



415 BOLER ROAD
LONDON, ONTARIO
TREE ASSESSMENT REPORT
FOR REZONING APPLICATION

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ARCHITECTS INC

DATE: JUNE, 2022

RKLA PROJECT #: 21-302



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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 INTRODUCTION

Ron Koudys Landscape Architects Inc. (RKLA) was retained by York Developments to prepare a tree assessment report in conjunction with the proposed development at 415, 417, and 421 Boler Road, London Ontario. The intent of this report is to summarize the findings of the tree assessment and make recommendations regarding tree preservation and removal based on tree health, the current site plan, and anticipated site grading for the purpose of application for rezoning. Note that refinement of these recommendations will be made upon design refinement at the time of application for site plan approval.

1.2 EXECUTIVE SUMMARY

The inventory captured 61 individual trees and 4 vegetation units. Trees were identified within the subject site, and within 3 meters of the legal property boundary. Seven trees within the City ROW were observed. No species classified as endangered, threatened, or 'at risk' under the Ontario Endangered Species Act, 2007, S.O. 2007, c. 6 were observed during the tree inventory. All trees observed are common to the current land uses and can be characterized as anthropogenic or opportunistic. The subject site is NOT within or immediately adjacent to a City of London Tree Protection Area. There are boundary trees and trees beyond the subject site that will be impacted by the proposed development; consent/coordination with the City and neighbouring land owners will be required for removal of these trees at time of application for site plan approval.

Note that there are two large specimen Oak trees shared by the subject site and the City along Boler Road (tree IDs 16-C and 17-C). RKLA recommends that these trees be discussed in detail by the design team and the City to consider the merits of preserving them vs urban design requirements.

1.2.1 TREE SPECIES COMPOSITION CHART

The following chart summarizes the amount of each tree species observed. Note that individuals within the vegetation units NOT included in this chart.

%	Qty.	Botanical Name	Common Name
34%	21	<i>Morus alba</i>	Mulberry
13%	8	<i>Ulmus pumila</i>	Siberian Elm
11%	7	<i>Juglans nigra</i>	Black Walnut
7%	4	<i>Acer saccharum</i>	Sugar Maple
5%	3	<i>Celtis occidentalis</i>	Hackberry
3%	2	<i>Acer platanoides</i>	Norway Maple
3%	2	<i>Populus sect. Aigeiros</i>	Cottonwood
3%	2	<i>Quercus macrocarpa</i>	Bur Oak
3%	2	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar
3%	2	<i>Pinus nigra</i>	Austrian Pine
2%	1	<i>Picea glauca</i>	White Spruce
2%	1	<i>Pinus sylvestris</i>	Scotch Pine
2%	1	<i>Juniperus virginiana</i>	Red Cedar

2%	1	<i>Picea abies</i>	Norway Spruce
2%	1	<i>Acer negundo</i>	Manitoba Maple
2%	1	<i>Gleditsia triacanthos</i>	Honey Locust
2%	1	<i>Prunus spp.</i>	Cherry
2%	1	<i>Malus</i>	Apple
100%	61	Total	

1.2.2 TREE REMOVAL AND PRESERVATION RECOMMENDATIONS

- Removal of all trees and vegetation units from subject site due to direct conflict with proposed site plan and expected site grading. 48 trees and 4 vegetation units.
- Removal of 5 trees from the City ROW due to conflict with proposed site plan - consent and coordination with City required at time of application for SPA.
- At time of application for SPA, acquire written consent from adjacent land owner(s) for the lawful removal of 3 boundary trees/trees beyond the subject site due to expected construction impacts.
- Design team and City to review and discuss potential to preserve 2 trees within the City ROW
- Preservation of 3 trees beyond the subject site.
- Follow pre, during, and post construction recommendations outlined in the Construction Impact Mitigation Recommendations in this report

2.0 SUBJECT SITE AND SCOPE OF WORK

The subject site is a combination of 3 lots located at the NW corner of Boler Road and Byron Baseline Road in Byron (London). The site is a combination of addresses 415, 417 and 421. The three lots are currently single family residential. Existing trees are generally associated with the three dwellings.

The scope of this tree inventory includes the subject site as well as trees within 3m off the subject site property line and the adjacent City ROW. Refer to figure 1 for scope of inventory.

