Gordon Street (Lowes Road to Edinburgh Road), Guelph Schedule 'B' Class Environmental Assessment

Tree Inventory and Preservation Plan

Prepared for:

IBI Group
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Waterloo, Ontario N2L 3V3

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Gordon Street (Lowes Road to Edinburgh Road), Guelph Schedule 'B' Class Environmental Assessment

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by IBI Group, on behalf of the City of Guelph, to complete a Tree Inventory and Preservation Plan (TIPP). This TIPP is to accompany an Environmental Impact Study (EIS) informing the Schedule "B" Municipal Class Environmental Assessment (EA) for improvements to Gordon Street in the City of Guelph. The EA study area comprises Gordon Street between Lowes Road in the south and Edinburgh Road in the north.

The TIPP was conducted in accordance with the City of Guelph By-law (2010)-19058 (City of Guelph 2010). This by-law states that if an owner wishes to destroy or injure a regulated tree, and if none of the exemptions set out in this by-law are applicable, then the owner shall submit the information required in Part 5 of the by-law, including a Landscaping, Replanting and Replacement Plan. Within the By-law, a regulated tree is defined as:

> *"a specimen of any species of deciduous or coniferous growing woody perennial plant, supported by a single root system, which has reached, or could have reached a height at least 4.5m from the ground at physiological maturity, is located on a lot that is greater than 0.2 hectares (0.5 acres) in size and has a [Diameter at Breast Height] (DBH) of at least 10cm"***.**

According to the By-law, the destruction or injury of a regulated tree is exempt from the requirement for a permit if the regulated tree is:

> *"A tree on lands used for Institution, golf course, commercial or industrial purposes, provided that a Tree Management Plan has been submitted to, and approved, by an Inspector, subject to such as the Inspector may have considered necessary" [Part 4, section (k)]."*

The City of Guelph's Official Plan (City of Guelph 2018) also requires that a Tree Inventory and Preservation Plan be required for the replacement of all healthy indigenous trees measuring over 10cm DBH.

Section 6.2.5 Tree Inventory and Tree Preservation Plan within the Official Plan notes:

1. *"Tree Inventory and Tree Preservation Plans shall as a minimum include:*

   i) A Tree Inventory measuring all trees over 10cm [DBH], including the size, species composition and health, and indigenous shrubs in accordance with the City's tree inventory guidelines,

   ii) A Tree Preservation Plan identifying healthy indigenous and non-invasive trees to be protected, including those that may be transplanted (e.g. small specimens),

iii) The protective measures required for tree protection during construction, and

iv) Measures for avoiding disturbance to any breeding birds during construction"

The tree inventory data and mapping has been compared to the layout of the preliminary road design as provided by IBI Group. Map 1 shows the tree inventory data overlaying the proposed right-of-way (ROW) improvements. This plan shows the proposed ROW layout, including design components such as grassed boulevards and multi-use trails, and existing inventoried trees. The existing overall health and/or potential for structural failure was compared to the layout to determine which existing trees would be impacted by the proposed undertaking. Avoidance, mitigation, and protection measures for trees were examined to determine which trees would be impacted and which could be retained. In the case of trees requiring removal, compensation for removal is discussed.

This report summarizes the following:

- findings of the tree inventory,
- assessment of overall health and potential for structural failure of inventoried trees, and
- tree retention analysis based on the proposed preliminary design, and recommended tree protection, mitigation and compensation measures.

2.0 Tree Inventory and Methodology

A comprehensive inventory of trees ≥10cm in DBH with the potential to be impacted by the planned undertaking was completed by NRSI Certified Arborists on July 3, July 11 and August 12, 2019. The location of trees inventoried was surveyed using an SXBlue II GNSS GPS unit by the Certified Arborist and are shown on Map 1. A complete list of the trees that were assessed and their overall health and potential for structural failure is included in Appendix I.

The following information was recorded for each tree:

- Numeric identifier
- species,
- DBH,
- crown radius (metres),
- general health (excellent, good, fair, poor, very poor, dead),
- potential for structural failure (improbable, possible, probable, imminent),
- tree location (on-site/off-site) and,
- general comments (i.e. disease, aesthetic quality, development constraints, sensitivity to development, wildlife habitat).

The overall health and potential for structural failure of each tree was assessed based on the criteria outlined in Appendix II. In carrying out these assessments, NRSI has exercised a reasonable standard of care, skill and diligence as would be customarily provided in carrying out these assessments. The assessments have been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. None of the trees examined on the property were dissected, cored, probed, or climbed and detailed root crown examinations involving excavation were not undertaken. The conditions for this assessment, including restrictions, professional responsibility, and third-party liability can be found in Appendix III.

3.0 Summary of Tree Inventory Findings

In total, 157 trees were inventoried, comprising 26 species. Of the trees inventoried and assessed, 63 are native species and 96 are non-native. A complete list of trees inventoried is provided in Appendix I and tree locations within the subject property are shown on Map 1.

Table 3 provides a list of tree species inventoried within the study area, whether they are native or non-native and their overall health.

Table 1. Summary of Inventoried Trees

Common Name	Scientific Name	Excellent	Good	Fair	Poor	Very Poor	Dead	Total
Native Species								
Black Walnut	*Juglans nigra*		1		1			2
Eastern White Cedar	*Thuja occidentalis*			13	1			14
Eastern White Pine	*Pinus strobus*		1	2				3
Freeman's Maple	*Acer X freemanii*		6	6	1	1		14
Manitoba Maple	*Acer negundo*			3				3
Silver Maple	*Acer saccharinum*			3				3
Speckled Alder	*Alnus incana*		1					1
Sugar Maple	*Acer saccharum* ssp. *saccharum*		1	4	1	1		7
Trembling Aspen	*Populus tremuloides*		1	1				2
White Ash	*Fraxinus americana*						4	4
White Elm	*Ulmus americana*			1				1
White Spruce	*Picea glauca*		1	7	1			9
Total			12	40	5	2	4	63
Non-Native Species								
Amur Maple	*Acer ginnala*			2				2
Austrian Pine	*Pinus nigra*	1		4	1			6
Burning Bush	*Euonymus alatus*			1	3			4
Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*		1	5				6
Colorado Spruce	*Picea pungens*	2	3	10		1		16
Crack Willow	*Salix fragilis*			1				1
European Ash	*Fraxinus excelsior*					3		3
Flowering Crab Apple	*Malus baccata*			1				1
Japanese Silk Lilac	*Syringa reticulata*		2					2
Norway Maple	*Acer platanoides*		10	18	1			29
Norway Spruce	*Picea abies*		2	14	1		1	18
River Birch	*Betula nigra*		1					1
Small Leaf Linden	*Tilia cordata*			1				1
Thornless Honey Locust	*Gleditsia triacanthos* var. *inermis*		2	2				4
Total		3	21	59	6	4	1	94
Overall Total		3	33	99	11	6	5	157

Table 4 provides a summary of the overall health of trees inventoried within the subject property, along with their potential for structural failure. A majority of the trees inventoried are in fair health with an improbable potential for structural failure.

Table 2. Overall Health of Trees Inventoried

Potential for Structural Failure Rating	Overall Condition						Total
	Excellent	Good	Fair	Poor	Very Poor	Dead	
Improbable	3	33	94	6	1	4	141
Possible			5	4			9
Probable				1	5	1	7
Imminent							0
Total	3	33	99	11	6	5	157

4.0 Tree Removal and Retention Analysis

Tree removal and retention was based on two considerations:

1) Trees identified as having a probable or imminent potential for structural failure or poor or very poor health, or identified as dead: The removal of these trees may be recommended for safety, especially if they are located within striking distance of a component of the road infrastructure, or existing off-site pathways, roads or buildings.
2) Trees that require removal based on the limits of proposed road construction: The location of the trees was compared to the location of the components of the preliminary design plan, as shown on Map 1.

Tree retention, particularly for those on private property, should be reassessed at the Detailed Design stage through minor revisions to the construction limits around tree root zones. Of the 157 trees inventoried, 32 are anticipated to be removed. This includes 5 trees that have been identified as having a probable potential for structural failure, and an additional 9 are exempt from compensation due to their poor condition. The remaining trees require removal based on the extent of required road construction. This includes trees situated along the construction limit or in close proximity that may incur root damage as a result of construction. Most of these trees are in fair health with an improbable potential for structural failure, and range in size from 10cm DBH to 73.8cm DBH.

Removal of boundary and off-site (private) trees will require the permission of all owners involved. If the main stem of any tree is located on multiple properties, all owners of those properties must be consulted before any tree removal occurs.

5.0 Tree Compensation Plan

Section 5 (h) in the City's tree by-law (2010)-19058 states that "*where three or more trees are proposed for Destruction or Injuring, and where the Inspector so requires, a Landscaping, Replanting and Replacement Plan*" is required. Overall compensation for tree loss is a requirement of the City's by-law which notes that "*each tree Destroyed or Injured be replaced with one or more replacements trees to be planted and maintained to the satisfaction of the Inspector in accordance with the Landscaping, Replanting and Replacement Plans approved by the Inspector*" [Section 7 (b)].

