



**JACKSON
ARBORICULTURE
INC.**

CONSULTING AND GIS ANALYSIS

118 Pleasant Ridge Road, Brantford ON, N3R 0B8

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Tree Inventory and Preservation Plan Report

Subject Property:

187 Queen Street
Niagara-on-the-Lake, ON

Prepared For:

Rainer Hummel
187 Queen Street
Niagara-on-the-Lake, ON L0S 1J0

Prepared By:

Jackson Arboriculture Inc.
118 Pleasant Ridge Road
Brantford, ON N3R 0B8

25 January 2024

Jackson Arboriculture Inc. Project No. 429

1.0 Introduction

Jackson Arboriculture Inc. was retained by Rainer Hummel to complete a Tree Inventory and Preservation Plan report for a property situated at 187 Queen Street in the Town of Niagara-on-the-Lake, Ontario, hereby referred to as the subject property. It is understood that a development application will be filed with the Town for the construction of a residential development.

This study has been completed in accordance with the Town of Niagara-on-the-Lake's private tree by-law No. 5139-19. The by-law regulates the removal of trees 12.5 cm in diameter and larger.

2.0 Methodology

At the onset of the project the scope of work was coordinated with the client and the consulting team. Prior to conducting a site visit, the topographic survey of the subject property and current aerial photography were overlaid utilizing geographic information software for use on site during the completion of the tree inventory. The tree locations, the topographic survey and the site plan were then overlaid and a tree preservation analysis was completed to determine the impacts to each tree included in the inventory.

2.1 Tree Inventory

A site visit was conducted on the 12th of September 2023 to complete the tree inventory. All trees 12.5 cm in diameter and larger situated on subject property, on neighbouring property within 6 m and within the road allowance were included in the tree inventory. A visual assessment was completed on each tree included in the inventory and the following information is provided in the tree inventory table (Table 1):

- **Tree #:** A number assigned to each tree corresponding to the tree inventory and the Tree Preservation Plan (Sheet 1).
- **Species:** Common and scientific (Latin) species names.
- **DBH:** The trunk diameter at breast height, measured in centimeters at 1.4 m from the ground.
- **Condition:** The health of the tree considering the trunk integrity, the crown structure and the crown vigour; each rated as poor, fair or good. The condition ratings are based on the signs, symptoms and defects exhibited by each tree, considering the conditions in which it is growing.
- **Dripline:** The distance in meters from the stem to the tips of the live branches.
- **Location:** The property where the tree is situated.
- **Comments:** Any additional notes relevant to the tree's health or growing conditions.
- **Recommendation:** The recommended removal or preservation of each tree based on the impact assessment.

The trees included in the inventory are identified with numbers 1-60 and were located using the topographic survey provided and a tablet computer with a GPS receiver.

2.2 Impact Assessment

A tree preservation analysis was completed on each tree included in the inventory considering the impacts from the proposed development and many other factors including, but not limited to, tree condition, species, DBH and the existing site conditions. The impacts from the proposed development will occur where tree roots conflict with construction machinery during pre-grading and construction.

During the tree preservation analysis the dripline was utilized to determine the impacts to the trees included in the tree inventory. Where considerable encroachment is required within the dripline tree removal may be required.

3.0 Existing Conditions

The subject property is currently occupied by a single family residential dwelling, a detached garage and amenity areas. The property is bound by residential development to the north and east, Queen Street to the south and Simcoe Street to the west.

4.0 Tree Inventory Results

The results of the tree inventory indicate that a total of 60 trees reside on subject property, on neighbouring property within 6 m and in the road allowances. The trees included in the inventory appear to be comprised of landscape plantings and some naturally occurring trees.

No rare, threatened or endangered tree species were documented in the tree inventory. Refer to Table 1 for the complete tree inventory and Sheet 1 for the tree locations.

