorandum, the eastern portion of the Site is not considered a wetland in accordance with the Ontario Wetland Evaluation System (OWES), but rather exhibits characteristics and features of a fresh – moist deciduous forest ecosite. A copy of the memorandum by the City of Ottawa is included in **Appendix E**.

4.1.3 Well Head Protection

A well head protection area has been identified across the majority of the Site. A well head protection area (WHPA) is considered the area surrounding a supply well where the activities on these lands have the risk to impact the quality of the groundwater aquifer feeding the well. The WHPA is established based on hydraulic characteristics of the area (i.e. hydraulic conductivity) and the volume supplied by the well. These areas are categorized into four (4) zones dependant on the sensitivity of each area as follows:

- Zone A: The area within 100 m of the well. This area is most critical as contaminates in this range could easily impact and impair the supply aquifer and well.
- Zone B: If a source of contamination in this area impacts the aquifer, it could take less than two (2) years to impact the supply well.
- Zone C: Contamination from this area could take between two (2) and five (5) years to reach the supply well.

- Zone D: Contamination from this area could take between five (5) and 25 years to reach the supply well.

WHPA's are also given a vulnerability score which is a value assigned to indicate the likelihood that the drinking water source could become contaminated. The City of Ottawa uses a range of between Two (2) and 10, which increase in two (2) unit increments. More elevated values represent an increase vulnerable area (Highly Vulnerable) where contaminants to the water supply can result in a more direct and greater impact to the well. A lower score, between two (2) and four (4) represents an area with a lesser likelihood of impacting the supply aquifer (Low Vulnerability).

The Village of Vars obtains their water supply from two (2) wells located at the City Owned facility which is situated at the southcentral portion of the Site (C.N. 2512 Devine Road). The well head protection area for these supply wells encroach and cover the majority of the Site as shown in **Figure 6**. The proposed severed lots will include a portion of the areas classified as Zone C and Zone D with vulnerability scores ranging between four (4) and six (6), low to moderately vulnerable.

Consideration in the placement of the proposed severed lots, and their respective sizes (less than 5 acres), have been given with the intent to minimize the encroachment onto WHPA. This is the rational for the proposed severed lots to be located at the northern extent of the main property. Further discussion with regards to the well head protection area and development setbacks are presented below in Section 7.3.

4.2 Severed and Retained Lots

The proposed severed lots encompass the northwestern (Lot A) and northcentral (Lot B) portions of the property. Their locations are presented in **Figure 7**. Details of the proposed lots to be created are as follows:

- Proposed severed Lot A, at the northwestern portion of the Site, will have an approximate frontage along Devine Road of 62 m (east-west) and a depth of approximately 170 m (north-south) for an area of 10 540 m² (2.6 acre).
- Proposed severed Lot B, at the north-central portion of the site has an approximate frontage along Devine Road of 100 m (east-west) and an approximate depth of 160 m (north-south) for a surface area of 19 500 m² (4.6 acres).
- The proposed retained lot, Lot C, will have an area of approximately 307 205 m² (81.8 acre).

4.3 Natural Features

4.3.1 Significant Woodland

The significant woodland identified by the Ontario MNRF 2011 includes the majority of the main property and generally extends onto the adjacent land to the north, east and west following a cleared area. The locations and configuration of the identified significant woodlands are presented in **Figure 2**.

According to the Provincial Policy Statement (PPS) (2014), woodlands are defined as:

"treed areas that provide environmental and economic benefits such as erosion prevention to both the private landowner and general public such as water retention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products"

4.3.2 Wetland

According to the MNRF Land Information Ontario Topographic Mapping system, the lands covering the majority of the Site and the adjacent lands to the north, east and west are identified as Unevaluated Wetlands. The ponds at the southcentral portion of the Site are identified as Provincially Significant Wetlands. The location of the identified wetland relative to the Site is shown in in the attached **Figure 3**.

The Provincial Policy Statement (PPS) (2014) defines wetlands as:

"lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens."

5 RARE, THREATENED AND ENDANGERED SPECIES

5.1 MNRF Natural Heritage Information Centre

The MNRF Natural Heritage Information Centre (NHIC) compiles, maintains and provides information on rare, threatened and endangered species and spaces in Ontario. This information is stored in a central repository containing a computerized database, map files and an information library, which are accessible for conservation applications, land use planning, park management, etc. Natural areas and element occurrence data can be accessed through the MNRF Make a Map interactive map. Our review of the information from the NHIC revealed that the following element occurrences for rare, threatened or endangered species are within one kilometer of the Site.

Species Common Name	Species Scientific Name	Provincial Rank	Suitable Habitat Observed on the Site	Evidence
Large Purple Fringed Orchid	*Platanthera grandiflora*	SH1	Yes	No
Eastern Wood-pewee	*Contopus virens*	S4B	Yes	No
Boblink	*Dolichonyx orzivorus*	S4B	Yes	No
Snapping Turtle	*Chelydra serpentina*	S3	Yes	No

Notes:

SH1 Species that is possible extirpated and critically imperiled in Ontario
S3 Species that is rare to uncommon in Ontario
S4B Species that is common in Ontario

5.2 Ontario Breeding Bird Atlas

A summary of potential breeding birds which may be present on the Site, or have been identified within proximity of the Site according to the Ontario Breeding Bird Atlas (2001-2005) are summarized in **Appendix A**.

5.3 Species of Concern, Endangered or Threatened

A review of available data bases, including Ontario Regulation 230/08, has revealed the following potential species of concern, endangered or threatened species within the City of Ottawa southeastern region:

- The Red Shouldered Hawk (*Buteo lineatus*) that is ranked as S4B which represents a species that is common;

- The New England Sedge (*Carex novae-angliae*) that is ranked as S4 which represents a species that is common;
- The Long-Scaled Tussock Sedge (*Carex haydenii*) that is ranked as S4 which represents a species that is common;
- The American Ginseng (*Panax quinquefolius*) that is ranked as S3 which represents a species that is vulnerable;
- The Greater Redhorse (*Moxostoma valenciennesi*) that is ranked as S3 which represents a species that is vulnerable;
- The Butternut (*Juglans cinerea*) that is ranked as S3 which represents a species that is vulnerable; and
- Whip-poor-will (*Caprimulgus vociferous*) that is ranked as S3 which represents a species that is vulnerable.

According to the Ontario Breeding Bird Atlas described in Section 5.1, select species of concern have been identified within proximity of the Site. These species include the following:

Threatened Species	
Bank Swallow	Riparia riparia
Barn Swallow	Hirundo rustica
Boblink	Dolichnyz oryzivorus
Whip-poor-will	Caprimulgus vociferus
Special Concern Species	
Eastern Wood-Pewee	Contopus virens
Grasshopper Sparrow	Ammodramus savannarum
Wood Thrush	Catharus mustelinus

Potential habitats of select species listed were encountered at the time of the Site visit as follows:

- The Site appeared to be seasonally saturated in areas which could be a suitable growing habitat for the Large Purple Fringed Orchid;
- The Eastern Wood-Pewee prefers to habit in the mid-canopy layer of the extents of a forest. The forest across the Site may be a suitable habitat for the Eastern Wood-pewee, namely the northern and eastern extents and along the right-of way bisecting the Site;
- The Whip-poor-will is commonly found in both open and forested areas including mature, deciduous, coniferous or mixed forests. The Site, being forested, is considered a suitable habitat for the Whip-poor-will;
- The Wood Thrush, similar to the Whip-poor-will, are found in mature deciduous and mixed forests. The Wood Thrush prefer to reside in larger forests and construct their nests in samplings or shrubs, typically sugar maple or beech saplings;
- Suitable environments for the Red Shouldered Hawk are generally deciduous swamps and mixed deciduous-conifer forests. The treed area across the Site, including the proposed development envelope areas, and the neighbouring lands are considered suitable habitats for this species; and
- Shallow ponds are located at the central portion of the site which is a suitable habitat for the Snapping Turtle. A gravel road from Devine Road extending south towards the City

of Ottawa water treatment facility at the centre of the Site. The gravel roadway is a suitable nesting Site for the turtles during early to mid-summer. Although sandy soil conditions were encountered across the property at the time of the subsurface investigation, heavy vegetation cover would likely discourage nesting turtles to use the majority of the forested area of the property. Areas of un-covered sand were observed within the riparian zone of the ponds. No development should take place within this area.

The Site does not appear to be a suitable habitat for the following threatened or of concern species:

- A potentially suitable habitat for the Bobolink and the Grasshopper Sparrow is tall grasses and open meadows, or hayfield, none of which were identified on the Site;
- The Bank Swallow resides typically nest in man-made settings where a steep vertical faces in fine granular (silt and sand) deposits are present. These areas include lake and river banks as well as mineral aggregate facilities. Such a potential habitat was not encountered on the Site at the time of the Site visit; and
- Barn Swallows nest in mud nests for the most part in open barns, under bridges, in culverts and other man made structures. Other than a culvert at the eastern extent of the Site, no other structures were encountered on the subject property.

None of the identified rare, threatened or endangered species listed above were encountered at the time of the site visit. No butternuts or other Species at Risk were observed at the time of the field survey. Species encountered are described above in Section 5.3. At the time of a telephone conversation with the City of Ottawa representative on July 25, 2018, LRL was informed of a record of a Eastern Wood Pewee encounter at the centre of the Site, in the approximate location of the proposed retained Lot C.

5.4 Ministry of Natural Resources and Forestry

A formal request has been made to the Ministry of Natural Resources and Forestry for the identification of potential for species at risk present on the site. A formal response has not been received at this time. The findings of the MNRF search will be reviewed and the impact statement and conclusions report will be amended accordingly.

6 SITE VISIT

LRL visited the subject site on May 22 and 23, 2018 to assess the woodland covering the Site with special attention to the area of the inferred development on the proposed severed lots. The weather encountered at the time of the May 22, 2018 Site visit was primarily overcast with heavy rain at times, and a temperature of between 16 and 18 ºC. May 23, 2018 was sunny with a temperature of approximately 24ºC. The Site visit was conducted by a LRL Senior Environmental Technician.

LRL walked through the property to verify and document the site features and vegetation cover across the entire property. Height, diameter, and species identification were recorded for select trees with a diameter at breast height (dbh) greater than 5 cm. No sampling or intrusive probing measurements of the vegetation community were carried out as part of this assessment, therefore the level of effort for this assessment is considered moderate. A high effort level was deemed not necessary for the scope. Photographs from the Site visit are included in **Appendix B**.

A ditch is located along the northeastern portion of the Site for a distance of approximately 160 m where it then bisects Dunning Road and continues south. The ditch was measured to be

approximately 1.2 m wide and 0.2 m in depth at the time of the Site visit. The base was silty and the banks were low, being approximately 0.1 m in height, and covered generally with grass. A municipal ditch is present along the northern extent of the site. At the time of the site visit, the ditch was observed to have approximately 0.3 m deep of water present. The banks of the ditch were grassed and with shrubs.

The majority of the southcentral portion of the Site is covered by surface water ponds. The ponds are estimated to have a foot print of approximately 60 000 m², not including the 50 m riparian zone setback. The ponds were observed to steep, unstable banks estimated to be between 1.0 and 2.0 m in height. The banks appeared to be of sand deposits with areas of erosion. Young trees, shrub and grasses cover the crown of the banks.

Surface water pooling was encountered at the eastern portion of the Site which is likely the result of seasonal conditions including recent snow melt and heavy rain fall. Suspected areas of previously saturated or water pooling were observed and identified by compressed surface leaf cover.

