Arborist Report

Proposed Mixed-Use Highrise Development (Phase II)
1120 Cooke Boulevard
Burlington, ON

~~June 8, 2021~~
~~November 17, 2021~~
February 8, 2023

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Prepared for adesso design inc.
218 Locke Street South, 2nd floor
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BACKGROUND

The subject site is located on the north side of Masonry Court, north of the intersection of Masonry Court and Waterdown Road in Burlington, ON. The development of the property has been segmented into phases; this report is only applicable to the portion of the property to be developed during Phase II, heretofore referred to as the 'subject site'.

The northern boundary of the subject site is immediately adjacent to a large stormwater management facility (SWM Pond) on lands to be conveyed to the municipality. The Aldershot GO Station and the Aldershot Station South Parking Lot are in close proximity to the subject site. Adjacent land uses include single-family residential and small scale commercial, with some larger-scale commercial properties further afield.

The subject site is currently undeveloped and a small single-storey sales office located at the corner of Masonry Court and Waterdown Road. All trees included in this report are located in the Municipal Right-of-Way. Three trees are street trees planted in close proximity to Waterdown Road and the remainder are on a steep slope along the southwest perimeter of the site. The proposed work includes excavation for below ground parking facilities, grading, paving, construction of two multi-use high-rise towers with an outdoor amenity space at the finished grade.

This report, along with the accompanying Tree Protection Plan (by adesso design inc.), intends to satisfy the City of Burlington requirements for an Arborist Report and any necessary tree-related permit applications. Trees included in this report were inventoried by Matt Madigan (Landscape Architect, adesso design inc.) and Carleigh Pope (ISA Certified Arborist ON-2578A, adesso design inc.) on April 16th 2021 and June 7, 2021.

METHODS

Trunk size was measured as diameter at breast height (DBH, measured 1.37 m above grade), in accordance with protocols set by the International Society of Arboriculture and adopted by the City of Burlington. All trees with a trunk diameter equal to or greater than 10 cm DBH have been inventoried and included in this report. In addition, all trees on City property adjacent to the proposed work have been included. As per the City's Private Tree Preservation By-Law, the total DBH of trees with multiple stems has been calculated as the sum of all stems.

For the purposes of this report, tree ownership is defined as:

1. "Subject Site Tree": Trees with stem(s) situated on the subject site property,
2. "Neighbouring Tree": Trees with stem(s) situated on adjacent private property
3. "Public Tree": Trees with stem(s) situated on City-owned land adjacent the subject site.
4. "Boundary Tree": Trees with stem(s)from the ground level to the first branch straddles or bi-sects the property line of a lot

This report documents the following:

- Biological data (i.e. species, size, condition, notable observations) for all trees,
- Interpretation of the potential impact of the proposed works on the inventoried trees,
- Recommendations for preservation or removal of individual trees based on the nature of the proposed work, the current health of the tree, and the susceptibility/tolerance of the tree species to various stresses/insults related to construction and other sources,
- Recommendations for protective actions to be taken to mitigate construction-related damage to existing trees to be preserved, and
- Compensation for Trees to be removed as required.

This report has been prepared in accordance with the following applicable municipal by-laws and guidelines of the City of Burlington:

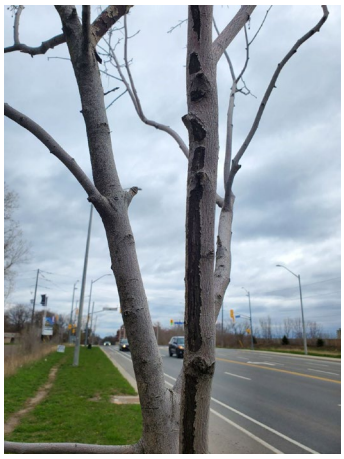
- By-Law to conserve and protect trees on private land within the Urban Planning Area Boundary of City of Burlington (02-2020);
- By-law to regulate planting, maintenance and preservation of trees on or affecting public property (68-2013);
- City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A);


Tree 1. Public Tree at corner of Masonry Court and Waterdown Road.