5.0 Proposed Development

The proposed development includes severing the property into three residential lots with the construction of two single family residential dwellings on two of the lots. The existing residential dwelling is proposed to be retained within the site planning on the third lot. The detached garage situated towards the rear of the property will be demolished. Access to the two proposed dwellings is proposed from Simcoe Street and access to the existing dwelling is proposed from Queen Street via a new driveway. A new garage is proposed to be constructed adjacent to the existing dwelling and proposed driveway.

6.0 Discussion

The following sections outline the tree removal requirements, tree preservation opportunities and tree protection recommendations.

6.1 Tree Removal

The removal of the following trees will be required to accommodate the proposed development:

- 1-5, 13-19, 24, 27-29, 43, 45-50 and 57.

Trees 57 appears to reside within the municipal road allowance. Permission from the appropriate Town department will be required prior to their removal.

6.2 Tree Preservation

The preservation of the following trees will be possible with the use of appropriate tree protection measures:

- 6-12, 20-23, 25, 26, 30-42, 44, 51-56 and 58-60.

Tree protection measures must be implemented prior to the commencement of demolition/construction to ensure that the trees identified for preservation are not damaged by the proposed development activities.

Encroachment within the driplines of Trees 26, 29, 51, 52, 56 and 58 will be required to accommodate the proposed development. If any roots are exposed during construction they must be pruned by a Certified Arborist in accordance with good arboricultural practice to ensure that the trees are not damaged by the proposed construction activities.

The International Society of Arboriculture's (ISA) Best Management Practices for Root Management indicate that pruning roots at a distance of six (6) times the diameter of the trunk or greater minimizes the probability affecting both tree health and stability. The distance of six times the diameter of the trunk has been outlined on Sheet 1 as the minimum tree preservation zone (mTPZ) distance. The mTPZ distance is a standard distance that is used to establish the location of tree protection fence in many municipalities within Southern Ontario and is endorsed by the ISA. As outlined on Sheet 1, the encroachment required within the dripline of Trees 26, 29, 51, 52, 56 and 58 does not extend within the mTPZ distance. Considering that there is no encroachment within the mTPZ distance, that root pruning will occur in accordance with the ISA's Best Management Practices and also in accordance with good arboricultural practice, there is no possibility that the health or stability of Trees 26, 29, 51, 52, 56 and 58 will be adversely affect by the proposed development.

The existing driveway within the mTPZ of Tree 51 must be removed and replaced with native topsoil. This will increase the available rooting area of Tree 51 in the future. It is anticipated that no tree roots will reside below the existing driveway and as such, there will be no impacts to Tree 51 by the removal of the driveway.

Tree protection fence must be installed at the driplines of the trees identified for preservation unless noted otherwise in this report and on Sheet 1. Refer to Sheet 1 for the prescribed tree

protection fence locations, the tree protection fence detail and additional tree protection plan notes.

6.3 Tree Protection Recommendations

The following recommendations are made in attempts to reduce the impacts to the trees identified for preservation:

- Tree protection fence must be installed at the dripline for trees identified for preservation prior to the commencement of demolition/construction unless noted otherwise in this report and on Sheet 1.
- Once tree protection fence has been installed it must not be moved, relocated or altered in any way (unless repairing fallen fence etc.) for the duration of the construction period.
- No intrusion into an area identified on Sheet 1 as a tree preservation zone (TPZ) is allowed at anytime during construction.
- No storage of machinery, construction debris, materials, waste or any other items is allowed within a TPZ.
- Any tree branches or roots that conflict with proposed development must be pruned by a Certified Arborist in accordance with good arboricultural practice.
- Tree protection fencing should be inspected by a Certified Arborist prior to and during construction to ensure that the fencing remains intact and in good repair throughout the stages of development.

7.0 Summary

Jackson Arboriculture Inc. was retained by Rainer Hummel to complete a Tree Inventory and Preservation Plan report for a property situated at 187 Queen Street in the Town of Niagara-on-the-Lake, Ontario. A tree inventory was conducted and an impact assessment was completed in the context of the proposed development plan.

