Tree Inventory and Preservation Plan Report
1600 Kerns Road
Burlington, ON

Prepared For:

Fieldgate Homes
15 Bandera Drive
Brampton, ON L6Y 0H8

Prepared By:

JACKSON
ARBORICULTURE
INC.

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24 March 2021

Project No. 207

Introduction

Jackson Arboriculture Inc. was retained by Fieldgate Homes to complete a Tree Inventory and Preservation Plan for a property located at 1600 Kerns Road, in the City of Burlington, Ontario. The subject property is currently occupied by a strip mall. The development proposal includes the construction of a four storey retirement home.

The purpose of this study is to document the tree resources on and abutting the subject property, and to undertake a tree preservation analysis following the guidelines within the City of Burlington's Tree Protection and Preservation Specifications (Spec No. SS12A).

Methodology

The work plan for this study included the following:

- Preparation of field mapping;
- Field reconnaissance to collect tree inventory information for trees situated on the subject property, within road allowances, as well as neighboring trees with the potential to be impacted by the proposed development;
- Evaluation of potential tree saving opportunities based on the proposed re-development plan; and,
- Documentation of findings in a Tree Inventory and Preservation Plan report following the requirements of the City of Burlington.

Tree Inventory

The tree inventory was completed on the 21st of May 2020. All trees included in the inventory were visually assessed based on the following parameters:

Tree # - numbers assigned to trees that correspond to the tree locations on Figure 1 and the tree inventory.
Species – common and botanical names provided in the inventory table (Table 1).
DBH – diameter at breast height (cm), measured at 1.4 m above the ground.
Condition – condition of tree considering trunk integrity, crown structure and crown vigor. Condition ratings include poor (P), fair (F), and good (G).
Dieback – the percentage of dead branches in the crown.
mTPZ – minimum tree preservation zone in meters as measured from the trunk of the tree.
Comments – additional relevant detail.

All trees 10 cm in diameter and larger situated on the subject property, trees situated on neighbouring property within 5 m of the property limits, and all trees situated within the road allowances were included in the inventory. The trees included in the inventory were identified with numbers 1-42. The tree inventory was conducted and reviewed in the context of the proposed site plan and the City of Burlington's Tree Protection and Preservation Specifications.

Existing Conditions

The subject site is located at 1600 Kerns Road and is occupied by a commercial strip mall. A woodland dripline and top of bank travers the western portion of the site in a north to south direction. The site is bound by Four Seasons Road to the north, Kerns Road to the east, residential development to the south and woodland to the west.

A total of 42 trees situated on the subject property, on the neighbouring property and within the road allowances were included in the inventory. The trees included in the tree inventory are those situated on the tableland portion of the site beyond the staked dripline.

Trees included in the inventory were comprised of Austrian Pine (*Pinus nigra*), Norway Maple (*Acer platanoides*), Honey Locust cultivar (*Gleditsia triacanthose var. 'inermis'*), Fir species (*Abies sp.*), Little-leaf Linden (*Tilia cordata*), Copper Beech (*Fagus sylvatica*), Norway Spruce (*Picea abies*), Eastern Red Cedar (*Juniperus virginiana*) and Scots Pine (*Pinus sylvestris*). Refer to Table 1 for the complete tree inventory, Figure 1 for the tree locations and Appendix A for some site photos.

Proposed Development

The proposed development is comprised of a four storey retirement home with below ground parking. None of the proposed development structures are situated within the 7.5 m stable top of slope setback, however, some disturbance will be required within the setback area to remove existing development and to accommodate some minor grading associated with the proposed development.

Discussion and Analysis

A preservation planning analysis was completed on each tree individually 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 City of Burlington's Tree Protection and Preservation Specifications (Spec No. SS12A) was utilized as a guiding document during the preservation planning analysis. The document outlines a minimum Tree Preservation Zone (mTPZ) distance based on the DBH. The mTPZ represents the minimum distance at which development may occur without adversely damaging the tree. The mTPZ distance is measured from the base of the tree trunk in meters. Tree protection fence must be installed at the mTPZ distance or further from the base of the tree unless outlined otherwise below.

Refer to the tree inventory in Table 2 for the mTPZ distance based on trunk diameter.