A gravel road way has been constructed on the site which bisects the approximate central portion of the Site in a north-south direction. The road way is an easement which extends to a parcel of land owned by a City of Ottawa where a water treatment facility is operated. The adjacent resident along the north of the Site (C.N. 2474 Devine Road), has extended their landscaping slightly onto a portion of the Site resulting in a clearing at the northcentral portion of the Site (950 m²). No further development or structures were observed at the time of the Site visit on the property.

The area, both the interior forest and the outer perimeter (100 m setback from the forests edge) is predominantly a mixture of quite immature/young trees primarily consisting of poplar and maple. Additionally, balsam, black cherry, birch (white, grey and yellow), ash and cedar species were also observed with select older growth white pine. In general, the diameters of the cover ranged between 5 and 25 cm with some encounters of maple, poplar and grey birch up to 45 cm in diameter. Select white pine was found to have diameters between 50 and 75 cm. Please see Section 6.1 for a more detailed description of the forest located on the proposed severed lot. Trees encountered with diameters greater than 60 cm will be considered “significant specimens”. The locations of the significant specimens encountered on the proposed severed lot are shown in **Figure 4**.

No identified species at risk (i.e. butternut tree) were observed at the time of the site visit. If an identified or suspected species at risk was encountered, LRL was prepared to document its location by using a handheld Global Positioning System (GPS) which could later be referenced.

6.1 Forested Areas and Vegetation

The forested area identified across the site is defined as an immature/young forest. The dominant cover across the site poplar and maple with some balsam, black cherry, birch (white, grey and yellow), ash and cedar. In general, their diameters vary between 5 and 20 cm. Select maple, poplar and grey birch were up to 45 cm in diameter. Select white pine was found to have diameters between 50 and 75 cm. Details of the tree species observed and measured are as follows:

- Primarily consists of maples and poplar (~90%) of between 5 and 20 cm in diameter. Select maple and poplar trees were observed to be up to 45 cm in diameter.
- An area of approximately 50 m by 50 m along the northern portion of the site was observed to have a cluster of balsam ranging between 5 and 20 cm. This area was located approximately 150 m southwest of the northeast extent of the site. The balsam

made up approximately 30% of the total cover of this area. Dominant spices typical of the remainder of the site were present. Balsams were also obverted sporadically across the remainder of the Site.

- An ash tree, approximately 20 cm in diameter, was observed at the north property line, at the western portion of the Site. The tree appeared to be ill with no foliage.
- Two (2) white cedar trees were observed across the site. They were measured to be 20 and 40 cm in diameter, and unlike typical characteristics of white cedar, were not in companion or clusters with other cedar species. They were rather observed to be in great distance from each other.
- Six (6) larger diameter white pine trees were observed across the central portion of the site. The trees ranged in diameters of between 50 and 75 cm.
- Numerous grey, white and yellow birches were observed across the site. They typically were found range in diameters of between 5 and 25 cm. Select grey birches were measured as being between 30 and 45 cm in diameter and one yellow birch encountered was 30 cm in diameter. A patch extending an area of approximately 30 m by 50 m of young white birch, up to 20 cm diameter, was encountered at the southeast portion of the Site.
- Seven (7) black cherry tree with diameters ranging between 15 and 30 cm.
- The estimated age of the species encountered across the site, based on species type and trunk diameter are summarized as follows:

Species	Diameter Range (cm)	Estimated Age Range (Years)
Sugar Maple	5 - 40	Less than 15 to 35
Manitoba Maple	5 - 25	Less than 15 to 35
Red Maple	5 - 35	Less than 15 to 35
Poplar	5 - 45	Less than 15 to 30
Balsam	5 - 20	Less than 15 to 40
Black Cherry	15 - 30	30 to 60
Birch	5 - 40	15 to 80
White Pine	50 - 75	95 to 150
Cedar	20 - 40	Growth rate was un-retrievable for this species
Ash	20	15

- In general the age of the forest ranged from between 10 and 50 years. Select birch and black cherry trees were considered older being in the range of 60 through 80 years. The white pines encountered on the Site were found to be in the 100 year old range (between 95 and 150).
- The dominant species throughout the woodland is the sugar maple and poplar estimated to be between 15 and 50 years in age.
- Manitoba and red maple were also identified in large numbers across the Site, although not considered the dominant cover. Red maple is typical of a “wetland” type environment. Red maple were found in denser population at the eastern extent of the property.

Trees encountered with diameters greater than 60 cm will be considered “significant specimens”. They included white pine species. The locations of the significant specimens

encountered on the main property are shown in **Figure 4**. The locations of the black cherry identified are also included in **Figure 4** although not considered significant, they are unique to the remainder of the forest cover. These significant trees, and unique trees are located outside of the proposed development envelopes of the proposed severed lots as shown in **Figure 7**. The trees across the general development footprint are not considered significant and consist primarily of maple and poplar. The tree species identified on the site are commonly found throughout this area of Ontario (Great Lakes-St. Lawrence Forest Region), as they grow easily over this type of terrain. Therefore, the identified trees are representative of tree species found across the City of Ottawa.

6.1.1 Wetland

At the time of the Site visit on May 22 and 23, 2018 by LRL field staff, the Site was found to be mainly wooded and dry with areas of surface water pooling at the eastern portion of the Site. The water pooling is likely the result of seasonal conditions including recent snow melt and heavy rain fall. Suspected areas of previously saturated or water pooling were observed and identified by compressed surface leaf cover. Further discussion pertaining to the features are provided in the City of Ottawa's August 13, 2018 memorandum included in **Appendix E**.

The majority of the southcentral portion of the Site is covered by surface water ponds. The ponds are estimated to have a foot print of approximately 60 000 m², not including the estimated 20 m² riparian zone setback. The ponds were observed to steep, unstable banks estimated to be between 1.0 and 2.0 m in height. The banks appeared to be of sand deposits with areas of erosion. Young trees, shrub and grasses cover the crown of the banks.

A ditch is located along the northeastern portion of the Site for a distance of approximately 160 m where it then bisects Dunning Road and continues south. At the time of the Site visit, the ditch was measured to be approximately 1.2 m wide and 0.2 m in depth. The base was silty and the banks were low, being approximately 0.1 m in height, and covered generally with grass.

A detailed assessment of the wetlands identified on the Site and in proximity to the subject property was not included in LRLs scope for this EIS. The City of Ottawa has conducted an assessment of the Site to further investigate the conditions of the property including an examination of the potential presence of a wetland at the eastern portion of the site. A copy of their finds is included in **Appendix E**.

6.2 Subsurface Investigation

On May 23 2018, five (5) auger holes were completed across the Site, namely on and within proximity to the proposed severed lots, to determine the general upper soil (shallow overburden) and shallow groundwater conditions of the Site. The auger holes were advanced using manual equipment by LRL field staff.

The holes were extended to depths ranging between 0.9 and 1.2 m below ground surface (bgs). The soils encountered generally included a fine-grained, silty sand becoming with trace amounts of clay nearing the end of the auger holes at a depth of approximately 1.1 m. The soils were found to be saturated from depths ranging between 0.3 and 0.7 m bgs, with the exception the auger hole at the eastern extent of the site (AH1), where moist to saturated soil conditions were encountered immediately from ground surface. It is suspected that the surface saturation is likely a seasonal condition. Soil samples of the various stratums encountered, as well as from various depths, were collected and sealed in a 6 mm poly bag to prevent moisture loss. The locations of the auger holes are presented in **Figure 5** with the Auger Hole Logs included in **Appendix C**.

Select soil samples collected were submitted to LRL CIL Certified Materials Testing laboratory for sieve and hydrometer analyses. The laboratory certificates of analysis are included in **Appendix D**. The laboratory analysis results are summarized as follows:

- Sample No. AH1-2, collected from auger hole AH1 advanced at the eastern portion of the property, from depths of 0.7 – 0.9 m bgs, was measured to be 95% Sand, 3.1% Silt and 1.9% Clay. Of the 95% Sand, 94.3% was measured as fine-grained.
- Sample No. AH4-2, collected from auger hole AH4 advanced at the northeastern extent of the main property, from depths of between 0.7 – 0.9 m bgs, was measured to be 66.6% Sand (all of which was fine-grained), 30.8% Silt and 2.6% Clay.

6.3 Wildlife

During the site visit conducted May 22 and 23, 2018, the following wildlife species were observed.

Species Name	Resident/Visitor	Evidence
Bumblebee	Residents	Visually observed
Mosquitos	Residents	Visually observed
Wood Frog	Residents	Visually observed
Robin	Residents	Visually observed
Mourning Dove	Residents	Visually observed
Forest Tent Caterpillar	Residents	Visually observed

7 IMPACT STATEMENT

The activities associated with the construction of residential development typically include tree clearing, removal and stock piling of topsoil, construction of house and septic system (including excavation) and driveway construction and paving. To accommodate a house, septic system and a lawn area, it is estimated that the development footprints (development envelope) will encompass an area of approximately 40 meters wide by 100 meters deep, 4 000 m^2 (approximately 1.0 acre) for both the proposed severed lots and proposed retained lot as shown in **Figure 7**. The proposed development areas, as presented in **Figure 7**, are placed strategically to demonstrate that mitigation measures can be used to limit minimize the impacts on the woodlands, wetland and WHPA. The proposed development is anticipated to be beyond the designated interior forest area as well as beyond the 30 m setback from the Riparian zones (approximately 50 m from the top edge of the surface water feature banks), as shown in **Figure 7**. Further discussed in Section 7.3, the proposed development will also be situated beyond the moderate to highly vulnerable area, with respect to the Well Head Protection Area.

Wildlife corridors are connecting the local wooded area to the main forest complex, stretching between the Villages of Limoges, Vars and Hammond. It is proposed that approximately 3.4% (12 000 m²) of the total treed portion of the Site (347 925 m²) will be cleared for development. The proposed development is not anticipated to extend beyond the 100 m setback or edge of the interior forest and Riparian zones (approximately 50 m from the top edge of the surface water feature banks). It is recommended that development not be carried out within the interior forest or within the 30 m buffer from the Riparian Zone features encountered. The recommended setbacks are presented in **Figure 7**. The proposed tree line to minimize the impacts to the identified sensitive Site features, including setbacks and interior forests, is also presented in **Figure 7**. This presented tree line should be maintained.

It is anticipated that the proposed developments on the proposed severed lots at the north-central and northwestern portions of the Site will be constructed within a portion of the identified wetland by the MNR, similar to that of the neighbouring properties. The proposed developments on the property are considered “small scale” and are anticipated to include residences and associated structures. It is not anticipated that the overall function of the identified wetland would be impacted due to the small scale development. To further minimize the impacts to the wetland features on the site, development should not take place within the interior forest as mentioned above, and with use of mitigation measures outlined below.

As outlined in Section 6.1, significant specimens of trees were encountered on the Site, of which select were observed on the southern extents of proposed severed Lot A as shown in **Figure 7**. None of which are located within the proposed development area. These trees (diameters greater than 60 cm) will remain on the property. Setbacks of at least 3 m from the trunk of the trees will be maintained from these trees so not to damage the critical root zone should development extend south in the future. Further details are provided below in Section 7.2.

It is also recommended, to minimize impacts to the adjacent properties and potential unidentified sensitive features, a 10 m setback from the proposed developments (building envelopes) be maintained from the existing/proposed property lines.