The tree inventory documented a total of 60 trees situated on subject property, on neighbouring property within 6 m and within the road allowance. The results of the impact assessment indicate that the removal of 24 trees will be required to accommodate the proposed development. Of the 24 trees identified for removal, 22 are regulated by the private tree by-law (No. 5139-19).

Respectfully submitted,
Jackson Arboriculture Inc.

Jeremy Jackson

Jeremy Jackson, H.B.Sc.,
ISA Certified Arborist #ON-1089A
GIS Analyst

Limitations of Assessment

It is our policy to attach the following limitations of assessment to ensure that the client, municipalities and agencies are fully aware of what is technically and professionally realistic when visually assessing and retaining trees.

The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These include a visual examination of the above ground parts of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of attack by insects, discoloured foliage, the condition of any visible root structures, the degree and direction of any lean, the general condition of the trees and the surrounding site, and the proximity of property and people.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour constantly change. They are not immune to changes in site conditions, or seasonal variations in the weather conditions, including severe storms with high-speed winds.

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy no guarantees are offered, or implied, that these trees, or any parts of them, will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree or group of trees or their component parts in all circumstances. Inevitably a standing tree will always pose some risk. Most trees have the potential for failure under adverse weather conditions, and the risk can only be eliminated if the tree is removed.

Although every effort has been made to ensure that this assessment is reasonably accurate, trees should be re-assessed periodically. The assessment presented in this report is valid as the time of the inspection.