According to City of Guelph Tree By-law Number (2010)-19058, trees exempt from compensation must have the following site-specific criteria:

"*A tree having no living tissue, having 70% or more of its crown dead, or being infected by a lethal pathogen, fungus or insect (including the Emerald Ash Borer or the Asian Long-horned Beetle), and where required, a certificate issued by an Arborist, confirming this justification for Destruction or Injuring, has been submitted to an Inspector*" [Part 4, section (a)],

"*A tree which is Hazardous, and where required, a certificate issued by an Arborist, confirming this justification for Destruction or Injuring, has been submitted to an Inspector*" [Part 4, section (b)]

"*A specimen of Rhamnus cathartica (Common Buckthorn), Rhamnus frangula (Glossy Buckthorn), Alnus glutinosa (Black Alder), Elaeagnus umbellata (Autumn Olive), or Morus alba (White Mulberry)*" [Part 4, section (g)],

"*A fruit tree that is capable of producing fruit for human consumption*" [Part 4, section (h)].

A total of 5 trees require removal based on their structural integrity, and a further 9 trees are exempt due to their assessed health. Table 3 provides a summary of the trees inventoried throughout and adjacent to the ROW, and a total number proposed for removal, broken down by private, ROW, and boundary areas. At the Detailed Design stage, a compensation plan will be required, outlining the specific method, or combination of methods, being used to achieve the required compensation. A summary of compensation options is provided in Table 3. The identified compensation ratios are based on NRSI's knowledge of standard compensation practices and requirements implemented in the City of Guelph. It is also understood that use of shrubs as compensation plantings is typically only considered after a 1:1 tree replacement ratio

has been achieved. A complete list of inventoried trees, including a determination of whether trees require compensation, is provided in Appendix I.

Table 3. Summary of Trees to be Removed and Recommended Compensation Plan

Trees Inventoried	Total
Off-Site Trees (privately owned)	83
On-Site Trees (ROW)	22
Boundary Trees (owned by 2 or more parties)	52
Total number of trees inventoried	157
Tree Compensation Break Down	
Total Trees to be Removed	32
Trees to be removed due to their structural condition (exempt from compensation)	5
Other trees to be removed that are exempt from compensation (poor condition)	9
Fair-good quality ROW trees to be removed due to development	8
Fair-good quality private trees to be removed	1
Fair-good quality boundary trees to be removed	9
3:1 Compensation trees OR 5:1 compensation shrubs) OR $500 per tree	54 trees OR 90 shrubs OR $9,000

6.0 Tree Protection Measures and Recommended Mitigation

6.1 Prior to Construction

A combined sediment and erosion control fence (i.e. silt fence) and tree protection fence (TPF) is recommended where trees are situated adjacent to the limit of disturbance (Map 1). This TPF is to take the form of 1200mm high heavy-duty paige-wire fencing, as per City of Guelph design standards (also outlined on Map 1).

The TPF will be installed and maintained by the Developer. Prior to any construction activities (rough grading, vegetation and tree removal), the TPF will be installed at the limit of construction. Prior to works commencing on-site, fence installation and location is to be inspected by a Certified Arborist and/or the on-site Environmental Inspector. Signage indicating the purpose of protection fencing will be attached to the paige-wire fencing every 100-150m. Proposed fencing locations are shown on Map 1.

The TIPP is to be reviewed and approved by the City of Guelph. Upon approval of this Plan, and prior to any on-site works, a qualified environmental consultant is to submit written verification to the City that all of the recommended tree protection measures have been installed in accordance with the TIPP.

6.2 During Construction

Temporary TPF is to be maintained by the City during the entire construction period to ensure that off-site trees being retained and their root systems are protected. Damage to any trees to be protected should be reported to the Certified Arborist and the City.

6.3 Post-Construction

It is recommended that the temporary TPF be removed upon completion of all construction activities and adjacent areas are stabilized with a vegetative cover (i.e. sod) to the satisfaction of the Environmental Inspector or qualified biologist. ROW planting details will be outlined in a Landscape Plan to be prepared during the Detailed Design stage. Watering and pruning of newly planted trees will be carried out by the owner/contractor as required during the warranty period (approximately 2 years).

6.4 Mitigation

Any minimal damage (i.e. damage to limbs or roots) to trees to be retained during the construction stage must be pruned using proper arboricultural techniques. Should any of the

trees intended to be retained be seriously damaged or die as a result of construction activities, the owner will remove and replace the tree at their own expense at a 3:1 ratio. Any damage to a tree that has not been approved through the acceptance of this report must be reported to the City of Guelph. Replacement species are to be reviewed by a Certified Ontario Landscape Architect (OLA) or Certified Arborist.

It is recommended that the following criteria be followed during the development of the ROW planting plan:

- The plan should be developed by, or reviewed and approved by a Certified Arborist;
- The plan should include hardy, native tree species where feasible that are known to thrive in more urban conditions (i.e. compacted soil, drought, high salt tolerance),
- Include a diversity of trees from several genera to increase disease and pest tolerance and discourage monocultures (no more than 30% from a single genus, 10% from a single species),
- Include a watering and monitoring plan for 2 years following planting,
- Trees should be replaced if they are documented to have died within the 2-year monitoring plan,
- Trees should be provided with appropriate soil types and soil volumes,
- Spacing of plant material should account for the ultimate size and form of the selected species and also the purpose of the planting, whether it be for screening, shade, naturalizing, rehabilitation, etc.,
- In order to maximize the visibility of deer, it is recommended that street tree plantings be widely spaced within the general locations of the Deer Crossings and Ecological Linkage, and that they not possess a dense or shrubby growth form, such as Cedar (*Thuja* spp.) or Spruce (*Picea* spp.), that could conceal or obscure motorist views of roadside deer,
- Planted vegetation should also not be a species that is attractive to deer, such as Oaks (*Quercus* spp.), Honey Locust (*Gleditsia triacanthos*), or Hackberry (*Celtis occidentalis*), and
- Instead plant species that do not attract deer, such as Sycamore (*Platanus occidentalis*) and Tulip Tree (*Liriodendron tulipifera*).

7.0 References

City of Guelph. 2010. Tree By-law Number (2010) - 19058.

City of Guelph. 2018. The City of Guelph Official Plan.

Dunster, J. A. 2009. Tree Risk Assessment in Urban Areas and the Urban/Rural Interface: Course Manual. Pacific Northwest Chapter, International Society of Arboriculture, Silverton, Oregon.

Dunster, J. A., E. T. Smiley, N. Matheny, and S. Lily. 2013. Tree Risk Assessment Manual. International Society of Arboriculture, Champaign, Illinois.