Tree 10. Public Tree on steep slope adjacent to subject site.


Tree 12. Public Street Tree planted on east side of Waterdown Road.


Tree 12. Minor deficiencies noted at time of inventory (wound on scaffold branch)


Tree 13 Public Street Tree on Waterdown Road with similar defects as Tree 12


Tree 14. Public Street Tree nearest intersection of Masonry Court and Waterdown Road.

INVENTORY DATA

Date/Time(s):
April 16, 2021, 1:00 p.m.
June 7, 2021, 3:15 p.m.

Relative Part of Growing Season:
Budding, Leaf-on
Weather Conditions:
Overcast, approx. 6 °C (April 16)
Clear, approx.. 32 °C (June 7)

OVERALL FINDINGS

A total of 15 individual trees were inventoried and have been summarized in table 1 below (refer to appendix A for individual tree data).

Trees were a mix of DBH classes, with the majority of inventoried trees exceeding 50cm DBH. Location and health condition at the time of inventory of the trees along the steep slope are indicative of a self-seeded community, with canopy species replicated in understory vegetation. Other understory species included shrubs like Common Buckthorn (*Rhamnus catharitca*) and Willow species (*Salix spp.*).

Minor to moderate structural concerns were evident during inventory including leaning stem(s), areas of included bark, as well as dead and/or broken scaffold branches.

Street trees planted on the east side of Waterdown Road were young in age and may have been recently planted. These three trees displayed significant symptoms of stress but presented no significant structural concerns.

TABLE 1. SUMMARY OF TREES INVENTORIED

Tree Ownership Category	Quantity & Species		Count
1. Subject Site Trees	none	subtotal	0
2. Neighbouring Trees	none	subtotal	0
3. Public Trees	3 Thornless Honeylocust 8 Balsam Poplar 2 Norway Maple 1 Manitoba Maple 1 Siberian Elm	subtotal	15
4. Boundary Trees		subtotal	0
		total	15

TREES RECOMMENDED FOR PRESERVATION

Trees recommended for preservation have been assessed using one or more of the following criteria:

- Location sufficiently distanced from proposed site works and/or construction related stresses;
- Current health condition is acceptable;
- Tree poses a low hazard level to person or property; and
- General species tolerance to construction-related and other anticipated stressors

Trees recommended for preservation are summarized in table 2 below. All trees to be preserved are to be protected to the satisfaction of the City of Burlington prior to the commencement of construction. All tree protection measures are to remain in place during all stages of construction, as specified in *City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A)*. Refer to the Tree Protection and Mitigation measures section below.

TABLE 2. SUMMARY OF TREES RECOMMENDED FOR PRESERVATION

Tree Ownership Category	Quantity & Species		Count
1. Subject Site Trees	none	subtotal	0
2. Neighbouring Trees	none	subtotal	0
3. Public Trees	2 Thornless Honeylocust 8 Balsam Poplar 2 Norway Maple (1 Manitoba Maple	subtotal	13
5. Boundary Trees	none	subtotal	0
		total	13

As per City of Burlington By-law 68-2013, any work within the mTPZs of Public Trees (i.e. Tree Injuries) will require a Tree Permit. Currently the proposed work does not encroach upon the mTPZs of trees to be preserved; alterations to the proposed work that may result in a tree injury will require a Tree Permit.

TREES RECOMMENDED FOR REMOVAL

Trees recommended for removal have been assessed using one or more of the following criteria:

- Location is in conflict with proposed works to a degree that would compromise the long term structural and/or health integrity
- Current health condition suggests tree is undergoing significant decline and/or death
- Potential impacts from proposed works will cause the tree to become a hazard to person or property
- General species intolerance of construction-related and other anticipated stressors

Trees recommended for removal are summarized in Table 3 below.