Table 1. Tree Inventory


Location: 187 Queen St. NOL

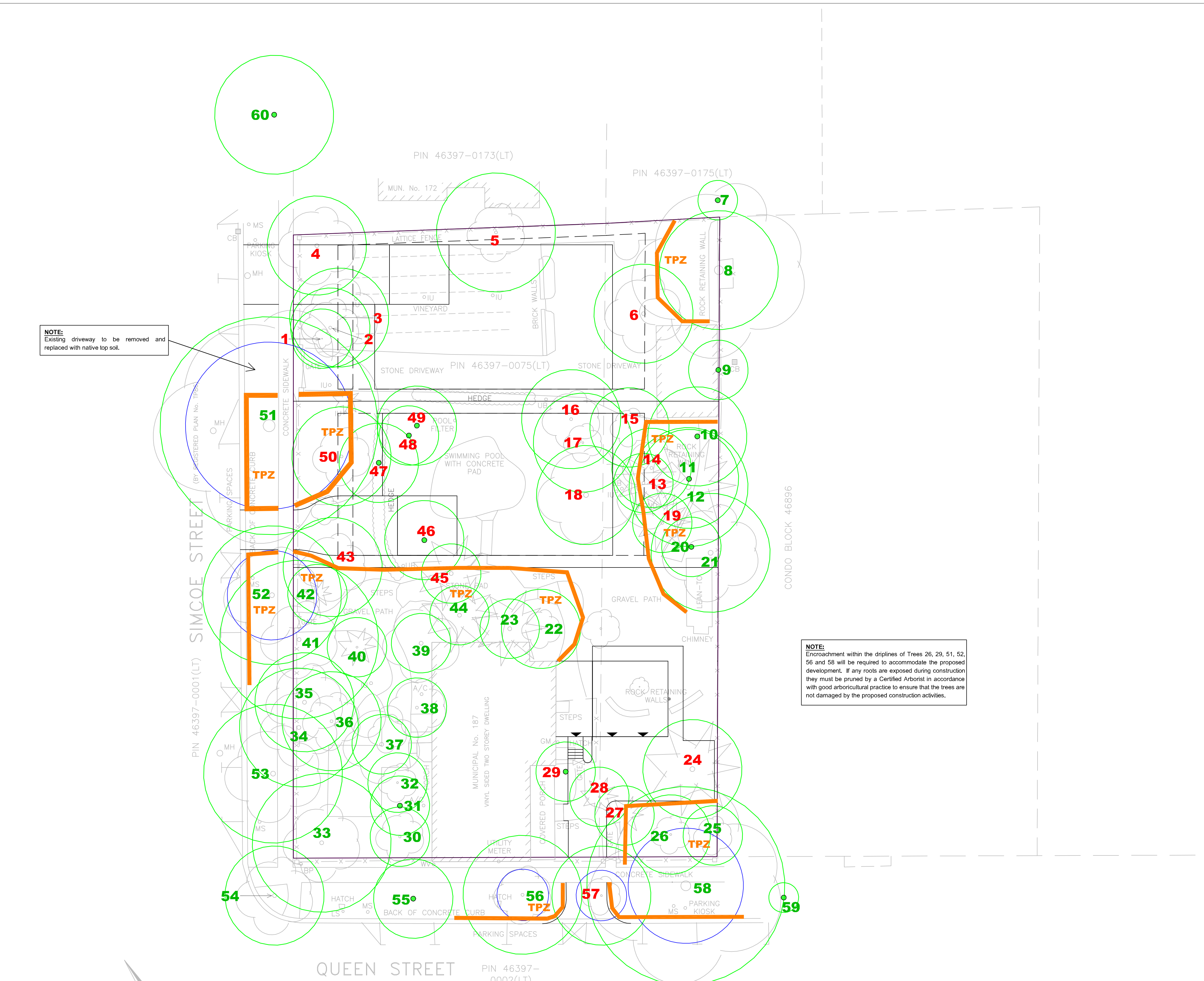
Date: 22 Sep. 2023 Surveyors: JJJ

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	DL	Location	Comments	Recom.
1	Corkscrew Willow	<i>Salix babylonica</i> var. <i>tortuosa</i>	14	G	G	G	3	Subject Property		Remove
2	Corkscrew Willow	<i>Salix babylonica</i> var. <i>tortuosa</i>	21, 21	F	FG	G	4	Subject Property	Union at ground, light seam	Remove
3	Corkscrew Willow	<i>Salix babylonica</i> var. <i>tortuosa</i>	20, 22	F	FG	G	5	Subject Property	Union at ground, stem wound with wood dust at ground	Remove
4	Norway Maple	<i>Acer platanoides</i>	43	F	G	G	5	Subject Property	Union at 2 m, seam	Remove
5	Norway Maple	<i>Acer platanoides</i>	33	G	G	G	6	Subject Property		Remove
6	White Mulberry	<i>Morus alba</i>	44	F	FG	G	5	Subject Property	Union at 1 m, bacterial wetwood	Preserve
7	Copper beech	<i>Fagus sylvatica</i>	~15	G	G	G	2	Neighbouring	Growing in garden with retaining wall	Preserve
8	Tree-of-heaven	<i>Ailanthus altissima</i>	47, 53	F	F	FG	6	Boundary	Union at 0.3 m with included bark, 47 cm stem dead and failed at 5 m	Preserve
9	Tree-of-heaven	<i>Ailanthus altissima</i>	~14	G	G	G	3	Boundary		Preserve
10	Green Ash	<i>Fraxinus pennsylvanica</i>	31	G	G	G	5	Subject Property		Preserve
11	White Mulberry	<i>Morus alba</i>	19	G	G	G	5	Subject Property	Bowed east, understorey	Preserve
12	Norway Spruce	<i>Picea abies</i>	51	G	G	G	6	Subject Property		Preserve
13	Yew species	<i>Taxus spp.</i>	10, 12, 8, 8	G	G	G	3	Subject Property	Union at ground	Remove
14	Plumb species	<i>Prunus spp.</i>	30	G	G	G	4	Subject Property	Gumosis, epicormic branching	Remove
15	Apple species	<i>Malus spp.</i>	14, 21	FG	G	G	4	Subject Property	Union at ground	Remove
16	Sycamore maple	<i>Acer pseudoplatanus</i>	27	G	FG	G	5	Subject Property	Union at 2.5 m	Remove
17	Hybrid Butternut	<i>Juglans X.</i>	19	G	G	G	5	Subject Property	Large green leaves	Remove
18	Saucer Magnolia	<i>Magnolia x soulangeana</i>	20, 20, 18, 24	G	G	G	5	Subject Property		Remove
19	Yew species	<i>Taxus spp.</i>	19	G	G	G	3	Subject Property		Remove
20	White Spruce	<i>Picea glauca</i>	16	G	FG	FG	3	Subject Property	Understorey	Preserve
21	Manitoba Maple	<i>Acer negundo</i>	58	G	G	G	6	Subject Property		Preserve
22	Black Gum	<i>Nyssa sylvatica</i>	16	G	G	G	4	Subject Property		Preserve
23	Japanese Red Cedar	<i>Cryptomeria japonica</i>	34	G	G	G	3	Subject Property		Preserve
24	Red Pine	<i>Pinus resinosa</i>	52	G	G	G	5	Subject Property		Remove
25	Redbud	<i>Cercis canadensis</i>	21	FG	G	G	3	Subject Property	Heavy lean	Preserve
26	Redbud	<i>Cercis canadensis</i>	30	FG	G	G	4	Subject Property	Union at 1.8 m, burls	Preserve
27	Yew species	<i>Taxus spp.</i>	24	G	G	G	3	Subject Property		Remove
28	Yew species	<i>Taxus spp.</i>	21	G	G	G	3	Subject Property		Remove