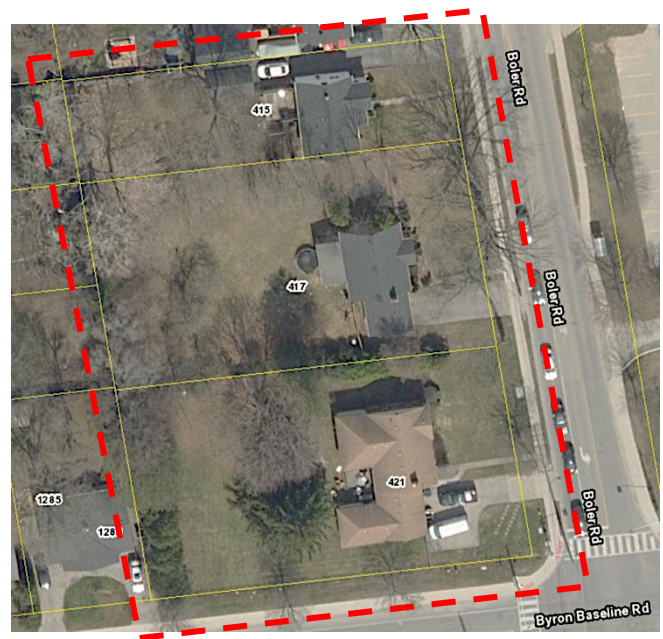


Figure 1 - City of London mapping with 2021 aerial imagery. NTS
Red dashed line - scope of tree inventory

3.0 METHODOLOGY

Field work was completed on December 6th, 2021 by RKLA staff member Michelle Peeters, ISA certified arborist ON 2129A. A topographic survey provided by Callon Dietz Inc., dated July 15th, 2020 was used as a base for the field work and determined tree location/ownership. All trees with a minimum DBH of 10cm within the given scope were identified and assessed, and trees of all sizes within the City ROW were included. Groups of trees and hedges were identified and assessed as vegetation units, and include trees smaller than 10cm DBH. Trees were NOT tagged in the field. Each tree and vegetation unit was assigned a number which are identified in the tree data table and on the tree preservation plan. Tree identification numbers include 1-61 and vegetation unit numbers include 1-4.

The following information was recorded for each individual tree:

- Genus + specific epithet (Species)
- Diameter at breast height (DBH) (centimetres)
- Crown radius (metres)
- Crown Condition (overall general vigour of crown)
- Structural Form (excellent, good, fair, poor)
- Structural Integrity (good, fair, poor, hazard)
- General Comments

3.1 HEALTH ASSESSMENT

Trees were assessed following accepted arboricultural techniques and best practices using a limited visual inspection. The inspection included a 360 degree visual examination of the above-ground parts of each tree for structural defects including cavities, wounds, scars, external indicators of internal decay, evidence of insect presence, discoloured or deformed foliage, canopy and root distribution, and the overall condition of the tree. Evaluation of tree health was based on visible tree health indicators including live buds, foliage condition, deadwood, structural defects, form, and signs of disease or insect infestation. If needed, field observations were reviewed against available online imagery of the site to assist in determining tree canopy health. Quantified health assessments included in the inventory are explained here:

Crown Condition Assessment

- 5 Healthy: less than 10% crown decline
- 4 Slight decline: 11% - 30% crown decline
- 3 Moderate decline: 31% - 60% crown decline
- 2 Severe decline: 61% - 90% crown decline
- 1 Dead - No visible indication of living foliage or buds in crown

Structural Form Assessment

- Excellent: An ideal expression of a specific tree species, true to form, balanced canopy, good flare, typical internode length, full crown, etc.
- Good: A satisfactory and generally expected expression of a specific tree species, with only minor or typical variances from an ideal form.

- Fair: Nearly satisfactory, with defects or a combination of defects such as codominant leaders, unbalanced crown, poor/no flare, shortened internodes, has been poorly pruned, etc.
- Poor: Significantly flawed expression of a specific tree species

Structural Integrity Assessment

- Good: Defects if present are minor (e.g. twig dieback, small wounds); defective tree part is small (e.g. 5-8 cm diameter limb) providing little if any risk.
- Fair: Defects are numerous or significant (e.g. dead scaffold limbs); defective parts are moderate in size (e.g. limb greater than 5-8 cm in diameter).
- Poor: Defects are severe (trunk cavity in excess of 50%); defective parts are large (e.g. majority of crown).
- Hazard: Defects are severe and acute; defective part or collective defective parts render the tree a high risk threat to potential targets.

3.2 CRITICAL ROOT ZONES

The critical root zone of a tree is the portion of the root system that is the minimum necessary to maintain tree vitality and stability. Critical root zones are commonly prescribed by municipal bylaws based solely on DBH and/or drip line, and are typically expressed as a circular shape around the tree. There are a number of other factors, however, that are considered when establishing a critical root zone.

Factors that inform location and extent of a tree preservation barriers to protect the critical root zone include: species tolerance to root loss and other construction impacts (as established by authoritative resources and professional experience), tree trunk size (DBH), tree health and vigour, structural condition, landscape context, soil type, moisture availability, topography, ground cover, crown size (drip line) and balance, current physical root restrictions, visible root arrangement, relationship to neighbouring trees, relationship between tree and proposed construction, type of proposed construction, etc.

The City of London Tree Protection By-Law (C.P.-1555-252) defines the Critical Root Zone as *“the area of land within a radius of ten (10) cm from the trunk of a tree for every one (1) cm of trunk diameter”*. The Tree Preservation drawing graphically represents this radius for trees to be preserved.