Appendix I
Tree Inventory Data

Gordon Street EA Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
1	Burning Bush	*Euonymus alatus*	Non-Native	4	13+11+10	2.0	Improbable	Fair	Boundary	Remove	Dieback; exit holes; codominant leaders.
2	Burning Bush	*Euonymus alatus*	Non-Native	2	10.1	1.0	Improbable	Poor	Boundary	Remove	Canker; epicormic growth; dead branches; insect exit holes.
3	Burning Bush	*Euonymus alatus*	Non-Native	1	12.4	2.0	Improbable	Poor	Boundary	Remove	Major dieback; exit holes; codominant leaders.
4	Burning Bush	*Euonymus alatus*	Non-Native	2	12.9+12	1.0	Improbable	Poor	Boundary	Remove	Canker; epicormic growth; dead branches.
5	Norway Maple	*Acer platanoides*	Non-Native	1	55.9	5.0	Improbable	Fair	Private	Prune	Dieback; lower dead branches.
6	White Spruce	*Picea glauca*	Native	1	31.8	3.0	Improbable	Fair	Private	Retain	Tall crown; dieback; dead branches.
7	White Spruce	*Picea glauca*	Native	1	25.5	1.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned; crown dieback.
8	Norway Maple	*Acer platanoides*	Non-Native	1	73.5	5.0	Improbable	Good	Private	Remove	Codominant leaders; included bark; branch rub.
9	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	62.2	5.0	Improbable	Fair	Boundary	Remove	Crown pruned away from ROW; small retaining with utilities above sidewalk; healthy.
10	Black Walnut	*Juglans nigra*	Native	2	30+30	5.0	Possible	Poor	Private	Retain	Codominant leaders; open cankers; included bark; dieback.
11	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	56	4.0	Improbable	Fair	Boundary	Remove	Codominant leaders; included bark; dead branches; history of pruning.
12	Norway Maple	*Acer platanoides*	Non-Native	1	51.5	6.0	Improbable	Fair	Private	Retain	Minor dieback.
13	Norway Maple	*Acer platanoides*	Non-Native	1	41.7	4.0	Improbable	Fair	Private	Retain	Codominant leaders; included bark; sign taped to stem.
14	Norway Spruce	*Picea abies*	Non-Native	1	32.6	3.0	Improbable	Fair	Private	Retain	Minor dieback.
15	Trembling Aspen	*Populus tremuloides*	Native	1	27.7	3.5	Possible	Fair	Private	Retain	30% dieback; dead branches.
16	Trembling Aspen	*Populus tremuloides*	Native	1	24.7	6.0	Improbable	Good	Private	Retain	Asymmetrical crown to west; dead branches.
17	Norway Spruce	*Picea abies*	Non-Native	1	52.2	5.0	Improbable	Fair	Private	Retain	Tall crown; minor dieback.
20	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	11	0.5	Improbable	Fair	Public	Remove	Water sprouts; deer guard girdling stem.
21	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	10.8	2.0	Improbable	Fair	Boundary	Remove	Dieback; water sprouts.
22	Freeman's Maple	*Acer X freemanii*	Native	1	10	2.5	Improbable	Poor	Boundary	Remove	Major dieback; epicormic growth.
23	Freeman's Maple	*Acer X freemanii*	Native	1	12.7	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; compartmentalized wound on lower stem, some rot.
24	Freeman's Maple	*Acer X freemanii*	Native	1	12.5	3.0	Improbable	Fair	Boundary	Retain	Minor dieback; water sprouts.
25	Freeman's Maple	*Acer X freemanii*	Native	1	10.5	3.0	Improbable	Fair	Boundary	Retain	Open canker; dieback; small dead branches.
26	White Ash	*Fraxinus americana*	Native	1	11.1	0.5	Improbable	Dead	Boundary	Remove	Suckering at base.
27	Silver Maple	*Acer saccharinum*	Native	1	12.8	2.0	Improbable	Fair	Boundary	Retain	Minor dieback.
28	European Ash	*Fraxinus excelsior*	Non-Native	1	13.5	3.0	Probable	Very Poor	Boundary	Remove	Only water srouts remain alive.
29	Freeman's Maple	*Acer X freemanii*	Native	1	15.6	1.0	Improbable	Good	Boundary	Remove	Epicormic growth; branch rub.
30	European Ash	*Fraxinus excelsior*	Non-Native	1	12.7	2.0	Probable	Very Poor	Boundary	Remove	Only water srouts remain alive.
31	Freeman's Maple	*Acer X freemanii*	Native	1	16.4	1.0	Improbable	Good	Boundary	Remove	Compartmentalized wound on lower stem; included bark.
32	European Ash	*Fraxinus excelsior*	Non-Native	1	12.5	2.0	Probable	Very Poor	Boundary	Remove	Only water sprouts remain alive.
33	Freeman's Maple	*Acer X freemanii*	Native	1	12.2	2.0	Probable	Very Poor	Boundary	Remove	95% dieback.
34	White Ash	*Fraxinus americana*	Native	1	10.5	1.0	Improbable	Dead	Boundary	Remove	EAB.
35	Silver Maple	*Acer saccharinum*	Native	1	14.3	3.0	Improbable	Fair	Boundary	Retain	Dieback; water sprouts.
36	White Ash	*Fraxinus americana*	Native	1	10.8	1.0	Improbable	Dead	Private	Remove	EAB.
37	Silver Maple	*Acer saccharinum*	Native	1	11.4	3.0	Improbable	Fair	Boundary	Remove	Dieback; water sprouts.
38	Freeman's Maple	*Acer X freemanii*	Native	1	18.5	1.0	Improbable	Fair	Boundary	Retain	Included bark; branch rub; epicormic growth; reaction wood; compartmentalized wound with rot.
39	Eastern White Cedar	*Thuja occidentalis*	Native	1	27.7	2.0	Possible	Poor	Boundary	Prune	Leaning south; 50% dieback.
40	Eastern White Cedar	*Thuja occidentalis*	Native	1	25.7	1.5	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch rub.
41	Norway Maple	*Acer platanoides*	Non-Native	1	13.4	2.5	Improbable	Fair	Boundary	Retain	Minor dieback; dense hedgerow.
42	Eastern White Cedar	*Thuja occidentalis*	Native	1	26.9	1.5	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch rub.
43	Norway Maple	*Acer platanoides*	Non-Native	1	15.5	2.5	Improbable	Fair	Public	Retain	Minor dieback; dense hedgerow.
44	Norway Maple	*Acer platanoides*	Non-Native	1	14.2	2.0	Improbable	Fair	Boundary	Retain	Minor dieback; dense hedgerow.
45	Eastern White Cedar	*Thuja occidentalis*	Native	1	20.2+20	2.0	Improbable	Fair	Boundary	Retain	Crown dieback; lower branches pruned.
46	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	10.4	2.0	Improbable	Fair	Public	Retain	Water sprouts; dieback.
47	Norway Maple	*Acer platanoides*	Non-Native	1	22.5	4.5	Improbable	Fair	Private	Retain	Slightly unbalanced; minor dieback; minor lean southwest.
48	Norway Maple	*Acer platanoides*	Non-Native	1	33	4.0	Improbable	Fair	Private	Retain	Compartmentalized wound on lower stem; debris around base.
49	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	1	14.5	1.0	Improbable	Good	Private	Retain	Epicormic growth; asymmetrical crown to west.
50	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	10	2.0	Improbable	Good	Boundary	Retain	Minor dieback.

Gordon Street EA Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
51	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	12	2.0	Improbable	Fair	Private	Retain	Dieback.
52	Colorado Spruce	*Picea pungens*	Non-Native	1	11	1.5	Improbable	Excellent	Private	Retain	No visible defects.
53	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	47.2	6.5	Possible	Poor	Private	Prune	Broken dead main stem; galleries; cavities; epicormic growth.
54	Black Walnut	*Juglans nigra*	Native	1	40.3	6.5	Improbable	Good	Private	Retain	Asymmetrical crown to west; canker; dead branches.
55	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	12	3.0	Improbable	Fair	Boundary	Retain	Infill at base; healthy crown.
56	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	23.8	2.5	Improbable	Good	Private	Retain	Mower damage on lower stem.
57	Norway Maple	*Acer platanoides*	Non-Native	1	76	6.0	Possible	Fair	Public	Prune	Asymmetrical crown to east; cavities; rot; branch rub; dead branches; failed to compartmentalize where codominant leader rotted away.
58	Freeman's Maple	*Acer X freemanii*	Native	1	30	4.0	Improbable	Good	Boundary	Retain	Water sprouts; rocks piled at base; codominant leaders; branch rub.
59	Norway Maple	*Acer platanoides*	Non-Native	1	19.2	2.5	Improbable	Fair	Private	Retain	Lean toward road; minor dieback.
60	Norway Maple	*Acer platanoides*	Non-Native	1	34.7	5.0	Possible	Fair	Private	Retain	Major dieback; dead branches.
61	Colorado Spruce	*Picea pungens*	Non-Native	1	35	3.0	Improbable	Fair	Private	Retain	Dieback.
62	Manitoba Maple	*Acer negundo*	Native	1	14	3.0	Improbable	Fair	Boundary	Retain	Slightly suppressed; lean south.
63	Colorado Spruce	*Picea pungens*	Non-Native	1	50.4	5.0	Possible	Fair	Boundary	Retain	Bark crack with exit holes; dieback.
64	Eastern White Cedar	*Thuja occidentalis*	Native	3	10.1+12.2	1.5	Improbable	Fair	Private	Retain	Codominant leaders; included bark; lower branches pruned.
65	Eastern White Cedar	*Thuja occidentalis*	Native	3	11.8+11.9+13	1.5	Improbable	Fair	Private	Retain	Codominant leaders; included bark; lower branches pruned.
66	Norway Maple	*Acer platanoides*	Non-Native	3	20+22+24	3.0	Improbable	Good	Private	Retain	Included bark; exposed root crown.
67	Norway Maple	*Acer platanoides*	Non-Native	1	28.5	6.0	Improbable	Fair	Private	Retain	Large sewer opening 2.5m from base; slightly exposed roots; healthy low crown.
68	Freeman's Maple	*Acer X freemanii*	Native	1	98.6	6.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch failure on west; minor dieback; crown to road edge.
69	Colorado Spruce	*Picea pungens*	Non-Native	1	13.5	1.5	Improbable	Fair	Public	Remove	Dead lower branches.
70	Colorado Spruce	*Picea pungens*	Non-Native	1	14	2.0	Improbable	Excellent	Public	Remove	No visible defects.
71	Norway Maple	*Acer platanoides*	Non-Native	1	33.2	5.0	Improbable	Fair	Boundary	Remove	Minor dieback; utilities 3.5m from base.
72	Norway Spruce	*Picea abies*	Non-Native	1	12.4	1.5	Improbable	Fair	Public	Remove	Light pruning; slightly suppressed.
73	Eastern White Cedar	*Thuja occidentalis*	Native	1	16.9	2.0	Improbable	Fair	Boundary	Retain	Slightly suppressed; dense hedgerow.
74	Eastern White Cedar	*Thuja occidentalis*	Native	1	18	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; slightly suppressed.
75	Eastern White Cedar	*Thuja occidentalis*	Native	1	14	2.0	Improbable	Fair	Public	Retain	Dense hedgerow.
76	Eastern White Cedar	*Thuja occidentalis*	Native	1	17	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
77	Eastern White Cedar	*Thuja occidentalis*	Native	3	17+15+12	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
78	Eastern White Cedar	*Thuja occidentalis*	Native	1	22	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; slightly suppressed.
79	Eastern White Cedar	*Thuja occidentalis*	Native	1	17	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
80	White Ash	*Fraxinus americana*	Native	1	25	3.5	Probable	Dead	Public	Remove	Small branches remain.
81	Freeman's Maple	*Acer X freemanii*	Native	1	18.6	2.5	Improbable	Good	Public	Remove	Codominant leaders, wide union; phototrophic growth.
82	Freeman's Maple	*Acer X freemanii*	Native	1	16.3	3.0	Improbable	Fair	Public	Remove	Dead branches; water sprouts.
83	Freeman's Maple	*Acer X freemanii*	Native	1	66.4	5.0	Improbable	Good	Private	Retain	Codominant leaders; included bark; branch rub.
84	Speckled Alder	*Alnus incana*	Native	2	17+15	3.5	Improbable	Good	Private	Retain	Codominant leaders; asymmetrical crown south.
85	Crack Willow	*Salix fragilis*	Non-Native	1	17.8	2.5	Improbable	Fair	Boundary	Retain	Lower side of guard rail; dead branches; epicormic growth.
86	Norway Spruce	*Picea abies*	Non-Native	1	56.7	6.0	Improbable	Good	Private	Retain	Lower branches pruned; frost crack.
87	Japanese Silk Lilac	*Syringa reticulata*	Non-Native	1	14.6	2.0	Improbable	Good	Private	Retain	Mulch infill; between homes.
88	Japanese Silk Lilac	*Syringa reticulata*	Non-Native	1	10.9	2.0	Improbable	Good	Private	Retain	Damage at base.
89	Manitoba Maple	*Acer negundo*	Native	2	49.9+22	4.0	Improbable	Fair	Public	Remove	Codominant leaders; included bark; epicormic growth; branch rub; hangers; compartmentalized wounds.
90	Manitoba Maple	*Acer negundo*	Native	2	17+16.4	3.0	Improbable	Fair	Private	Retain	Asymmetrical crown to north; epicormic growth.
91	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	1	23.4	4.5	Improbable	Fair	Private	Retain	Minor epicormic growth; healthy crown.
92	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	1	21.5	5.0	Improbable	Fair	Private	Retain	Minor epicormic growth; healthy crown.
93	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	1	27.2	3.0	Improbable	Good	Private	Retain	Epicormic growth.
94	Norway Maple	*Acer platanoides*	Non-Native	1	14	3.0	Possible	Fair	Boundary	Remove	Leaning south; vines.
95	Norway Spruce	*Picea abies*	Non-Native	1	36	1.5	Improbable	Dead	Private	Remove	Topped.
96	Norway Spruce	*Picea abies*	Non-Native	1	20	3.0	Improbable	Fair	Private	Retain	Dieback; light pruning.