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	DL	Location	Comments	Recom.
29	Black Gum	<i>Nyssa sylvatica</i>	16	G	G	G	3	Subject Property		Remove
30	Flowering Lilac Tree	<i>Syringa reticulata</i>	15, 16	FG	G	G	3	Subject Property	Union at 0.3 m	Preserve
31	Black Gum	<i>Nyssa sylvatica</i>	16	G	G	G	3	Subject Property		Preserve
32	Euonymus species	<i>Euonymus spp.</i>	11, 9, 8	F	G	G	3	Subject Property	Union at 0.9 m with wood dust, understory	Preserve
33	White Mulberry	<i>Morus alba</i>	50	FG	G	G	7	Subject Property	Union at 1.8 m, bacterial wetwood in crown	Preserve
34	White Pine	<i>Pinus strobus</i>	55	G	F	F	6	Subject Property	20% crown dieback	Preserve
35	White Pine	<i>Pinus strobus</i>	46	G	G	G	5	Subject Property		Preserve
36	Norway Maple	<i>Acer platanoides</i>	26	G	G	G	5	Subject Property		Preserve
37	Redbud	<i>Cercis canadensis</i>	16, 11	G	G	G	3	Subject Property	Union at ground	Preserve
38	Golden Chain Tree	<i>Laburnum spp.</i>	15, 18	PF	FG	G	3	Subject Property	Union at 0.3 m with separating stems, 3 lobed leaf	Preserve
39	Eastern Hemlock	<i>Tsuga canadensis</i>	18, 24	F	F	F	3	Subject Property	Union at ground with fused stems, included vine, 20% crown dieback, very short needles	Preserve
40	Blue Spruce	<i>Picea pungens</i>	19	G	G	G	3	Subject Property		Preserve
41	Sugar Maple	<i>Acer saccharum</i>	61	G	F	F	8	Subject Property	20% crown dieback	Preserve
42	Yew species	<i>Taxus spp.</i>	19	G	G	G	3	Subject Property		Preserve
43	Dawn Redwood	<i>Metasequoia glyptostroboides</i>	42	G	G	G	5	Subject Property		Remove
44	Yew species	<i>Taxus spp.</i>	18	G	G	G	3	Subject Property		Preserve
45	Yew species	<i>Taxus spp.</i>	21	G	G	G	3	Subject Property		Remove
46	Eastern Hemlock	<i>Tsuga canadensis</i>	27	G	F	F	4	Subject Property	20% crown dieback	Remove
47	Yew species	<i>Taxus spp.</i>	22	G	G	G	4	Subject Property		Remove
48	Sycamore maple	<i>Acer pseudoplatanus</i>	21	FG	G	G	3	Subject Property	Union at 2 m	Remove
49	Yew species	<i>Taxus spp.</i>	14	G	G	G	4	Subject Property		Remove
50	Copper beech	<i>Fagus sylvatica</i>	27	G	G	G	5	Subject Property		Remove
51	American Sycamore	<i>Platanus occidentalis</i>	126	G	G	G	11	ROW	Swollen flare starting to grow over sidewalk	Preserve
52	Silver Maple	<i>Acer saccharinum</i>	61	G	FG	FG	7	ROW	10% crown dieback	Preserve
53	Sugar Maple	<i>Acer saccharum</i>	70	G	F	F	7	ROW	Topped in crown, 10% crown dieback	Preserve
54	Norway Maple	<i>Acer platanoides</i>	52	G	G	G	5	ROW	Union at base of crown, exposed roots	Preserve
55	Sycamore maple	<i>Acer pseudoplatanus</i>	50	G	F	FG	4	ROW	Topped in crown	Preserve
56	Red Oak	<i>Quercus rubra</i>	39	G	G	G	6	ROW		Preserve
57	Sugar Maple	<i>Acer saccharum</i>	24	G	G	G	5	ROW		Remove
58	London Planetree	<i>Platanus x acerifolia</i>	82	G	G	G	10	ROW		Preserve
59	Tulip Tree	<i>Liriodendron tulipifera</i>	7	G	G	G	1.5	ROW		Preserve
60	Norway Maple	<i>Acer platanoides</i>	~40	G	G	G	6	ROW		Preserve