4.0 TREE INVENTORY AND PRESERVATION/REMOVAL RECOMMENDATIONS

4.1 TREE DATA TABLE

The following recommendations are based on requirements of the current site plan.

Grey indicates recommended removal.

ID #	BOTANICAL NAME	COMMON NAME	LOCATION	DBH (cm)	CANOPY RADIUS (m)	CROWN CONDITION	STRUCTURAL FORM	STRUCTURAL INTEGRITY	COMMENTS	EXPECTED CONSTRUCTION IMPACT	PRESERVE OR REMOVE	NOTES IMPACT MITIGATION CONSENT REQUIREMENTS
1-C	<i>Ulmus pumila</i>	Siberian Elm	City ROW Byron Baseline Rd	24, 23, 22	5	5	Poor	Poor	Multistem 3. Grown through fence. Included bark at primary union.	conflict with proposed pedestrian connection	remove	Construction impact & tree species + tree condition. Consent from City required
2-C	<i>Celtis occidentalis</i>	Hackberry	City ROW Byron Baseline Rd	30	3.5	5	Good	Good	Low drooping branches. Full form.	conflict with proposed pedestrian connection	remove	Construction impact. Consent from City required
3-C	<i>Celtis occidentalis</i>	Hackberry	City ROW Byron Baseline Rd	29	4	5	Good	Good	Full form. Suckers from base.	conflict with proposed pedestrian connection	remove	Construction impact. Consent from City required
4-C	<i>Celtis occidentalis</i>	Hackberry	BOUNDARY - subject site & City ROW Boler Rd	30	5	5	Good	Fair	Full form. One low lateral scaffold branch with weak attachment. Minor basal rot	conflict with proposed pedestrian connection	remove	Construction impact & tree condition. Consent from City required
5	<i>Picea abies</i>	Norway Spruce	Subject site	67	6.5	5	Good	Good	Branched to grade. Massive specimen.	direct conflict with construction	remove	Construction impact
6	<i>Morus alba</i>	Mulberry	Subject site	14	3	5	Fair	Fair	Heavily suppressed, nearly fully under canopy of tree #5	direct conflict with construction	remove	Construction impact
7	<i>Juglans nigra</i>	Black Walnut	Subject site	12	2	5	Good	Good	Suppressed by hedge.	direct conflict with construction	remove	Construction impact
8	<i>Morus alba</i>	Mulberry	Subject site	12	3	5	Fair	Fair	At fence line. Suppressed, scraggly form.	direct conflict with construction	remove	Construction impact
9	<i>Pinus nigra</i>	Austrian Pine	Subject site	59	6	4	Fair	Good	Limbed up approx. 8m. Slight lean SE. Suppressed.	direct conflict with construction	remove	Construction impact
10	<i>Pinus nigra</i>	Austrian Pine	Subject site	36	3	4	Fair	Fair	Limbed up approx. 8m. Suppressed. Crooky leader.	direct conflict with construction	remove	Construction impact
11	<i>Morus alba</i>	Mulberry	Subject site	18	3	4	Fair	Fair	Double leader. Suppressed. Canopy heavy E.	direct conflict with construction	remove	Construction impact
12	<i>Morus alba</i>	Mulberry	Subject site	28	4.5	5	Fair	Fair	Codominant leaders, suppressed.	direct conflict with construction	remove	Construction impact
13	<i>Acer saccharum</i>	Sugar Maple	Subject site	85	9	5	Fair	Fair	Wide flare, included bark and seam at primary scaffold union. Deadwood and mid canopy rot.	direct conflict with construction	remove	Construction impact
14	<i>Juglans nigra</i>	Black Walnut	Subject site	-20	3	5	Good	Good	In cedar hedge, suppressed.	direct conflict with construction	remove	Construction impact
15-C	<i>Acer saccharum</i>	Silver Maple	BOUNDARY - subject site & City ROW Boler Rd	81	9	5	Fair	Fair	Only 1 of 3 original stems remaining. Pruned for hydro line clearance. 2 trunk cavities at unions	conflict with proposed pedestrian connection	remove	Construction impact & tree condition. Consent from City required