7.1 Potential Effects of Development

The potential effects with respect to construction activities include:

- Grading and construction activities can change the soil’s characteristics such as the water table levels, the density of the soil (through compaction), erosion potential, surface run-off and the drainage patterns.
- Fuel spills as a result of vehicle use and storage. Spills can lead to soil and groundwater contamination.
- Site may be more vulnerable to invasion by non-native species of plants or wildlife.
- Disturbance of wildlife species as a result of construction activities.
- Increased erosional potential, changes in natural drainage and increased surface run-off.
- Construction activities can damage roots of trees that remain on site.
- Increase in sediment runoff towards the wetland through excavation activities, stockpiling of soil and removal of trees, which can control erosion. Increase in sediments can smother incubating eggs or other organisms that live in the wetland.

7.2 Mitigation Measures

To accommodate a house, septic system and a lawn area, it is estimated that the development footprints (development envelope) will encompass an area of approximately 4 000 m^2 (1.0 acre). For discussion purposes, the residence is anticipated on being approximately 400 m^2.The impacts of the construction activities on the woodlands and wetland can be mitigated using the following measures:

- Properly installed sedimentation barriers along the extents of the development 1.0 acre area on each proposed lot (such as silt fences or straw bails) during construction activities on the proposed severed and retained lots (grading, septic construction, etc.). The sedimentation barriers shall be properly installed prior to construction, and be maintained throughout the project. They shall be left in place until the vegetation (i.e.

grass) has been established on the site along the southern, western and northern extents of the proposed cleared area to prevent run-off into the remainder of the wetland. Further sediment control should be set along the eastern extent of the site to prevent runoff into the municipal ditch. The fencing should be checked weekly and following a rain event to insure that the temporary structure is suitable for erosion control purposes.

- Stockpiled soil should be placed as far from the interior forest as practically possible during construction. The stockpiles should be covered, especially during any rain events, to reduce any sedimentation run-off from the construction site.
- Once construction is complete, the compacted soil will be aerated to allow vegetation to establish more quickly. Re-vegetation after development with native species to reduce non-native species invasion.
- Equipment used during the construction activities should be properly maintained to reduce any fuel or lubricant leaks. No fuel should be stored on site and the equipment will be fuelled off-site. Any leaks or spills must be promptly contained and addressed.
- Noise impacts can be reduced by delaying the construction until later in the spring, after breeding has occurred and migrating birds have left the area. The effects of noise will be short term, only during construction activities, and no negative impacts will persist beyond this time. To minimize the potential impacts on wildlife, no woody vegetation removal should occur between April 15th and August 15th until verified by a qualified person and unless a breeding bird survey, completed by a qualified professional conducted within five (5) days of the proposed vegetation removal, reports no breeding activity.
- The following techniques can minimize impacts on the health and longevity of retained individual trees during and post-construction.
    - Around the treed perimeter of each lot, erect a sturdy 1 m high snow fence to protect adjacent trees. This should be placed at a minimum distance of the critical root zone (CRZ) and remain in place until construction is completed. The critical root zone is established as being 10 centimeters from the trunk of a tree for every centimeter of trunk DBH. This prevents damage to the retained tree from compaction of the soil due to heavy equipment. Excavations are not permitted in proximity to the edge of the work areas so the critical root zones of the adjacent retained trees will be well protected.
    - If excavation must take place adjacent to or within the CRZ, tunnel or bore carefully by hand and cut the root cleanly. Machinery should be kept to the outside of the cut, away from the tree trunk. An arborist will be required on site if excavation within the CRZ is required.
    - If surface tree roots are disturbed, they should be covered with soil, woodchips or filter cloth and kept moist until construction is complete under the guidance of an onsite arborist.
    - If limbs need to be trimmed or removed due to utilities or construction they should be cut using a chain saw using accepted arboricultural practices.
    - All grading and other site disturbances are to be restricted to the work area. Changes to grading or water flow around preserved trees can impact on the health of the tree. Where grade changes cannot be avoided, the installation of retaining walls or tree

wells should be considered for retained trees under the guidance of an onsite arborist.

- Vegetation including, but not limited to forested areas reduces surface water runoff and soil erosion. The removal of approximately 8 000 m² of the existing forested area may increase the runoff, (if directed), into the forested areas. The site is described as being generally flat thus in order to increase the runoff where mitigative measures are required is low. This increased runoff may increase the amount of water available for the entire forest complex. However, since the site is generally flat it is expected to be quite minimal. It is still recommended that a buffer zone of natural vegetation be created between the retained forest and cleared area to reduce any affect of increased runoff thus the potential for soil erosion.

- It is anticipated that by maintaining the recommended 80 m setback (50 m riparian zone and 30 m buffer), from the surface water features, the impacts to potential amphibian breeding would be minimal.

In accordance with the City of Ottawa Protocol for Wildlife Protection during Construction, August 2015, document, the following construction site management procedures should be considered (but are not limited to) during construction activities at the subject site:

- Staff of the construction project should be made aware of the EIS as well as encouraged to carry out pre-construction inspections for wildlife and the installation of protective fencing;
- Staff should be briefed on the potential species at risk that may be encountered on the site during the construction activities and how they should proceed if encountered. Staff should be aware of mitigation measures set in place for the duration of the construction activities. Identification features of the specie as well recommendations of procedures to follow should one be encountered should be made aware to the workers; and
- Consideration must be taken pertaining to sensitive time windows for species that may inhabit the site. Site clearing activities should be considered in regards to sensitive time windows or additional mitigation measures should be followed including:
  - The site should be kept clean and secure at all times possible;
  - The installation of nesting boxes around the perimeter of the Site to replace potential nesting areas removed during construction;
  - The encouragement of wildlife to leave the site by pre-stressing activities outlined in the document;
  - The inclusion of supplemental food sources in cases where food supply may be lost; and
  - The monitoring of the site by a qualified person(s) during the clearing activities and the retention of an organization to care for either injured or displaced species.

7.3 Well Head Protection Mitigation

The City of Ottawa, in conjunction with applicable conservation authorities; committees; and the Clean Water Act 2006, has developed a source protection plan to minimize future impacts to the supply source. The plan includes requirements that are to be followed for lands within the WHPA. However, depending on the zone of the WHPA where the land is situated, and the vulnerability scope, and the likely type of possible contaminate, there is some variance in the

plan. The following are the general requirements set out in the plan as outlined in the City of Ottawa Drinking Water Source Protection in Vars document (*publication date unspecified*):

- *"Prohibits the future establishment of incompatible land uses such as landfills near drinking water sources*
- *Requires governments to ensure that services such as sewers and winter road maintenance do not contaminate drinking water sources*
- *Ensures that safeguards are in place to reduce the risk of activities such as fuel storage and chemical use*
- *Encourages all residents and businesses in Wellhead Protection Areas to take voluntary action to protect the drinking water sources"*

Potential sources of contaminates which are considered a concern with respect to the WHPA include waste disposal sites, septic systems, sewage treatment facilities and/or sewers, agricultural activities, petroleum handling, commercial fertilizer and pesticides, seasonal road salting and snow dumping or storage, chemicals and aquaculture.

As presented in **Figure 7** and **Figure 8**, the proposed lots are located at the northern extent of the WHPA. The location and size of these lots have been strategically established with great consideration to the WHPA. Lot A, at the northwestern portion of the main property, will extend into the area with a Zone D classification and a vulnerability score of four (4), which is considered as a low vulnerability score. Proposed Lot B extends further south into Zone C and has a vulnerability score ranging between four (4) and six (6) (low to moderately vulnerable). It is anticipated that the proposed house and septic on the severed parcels of land will be situated at the northern portion of the lots, as shown in **Figure 8**. This area is not identified as within the WHPA however the general site development (i.e. landscaping) would likely encroach on the WHPA Zone D slightly. The risks for potential impacts to the aquifer as a result of the proposed land development activities are low. The proposed development is anticipated to be residential which is not considered an incompatible land use with minimal likelihood for groundwater impacts. It should be noted that sufficient area is available at the northern portion of the proposed severed lots, outside of the WHPA, for the placement of a septic disposal bed. It is recommended that to better reduce the risk for impacts to the well head, the septic be placed outside the zone as shown in **Figure 8**.

Mitigation measures, as described in Section 7.2, can further aid in reducing impacts to the WHPA. No site alterations are recommended for the areas classified as being highly vulnerable, or in Zone A.

7.4 Significance of Environmental Impacts Following Mitigation

It is anticipated that the proposed developments on the proposed severed lots would be placed within the identified significant woodland. Wildlife corridors are connecting the local wooded area to the main forest complex, stretching between the Villages of Vars, Limoges and Hammond. Approximately 3.4% (12 000 m²) of the total treed portion of the site will be cleared for development.

No significant adverse cumulative effects are anticipated as a result of the construction activities following the use of the above mitigation measures. The proposed development is not anticipated to extend beyond the 100 m setback or edge of the interior forest, and 30 m from the riparian zones (50 m radius) of the ponds. It is recommended that development not be carried out within the interior forest or within the 80 m buffer from the water features encountered. The extent of the development foot print (i.e. proposed tree line) presented in **Figure 7** should be maintained.

It is also recommended, to minimize impacts to the adjacent properties, 10 m setback from the proposed developments (building envelopes) be maintained from the existing/proposed property lines. No site alterations are recommended for the areas classified as being highly vulnerable, or in Zone A. No on-going monitoring is recommended following the construction activities.

8 CONCLUSIONS

It is our professional opinion that with the use of the above mitigation measures, the impacts on the significant woodland (including the interior woodland) and wetlands as a result of the proposed development will be negligible.

Yours truly,
LRL Associates Ltd.

Jessica Arthurs
Senior Environmental Technician

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FIGURES

LRJ
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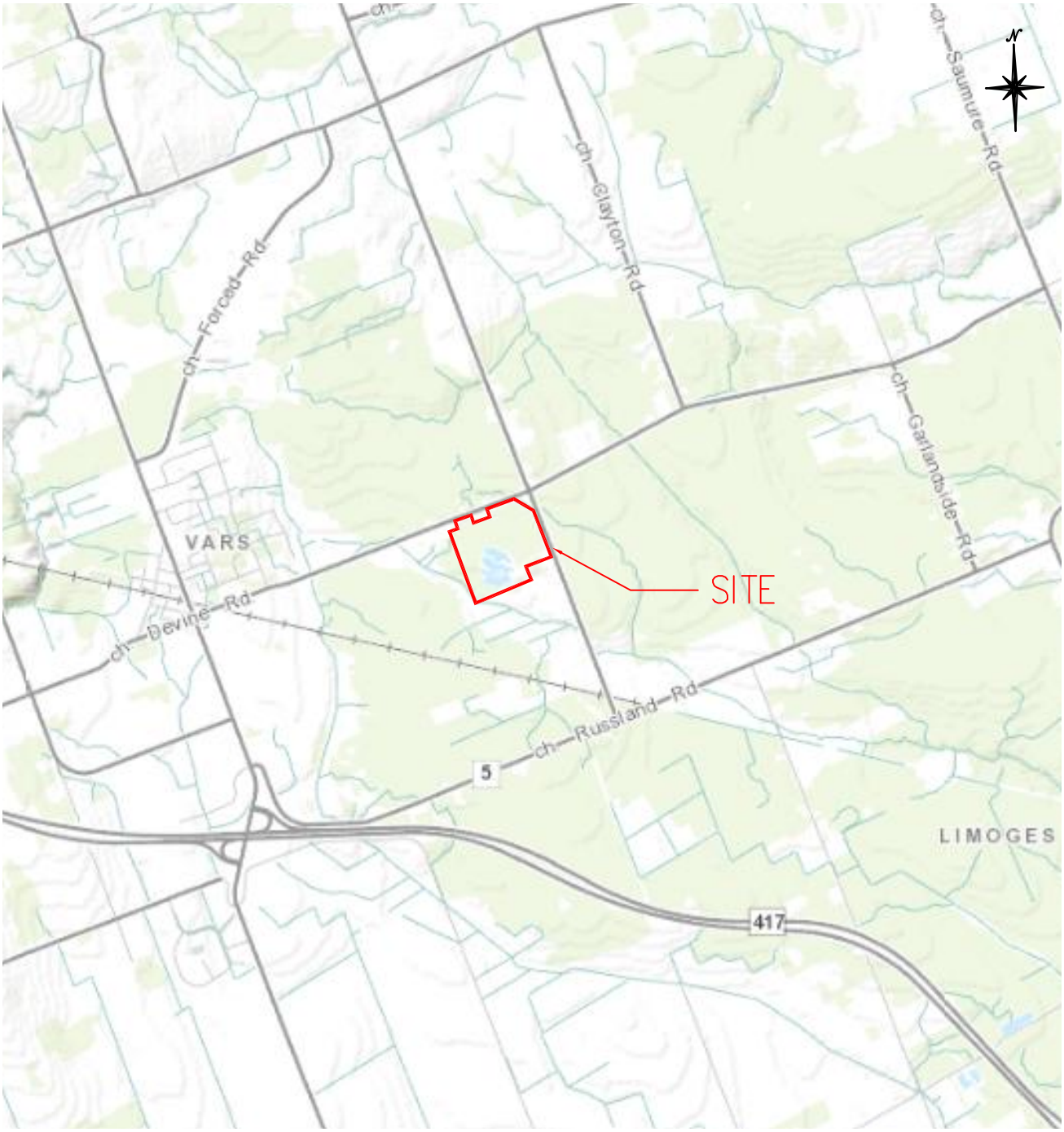
PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT - SIGNIFICANT WOODLAND
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE
SITE LOCATION
SOURCE: geoOttawa
(Not to Scale)