Tree Removal

Removal of Trees 1-7, 17, 19-24, 27-29, 35-39 and 41 will be required to accommodate the proposed development.
Tree 17 is situated within the City road allowance and permission from the City is required prior to its removal.

A restoration plan has been prepared as part of the Environmental Impacts Assessment outlining tree and shrub plantings within the top-of-bank and woodland buffers. Trees identified for removal within the buffer for grading purposes (3 trees) will be replaced on a 1:1 basis within the buffer or ravine.

Table 2 - Minimum tree preservation zone (mTPZ) distances.

DBH (cm)	Min. Protect Distance (m)
	Radius
< 10	1.8
11 – 40	2.4
41 – 50	3.0
51 – 60	3.6
61 – 70	4.2
71 – 80	4.8
81 – 90	5.4
91 – 100	6.0

Tree Preservation

Preservation of Trees 8-16, 18, 25, 26, 30-34, 40 and 42 will be possible with appropriate tree protection measures. Tree protection measures will have to be implemented prior to the commencement of construction to ensure trees identified for preservation are not impacted by the proposed development.

Encroachment within the mTPZ of Tree 18 will be required to accommodate the proposed development. The areas of encroachment are currently occupied by impermeable surfaces and as such there should be no impacts to Tree 18. If any roots are exposed during construction they must be pruned by a Certified Arborist in accordance with good arboricultural practice.

Refer to Figure 1 for the prescribed location of tree protection fence, the tree protection fence detail and further tree preservation notes.

Summary and Recommendations

Jackson Arboriculture Inc. was retained by Fieldgate Homes to complete a Tree Inventory and Preservation Plan for a property located at 1600 Kerns Road, in the City of Burlington, Ontario. The tree inventory was reviewed in the context of the proposed development plan.

The findings of the study indicate that a total of 42 trees were situated on subject property, in the road allowance and on neighbouring properties with the potential to be impacted by the proposed development. Removal of 23 trees will be required to accommodate the proposed development.

The following recommendations are suggested to minimize impacts to trees identified for preservation:

- Tree protection barriers and fencing must be erected at the locations prescribed on Figure 1.

- Tree protection measures should be implemented prior to the commencement of construction to ensure trees identified for preservation are not impacted by the development.

- No construction activity, including grade changes, surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the tree protection fence at anytime during or after construction.

- Branches and roots that extend past prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional as approved by the City of Burlington. All pruning of tree roots and branches must be in accordance with good arboricultural standards.

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 of group of trees or their component parts in al 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: 1600 Kerns Rd, Burlington Date: 21 May 2020 Surveyors: JJJ