16-C	<i>Quercus macrocarpa</i>	Bur Oak	BOUNDARY - subject site & City ROW Boler Rd	91	10	5	Fair	Fair	Elevated at base. Suppressed. Epicormic growth. Unbalanced crown - due to hydro line clearance pruning.	conflict with proposed pedestrian connection	preserve?	design team and City to discuss site design changes and impact mitigation options to preserve
17-C	<i>Quercus macrocarpa</i>	Bur Oak	BOUNDARY - subject site & City ROW Boler Rd	80	14	5	Fair	Fair	Elevated at base. Suppressed. Epicormic growth. Unbalanced crown - due to hydro line clearance pruning.	conflict with proposed pedestrian connection	preserve?	design team and City to discuss site design changes and impact mitigation options to preserve
18	<i>Ulmus pumila</i>	Siberian Elm	Subject site	20, 11	2.5	5	Fair	Good	Multistem 2. One stub, 'U' shaped primary union at grade.	direct conflict with construction	remove	construction impact
19	<i>Pinus sylvestris</i>	Scotch Pine	Subject site	40	4	3	Fair	Good	Dead lower branches. Thin, limbed up approx. 8m.	direct conflict with construction	remove	construction impact
20	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar	Subject site	26, 24	3	5	Good	Fair	Multistem 2. Branched to grade.	direct conflict with construction	remove	construction impact
21	<i>Acer platanoides</i>	Norway Maple	Subject site	12	3	5	Fair	Good	Unbalanced crown canopy heavy N. Suppressed.	direct conflict with construction	remove	construction impact
22	<i>Morus alba</i>	Mulberry	Subject site	20, 18	4	5	Good	Fair	Multistem 2. Primary union at grade. Minor lower deadwood.	direct conflict with construction	remove	construction impact
23	<i>Prunus spp.</i>	Cherry	Subject site	36	4	4	Fair	Fair	Fused branches, deadwood, suppressed.	direct conflict with construction	remove	construction impact
24	<i>Morus alba</i>	Mulberry	Subject site	16	2	5	Good	Fair	Suppressed, codominant leaders.	direct conflict with construction	remove	construction impact
25	<i>Ulmus pumila</i>	Siberian Elm	Subject site	60	6	4	Fair	Fair	Codominant leaders, deadwood. 1" diameter pole grown perpendicular into trunk	direct conflict with construction	remove	construction impact
26-0	<i>Ulmus pumila</i>	Siberian Elm	416 Byron Blvd	-45, -50	8	4	Fair	Fair	Multistem 2. Canopy heavy NE. Deadwood, loose crown.	significant impact to roots	remove	Consent required from 416 Byron Blvd at time of application for SPA
27	<i>Morus alba</i>	Mulberry	Subject site	-5, -8, -17	2.5	4	Fair	Fair	Multistem 3. Suppressed, deadwood.	direct conflict with construction	remove	construction impact
28	<i>Morus alba</i>	Mulberry	Subject site	11	1.5	4	Fair	Fair	Suppressed.	direct conflict with construction	remove	construction impact
29	<i>Morus alba</i>	Mulberry	Subject site	25	4.5	4	Fair	Fair	Deadwood, suppressed. Grapevine grown into crown	direct conflict with construction	remove	construction impact
30	<i>Morus alba</i>	Mulberry	Subject site	10	3	4	Fair	Fair	Deadwood, suppressed. Grapevine grown into crown	direct conflict with construction	remove	construction impact
31	<i>Morus alba</i>	Mulberry	Subject site	12	5	4	Poor	Poor	45-90 degree lean NE. Epicormic growth from trunk. Grapevine grown into crown	direct conflict with construction	remove	construction impact
32-0	<i>Ulmus pumila</i>	Siberian Elm	416 Byron Blvd	-35	5	3	Fair	Fair	Deadwood. Through hydrolines. Snags.	impact to roots	remove	Consent required from 416 Byron Blvd at time of application for SPA
33	<i>Morus alba</i>	Mulberry	Subject site	14, 7, 5	4	3	Poor	Fair	Multistem 3. Primary union below grade. Deadwood, suppressed. Canopy heavy E. Grapevine grown into crown	direct conflict with construction	remove	construction impact
34	<i>Morus alba</i>	Mulberry	Subject site	26	4	5	Good	Fair	Codominant leaders. Grapevine grown into crown	direct conflict with construction	remove	construction impact

