Environmental Impact Statement

13247 AND 12433 NUNNVILLE ROAD, CAELDON, ON

Prepared for

Bolton Midtown Developments Inc.

August 2019
Project No. P2019-368

Prepared by

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Table of Contents

List of Figures

1. Introduction

GeoProcess Research Associates Inc. (GRA) was retained by Bolton Midtown Developments Inc. to complete an Environmental Impact Study (EIS) for the properties located at 13247 and 13233 Nunnvile Road in Caledon, ON. The development team consists of GRA, Soil Engineers Ltd., C.F. Crozier & Assocaites Consulting Engineers, and WSP working to prepare a Plan of Subdivision Application. The location of the site is shown on **Figure 1, Key Map**.

This EIS establishes the extent and function of the natural heritage system on the Subject Property based on the policies of the Town of Caledon, the Region of Peel and the Province of Ontario. In completing this EIS, potential impacts of the proposed development on key natural heritage features were assessed and mitigation measures to protect and enhance the function and connectivity of these features are provided. Protection and enhancement of the natural features and functions will result in protection of the local environment on the Subject Property.

1.1. Study Area

The Subject Property is located east of Nunnville Road and west of Albion Vaughan Road in the Town of Caledon. To the west of the site is a low-density residential subdivision, the Humber River Valley is located north and east of the site. The land east of Albion Vaughan Road is a forested natural area that includes the Humber River and is designated as protected countryside and natural heritage area in the Greenbelt.

The Subject Property includes two rural estate lots with single-family dwellings and associated out buildings and driveways. The landscape across the consecutive lots is primarily manicured lawn, landscape trees and hedgerow trees with a portion of the forested Humber River valley along the north side of the property. The limits of the Humber River valley were staked with staff from the Toronto Region Conservation Authority and Town of Caledon on June 18, 2019.

2. Methodology

2.1. Background Studies

Literature and data pertaining to the subject site were reviewed and evaluated to obtain natural heritage data and background planning policy information. A list of documents and information sources consulted for the purpose of this study are provided below:

- Provincial Policy Statement (2014)
- Region of Peel Official Plan (2018)
- Town of Caledon Official Plan (2018)
- Greenbelt Plan (2017)
- Oak Ridges Moraine Conservation Plan (2017)
- Endangered Species Act (2007) and Ontario Regulation 242/08
- Natural Heritage Information Center Database information (current)
- Ontario Breeding Bird, Mammal and Herpetofaunal Atlas (current)

2.2. Field Work Completed by GRA

GeoProcess Research Associates conducted field studies to characterize and inventory the natural heritage features and wildlife activity of the Subject Property and surrounding landscape. A summary of the field work details are provided below in **Table 1.**

Table 1 Field Work Summary

Study	Date	Staff
Staking with TRCA	June 18, 2019	Ian Roul, TRCA staff, Town of Caledon Staff
Vegetation Assessment	July 2, July 22 2019	Ian Roul, Ben Angel
Tree Assessment	Summer 2019	Kuntz Forestry Limited
Amphibian Surveys	May 7, May 24, June 16 2019	Ian Roul, Ben Angel
Breeding Bird Surveys	June 2, June 9, 2019	Don Graham

2.2.1. Vegetation Assessment

2.2.1.1. Floristics Inventory

A single season inventory of all floristic species was completed in summer 2019. Species nomenclature is based on the Ministry of Natural Resources "Southern Ontario Vascular Plant Species List – 3rd Edition" (Bradley 2013). Species ranking was determined provincially by the Ministry of Natural Resources Natural Heritage Information Database (Sranks).

2.2.1.2. Ecological Land Classification

Vegetation communities were mapped and described according to the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al. draft 2008). GRA conducted a single-day inventory during the summer of 2019 across the Subject Property. Vegetation community boundaries were determined using desk top analysis and further refined in the field. The results of this assessment are found in **Section 4.4** and **Figure 3****2**.

2.2.1.3. Tree Resources and Inventory

A tree assessment was conducted by Kuntz Forestry Limited and the results are summarized in this report. The assessment is included in Appendix B.

2.2.2. Amphibian Surveys

Amphibian Calling Surveys followed the Marsh Monitoring Protocol (Bird Studies Canada, 2000). This protocol requires the Subject Project and survey stations to be visited on three separate nights to conduct surveys. Surveys are to begin from one half hour after sunset and are to end before midnight. Visits are to occur no less than fifteen (15) days apart and take place during the spring and early summer. This protocol ensures that the entire range of early, middle and late-breeding species will be surveyed for.

In addition, surveys must be conducted under the appropriate weather conditions to coincide with breeding calling activity. It is required that surveys are conducted when conditions are moist (i.e. after a rain, during a light mist, on humid night), and do not occur when conditions are windy (i.e. wind noise reduces ability to hear calls and frogs generally do not call during windy conditions) (Bird Studies Canada, 2000). Minimum air temperature requirements for the visits are provided in **Table 2**. The first survey should occur shortly after the first or second warm spring shower with the required night-time air temperature. The results of the Amphibian Calling Surveys are found in **Section 4.6**.

Table 2 Temperature Requirements for Amphibian Calling Surveys

Visit #	Target Species (Breeding Designation)	Required Minimum Night Temperature
Visit 1	Early	Above 5^{O}C
Visit 2	Middle	Above 10^{O}C
Visit 3	Late	Above 17^{O}C

2.2.3. Breeding Bird Surveys

Breeding bird surveys were undertaken over 8 hours of monitoring time by a breeding bird expert under appropriate weather conditions (See **Table 3**) over two visits on June 2 and June 9 2019. The methodology of the Ontario Breeding Bird Atlas was adopted with slight modifications. Point Count surveys were conducted at two (2) survey stations for 20 minutes each to ensure a full survey of the Study Area and the adjacent features throughout the breeding season.

Table 3 Breeding Bird Survey Summary

Visit Date	Visit Time	Cloud Cover	Wind Speed
June 2	6:00-10:00	80%	1
June 9	6:30-10:30	100%	1-2

2.2.4. Species at Risk Screening and Assessment

A screening for the possible occurrence of Species at Risk (SAR) was conducted for the Subject Property based on Federal and Provincial status and a review of the Natural Heritage Information Centre, the regional SAR list and any additional lists provided by the MNRF. Potential species identified were further assessed during the complementary field studies.

2.2.5. Significant Wildlife Habitat Screening and Assessment

A screening for Significant Wildlife Habitat following the Ministry of Natural Resources and Forestry Significant Wildlife Habitat Technical Guide (2000) and Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (January 2015) was conducted for the Subject Property. Potential SWH identified was assessed during the complementary field studies.

3. Policy Review

3.1. Provincial Policy Statement

The Provincial Policy Statement (PPS), 2014 is administered under section 3 of the Planning Act. It became effective April 30, 2014 and replaces the 2005 PPS. The PPS applies to planning decisions made on or after that date. It provides policy direction for land use and development within the Province of Ontario and prescribes the building of strong communities, the wise use and management of resources, and the protection of public health and safety. Within the updated PPS the definition of a Natural Heritage System has been expanded and now reads, "*a system made up of natural heritage features and areas, and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems*". This expanded definition includes linkages, providing greater consideration and further clarification on the components and functions of natural heritage features.

The PPS defines eight natural heritage features and provides planning polices for each:

- Significant wetlands;
- Coastal wetlands;
- Significant habitat of Endangered and Threatened species;
- Fish habitat;
- Significant woodlands;
- Significant valleylands;
- Significant Areas of Natural and Scientific Interest (ANSIs); and,
- Significant Wildlife Habitat.

Policies in Section 2.1 of the PPS deal with development and site alteration and areas where they shall not be permitted. These policies are included below in **Table 4** Applicable Policies of the Provincial Policy Statement.

Table 4 Applicable Policies of the Provincial Policy Statement

Policy Number	Policy
Policy 2.1.1	Natural features and areas shall be protected for the long term.

Policy 2.1.2	The diversity and connectivity of natural features in an area and the long-term *ecological function* and biodiversity of *natural heritage systems* should be maintained, restored or where possible, improved, recognizing linkages between and among *natural heritage features* and *areas, surface water features* and *ground water features.*
Policy 2.1.3	*Natural heritage systems* shall be identified in Ecoregions 6E & 7E[1], recognizing that *natural heritage systems* will vary in size and form in *settlement areas, rural areas*, and *prime agricultural areas*.
Policy 2.1.4	Development and site alteration shall not be permitted in: a) *significant wetlands* in Ecoregions 5E, 6E and 7E[1]; and, b) *significant coastal wetlands.*
Policy 2.1.5	*Development* and *site alteration* shall not be permitted in: a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E; b) *significant woodlands in Ecoregions 6E and 7E* (excluding islands in Lake Huron and St. Marys River)[1]; c) *significant valleylands in Ecoregions 6E and 7E* (excluding islands in Lake Huron and St. Marys River)[1]; d) *significant wildlife habitat*; e) *significant areas of natural and scientific interest*; and f) *coastal wetlands* in Ecoregions 5E, 6E and 7E[1] that are not subject to policy 2.1.4(b) unless it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions*.
Policy 2.1.6	*Development* and *site alteration* shall not be permitted in *fish habitat* expect in accordance with *provincial and federal requirements.*
Policy 2.1.7	*Development* and *site alteration* shall not be permitted in *habitat of endangered species and threatened species,* except in accordance with *provincial and federal requirements*.
Policy 2.1.8	*Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features* and areas identified in policies 2.14, 2.1.5 and 2.1.6 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.
Policy 3.1.1	*Development shall generally be directed to areas outside of:*

b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards.

3.2. Greenbelt Act

The Greenbelt Plan was originally enacted in 2005 and has since been updated (2017). It provides policies to protect the agricultural land base and the associated ecological and hydrological features and functions within the Greater Golden Horseshoe. Lands included in the Greenbelt Area are defined by O.Reg 59/05. The Subject Property is located outside the Greenbelt Plan boundary.

3.3. Oak Ridges Moraine Conservation Act

The updated Oak Ridges Moraine Conservation Plan [ORMCP] (O. Reg 140/02), 2017, made under the Oak Ridges Moraine Conservation Act, 2001 came into effect on July 31, 2017. The plan provides land use and resource management planning direction for all land and features located within the Moraine, one of southern Ontario's most significant landform features. The Subject Property is located outside the Oak Ridges Moraine boundary.

3.4. Region of Peel Official Plan

The Region of Peel Official Plan was consolidated in April 2018 and provides policies and guidance for the planning and development within the Region of Peel. As per *Schedule D - Regional Structure* (February 2016) of the Region of Peel official Plan, the Subject Property is classified as Rural Service Centre. Floodplain areas designated as Special Policy Area follows the Humber River Valley to the north of the Subject Property but does not apply to the Subject Property.

Schedule A-Core Areas of the Greenlands System in Peel (November 2013) indicates that the Subject Property does not contain Core Areas of the Greenlands System associated with the Humber River Valley. A copy of the Region of Peel Official Plan Schedules is included in Appendix A.

3.5. Town of Caledon Official Plans

The Town of Caledon Official Plan was consolidated in April 2018, and is a statement of principles, goals, objectives and policies intended to guide future land use, physical development and change, and the effects on the social, economic, and natural environment within the Town of Caledon.

As per *Schedule A1-Town Structure* (February 2005), the Subject property is located within a rural service centre. Further details on the area of study are subject to the Bolton South Hill Land Secondary Plan.

As per *Schedule C-2-Bolton South Hill Land Use Plan* within the Bolton South Hill Secondary Plan, the Subject Property is located within Special Residential area, and includes Environmental Policy area along the northern limit within the Humber River Valley. Development on Special Residential Areas are subject to policies in described in Part 7.2.5. in the Town of Caledon Official Plan. Environmental Policy Areas consist of Natural Core Ares and Natural Corridors and according to Part 5.7, development is prohibited in these areas. A copy of the Town of Caledon Official Plan Schedules is included in Appendix A.

3.6. Toronto and Region Conservation Authority

The Toronto and Region Conservation Authority (TRCA) is responsible for O. Reg 166/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, a regulation under the Conservation Authorities Act, 1990. This regulation prohibits development within the Regulation Limits set by the TRCA and applies to shorelines, rivers, stream valleys, hazardous lands, wetlands or areas adjacent to a wetland. A permit may be issued to develop in the regulated areas or alter a channel with or without conditions. A portion of the Subject Property lands are regulated by the TRCA (See TRCA Regulated Area Map in Appendix A)

3.7. Endangered Species Act

The Endangered Species Act (ESA) protects habitat and individuals of wildlife species designated as Endangered, Threatened or Extirpated in Ontario. These designations are defined as:

> *Endangered:* A species shall be classified as an endangered species if it lives in the wild in Ontario but is facing imminent extinction or extirpation.
>
> *Threatened:* A species shall be classified as a threatened species if it lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening to lead to its extinction or extirpation.
>
> *Extirpated:* A species shall be classified an extirpated species if it lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.

Provincial Species at Risk are identified and assessed by the Committee on the Status of Species at Risk in Ontario (COSSARO). The ESA protects species listed by COSSARO as Endangered, Threatened or Extirpated in Ontario and their habitats by prohibiting anyone from killing, harming, harassing or possessing protected species, as well as prohibiting any damage or destruction to the habitat of the listed species. All listed species are provided with general habitat protection under the ESA aimed at protecting areas that species depend on to carry out their life processes, such as reproduction, rearing, hibernation, migration or feeding. In addition, specific habitat regulations for some species have been developed that specifically define the extent and character of their protected habitat beyond what is stated in the general habitat regulation.

Activities that may impact a protected species or its habitat require the prior issuance of a Permit from the MNRF, unless the activities are exempted under Regulation. The current Ontario Regulation 242/08 identifies activities which are exempt from the permitting requirements of the Act, these activities are subject to rigorous controls outside the permit process including registration of the activity and preparation of mitigation plans. Activities that are not exempted under O. Reg. 242/08 require a complete permit application process.

4. Existing Conditions

4.1. General Site Description and Landscape Position

The immediate surroundings of the Subject Property include two land uses. To the south and west of the property is a residential community consisting of low density single units on conventional lots, small community parks and a school. To the north and east is the Humber River and the associated forested valley that surrounds it. A grassed ditch runs along Albion Vaughan Road providing drainage for the properties on Nunnville Road. Albion Vaughan Road serves as a demarcation point between the urban communities in Caledon and the Protected Countryside of the Greenbelt on the east side of the road. The site is located south of the Oak Ridges Moraine.

4.2. Physiography and Geology

The Subject Property is located in the upper portion of the Humber River watershed, approximately 2 km south of the Oak Ridges Moraine. The Humber River watershed drains an area of 903 km2 from its headwaters on the Niagara Escarpment and Oak Ridges Moraine to its mouth at Lake Ontario. The watershed supports a mix of agricultural, urban and rapidly urbanizing land uses. The Subject Property is located at the junction of the South Slope and Peel Plain geology with groundwater flow generally south. Surface soils were silty clay loam.

4.3. Natural Heritage System

4.3.1. Humber River Valley

The Humber River starts 126 kilometres from Lake Ontario in the Niagara Escarpment and the rolling topography of the Oak Ridges Moraine. Within the headwaters, rainwater percolates through the rock, sands and gravels, and collects in wetlands and small streams to form small creeks and streams. Overall, the watershed is approximately 37% urban, 30% rural and 33% natural cover.

The site is located downstream of the headwaters where the smaller tributaries have joined to form larger tributaries that, in turn, become the river that flows into Lake Ontario. Overall the Humber River has only 19% of its watershed forested, with 2% being interior forest and 35% of the streamside being forested which is considered 'Poor'. This is rated as 'Fair' in the main branch of the Humber River, which the site is located within. Ground water quality was assessed as 'Good' nearest the subject property and surface water quality was rated as 'Fair'. (Source: TRCA, Humber River Watershed Report Card, 2018).

The portion of the Humber River valley that is located on the property was staked and surveyed with the TRCA and the Town of Caledon. This area is dominated by a Dry-Fresh Red Pine Plantation that has naturalized with a Fresh Moist White Elm Deciduous Community. This forest community is protected in the proposed development plan with a 10 m buffer that will be vegetated thereby increasing the area of valley forest cover.

4.4. Vegetation

4.4.1. Vegetation Communities

4.4.1.1. Ecological Land Classification

The majority of the site is residential manicured lawn with landscape trees. These trees were the subject of a tree inventory and preservation plan. There was one natural community identified on the property, a complex of Dry-Fresh Red Pine Naturalized Coniferous Plantation (FOCM 6-2) and Fresh Moist White Elm Lowland Deciduous Forest (FODM 7-1). The community likely originated with Red Pine re-forestation efforts on the slopes which have the characteristic spacing of pine plantations. A significant forest naturalization has occurred with deciduous trees (Elm, Ash, Maple) integrating into the gaps in the Pine canopy. The understory of the community is heavily dominated by Buckthorn and the ground layer is sparsely populated.

The results of the Ecological Land Classification are presented below in and shown on **Figure** 3**2**.

Table 5 Ecological Land Classification Summary

ELC CODE	VEGETATION TYPE	VEGETATION CHARACTERISTICS		COMMENTS
TERRESTRIAL VEGETATION COMMUNITIES				
CONIFEROUS FOREST				
FOCM6-2 **Complex: FODM7-1**	**DRY-FRESH RED PINE NATURALZIED CONIFEROUS PLANTATION TYPE** **FRESH-MOIST WHITE ELM LOWLAND DECIDUOUS FOREST TYPE**	Canopy:	Red Pine 50%, White Elm 30%, Green Ash 10%. Additional species: Manitoba Maple, American Basswood, Black Cherry.	This community makes up most of the forest within the property limits and is located along the Humber River Valley at northern end of the property. It includes a mid-aged Elm-dominated deciduous forest growing amongst a naturalizing Red Pine plantation. Common Buckthorn is dominant at the subcanopy, understory and ground layers. Minimal garbage/dumping is present.
		Understory:	Common Buckthorn, Hawthorns, Alternate leaved Dogwood, Red Osier Dogwood, Choke Cherry, Red Currant, Ash and Manitoba Maple saplings	
		Groundlayer:	Common Buckthorn, Thicket Creeper, Riverbank Grape, Enchanter's Nightshade, Guelder-Rose, Virginia Waterleaf, Wild Sarsaparilla, Red Baneberry	

FOCM6	**NATURALIZED CONIFEROUS PLANTATION**	Canopy:	White Spruce, Sots Pine, Red Pine	This community is located north of the property and is an extension of the Red Pine Plantation. The level of naturalization with deciduous forest in this community is less pronounced.
DECIDUOUS FOREST				
FODM7	**FRESH-MOIST LOWLAND DECIDUOUS FOREST TYPE**	Canopy:	White Elm, Green Ash, Black Walnut	This community is located north and west of the property and contains a similar composition as the naturalizing forest within the Red Pine plantation on the Subject Property.

