Arboris
Expert en soins aux arbres
Tree Care Expert

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Arborist Report

DATE: 2023-02-22

Janet Rosenberg & Studio Inc
148 Kenwood Avenue
Toronto, ON M6C 2S3

Attn. Robert McIntosh

Object: Tree Health Assessment and Proposed Tree Protection Plan at Queenswood United Church (360 Kennedy Lane E, Ottawa, Ontario)

Janet Roesenberg & Studio Inc has requested an assessment of various trees located at 360 Kennedy Lane E, Ottawa ON and a proposed tree protection plan for a future construction project. The assessment of trees was conducted on the 30th of August 2021. A second assessment was conducted on the 30th of August 2022, as some trees on the initial plan will now need to be removed.

Assessed Trees

A total of 28 trees were assessed on the property. The Amur Maples have multiple co-dominant stems, each one having a varying diameter at breast height of 5 to 20 centimeters. For the purpose of this assessment, their DBH was measured at the lowest point before codominance begins and each stem was measured at 1.3 meters from the ground. This was also the case for Colorado Blue Spruce #19. All other trees were measured at 1.3 meters from the ground.

ID	Species	Latin name	DBH	Condition	Retaina bility	Ownership
1	Amur Maple	Acer *ginnala*	60cm (6 stems 10-15cm)	Good overall health and vigor	Remove	Within Development
2	Amur Maple	Acer *ginnala*	44cm (6 stems 7-12cm)	Fair vigor and overall health, multiple wounds on trunks, healthy reaction wood present, some rot at union	Remove	Within Development
3	Amur Maple	Acer *ginnala*	51cm (6 stems 10-15cm)	Good overall health and vigor	Remove	Within Development
4	Amur Maple	Acer *ginnala*	38cm (3 stems 6-12cm)	Fair vigor, poor overall health, cankers at union	Remove	Within Development
5	Amur Maple	Acer *ginnala*	78cm (7 stems 5-18cm)	Good overall health and vigor	Remove	Within Development
6	Amur Maple	Acer *ginnala*	40cm (6 stems 5-10cm)	Good overall health and vigor	Remove	Within Development
7	Amur Maple	Acer *ginnala*	66cm (8 stems 5-15cm)	Good overall health and vigor	Remove	Within Development
8	Amur Maple	Acer *ginnala*	51cm (4 stems 10-15cm	Good overall health and vigor, some wounds on trunks, healthy reaction wood present	Remove	Within Development
9	Amur Maple	Acer *ginnala*	54cm (5 stems 5-15cm)	Good overall health and vigor, some wounds on trunks, healthy reaction wood present	Remove	Within Development
10	Amur Maple	Acer *ginnala*	55cm (6 stems 10-15cm)	Good overall health and vigor, some wounds on	Remove	Within Development

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				trunks, healthy reaction wood present		
11	Amur Maple	Acer *ginnala*	48cm (3 stems 10-15cm)	Good vigor, fair overall health, canker at base, some reaction wood present	Remove	Within Development
12	Colorado Blue Spruce	Picea *pungens* 'Glauca'	35cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
13	Colorado Blue Spruce	Picea *pungens* 'Glauca'	28cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
14	Colorado Blue Spruce	Picea *pungens* 'Glauca'	46cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
15	Colorado Blue Spruce	Picea *pungens* 'Glauca'	38cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Retain	Outside Developement
16	Colorado Blue Spruce	Picea *pungens* 'Glauca'	42cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Retain	Outside Developement
17	Colorado Blue Spruce	Picea *pungens* 'Glauca'	43cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Retain	Outside Developement
18	Red Pine	Pinus *resinosa*	49cm	Good overall health and vigor	Retain	Outside Developement
19	Colorado Blue Spruce	Picea *pungens* 'Glauca'	Co-dominant, 51cm (2 stems 40cm and 22cm)	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
20	Colorado Blue Spruce	Picea *pungens* 'Glauca'	37cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Retain	Outside Developement
21	Colorado Blue Spruce	Picea *pungens* 'Glauca'	43cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Retain	Outside Developement
22	Colorado Blue Spruce	Picea *pungens* 'Glauca'	45cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
23	Colorado Blue Spruce	Picea *pungens* 'Glauca'	49cm	Good vigor, fair overall health, Needle Cast and Pitch Mass Borer present	Remove	Within Development
24	Colorado Blue Spruce	Picea *pungens* 'Glauca'	40cm	Poor overall health and vigor, stunted growth, Needle Cast and Pitch Mass Borer present	Remove	Within Development
25	English Oak	Quercus *robur*	48cm	Fair overall health and vigor, multiple codominant stems at 3m, limb constriction, large barreling crack starting at	Retain	Outside Developement

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				base spanning 3m to first union		
26	English Oak	Quercus *robur*	28cm	Poor overall health and vigor, stunted growth, dieback throughout, root flare potentially obstructed by gridling root	Retain	Outside Developement
27	English Oak	Quercus *robur*	34cm	Fair overall health and vigor, large barreling crack starting at base and spanning 3m	Retain	Outside Developement
28	Amur Maple	Acer *ginnala*	60cm (8 stems 5-12cm)	Good overall health and vigor	Retain	Outside Development (Shared tree)