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE1



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PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT - SIGNIFICANT WOODLAND
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE
MNRF IDENTIFIED SIGNIFICANT WOODLAND

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE2

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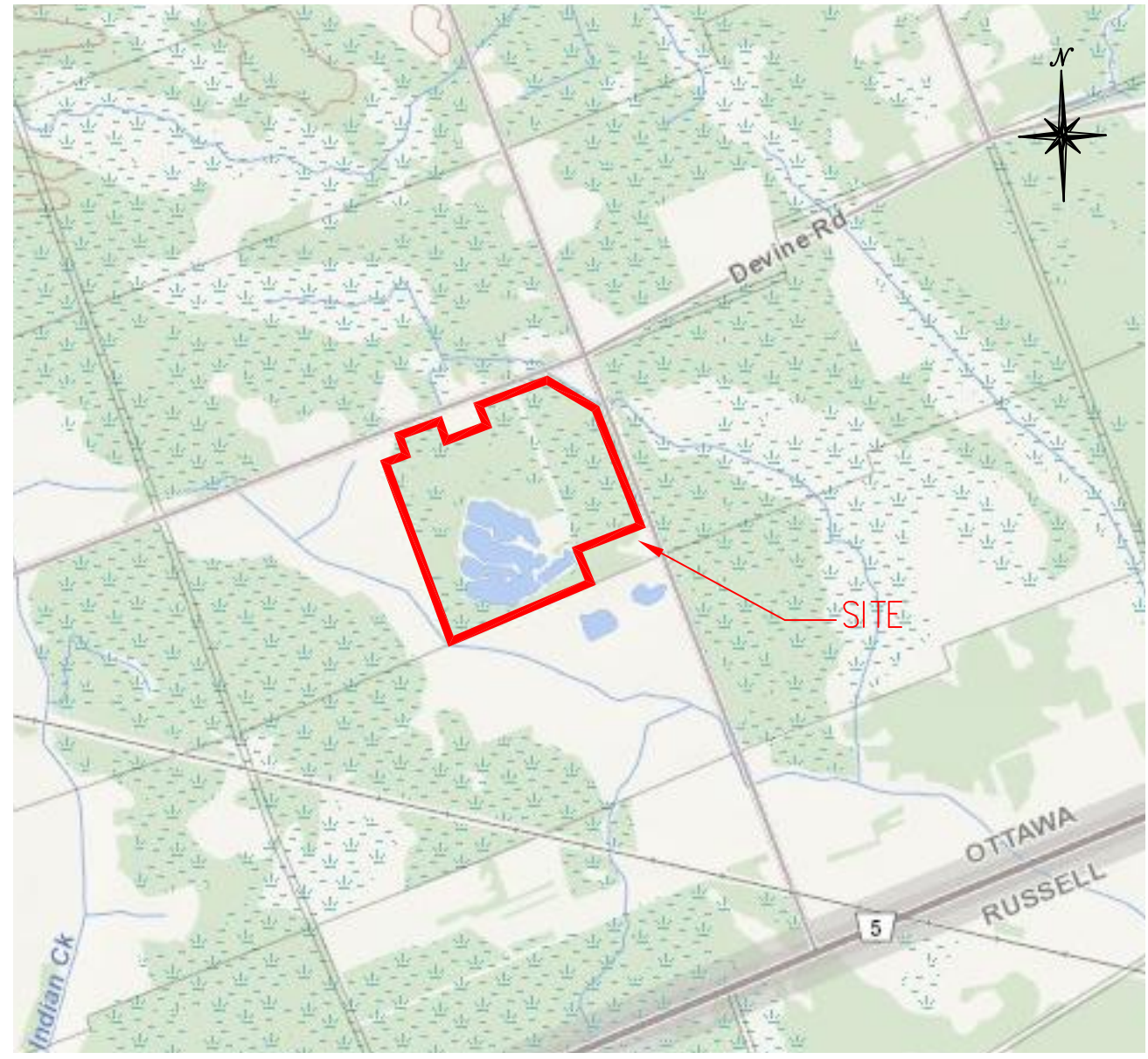
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE
MNRF TOPOGRAPHIC MAP
SOURCE: MNRF LAND INFORMATION ONTARIO

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE3



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PROJECT
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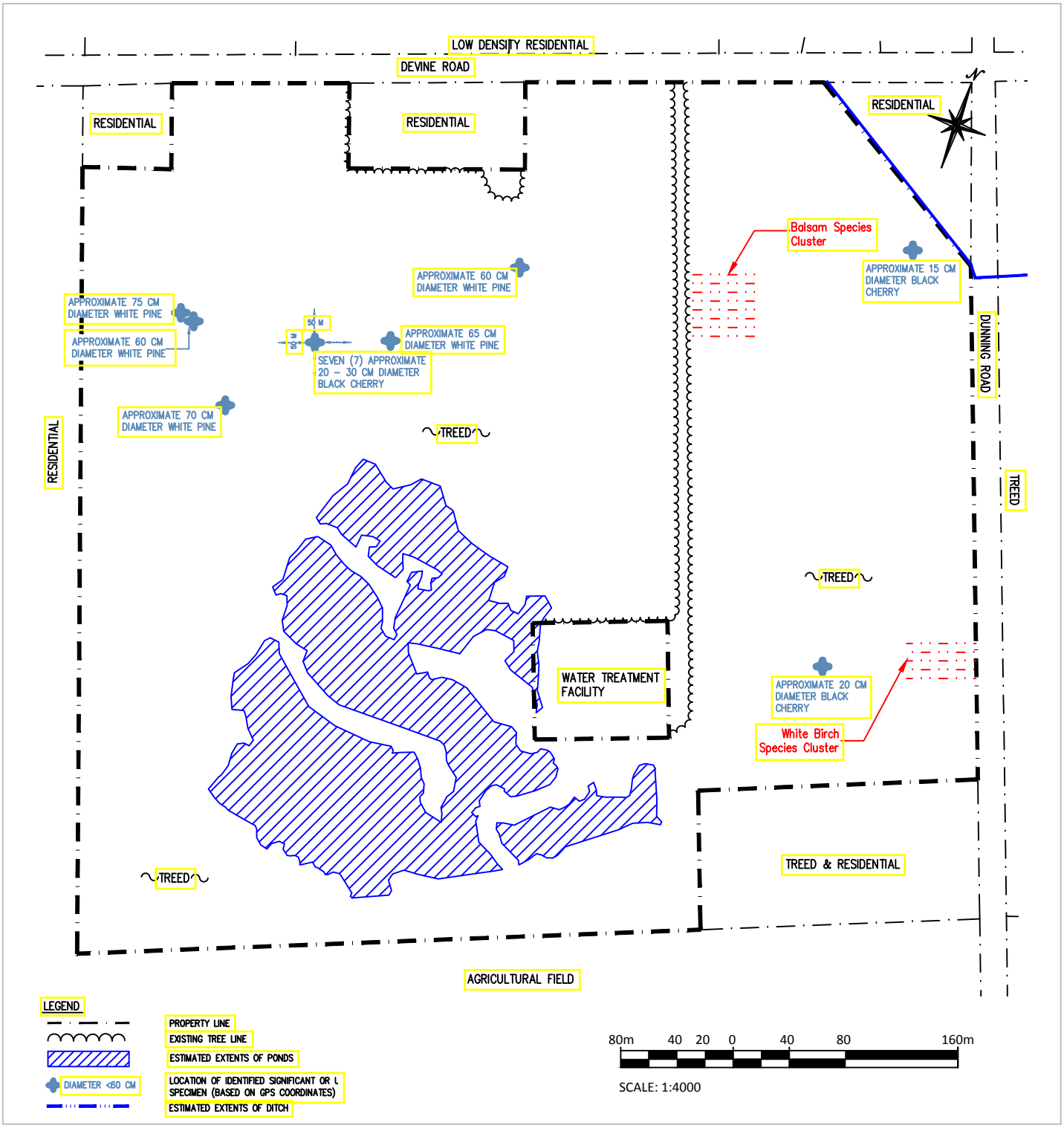
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE
SITE PLAN