Gordon Street EA Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
97	Norway Spruce	*Picea abies*	Non-Native	1	35	4.0	Improbable	Poor	Private	Prune	50% dieback; dead branches.
98	Norway Spruce	*Picea abies*	Non-Native	1	27	2.5	Improbable	Fair	Private	Retain	Light pruning.
99	Austrian Pine	*Pinus nigra*	Non-Native	1	34	4.0	Improbable	Fair	Private	Retain	Light pruning.
100	White Spruce	*Picea glauca*	Native	1	24	4.0	Improbable	Poor	Private	Prune	40% dieback; dead branches.
101	White Spruce	*Picea glauca*	Native	1	23	2.0	Improbable	Fair	Private	Retain	Light pruning; crown dieback.
102	Austrian Pine	*Pinus nigra*	Non-Native	1	32.4	3.5	Probable	Poor	Private	Prune	60% dieback; curled foliage.
103	Colorado Spruce	*Picea pungens*	Non-Native	1	25	2.0	Improbable	Very Poor	Private	Remove	Major crown dieback.
104	Colorado Spruce	*Picea pungens*	Non-Native	1	28	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
105	Norway Maple	*Acer platanoides*	Non-Native	1	21.5	3.5	Improbable	Fair	Private	Retain	Exposed roots; above armourstone wall.
106	Amur Maple	*Acer ginnala*	Non-Native	5	10.5+11	1.5	Improbable	Fair	Private	Retain	Canker; branch rub; suckering.
107	Amur Maple	*Acer ginnala*	Non-Native	5	17.3+13.8+10.8	4.5	Improbable	Fair	Private	Retain	Codominant leaders; dieback; epicormic growth.
108	Norway Maple	*Acer platanoides*	Non-Native	1	29.8	4.0	Improbable	Good	Private	Retain	Epicormic growth; rocks around base.
109	Eastern White Pine	*Pinus strobus*	Native	1	22.9	4.0	Improbable	Fair	Private	Retain	Light pruning; pruned lower branches.
110	White Spruce	*Picea glauca*	Native	1	17.8	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
111	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	24.3	4.0	Probable	Very Poor	Private	Retain	70% dieback; damage at base; epicormic growth.
112	Norway Maple	*Acer platanoides*	Non-Native	1	25	3.0	Improbable	Good	Private	Retain	Branch rub.
113	Austrian Pine	*Pinus nigra*	Non-Native	1	21	3.0	Improbable	Excellent	Boundary	Retain	Healthy crown.
114	Eastern White Pine	*Pinus strobus*	Native	1	16	1.0	Improbable	Fair	Private	Retain	Included bark; codominant leaders.
115	Colorado Spruce	*Picea pungens*	Non-Native	1	20	3.0	Improbable	Fair	Private	Retain	Dead lower branches.
116	Colorado Spruce	*Picea pungens*	Non-Native	1	40	3.5	Improbable	Fair	Private	Retain	Dead lower branches; healthy dense upper crown.
117	Norway Spruce	*Picea abies*	Non-Native	1	18	2.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
118	Norway Spruce	*Picea abies*	Non-Native	1	21	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
119	Norway Maple	*Acer platanoides*	Non-Native	1	20	3.5	Improbable	Good	Private	Retain	Behind armourstone; healthy crown.
120	Norway Spruce	*Picea abies*	Non-Native	1	16	2.0	Improbable	Fair	Private	Prune	Light pruning; lower branches pruned; dead codominant leader.
121	Norway Spruce	*Picea abies*	Non-Native	1	35	4.0	Improbable	Fair	Private	Retain	Minor dieback; light pruning.
122	Norway Spruce	*Picea abies*	Non-Native	1	18	3.0	Improbable	Fair	Private	Retain	Lower branches pruned; light pruning.
123	Austrian Pine	*Pinus nigra*	Non-Native	1	30	4.5	Improbable	Fair	Boundary	Retain	Exposed roots; minor light pruning.
124	Austrian Pine	*Pinus nigra*	Non-Native	1	25	5.0	Improbable	Fair	Private	Retain	Light pruning; dead branches; vines.
125	Colorado Spruce	*Picea pungens*	Non-Native	1	12	2.0	Improbable	Fair	Private	Retain	Small crown; slightly suppressed.
126	Colorado Spruce	*Picea pungens*	Non-Native	1	12	3.5	Improbable	Fair	Private	Retain	Light pruning.
127	White Spruce	*Picea glauca*	Native	1	35	4.5	Improbable	Fair	Private	Retain	Light pruning.
128	Norway Spruce	*Picea abies*	Non-Native	1	15	1.5	Improbable	Fair	Private	Retain	Light pruning.
129	Austrian Pine	*Pinus nigra*	Non-Native	1	25	4.5	Improbable	Fair	Private	Retain	Dieback.
130	Norway Spruce	*Picea abies*	Non-Native	1	19	4.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
131	Norway Maple	*Acer platanoides*	Non-Native	1	25	3.0	Improbable	Good	Private	Retain	Raised garden bed; very minor dieback.
132	Norway Spruce	*Picea abies*	Non-Native	1	11	2.0	Improbable	Fair	Private	Retain	Suppressed; minor dieback.
133	Norway Spruce	*Picea abies*	Non-Native	1	15	3.0	Improbable	Fair	Private	Retain	Lower branches pruned; light pruning.
134	Sugar Maple	*Acer saccharum ssp. saccharum*	Native	1	11.6	2.0	Improbable	Fair	Private	Retain	Frost/heat cracks; healthy crown.
135	Freeman's Maple	*Acer X freemanii*	Native	1	13.1	2.5	Improbable	Good	Private	Retain	Infill at base; healthy crown.
136	Norway Maple	*Acer platanoides*	Non-Native	4	50+22+20+18	6.0	Improbable	Good	Private	Retain	Included bark; history of pruning; dead branches.
137	Small Leaf Linden	*Tilia cordata*	Non-Native	1	14.6	2.0	Improbable	Fair	Public	Remove	Dieback; water sprouts.; small boulevard.
138	Norway Maple	*Acer platanoides*	Non-Native	1	68	4.0	Improbable	Good	Private	Prune	Included bark; branch rub; history of pruning; dead leader.
139	River Birch	*Betula nigra*	Non-Native	4	15+14+12	4.0	Improbable	Good	Private	Retain	Codominant leaders; exposed roots; healthy crown.
140	Eastern White Cedar	*Thuja occidentalis*	Native	3	20+18+13	3.0	Improbable	Fair	Public	Retain	Included bark; dense crown; start of hedge.
141	Eastern White Pine	*Pinus strobus*	Native	1	40.5	4.0	Improbable	Good	Public	Retain	Light pruning; dead branches; branch rub.
142	Norway Maple	*Acer platanoides*	Non-Native	1	13	3.0	Improbable	Fair	Public	Retain	Other side of fence; minor epicormic growth.
143	White Elm	*Ulmus americana*	Native	1	11.2	2.0	Improbable	Fair	Public	Retain	Small crown; boulevard about 1m wide; centered.
144	Norway Maple	*Acer platanoides*	Non-Native	1	16	2.0	Improbable	Fair	Public	Retain	Improper prune cuts; dead branches.
145	Norway Maple	*Acer platanoides*	Non-Native	1	13	1.5	Improbable	Fair	Public	Retain	Compartmentalized wounds.
146	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	1	18.1	2.5	Improbable	Fair	Public	Retain	Minor epicormic growth; centered on 1m wide boulevard.
147	Norway Maple	*Acer platanoides*	Non-Native	1	44	6.0	Possible	Poor	Public	Retain	History of branch failure; rot; improper prune cuts; cavities; branch rub; wounds on lower stem failed to compartmentalize.
148	Colorado Spruce	*Picea pungens*	Non-Native	1	10	2.0	Improbable	Good	Public	Retain	Light pruning.
149	Colorado Spruce	*Picea pungens*	Non-Native	1	14	3.0	Improbable	Fair	Boundary	Retain	Minor light pruning; small hole at base in ground.
150	Colorado Spruce	*Picea pungens*	Non-Native	1	13	2.5	Improbable	Good	Boundary	Retain	Slightly exposed roots.
151	Colorado Spruce	*Picea pungens*	Non-Native	1	25	3.0	Improbable	Fair	Private	Retain	Minor dieback.
152	White Spruce	*Picea glauca*	Native	1	13	2.5	Improbable	Fair	Boundary	Retain	Light pruning.