Table Legend

DBH	Diameter at Breast Height (cm)
TI	Trunk Integrity (G, F, P)
CS	Crown Structure (G, F, P)
CV	Crown Vigor (G, F, P)
DL	Dripline (m)
Recom.	Recommendation (preserve/remove)
G	Good
F	Fair
P	Poor
~	Estimate
	Weed species (as per by-law No. 5139-19)



NOTE:
Existing driveway to be removed and replaced with native top soil.

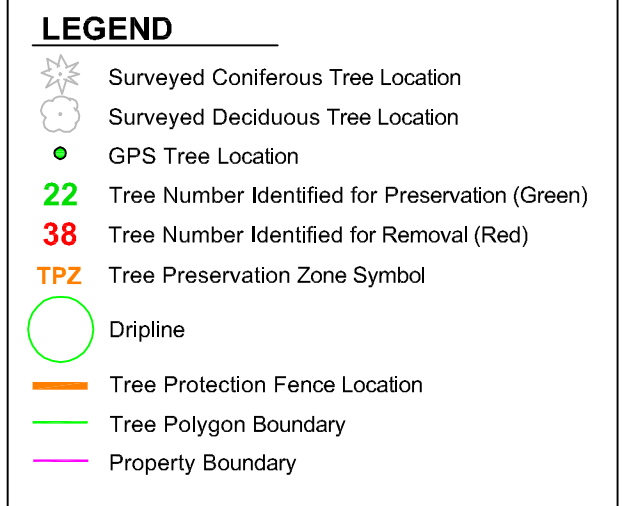
NOTE:
Encroachment within the dielines of Trees 26, 29, 51, 52, 56 and 58 will be required to accommodate the proposed development. If any roots are exposed during construction they must be pruned by a Certified Arborist in accordance with good arboricultural practice to ensure that the trees are not damaged by the proposed construction activities.