4.5. Breeding Bird Surveys

A total of 26 species were observed throughout the survey with varying evidence of breeding. No Species at Risk were observed.

The following **Table 6** provides the provincial NHIC ranking (S Rank) and the current SARO designation categorized by the level of breeding evidence. Ranking legends are provided below.

In the species columns, each species is assigned a breeding level, based on the highest level of breeding evidence observed, by quadrant. A species observed, showing no breeding evidence or where no suitable habitat is present, is marked 'X'. The number recorded represents the highest one-day total for that species.

Table 6 Breeding Bird Survey Results

Common Name	Latin Name	Quantity	Breeding Level	S-Rank	COSSARO/ COSEWIC	Comment
Great Blue Heron	*Ardea herodias*	1	X	S4		Flyover
Canada Goose	*Branta canadensis*	15	X	S5		Flyover
Turkey Vulture	*Cathartes aura*	1	X	S5B		Flyover
Killdeer	*Charadrius vociferus*	2	X	S5B, S5N		
Mourning Dove	*Zenaida macroura*	6	H	S5		
Downy Woodpecker	*Picoides pubescens*	3	T	S5		
Northern Flicker	*Colaptes auratus*	2	T	S4B		
Eastern Kingbird	*Tyrannus tyrannus*	2	T	S4B		
Red-eyed Vireo	*Vireo olivaceus*	1	S	S5B		
Warbling Vireo	*Vireo gilvus*	1	T	S5B		
Blue Jay	*Cyanocitta cristata*	5	P	S5		

Black-capped Chickadee	*Poecile atricapillus*	4	S	S5
House Wren	*Troglodytes aedon*	1	T	S5B
American Robin	*Turdus migratorius*	4	CF	S5B
Gray Catbird	*Dumetella carolinensis*	2	A	S4B
European Starling	*Sturnus vulgaris*	4	FY	SNA
Cedar Waxwing	*Bombycilla cedrorum*	3	H	S5B
Chipping Sparrow	*Spizella passerina*	1	S	S5B
Song Sparrow	*Melospiza melodia*	4	A	S5B
Northern Cardinal	*Cardinalis cardinalis*	2	P	S5
Indigo Bunting	*Passerina cyanea*	1	S	S4B
Red-winged Blackbird	*Agelaius phoeniceus*	1	X	S4
Common Grackle	*Quiscalus quiscula*	3	H	S5B
Brown-headed Cowbird	*Molothrus ater*	1	H	S4B
Baltimore Oriole	*Icterus galbula*	1	T	S4B
American Goldfinch	*Spinus tristis*	3	P	S5B

OBBA Breeding Evidence Codes

POSSIBLE

H-species observed in breeding season in suitable nesting habitat

S-singing male present or breeding calls heard in breeding season in suitable habitat

PROBABLE

P-pair observed in their breeding season in suitable habitat

T-permanent territory presumed through registration of territorial song or presence of adult bird in breeding habitat on at least 2 days, one week or more apart at the same place.

D-courtship or display between a male and female, or two males including courtship feeding and copulation.

V-visiting probable nest site.

A-agitated behavior or anxiety calls of adults

B-brood patch on adult female or cloacal protuberance on adult male

N-nest building or excavation of nest hole

CONFIRMED

DD-distraction display or injury feigning

NU-used nest or eggshell found [occupied/laid during atlas period]

FY-recently fledged young or downy young.

AE-adults leaving or entering nest site in circumstances indicating occupied nest
FS-adult carrying faecal sac
CF-adult carrying food for young
NE-nest containing eggs
NY-nest with young seen or heard

NHIC S-Rank Legend

SH- Possibly Extirpated (Historical); species occurred historically and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years.
S1- Critically Imperiled. Extremely rare in Ontario; usually 5 or fewer occurrences in the province
S2-Imperiled. Very rare in Ontario; usually between 6 and 20 occurrences in the province
S3- Vulnerable. Rare to uncommon in Ontario; usually between 21 and 60 occurrences in the province; may have fewer occurrences, but with some extensive examples remaining
S4- Apparently secure. Considered to be common in Ontario. It denotes a species that is apparently secure, with over 80 occurrences in the province
S5- Secure. Indicates that a species is widespread in Ontario. It is demonstrably secure in the province.
?- Indicates some uncertainty with the classification due to insufficient information
SNR- Not Ranked
SNA- Not Applicable, a conservation status rank is not applicable because the species is not a suitable target for conservation activities

SARO Legend

SC- Special Concern
END- Endangered
THR- Threatened
EX- Extirpated

4.6. Amphibian Surveys

Amphibian surveys were completed on May 7, May 24 and June 6, 2019 following the Marsh Monitoring Protocol temperature requirements. A single survey station was located on the eastern corner of the property, approximately 30 m south of the forest. No amphibians were heard calling on any of the survey nights, however Spring Peepers, American Toads, and Gray Treefrogs all heard calling from across Albion Vaughan road at during the three field visits. See **Table 7** below.

Table 7 Amphibian Survey Field Visits

Visit #	Breeding Species	Required Night-time Air Temperature	Date	Actual Temperature
Visit 1	Early	Above 5^{O}C	May 7	8 ^{O}C
Visit 2	Middle	Above 10^{O}C	May 24	17 ^{O}C
Visit 3	Late	Above 17^{O}C	June 6	17 ^{O}C

5. Tree Inventory

A Tree Inventory and Preservation Plan (TIPP) Report was prepared by Kuntz Forestry for the properties at 13247 and 13233 Nunnville Road in the Town of Caledon, Ontario. The TIPP included an inventory of the tree resources over 10cm on and within six metres of the proposed development and evaluated tree saving opportunities based on proposed site plans and grading. The findings of the study indicate a total of 211 trees on and within six metres of the proposed development. The removal of 154 trees is required to accommodate the proposed development. The removal of additional 2 trees is recommended regardless of the site plan due to poor condition. The preservation of the remaining 55 trees will be possible with appropriate tree protection measures.

A copy of the TIPP is included in Appendix B.

6. Species at Risk

The Endangered Species Act, 2007, S.O. 2007 was passed to protect the biodiversity of Ontario by using the best available scientific, community and aboriginal traditional knowledge and the precautionary principle as its doctrine. The purpose of the Act is to identify species at risk, protect species at risk and their habitats, and to promote the recovery of species at risk and stewardship activities which assist in these goals. The Committee on the Status of Species at Risk in Ontario (COSSARO) functions to maintain an up-to-date database of information pertaining to species in Ontario and their classification. COSSARO advises the Minister of Natural Resources and Forestry whom makes and files a regulation that lists all plant and animal species classified by COSSARO as extirpated, endangered, threatened, or of special concern. This regulation is the Species at Risk in Ontario List, O. Reg 230/08. Ontario Regulation 242/08 provides general policies concerning exemptions and habitat specifications for those listed species, Species at Risk (SAR).

6.1. Screening

Screening for possibly present Species at Risk was conducted using various sources of information. A summary of the screening findings is presented below in **Table** 8**8**.

The Natural Heritage Information Center (NHIC), operated by the OMNRF, collects, reviews, manages and distributes information on Ontario's biodiversity. Data on species, plant communities, wildlife concentration areas and natural areas is made accessible to the public and professionals using generalized 1-kilometer grid units to protect sensitive information. Data distributed by the NHIC is used in conservation and natural

resource management decision making and is of valued assistance to this report. Using the Make-a-Map: Natural Heritage Areas application, a screening for potential Species at Risk on or within a 1-kilometer grid of the Subject Property was completed for ID grids 17PJ2175, 17PJ2275, and 17PJ2274. The list is presents the species by common and scientific name, the last observed date in that unit and their status Provincially (SARO Status), Federally (COSEWIC Status) and as recognized by the associate international NatureServe network by Subnational Rank (SRank). NatureServe is a non-profit organization which functions as a network of professionals to collect and manage data on rare, endangered and threatened species and ecosystems across the Americas since 1974.

Mapping for Aquatic Species by the Department of Fisheries and Oceans was also reviewed. The digital mapping tool (last modified 2018-09-26) does not identify the presence of any Species at Risk or Species of Special Concern.

Table 8 Species at Risk Database Information Sources Summary

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date
Species	Loggerhead Shrike	Lanius ludovicianus	SB2	END	END	1971
Species	Butternut	Juglans cinerea	S2?	END	END	2005

6.2. Assessment

No Species at Risk were identified during the field surveys. Based on the habitat conditions found on the site, the following Species at Risk were further assessed for potential impacts.

- Loggerhead Shrike (*Lanius ludovicianus*) - **Endangered**
- Butternut (*Juglans cinereal*) - **Endangered**
- Little Brown Myotis (*Myotis lucifugus*) - **Endangered**
- Northern Myotis (*Myotis septentrionalis*) - **Endangered**
- Tri-coloured Bat (*Perimyotis subflavus*) -**Endangered**

6.2.1. Loggerhead Shrike

The NHIC record dates back to 1971 and recent survey efforts aimed at the recovery of Loggerhead Shrike in the Province of Ontario note that the remaining population included 11 breeding pairs of Loggerhead Shrikes in Ontario, restricted to the Carden, Napanee and, to a much lesser extent, Smiths Falls areas (Wheeler 2015), down from 16 breeding pairs reported in 2014. This is a decrease from 2013, when there were 22 pairs, and is the lowest number since the recovery program began in 1991. An additional 13 single birds were found in the Carden, Napanee and Grey-Bruce areas (Wheeler 2015). A pair of shrikes were observed in the Smiths Falls area in 2014, fledging one young (H. Wheeler, pers. comm. 2016). Shrikes have not been observed in the Pembroke-Renfrew area since 2011, despite surveys (Wheeler 2015). As such, the Subject Property is not considered habitat for Loggerhead Shrike.

6.2.2. Butternut

The Butternut was already assessed as endangered when the Endangered Species Act took effect in 2008. Its Canadian range includes Ontario, Quebec and New Brunswick south of the Canadian Shield. It is a deciduous forest species, located alone or in groups, found along the edges or in sunny openings as it does not do well in shade. It prefers moist, well-drained soil and often found along streams. It can reach 30m in height, has compound branching with 11 to 17 leaflets (9-15 cm long each) along the feather-like leaves. The fruit is a large nut which is light green, sticky and fuzzy. Bark beings smooth but ridges as it ages. It is susceptible to the Butternut Canker, a fungal disease which is devastating the population due to its quick spread between individuals and within an individual. Up to one third of the trees in eastern Ontario have already been killed and most are infected. Research into individuals showing signs of resistance is on-going. No Butternut were identified during the vegetation surveys or tree inventory.

6.2.3. Little Brown Myotis

This mammal species, a bat, was designated Endangered on January 23, 2013. Its population is wide spread across Ontario and most of North America. It is nocturnal and hibernates from fall until spring, most often in caves or abandoned mines which are humid. In the active half of the year they roost in trees and buildings where they colonize to raise young. They have glossy brown fur and weigh between 4 -11 grams with a wingspan of 22-27 centimeters. A fleshy projection that covers the entrance to the ear which is long, thin and rounded at the tip distinguishes them from other bat species. They feed at night on insects and are most active in the hours just after sunset. White nose syndrome, caused by a fungus of European origination, threatens this species. It propagates in environments very similar to the hibernating environments use by these bats (humid and cold). Mass dies offs are possible at more than 75% of Ontario's hibernation sites due to the fungus' affect on hibernation cycles, metabolism and fat storage.

The forest contains sufficiently large trees to be considered potential habitat for little brown myotis. The forested area is being preserved in the proposed plan and protected with a 10 m buffer.

6.2.4. Northern Myotis

The Northern Myotis is a species at risk, designated Endangered in January 2013, impacted by the white nose syndrome. Prior to the spread of the fungal disease across North America, the North Myotis was found throughout forested areas across southern and northern Ontario, and throughout all Canadian provinces. This species, previously known as northern long-eared bats, had long, rounded ears with dull yellow-brown fur and pale grey bellies. They are approximately eight centimeters in length and have a wingspan of approximately 25 centimeters. This Myotis species is similar in looks to the little brown bat (*Myotis lucigufus*) save for the pointed tip at the northern myotis ear. Distinct from the little brown bat, this species prefers to roost under loose, exfoliating bark more often than within tree cavities during the summer rearing months. Hibernation throughout the winter occurs in obscure caves far from the summer foraging grounds and is the root location for the spread of the white nose syndrome. Mass die-offs of up to 90 percent of overwinter populations occur in infected hibernacula. This emphasizes the importance of successful reproduction of remaining individuals at summer maternity roosting habitat.

The forest contains sufficiently large trees to be considered potential habitat for northern myotis. The forested area is being preserved in the proposed plan and protected with a 10 m buffer.

6.2.5. Tri-coloured bat

This species was enlisted on June 15, 2016 as Endangered due to the impacts of white nose syndrome on the population. This species is very rare and their population is more scattered across the province as such. The species is similar in size to the myotis, but orange-red colouring in the muzzle, ears and forearms distinctly mark it. Tri-colouring on its back in black, yellow and brown, is indicated by its name. Similar to the myotis, this species is an aerial insectivore with summer roosting locations in forests and buildings and overwinter hibernation in caves. Unlike myotis, they typically hibernate by themselves rather than in a larger unit.

The forest contains sufficiently large trees to be considered potential habitat for tri coloured bats. The forested area is being preserved in the proposed plan and protected with a 10 m buffer.

7. Significant Wildlife Habitat

Significant Wildlife Habitat (SWH) is considered natural heritage and is protected as per Section 2.1 of the Provincial Policy Statement, 2014. The Significant Wildlife Habitat Technical Guide (OMNRF, 2000) aids in land use planning by providing the identification, description and prioritisation of significant wildlife habitat in Ontario. The associated Ecoregion Criteria Schedules are used to further provide detailed criteria for assessing and confirming SWH within Ontario. This section will provide a screening in the form of a summary table followed by an assessment of the potentially or confirmed occurring SWH.

7.1. Screening

Significant (and/or sensitive) Wildlife Habitat features and functions as described within the OMNRF Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 6E (OMNRF, 2015) were reviewed and evaluated for the Subject Property and adjacent lands. The document groups wildlife habitat into four main categories:

- Seasonal concentration areas of animals;
- Rare vegetation communities or specialized habitats for wildlife;
- Habitat for species of conservation concern; and,
- Animal movement corridors.

The screening, found in **Table 9**, consisted of a review of the ELC codes and habitat criteria for candidate SWH. Any SWH on the Subject Property or adjacent lands was noted in Column 4 and a rationale was provided in Column 5. In the case of potential SWH, Confirmed Defining Criteria Studies were reviewed, and applicable mitigation measures (in summary form) were also provided in Column 5.

Table 9 Significant Wildlife Habitat Screening

Wildlife Habitat	Candidate SWH Habitat Criteria		Potential on Site	Rationale and Mitigation Measures Summary
	ELC Ecosite Codes	ELC Ecosite Codes		
Seasonal Concentration Areas of Animal				
Waterfowl Stopover and Staging Areas (Terrestrial)	CUM, CUT1 - plus evidence of annual spring flooding within these ecosites *Fields with seasonal flooding and waste grains in certain areas are specific to Tundra Swan	Fields with sheet water during Spring (mid-March to May) •agricultural fields with waste grain are not SWH unless they have spring sheet water available.	No	No habitat features on site or species aggregation.
Waterfowl Stopover and Staging Areas (Aquatic)	MAS1,MAS2,MAS3, SAS1,SAM1,SAF1,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7	Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. • Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify.	No	No evidence of use by large aggregations of significant size or identified key species.
Shorebird Migratory Stopover Area	BBO1,BBO2,BBS1,BBS2,BBT1,BBT2,SDO1,SDS2,SDT1,MAM1,MAM2,MAM3,MAM4,MAM5	•Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores in May to mid-June and early July to October. • No sewage treatment or storm water management ponds.	No	No habitat features on site.

Raptor Wintering Area	Combo of one of each Community Series from one of each: Forest (FOD,FOM,FOC) and Upland (CUM,CUT,CUS,CUW). Bald Eagle: Forest on shoreline area adjacent to large rivers and lakes.	A combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. • Need to be > 20 ha. •Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water and large trees and snags available for roosting .	No	No habitat features on site.
Bat Hibernacula	CCR1,CCR2,CCA1,CCA2. * buildings are not to be considered SWH	May be found in caves, mine shafts, underground foundations and Karsts. •Active mine sites are not considered SWH.	No	No habitat features on site.
Bat Maternity Colonies	All Ecosites in: FOD,FOM,SWD,SWM.	Maternity colonies can be found in tree cavities, vegetation and often in building. *Building are not considered SWH. • Not found in caves or mines in ON. •Located in Mature Deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees. •Prefer snags in early stages of decay (class 1-3 or class 1 or class 2). •SIlver-haired Bats prefer older mixed or deciduous forests with at least 21 snags/ha.	Potential Habitat in Forest	Forest is protected within the proposed plan.

Turtle Wintering Areas	Snapping and Midland Painted: SW,MA,OA,SA and FEO/BOO Series. Northern Map: Open water areas such as deeper rivers or streams and lakes.	Wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. •Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. *Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH.	No	No habitat features on site.
Reptile Hibernaculum	Any ecosite other that very wet. •Talus, Rock Barren, Crevice, Cave, Alvar may be directly related. •Observations of congregations in spring or fall is good indicator.	Sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. •Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures	No	No habitat features on site.