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE4



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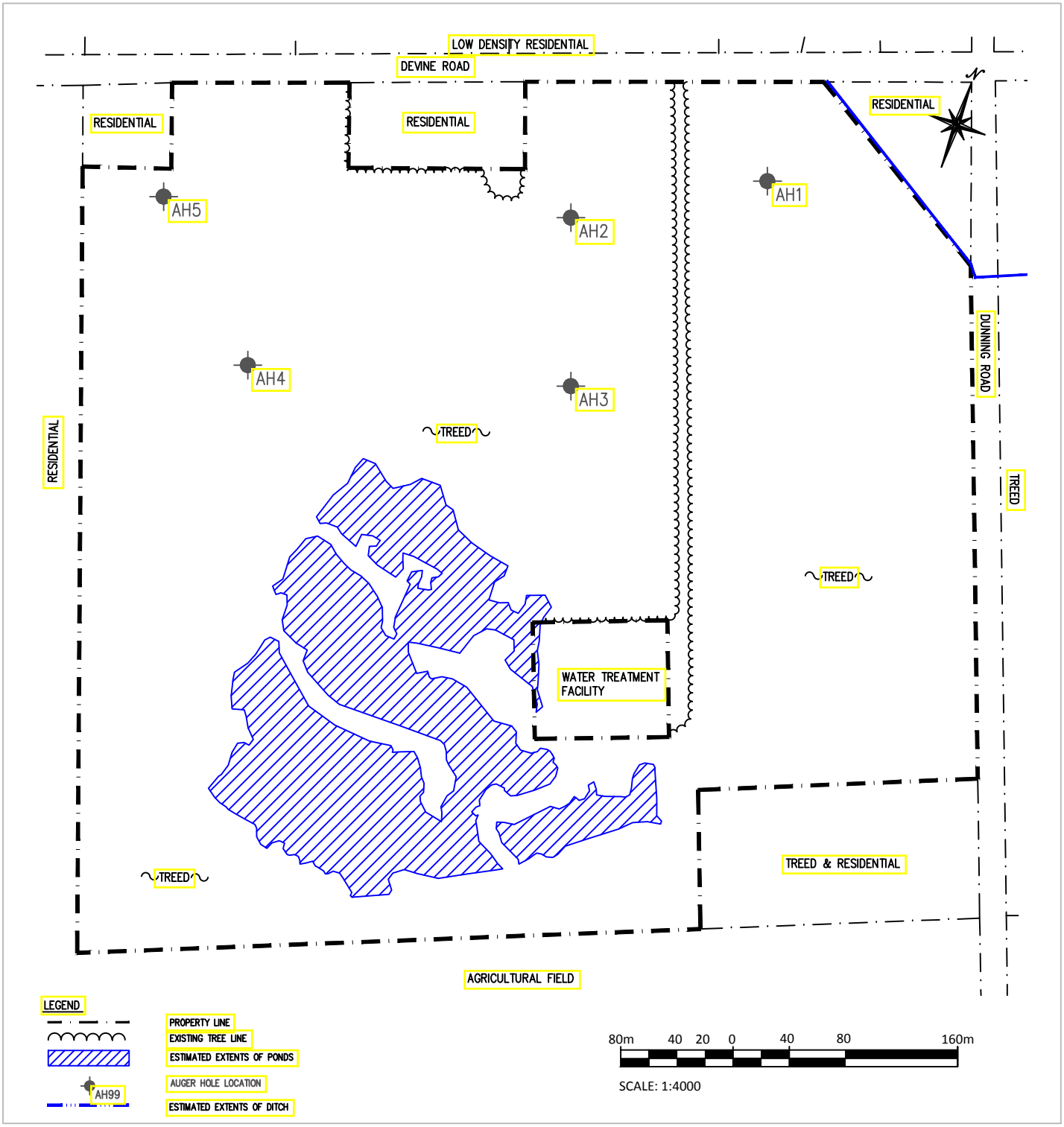
PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT - SIGNIFICANT WOODLAND
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE

SUBSURFACE INVESTIGATION - AUGER HOLE LOCATIONS

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE5



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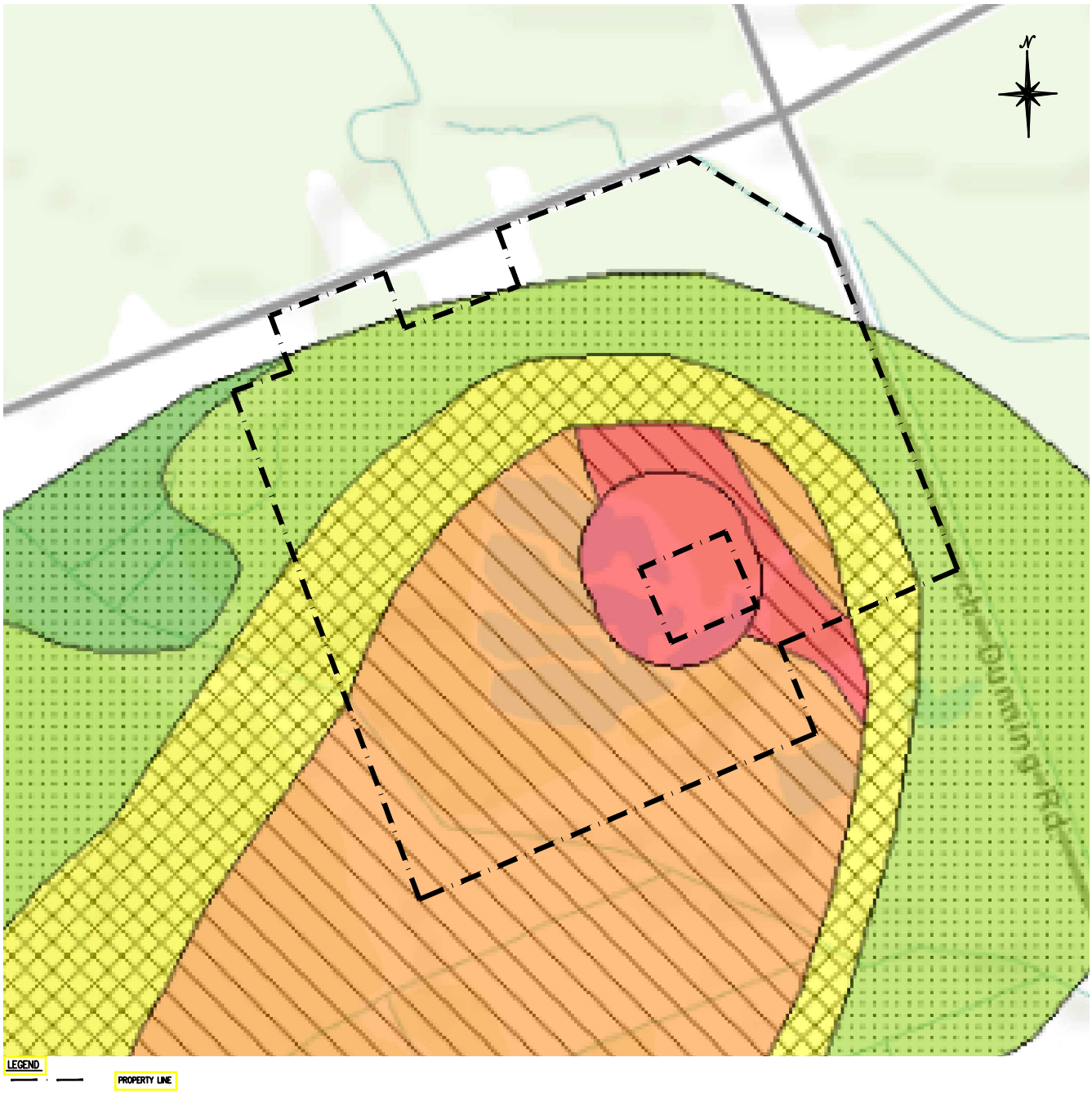
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE

WELL HEAD PROTECTION AREA & VULNERABILITY ZONE

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE6



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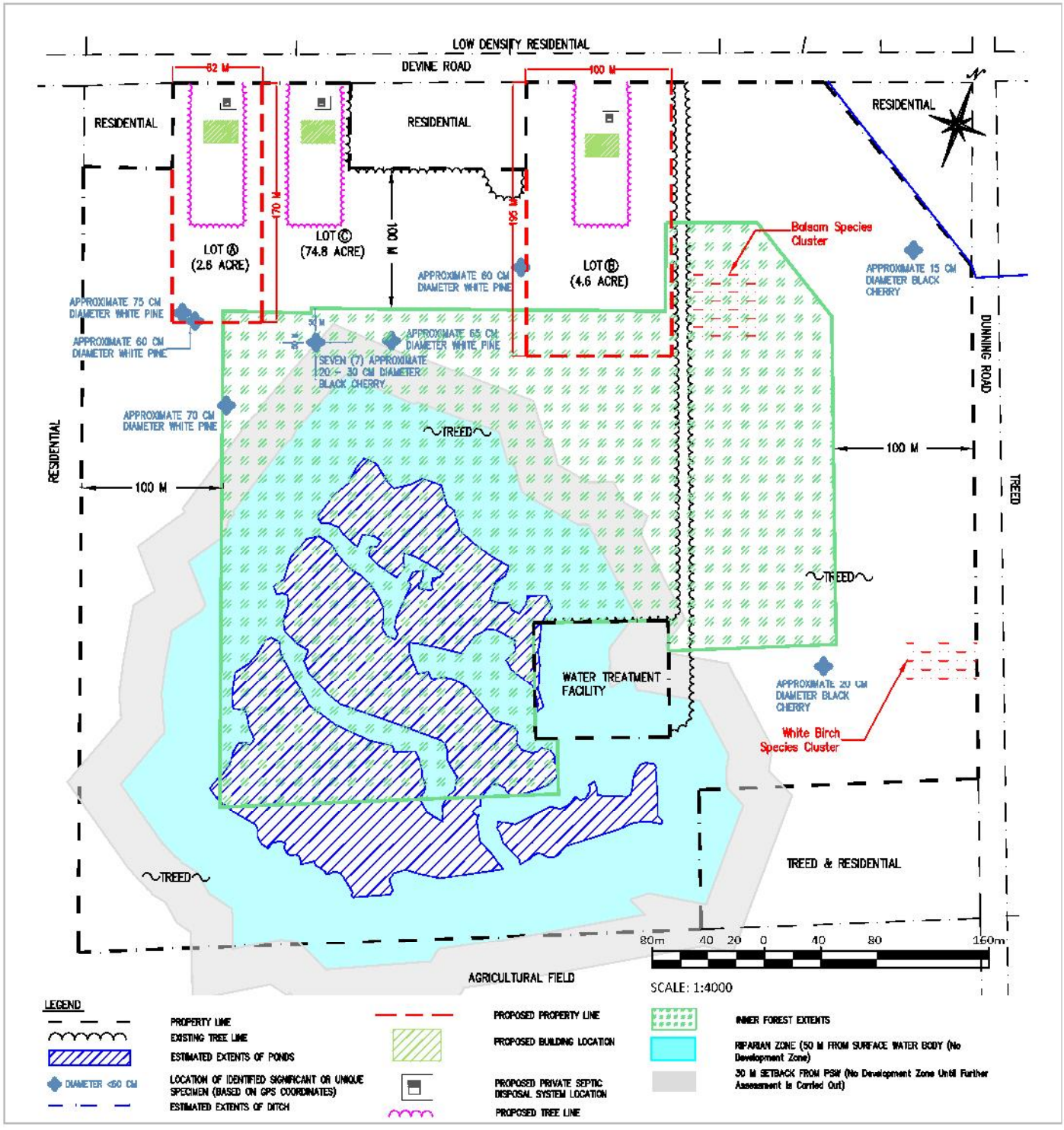
PROJECT