Gordon Street EA Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
153	Norway Maple	*Acer platanoides*	Non-Native	1	22	3.5	Improbable	Good	Private	Retain	Included bark; branch rub.
154	Colorado Spruce	*Picea pungens*	Non-Native	1	18	3.0	Improbable	Good	Boundary	Retain	Minor light pruning.
155	White Spruce	*Picea glauca*	Native	1	13	2.5	Improbable	Fair	Private	Retain	Minor dieback.
156	Norway Spruce	*Picea abies*	Non-Native	1	14	1.0	Improbable	Good	Boundary	Retain	Light pruning.
157	White Spruce	*Picea glauca*	Native	1	14	2.5	Improbable	Good	Boundary	Retain	Minor light pruning.
158	Flowering Crab Apple	*Malus baccata*	Non-Native	4	25+22+20	5.0	Improbable	Fair	Private	Retain	Minor dieback; codominant leaders.
159	Norway Maple	*Acer platanoides*	Non-Native	1	13.8	2.0	Improbable	Good	Private	Retain	Slightly suppressed; included bark.

Appendix II
Tree Health and Risk Assessment Criteria

Tree Health Assessment Criteria

Assessment Criteria*	Definition[1]
Excellent	Represents a tree in near perfect form, health, and vigor. This tree would exhibit no deadwood, no decline, and no visible defects.
Good	Represents a tree ranging from a generally healthy tree to a near perfect tree in terms of health, vigor and structure. This tree exhibits a complete, balanced crown structure with little to no deadwood and minimal defects as well as a properly formed root flare.
Fair	Represents a tree with minor health, balance or structural issues with minimal to moderate deadwood. Branching structure shows signs of included bark or minor rot within the branch connections or trunk wood. The root flare shows minimal signs of mechanical injury, decay, poor callusing, or girdling roots. Trees in the category require minor remedial actions to improve the vigor and structure of the tree.
Poor	Represents a tree that exhibits a poor vigor, reduced crown size (<30% of crown typical of species caused by overcrowding or decline), extreme crown unbalance, or extensive rot in the branching and trunk wood. Fungus could be seen from these rotting areas, suggesting further decay. These trees have extensive crown die back with a large amount of deadwood, and possibly dead sections. These weakened areas can lead to a potential failure of tree sections. Rooting zones show signs of extensive root decay or damage (fruiting bodies or mechanical damage) or girdling roots. Trees in this category require more extensive actions to prevent failure. A tree identified as poor would be a candidate for removal in the near future.
Very Poor	Represents a tree that exhibits major health and structural defects. Quite often the defects or diseases affecting this tree will be fatal. Large quantities of fungus, large dead sections with possible cavities and bark falling off all are signs that a tree is in a major state of decline and would be identified as very poor. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.
Dead	Represents a tree that exhibits no sign of new growth, including buds, foliage, or shoot growth. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.

(Dunster 2009)

Tree Risk Assessment Criteria

Assessment Criteria*	Definition[1]
Improbable	The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.
Possible	Failure could occur, but it is unlikely during normal weather conditions within the specified time frame.
Probable	Failure may be expected under normal weather conditions within the specified time frame.
Imminent	Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is a rare occurrence for a risk assessor to encounter, and it may require immediate action to protect people from harm.
*A specified time frame of 1 year will be used when assessing potential for structural failure.	

(Dunster et al. 2013)

Appendix III
Conditions of Assessment

Conditions of Tree Assessment

Limitations

This tree inventory and assessment is based on the circumstances and observations as they existed at the time of the site inspection of the ROW and adjacent lands, as described in this report, and the trees situated thereon by NRSI and upon information provided by the Client to NRSI. The opinions in this assessment are given based on observations made and using generally accepted professional judgment, however, because trees are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this assessment are valid only at the date any such observations and analysis took place. No guarantee, warranty, representation or opinion is offered or made by NRSI as to the length of the validity of the results, observations, recommendations and analysis contained within this assessment. As a result, the Client shall not rely upon this assessment, save and except for representing the circumstances and observations, analysis and recommendations that were made as at the date of such inspections. It is recommended that the trees discussed in this assessment should be re-assessed periodically, where required (i.e. within 1 year).

Further Services

Neither NRSI, nor any assessor employed or retained by NRSI (the "Assessor") for the purpose of preparing or assisting in the preparation of this assessment shall be required to provide any further consultation or services to the Client, save and except as already carried out in the preparation of this assessment and including, without limitation, to act as an expert witness or witness in any court in any jurisdiction unless the Client has first made specific arrangements with respect to such further services, including, without limitation, providing the payment of the Assessor's regular hourly billing fees.

NRSI accepts no responsibility for the implementation of all or any part of the assessment, unless specifically requested to examine the implementation of such activities recommended herein. In the event that inspection or supervision of all or part of the implementation is requested, that request shall be in writing and the details agreed to in writing by both parties.

Assumptions

The Client is hereby notified and does hereby acknowledge and agree that where any of the facts and information set out and referenced in this assessment are based on assumptions, facts or information provided to NRSI, the Client and/or third parties and unless otherwise set out within this assessment, NRSI will in no way be responsible for the veracity or accuracy of any such information and further, the Client acknowledges and agrees that NRSI has, for the purposes of preparing their assessment, assumed that the Property, which is the subject of this assessment is in full compliance with all applicable federal, provincial, municipal and local statutes, regulations, by-laws, guidelines and other related laws. NRSI explicitly denies any legal liability for any and all issues with respect to non-compliance with any of the above-referenced statutes, regulations, by-laws, guidelines and laws as it may pertain to or affect the Property to which this assessment applies.

Restriction of Assessment

The assessment carried out was restricted to the Property as identified within this report, as well trees with the potential to be impacted by the development. No assessment of any other trees has been undertaken by NRSI. NRSI is not legally liable for any other trees on the Property except those expressly discussed herein. The conclusions of this assessment do not apply to any areas, trees, or any other property not covered or referenced in this assessment.

Professional Responsibility

In carrying out this assessment, NRSI and any Assessor appointed for and on behalf of NRSI to perform and carry out the assessment has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out this assessment. The assessment has been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage (during the leaf-on period), the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. Except where specifically noted in the assessment, none of the trees examined on the property were dissected, cored, probed, or climbed and detailed root crown examinations involving excavation were not undertaken.

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 all parts of them will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential to fall, lean, or otherwise pose a danger to property and persons in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by NRSI or its directors, officers, employers, contractors, agents or Assessors for:

a) any legal description provided with respect to the Property;
b) issues of title and or ownership respect to the Property;
c) the accuracy of the Property line locations or boundaries with respect to the Property; and
d) the accuracy of any other information provided to NRSI by the Client or third parties;
e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and
f) the unauthorized distribution of the assessment.

Third Party Liability

This assessment was prepared by NRSI exclusively for the Client. The contents reflect NRSI's best assessment of the trees situated on the Property in light of the information available to it at the time of preparation of this assessment. Any use which a third party makes of this assessment, or any reliance on or decisions made based upon this assessment, are made at the sole risk of any such third parties. NRSI accepts no responsibility for any damages or loss suffered by any third party or by the Client as a result of decisions made or actions based upon the use or reliance of this assessment by any such party.

General

Any plans and/or illustrations in this assessment are included only to help the Client visualize the issues in this assessment and shall not be relied upon for any other purpose.

This report shall be considered as a whole, no sections are severable, and the assessment shall be considered incomplete if any pages are missing.

Appendix IV
Tree Data Summary Tables

Summary of Inventoried Trees

Common Name	Scientific Name	Excellent	Good	Fair	Poor	Very Poor	Dead	Total
Native Species								
American Basswood	*Tilia americana*			5				5
Balsam Poplar	*Populus balsamifera*		1	1				2
Black Cherry	*Prunus serotina*			1				1
Bur Oak	*Quercus macrocarpa*			19	1	1	2	23
Eastern Cottonwood	*Populus deltoides*		11	17				28
Green Ash	*Fraxinus pennsylvanica*						3	3
Hawthorn species	*Crataegus* sp.			1				1
Manitoba Maple	*Acer negundo*			12	9	2		23
Trembling Aspen	*Populus tremuloides*		4	8				12
White Elm	*Ulmus americana*			1				1
White Oak	*Quercus alba*		1	1				2
Total		0	17	66	10	3	5	101
Non-Native Species								
Crack Willow	*Salix fragilis*		3	3				6
Russian Olive	*Elaeagnus angustifolia*			1				1
Scots Pine	*Pinus sylvestris*			1			3	4
Siberian Elm	*Ulmus pumila*			2				2
White Willow	*Salix alba*		5	30				35
Total		0	8	37			3	48
Overall Total		**0**	**25**	**103**	**10**	**3**	**8**	**149**

Overall Condition and Potential for Structural Failure of Inventoried Trees

Potential for Structural Failure Rating	Overall Condition						Total
	Excellent	Good	Fair	Poor	Very Poor	Dead	
Improbable	0	25	90	0	1	0	116
Possible	0	0	12	8	2	3	25
Probable	0	0	0	3	0	5	8
Imminent	0	0	0	0	0	0	0
Total	0	25	102	11	3	8	149