Colonially-Nesting Bird Breeding Habitat (Bank and Cliff)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. CUM1,CUS1,BLS1,CLO1,CLT1,CUT1,BLO1,BLT1,CLS1.	Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area *does not include man-made structures, recently (2 years) disturbed soil areas or liscenced Mineral Aggregate Operation.	No	No habitat features on site.
Colonially-Nesting Bird Breeding Habitat (Tree/Shrub)	SWM2,SWM3,SWM5,SWM6,SWD1,SWD2,SWD3,SWD4,SWD5,SWD6,SWD7,FET1	Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree.	No	No habitat features on site.
Colonially-Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM,CUT,CUS	Nesting colonies on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.	No	No habitat features on site.

Migratory Butterfly Stopover Areas	Combo of one of each Field (CUM, CUT, CUS) and Forest (FOC, FOD,FOM,CUP).	Minimum 10 ha in size with combo of field and forest located within 5km of Lake Erie or Lake Ontario. •Should not be disturbed. • Field/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat. •Should provide protection from the elements, often spits of land or areas with the shortest distance to cross the Great Lakes.	No	No habitat features on site.
Landbird Migratory Stopover Areas	All Ecosites within: FOC,FOM,FOD,SWC ,SWM,SWD	Woodlots >10ha in size and within 5km of Lake Erie and Lake Ontario. • If woodlands are rare in area, smaller size can be considered. • If multiple woodlands located along shore line, those <2km from shoreline are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. •The largest sites are more significant. •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Erie and Lake Ontario are Candidate SWH.	No	No habitat features on site.
Deer Yarding Areas	Note: OMNRF to determine this habitat. ELC Community Series providing a	Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will	No	No habitat features on site.

	thermal cover component for a deer yard would include; FOM, FOC, SWM and SWC. Or these ELC Ecosites; CUP2 CUP3 FOD3 CUT	establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20 cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30 cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter. • The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%. • OMNRF determines deer yards following methods outlined in "Selected Wildlife and Habitat Features: Inventory Manual. •Woodlots with high densities of deer due to artificial feeding are not significant		
Deer Winter Congregation Areas	All forested ecosites within: FOC,FOM,FOD,SWC ,SWM,SWD + conifer plantations	Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment.	No	No habitat features on site.

	much smaller than 50 ha may be used.	• Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands • Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. *Woodlots with high densities of deer due to artificial feeding are not significant.		
Rare Vegetation Communities				
Cliffs and Talus Slopes	Any Ecosite within: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris. Most cliff and talus slopes occur along the Niagara Escarpment.	No	No habitat features on site.
Sand Barren	SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicketlike (SBS1), or more closed and treed (SBT1). Tree cover always < or equal to 60%	A sand barren area >0.5ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. • Vegetation can vary from patchy and barren to tree covered, but less than 60%.	No	No habitat features on site.

Alvar	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2, Five Alvar Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleocharis compressa 4) Scutellaria parvula 5) Trichostema brachiatum	An Alvar site > 0.5 ha in size, only known sites are found in the western islands of Lake Erie. • An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. • Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. • Vegetation cover varies from patchy to barren with a less than 60% tree cover.	No	No habitat features on site.
Old Growth Forest	FOD FOC FOM SWD SWC SWM	Woodland areas 30 ha or greater in size or with at least 10 ha interior habitat assuming 100 m buffer at edge of forest. • Characterized by heavy mortality or turnover of overstorey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	No	No habitat features on site. Dominant tree species in the forest are not >140 years old nor are characteristics of old growth forest present. .
Savannah	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%. • No minimum size to site. • Site must be restored or a natural site.	No	No habitat features on site.

		*Remnant sites such as railway right of ways are not considered to be SWH.		
Tallgrass Prairie	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. •An open Tallgrass Prairie habitat has < 25% tree cover. •No minimum size to site. •Site must be restored or a natural site. *Remnant sites such as railway right of ways are not considered to be SWH.	No	No habitat features on site.
Other Rare Vegetation Communities	See the Significant Wildlife Habitat Techinical Guide (OMNR, 200), Appendix M for Provincially Rare S1,S2 and S3 ELC Vegetation Types.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. •May include beaches, fens, forest, marsh, barrens, dunes and swamps. See OMNRF/NHIC for up to date list of rare vegetation communities.	No	No habitat features on site.
Specialized Habitat for Wildlife				
Waterfowl Nesting Area	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1	A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. •Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites.	No	Waterfowl breeding was not observed during the breeding bird surveys.

	SWD2 SWD3 SWD4. * Note: includes adjacency to Provincially Significant Wetlands	• Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests.		
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. *Nests located on man-made objects are not to be included as SWH. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy.	No	No habitat features on site.
Woodland Raptor Nesting Habitat	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat. • Interior habitat determined with a 200m buffer. •Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.	No	No habitat features on site.

Turtle Nesting Areas	Exposed mineral soil (sand or gravel) areas adjacent (<100m) or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtle nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. *Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No	No habitat features on site.
Seeps and Springs	Where ground water comes to the surface. Often they are found within headwater areas within forested habitats. •Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system.	No	No habitat features on site.
Amphibian Breeding Habitat (Woodland)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size).	No	No habitat features on site.

	•Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.		
Amphibian Breeding Habitat (Wetlands)	ELC Community Classes SW, MA, FE, BO, OA and SA. •Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; •some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. •Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	No	No habitat features on site.
Woodland Area-Sensitive Bird Breeding Habitat	All Ecosites withing: FOC FOM FOD SWC SWM SWD	Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.	No	No habitat features on site.

		•Interior forest habitat is at least 200 m from forest edge habitat.		
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)				
Marsh Bird Breeding Habitat	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites	Nesting occurs in wetlands. All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	No	No observation of breeding marsh birds during surveys.
Open Country Bird Breeding Habitat	CUM1 CUM2	Large grassland areas (includes natural and cultural fields and meadows) >30 ha. •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years). •Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.	No	No habitat features on site.

Shrub/Early Successional Bird Breeding Habitat	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 •Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha in size. •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no rowcropping, haying or livestock pasturing in the last 5 years). •Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. •Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	No	No habitat features on site.
Terrestrial Crayfish	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM CUM1-with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish. •Usually the soil is not too moist so that the tunnel is well formed. •Can often be found far from water.	No	No habitat features on site.
Special Concern and Rare Wildlife Species	All plant and animal element occurrences (EO) within a 1 or 10km grid. All Special Concern and Provincially Rare	identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites	No	No Special Concern or Rare Species Identified.

	plant and animal species.			
Animal Movement Corridors				
Amphibian Movement Corridors	Corridors may be found in all ecosites associated with water.	Corridors will be determined based on identifying the significant breeding habitat for these species. Movement corridors between breeding habitat and summer habitat. Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from this Schedule.	No	No habitat features on site.
Deer Movement Corridors	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH. A deer wintering habitat identified by the OMNRF as SWH will have corridors that the deer use during fall migration and spring dispersion •Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges).	No	No habitat features on site.

Exceptions for EcoRegion 6E				
Mast Producing Areas (Black Bear) •EcoDistrict 6E-14	All Forested habitat represented by ELC Community Series: FOM FOD	Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. • Forested habitats need to be large enough to provide cover and protection for black bears Criteria •Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech)	No	Site not located within EcoDistrict 6E-14
Lek (Sharp-tailed grouse) •EcoDistrict 6E-17	CUM CUS CUT	The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography. • Leks are typically a grassy field/meadow >15ha with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. Criteria •Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland • Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying) • Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting	No	Site not located within EcoDistrict 6E-17

8. Proposed Development

The proposed development is a 35-unit residential housing community on a single cul-de-sac and includes an Environmental Protection Area, an Open Space Buffer and an Overland Flow Block for stormwater. The Humber River Valley is contained within the Environmental Policy Area and it is protected by the 10 m buffer.

8.1. Natural Heritage Feature Buffers

The Toronto Region Conservation Authority Living City Policies state that the limit of the *Natural System* be determined by the greater of the outer limits of the natural feature and/or natural hazard to *development* or *site alteration*, as follows:

Valley or Stream Corridors – a 10-metre *buffer* from the greater of the long term *stable top of slope/bank*, stable toe of slope, *Regulatory flood plain, meander belt*, and any contiguous natural features or areas;

Woodlands - a 10-metre buffer from the *dripline* and any contiguous natural features or areas.

The dripline was staked with the Toronto and Region Conservation Authority. Additionally, the long term stable top bank was calculated by Soil Engineers. Both of these lines are shown on **Figure 3**, as well as the 10 m buffer that was applied to the outer most of these two lines.

8.2. Stormwater Management and Servicing Requirements

Stormwater and servicing have been assessed by C.F. Croziers and Associates Inc. and the results are provided in the Functional Servicing Report (July 2019). The stormwater plan includes the maintenance of pre to post stormwater quantity, enhanced stormwater quality treatment and water balance retention of the first 5 mm of rainfall.

The site slopes east and existing stormwater flows are conveyed overland to two outlets: approximately 1.7 ha drain to the existing ditch parallel to Albion-Vaughan Road, while 0.35 ha drain to the TRCA regulated Environmental Policy Area (EPA).

In accordance with Town of Caledon standards, stormwater flows will be attenuated so the post-development peak flows for all storm events match or are less than the pre-development peak flows for all storm events. The pre-to-post control will be achieved using an orifice tube downstream of oversized storm sewers. Emergency flows will be directed east for both catchments, eventually discharging to the existing ditch.

8.2.1. Water Balance

The minimum volume requirement to promote water balance is retention of the 5 mm rainfall event. The water balance retention volume was calculated considering initial abstraction of runoff based on various surfaces types.

Water balance for protected natural areas and the landscaped portion of the developed areas will be achieved through infiltration of stormwater runoff over the existing natural landscaped area. Water balance

for the impervious areas of the proposed development will be achieved by providing a minimum topsoil depth of 0.30 m over the landscaped areas. A storage volume of approximately 48 m3 is required to achieve the water balance criteria (5mm x 0.96 ha of impervious area).

Since the capacity of storage in the topsoil and the physical volume of rainfall exceed the required storage volume, we conclude that with a total topsoil depth of 300mm (150mm original + 150mm additional), 48 m3 of rainfall volume can successfully be retained.

8.2.2. Location of Stormwater Outlet

The location of the stormwater outlet is proposed to be constructed in an area of existing manicured lawn and it will discharge into a grass lined ditch that runs parallel to Albion Vaughan Road. The location of the outlet was examined in the field with staff from the TRCA and Town of Caledon during the site staking on June 18, 2019. Based on the location of the stormwater outlet, no ecological impacts are anticipated.

9. Environmental Impact Assessment

The potential impacts of development on the subject property vegetation communities and adjacent natural heritage features were identified and are assessed as short-term or long-term.

9.1. Short Term Impacts

Short term impacts are generally associated with the active development of the site. **Table 10** below identifies the impacts, provides an assessment and potential mitigation measures.

Table 10 Short Term Impacts, Mitigation Measures and Assessment

IMPACT	MITIGATION MEASURE	IMPACT ASSESSMENT
Noise from construction activity	Construction to take place during the standard daytime construction period.	Short term impacts, with the greatest noise impacts occurring during the earth work stages of construction. The majority of the wildlife found within the local landscape is tolerant to disturbances based on the presence of the Albion Vaughan Road, they are anticipated to return to the area once construction activities end.
Dust from construction activity	Water suppression of dust	Effective dust suppression can reduce dust drifting from the site during construction. Impacts from dust to the adjacent key features should be minimal.

Sediment loading off-site during site construction	Implementation of Sediment and Erosion Control Measures	With the implementation and maintenance of proper sediment and erosion controls impacts to the adjacent lands should be minimal.
Tree cutting during site clearing	Tree removal to occur outside of the breeding bird and roosting bat season.	Replacement street trees and trees planted in the 10 m buffer will compensate for the loss of trees across the development according to the Tree Preservation and Protection Plan.

9.2. Long Term Impacts

Long term impacts of the development, as found in **Table 11** include the removal of existing vegetation, changes to the storm water discharge into the woodland stream and ongoing impacts from a permanent human population including noise, light and garbage.

Table 11 Long Term Impacts, Mitigation Measures and Assessment

Impact	Mitigation Measures	Impact Assessment
Vegetation removal	Restorative planting and enhanced naturalization of the buffer areas.	The areas of vegetation removal are limited to the landscape trees within the residential property.
Invasive Species	Native plantings in the buffer will assist in preventing invasive colonies of species such as buckthorn and phragmites.	With the establishment of the plant communities in the buffers invasive species colonization of key features edges is expected to be reduced.
Encroachment	The Humber River valley is protected by a 10 m buffer from the lot lines and will be delineated by a chain link fence.	The provision of the buffer, naturalization and installation of the fence will provide sufficient space to prevent encroachment into the forest.
Water balance of woodland	Maintenance of clean water drainage to the woodland via and site grading.	Site grading to drain clean water to the woodland and will provide adequate maintenance of water to feature.

10. Policy Conformity

The proposed development conforms to the natural environment policies of the Region of Peel, the Town of Caledon and the Toronto and Region Conservation Authority. Specifically, the Subject Property includes one natural heritage feature (i.e. the Humber River valley) which is designated as an Environmental Policy Area in the Bolton South Hill Secondary Plan and is Valley Corridor regulated by the TRCA. The feature is maintained in the proposed plan and includes a 10 m buffer is provided for the protection of this feature. This buffer meets the requirements of the policies of both the Town of Caledon and the TRCA.

11. Mitigation Measures

11.1. Tree Protection/Preservation

The following recommendations are recommended in the TIPP to minimize impacts to trees identified for preservation:

- Tree protection barriers and fencing should be erected at locations as prescribed. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.

- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified as a tree protection zone (TPZ) at any time during or after construction.

- Branches that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional. All pruning of tree branches must be in accordance with Good Arboricultural Standards.

- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

11.2. Vegetation Clearing and Grading, General Measures

- Minimize outdoor lighting and direct it down and away from retained natural areas;
- All buffers should be delineated using tree protection fencing prior to the arrival of heavy machinery;
- No machinery or disturbance of any type is permitted within the tree protection fencing used to delineate the buffers;
- Sediment and Erosion control fencing is to be installed as designed in the approved erosion and sediment control plan.
- Clearing of vegetation identified for removal should be conducted in late fall or winter months (September 30th – March 31st) so as not to coincide with breeding bird and roosting bat season. If

clearing should occur during the nesting season, a nest and roost survey should be conducted prior to any works by a qualified biologist.

11.3. Planting Plan

A restoration plan has been created for the 10 m buffer to the Humber River valley by WSP. The plan includes a mix of shrubs, deciduous trees and coniferous trees in a range of sizes. The plan includes the use of native trees and shrubs and will further protect the Humber River valley from encroachment effects of the new development.

12. Summary and Conclusion

This Environmental Impact Statement was completed for the Subject Property located along Nunnville Road in Bolton, Ontario. The Subject Property includes two rural estate lots with manicured lawn and a natural heritage feature (the Humber River valley). This impact assessment and evaluation was conducted to investigate the conformity of the site plan to applicable land development policies of the relevant authorities. Based on the work undertaken by GRA, the following summary and conclusions are provided:

1) The Subject Property is designated as a Special Residential Area in the Bolton South Hill Secondary Plan and has been an area identified as a suitable location for infill development.

2) The Subject Property contains and lies adjacent to a Significant Valley Corridor (the Humber River Corridor) which was staked and surveyed by the TRCA and the Town of Caledon on June 18, 2019.

3) A geological study by Soil Engineers confirmed that the location of the Long Term Stable Top of Bank is contained within the June 18, 2019 staked dripline.

4) Consistent with the TRCA Living Cities Policies, a 10 m buffer has been applied to the June 18, 2019 staked dripline and this limit is proposed to be the development limit.

5) A restoration plan has been prepared for the 10 m buffer to return self-sustaining, native vegetation to this area.

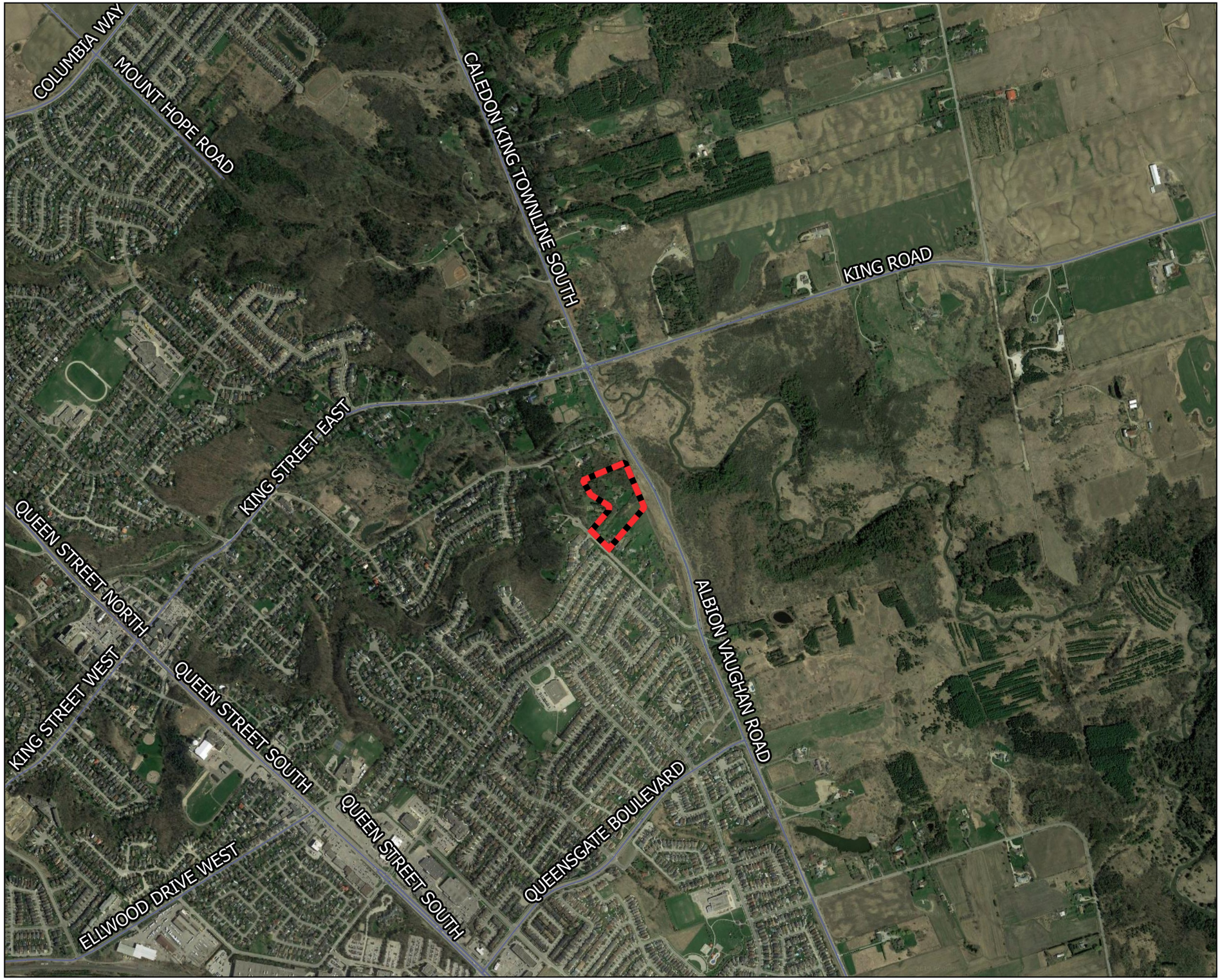
6) This report includes an assessment of the key natural heritage features and their functions, including their connectivity to the greater landscape and natural heritage system.