TABLE 3. SUMMARY OF TREES RECOMMENDED FOR REMOVAL

Tree Ownership Category	Quantity & Species		Count
1. Subject Site Trees	none	subtotal	0
2. Neighbouring Trees	none	subtotal	0
3. Public Trees	1 Thornless Honeylocust 1 Siberian Elm	subtotal	2
5. Boundary Trees	none	subtotal	0
		total	2

The two trees recommended for removal are in direct conflict with a proposed vehicle access ramp to underground parking facilities. Due to the proximity of Tree 12 to the proposed vehicle access ramp and its health condition at the time of inventory, it is expected that it will not survive the impacts of construction. The existing structural and biological health concerns of Tree 12 may worsen over time if preserved with non-fatal injury due to its limited capacity to recover from construction-related disturbance. For these reasons, Tree 12 is recommended for removal in light of the proposed work and anticipated impacts.

Tree 15 is entirely within the footprint of the proposed vehicle access ramp and is not able to be preserved with non-fatal injury. Design alternatives to preserve Tree 15 are not feasible as the proposed ramp location as shown in the Site Plan incurs the least impact on existing vegetation. Furthermore, Tree 15 (*Ulmus pumila*) is an invasive, non-native species that typically exhibits weak-wooded characteristics. Work within the TPZ and/or CRZ of Tree 15 may result in potential hazardous conditions due to branch failures, branch drop, or similar threats to life and property. For these reasons, Tree 15 is recommended for removal.

Removal of Trees 12 and 15 will require Council approval and a Tree Permit from the City of Burlington prior to their removal as per City of Burlington By-law 68-2013. In accordance with Tree Permit requirements, replacement tree plantings are proposed on the Landscape Plan prepared by adesso design inc.

TREE PROTECTION AND MITIGATION MEASURES

The impacts to trees from the construction process can be severe and are often latent. Mechanical damage to tree structures (i.e. trunk, roots, and branches) as well as soil compaction from equipment, staging, material storage, and altered drainage patterns can

cause potentially fatal impacts that may not become apparent until long-after construction is completed.

For these reasons, all trees to be preserved shall be afforded adequate protection measures in accordance with *City of Burlington Specifications Index for Tree Protection and Preservation (SPEC NO. SS12A)*. Tree protection measures are to be installed prior to and remain throughout all stages of construction.

The location of temporary tree protection hoarding is depicted graphically on the Vegetation Management Plan (by adesso design inc.) accompanying this report. Where possible, the City standard for minimum tree protection zone (mtpz) has been provided. Table 4 provides a summary of the mtpz distances per DBH class for the City of Burlington.

TABLE 4. MINIMUM TREE PROTECTION ZONES PER DBH CLASS

Trunk Diameter (DBH)[1]	Minimum Protection Distances Required[2]
< 10 cm	1.8 m
11-40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100 cm	6.0 m

If any disruption or injury occurs to a tree to be preserved, including planned injuries (e.g. "true injuries) and unplanned or accidental injuries (e.g. roots encountered unexpectedly, crown pruning required for construction access or equipment manoeuvring), it is recommended that a qualified tree care professional is consulted and performs all remedial work on the tree(s). General recommendations for mitigating damage trees include (but are not limited to):

- Excavation within mTPZ is to be done by hand and all tree roots that require removal are to be cleanly pruned by a tree care professional and according to best management practices of arboriculture. All exposed tree roots to remain are to be covered immediately with native soil or imported good-quality planting soil using 150mm lifts and hand tamped to prevent air pockets. All areas of disturbed tree roots to remain are to be thoroughly watered immediately upon completion of excavation and backfilling with soil.
- Damaged branches/limbs are to be cleanly pruned by a tree care professional and according to best management practices of arboriculture.
- Damage to tree trunks is to be reported immediately to a tree care professional for consultation and possible action.

CONCLUSIONS

A total of 15 individual trees have been inventoried and assessed for possible preservation in the context of the proposed work. All inventoried trees are within the Municipal Right-of-Way on Waterdown Road.

Thirteen of the 15 trees inventoried are recommended for preservation, and 2 are recommended for removal due to direct conflict with the proposed work. A Tree Permit is required prior to the removal of these two trees. In accordance with the Tree Permit requirements, replacement plantings are proposed on the Landscape Plan prepared by adesso design inc.