Maps

Section 1

Section 2

VALLEY RD

ARKELL RD

EDINBURGH RD S

VAUGHAN ST

GORDON ST

BUS STOP#168
GO TRANSIT

BUS STOP#106
GO TRANSIT

BUS STOP#5608
GO TRANSIT

GO TRANSIT
BUS STOP#1612

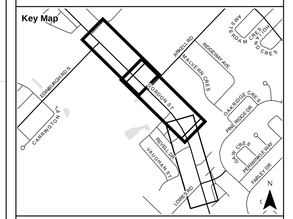
BUS STOP#1613

Map 1a

Gordon Street, Guelph EA

Tree Inventory and Preservation Plan

Key Map



Legend

- Inventoried Tree to be Retained (Crown to Scale)
- Retain and Prune
- Inventoried Tree to Be Removed (Crown to Scale)
- Tree Protection Fencing
- Tree Protection Fencing Signage
- Right of Way (ROW)
- Proposed Alignment
- Existing Conditions

See Map 1b for tree inventory data, fencing specifications, and ecological constraints

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2252
Date: May 6, 2020

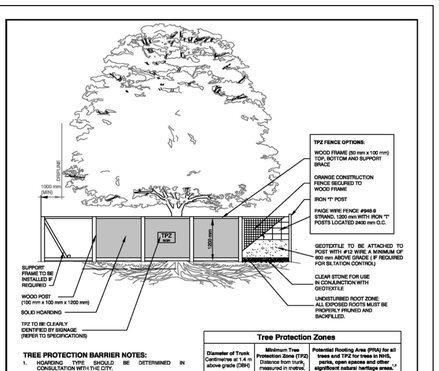
NAD83 - UTM Zone 17
Size: 24x36"
1:600

0 10 20 30 Meters

N

Map ID	Common Name	Scientific Name	Native/ Non-native	DBH (cm)	Stem Count	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
1	Burning Bush	*Euonymus alatus*	Non-Native	13+11+10	4	2.0	Improbable	Fair	Boundary	Remove	Dieback; exit holes; codominant leaders.
2	Burning Bush	*Euonymus alatus*	Non-Native	10.1	2	1.0	Improbable	Poor	Boundary	Remove	Canker; epicormic growth; dead branches; insect exit holes.
3	Burning Bush	*Euonymus alatus*	Non-Native	12.4	1	2.0	Improbable	Poor	Boundary	Remove	Major dieback; exit holes; codominant leaders.
4	Burning Bush	*Euonymus alatus*	Non-Native	12.9+12	2	1.0	Improbable	Poor	Boundary	Remove	Canker; epicormic growth; dead branches.
5	Norway Maple	*Acer platanoides*	Non-Native	55.9	1	5.0	Improbable	Fair	Private	Prune	Dieback; lower dead branches.
6	White Spruce	*Picea glauca*	Native	31.8	1	3.0	Improbable	Fair	Private	Retain	Tall crown; dieback; dead branches.
7	White Spruce	*Picea glauca*	Native	25.5	1	1.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned; crown dieback.
8	Norway Maple	*Acer platanoides*	Non-Native	73.5	1	5.0	Improbable	Good	Private	Remove	Codominant leaders; included bark; branch rub.
9	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	62.2	1	5.0	Improbable	Fair	Boundary	Remove	Crown pruned away from ROW; small retaining with utilities above sidewalk; healthy.
10	Black Walnut	*Juglans nigra*	Native	30+30	2	5.0	Possible	Poor	Private	Retain	Codominant leaders; open cankers; included bark; dieback.
11	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	56	1	4.0	Improbable	Fair	Boundary	Remove	Codominant leaders; included bark; dead branches; history of pruning.
12	Norway Maple	*Acer platanoides*	Non-Native	51.5	1	6.0	Improbable	Fair	Private	Retain	Minor dieback.
13	Norway Maple	*Acer platanoides*	Non-Native	41.7	1	4.0	Improbable	Fair	Private	Retain	Codominant leaders; included bark; sign taped to stem.
14	Norway Spruce	*Picea abies*	Non-Native	32.6	1	3.0	Improbable	Fair	Private	Retain	Minor dieback.
15	Trembling Aspen	*Populus tremuloides*	Native	27.7	1	3.5	Possible	Fair	Private	Retain	30% dieback; dead branches.
16	Trembling Aspen	*Populus tremuloides*	Native	24.7	1	6.0	Improbable	Good	Private	Retain	Asymmetrical crown to west; dead branches.
17	Norway Spruce	*Picea abies*	Non-Native	52.2	1	5.0	Improbable	Fair	Private	Retain	Tall crown; minor dieback.
20	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	11	1	0.5	Improbable	Fair	Public	Remove	Water sprouts; deer guard girdling stem.
21	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	10.8	1	2.0	Improbable	Fair	Boundary	Remove	Dieback; water sprouts.
22	Freeman's Maple	*Acer X freemanii*	Native	10	1	2.5	Improbable	Poor	Boundary	Remove	Major dieback; epicormic growth.
23	Freeman's Maple	*Acer X freemanii*	Native	12.7	1	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; compartmentalized wound on lower stem, some rot.
24	Freeman's Maple	*Acer X freemanii*	Native	12.5	1	3.0	Improbable	Fair	Boundary	Retain	Minor dieback; water sprouts.
25	Freeman's Maple	*Acer X freemanii*	Native	10.5	1	3.0	Improbable	Fair	Boundary	Retain	Open canker; dieback; small dead branches.
26	White Ash	*Fraxinus americana*	Native	11.1	1	0.5	Improbable	Dead	Boundary	Remove	Suckering at base.
27	Silver Maple	*Acer saccharinum*	Native	12.8	1	2.0	Improbable	Fair	Boundary	Retain	Minor dieback.
28	European Ash	*Fraxinus excelsior*	Non-Native	13.5	1	3.0	Probable	Very Poor	Boundary	Remove	Only water sprouts remain alive.
29	Freeman's Maple	*Acer X freemanii*	Native	15.6	1	1.0	Improbable	Good	Boundary	Remove	Epicormic growth; branch rub.
30	European Ash	*Fraxinus excelsior*	Non-Native	12.7	1	2.0	Probable	Very Poor	Boundary	Remove	Only water sprouts remain alive.
31	Freeman's Maple	*Acer X freemanii*	Native	16.4	1	1.0	Improbable	Good	Boundary	Remove	Compartmentalized wound on lower stem; included bark.
32	European Ash	*Fraxinus excelsior*	Non-Native	12.5	1	2.0	Probable	Very Poor	Boundary	Remove	Only water sprouts remain alive.
33	Freeman's Maple	*Acer X freemanii*	Native	12.2	1	2.0	Probable	Very Poor	Boundary	Remove	95% dieback.
34	White Ash	*Fraxinus americana*	Native	10.5	1	1.0	Improbable	Dead	Boundary	Remove	EAB.
35	Silver Maple	*Acer saccharinum*	Native	14.3	1	3.0	Improbable	Fair	Boundary	Retain	Dieback; water sprouts.
36	White Ash	*Fraxinus americana*	Native	10.8	1	1.0	Improbable	Dead	Private	Remove	EAB.
37	Silver Maple	*Acer saccharinum*	Native	11.4	1	3.0	Improbable	Fair	Boundary	Remove	Dieback; water sprouts.
38	Freeman's Maple	*Acer X freemanii*	Native	18.5	1	1.0	Improbable	Fair	Boundary	Retain	Included bark; branch rub; epicormic growth; reaction wood; compartmentalized wound with rot.
39	Eastern White Cedar	*Thuja occidentalis*	Native	27.7	2.0	Possible	Poor	Boundary	Prune	Leaning south; 50% dieback.
40	Eastern White Cedar	*Thuja occidentalis*	Native	25.7	1	1.5	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch rub.
41	Norway Maple	*Acer platanoides*	Non-Native	13.4	1	2.5	Improbable	Fair	Boundary	Retain	Codominant leaders; dieback; dense hedgerow.
42	Eastern White Cedar	*Thuja occidentalis*	Native	26.9	1	1.5	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch rub.
43	Norway Maple	*Acer platanoides*	Non-Native	15.5	1	2.5	Improbable	Fair	Public	Retain	Minor dieback; dense hedgerow.
44	Norway Maple	*Acer platanoides*	Non-Native	14.2	1	2.0	Improbable	Fair	Boundary	Retain	Minor dieback; dense hedgerow.
45	Eastern White Cedar	*Thuja occidentalis*	Native	20.2+20	1	2.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch rub.
46	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	10.4	1	2.0	Improbable	Fair	Public	Retain	Water sprouts; dieback.
47	Norway Maple	*Acer platanoides*	Non-Native	22.5	1	4.5	Improbable	Fair	Private	Retain	Slightly unbalanced; minor dieback; minor lean southwest.
48	Norway Maple	*Acer platanoides*	Non-Native	33	1	4.0	Improbable	Fair	Private	Retain	Compartmentalized wound on lower stem; debris around base.
49	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	14.5	1	1.0	Improbable	Good	Private	Retain	Epicormic growth; asymmetrical crown to west.
50	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	10	1	2.0	Improbable	Good	Boundary	Retain	Minor dieback.
51	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	12	1	2.0	Improbable	Fair	Private	Retain	Dieback.
52	Colorado Spruce	*Picea pungens*	Non-Native	11	1	1.5	Improbable	Excellent	Private	Retain	No visible defects.
53	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	47.2	1	6.5	Possible	Poor	Private	Prune	Broken dead main stem; galleries; cavities; epicormic growth.
54	Black Walnut	*Juglans nigra*	Native	40.3	1	6.5	Improbable	Good	Private	Retain	Asymmetrical crown to west; canker; dead branches.
55	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	12	1	3.0	Improbable	Fair	Boundary	Retain	Infill at base; healthy crown.
56	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	23.8	1	2.5	Improbable	Good	Private	Retain	Mower damage on lower stem.
57	Norway Maple	*Acer platanoides*	Non-Native	76	1	6.0	Possible	Fair	Public	Prune	Asymmetrical crown to east; cavities; rot; branch rub; dead branches; failed to compartmentalize where codominant leader rotted away.
58	Freeman's Maple	*Acer X freemanii*	Native	30	1	4.0	Improbable	Good	Boundary	Retain	Water sprouts; rocks piled at base; codominant leaders; branch rub.
59	Norway Maple	*Acer platanoides*	Non-Native	19.2	1	2.5	Improbable	Fair	Private	Retain	Lean toward road; minor dieback.
60	Norway Maple	*Acer platanoides*	Non-Native	34.7	1	5.0	Possible	Fair	Private	Retain	Major dieback; dead branches.
61	Colorado Spruce	*Picea pungens*	Non-Native	35	1	3.0	Improbable	Fair	Private	Retain	Dieback.
62	Manitoba Maple	*Acer negundo*	Native	14	1	3.0	Improbable	Fair	Private	Retain	Slightly suppressed; lean south.
63	Colorado Spruce	*Picea pungens*	Non-Native	50.4	1	5.0	Possible	Fair	Boundary	Retain	Bark crack with exit holes; dieback.
64	Eastern White Cedar	*Thuja occidentalis*	Native	10.1+12.2	3	1.5	Improbable	Fair	Private	Retain	Codominant leaders; included bark; lower branches pruned.
65	Eastern White Cedar	*Thuja occidentalis*	Native	11.8+11.9+13	3	1.5	Improbable	Fair	Private	Retain	Codominant leaders; included bark; lower branches pruned.
66	Norway Maple	*Acer platanoides*	Non-Native	20+22+24	3	3.0	Improbable	Good	Private	Retain	Included bark; exposed root crown.
67	Norway Maple	*Acer platanoides*	Non-Native	28.3	1	6.0	Improbable	Fair	Private	Retain	Large cavity/wound opening 2.5m from base; slightly exposed roots; healthy low crown.
68	Freeman's Maple	*Acer X freemanii*	Native	98.6	1	6.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; branch failure on west; minor dieback; crown to road edge.
69	Colorado Spruce	*Picea pungens*	Non-Native	13.5	1	1.5	Improbable	Fair	Public	Remove	Dead lower branches.
70	Colorado Spruce	*Picea pungens*	Non-Native	14	1	2.0	Improbable	Excellent	Public	Remove	No visible defects.
71	Norway Maple	*Acer platanoides*	Non-Native	33.2	1	5.0	Improbable	Fair	Boundary	Remove	Minor dieback; utilities 3.5m from base.
72	Norway Spruce	*Picea abies*	Non-Native	12.4	1	1.5	Improbable	Fair	Public	Remove	Light pruning; slightly suppressed.
73	Eastern White Cedar	*Thuja occidentalis*	Native	16.9	1	2.0	Improbable	Fair	Boundary	Retain	Slightly suppressed; dense hedgerow.
74	Eastern White Cedar	*Thuja occidentalis*	Native	18	1	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; slightly suppressed.
75	Eastern White Cedar	*Thuja occidentalis*	Native	14	1	2.0	Improbable	Fair	Public	Retain	Dense hedgerow.
76	Eastern White Cedar	*Thuja occidentalis*	Native	17	1	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
77	Eastern White Cedar	*Thuja occidentalis*	Native	17+15+12	3	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
78	Eastern White Cedar	*Thuja occidentalis*	Native	22	1	1.0	Improbable	Fair	Boundary	Retain	Codominant leaders; included bark; slightly suppressed.
79	Eastern White Cedar	*Thuja occidentalis*	Native	17	1	2.0	Improbable	Fair	Boundary	Retain	Dense hedgerow.
80	White Ash	*Fraxinus americana*	Native	25	1	3.5	Probable	Dead	Public	Remove	Small branches remain.
81	Freeman's Maple	*Acer X freemanii*	Native	18.6	1	2.5	Improbable	Good	Public	Remove	Codominant leaders, wide union; phototrophic growth.