7) The survey work identified no Species at Risk on the site and has evaluated the proposed site plan to ensures its conformity to the applicable legislation.

8) An impact assessment for all above mentioned features on the Subject Property has been conducted (for the short and long-term) in regards to the proposed site plan.

9) Mitigation measures are provided to avoid impacts to the important natural heritage features.

10) The site plan also conforms to the natural heritage policies and regulations of the Region of Peel, the Town of Caledon and the TRCA.



GeoProcess RESEARCH ASSOCIATES

13247 & 13233 Nunville Road
BOLTON MIDTOWN DEVELOPMENTS

Figure 1. Key Map

CREATED BY:	BA	PROJECT NO.:	P2019-368
CHECKED BY:	IR	DATE:	Jul 25, 2019

Legend

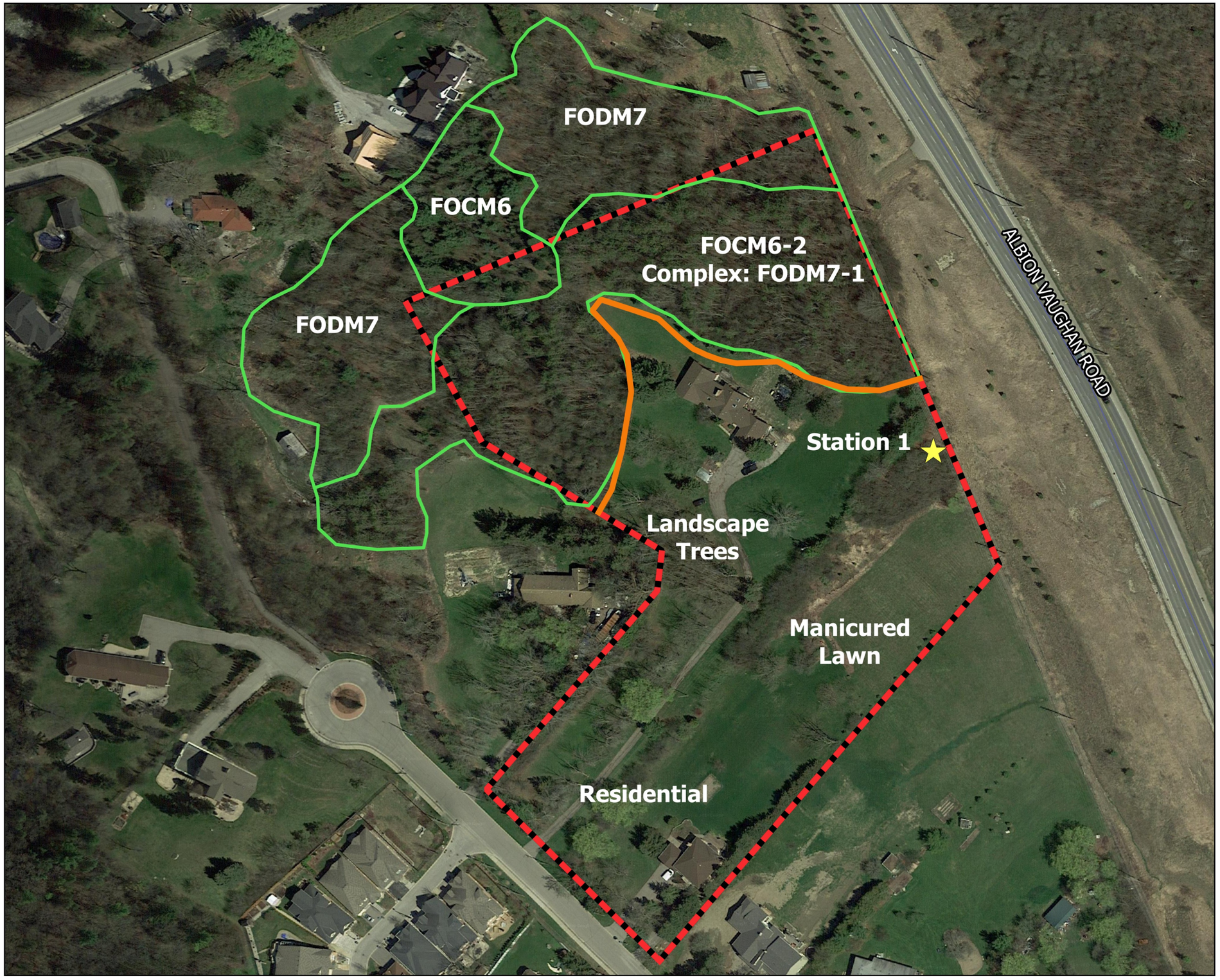
Subject Property

N

0 0.5 1 kilometers

Prepared using QGIS and Google Satellite.

G:/My Drive/Projects/P 2019-368 Nunnville EIS/GIS/Basemap/Basemap.qgs



GeoProcess
RESEARCH ASSOCIATES

13247 & 13233 Nunville Road
BOLTON MIDTOWN DEVELOPMENTS

Figure 2. Existing Conditions

CREATED BY:	BA	PROJECT NO.:	P2019-368
CHECKED BY:	IR	DATE:	Jul 30, 2019

Legend

- Subject Property
- Amphibian Survey Station
- Staked Dripline
- ELC Polygons

ELC Codes

FOCM6:
Naturalized Coniferous Plantation

FOCM6-2:
Dry-Fresh Red Pine Naturalized Coniferous Plantation Type

FODM7:
Fresh-Moist Lowland Deciduous Forest Type

FODM7-1:
Fresh-Moist White Elm Lowland Deciduous Forest Type

N

0 50 100 metres

Prepared using QGIS and Bing Satellite.

G:/My Drive/Projects/P2019-368 Nunnville EIS/GIS/Basemap/Basemap.qgs

GeoProcess RESEARCH ASSOCIATES

LEGEND

0 40 80
SCALE

13247 & 13233 NUNNVILLE ROAD
BOLTON MIDTOWN DEVELOPMENTS
SITE PLAN

Scale: 1:2,000	Drawn By: KG	Figure No. 3
Date Issued: JULY, 2019	Checked By: IR	

Appendix A

Official Plan Schedules

Region of Peel

Working for you

Official Plan

This Schedule forms part of the Region of Peel Official Plan and should be read in conjunction with the Plan's written text and with the area municipal official plans.

Information outside of Peel Region is shown on this Schedule for illustrative purposes to display inter-regional linkages.

Legend

- Greenbelt Area *
- Protected Countryside
- Natural Heritage System
- Rural Service Centre
- Village/Industrial-Commercial Centre
- Hamlet
- Niagara Escarpment Plan Area
- Oak Ridges Moraine Plan Area
- Settlement Areas Outside the Greenbelt
- River Valley Connections Outside the Greenbelt
- Ninth Line Lands **

* As identified in Ontario Regulation 59/05

** These lands are identified in the Region of Halton Official Plan as the Ninth Line Corridor Policy Area. Currently, the policies of the Region of Halton and the Town of Milton official plans apply to these lands. A future amendment will bring these lands into conformity with the Region of Peel Official Plan.

Scale:

0 1 2 3 4 5 6 7 8 9 10 Km

0 1 2 3 4 5 miles

GREENBELT PLAN AREA LAND USE DESIGNATIONS

SCHEDULE **D3**

In Effect

February 2016

Region of Peel

Working for you

Official Plan

This Schedule forms part of the Region of Peel Official Plan and should be read in conjunction with the Plan's written text and with the area municipal official plans.

Information outside of Peel Region is shown on this Schedule for illustrative purposes to display inter-regional linkages.

Where there is a discrepancy between Schedule A and the identification of Core Areas in the text of the Plan, the text shall govern, unless otherwise specifically stated.

Legend

- Core Areas of the Greenlands System
- Core Areas Outside Peel
- Area with Special Policies (Refer to Figure 2)
- 2031 Regional Urban Boundary

Scale:

0 1 2 3 4 5 6 7 8 9 10 Km

0 1 2 3 4 5 miles

CORE AREAS OF THE GREENLANDS SYSTEM IN PEEL

SCHEDULE **A**

In Effect

November 2013

Schedule C-2

(A Subschedule to Schedule "C")

BOLTON SOUTH HILL LAND USE PLAN

- High Density Residential
- Medium Density Residential
- Low Density Residential
- Mixed Low/Medium Density Residential
- Special Residential
- Environmental Policy Area
- Open Space Policy Area
- School
- Secondary Plan Area
- Bolton Settlement
- Future Grade Separation
- Collector Road 30m R.O.W.
- Collector Road 26m R.O.W.
- Local Road 22m R.O.W.

- Regional Road
- Local Road
- Railway

Base Data Source: Town of Caledon

0 10 20 40 60 80 100 m

KING ST WEST
9
ELLWOOD DR WEST
C.P. RAIL
QUEEN ST SOUTH
HEALEY RD
SIMPSON RD
50
OLD KING RD
KING ST EAST
CALEDON-KING TOWNLINE S
SUNKIST VALLEY RD
STRAWBERRY HILL CT
RIVERWOOD TR
NUNNVILLE RD
ALLAN DR
HUBERT CORLISS DR
FOUNTAINBRIDGE DR
BERRYDOWN DR
ESPOSITO DR
WHITBREAD AVE
HIGHMORE AVE
SANT FARM RD
PEMBROOK ST
QUEENSGATE BLVD
5TH SIDEROAD (TO BE CLOSED)
LANDSBRIDGE ST
DOVASTON GATE
ALBION VAUGHAN RD
KING-VAUGHAN RD
LOT 7
LOT 6
LOT 5
LOT 4
KING RD
Humber River
TOWNSHIP OF KING
REGION
YORK
CITY OF VAUGHAN

SAVED: 2 April 2018

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SAVED BY: bloverock

April 2018 Office Consolidation

Schedule A
TOWN OF CALEDON LAND USE PLAN

The Town of Orangeville has undertaken studies, which have not been supported by the Region of Peel and the Town of Caledon, relating to the possibility of an expansion of the Orangeville settlement area into its neighbouring municipalities, including the Town of Caledon

- General Agricultural Area
- Prime Agricultural Area
- Rural Lands
- Extractive Industrial Area
- Waste Management Area
- Open Space Policy Area
- Environmental Policy Area
- Estate Residential Area
- Retirement Community Area
- Settlement Area
- Mayfield West Study Area Boundary
- Boundary of Greenbelt Plan Area
- Oak Ridges Moraine Conservation Plan Area
- Niagara Escarpment Plan Area

- Provincial Road
- Regional Road
- Local Road
- Railway
- Caledon Trailway

Base Data Source: Town of Caledon

0 0.5 1 2 3 4 5 km

Refer to OPA #150
CALEDON/EAST GARAFRAXA TOWN LINE
See Section 5.2.3.2
See Section 5.2.3.7
Refer to Explanatory Notes of the Official Plan
Refer to OPA #161/124
Refer to OPA #163
Refer to OPA #133
See Section 3.2.4.16
For details of this area refer to the Caledon Village Land Use Plan Schedule "E"
Refer to OPA #171
Refer to OPA #98
Reddington Retirement Community
For details of this area refer to the applicable Palgrave Estate Residential Community Schedules "G, H, & I"
Refer to OPA #122
Refer to OPA #241
Refer to OPA #210
Refer to OPA #156
Refer to OPA #217
Bolton Golf Course Estate Residential
For details of this area refer to the Caledon East Land Use Plan Schedule "D"
Refer to OPA #234
Refer to OPA #195
Refer to OPA #65
For details of this area refer to Inglewood & Area Land Use Plan Schedule "M"
For details of this area refer to Sandhill Secondary Plan Schedule "T"
Refer to OPA #227
Terra Cotta Special Residential Area
For details of this area refer to Victoria Business Park Land Use Plan Schedule "R"
See Section 5.1.3.1.5
Refer to OPA #148
Refer to OPA #2
For details of this area refer to Tullamore Secondary Plan Schedule "N"
For details of this area refer to Bolton Land Use Plan Schedule "C"
Refer to OPA #101 and OPA #232
For details of this area refer to Schedule B-2 Mayfield West Phase 2 Secondary Plan Land Use Plan
For details of this area refer to Mayfield West Land Use Plan Schedule "B"

Alton
Melville
Mono Mills
Caledon Village
Cataract
Belfountain
Inglewood
CALEDON EAST
Mono Road
Claude
Cheltenham
Campbells Cross
Victoria
Terra Cotta
Sandhill
Albion
Palgrave
BOLTON
Tullamore
Wildfield
MAYFIELD WEST
Tottenham
Nobleton

DUFFERIN COUNTY
WELLINGTON COUNTY
SIMCOE COUNTY
HALTON REGION
YORK REGION
CITY OF BRAMPTON
TOWNSHIP OF ADJALA-TOSORONTIO
TOWNSHIP OF EAST GARAFRAXA
TOWN OF ORANGEVILLE
TOWN OF MONO
TOWN OF ERIN
TOWN OF HALTON HILLS
TOWNSHIP OF KING
CITY OF VAUGHAN
TOWN OF NEW TECUMSETH

HIGHWAY 9
HIGHWAY 50
HIGHPOINT SIDE RD
BEECH GROVE SIDE RD
COOK SANS SIDE RD
CHARLESTON SIDE RD
FINNERTY SIDE RD
ESCARPMENT SIDE RD
PATTERSON SIDE RD
THE GRANGE SIDE RD
OLD BASE LINE RD
BOSTON MILLS RD
CASTLEDERG SIDE RD
OLD SCHOOL RD
OLD CHURCH RD
HEALEY RD
MAYFIELD RD
KING ST
CALEDON KING TOWNLINE
WILLOUGHBY RD
PORTERFIELD RD
MOUNTAINVIEW RD
HORSESHOE HILL RD
ST ANDREW'S RD
SHAWS CREEK RD
WINSTON CHURCHILL BLVD
MISSISSAUGA RD
HURONTARIO ST
AIRPORT RD
THE GORE RD
MOUNT PLEASANT RD
MOUNT WOLFE RD
MOUNT HOPE RD
HUMBER STATION RD
QUEEN ST
ALBION-VAUGHAN RD
HERITAGE RD
CREDITVIEW RD
CHINGUACOUSY RD
MCLAUGHLIN RD
KENNEDY RD
HEART LAKE RD
DIXIE RD
BRAMALEA RD
TORBRAM RD
INNIS LAKE RD
CENTREVILLE CREEK RD

LOT 30
LOT 25
LOT 20
LOT 35
LOT 15
LOT 10
LOT 5
LOT 25
CON 1
CON 2
CON 3
CON 4
CON 5
CON 6
CON 7
CON 8
CON 9
CON 10

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SAVED BY: bloverock

April 2018 Office Consolidation

Appendix B

Tree Preservation Plan

Tree Inventory and Preservation Plan Report
13247 and 13233 Nunnville Road
Caledon, Ontario

prepared for

Sam Morra
13247 and 13233 Nunnville Road
Caledon, Ontario L7E 2Z9

prepared by

KUNTZ
FORESTRY
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Oakville ON L6K 0B3
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e: consult@kuntzforestry.ca

7 August 2019

KUNTZ FORESTRY CONSULTING Inc. Project P2100

Introduction

Kuntz Forestry Consulting Inc. was retained by Sam Morra to complete a Tree Inventory and Preservation Plan Report in support of a development application for the properties at 13247 and 13233 Nunnville Road in the Town of Caledon, Ontario. The subject properties are located on the southeast side of Nunnville Road and Old King Road, within a residential area

The work plan for this study included the following:

- Prepare inventory of the tree resources over 10cm on and within six metres of the proposed development;
- Evaluate tree saving opportunities based on proposed site plans and grading; and,
- Document the findings in a Tree Inventory and Preservation Plan report.

Trees included were visually assessed for condition utilizing the following parameters:

Tree # - number assigned to trees that corresponds to Figure 1.
Species - common and botanical names provided in the inventory table.
DBH - diameter (centimeters) at breast height, measured at 1.4 m above the ground.
Condition - condition of tree considering trunk integrity (TI), crown structure (CS) and crown vigor (CV). Condition ratings include poor (P), fair (F), and good (G);
Crown Die Back – Percentage of dead branches within the crown.
Drip Line - Crown radius; and
Comments – Any other relevant tree condition information.

The results of the evaluation are provided below.