ENVIRONMENTAL IMPACT ASSESSMENT - SIGNIFICANT WOODLAND
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE

PROPOSED SEVERANCE AND SITE DEVELOPMENT PLAN

CLIENT	DATE	PROJECT	
LUC LANDRY	APRIL 2019	180205	FIGURE7



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PROJECT
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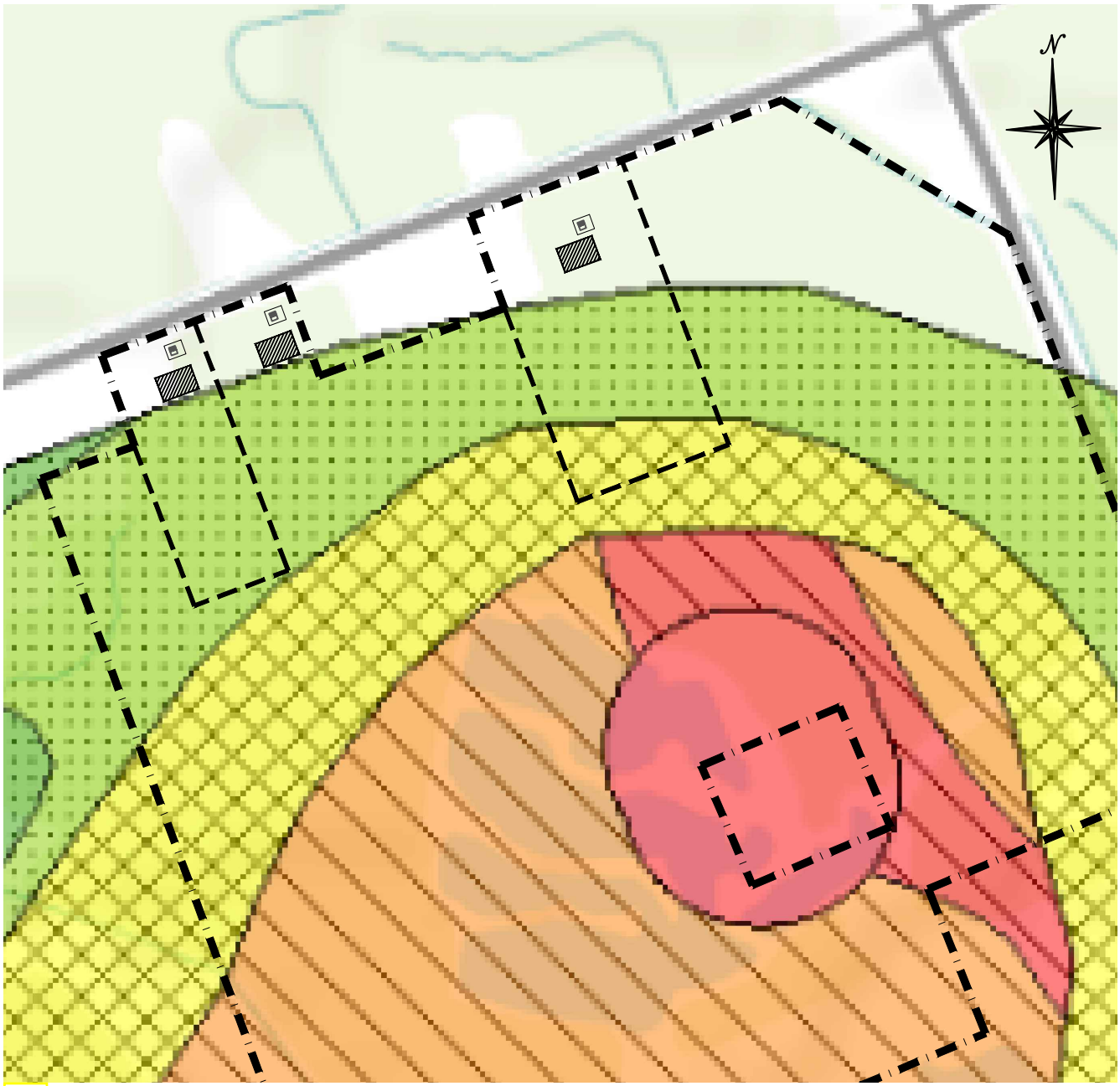
PROPOSED TWO (2) RURAL LOT CREATION
CONCESSION 5, LOT 26
VARS (OTTAWA), ONTARIO

DRAWING TITLE
WELL HEAD PROTECTION AREA & PROPOSED DEVELOPMENT LOCATION
Source: City of Ottawa GeoOttawa

CLIENT	DATE	PROJECT
LUC LANDRY	APRIL 2019	180205

FIGURE 8



APPENIDX A

Summary of Bird Atlas Review Findings

Species Common Name	Scentific Name	Evidence Category	Species Common Name2	Scentific Name3	Evidence Category4
Alder Flycatcher	*Empidonax alnorum*	Possible to Probable	Killdeer	*Charadrius vociferus*	Confirmed
American Bittern	*Botaurus lentiginosus*	Possible to Probable	Least Flycatcher	*Empidonax minimus*	Possible to Probable
American Black Duck	*Anas rubripes*	Possible to Probable	Magnolia Warbler	*Dendroica magnolia*	Possible
American Crow	*Corvus brachyrhybcgis*	Confirmed	Mallard	*Anas platyrhynchos*	Confirmed
American Goldfinch	*Carduelis tristis*	Probable to Confirmed	Merlin	*Falco columbarius*	Possible
American Kestrel	*Falco sparverius*	Probable to Confirmed	Mounring Dove	*Zenaida macroura*	Confirmed
American Redstart	*Setophaga ruticilla*	Possible to Probable	Mourning Walbler	*Oporomis philadelphia*	Possible to Probable
American Robin	*Turdus migratorius*	Confirmed	Nashville Warbler	*Vermivora ruficpilla*	Possible to Probable
American Woodcock	*Scolopax minor*	Possible to Probable	Northern Cardinal	*Cardinalis cardinalis*	Possible to Probable
Baltimore Oriole	*Icterus galbula*	Confirmed	Northern Flicker	*Colaptes auratus*	Confirmed
Bank Swallow	*Riparia riparia*	Confimed	Northern Harrier	*Cicrus cyaneus*	Possible to Probable
Barn Swallow	*Hirundo rustica*	Confirmed	Northern Pintail	*Anas acuta*	Probable
Belted Kingfisher	*Megaceryle alcyon*	Probable to Confirmed	Northern Rough-winged Swall	*Stelgidopteryx serripennis*	Probable to Confirmed
Black and White Walbler	*Mniotilta varia*	Possible to Probable	Northern Waterthrush	*Seiurus noveboracensis*	Possible to Probable
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Possible	Ovenbird	*Seiurus aurocapilla*	Probable to Confirmed
Black-capped Chickadee	*Poecile articapillus*	Confirmed	Pied-billed Grebe	*Podilymbus podiceps*	Possible
Blue Jay	*Cyanocitta cristata*	Confirmed	Pileated Woodpecher	*Dryocopus pileatus*	Possible to Probable
Boblink	*Dolichnyz oryzivorus*	Probable to Confirmed	Pine Siskin	*Carduelis pinus*	Possible
Borad-winged Hawk	*Buteo platypterus*	Possible	Pine Warbler	*Dendrocia pinus*	Possible
Brown Thrasher	*Toxostoma rufum*	Probable to Confirmed	Purple Finch	*Carpodacus purpureus*	Possible to Probable
Brown-headed Cowbird	*Molothrus*	Probable to Confirmed	Red-breasted Nuthatch	*Sitta canadensis*	Possible to Probable
Canada Goose	*Branta Canadensis*	Probable	Red-eyed Vireo	*Vireo olivaceus*	Probale to Confirmed
Cedar Waxwing	*Bombycilla cedrorum*	Probable to Confirmed	Red-tailed Hawk	*Buteo jamaicensis*	Probable to Confirmed
Chestnut-sided Warbler	*Dendrocia pensylvanica*	Possible to Probable	Red-winged Blackbird	*Agelaius phoeniceus*	Confirmed
Chipping Sparrow	*Spizella passerine*	Confirmed	Rock Dove	*Columba livia*	Probable to Confirmed
Clay-colored Sparrow	*Spizella pallida*	Possible to Probable	Rose-breasted Grosbeak	*Pheucticus ludovicianus*	Confirmed
Cliff Swallow	*Petrochelidon pyrrhonota*	Confirmed	Ruby-throated Hummingbird	*Archilochis colubris*	Possible to Probable
Common Grackle	*Quiscalus quiscula*	Confirmed	Ruffed Grouse	*Bonasa umbellus*	Possible to Probable
Common Raven	*Corvus corax*	Confirmed	Savannah Sparrow	*Passerculus sandwichensis*	Confirmed
Wilson's Snip	*Gallinago delicata*	Possible to Probable	Scarlet Tanager	*Piranga olivacea*	Possible to Probable
Common Yellowthroat	*Geothlypis trichas*	Confirmed	Sharp-shinned Hawk	*Accipiter striatus*	Possible
Cooper's Hawk	*Accipiter cooperii*	Possible	Song Sparrow	*Melospiza melidia*	Confirmed
Downy Woodpecher	*Picoides pubescens*	Possible to Confirmed	Sora	*Porzana carolina*	Possible
Eastern Bluebird	*Sialia sialis*	Confirmed	Spotted Sandpiper	*Tringa macularia*	Probable to Confirmed
Eastern Kingbird	*Tyrannus tyrannus*	Confirmed	Swamp Sparrow	*Melospiza georgiana*	Probable to Confirmed
Eastern Meadowlark	*Sturnella magna*	Probable to Confirmed	Tree Swallow	*Tachycineta bicolor*	Confirmed
Eastern Phoebe	*Sayornis phoebe*	Confirmed	Turkey Vulture	*Cathartes aura*	Possible
Eastern Wood-Pewee	*Contopus virens*	Possible to Probable	Upland Sandpiper	*Bartramia longicauda*	Possible to Probable
European Starling	*Sturnus vulgaris*	Confirmed	Veery	*Catharus fuscescens*	Probable to Confirmed
Field Sparrow	*Spizella pusilla*	Possible	Vesper Sparrow	*Pooecetes gramineus*	Possible
Grasshopper Sparrow	*Ammodramus savannarum*	Possible	Virgina Rail	*Rallus limicola*	Possible
Gray Catbird	*Dumetella carolinensis*	Probable to Confirmed	Warbling Vireo	*Vireo gilvus*	Probable to Confirmed
Gray Partridge	*Perdix perdix*	Possible to Probable	Whip-poor-will	*Caprimulgus vociferus*	Possible to Probable
Great Blue Heron	*Ardea herodias*	Possible	White-breasted Nuthatch	*Sitta carolinensis*	Probable to Confirmed
Great Crested Flycatcher	*Myiarchus crinitus*	Probable to Confirmed	White-throated Sparrow	*Zonotrichia albicollis*	Probable to Confirmed
Great Horned Owl	*Bubo virinianus*	Possible	White-winged Crossbill	*Loxia leucoptera*	Possible to Probable
Hairy Woodpecher	*Picoides cillosus*	Probable to Confirmed	Wild Turkey	*Meleagris gallopavo*	Possible to Probable
Hermit Thrush	*Catharus guttatus*	Possible	Willow Flycatcher	*Empidonax traillii*	Possible to Probable
Horned Lark	*Eremophila alpestris*	Possible to Probable	Winter Wren	*Troglodytes troglodytes*	Possible
House Finch	*Carpodacus mexicanus*	Possible to Probable	Wood Duck	*Aix sponsa*	Confirmed
House Sparrow	*Passer Domesticus*	Confirmed	Wood Thrush	*Catharus mustelinus*	Probable
House Wren	*Troglodytes aedon*	Probable to Confirmed	Yellow Warbler	Dendroica petechia	Confirmed
Indigo Bunting	*Passerina cyanea*	Possible to Probable	Yellow-vellied Sapsucker	Sphyrapicus varius	Confirmed
			Yellow-rumped Warbler	Dendroica coronata	Probable to Confirmed

Notes:

Endangered Species according to O. Reg. 230/08

Threatened Species according to O. Reg. 230/08

Special Concern Species according to O. Reg. 230/08

APPENDIX B

Site Visit Photographs

SITE VISIT PHOTOGRAPHS

Our File Ref.: 180205
Client: Luc Landry
Project: Environmental Impact Assessment
Site Location: Concession 5, Lot 26, Vars

Photograph No. 1	
Date: 6/22/2018	
Description Along the northeastern extent of the Site (facing east along Devine Road)	

Photograph No. 2	
Date: 5/22/2018	
Description From gravel access road facing west along the northern extent of the Site (facing west along Devine Road)	

Photograph No. 3	
Date: 6/15/2018	
Description Gravel access road to City of Ottawa owned land at central portion of the Site. From north facing south.	