ASSUMPTIONS & LIMITATIONS

The data and assessment presented in this report are only valid at the time of inspection and inventory.

A reasonable effort has been made to assess the overall condition of trees included in this report.

Unless otherwise stated, all tree data and observations were collected from visual inspection of external tree features from the ground level.

This report is to be used only by the intended recipient for the purposes stated in the Background section. Use by any other person or for any other purpose must be authorized in writing by the consulting arborist or adesso design inc.

The data and its interpretation in this report are the sole opinion of adesso design inc. and were not influenced by any other party.



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APPENDIX A – TREE INVENTORY TABLE

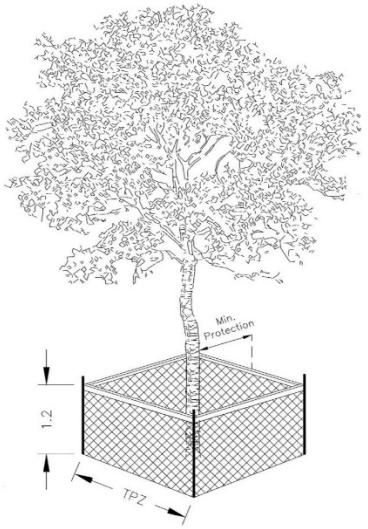
Tree #	Species (Common Name)	Species (Botanical Name)	DBH (cm)	Crown Class*	Crown Width (m)	Structural Condition (%)	Health Condition (%)	Overall Condition**	TPZ (m)	TPZ (m^2)	TPZ encroachment (m^2)	TPZ encroachment (%)	CRZ (m)	CRZ (m^2)	CRZ encroachment (m^2)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
1	Balsam Poplar	*Populus balsamifera*	82	D	12	60%	60%	FAIR	5.4	91.61	19.54	21%	9.0	254.47	118.7	47%	co-dominant leaders at 1.35m; included bark; leaning	conflict with proposed site grading and building footprint	Public	SAVE
2	Balsam Poplar	*Populus balsamifera*	37,46	C	8	60%	60%	FAIR	5.4	91.61	19.77	22%	9.0	254.47	75.0	29%	included bark; dead branches	conflict with proposed access road	Public	SAVE
3	Balsam Poplar	*Populus balsamifera*	62	D	10	50%	60%	FAIR	4.2	55.42	12.86	23%	7.0	153.94	98.1	64%	included bark; dead branches & broken branches in canopy;	conflict with proposed access road	Public	SAVE
4	Norway Maple	*Acer platanoides*	21	C	5	60%	70%	GOOD	2.4	18.10	0	0%	4.0	50.26	3.1	6%	corrected sweep; included bark		Public	SAVE
5	Balsam Poplar	*Populus balsamifera*	57	D	10	55%	65%	FAIR	3.6	40.72	6.89	17%	6.0	113.10	34.7	31%	broken branches; leaning	conflict with proposed access road	Public	SAVE
6	Balsam Poplar	*Populus balsamifera*	56,58	C	11	60%	60%	FAIR	6.0	113.10	22.3	20%	10.0	314.16	134.5	43%		conflict with proposed access road	Public	SAVE
7	Norway Maple	*Acer platanoides*	20,23	C	10	55%	70%	GOOD	3.0	28.27	0.0	0%	5.0	78.54	9.7	12%	included bark; broken branches; union of multi-stems at 0.5m	conflict with proposed access road	Public	SAVE
8	Balsam Poplar	*Populus balsamifera*	46	C	7	60%	60%	FAIR	3.0	28.27	0.6	2%	5.0	78.54	14.0	18%	included bark; dead branches		Public	SAVE
9	Balsam Poplar	*Populus balsamifera*	30	C	4	50%	60%	FAIR	2.4	18.10	0.0	0%	4.0	50.26	0.6	1%	included bark; leaning; broken branches in canopy		Public	SAVE
10	Balsam Poplar	*Populus balsamifera*	35,34,46,69	C	14	50%	50%	FAIR	6.0	113.10	5.9	5%	10.0	314.16	149.8	48%	watersprouts around base of clump; moderate lean; dead branches in canopy; included bark;	conflict with proposed access road	Public	SAVE
11	Manitoba Maple	*Acer negundo*	28	C	8	40%	50%	FAIR	2.4	18.10	0.0	0%	4.0	50.26	20.9	42%	leaning; epicormic branches; broken branches; dead branches; poor form		Public	SAVE