Methodology

Trees measuring over 10cm DBH on and within six metres of the proposed development were identified included in the tree inventory. Trees were located using a handheld GPS unit (Trimble GeoExplorer® 6000 series) accurate to ±1m. Trees included in the inventory were identified with numbers 1-211. Tree locations are shown on Figure 1. See Table 1 for the results of the inventory.

Existing Site Conditions

The subject property is currently occupied by two rural residential dwellings and associated amenity areas. There is a woodlot on the north side of 13247 Nunnville Road. Tree resources exist in the form of landscape trees and natural generations. Refer to Figure 1 for the existing site conditions.

Individual Tree Resources

The tree inventory was conducted on 15 May 2019. The inventory documented 211 trees on and within six metres of the proposed development. The existing woodlot on the north side of 13247 Nunnville Road will be preserved with 10 metre buffer and not included in this study. Refer to Table 1 for the full tree inventory and Figure 1 for the location of tree reported in the tree inventory.

Tree resources included in the inventory are Balsam Fir (*Abies balsamea*), Manitoba Maple (*Acer negundo*), Silver Maple (*Acer saccharinum*), Weeping Nootka Cypress (*Chamaecyparis nootkatensis 'Pendula'*), Russian Olive (*Elaeanus angustifolia*), Green Ash (*Fraxinus*

pennsylvanica), Black Walnut (*Juglans nigra*), Eastern Red Cedar (*Juniperus virginiana*), Apple Species (*Malus spp*.), Norway Spruce (*Picea abies*), White Spruce (*Picea glauca*), Blue Spruce (*Picea pungens*), Austrian Pine (*Pinus nigra*), White Pine (*Pinus strobus*), Scots Pine (*Pinus sylvestris*), Eastern Cottonwood (*Populus deltoides*), Pear Species (*Pyrus spp*.), Black Locust (*Robinia pseudoacacia*), Weeping Willow (*Salix babylonica*), Eastern White Cedar (*Thuja occidentalis*), Basswood (*Tilia americana*), and White Elm (*Ulmus americana*).

Proposed Development

The proposed development includes the demolition of the existing dwellings and the construction of 35 detached dwellings and a driveway. New fences will be installed along the property boundary. The existing woodlot on the north side of 13247 Nunnville Road will be preserved with 10 metre buffer. Refer to Figure 1 for the proposed development.

Discussion

The following sections provide a discussion and analysis of development impacts, tree removal requirements and tree preservation relative to the proposed development.

Development Impacts/Tree Removals

The removal of 154 trees is required to accommodate the proposed development. Required tree removals include Trees 1, 4-103, 106-108, 115-120, 122-157, 195-200, and 208-211.

The removal of Trees 110 and 111 is recommended regardless of the site plan due to poor condition. Tree 110 is an Eastern Cottonwood with 40% crown-die-back and Tree 111 is a Green Ash with 30% crown-die-back due to Emerald Ash Borer. Additionally, a number of dead trees (mostly ash trees) were identified on the subject property. The removal of all dead trees is recommended. Refer to Figure 1 for the location of the proposed tree removals.

Tree Preservation

The preservation of 55 trees will be possible with appropriate tree protection measures. Recommended tree preservation includes Trees 2, 3, 104, 105, 109, 112-114, 121, 158-194, and 201-207. Sediment and erosion control fencing should be sufficient as tree protection fencing. Refer to Figure 1 for the location of prescribed tree preservation fencing, further tree preservation plan notes and the tree protection fencing detail.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Sam Morra to complete a Tree Inventory and Preservation Plan in support of a development application for the properties located at 13247 and 13233 Nunnville Road in Caledon, Ontario. A tree inventory was conducted and reviewed in the context of the proposed development plan.

The findings of the study indicate a total of 211 trees on and within six metres of the proposed development. The removal of 154 trees is required to accommodate the proposed development. The removal of additional 2 trees is recommended regardless of the site plan due to poor condition. The preservation of the remaining 55 trees will be possible with appropriate tree protection measures.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for additional Tree Protection Plan Notes and tree preservation fence detail.

- Tree protection barriers and fencing should be erected at locations as prescribed on Figure 1. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.

- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified on Figure 1 as a tree protection zone (TPZ) at any time during or after construction.

- Branches that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional. All pruning of tree branches must be in accordance with Good Arboricultural Standards.

- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

Kaho Hayashi

Kaho Hayashi, B.Sc., M.Sc.F.
Associate Forest Ecologist
ISA Certified Arborist #ON-2153A

Table 1. Tree Inventory

Location: 13233 and 13247 Nunnville Road, Caledon Date: 15 May 2019 Surveyors: KH

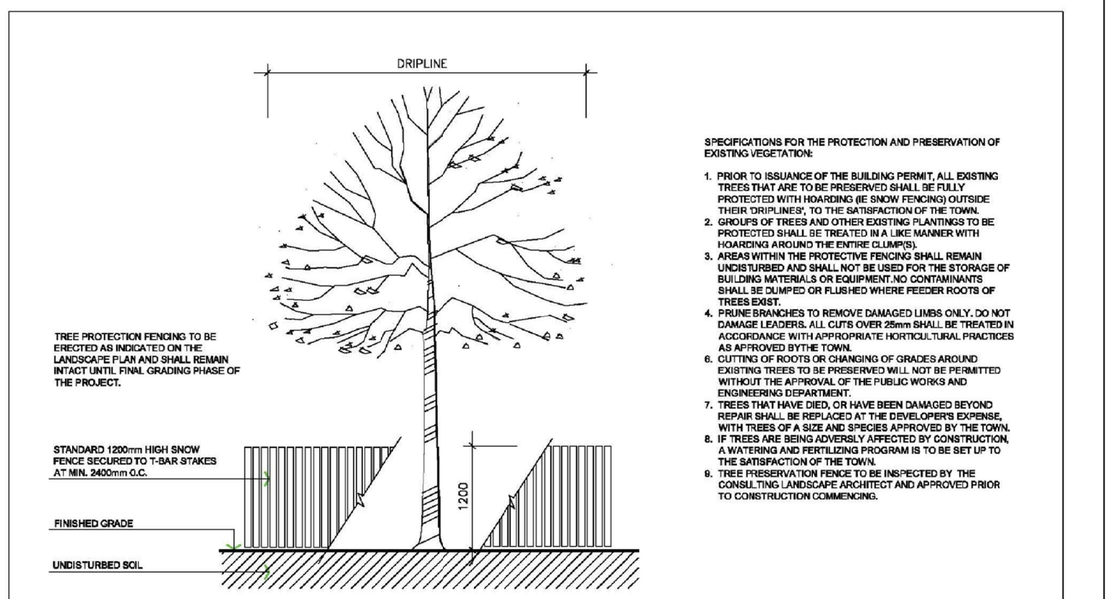
Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	DL	Comments	Action
1	Austrian Pine	*Pinus nigra*	46.0	G	G	F/G		8.0		Remove
2	Austrian Pine	*Pinus nigra*	35.5	G	G	P/F	20	5.0	Asymmetrical crown (M), sparse crown (M)	Preserve
3	Austrian Pine	*Pinus nigra*	35.5	G	G	F		6.0		Preserve
4	Austrian Pine	*Pinus nigra*	30.5	G	G	F		6.0		Remove
5	Austrian Pine	*Pinus nigra*	31.5	G	G	P/F	20	5.0	Asymmetrical crown (M), sparse crown (M)	Remove
6	White Spruce	*Picea glauca*	47.0	G	G	G		8.0		Remove
7	White Spruce	*Picea glauca*	38.0	G	G	F/G		8.0		Remove
8	White Spruce	*Picea glauca*	42.0	G	G	F/G		8.0		Remove
9	White Spruce	*Picea glauca*	41.0	G	G	F/G		8.0		Remove
10	Apple Species	*Malus spp.*	28.0	G	G	F/G		6.0	Epicormic branches (H)	Remove
11	Weeping Nootka Cypress	*Chamaecyparis nootkatensis 'Pendula'*	~15	F/G	G	F/G		3.0	Lean (L)	Remove
12	White Spruce	*Picea glauca*	41.0	G	G	F/G		6.0	Exposed roots (L)	Remove
13	Blue Spruce	*Picea pungens*	20.0	G	F	P	40	4.0	Sparse crown (M), dead branches (M)	Remove
14	Silver Maple	*Acer saccharinum*	48.5	F	F	F	40	8.0	Co-dominance at 2m, lean (L), exposed roots (L), broken branches (L), epicormic branches (M)	Remove
15	Silver Maple	*Acer saccharinum*	33.0	F	F	F	10	6.0	Co-dominance at 1.5m with included bark (M), broken branches (M)	Remove
16	Silver Maple	*Acer saccharinum*	64.5	F	F	F		8.0	Co-dominance at 1.8m (3 stems), exposed roots (M), epicormic branches (M)	Remove
17	White Spruce	*Picea glauca*	33.0	F/G	G	F/G		5.0	Co-dominacne at 3m with included bark (L)	Remove
18	Black Locust	*Robinia pseudoacacia*	23.0	F/G	F/G	F	15	4.0	Sweep (L), asymmetrical crown (M), broken branches (L)	Remove
19	Black Locust	*Robinia pseudoacacia*	23, 14	F/G	F	F		4.0	Union at 1m with included bark (M), bow (L), asymmetrical crown (M)	Remove
20	Black Locust	*Robinia pseudoacacia*	33, 18	F/G	F	F	10	5.0	Union at 0.3m and 1.6m (3 stems), bow (L), dead branches (L)	Remove
21	Black Locust	*Robinia pseudoacacia*	23, 12	F/G	F/G	F		4.0	Union at 0.6m, bow (L), asymmetrical crown (M)	Remove
22	Black Walnut	*Juglans nigra*	22.0	G	G	F/G		5.0		Remove
23	Black Locust	*Robinia pseudoacacia*	~45, 38, 13	F	F	F		5.0	Union at 0.6m, crook (M)	Remove
24	Black Locust	*Robinia pseudoacacia*	19.0	F	F	F		4.0	Lean (L), bow (L), asymmetrical crown (M)	Remove
25	Black Locust	*Robinia pseudoacacia*	22.0	F	F	F		4.0	Crook (M), asymmetrical crown (M)	Remove
26	Black Locust	*Robinia pseudoacacia*	19.5	F	F	F		3.0	Crook (M), small crown, stem wounds (L)	Remove
27	Black Locust	*Robinia pseudoacacia*	20, 18	F	F	F		4.0	Co-dominance at 0.5m with included bark (M), epicormic branches (M)	Remove
28	Black Locust	*Robinia pseudoacacia*	22.0	F	F	F		5.0	Bow (M)	Remove
29	Black Locust	*Robinia pseudoacacia*	29.5	F/G	G	F		3.0	Stem wounds (L), crook (L), dead branches (L)	Remove
30	Black Locust	*Robinia pseudoacacia*	29.0	G	G	F		4.0		Remove
31	Black Locust	*Robinia pseudoacacia*	32.5	F	F	F		4.0	Co-dominance at 1.5m with included bark (M), broken branches (M), epicormic branches (M)	Remove
32	Black Locust	*Robinia pseudoacacia*	19.5	F	F	F		4.0	Crook (M), broken branches (L)	Remove
33	Black Locust	*Robinia pseudoacacia*	18.5	F/G	F	F		4.0	Crook (L), stem wounds (L), asymmetrical crown (M)	Remove
34	Basswood	*Tilia americana*	23.0	G	G	F/G		4.0	Crook (L), epicormic branches (H)	Remove
35	Black Locust	*Robinia pseudoacacia*	16.0	G	G	F/G		3.0	Crook (L)	Remove
36	White Spruce	*Picea glauca*	18.0	G	G	G		4.0		Remove
37	Black Locust	*Robinia pseudoacacia*	17.0	G	G	F/G		3.0	Stem wounds (L) at base, crook (L)	Remove
38	Silver Maple	*Acer saccharinum*	23, 10	F/G	G	F/G		5.0	Union at 0.4m with included bark (L)	Remove
39	Black Locust	*Robinia pseudoacacia*	~35, 35	P	P/F	P	50	4.0	Co-dominance at 0.6m with included bark (M), crack, loose bark, dead branches (M)	Remove
40	Silver Maple	*Acer saccharinum*	23, 20	F/G	F/G	F/G		5.0	Co-dominance at 0.8m with included bark (M)	Remove
41	Silver Maple	*Acer saccharinum*	25, 10	F/G	G	F/G		5.0	Union at 0.6m, lean (L), broken branches (L), epicormic branches (M)	Remove
42	Black Locust	*Robinia pseudoacacia*	16, 12, 9	F	F	F		4.0	Union at 0.3m, crook (M), spiral stems	Remove
43	Black Walnut	*Juglans nigra*	18.5	G	G	G		4.0		Remove
44	Black Locust	*Robinia pseudoacacia*	19.5	F/G	G	F/G		4.0	Crook (M)	Remove
45	Black Locust	*Robinia pseudoacacia*	~16, 15	F	F	F	15	4.0	Co-dominance at 0.2m with included bark (M), crook (M), dead branches (L)	Remove
46	Black Locust	*Robinia pseudoacacia*	16.0	F	F	F	25	4.0	Co-dominance in crown, crook (M), dead branches (M)	Remove
47	Black Locust	*Robinia pseudoacacia*	15.0	F/G	G	F	15	4.0	Crook (M), dead branches (L)	Remove
48	Black Locust	*Robinia pseudoacacia*	20.0	G	G	F/G		4.0		Remove
49	Black Locust	*Robinia pseudoacacia*	22.0	G	F/G	F/G		4.0	Asymmetrical crown (M)	Remove
50	Black Locust	*Robinia pseudoacacia*	22.0	G	G	F/G		4.0		Remove
51	Black Locust	*Robinia pseudoacacia*	18, 15	F/G	G	F	15	5.0	Union at base, dead branches (L)	Remove
52	Black Locust	*Robinia pseudoacacia*	19.0	G	F	P/F	30	4.0	Asymmetrical crown (M)	Remove
53	Black Locust	*Robinia pseudoacacia*	19, 14	F/G	F/G	F		4.0	Union at 0.3m with included bark (M)	Remove

54	Black Locust	*Robinia pseudoacacia*	23.5	P	P/F	P	40	4.0	Stem wound (H) at base, crack, dead branches (M)	Remove
55	Black Locust	*Robinia pseudoacacia*	27.5	F/G	G	F	15	4.0	Stem wounds (L), crook (L)	Remove
56	Black Locust	*Robinia pseudoacacia*	16.0	F/G	G	F/G		3.0	Crook (L)	Remove
57	Black Locust	*Robinia pseudoacacia*	18.5	F/G	G	F/G		3.0	Crook (L)	Remove
58	Black Locust	*Robinia pseudoacacia*	15.5	P	F	F		3.0	Stem wound (H)	Remove
59	Black Locust	*Robinia pseudoacacia*	15.5	G	P	P	60	3.0		Remove
60	Black Locust	*Robinia pseudoacacia*	18.5	P/F	F	F	10	4.0	Stem wound (H) at base with cavity	Remove
61	Black Locust	*Robinia pseudoacacia*	18.0	G	G	F/G		4.0	Crook (L)	Remove
62	Basswood	*Tilia americana*	27.0	F/G	F/G	F/G		4.0	Growing with #63, bow (L)	Remove
63	Black Locust	*Robinia pseudoacacia*	24.0	F/G	G	F/G		4.0	Growing with #62, crook (L)	Remove
64	Basswood	*Tilia americana*	42.5	F/G	F/G	F/G		6.0	Asymmetrical crown (M), epicormic branches (L)	Remove
65	Black Locust	*Robinia pseudoacacia*	28.0	G	G	F/G		5.0	Exposed roots (L)	Remove
66	Silver Maple	*Acer saccharinum*	21.5, 15	F	F	F		6.0	Union at 0.5m with included bark (M), bow (L), broken branches (L), epicormic branches (H)	Remove
67	Silver Maple	*Acer saccharinum*	54.5	F/G	G	F/G		8.0	Co-dominance at 2m (3 stems), exposed roots (L), broken branches (L), epicormic branches (H)	Remove
68	Silver Maple	*Acer saccharinum*	25, 29, 19	F	F/G	F/G		10.0	Union at 0.6m, lean (M), crook (L)	Remove
69	Silver Maple	*Acer saccharinum*	23, 12	F	F	F		8.0	Union at 0.2m with included bark (M), crook (M), poor form, bow (L)	Remove
70	Silver Maple	*Acer saccharinum*	21.0	F/G	F/G	F/G		6.0	Crook (L)	Remove
71	Silver Maple	*Acer saccharinum*	18, 14	F	F	F		8.0	Union at 0.3m with included bark (M), poor form, crook (M), sparse crown (M)	Remove
72	Apple Species	*Malus spp.*	22, 20, 10	F	F	F		7.0	Union at 0.6m and 1.4m, epicormic branches (H)	Remove
73	Apple Species	*Malus spp.*	14-23 (avg. 20)	F	F	F		8.0	Union at 0.6m (4 stems), epicormic branches (H)	Remove
74	Silver Maple	*Acer saccharinum*	24.0	F	F	F		7.0	Burl, bow 9M), broken branches (M), epicormic branches (H)	Remove
75	Silver Maple	*Acer saccharinum*	56.0	P/F	F	F		8.0	Lean (M), co-dominancea t 1.8m with included bark (H), broken branches (M), epicormic branches (H)	Remove
76	Weeping Willow	*Salix babylonica*	58.0	F	F/G	F/G		10.0	Union at 2.5m, lean (L), sweep (L), broken branches (L), epicormic branches (M)	Remove
77	Weeping Willow	*Salix babylonica*	67.0	F/G	F	F/G		10.0	Crook (L), bow (L), broken branches (M), epicormic branches (H)	Remove
78	Green Ash	*Fraxinus pennsylvanica*	17.0	G	F	F	15	4.0	Emerald Ash Borer (M), epicormic branches (H)	Remove
79	Green Ash	*Fraxinus pennsylvanica*	24.0	F/G	F	F	10	5.0	Co-dominance at 1.8m, sweep (L), epicormic branches (L)	Remove
80	Silver Maple	*Acer saccharinum*	30.0	F	F	F		6.0	Bow (L), crook (M), poor form, broken branches (L), epicormic branches (H)	Remove
81	Basswood	*Tilia americana*	31.5	F	F/G	F		5.0	Lean (L), sweep (L), crook (L), small crown	Remove
82	Basswood	*Tilia americana*	18, 14, 10, 9, 7	F	F	F		5.0	Union at base (5 stems), lean (L), sweep (L)	Remove
83	Silver Maple	*Acer saccharinum*	17, 11, 10	P/F	F	F		5.0	Union at 0.2m and 0.6m, poor form, crook (H), epicormic branches (H)	Remove
84	Eastern Red Cedar (Juniper)	*Juniperus virginiana*	~26	G	G	F/G		5.0		Remove
85	Eastern Red Cedar (Juniper)	*Juniperus virginiana*	~22	G	G	F		5.0		Remove
86	Silver Maple	*Acer saccharinum*	17, 13	P/F	F	F		5.0	Union at 0.3m with included bark (L), bow (M), crook (M)	Remove
87	White Spruce	*Picea glauca*	21.0	G	G	F/G		4.0		Remove
88	White Pine	*Pinus strobus*	33.0	G	G	G		6.0		Remove
89	White Spruce	*Picea glauca*	22.0	G	G	F/G		4.0		Remove
90	White Pine	*Pinus strobus*	19.0	F/G	F/G	F		3.0	Crook (M), small crown	Remove
91	Austrian Pine	*Pinus nigra*	23.0	G	F/G	F/G		3.0	Small crown	Remove
92	White Pine	*Pinus strobus*	20.0	F	F	F		3.0	Crook (M), small crown	Remove
93	White Pine	*Pinus strobus*	20.0	G	F/G	F/G		3.0	Small crown	Remove
94	White Pine	*Pinus strobus*	19.0	G	F/G	F/G		3.0	Small crown	Remove
95	Austrian Pine	*Pinus nigra*	24.0	G	G	F/G		4.0		Remove
96	Silver Maple	*Acer saccharinum*	18, 17	F	F	F		5.0	Union at 0.5m with included bark (M), bow (M), broken branches (M), epicormic branches (H)	Remove
97	White Spruce	*Picea glauca*	21.0	G	F/G	F/G		4.0	Asymmetrical crown (M)	Remove
98	White Spruce	*Picea glauca*	22.0	G	F/G	F/G		4.0		Remove
99	White Spruce	*Picea glauca*	17.0	G	F/G	F/G		3.0		Remove
100	White Spruce	*Picea glauca*	~16	G	G	F/G		5.0		Remove
101	White Elm	*Ulmus americana*	~23	F/G	G	F/G		3.0	Co-dominance at 4m	Remove
102	White Spruce	*Picea glauca*	~23	G	G	F/G		4.0		Remove
103	White Spruce	*Picea glauca*	~24	G	G	G		4.0		Remove
104	Silver Maple	*Acer saccharinum*	~60	F/G	G	F/G		8.0	Co-dominance at 2m	Preserve
105	Balsam Fir	*Abies balsamea*	~15	G	G	G		3.0		Preserve
106	Balsam Fir	*Abies balsamea*	~17	G	G	G		4.0		Remove
107	Silver Maple	*Acer saccharinum*	~55	F/G	G	F/G		8.0	Co-dominance at 4m	Remove