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4	Norway Maple	Acer platanoides	43	F	G	G	5	Subject Property	Union at 2 m seam	Remove
5	Norway Maple	Acer platanoides	33	G	G	G	6	Subject Property		Remove
6	White Mulberry	Morus alba	44	F	FG	G	5	Subject Property	Union at 1 m, bacterial wetwood	Preserve
7	Copper beech	Fagus sylvatica	~15	G	G	G	2	Neighbouring	Growing in garden with retaining wall	Preserve
8	Tree-of-heaven	Ailanthus altissima	47, 53	F	F	FG	6	Boundary	Union at 0.3 m with included bark, 47 cm stem dead and felled at 5 m	Preserve
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11	White Mulberry	Morus alba	19	G	G	G	5	Subject Property	Bowed east, understorey	Preserve
12	Norway Spruce	Picea abies	51	G	G	G	6	Subject Property		Preserve
13	Yew species	Taxus spp.	10, 12, 8, 8	G	G	G	3	Subject Property	Union at ground	Remove
14	Pump species	Prunus spp.	30	G	G	G	4	Subject Property	Gummosis, epicormic branching	Remove
15	Apple species	Malus spp.	14, 21	FG	G	G	4	Subject Property	Union at ground	Remove
16	Sycamore maple	Acer pseudoplatanus	27	G	FG	G	5	Subject Property	Union at 2.5 m	Remove
17	Hybrid Bittersweet	Juglans X	19	G	G	G	5	Subject Property	Large green leaves	Remove
18	Saucer Magnolia	Magnolia x soulangeana	20, 20, 16, 24	G	G	G	5	Subject Property		Remove
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32	Eunymus species	Eunymus spp.	11, 9, 8	F	G	G	3	Subject Property	Union at 0.9 m with wood dust, understorey	Preserve
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58	London Planetree	Platanus acerifolia	82	G	G	G	10	ROW		Preserve
59	Tulip Tree	Liriodendron tulipifera	7	G	G	G	1.5	ROW		Preserve
60	Norway Maple	Acer platanoides	~40	G	G	G	6	ROW		Preserve