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	mTPZ	CDB	Comments	Action
1	Austrian Pine	*Pinus nigra*	34	FG	PF	P	2.4	60		Remove
2	Austrian Pine	*Pinus nigra*	37	G	F	PF	2.4	30	Trunk is 1.8 m from edge of asphalt	Remove
3	Norway Maple	*Acer platanoides*	31	G	G	FG	2.4	10		Remove
4	Norway Maple	*Acer platanoides*	46	P	F	PF	3.0	30	Union at 1.6 m, girdling root, stem wound, sheer crack in lowest limb	Remove
5	Norway Maple	*Acer platanoides*	43	FG	G	G	3.0		Girdling root, trunk is 1.3 m from the edge of asphalt	Remove
6	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	24	G	G	G	2.4		Base of the trunk is 1.2 m from the edge of asphalt to the southeast	Remove
7	Fir species	*Abies sp.*	25	G	FG	FG	2.4		Leader has died	Remove
8	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	25	G	G	G	2.4		Base of the tree is 1.8 m from the edge of the asphalt parking lot	Preserve
9	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	20	G	G	G	2.4			Preserve
10	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	24	G	G	G	2.4		Base of the tree is 1.2 m from the edge of the asphalt parking lot	Preserve
11	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	22	G	G	G	2.4		Crook	Preserve
12	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	23	G	G	G	2.4		Union at 1.8 m, base of the tree is 1.1 m from the edge of the asphalt parking lot	Preserve
13	Fir species	*Abies sp.*	23	G	G	G	2.4			Preserve
14	Austrian Pine	*Pinus nigra*	41	G	G	G	3.0			Preserve
15	Austrian Pine	*Pinus nigra*	53	G	G	G	2.4			Preserve
16	Austrian Pine	*Pinus nigra*	45	G	G	FG	3.0		Light lean east	Preserve
17	Norway Maple	*Acer platanoides*	27	P	FG	FG	2.4	5	Heavy stem wound at flare, sweep	Remove
18	Honey Locust cultivar	*Gleditsia triacanthos var. 'inermis'*	34	G	G	G	2.4		Union at 2.2 m	Preserve
19	Little-leaf Linden	*Tilia cordata*	17, 16	F	FG	G	2.4		Union at 0.4 m with included bark, swollen/scarred flare, coppice growth	Remove
20	Little-leaf Linden	*Tilia cordata*	17, 23, 14	F	F	G	2.4		Union at 1.2 m, swollen flare, coppice growth	Remove
21	Copper Beech	*Fagus sylvatica*	26	PF	FG	G	2.4		Stem wound with heart rot extending throughout entire trunk up into the canopy	Remove
22	Austrian Pine	*Pinus nigra*	46	G	PF	P	3.0	50	Top of crown dead	Remove
23	Austrian Pine	*Pinus nigra*	37	G	G	G	2.4			Remove
24	Norway Maple	*Acer platanoides*	33	F	F	F	2.4	15	Pruning wounds, seams	Remove
25	Norway Spruce	*Picea abies*	~25	G	G	G	2.4			Preserve
26	Eastern Red Cedar (Juniper)	*Juniperus virginiana*	~15	G	G	G	2.4			Preserve
27	Norway Maple	*Acer platanoides*	12	G	F	F	2.4	10		Remove
28	Scots Pine	*Pinus sylvestris*	32	FG	G	G	2.4		Light lean north	Remove
29	Norway Maple	*Acer platanoides*	31	PF	PF	PF	2.4	50	Heavy stem wound at flare	Remove
30	Austrian Pine	*Pinus nigra*	~20	G	G	G	2.4			Preserve

31	Little-leaf Linden	*Tilia cordata*	~20-30	FG	G	G	2.4		Many stems, union at 1 m	Preserve
32	Little-leaf Linden	*Tilia cordata*	~17, 20	FG	G	G	2.4		Union at 0.75 m	Preserve
33	Norway Spruce	*Picea abies*	~25	G	G	G	2.4			Preserve
34	Norway Spruce	*Picea abies*	~18	G	G	G	2.4			Preserve
35	Norway Maple	*Acer platanoides*	27	P	P	P	2.4	60		Remove
36	Austrian Pine	*Pinus nigra*	28, 25	F	G	G	2.4		Union at 0.5 m with included bark	Remove
37	Little-leaf Linden	*Tilia cordata*	11	FG	G	G	2.4		Natural pruning wounds, understorey	Remove
38	Scots Pine	*Pinus sylvestris*	25	G	G	G	2.4			Remove
39	Little-leaf Linden	*Tilia cordata*	21	F	G	G	2.4		Natural pruning wounds, union at 1.5 m	Remove
40	Norway Spruce	*Picea abies*	~30	G	G	G	2.4			Preserve
41	Scots Pine	*Pinus sylvestris*	26	G	G	G	2.4		Light crook	Remove
42	Norway Maple	*Acer platanoides*	~35	FG	F	F	2.4	25	Union at 2 m	Preserve

Codes		
DBH	Diameter at Breast Height	(cm)
TI	Trunk Integrity	(G, F, P)
CS	Crown Structure	(G, F, P)
CV	Crown Vigor	(G, F, P)
CDB	Crown Die Back	(%)
mTPZ	Minimum Tree Preservation Zone	(m)
~=estimate, G=Good, F=Fair, P=Poor		

Appendix A: Site Photos



Photo 1: Trees 14-16.



Photo 2: Tree 17.



Photo 3: Tree 18.

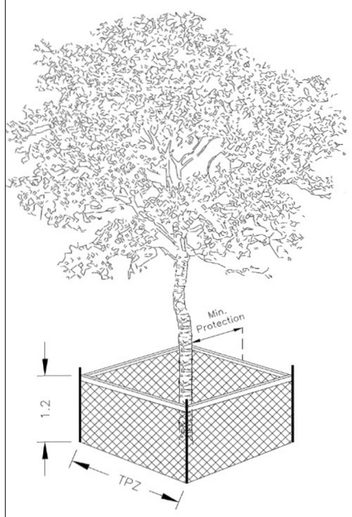


Photo 4: Trees 19-21.