35	<i>Morus alba</i>	Mulberry	Subject site	11	4	4	Fair	Fair	Bent leader, suppressed, canopy heavy E. Grapevine grown into crown	direct conflict with construction	remove	construction impact
36-0	<i>Picea glauca</i>	White Spruce	412 Byron Blvd	-25	4	4	Good	Good	Thin crown.	minor impact to roots	preserve	tree protection barrier
37	<i>Morus alba</i>	Mulberry	Subject site	15	8	4	Poor	Poor	45-90 degree lean E. Grapevine grown into crown	direct conflict with construction	remove	construction impact
38	<i>Morus alba</i>	Mulberry	Subject site	17, 12	6	1	Poor	Poor	Dead, canopy heavy E, suppressed.	direct conflict with construction	remove	construction impact
39	<i>Ulmus pumila</i>	Siberian Elm	Subject site	17	4	4	Fair	Fair	Upright form	direct conflict with construction	remove	construction impact
40	<i>Morus alba</i>	Mulberry	Subject site	16	6	3	Fair	Fair	Suppressed, canopy heavy E.	direct conflict with construction	remove	construction impact
41	<i>Morus alba</i>	Mulberry	Subject site	13	2	4	Fair	Fair	Suppressed, under hydrolines.	direct conflict with construction	remove	construction impact
42	<i>Morus alba</i>	Mulberry	Subject site	26	4	3	Fair	Fair	Drooping branches, deadwood.	direct conflict with construction	remove	construction impact
43-0	<i>Juniperus virginiana</i>	Red Cedar	412 Byron Blvd	-20	3	4	Good	Good	Limbed up approx. 1.5m, sparse crown.	minor impact to roots	preserve	tree protection barrier
44	<i>Malus</i>	Apple	Subject site	23, 20, 19, 13	5	3	Fair	Fair	Multistem 4. Two significant trunk wounds with rot near primary union.	direct conflict with construction	remove	construction impact
45	<i>Juglans nigra</i>	Black Walnut	Subject site	23	4	5	Fair	Good	One low scaffold stub.	direct conflict with construction	remove	construction impact
46	<i>Juglans nigra</i>	Black Walnut	Subject site	22	4	5	Fair	Good	Codominant leaders.	direct conflict with construction	remove	construction impact
47	<i>Acer negundo</i>	Manitoba Maple	Subject site	17	3	4	Fair	Fair	Primary union at grade. Deadwood.	direct conflict with construction	remove	construction impact
48	<i>Juglans nigra</i>	Black Walnut	Subject site	20	3	5	Good	Good	Swept trunk at base.	direct conflict with construction	remove	construction impact
49	<i>Juglans nigra</i>	Black Walnut	Subject site	29	4	5	Good	Good	Full form.	direct conflict with construction	remove	construction impact
50	<i>Morus alba</i>	Mulberry	Subject site	12, 11, 10, 8	3	4	Poor	Poor	Multistem 4. Gnarly form, grown through fence, significant epicormic growth.	direct conflict with construction	remove	construction impact
51	<i>Acer saccharum</i>	Sugar Maple	Subject site	12, 12	2	5	Fair	Fair	Multistem 2. Included bark at primary union.	direct conflict with construction	remove	construction impact
52	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar	Subject site	20	3	5	Poor	Poor	45 degree lean N, then corrected. Emerging from edge of house.	direct conflict with construction	remove	construction impact
53	<i>Acer saccharum</i>	Sugar Maple	Subject site	13, 13, 12	2	5	Fair	Fair	Multistem 3. Primary union at grade.	direct conflict with construction	remove	construction impact
54	<i>Morus alba</i>	Mulberry	Subject site	32, 29	6	3	Poor	Poor	Multistem 2. Significant lean S, entire crown S of trunk base. Epicormic growth.	direct conflict with construction	remove	construction impact
55	<i>Juglans nigra</i>	Black Walnut	Subject site	41	8	5	Good	Good	Suppressed, canopy heavy SE.	direct conflict with construction	remove	construction impact
56	<i>Populus deltoides</i>	Cottonwood	Subject site	91	12	4	Good	Good	Dead lower branches	direct conflict with construction	remove	construction impact
57-B	<i>Ulmus pumila</i>	Siberian Elm	BOOUNDARY 410 Byron Blvd & subject site	28	2.5	4	Fair	Fair	Grown between fences, narrow form, double leader	conflict with construction	remove	construction impact and tree relationship to ex. features Consent required from 410 Byron Blvd required at time of application for SPA

58	<i>Ulmus pumila</i>	Siberian Elm	Subject site	26	5	3	Poor	Poor	Codominant leaders, stubs, pruned for hydroline clearance	direct conflict with construction	remove	construction impact
59	<i>Populus deltoides</i>	Cottonwood	Subject site	-1.2	10	3	Poor	Poor	Grown into hydrolines. Codominant leaders, 3 stubs, only one trunk with branch remains. Torn branches. Canopy heavy W	direct conflict with construction	remove	construction impact
60	<i>Gleditsia triacanthos var. inermis</i>	Honey Locust	Subject site	65	6.5	5	Good	Good	0.5 x 0.25m trunk wound with wound wood. Full form.	direct conflict with construction	remove	construction impact
61-0	<i>Acer platanoides</i>	Norway Maple	409 Boler Rd	-60	7	5	Fair	Fair	Low clustered primary union. Located within raised garden bed.	none	preserve	none - asphalt driveway between construction and tree
VEGETATION UNITS												
Veg 1	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar	Subject Site	-5-30	-2	4/5	F/G	F/G	Hedge - Branched to grade. Fairly full. -12 meters tall.	direct conflict with construction	remove	construction impact
Veg 2	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar	Subject Site	-5-8	1-2	3	F/G	F/G	Hedge - Thin, loose.	direct conflict with construction	remove	construction impact
Veg 3	<i>Thuja occidentalis 'Nigra'</i>	Black Cedar	Subject Site	-5-10	2-3	5	G	G	Hedge - Dense.	direct conflict with construction	remove	construction impact
Veg 4	<i>Ulmus pumila</i> <i>Morus alba</i>	Siberian Elm Mulberry	Subject Site	10-20	3-4	4/5	F/G	F/G	Approximatley 13 Siberian Elms and 2 Mulberries	direct conflict with construction	remove	construction impact

5.0 POTENTIAL CONSTRUCTION IMPACTS ON TREES

Most trees have been recommended for removal due to direct conflict with the proposed development. Some trees that have been recommended for preservation may be in proximity to the proposed construction. Trees to be preserved may be affected by the construction process, or by the construction itself. It is imperative that the design team and the construction crew understand the potential for, and the causes of tree damage. Trees recommended for preservation may experience some or all of the following potential construction impacts. Strategies and methods to avoid these impacts are outlined in the Construction Impact Mitigation Recommendations section of this report.