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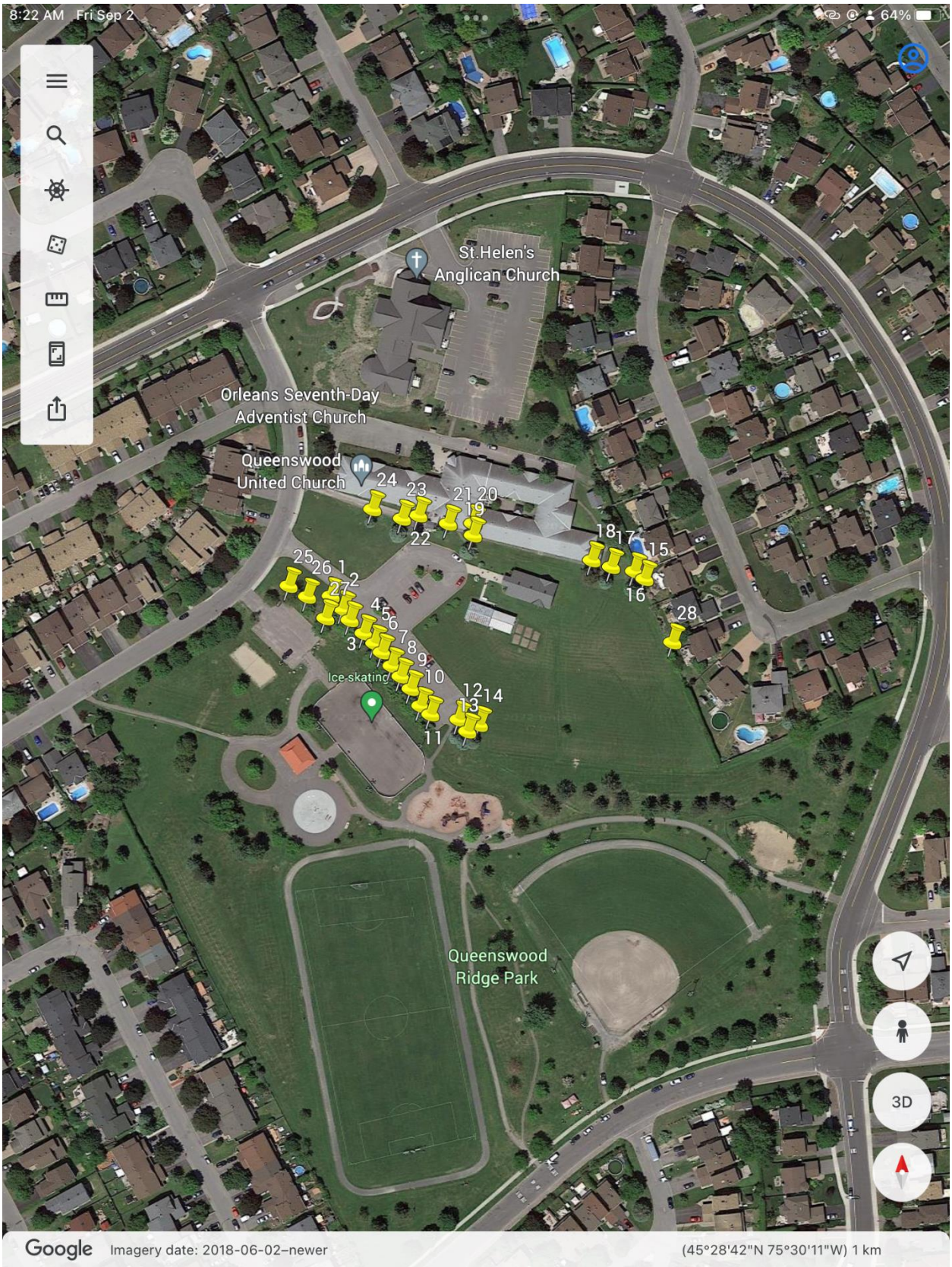

Observed Pathogens

Cankers were observed in Amur Maples #4 and #11. These cankers seem to have infected wounds caused by grass trimmer damage at the base of the trunk. Both trees show some reaction wood, but many of these compartmentalizing attempts have been infected by the canker. There are no specific treatments for these cankers. Promoting good tree health through fertilization, adequate irrigation and pruning is recommended. Adding a mulch ring around the trees will also minimize risk of grass trimmer damage in the future. Copper sprays can also slow the spread of the canker but will not remove the infection.

Needle Cast (Rhizosphaera *kalkhoffii*) was observed in all Colorado Blue Spruces. Samples were collected from each tree and the disease was confirmed on each sample. This fungal infection blocks the stomata of the needles rendering them useless for the tree. This causes needle drop from within the canopy. The fungus slowly progresses through the canopy, infecting new growth. Needle Cast is very common in Colorado Blue Spruce. Although usually not fatal, Needle Cast will severely affect trees overtime. Copper Spray applications can control the spread of the fungus, sometimes with surprising results depending on the severity of cases.
Most Colorado Blue Spruce on the property are showing very little signs of the disease, which makes them good candidates for fungicidal sprayings. Colorado Blue Spruce #24 is not fairing as well as others. The needles and new growth seem stunted, and most of the lower needles have already dropped. We suspect a problem with the root system. Lack of nutrients or water due to soil compaction or improper planting may be the cause.