Photograph No. 4	
Date: 5/22/2018	
Description Un-named creek at the northeast corner of the Site.	

Photograph No. 5	
Date: 5/22/2018	
Description City of Ottawa owned property at the south-central portion of the Site.	

Photograph No. 6	
Date: 5/22/2018	
Description Inferred seasonally saturated area at the northeast portion of the Site. Typical across eastern portion of the Site.	

Photograph No. 7	
Date: 5/22/2018	
Description Evidence of previously saturated area at the eastern portion of the Site.	

Photograph No. 8	
Date: 5/22/2018	
Description Adjacent property to the south of the Site.	

Photograph No. 9	
Date: 5/22/2018	
Description Typical conditions of white birch species cluster at the southeastern portion of the Site.	

Photograph No. 10	
Date: 5/22/2018	
Description Typical conditions of the Site, west of access road.	

Photograph No. 11	
Date: 5/22/2018	
Description Existing pond at southcentral portion of the Site.	

Photograph No. 12	
Date: 5/22/2018	
Description Typical conditions of the Site, west of access road.	

Photograph No. 13	
Date: 5/22/2018	
Description Typical of larger diameter white pine encountered on the Site. Considered a significant specimen.	

Photograph No. 14	
Date: 5/22/2018	
Description Adjacent property immediately west of the Site.	

APPENDIX C

Auger Hole Logs

Test Pit Log: AH1

Project No.: 180205
Project: Environmental Impact Assessment
Client: L. Landry
Location: Concession 5, Lot 26, Vars, Ontario
Date: May 23, 2018
Field Personnel: J.Arthurs
Excavation Method: Manual Auger
Excavation Contractor: LRL Associates Ltd.

SUBSURFACE PROFILE		SAMPLE DATA					
Depth (ft / m)	Soil Description	Elev./Depth (m)	Lithology	Sample Number	Shear Strength (kPa) 50 150	Water Content (%) 25 50 75 / Liquid Limit (%) 25 50 75	Water Level (Standpipe or Open Excavation)
0 / 0	Ground Surface						
	Topsoil Silty organic loam, dark brown, moist.	0.00		AH1-1			
1	**Sand** Fine-graine, trace silty becoming silty in depth, traces of clay, brown, saturated.	0.20		AH1-2			
2							
				AH1-3			
3 / 1							
				AH1-4			
4	End of Test Pit	1.20					
5							
6							

Easting: 0474958
Northing: 5022805
Site Datum: N/A
Groundsurface Elevation: N/A
Top of Riser Elev.: N/A
Excavation Width: 55 mm diameter
Excavation Length: N/A

NOTES:

Test Pit Log: AH2

Project No.: 180205
Project: Environmental Impact Assessment
Client: L. Landry
Location: Concession 5, Lot 26, Vars, Ontario
Date: May 23, 2018
Field Personnel: J.Arthurs
Excavation Method: Manual Auger
Excavation Contractor: LRL Associates Ltd.

SUBSURFACE PROFILE		SAMPLE DATA					
Depth (ft / m)	Soil Description	Elev./Depth (m)	Lithology	Sample Number	Shear Strength (kPa) 50 150	Water Content (%) 25 50 75 / Liquid Limit (%) 25 50 75	Water Level (Standpipe or Open Excavation)
0 ft / 0 m	Ground Surface						
	Topsoil Silty organic loam, dark brown, dry.	0.00					
	Sand Fine-grained, trace silty becoming silty in depth, traces of clay, brown, dry becoming saturated at 1.0 m. Traces of oxidation between 0.06 and 0.4 m.			AH2-1			
1				AH2-2			
2							
3				AH2-3			
1 m							
4	End of Test Pit	1.25					
5							
6							

Easting: 0474831
Northing: 5022740
Site Datum: N/A
Groundsurface Elevation: N/A
Top of Riser Elev.: N/A
Excavation Width: 55 mm diameter
Excavation Length: N/A

NOTES:

Test Pit Log: AH3

Project No.: 180205
Project: Environmental Impact Assessment
Client: L. Landry
Location: Concession 5, Lot 26, Vars, Ontario
Date: May 23, 2018
Field Personnel: J.Arthurs
Excavation Method: Manual Auger
Excavation Contractor: LRL Associates Ltd.

SUBSURFACE PROFILE		SAMPLE DATA					
Depth (ft / m)	Soil Description	Elev./Depth (m)	Lithology	Sample Number	Shear Strength (kPa) 50 150	Water Content (%) 25 50 75 / Liquid Limit (%) 25 50 75	Water Level (Standpipe or Open Excavation)
0 / 0	Ground Surface						
	Topsoil Silty organic loam, dark brown, dry.	0.00					
	Sand Fine-grained, trace silty becoming silty in depth, traces of clay, brown, dry becoming moist at 0.7m and saturated at 0.9 m. Traces of oxidation between 0.6 and 0.65 m.	0.10		AH3-1			
1				AH3-2			
2				AH3-3			
3 / 1							
	End of Test Pit	1.10					
4							
5							
6							

Easting: 0474866
Northing: 5022632
Site Datum: N/A
Groundsurface Elevation: N/A
Top of Riser Elev.: N/A
Excavation Width: 55 mm diameter
Excavation Length: N/A

NOTES:

Test Pit Log: AH4

Project No.: 180205
Project: Environmental Impact Assessment
Client: L. Landry
Location: Concession 5, Lot 26, Vars, Ontario
Date: May 23, 2018
Field Personnel: J.Arthurs
Excavation Method: Manual Auger
Excavation Contractor: LRL Associates Ltd.

SUBSURFACE PROFILE		SAMPLE DATA					
Depth (ft / m)	Soil Description	Elev./Depth (m)	Lithology	Sample Number	Shear Strength (kPa) 50 150	Water Content (%) 25 50 75 / Liquid Limit (%) 25 50 75	Water Level (Standpipe or Open Excavation)
0 ft / 0 m	Ground Surface						
	Topsoil Silty organic loam, dark brown, dry.	0.00					
	Sand Fine-grained, trace silt becoming silty in depth, traces of clay, brown, dry becoming saturated at 0.2 m.	0.15		AH4-1			
1							
2				AH4-2			
3	End of Test Pit	0.90					
1 m							
4							
5							
6							

Easting: 0474639
Northing: 5022578
Site Datum: N/A
Groundsurface Elevation: N/A
Top of Riser Elev.: N/A
Excavation Width: 55 mm diameter
Excavation Length: N/A

NOTES:

Test Pit Log: AH5

Project No.: 180205
Project: Environmental Impact Assessment
Client: L. Landry
Location: Concession 5, Lot 26, Vars, Ontario
Date: May 23, 2018
Field Personnel: J.Arthurs
Excavation Method: Manual Auger
Excavation Contractor: LRL Associates Ltd.

SUBSURFACE PROFILE		SAMPLE DATA					
Depth (ft / m)	Soil Description	Elev./Depth (m)	Lithology	Sample Number	Shear Strength (kPa) 50 150	Water Content (%) 25 50 75 / Liquid Limit (%) 25 50 75	Water Level (Standpipe or Open Excavation)
0 ft / 0 m	Ground Surface						
	Topsoil Silty organic loam, dark brown, dry.	0.00					
1	**Sand** Fine-grained, trace silt becoming silty in depth, traces of clay, brown, dry becoming moist at 0.5 m to saturated at 0.6 m.	0.15		AH5-1			
2				AH5-2			
3 / 1							
	End of Test Pit	1.10					
4							
5							
6							

Easting: 0474557
Northing: 5022660
Site Datum: N/A
Groundsurface Elevation: N/A
Top of Riser Elev.: N/A
Excavation Width: 55 mm diameter
Excavation Length: N/A

NOTES:

APPENDIX D

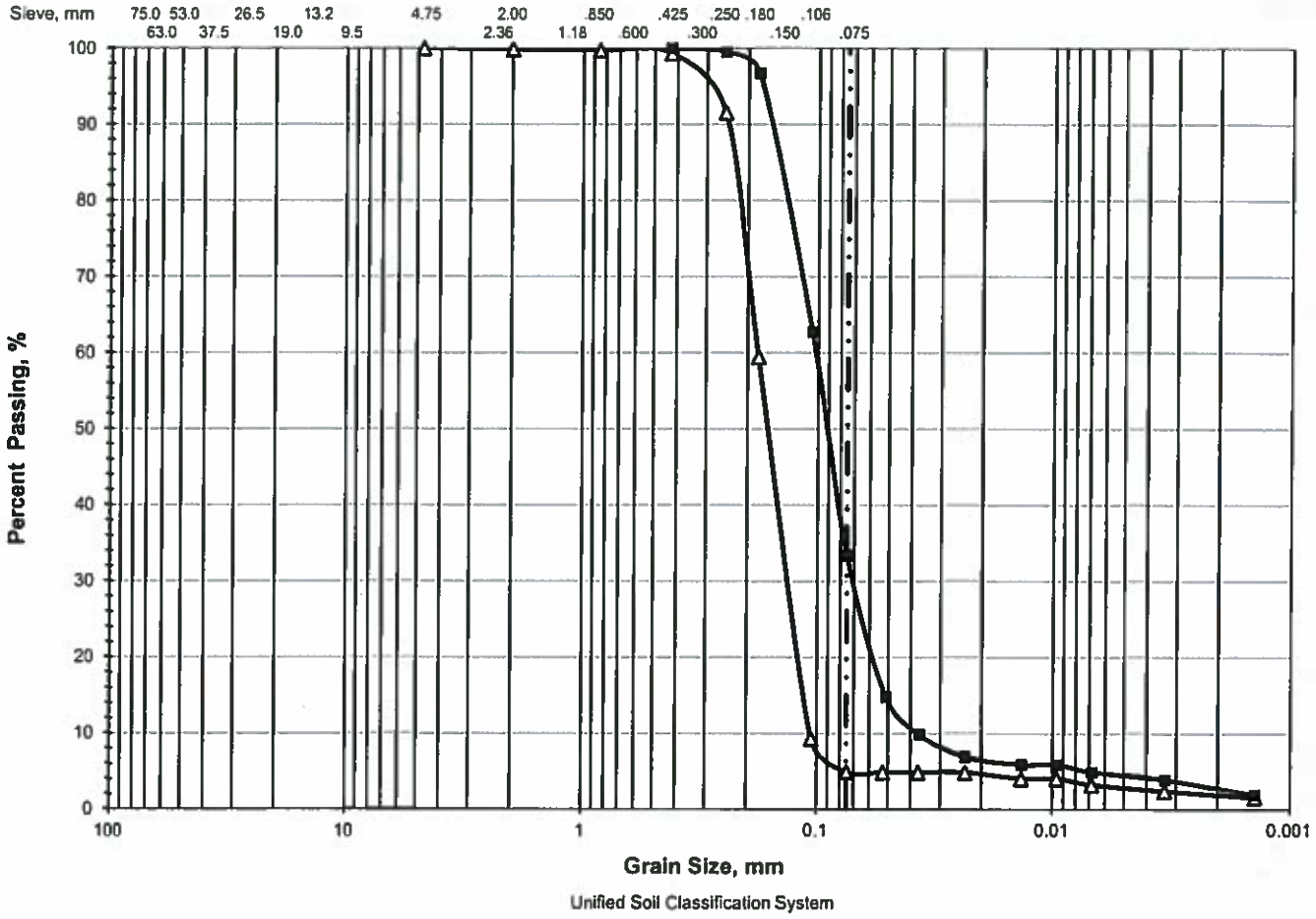
Laboratory Analysis

LRL Associates Ltd.