Map ID	Common Name	Scientific Name	Native/ Non-native	DBH (cm)	Stem Count	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Comments
82	Freeman's Maple	*Acer X freemanii*	Native	16.3	1	3.0	Improbable	Fair	Public	Remove	Dead branches; water sprouts.
83	Freeman's Maple	*Acer X freemanii*	Native	66.4	1	5.0	Improbable	Good	Private	Retain	Codominant leaders; included bark; branch rub.
84	Speckled Alder	*Alnus incana*	Native	17+15	2	3.5	Improbable	Good	Private	Retain	Codominant leaders; asymmetrical crown south.
85	Crack Willow	*Salix fragilis*	Non-Native	17.8	1	2.5	Improbable	Fair	Boundary	Retain	Lower side of guard rail; dead branches; epicormic growth.
86	Norway Spruce	*Picea abies*	Non-Native	56.7	1	6.0	Improbable	Good	Private	Retain	Lower branches pruned; frost crack.
87	Japanese Silk Lilac	*Syringa reticulata*	Non-Native	14.6	1	2.0	Improbable	Good	Private	Retain	Mulch infill; between homes.
88	Japanese Silk Lilac	*Syringa reticulata*	Non-Native	10.9	1	2.0	Improbable	Good	Private	Retain	Damage at base.
89	Manitoba Maple	*Acer negundo*	Native	49.9+22	2	4.0	Improbable	Fair	Public	Remove	Codominant leaders; included bark; epicormic growth; branch rub; hangers; compartmentalized wounds.
90	Manitoba Maple	*Acer negundo*	Native	17+16.4	2	3.0	Improbable	Fair	Private	Retain	Asymmetrical crown to north; epicormic growth.
91	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	23.4	1	4.5	Improbable	Fair	Private	Retain	Minor epicormic growth; healthy crown.
92	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	21.5	1	5.0	Improbable	Fair	Private	Retain	Minor epicormic growth; healthy crown.
93	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-Native	27.2	1	3.0	Improbable	Good	Private	Retain	Epicormic growth.
94	Norway Maple	*Acer platanoides*	Non-Native	14	1	3.0	Possible	Fair	Boundary	Remove	Leaning south; vines.
95	Norway Spruce	*Picea abies*	Non-Native	36	1	1.5	Improbable	Dead	Private	Remove	Topped.
96	Norway Spruce	*Picea abies*	Non-Native	20	1	3.0	Improbable	Fair	Private	Retain	Dieback; light pruning.
97	Norway Spruce	*Picea abies*	Non-Native	35	1	4.0	Improbable	Poor	Private	Prune	50% dieback; dead branches.
98	Norway Spruce	*Picea abies*	Non-Native	27	1	2.5	Improbable	Fair	Private	Retain	Light pruning.
99	Austrian Pine	*Pinus nigra*	Non-Native	34	1	4.0	Improbable	Fair	Private	Retain	Light pruning.
100	White Spruce	*Picea glauca*	Native	24	1	4.0	Improbable	Poor	Private	Prune	40% dieback; dead branches.
101	White Spruce	*Picea glauca*	Native	23	1	2.0	Improbable	Fair	Private	Retain	Light pruning; crown dieback.
102	Austrian Pine	*Pinus nigra*	Non-Native	32.4	1	3.5	Probable	Poor	Private	Prune	60% dieback; curled foliage.
103	Colorado Spruce	*Picea pungens*	Non-Native	25	1	2.0	Improbable	Very Poor	Private	Remove	Major crown dieback.
104	Colorado Spruce	*Picea pungens*	Non-Native	28	1	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
105	Norway Maple	*Acer platanoides*	Non-Native	21.5	1	3.5	Improbable	Fair	Private	Retain	Exposed roots; above armourstone wall.
106	Amur Maple	*Acer ginnala*	Non-Native	10.5+11	2	1.5	Improbable	Fair	Private	Retain	Canker; branch rub; suckering.
107	Amur Maple	*Acer ginnala*	Non-Native	17.3+13.8+10.8	5	4.5	Improbable	Fair	Private	Retain	Codominant leaders; dieback; epicormic growth.
108	Norway Maple	*Acer platanoides*	Non-Native	29.8	1	4.0	Improbable	Good	Private	Retain	Epicormic growth; rocks around base.
109	Eastern White Pine	*Pinus strobus*	Native	22.9	1	4.0	Improbable	Fair	Private	Retain	Light pruning; pruned lower branches.
110	White Spruce	*Picea glauca*	Native	17.8	1	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
111	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	24.3	1	4.0	Probable	Very Poor	Private	Retain	70% dieback; damage at base; epicormic growth.
112	Norway Maple	*Acer platanoides*	Non-Native	25	1	3.0	Improbable	Good	Private	Retain	Branch rub.
113	Austrian Pine	*Pinus nigra*	Non-Native	21	1	3.0	Improbable	Excellent	Boundary	Retain	Healthy crown.
114	Eastern White Pine	*Pinus strobus*	Native	16	1	1.0	Improbable	Fair	Private	Retain	Included bark; codominant leaders.
115	Colorado Spruce	*Picea pungens*	Non-Native	20	1	3.0	Improbable	Fair	Private	Retain	Dead lower branches.
116	Colorado Spruce	*Picea pungens*	Non-Native	40	1	3.5	Improbable	Fair	Private	Retain	Dead lower branches; healthy dense upper crown.
117	Norway Spruce	*Picea abies*	Non-Native	18	1	2.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
118	Norway Spruce	*Picea abies*	Non-Native	21	1	1.5	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
119	Norway Maple	*Acer platanoides*	Non-Native	20	1	3.5	Improbable	Good	Private	Retain	Behind armourstone; healthy crown.
120	Norway Spruce	*Picea abies*	Non-Native	16	1	2.0	Improbable	Fair	Private	Prune	Light pruning; lower branches pruned; dead codominant leader.
121	Norway Spruce	*Picea abies*	Non-Native	35	1	4.0	Improbable	Fair	Private	Retain	Minor dieback; light pruning.
122	Norway Spruce	*Picea abies*	Non-Native	18	1	3.0	Improbable	Fair	Private	Retain	Lower branches pruned; light pruning.
123	Austrian Pine	*Pinus nigra*	Non-Native	30	1	4.5	Improbable	Fair	Boundary	Retain	Exposed roots; minor light pruning.
124	Austrian Pine	*Pinus nigra*	Non-Native	25	1	5.0	Improbable	Fair	Private	Retain	Light pruning; dead branches; vines.
125	Colorado Spruce	*Picea pungens*	Non-Native	12	1	2.0	Improbable	Fair	Private	Retain	Small crown; slightly suppressed.
126	Colorado Spruce	*Picea pungens*	Non-Native	12	1	3.5	Improbable	Fair	Private	Retain	Light pruning.
127	White Spruce	*Picea glauca*	Native	35	1	4.5	Improbable	Fair	Private	Retain	Light pruning.
128	Norway Spruce	*Picea abies*	Non-Native	15	1	1.5	Improbable	Fair	Private	Retain	Light pruning.
129	Austrian Pine	*Pinus nigra*	Non-Native	25	1	4.5	Improbable	Fair	Private	Retain	Dieback.
130	Norway Spruce	*Picea abies*	Non-Native	19	1	4.0	Improbable	Fair	Private	Retain	Light pruning; lower branches pruned.
131	Norway Maple	*Acer platanoides*	Non-Native	25	1	3.0	Improbable	Good	Private	Retain	Raised garden bed; very minor dieback.
132	Norway Spruce	*Picea abies*	Non-Native	11	1	2.0	Improbable	Fair	Private	Retain	Suppressed; minor dieback.
133	Norway Spruce	*Picea abies*	Non-Native	15	1	3.0	Improbable	Fair	Private	Retain	Lower branches pruned; light pruning.
134	Sugar Maple	*Acer saccharum* ssp. *saccharum*	Native	11.6	1	2.0	Improbable	Fair	Private	Retain	Frost/heat cracks; healthy crown.
135	Freeman's Maple	*Acer X freemanii*	Native	13.1	1	2.5	Improbable	Good	Private	Retain	Infill at base; healthy crown.
136	Norway Maple	*Acer platanoides*	Non-Native	50+22+20+18	4	6.0	Improbable	Good	Private	Retain	Included bark; history of pruning; dead branches.
137	Small Leaf Linden	*Tilia cordata*	Non-Native	14.6	1	2.0	Improbable	Fair	Public	Remove	Dieback; water sprouts.; small boulevard.
138	Norway Maple	*Acer platanoides*	Non-Native	68	1	4.0	Improbable	Good	Private	Prune	Included bark; branch rub; history of pruning; dead leader.
139	River Birch	*Betula nigra*	Non-Native	15+14+12	4	4.0	Improbable	Good	Private	Retain	Codominant leaders; exposed roots; healthy crown.
140	Eastern White Cedar	*Thuja occidentalis*	Native	20+18+13	3	3.0	Improbable	Fair	Public	Retain	Included bark; dense crown; start of hedge.
141	Eastern White Pine	*Pinus strobus*	Native	40.5	1	4.0	Improbable	Good	Public	Retain	Light pruning; dead branches; branch rub.
142	Norway Maple	*Acer platanoides*	Non-Native	13	1	3.0	Improbable	Fair	Public	Retain	Other side of fence; minor epicormic growth.
143	White Elm	*Ulmus americana*	Native	11.2	1	2.0	Improbable	Fair	Public	Retain	Small crown; boulevard about 1m wide; centered.
144	Norway Maple	*Acer platanoides*	Non-Native	16	1	2.0	Improbable	Fair	Public	Retain	Improper prune cuts; dead branches.
145	Norway Maple	*Acer platanoides*	Non-Native	13	1	1.5	Improbable	Fair	Public	Retain	Compartmentalized wounds.
146	Chanticleer Pear	*Pyrus calleryana 'Chanticleer'*	Non-Native	18.1	1	2.5	Improbable	Fair	Public	Retain	Minor epicormic growth; centered on 1m wide boulevard.
147	Norway Maple	*Acer platanoides*	Non-Native	44	1	6.0	Possible	Poor	Public	Retain	History of branch failure; rot; improper prune cuts; cavities; branch rub; wounds on lower stem failed to compartmentalize.
148	Colorado Spruce	*Picea pungens*	Non-Native	10	1	2.0	Improbable	Good	Public	Retain	Light pruning.
149	Colorado Spruce	*Picea pungens*	Non-Native	14	1	3.0	Improbable	Fair	Boundary	Retain	Minor light pruning; small hole at base in ground.
150	Colorado Spruce	*Picea pungens*	Non-Native	13	1	2.5	Improbable	Good	Boundary	Retain	Slightly exposed roots.
151	Colorado Spruce	*Picea pungens*	Non-Native	25	1	3.0	Improbable	Fair	Public	Retain	Minor dieback.
152	White Spruce	*Picea glauca*	Native	13	1	2.5	Improbable	Fair	Boundary	Retain	Light pruning.
153	Norway Maple	*Acer platanoides*	Non-Native	22	1	3.5	Improbable	Good	Private	Retain	Included bark; branch rub.
154	Colorado Spruce	*Picea pungens*	Non-Native	18	1	3.0	Improbable	Good	Private	Retain	Minor light pruning.
155	White Spruce	*Picea glauca*	Native	13	1	2.5	Improbable	Fair	Private	Retain	Minor dieback.
156	Norway Spruce	*Picea abies*	Non-Native	14	1	1.0	Improbable	Good	Boundary	Retain	Light pruning.
157	White Spruce	*Picea glauca*	Native	14	1	2.5	Improbable	Good	Boundary	Retain	Minor light pruning.
158	Flowering Crab Apple	*Malus baccata*	Non-Native	25+22+20	4	5.0	Improbable	Fair	Private	Retain	Minor dieback; codominant leaders.
159	Norway Maple	*Acer platanoides*	Non-Native	13.8	1	2.0	Improbable	Good	Private	Retain	Slightly suppressed; included bark.