P108	Eastern White Cedar	*Thuja occidentalis*	3-18 (avg. 10)	F/G	G	F/G		2.0	~30 trees in row	Remove
109	Balsam Fir	*Abies balsamea*	~22	F/G	G	F/G		2.0	Lean (L)	Preserve
110	Eastern Cottonwood	*Populus deltoides*	~75	F/G	F/G	P/F	40	8.0	Co-dominance in crown, dead branches (L) over the subject property	Remove (condition)
111	Green Ash	*Fraxinus pennsylvanica*	~28	F/G	F	F	30	6.0	Sweep (L), asymmetrical crown (M)	Remove (condition)
112	White Spruce	*Picea glauca*	~15	G	G	F/G		4.0		Preserve
113	White Spruce	*Picea glauca*	~23	F/G	F/G	F		6.0	Lean (L), crook (L), exposed roots (H)	Preserve
P114	White Spruce	*Picea glauca*	15-40 (avg. 30)	G	G	F/G		5.0	12 trees, 1 tree uprooting	Preserve
	Austrian Pine	*Pinus nigra*	15-25 (avg. 20)	G	G	F/G		5.0	14 trees	
115	Green Ash	*Fraxinus pennsylvanica*	13, 11	F/G	F/G	F		3.0	Union at 0.1m	Remove
116	White Pine	*Pinus strobus*	26.0	G	G	G		6.0		Remove
117	Blue Spruce	*Picea pungens*	27.5	F/G	F	P	50	4.0	Sweep (L), epicormic branches (M)	Remove
118	Blue Spruce	*Picea pungens*	24.5	G	F	P	50	4.0	Epicormic branches (M)	Remove
119	Blue Spruce	*Picea pungens*	18.0	F/G	F	P	60	4.0	Sweep (L), epicormic branches (M)	Remove
120	Russian Olive	*Elaeanus angustifolia*	23.0	F	F	F		5.0	Sweep (M), crook (M), epicormic branches (H)	Remove
121	Pear Species	*Pyrus spp.*	22, 17	F/G	F/G	F/G		6.0	Union at 0.8m, sweep (L)	Preserve
122	White Pine	*Pinus strobus*	29.0	G	G	G		6.0		Remove
123	Norway Spruce	*Picea abies*	26.0	G	G	G		5.0		Remove
124	White Pine	*Pinus strobus*	~22	G	G	G		5.0		Remove
125	Norway Spruce	*Picea abies*	~22, 20	F/G	G	F/G		5.0	Co-dominance at 0.2m	Remove
126	White Pine	*Pinus strobus*	~23	G	G	F/G		5.0	Crook (L)	Remove
127	Norway Spruce	*Picea abies*	~22	G	G	G		5.0		Remove
128	White Pine	*Pinus strobus*	~42	G	G	G		5.0		Remove
129	White Spruce	*Picea glauca*	~16	G	G	G		3.0		Remove
130	Scots Pine	*Pinus sylvestris*	~17	G	G	F/G		3.0		Remove
131	Scots Pine	*Pinus sylvestris*	16.5	F/G	G	F/G		3.0	Sweep (L), crook (L)	Remove
132	White Spruce	*Picea glauca*	15.0	G	G	F/G		3.0		Remove
133	White Spruce	*Picea glauca*	~17	F/G	G	F/G		4.0	Sweep (L), exposed roots (M)	Remove
134	White Pine	*Pinus strobus*	20.0	G	G	F/G		4.0		Remove
135	Silver Maple	*Acer saccharinum*	26, 22	F/G	F/G	F		6.0	Co-dominance at 0.6m with included bark (L), epicormic branches (H)	Remove
136	Austrian Pine	*Pinus nigra*	25, 22	F	F	F		5.0	Union at 0.5m, sweep (M), asymmetrical crown (M)	Remove
137	Austrian Pine	*Pinus nigra*	32.0	F	F	F/G		5.0	Lean (M) to west, pruning wounds (M), asymmetrical crown (M)	Remove
138	Austrian Pine	*Pinus nigra*	26.5	G	G	F/G		5.0	Pruning wounds (L)	Remove
139	Austrian Pine	*Pinus nigra*	28.0	F/G	F/G	F/G		5.0	Bow (L), pruning wounds (L)	Remove
140	Austrian Pine	*Pinus nigra*	25.0	F/G	F/G	F		5.0	Lean (L), crook (L), sparse crown (M)	Remove
141	White Elm	*Ulmus americana*	29, 28	F/G	F/G	F		7.0	Co-dominance at 0.3m, epicormic branches (M), overhead utility wire in crown	Remove
142	Austrian Pine	*Pinus nigra*	25, 15	F/G	G	F/G		5.0	Sweep (L)	Remove
143	Silver Maple	*Acer saccharinum*	28.5, 27	F/G	F/G	F/G		8.0	Co-dominance at 0.8m with included bark (H), exposed roots (H), epicormic branches (M)	Remove
144	Weeping Willow	*Salix babylonica*	59.5	F/G	G	F/G		10.0	Lean (VL), exposed roots (M), epicormic branches (M)	Remove
145	Weeping Willow	*Salix babylonica*	75.0	F/G	G	F/G		10.0	Co-dominance at 2.5m (3 stems), exposed roots (M), broken branches (L), epicormic branches (H)	Remove
146	White Spruce	*Picea glauca*	21.5	F/G	F/G	F/G		3.0	Sweep (VL), pruning wounds (M), spiral stem	Remove
147	Norway Spruce	*Picea abies*	33.0	F/G	G	F/G		5.0	Sweep (L)	Remove
148	Austrian Pine	*Pinus nigra*	23.5	G	G	F		4.0	Crook (L)	Remove
149	Eastern White Cedar	*Thuja occidentalis*	~15, 10	F/G	G	G		3.0	Union at base	Remove
150	Silver Maple	*Acer saccharinum*	42.5	F	F	F		6.0	Exposed roots (M), pruning wounds (H), crook (L), epicormic branches (H)	Remove
151	Black Locust	*Robinia pseudoacacia*	21.0	F/G	G	G		4.0	Co-dominance at 2m	Remove
152	Green Ash	*Fraxinus pennsylvanica*	17.0	F	F	P/F	20	4.0	Co-dominance at 3m, Emerald Ash Borer (M), pruning wounds (L)	Remove
153	Manitoba Maple	*Acer negundo*	16, 15	F	F	F/G		5.0	Union at 0.2m with included bark (M), lean (M)	Remove
154	Silver Maple	*Acer saccharinum*	15.0	G	G	F/G		4.0	Crook (L)	Remove
155	Silver Maple	*Acer saccharinum*	15.5	G	G	G		4.0		Remove
156	Silver Maple	*Acer saccharinum*	35, 33	P	F	F		8.0	Union at 0.3m, exposed roots (L), stem wounds (H), broken branches (L), epicormic branches (H)	Remove
157	Apple Species	*Malus spp.*	~26, 25, 17	F	F	F		6.0	Union at base, epicormic branches (H)	Remove
158	White Spruce	*Picea glauca*	16.0	G	G	F		3.0	Lean (VL), epicormic branches (M)	Preserve
159	White Spruce	*Picea glauca*	17.0	G	G	F		4.0	Pruning wounds (L), epicormic branches (L)	Preserve
160	White Spruce	*Picea glauca*	15.0	G	G	F		4.0	Pruning wounds (L), epicormic branches (L)	Preserve
161	White Spruce	*Picea glauca*	22.0	G	G	F		5.0	Lean (L), pruning wounds (L), epicormic branches (L)	Preserve
162	White Spruce	*Picea glauca*	15.0	G	G	F		4.0	Pruning wounds (L), epicormic branches (L)	Preserve
163	White Spruce	*Picea glauca*	20.0	G	G	F		5.0	Pruning wounds (L), epicormic branches (L)	Preserve

164	White Spruce	*Picea glauca*	16.0	F/G	G	F		4.0	Lean (L), pruning wounds (L), epicormic branches (L)	Preserve
165	White Spruce	*Picea glauca*	18.0	F	G	F		4.0	Lean (M), pruning wounds (L), epicormic branches (L)	Preserve
166	White Spruce	*Picea glauca*	19.0	G	G	F		4.0	Pruning wounds (L), epicormic branches (L)	Preserve
167	White Spruce	*Picea glauca*	18.0	F/G	G	F		4.0	Lean (L), pruning wounds (L), epicormic branches (L)	Preserve
168	Austrian Pine	*Pinus nigra*	35.0	F/G	G	F/G		5.0	Co-dominance at 3m	Preserve
169	Austrian Pine	*Pinus nigra*	26.0	G	G	F/G		4.0	Crook (L)	Preserve
170	Austrian Pine	*Pinus nigra*	29.5	F/G	G	F/G		5.0	Co-dominance in crown	Preserve
171	Austrian Pine	*Pinus nigra*	30.5	G	G	F/G		5.0		Preserve
172	White Spruce	*Picea glauca*	26.0	G	G	F/G		5.0		Preserve
173	Scots Pine	*Pinus sylvestris*	23.0	F/G	G	F/G		4.0	Crook (L)	Preserve
174	White Spruce	*Picea glauca*	25.0	G	G	F/G		5.0		Preserve
175	Scots Pine	*Pinus sylvestris*	22.5	F/G	G	F/G		4.0	Crook (L)	Preserve
176	White Spruce	*Picea glauca*	24.5	G	G	F/G		5.0		Preserve
177	Scots Pine	*Pinus sylvestris*	27.0	F/G	F/G	F		5.0	Lean (L) to south, crook (L)	Preserve
178	Balsam Fir	*Abies balsamea*	23.0	G	G	F/G		4.0	Lean (VL)	Preserve
179	Scots Pine	*Pinus sylvestris*	20.0	F/G	F/G	F/G		4.0	Crook (L), bow (L), asymmetrical crown (M)	Preserve
180	Scots Pine	*Pinus sylvestris*	31.0	F/G	G	F/G		6.0	Lean (L), crook (L)	Preserve
181	Scots Pine	*Pinus sylvestris*	21.5	G	G	F/G		5.0	Crook (L)	Preserve
182	Scots Pine	*Pinus sylvestris*	23.0	G	G	F/G		5.0		Preserve
183	Eastern White Cedar	*Thuja occidentalis*	15.0	G	G	G		3.0		Preserve
184	White Elm	*Ulmus americana*	26.0	F/G	G	F/G		5.0	Exposed roots (L), co-dominance at 4m, pruning wounds (L)	Preserve
185	Austrian Pine	*Pinus nigra*	28.0	F	F/G	F/G	15	4.0	Crook (L), co-dominance at 6m but 1 stem dead	Preserve
186	Norway Spruce	*Picea abies*	19.5	F/G	F/G	F/G		4.0	Sweep (L), exposed roots (L)	Preserve
187	Austrian Pine	*Pinus nigra*	32.5	G	G	G		5.0		Preserve
188	White Spruce	*Picea glauca*	21.5	G	G	F/G		5.0	Pruning wounds (L)	Preserve
189	Austrian Pine	*Pinus nigra*	32.5	G	G	F/G		5.0		Preserve
190	White Spruce	*Picea glauca*	26.5	G	G	F/G		5.0		Preserve
191	Austrian Pine	*Pinus nigra*	30.0	F	F/G	F/G		5.0	Sweep (L), crook (L), co-dominance at 4m, poor form	Preserve
192	White Spruce	*Picea glauca*	23.0	G	G	F/G		5.0	Exposed roots (L)	Preserve
193	White Spruce	*Picea glauca*	27.5	G	G	F/G		5.0	Exposed roots (M), pruning wounds (L)	Preserve
194	Manitoba Maple	*Acer negundo*	~40	F/G	G	F/G		10.0	Co-dominance at 2m, pruning wounds (L)	Preserve
195	Blue Spruce	*Picea pungens*	25.0	F/G	G	F/G		5.0	Sweep (L), pruning wounds (L)	Remove
196	Silver Maple	*Acer saccharinum*	15, 13.5, 12.5	F	G	F/G		5.0	Union at 0.6m and 1m with included bark (M)	Remove
197	Norway Spruce	*Picea abies*	23.0	F	F	P/F	30	4.0	Sweep (M)	Remove
198	Silver Maple	*Acer saccharinum*	31, 24.5	F/G	G	F/G		10.0	Co-dominance at 0.6m with included bark (M)	Remove
199	White Spruce	*Picea glauca*	19.5	G	G	F/G		4.0		Remove
200	Norway Spruce	*Picea abies*	29.5	G	G	F/G		5.0	Exposed roots (L), pruning wounds (L)	Remove
201	White Spruce	*Picea glauca*	~22	G	G	G		6.0		Preserve
202	White Spruce	*Picea glauca*	~22	G	G	G		6.0		Preserve
203	White Spruce	*Picea glauca*	~18	G	G	G		6.0		Preserve
204	White Spruce	*Picea glauca*	~21	G	G	G		6.0		Preserve
205	Silver Maple	*Acer saccharinum*	~28	F/G	G	F/G		8.0	Co-dominance in crown	Preserve
206	White Spruce	*Picea glauca*	~16	G	G	G		4.0		Preserve
207	White Spruce	*Picea glauca*	~24	G	G	G		6.0		Preserve
208	White Spruce	*Picea glauca*	~25	G	G	G		6.0		Preserve
209	White Spruce	*Picea glauca*	~20	G	G	G		6.0		Preserve
210	Silver Maple	*Acer saccharinum*	~45	F	F/G	F/G		12.0	Lean (M) to east, union at 3m, sweep (L)	Remove
211	White Spruce	*Picea glauca*	~16	G	G	G		4.0		Remove