5.1 SOIL COMPACTION

Soil compaction is caused by heavy or repeated compression or vibration of the soil around the tree. Soil compaction reduces the amount and size of macro and micro pore space that is vital for subsurface movement of air and water. The harmful effects of soil compaction include, but are not limited to: slower water infiltration, poor aeration, reduced root growth and an overall increased susceptibility to biotic and abiotic stressors.

5.2 ROOT LOSS

Root loss occurs when roots are severed. The majority of roots are typically located within the top 60cm of soil and can extend outward up to three times the extent of the tree drip line. Excavation of any kind within the critical root zone* can sever roots. Two categories of roots need to be considered when evaluating impacts of

root loss - small, fibrous absorbing roots, and large structural roots. Significant loss of either or both of these functions can cause stress and/or affect the structural stability of the tree. Note, however, that it is commonly accepted that healthy trees can typically tolerate and recover from the removal of approximately 33% (up to a maximum of 50%) of their root mass. Thorough consideration regarding extent of acceptable root removal is dependent on individual species characteristics, root loss distribution, and site specific conditions (*ref. Trees and Development: A Technical Guide to Preservation of Trees During Land Development by Nelda Matheny and James R. Clark, 1998. Pg 72*).

* Refer to 'Critical Root Zones' in this report for definition.

5.3 GRADE CHANGES

Lowering of the grade around trees has immediate and long term effects on trees. Lowering of grade requires immediate root loss from cutting the roots which results in water stress from the root removal and potential reduced structural stability.

Raising the grade around a tree can be equally damaging. The addition of fill over the root zone of a tree alters the roots' ability for normal water and gas exchange that is necessary for healthy root growth and stability. Fill essentially suffocates the roots and can lead to the slow and eventual decline of the tree.

5.4 MECHANICAL DAMAGE

Mechanical damage is caused by physical contact with a tree that damages the tree to any degree. During land development and construction activities, there is an increased risk of both minor and fatal mechanical damage to trees from construction equipment. Minor damage can create entry points for insects and pathogens, and fatal damage can cause irreparable structural damage.

5.5 CHANGES TO EXPOSURE - SUN AND WIND

Trees can be negatively affected by increased exposure to sun or wind when neighbouring trees are removed. This can be of particular concern when 'interior trees' (trees that have developed surrounded by other trees) are suddenly exposed to forest edge conditions. These trees may experience higher intensity of direct sunlight resulting in leaf scald, and instability due to increased wind and snow loads.

Trees can be negatively affected by decreased exposure to sunlight. Proposed development that includes tall buildings located to the south and west of mature existing trees can greatly reduce the amount of daily direct sunlight. While this change in environment may not cause the immediate or eventual death of a tree, it can certainly slow development and alter growing habits and patterns, and must therefore be a consideration when evaluating trees for potential preservation.

5.6 SOIL CONTAMINATION

Soil health around a tree can be compromised by contamination from spills or leaks of fuels, solvents, or other construction related fluids.

5.7 WATER AVAILABILITY

Grading and servicing requirements for development can affect water availability for trees. Trees may experience a loss of available water due to a lowered water table or the capture or redirection of subsurface and/or overland flow. Conversely, trees may experience an increase of available water due to changes in site grading and storm water retention efforts.

The successful survival of the trees to be preserved is largely dependent on adhering to the construction impact mitigation recommendations that follow.

6.0 CONSTRUCTION IMPACT MITIGATION RECOMMENDATIONS

The following general recommendations are provided to guide the removal process, mitigate construction impacts, and ensure compliance with provincial, federal, and municipal regulatory requirements. Some of the recommendations listed below are noted to be undertaken by an ISA certified arborist.

6.1 PRE-CONSTRUCTION RECOMMENDATIONS

- a) Prior to any construction activity, tree preservation fencing is to be installed as per the attached tree preservation drawings and detail.
- b) Trees approved for removal are to be clearly indicated in the field (marked with spray paint or other agreed upon method) by the project arborist or landscape architect prior to any tree removal operations. All removals to be undertaken by an ISA certified arborist.
- c) In accordance with the Migratory Birds Convention Act, 1994, all removals must take place between September 1st and March 31st to avoid disturbing nesting migratory birds. If tree removal occurs between April 1st and August 31st, a biologist is required to complete a search for nests. Once cleared, the contractor has 48 hours to remove. If removal does not occur within 48 hours, another search will be required.
- d) Care should be taken during the felling operation to avoid damaging the branches, stems, trunks, and roots of nearby trees to be preserved. Where possible, all trees are to be felled towards the construction zone to minimize impacts on adjacent vegetation. All removals to be undertaken by an ISA certified arborist.
- e) It is recommended that the existing ground-layer vegetation at the base of trees to be preserved remain intact within the critical root zone so as not to disturb the soil around the base of the existing trees.
- f) Final site grading plans should ensure that the existing soil moisture conditions are maintained.