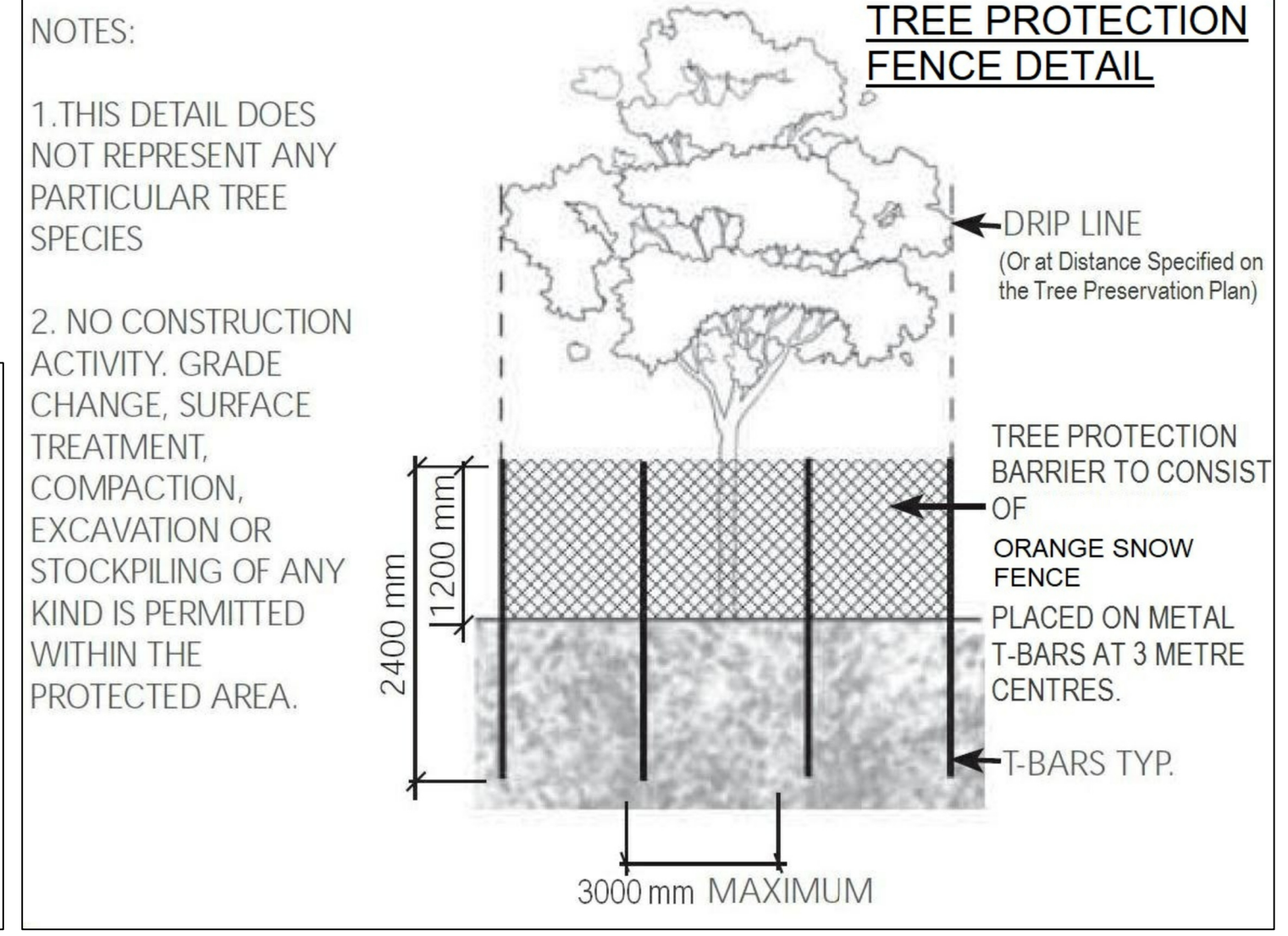
Table Legend

DBH Diameter at Breast Height (cm)
 TI Trunk Integrity (G, F, P)
 CS Crown Structure (G, F, P)
 CV Crown Vigor (G, F, P)
 DL Dripline (m)
 Recom Recommendation (preserve/remove)
 G Good
 F Fair
 P Poor
 ~ Estimate
 Weed species (as per by-law No. 5130-19)



Tree Protection Recommendations
 The following recommendations are made in attempts to reduce the impacts to trees identified for preservation:

- Tree protection fence must be installed at the dieline for trees identified for preservation prior to the commencement of demolition/construction, unless noted otherwise on this drawing.
- Once tree protection fence has been installed it must not be moved, relocated or altered in any way (unless repairing fallen fence etc.) for the duration of the construction period.
- No intrusion into an area identified on this drawing as a tree preservation zone (TPZ) is allowed at any time during construction.
- No storage of machinery, construction debris, materials, waste or any other items is allowed within a TPZ.
- Any tree branches or roots that conflict with proposed development must be pruned by a Certified Arborist in accordance with good arboricultural practice.
- Tree protection fencing should be inspected by a Certified Arborist prior to and during construction to ensure that the fencing remains intact and in good repair throughout the stages of development.



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 applicant's 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.

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: Tree protection barriers must be installed around trees to be protected using orange snow fencing. 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. 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. Permission from the City/Town must be provided prior to the removal of tree protection fences.

ARBORICULTURAL WORK: Any roots or branches which extend beyond the TPZ indicated on this plan which require pruning, must be pruned by a Certified Arborist. 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 City/Town to be pruned must first be exposed by hand digging or by using an air spade. This will allow a proper pruning cut and minimize tearing of the roots.

No.	Description	Date	By
1	Issued for Submission	26 Jan. 2024	JJ

Date Source: The Landscape Group, Upper Canada Consultants

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Tree Preservation Plan

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Project # P429 Sheet # 1

Date 25 January 2024

Scale 1:200 @24x36