Tree #	Species (Common Name)	Species (Botanical Name)	DBH (cm)	Crown Class*	Crown Width (m)	Structural Condition (%)	Health Condition (%)	Overall Condition**	TPZ (m)	TPZ (m^2)	TPZ encroachment (m^2)	TPZ encroachment (%)	CRZ (m)	CRZ (m^2)	CRZ encroachment (m^2)	CRZ encroachment (%)	Comments	Potential Impacts from Construction	Ownership	Recommendation
12	Thornless Honeylocust	*Gleditsia triacanthos var. inermis*	4.5	D	1.5	10%	0%	DEAD	1.8	10.18	10.2	100%	1.8	10.18	10.2	100%	bark peeling on upper stem; moderate lean; watersprouts; branch wounds;	conflict with proposed driveway to underground parking structure	Public	REMOVE
13	Thornless Honeylocust	*Gleditsia triacanthos var. inermis*	4.5	D	1.5	10%	5%	VERY POOR	1.8	10.18	0.0	0%	1.8	10.18	0.0	0%	bark peeling with evidence of rot on upper stem; leaning; epicormic branches		Public	SAVE
14	Thornless Honeylocust	*Gleditsia triacanthos var. inermis*	5	D	1.5	10%	5%	VERY POOR	1.8	10.18	0.0	0%	1.8	10.18	0.0	0%	watersprouts; minor areas of included bark; corrected bend in trunk		Public	SAVE
15	Siberian Elm	*Ulmus pumila*	18	C	5	50%	60%	FAIR	2.4	18.10	18.1	100%	4.0	50.26	50.3	100%	co-dominant leaders at 5m; sparse canopy	conflict with proposed driveway to underground parking structure	Public	Remove

APPENDIX B – CITY OF BURLINGTON TREE PRESERVATION DETAILS

Tree Protection and Preservation
Specification No.: SS12A

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.

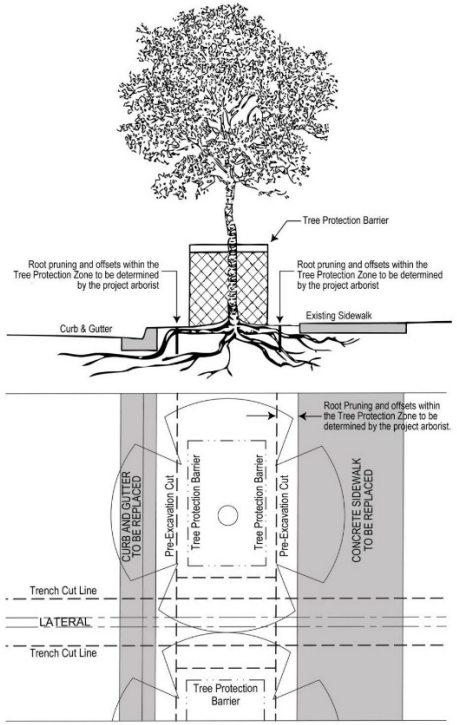
TREE PROTECTION BARRIER

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 Manager of Urban Forestry or designate.
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 Manager of Urban Forestry or designate.
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".

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Detail TP-2 – Root Pruning Detail



NOTE:
For excavations perpendicular to to the curbing (ie. sidewalk, curbing, water or sewer laterals renewal)

(a) The contractor is to use a trench box to minimize the width of the open cut.
(b) When the lateral replacement is within the Tree Protection Zone of a tree, the contractor is to complete the works using trenchless technologies.

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Detail TP-3 – Minimum Tree Protection Zone Sign

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