Photo 5: Trees 29 to 39.

Detail TP-1 – Tree Protection Detail.



Trunk Diameter (DBH) [2]	Minimum Tree Protection Zone (MTPZ) Distances Required [3]	Critical Root Zone (CRZ) Distances Required [3&4]
< 10 cm	1.8 m	1.8 m
11 - 40 cm	2.4 m	4.0 m
41 - 50 cm	3.0 m	5.0 m
51 - 60 cm	3.6 m	6.0 m
61 - 70 cm	4.2 m	7.0 m
71 - 80 cm	4.8 m	8.0 m
81 - 90 cm	5.4 m	9.0 m
91 - 100+ cm	6.0 m	10.0 m

NOTES:

[1] The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the drip line.
[2] Diameter at breast height (DBH) is the measurement of tree trunk taken at 1.4 metres above ground.
[3] Minimum Tree Protection Zone and Critical Root Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work and is subject to Section 6 of this specification.
[4] Where work is being performed beyond the Minimum Tree Protection Zone but within the Critical Root Zone the works are subject to Section 8 of this specification.

TREE PROTECTION BARRIER

1. The required barrier is a 1.2 metre (4 ft) high orange plastic web snow fencing on 2" x 4" frame. Where orange plastic web snow fencing creates a restriction to sightlines, page wire fencing with reflective tape can be used.
2. Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The barriers shall be maintained erect and in good repair throughout the duration of construction operations with breaks and unsupported sections repaired immediately. Tree protection may be not be removed prior to the completion of construction without written authorization from the City Arborist.
3. All supports and bracing used to safely secure the barrier should be located outside the MTPZ. All supports and bracing should minimize damage to roots.
4. Where some fill or excavated material must be temporarily located near a MTPZ, a wooden barrier with silt fencing must be used to ensure no material enters the MTPZ.
5. No materials or fill may be stored within the MTPZ.
6. Equipment or vehicles shall not be operated, parked, repaired, or refueled within the MTPZ.
7. No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the MTPZ without written authorization from the City Arborist.
8. A laminated Minimum Tree Protection Zone sign (See Detail TP-3 – Minimum Tree Protection Zone Sign) must be attached to the side of the Tree Protection where it will be visible by persons entering the site. Minimum size must be 10"x14".

Burlington

TREE PROTECTION ZONE (TPZ)

No equipment or vehicles shall be operated, parked, repaired or refueled within the Tree Protection Zone.

No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the Tree Protection Zone.

No materials or fill may be stored within the Tree Protection Zone.

This tree protection barrier must not be removed prior to the completion of construction without written authorization from the City of Burlington, Urban Forestry Department.

For information, contact:
City of Burlington, Development and Infrastructure Division,
905-335-7642.

Detail TP-3 – Minimum Tree Protection Zone Sign

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.

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:

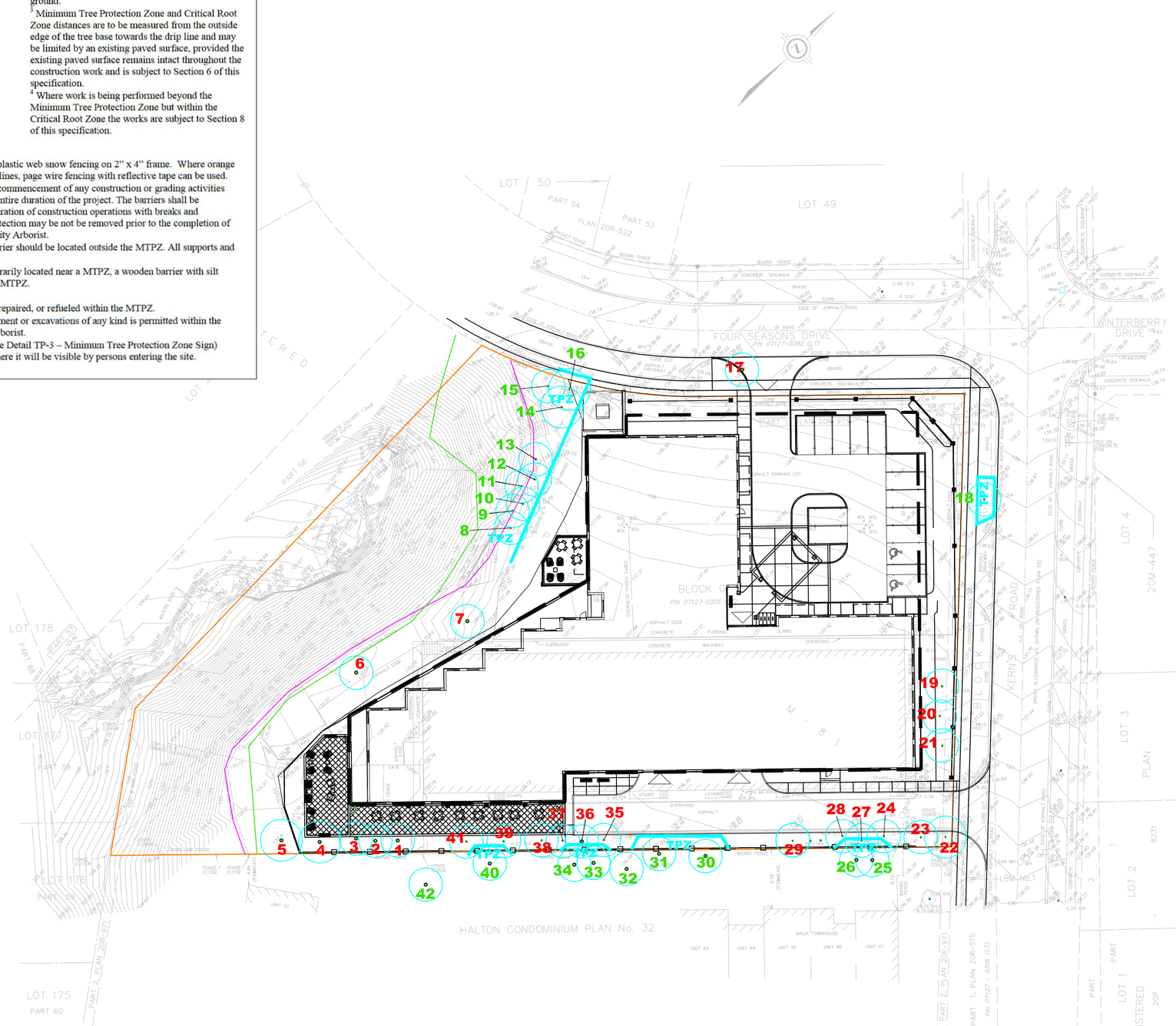
Tree protection barriers must be installed around trees to be protected using orange snow fencing. All supports and bracing to safely secure the barrier should be outside the TPZ. All such supports and bracing should minimize damage to roots outside the TPZ.

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 fence.

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.



Legend

- Surveyed Tree Location
- GPS Tree Location
- Minimum Tree Preservation Zone (for planning purposes only)
- Tree Preservation Fencing Location
- Property Boundary
- Staked Dripline
- Top of Bank
- 15 — Tree Identified for Preservation
- 28 — Tree Identified for Removal
- TPZ — Tree Preservation Zone Symbol

Tree Inventory

Refer to Table 1 of report dated 23 March 2021 for the complete tree inventory. All trees 10 cm in diameter and larger situated on subject property, in the road allowances and on neighbouring property within 5 m were included in the tree inventory.

Tree Removal

Removal of Trees 1-7, 17, 19-24, 27-29, 35-39 and 41 will be required to accommodate the proposed development.

Tree Preservation

Preservation of Trees 8-16, 18, 25, 26, 30-34, 40 and 42 will be possible with appropriate tree protection measures. Tree protection measures will have to be implemented prior to the commencement of construction to ensure trees identified for preservation are not impacted by the proposed development.

Encroachment within the mTPZ of Trees 18 will be required to accommodate the proposed development. The areas of encroachment are occupied by impermeable surfaces and as such there should be no impacts to Trees 5, 6 and 18. If any roots are exposed during construction they must be pruned by a Certified Arborist in accordance with good arboricultural practice.

JACKSON ARBORICULTURE INC.
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Tree Inventory and Preservation Plan

1600 Kerns Road
Burlington, ON

Project #	P207	Figure #	1
Date	March 2021		
Scale	1 : 500		