6.2 RECOMMENDATIONS RELATED TO THE CONSTRUCTION PROCESS

- a) Tree preservation fencing is to be maintained in good condition and effective for the duration of construction until all construction activity is complete or as per the project arborist or landscape architect.
- b) Tree preservation fencing is to remain intact as per the tree preservation drawings, and can only be temporarily removed with the express written consent from the project arborist or landscape architect. Should tree

preservation fencing be temporarily relocated or moved, it is to be reinstated as per the tree preservation plans as soon as possible.

- c) No construction, excavation, adding of fill, stockpiling of construction material, or heavy equipment is permitted within the critical root zone/within the tree preservation fencing.
- d) When excavation near a tree is required, and it is anticipated that roots will be severed and exposed, duration of exposure is to be minimized to prevent root desiccation.
- e) During the excavation process, roots 25mm or larger that are severed and exposed should be hand pruned to leave a clean-cut surface. To be undertaken by an ISA certified arborist. Exposed severed roots that cannot be covered in soil on the same day as the cuts are made are to be kept moist. Exposed roots are to be kept moist by covering them with water soaked burlap or any other means available to prevent them from drying out.
- f) Avoid idling heavy equipment under or within close proximity to trees to be preserved to prevent canopy damage from exposure to the heat of the exhaust.
- g) Broken branches on trees within the subject site to be preserved should be cleanly cut as soon as possible after the damage has occurred. To be undertaken by an ISA certified arborist.

6.3 POST-CONSTRUCTION RECOMMENDATIONS

- a) Avoid discharging rain water leaders adjacent to retained trees, as this may result in an overly moist environment which can cause root rot.
- b) After all work is completed, tree preservation fences and any other impact mitigation paraphernalia must be removed.
- c) A final review must be undertaken by the project arborist or landscape architect to ensure that all mitigation measures as described above have been met.

7.0 DISCLAIMER

The assessment of the trees presented within 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, evidence of insect presence, discoloured foliage, the general condition of the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing.

Note that this arborist report has been prepared using the latest drawings and information provided by the client. Any subsequent design or site plan changes affecting trees may require revisions to this report. Any new information or drawings are to be provided to RKLA prior to report submission to planning authorities.

8.0 CONTACT INFORMATION

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Field work and report author