PARTICLE SIZE ANALYSIS

ASTM D 422 / LS-702

Client:	Mr. Luc Landry	**File No.:**	180205
Project:	Environmental Impact Assessment	**Report No.:**	1
Location:	Forced Road, Vars, ON.	**Date:**	May 23, 2018



	> 75 mm	% GRAVEL		% SAND			% FINES	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
△	0.0	0.0	0.0	0.2	0.5	94.3	3.1	1.9
■	0.0	0.0	0.0	0.0	0.0	66.6	30.8	2.6

	Location	Sample	Depth, m	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
△	AH1	3	0.7 - 0.9	0.1812	0.1661	0.1365	0.1144	0.1070	0.96	1.69
■	AH4	2	0.7 - 0.9	0.1031	0.0925	0.0706	0.0512	0.0370	1.3	2.8

APPENDIX E

City of Ottawa Wetland Investigation Letter

M E M O / N O T E D E S E R V I C E

To / Destinataire	Kerry Reed, Environmental Planner Anne Wang, Planner Adam Brown, Program Manager	File/N° de fichier: D08-01-18/B-00218 and D08-01-18/B-00219
From / Expéditeur	Nick Stow Senior Planner Resiliency and Natural Systems	
Subject / Objet	Wetland investigation - 2518 Devine Road	Date: 13 August 2018

On the afternoon of Thursday, August 10, 2018, I visited the property at 2518 Devine Road to assess the potential presence of wetland that might qualify for complexing with the nearby provincially-significant, Limoges Wetland Complex. The visit began at approximately 1 PM and lasted approximately 2 hours. The weather was partly cloudy and warm. Precipitation in the preceding 24 hours was 0.5 mm as measured at the Ottawa Airport. Precipitation in the preceding 72 hours was 32 mm. During the visit, I was accompanied by Kerry Reed (Environmental Planner, Development Review), Anne Wang (Planner, Development Review), and Seana Turkington (Planner, Development Review). At the end of the visit, we were joined by James Holland (Planner, South Nation Conservation Authority).

Ms. Reed and I are both qualified wetland evaluators under the Ontario Wetland Evaluation System (OWES). I have 25 years of experience in wetland ecology, research, and evaluation in the Ottawa area. I am also a former member of the Province's Wetland Evaluation Technical Team, responsible for maintaining and providing guidance on the application of the OWES.

My site visit focused on the property frontage along Devine Road, east of the access road to the community well. This area of the property has been proposed for a severance with road frontage on Devine Road. LRL Associates has identified this area as deciduous swamp, raising the possibility that it could be complexed with the provincially-significant Limoges Wetland Complex to the east across Dunning Road. Under the Official Plan and the Provincial Policy Statement, inclusion in the Limoges Wetland Complex would preclude the severance.

In my opinion, this vegetation community does not qualify as wetland under OWES, but instead meets the definition of a fresh – moist deciduous forest ecosite under the Ontario Ecological Land Classification (albeit with an atypical community type). I base this conclusion on the absence of obligate wetland plants, the soil profiles provided by LRL Associates, direct comparison to the Limoges Wetland, and other field observations. I summarize these points below.

1. The dominant vegetation species observed on site were:

    a. Tree Canopy: red maple (*Acer rubrum*), trembling aspen (*Populus tremuloides*), big-toothed aspen (*P. grandidentata*), mountain maple (*A. spicatum*).

b. Herbaceous layer: sensitive fern (*Onoclea sensibilis*), bracken fern (*Pteridium aquilinum*), lady fern (*Athyrium felix-femina*), royal fern *(Osmuda regalis*), interrupted fern (*Osmunda claytoniana*), marginal wood fern (*Dryopteris marginalis*), sarsaparilla (*Aralis nudicaulis*) Canada mayflower (*Maianthemum canadense*), blue-bead lily (*Clintonia borealis*).

Most of these species are facultative wetland plants, but none of them are obligate wetland plants. Several are upland species. Although the Ontario Wetland Evaluation Manual identifies sensitive fern and royal fern as "wetland indicators", William Cody notes in Ferns of the Ottawa District that both species also occur in moist, lowland forests.

Sedges were notably absent throughout the area, with the exception of scattered specimens of bladder sedge. Again, the OWES manual describes bladder sedge as a wetland indicator. However, my own observations and the Forest Plants of Central Ontario both suggest that it can also occur in, "moist sandy to fine loamy upland tolerant hardwood stands" (p. 325). This describes perfectly the forest community found on site.

The OWES manual recognizes the difficulty in classifying such communities as terrestrial or upland. Appendix 8 of the manual provides a flowchart to assist in classification. In this case, despite more than 50% coverage by "wetland" plants, the moisture regime (4 – 5) and the absence of hydric substrates can lead to a "terrestrial" classification.

2. The soil profiles provided by LRL Associates indicate that the soils are a moist, sandy loam, with no organic layer, and only traces of mottling at depth. This description is consistent with the observed vegetation and places the vegetation community within the "terrestrial" category in the Ecological Land Classification. Application of the ELC key leads to a classification of FOD7: fresh – moist lowland deciduous forest ecosite. Domination by red maple is more typical of a swamp ecosite (SWD6-1), but the overall site condition is more consistent with lowland forest.

3. The Limoges Wetland, immediately across Dunning Road, provided a clear contrast to the subject property. Although the canopy cover consisted of the same dominant species, the trees in the Limoges Wetland were smaller in stature, indicating some degree of growth suppression. The coverage of ephemeral ponding (as evidenced by blackened, compressed leaf litter and the absence of herbaceous vegetation) was greater or equal to 50% in the Limoges Wetland, compared to less than 10% on the subject property. Most significantly, the Limoges Wetland supported substantial populations of fringed sedge and soft rush, both of which are obligate wetland plants. Only one specimen of soft rush was observed on the subject property, located in a small, ephemeral pool adjacent to the access road.

4. Despite substantial rain during the preceding days, the subject property lacked standing water, except in the dug ponds, the roadside ditch and the watercourse in the northeast corner. The water levels in the ditch and watercourse lay between 50 cm and 100 cm lower than the level of forest floor, indicating that the groundwater level was substantially below the ground surface. In comparison, the water level in the drainage channel through the Limoge Wetland lay within 25 cm of the forest floor, suggesting a much higher groundwater level.

5. There was no observation of wetland fauna on the subject property. Wood frogs were observed in the Limoges Wetland Complex.

In summary, I conclude that the subject property does not qualify as a wetland under the Ontario Wetland Evalution System. Within the ELC, the vegetation community is transitional between a deciduous swamp forest ecosite and fresh – moist tolerant hardwood forest ecosite, but tends more toward the latter. Consequently, I recommend that the property should not be complexed with the Limoges Wetland Complex.

Nick Stow
NS / ns

cc: Charmain Forgie, Manager

Figure 1:
2518 Devine Road Site Visit

A site visit to 2518 Devine Road was conducted on Friday, August 10, 2018. The visit concluded that the area mapped by the City of Ottawa on the property as unevaluated wetland is more consistent with a classification of fresh-moist lowland hardwood forest.

Aerial photography: Spring 2014, leaf-off.

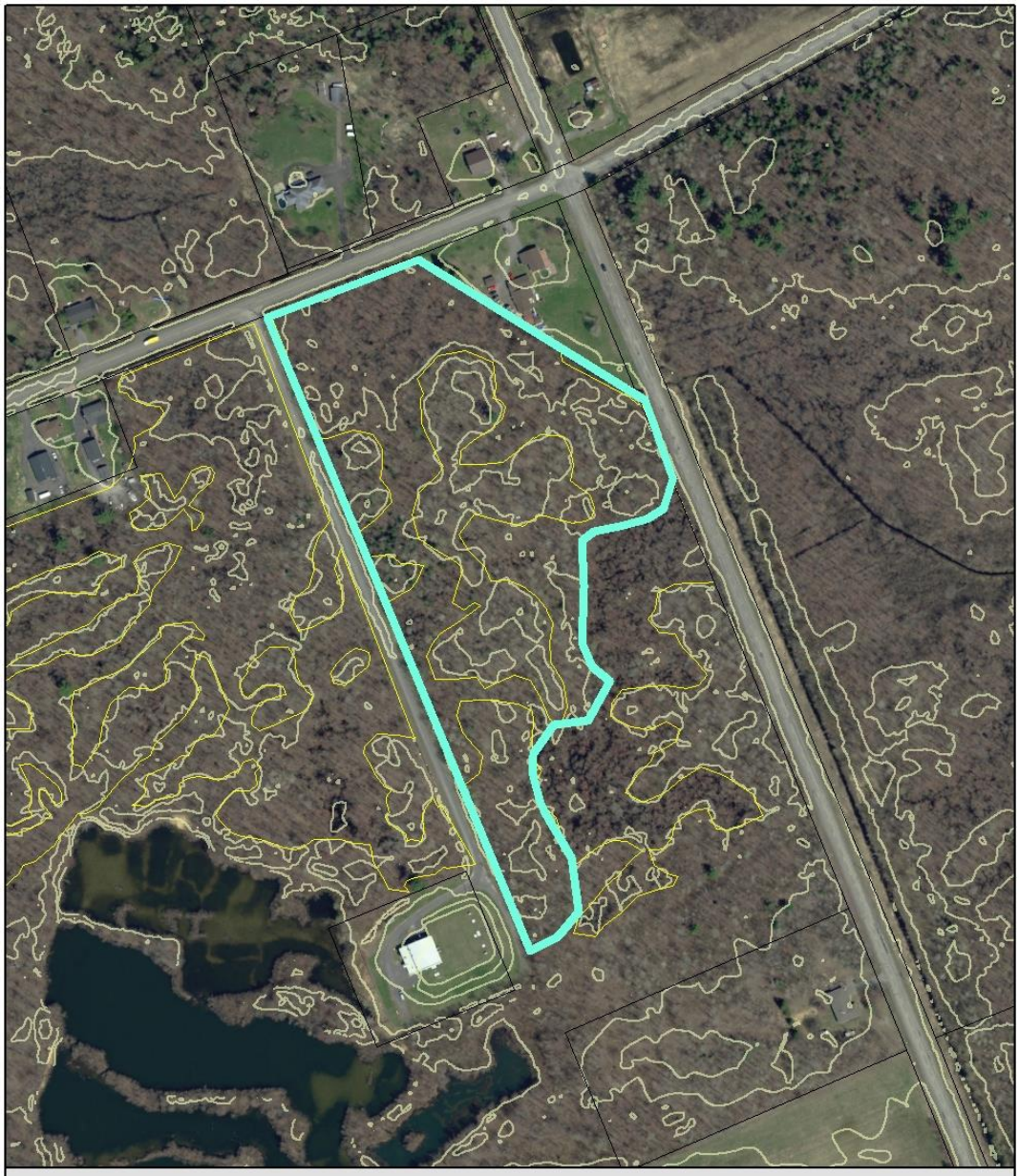
Legend

- Site Visit Route
- Waterflow

Wetlands

- Evaluated-Provincial
- Evaluated-Other
- Previously_Unevaluated_Wetland

Figure 2:
2518 Devine Road ELC



A site visit to 2518 Devine Road was conducted on Friday, August 10, 2018. The visit concluded that the area mapped by the City of Ottawa on the property as unevaluated wetland is more consistent with a classification of fresh-moist lowland hardwood forest.

Aerial photography: Spring 2014, leaf-off.

Legend

FOD7 - Fresh - Moist Lowland Forest

Previously_Unevaluated_Wetland

ContourInterval

1