Pitch Mass Borer (Synanthedon *pini*) were also observed on all Colorado Blue Spruce. The symptoms of the borer can easily be seen on the trunk as large sap masses. Although not usually fatal, these borers can cause damage to the tree's healthy tissue causing dieback. There are no specific treatments for Pitch Mass Borer. The sap masses can be removed in hopes of removing the larvae hidden beneath.

Tree Ownership

All trees to be removed are located within the development. Retainable trees are located outside the development.

Proposed Tree Protection Plan for Construction Project

A Tree Protection Plan (TPP) is usually put in place for any construction project which may take place near trees. This plan consists of implementing protection measures to mitigate stress and preserve trees. Tree Protection Zones (TPZ) are put in place to eliminate any vehicular or pedestrian traffic within the Critical Root Zone (CRZ), therefore reducing soil compaction and eliminating risk of damage to the tree's trunks or limbs. These protection zones can be modified in order to accommodate for construction, but it is preferable to respect the proposed TPZ dimensions. TPZ dimensions are based off the tree's DBH.

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*Dimensions for critical root zone are not exact. Refer to proposed tree protection plan and tree protective fencing table for recommended dimension

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Tree Protection Fencing

ID	Species	DBH	Multiplying Factor	CRZ Radius
15	Colorado Blue Spruce	38cm	10	3.8 meters from edge of trunk
16	Colorado Blue Spruce	42cm	10	4.2 meters from edge of trunk
17	Colorado Blue Spruce	43cm	10	4.3 meters from edge of trunk
18	Red Pine	49cm	10	4.9 meters from edge of trunk
20	Colorado Blue Spruce	37cm	10	3.7 meters from edge of trunk
21	Colorado Blue Spruce	43cm	10	4.3 meters from edge of trunk
25	English Oak	48cm	10	4.8 meters from edge of trunk
26*	English Oak	28cm	10	2.8 meters from edge of trunk
27	English Oak	34cm	10	3.4 meters from edge of trunk
28	Amur Maple	30 cm average	10	3.0 meters from edge of trunk

*Although English Oak-26 is indicated as a retainable tree on the site plan, it's chances of survival are quite small. Based on the overall health and vigor of the tree, combined with stunted growth and dieback, we would recommend removing the tree altogether.

Protective fencingshould be installed at the edge of the new swale. Trenching and root pruning is recommended.

Recommendations

Before Construction Operations:

- Tree Protection Zone (TPZ)
  - Establish Tree Protection Zone perimeter that will not impede construction project and install tree preservation fence with signage. No heavy operations shall occur within this zone during the full duration of the project, including fence installation.
- Trenching
  - If excavation is required within the critical root zone, determine perimeter of excavation operations.
  - Dig a 1-meter-deep trench at fence line near excavation operations, expose root system with air spade, and properly prune roots larger than 1 inch in diameter. Note that cutting roots at a distance from the trunk that is within 6 times the DBH may compromise tree stability.
- Pruning
  - Pruning of lower branches to provide clearance for excavating equipment if required.
- Mulching
  - Areas within the Tree Protection Zone which may require vehicular traffic shall be covered with a layer of mulch no less than 6 inches thick to disperse load and minimize soil compaction.

- Tree Removal
  - Any tree that will not be retained and has a DBH of 50cm or greater will require a Distinctive Tree Removal Permit from the City of Ottawa.

During Construction Operations:

- Tree Protection Zone (TPZ)
  - No heavy operations shall occur within this zone. Monitor tree protection zone fencing, repair when required.
- Mulching
  - Ensure layer of mulch is always greater than 6 inches thick, add mulch when required.

After Construction Operations:

- Tree Protection Zone (TPZ)
  - No heavy operations shall occur within this zone, including during fence removal.
- Mulch
  - Mulch layers shall be removed once vehicular traffic is no longer required
- Access
  - Restrict root zone access to vehicles and pedestrians to minimize soil compaction (such as planting ground covers, building low walls, or installing fences around the root system).

This plan can be modified or adapted to fit the contractor's needs, if more space is required to perform the work.

References:

- Kelby Fite, Thomas Smiley, E., 2016, Best Management Practices, Managing Trees During Construction Second Edition, International Society of Arboriculture, Atlanta, Georgia, 37 pp.
- Scharenbroch, B. C., Thomas Smiley, E., Kocher, W. 2014, Soil Management for Urban Trees, International Society of Arboriculture, Champaign, Illinois, 38 pp.
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- Edward F. Gilman, Professor, Environmental Horticulture Department, IFAS, University of Florida 2015, Tree Preservation, [http://hort.ifas.ufl.edu/woody]

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