Michelle Peeters - michelle@rkla.ca

Qualifications

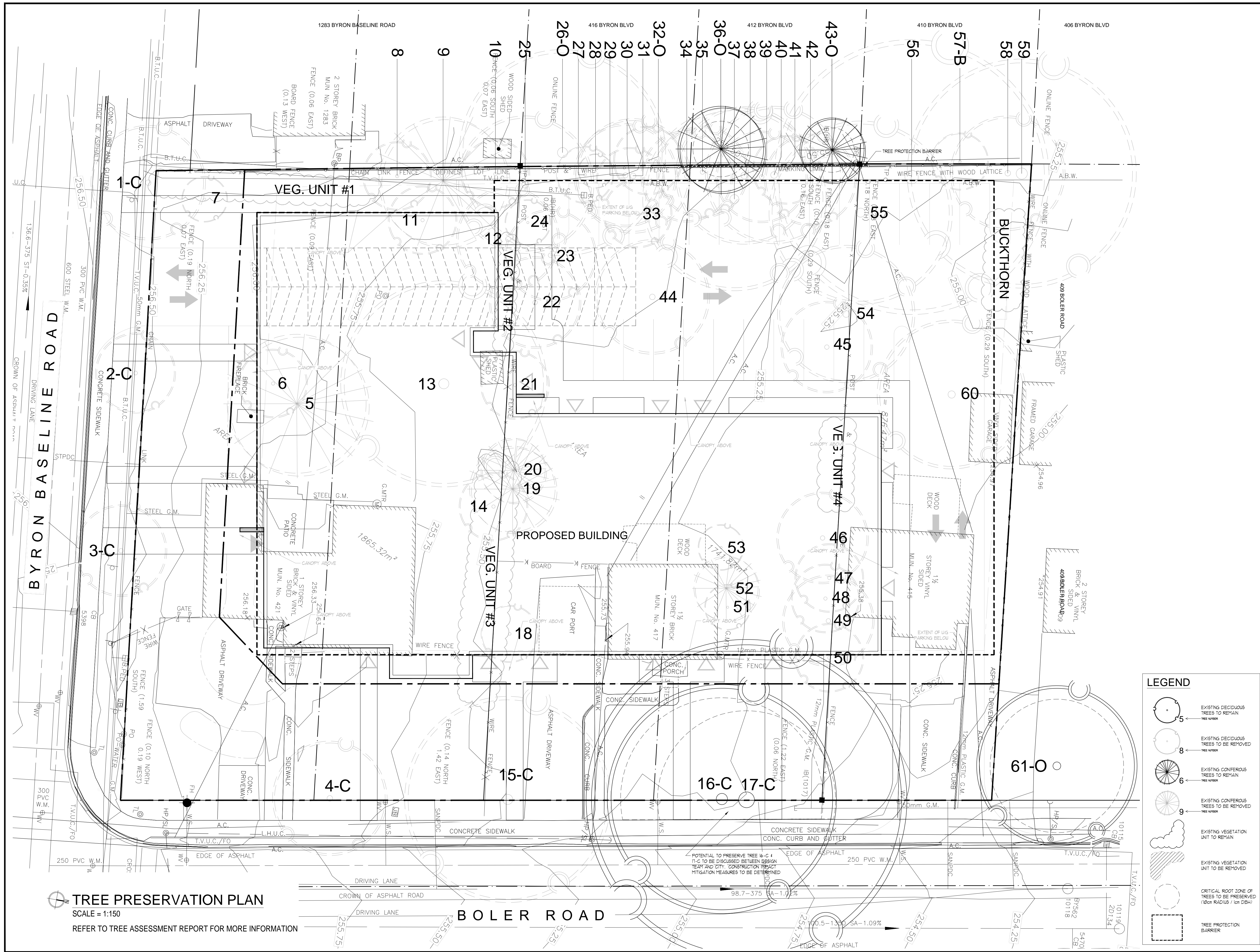
ISA Certified Arborist ON-2129A

ISA Tree Risk Assessment Qualified

Qualified Butternut Assessor BHA #710

OALA full member - landscape architect

9.0 APPENDIX A - TREE PRESERVATION DRAWING



LEGEND

- 5 EXISTING DECIDUOUS TREES TO REMAIN
- 8 EXISTING DECIDUOUS TREES TO BE REMOVED
- 6 EXISTING CONIFEROUS TREES TO REMAIN
- 9 EXISTING CONIFEROUS TREES TO BE REMOVED
- EXISTING VEGETATION UNIT TO REMAIN
- EXISTING VEGETATION UNIT TO BE REMOVED
- CRITICAL ROOT ZONE OF TREES TO BE PRESERVED (10cm RADIUS / 1cm DBH)
- TREE PROTECTION BARRIER



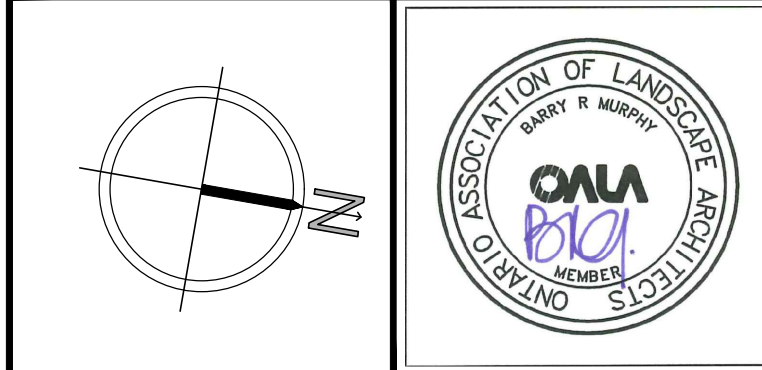
ALL DRAWINGS REMAIN THE PROPERTY OF THE LANDSCAPE ARCHITECT AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE LANDSCAPE ARCHITECT'S WRITTEN PERMISSION.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION OR TENDER PURPOSES UNLESS SIGNED AND DATED BY BARRY R. MURPHY, O.A.L.A. C.S.L.A. LANDSCAPE ARCHITECT, LONDON, ONTARIO (519) 667-3322.

Barry R. Murphy, O.A.L.A. C.S.L.A. DATE

DATE	DESCRIPTION	No.
JUNE 24, 2022	ISSUED FOR ZBA	3.
MAY 31, 22	PRESENTATION PLAN	2.
MAY 12, 22	ISSUED FOR REVIEW	1.

PLOTTING INFORMATION:
 PLOTTED DATE = JUNE 24, 2022
 PLOTTED SCALE = 1:1



PROJECT TITLE:
RESIDENTIAL DEVELOPMENT
 415 Boler Road
 London, ON

DRAWING TITLE:
TREE PRESERVATION PLAN

DATE: DECEMBER 2021	SCALE: AS NOTED	DRAWING No. T-1
DRAWN: RKL/A Inc.	CHECKED BY: BRM	
PROJECT No. 21-302Lk ZBA		