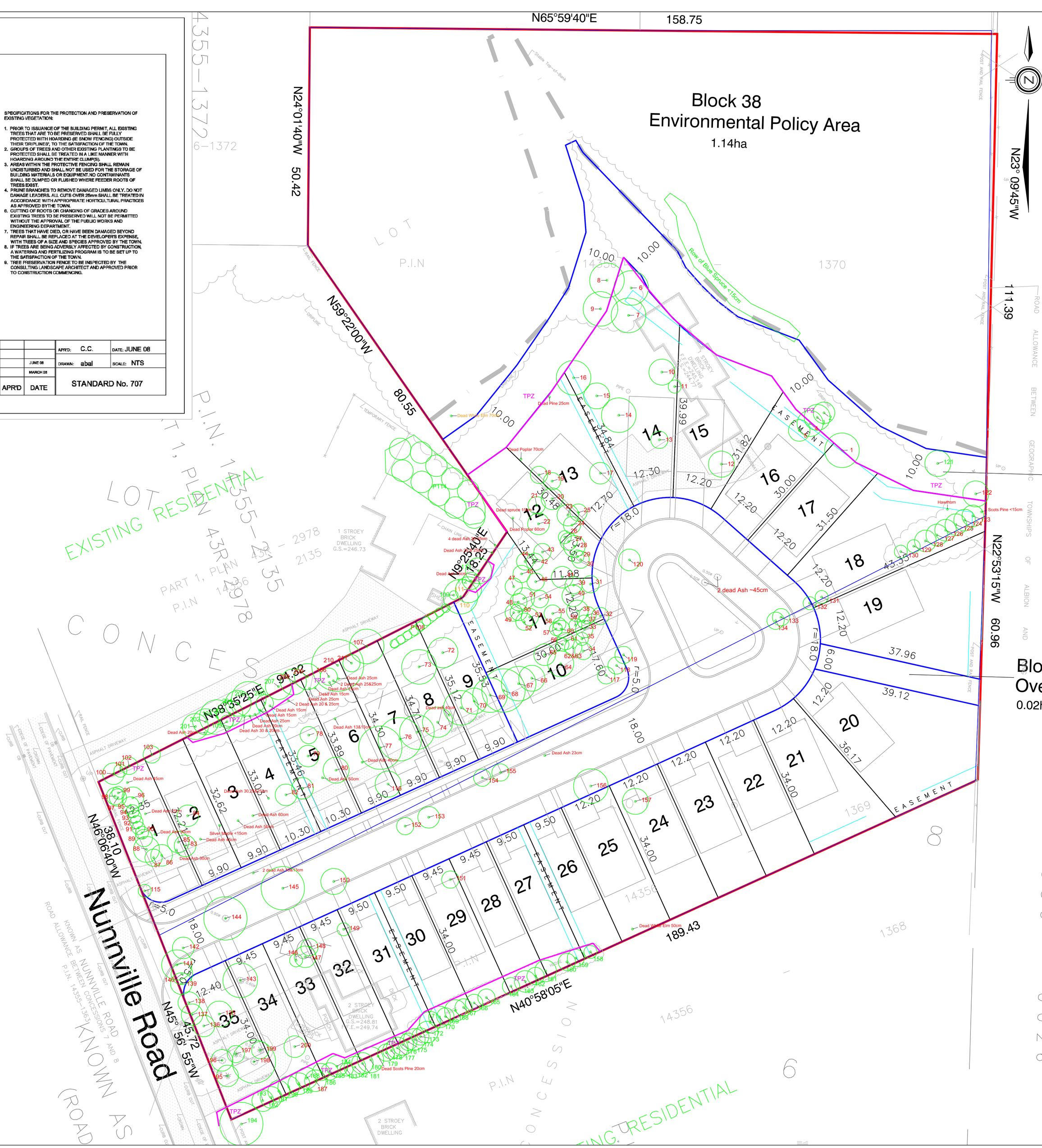
Codes		
DBH	Diameter at Breast	(cm)
TI	Trunk Integrity	(G, F, P)
CS	Crown Structure	(G, F, P)
CV	Crown Vigor	(G, F, P)
CDB	Crown Die Back	(%)
DL	Dripline	(m)
~ = estimate; (L) = light; (M) = moderate; (H) = heavy		



SPECIFICATIONS FOR THE PROTECTION AND PRESERVATION OF EXISTING VEGETATION:

1. PRIOR TO ISSUANCE OF THE BUILDING PERMIT, ALL EXISTING TREES THAT ARE TO BE PRESERVED SHALL BE FULLY PROTECTED WITH HOARDING (E SNOW FENCING) OUTSIDE THEIR 'DRIPLINES', TO THE SATISFACTION OF THE TOWN.
2. GROUPS OF TREES AND OTHER EXISTING PLANTINGS TO BE PROTECTED SHALL BE TREATED IN A LIKE MANNER WITH HOARDING AROUND THE ENTIRE CLUMP(S).
3. AREAS WITHIN THE PROTECTIVE FENCING SHALL REMAIN UNDISTURBED AND SHALL NOT BE USED FOR THE STORAGE OF BUILDING MATERIALS OR EQUIPMENT. NO CONTAMINANTS SHALL BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.
4. PRUNE BRANCHES TO REMOVE DAMAGED LIMBS ONLY. DO NOT DAMAGE LEADERS. ALL CUTS OVER 25mm SHALL BE TREATED IN ACCORDANCE WITH APPROPRIATE HORTICULTURAL PRACTICES AS APPROVED BY THE TOWN.
6. CUTTING OF ROOTS OR CHANGING OF GRADES AROUND EXISTING TREES TO BE PRESERVED WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE PUBLIC WORKS AND ENGINEERING DEPARTMENT.
7. TREES THAT HAVE DIED, OR HAVE BEEN DAMAGED BEYOND REPAIR SHALL BE REPLACED AT THE DEVELOPER'S EXPENSE, WITH TREES OF A SIZE AND SPECIES APPROVED BY THE TOWN.
8. IF TREES ARE BEING ADVERSELY AFFECTED BY CONSTRUCTION, A WATERING AND FERTILIZING PROGRAM IS TO BE SET UP TO THE SATISFACTION OF THE TOWN.
9. TREE PRESERVATION FENCE TO BE INSPECTED BY THE CONSULTING LANDSCAPE ARCHITECT AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.

TOWN OF CALEDON					APP'D: C.C.	DATE: JUNE 08
TREE PRESERVATION	2	STANDARD No. 1136 NOW 707, NOTES EDIT		JUNE 08	DRAWN: abal	SCALE: NTS
	1	NOTE NO. 9 ADDED		MARCH 08	STANDARD No. 707	
	NO.	REVISION	APR'D	DATE		



LEGEND

Tree Inventory

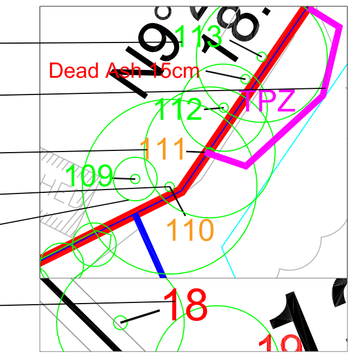
Refer to Table 1 of report dated 7 August 2019. Trees greater than 10cm DBH on and within 6 metres of the subject property, and trees of all sizes within the road right-of-way were included in the inventory.

Tree Removals

The removal of 154 trees is required to accommodate the proposed development as indicated with RED Labels. The removal of additional 2 trees is recommended regardless of the site plan due to poor condition as indicated with ORANGE labels.

Tree Preservation

Preservation of remaining 55 trees will be possible with appropriate tree protection measures. Trees identified for preservation are indicated with GREEN labels. Tree protection measures will have to be implemented prior to the construction phase (earth works). Minimum tree preservation zones and required tree preservation fencing is indicated in MAGENTA. Refer to Tree Protection Plan Notes for preservation details.



TREE PROTECTION PLAN NOTES

Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work. It is the applicants' responsibility to discuss potential tree injury of trees on shared property lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held responsible for removal and such issues would be dealt with in civil court or through negotiation. The applicant would be required to replace such trees to the satisfaction of the Town of Caledon.

TREE PROTECTION ZONE: No construction activity including grade changes, surface treatments or excavations of any kind is permitted within the area identified on the Tree Protection Plan or Site Plan as a Tree Protection Zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. Grade changes are not permitted within established TPZ. The area(s) identified as a TPZ must remain undisturbed at all times.

TREE PROTECTION BARRIERS:

For City-owned Trees:

Tree protection barriers for trees situated on the City road allowance where visibility must be maintained, can be 1.2m (4ft.) high and consist of chain link, or orange plastic web snow fencing on a 2" x 4" wood frame. All supports and bracing used to secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots outside the TPZ. Where some fill or excavate has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the TPZ. If the TPZ needs to be reduced to facilitate construction access, the tree protection barrier must be maintained at a lesser distance and the exposed TPZ protected with plywood and wood chips. This must first be approved by the Town of Caledon.

For trees on private property situated on or adjacent to construction sites:

Tree protection barriers must be installed around trees to be protected using plywood clad hoarding or an equivalent approved by the Town of Caledon. All supports and bracing to safely secure the barrier should be outside the TPZ. All such supports and bracing should minimize damage to roots outside the TPZ.

General Note:

Prior to the commencement of any site activity the tree protection barriers specified on this plan must be installed and written notice provided to the Town of Caledon. Established tree protection zones must not be used as construction access, storage or staging areas. The tree protection barriers must remain in effective condition until all site activities including landscaping are complete. Written notice must be provided to the Town of Caledon prior to the removal of the tree protection barriers.

ARBORICULTURAL WORK:

Any roots or branches which extend beyond the TPZ indicated on this plan which require pruning, must be pruned by a qualified Arborist or other tree professional as approved by the Town of Caledon. All pruning of tree roots and branches must be in accordance with good arboricultural standards. Roots located outside the TPZ that have received approval from the Town of Caledon to be pruned must first be exposed by hand digging or by using a low pressure hydro vac method. This will allow a proper pruning cut and minimize tearing of the roots. The Arborist/tree professional retained to carry out crown or root pruning must contact the Town of Caledon no less than 48 hours prior to conducting any specified work.

No.	Issue/Revisions	Date	By
1	Report Submission	7 Aug. '19	KH

Base Data:R. PE Surveying Ltd. (topo)

KUNTZ FORESTRY CONSULTING Inc.
146 Lakeshore Road West
PO Box 1267 Lakeshore W PO
Oakville ON L6K 0B3
t: 289.837.1871 f: 866.693.6390
e: consult@kuntzforestry.ca
web: www.kuntzforestry.ca

Client
Sam Morra
13247 and 13233 Nunnville Road
Caledon, Ontario L7E 2Z9

Property
13247 and 13233 Nunnville Road
Caledon, Ontario

Existing Conditions, Proposed Site Plan
Tree Inventory and Preservation Plan

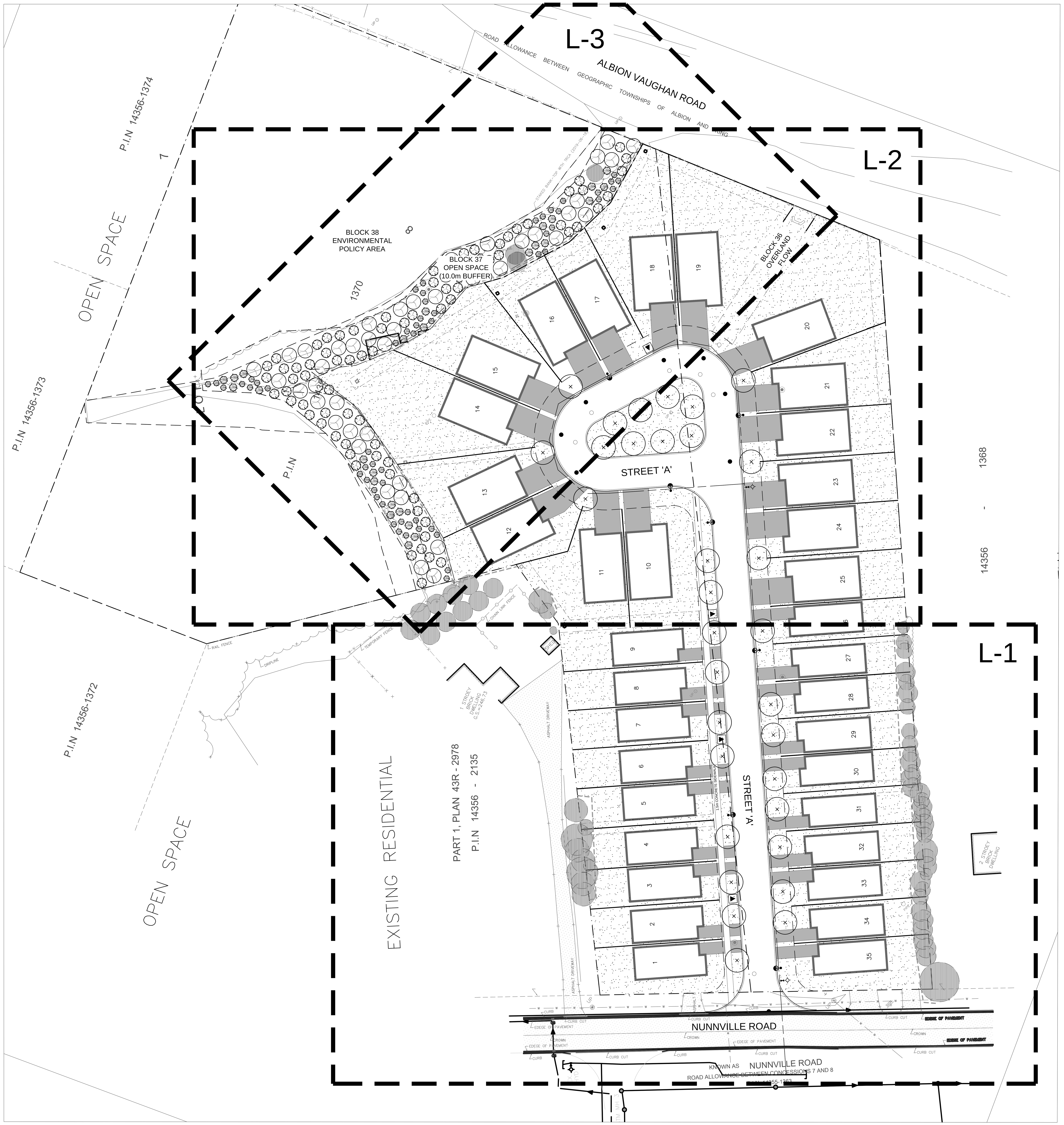
Project	P2100	Figure
Date	7 August 2019	1
Scale	1:600	

Appendix C

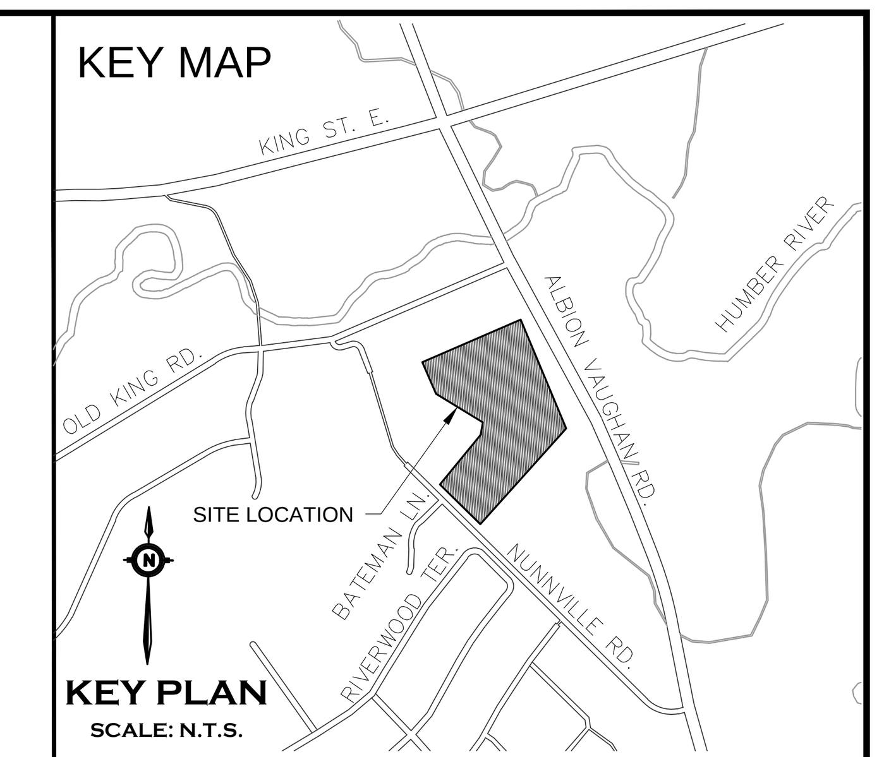
Restoration Plan

LIST OF DRAWINGS:

	COVER SHEET
L-0	LANDSCAPE INDEX SHEET AND LOCATION PLAN
L-1	STREETSCAPE PLAN
L-2	STREETSCAPE PLAN
L-3	RESTORATION PLANTING PLAN FOR 10m BUFFER
LD-1	LANDSCAPE NOTES AND DETAILS
LD-2	LANDSCAPE DETAILS



KEY MAP



LEGEND:

- PROPOSED STREET TREES, REFER TO L-2 AND L-3 FOR PLANTING PLAN AND LD-1 & LD-2 DOE DETAILS
- PROPOSED MIN. 150mm DEPTH TOPSOIL AND SOD
- PROPOSED TRANSFORMER
- PROPOSED STREET LIGHTING
- RESTORATION PLANTING PLAN REFER TO L-3 FOR DETAILS
- EXISTING INVENTORIED TREE TO REMAIN AND PROTECTED
- PROPOSED 2.0m HIGH ACOUSTIC FENCE
- PROPOSED 1.8m HIGH CHAIN LINK FENCE
- TREE PROTECTION HOARDING REFER TO TREE INVENTORY AND PRESERVATION PLAN FOR DETAILS

No.	REVISIONS	BY	DATE	APPR.
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1	ISSUED FOR 1ST SUBMISSION	–	09/AUG/2019	–

ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED

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BOLTON MIDTOWN DEVELOPMENTS INC.

MUNICIPALITY
TOWN OF CALEDON

PROJECT TITLE
13247 & 13233 NUNNVILLE ROAD BOLTON

SHEET TITLE
LANDSCAPE INDEX AND LOCATION PLAN

wsp
100 Commerce Valley Dr. West
Thornhill, Ont. L3T 0A1
Tel (905) 882-1100
Fax (905) 882-0055
www.mmm.ca

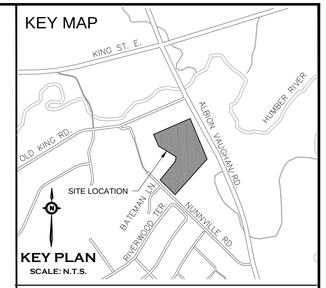
DEC 2018

DESIGNED	DRAWN	CHECKED
PM	PM	LSN

SCALE	DATE
1 : 250	JUNE 24, 2019

PROJECT NUMBER	DWG. NUMBER
19M-00724-00	L-0

KEY MAP



KEY PLAN
SCALE: N.T.S.

LEGEND:

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- PROPOSED MIN. 150mm DEPTH TOPSOIL AND SOD
- As 5 — PLANT IDENTIFICATION KEY
- PROPOSED TRANSFORMER
- PROPOSED STREET LIGHTING
- RESTORATION PLANTING PLAN REFER TO L-3 FOR DETAILS
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NOTE:
- REFER TO LD-1 TO LD-4 FOR NOTES AND DETAILS.
- FOR REMOVAL AND TOP SOIL MANAGEMENT PLAN REFER TO DRAWING 101A ISSUED BY CROZIER & ASSOCIATES CONSULTING ENGINEERS DATED SEPTEMBER 15, 2014.
- FOR EROSION & SEDIMENT CONTROL PLAN STAGE 1 REFER TO DRAWING 101B ISSUED BY CROZIER & ASSOCIATES CONSULTING ENGINEERS DATED SEPTEMBER 15, 2014.
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- CHECK ALL QUANTITIES.
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- THE QUANTITIES INDICATED ON THE PLAN SUPERSEDE THE TOTALS OF THE PLANT LIST.
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  - 2M FROM WATER HYDRANTS.
  - 2M FROM DRIVEWAYS.
  - 2M FROM NEIGHBOURHOOD MAILBOXES.
  - 3M FROM HYDRO TRANSFORMERS.
  - 5M FROM STREETLIGHTS.
  - 15M MIN. FROM STREET LINE (STREET INTERSECTION AS MEASURED FROM BACK OF CURB) AND BEHIND THE DAYLIGHT TRIANGLE AS PER THE GEOMETRIC DESIGN STANDARDS FOR ONTARIO HIGHWAYS.
  - 18M FROM FACE OF ALL WARNING AND REGULATORY SIGNS.
- WHERE THE MINIMUM DISTANCES NOTED ABOVE ARE NOT ACHIEVABLE, TREES MAY BE PLANTED IN AN ALTERNATE LOCATION. 0.5M FROM THE PROPERTY LINE (80CM BEHIND THE SIDEWALK) AND ADJACENT TO ANY FENCES, OR JUST INSIDE THE STREET LINE ON PRIVATE PROPERTY, AS MIGHT BE THE CASE IN A CUL-DE-SAC. IF A TREE IS PLANTED IN AN ALTERNATE LOCATION, THE DISTANCES MARKED WITH AN ASTERISK MUST STILL BE MAINTAINED.

PLANT SCHEDULE - L-1

KEY	QUANT.	BOTANICAL NAME	COMMON NAME	NATIVE	CAL.	HEIGHT	SPREAD	SPACE	COND.
LARGE DECIDUOUS TREES									
Af	4	Acer x freemanii 'Autumn Blaze'	Autumn Blaze Maple	Y	60	-	-	-	BB
Gb	4	Gymnocladus dioicus	Kentucky Coffee Tree	Y	60	-	-	-	BB
Gt	3	Gleditsia triacanthos var. inermis	Thornless Honeylocust	N	60	-	-	-	BB
Qm	5	Quercus macrocarpa	Burr Oak	Y	60	-	-	-	BB

No.	REVISIONS	BY	DATE	APPR.
–	–	–	–	–
–	–	–	–	–
1	ISSUED FOR 1ST SUBMISSION	–	09/AUG/2019	–

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MUNICIPALITY
TOWN OF CALEDON

PROJECT TITLE
13247 & 13233 NUNNVILLE ROAD BOLTON

SHEET TITLE
STREETSCAPE PLAN

wsp
100 Commerce Valley Dr. West
Thornhill, Ont. L3T 0A1
Tel (905) 882-1100
Fax (905) 882-0055
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DESIGNED	DRAWN	CHECKED
??	SI	LSN

SCALE	DATE
1 : 250	JUNE 24, 2019

PROJECT NUMBER	DWG. NUMBER
19M-00724-00	L-1

PLANT SCHEDULE - L-2

KEY	QUANT.	BOTANICAL NAME	COMMON NAME	NATIVE	CAL.	HEIGHT	SPREAD	SPACE	COND.
LARGE DECIDUOUS TREES									
Af	3	Acer x freemanii 'Autumn Blaze'	Autumn Blaze Maple	Y	60	-	-	-	BB
Gb	6	Gymnocladus dioicus	Kentucky Coffee Tree	Y	60	-	-	-	BB
Gt	4	Gleditsia triacanthos var. inermis	Thornless Honeylocust	N	60	-	-	-	BB

MATCH LINE - REFER TO L-2

NOTE:
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- UNDERGROUND SECONDARY SERVICE TO BE LOCATED NEAR OR UNDER DRIVEWAYS. (TYP.)

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  - 2M FROM NEIGHBOURHOOD MAILBOXES.
  - 3M FROM HYDRO TRANSFORMERS.
  - 5M FROM STREETLIGHTS.
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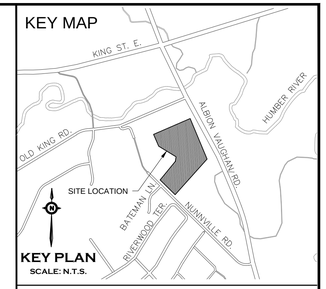
KEY MAP



KEY PLAN
SCALE: N.T.S.

PROPOSED STREET TREES, REFER TO L-2 AND L-3 FOR PLANTING PLAN AND LD-1 & LD-2 DOE DETAILS

PROPOSED MIN. 150mm DEPTH TOPSOIL AND SOD

As 5 — PLANT IDENTIFICATION KEY

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PROPOSED STREET LIGHTING

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PROJECT NUMBER	DWG. NUMBER
19M-00724-00	L-2

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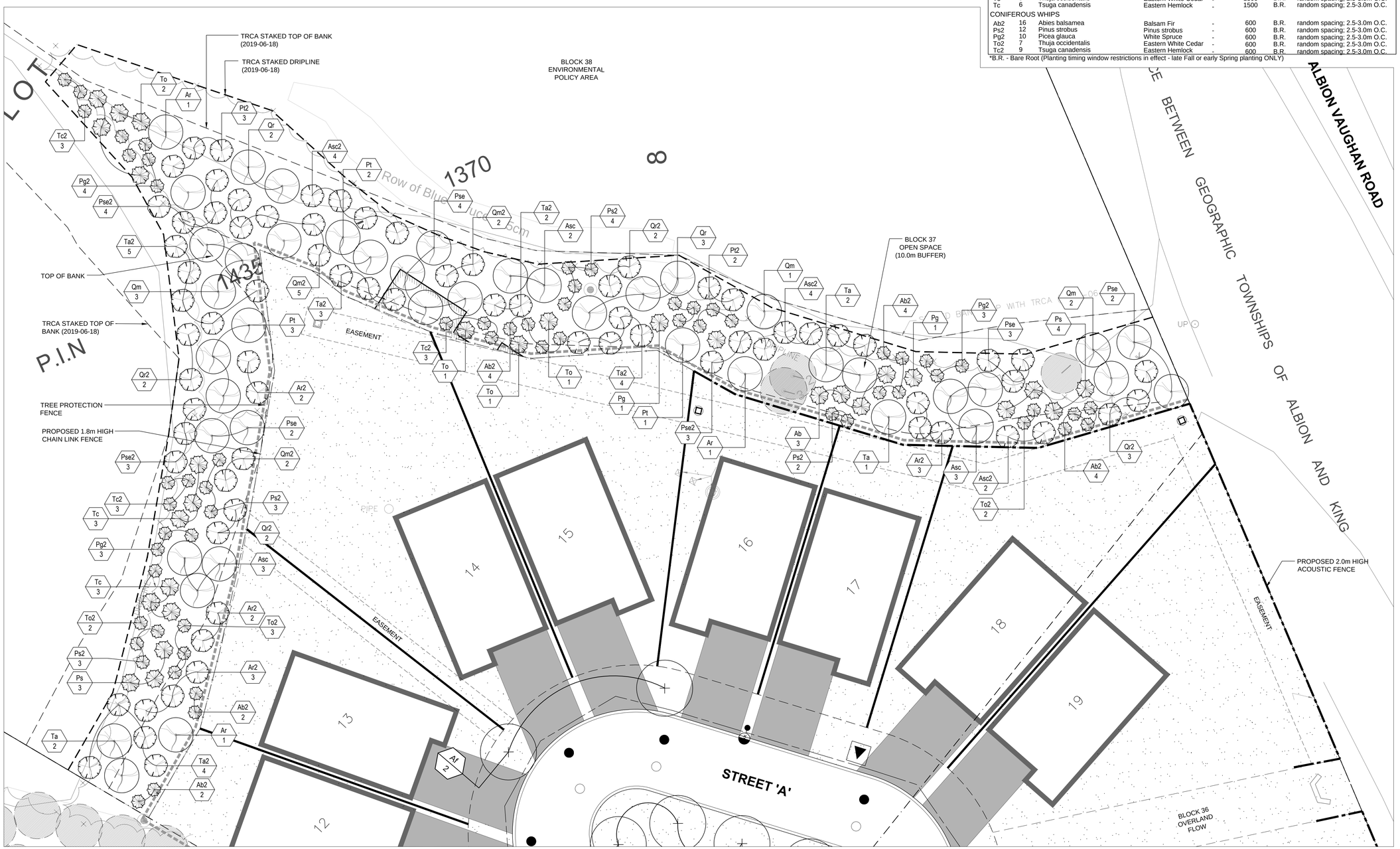
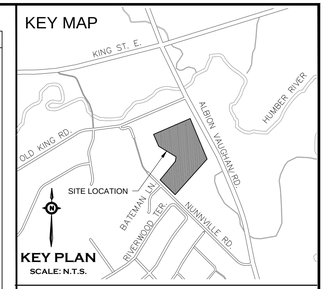
PLANT SCHEDULE - 10m WIDE BUFFER AREA

KEY	QUANT.	BOTANICAL NAME	COMMON NAME	CAL (mm)	HEIGHT	ROOT	REMARKS
DECIDUOUS TREES							
Ar	3	Acer rubrum	Red Maple	40	-	W.R.	Straight trunk, Full crown
Asc	8	Acer sacharinum	Sugar Maple	40	-	W.R.	Straight trunk, Full crown
Pt	6	Populus tremuloides	Trembling Aspen	40	-	W.R.	Straight trunk, Full crown
Qm	6	Quercus macrocarpa	Bur Oak	40	-	W.R.	Straight trunk, Full crown
Qr	5	Quercus rubra	Red Oak	40	-	W.R.	Straight trunk, Full crown
Pse	13	Prunus serotina	Black Cherry	40	-	W.R.	Straight trunk, Full crown
Ta	5	Tillia americana	Basswood	40	-	W.R.	Straight trunk, Full crown
DECIDUOUS WHIPS							
Ar2	10	Acer rubrum	Red Maple	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Asc2	10	Acer sacharinum	Sugar Maple	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Pt2	5	Populus tremuloides	Trembling Aspen	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Qm2	9	Quercus macrocarpa	Bur Oak	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Qr2	9	Quercus rubra	Red Oak	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Pse2	10	Prunus serotina	Black Cherry	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Ta2	18	Tillia americana	Basswood	-	600	B.R.	random spacing; 2.5-3.0m O.C.
CONIFEROUS TREES							
Ab	3	Abies balsamea	Balsam Fir	-	1500	B.R.	random spacing; 2.5-3.0m O.C.
Ps	7	Pinus strobus	Pinus strobus	-	1500	B.R.	random spacing; 2.5-3.0m O.C.
Pg	2	Picea glauca	White Spruce	-	1500	B.R.	random spacing; 2.5-3.0m O.C.
To	5	Thuja occidentalis	Eastern White Cedar	-	1500	B.R.	random spacing; 2.5-3.0m O.C.
Tc	6	Tsuga canadensis	Eastern Hemlock	-	1500	B.R.	random spacing; 2.5-3.0m O.C.
CONIFEROUS WHIPS							
Ab2	16	Abies balsamea	Balsam Fir	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Ps2	12	Pinus strobus	Pinus strobus	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Pg2	10	Picea glauca	White Spruce	-	600	B.R.	random spacing; 2.5-3.0m O.C.
To2	7	Thuja occidentalis	Eastern White Cedar	-	600	B.R.	random spacing; 2.5-3.0m O.C.
Tc2	9	Tsuga canadensis	Eastern Hemlock	-	600	B.R.	random spacing; 2.5-3.0m O.C.

*B.R. - Bare Root (Planting timing window restrictions in effect - late Fall or early Spring planting ONLY)





LEGEND:

- PROPOSED STREET TREES, REFER TO L-2 AND L-3 FOR PLANTING PLAN AND LD-1 & LD-2 DOE DETAILS
- PROPOSED MIN. 150mm DEPTH TOPSOIL AND SOD
- PLANT IDENTIFICATION KEY
- PROPOSED TRANSFORMER
- RESTORATION PLANTING PLAN REFER TO L-3 FOR DETAILS
- EXISTING INVENTORIED TREE TO REMAIN AND PROTECTED
- PROPOSED 2.0m HIGH ACOUSTIC FENCE
- PROPOSED 1.8m HIGH CHAIN LINK FENCE
- TREE PROTECTION HOARDING REFER TO TREE INVENTORY AND PRESERVATION PLAN FOR DETAILS

No.	REVISIONS	BY	DATE	APPR.
–	–	–	–	–
–	–	–	–	–
1	ISSUED FOR 1ST SUBMISSION	–	09/AUG/2019	–

ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED

CLIENT: BOLTON MIDTOWN DEVELOPMENTS INC.

MUNICIPALITY: TOWN OF CALEDON

PROJECT TITLE: 13247 & 13233 NUNNVILLE ROAD BOLTON

SHEET TITLE: RESTORATION PLANTING PLAN FOR 10m BUFFER

wsp
100 Commerce Valley Dr. West
Thornhill, Ont. L3T 0A1
Tel (905) 882-1100
Fax (905) 882-0055
www.mmm.ca

DESIGNED	DRAWN	CHECKED
PM	PM	LSN

SCALE	DATE
1 : 200	JUNE 24, 2019

PROJECT NUMBER	DWG. NUMBER
19M-00724-00	L-3

Appendix D

Plant List

List of Vascular Plants

Scientific Name	Common Name	Provincial Conservation Rank (Srank)	Coefficient Conservation	Coefficient Wetness
Trifolium hybridum	Alsike Clover	SNA		3
Cornus alternifolia	Alternate-leaved Dogwood	S5	6	3
Tilia americana	American Basswood	S5	4	3
Ulmus americana	American Elm	S5	3	-3
Aster sp	Asters	-	-	-
Prunus serotina var. serotina	Black Cherry	S5	3	3
Medicago lupulina	Black Medic	SNA		3
Juglans nigra	Black Walnut	S4?	5	3
Circaea canadensis	Broad-leaved Enchanter's Nightshade	S5	2	3
Anemonastrum canadense	Canada Anemone	S5	3	-3
Solidago canadensis	Canada Goldenrod	S5	1	3
Cichorium intybus	Chicory	SNA		5
Prunus virginiana	Choke Cherry	S5	2	3
Malus pumila	Common Apple	SNA		5
Rhamnus cathartica	Common Buckthorn	SNA		0
Taraxacum officinale	Common Dandelion	SNA		3
Juniperus communis	Common Juniper	S5	4	3
Syringa vulgaris	Common Lilac	SNA		5
Plantago major	Common Plantain	SNA		3
Ambrosia artemisiifolia	Common Ragweed	S5	0	3
Achillea millefolium	Common Yarrow	SNA		3
Viburnum opulus	Cranberry Viburnum	S5	5	-3
Cirsium arvense	Creeping Thistle	SNA		3
Ribes sp	Currants	-	-	-
Hesperis matronalis	Dame's Rocket	SNA		3
Amelanchier arborea	Downy Serviceberry	S5	5	3
Thalictrum dioicum	Early Meadow-rue	S5	6	3
Juniperus virginiana	Eastern Red Cedar	S5	4	3
Agrimonia eupatoria	European Agrimony	SNA		
Vincetoxicum rossicum	European Swallow-wort	SNA		5
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA		3
Aegopodium podagraria	Goutweed	SNA		0
Fraxinus pennsylvanica	Green Ash	S4	3	-3
Crategus sp	Hawthorns	-	-	-
Acer negundo	Manitoba Maple	S5	0	0
Pilosella caespitosa	Meadow Hawkweed	SNA		5
Ribes rubrum	Northern Red Currant	SNA		5

Acer platanoides	Norway Maple	SNA		5
Dactylis glomerata	Orchard Grass	SNA		3
Matteuccia struthiopteris	Ostrich Fern	S5	5	0
Leucanthemum vulgare	Oxeye Daisy	SNA		5
Erigeron philadelphicus	Philadelphia Fleabane	S5	1	-3
Toxicodendron radicans	Poison Ivy	S5	2	0
Lactuca serriola	Prickly Lettuce	SNA		3
Actaea rubra	Red Baneberry	S5	6	3
Pinus resinosa	Red Pine	S5	8	3
Cornus sericea	Red-osier Dogwood	S5	2	-3
Vitis riparia	Riverbank Grape	S5	0	0
Pinus sylvestris	Scots Pine	SNA		3
Dryopteris carthusiana	Spinulose Wood Fern	S5	5	-3
Rhus typhina	Staghorn Sumac	S5	1	3
Acer saccharum	Sugar Maple	S5	4	3
Anemone virginiana	Tall Anemone	S5	4	3
Ranunculus acris	Tall Buttercup	SNA		0
Lonicera tatarica	Tatarian Honeysuckle	SNA		3
Parthenocissus vitacea	Thicket Creeper	S5	4	3
Vicia cracca	Tufted Vetch	SNA		5
Hydrophyllum virginianum	Virginia Waterleaf	S5	6	0
Viburnum lantana	Wayfaring-tree	SNA		5
Geum canadense	White Avens	S5	3	0
Trifolium repens	White Clover	SNA		3
Picea glauca	White Spruce	S5	6	3
Aralia nudicaulis	Wild Sarsaparilla	S5	4	3
Geum urbanum	Wood Avens	SNA		5
Fragaria vesca	Woodland Strawberry	S5	4	3