Tree Protection Zones

Diameter of Trunk Measured at 1.4 m above grade (DBH)	Minimum Tree Protection Zone (TPZ) Distance from trunk, measured in metres	Potential Rooting Area (PRA) for all trees and TPZ for trees in thin, parks, open spaces and other significant nature heritage areas.
<10	1.2	2.4
10-20	1.8	3.6
20-40	2.4	4.8
41-50	3.0	6.0
51-60	3.6	7.2
61-70	4.2	8.4
71-90	4.8	9.6
91-99	5.4	10.8
91-100	6.0	12.0
>100	6 cm per 1 cm DBH	12 cm per 1 cm DBH

TREE PROTECTION BARRIER NOTES:

1. HOARDING TYPE SHOULD BE DETERMINED IN CONSULTATION WITH THE CITY.
2. ALL TREE PROTECTION HOARDING SHALL BE IN PLACE AND MUST BE INSPECTED AND APPROVED BY THE CITY PRIOR TO ANY CONSTRUCTION ACTIVITIES.
3. ALL ARBORICULTURE WORK SUCH AS PRUNING OF BRANCHES AND ROOTS SHALL BE CONDUCTED BY A CERTIFIED ARBORIST.
4. CONSTRUCTION ACTIVITIES, GRADE CHANGES, AND STORAGE OF EQUIPMENT AND MATERIALS ARE NOT ALLOWED WITHIN THE TREE PROTECTION ZONE.
5. THIS DRAWING TO BE USED IN CONJUNCTION WITH "CITY OF GUELPH TREE TECHNICAL MANUAL".

Notes:
1- Or dripline plus 1 metre, whichever is greater.
2- Works in PRA are subject to specifications outlined in Subsection 4.4.4. of "City of Guelph Tree Technical Manual".

CITY OF GUELPH STANDARD DRAWING

TREE PROTECTION ZONE FENCE DETAIL

DATE DRAWN: JAN/11 | REV. No.: |
DESCRIPTION:
REV. DATE: | REV. BY: G.F./ C.M.C.
APPROVED BY:
CITY ENGINEER

ENGINEERING

SD - 90a

Schedule A: Tree Protection Zone (TPZ) Information Signage

TREE PROTECTION ZONE (TPZ)

40 CM MIN.

NO GRADE CHANGE
DUMPING
STORAGE OF MATERIALS
STORAGE OF EQUIPMENT
UNAUTHORIZED ENTRY
TREE INJURY OR REMOVAL
DISTURBANCE OF ANY KIND

THIS FENCING MUST NOT BE DAMAGED OR MOVED

CONTACT: name and telephone number of contact
name and telephone number of contact

City of Guelph - Planning, Building, Engineering & Environmental Services
(519) 837-5616

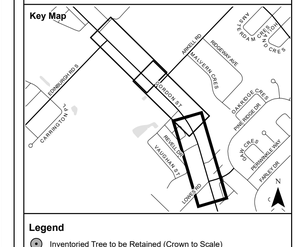
60 CM MIN.

Map 1b

Gordon Street, Guelph EA

Tree Inventory and Preservation Plan

Key Map



Legend

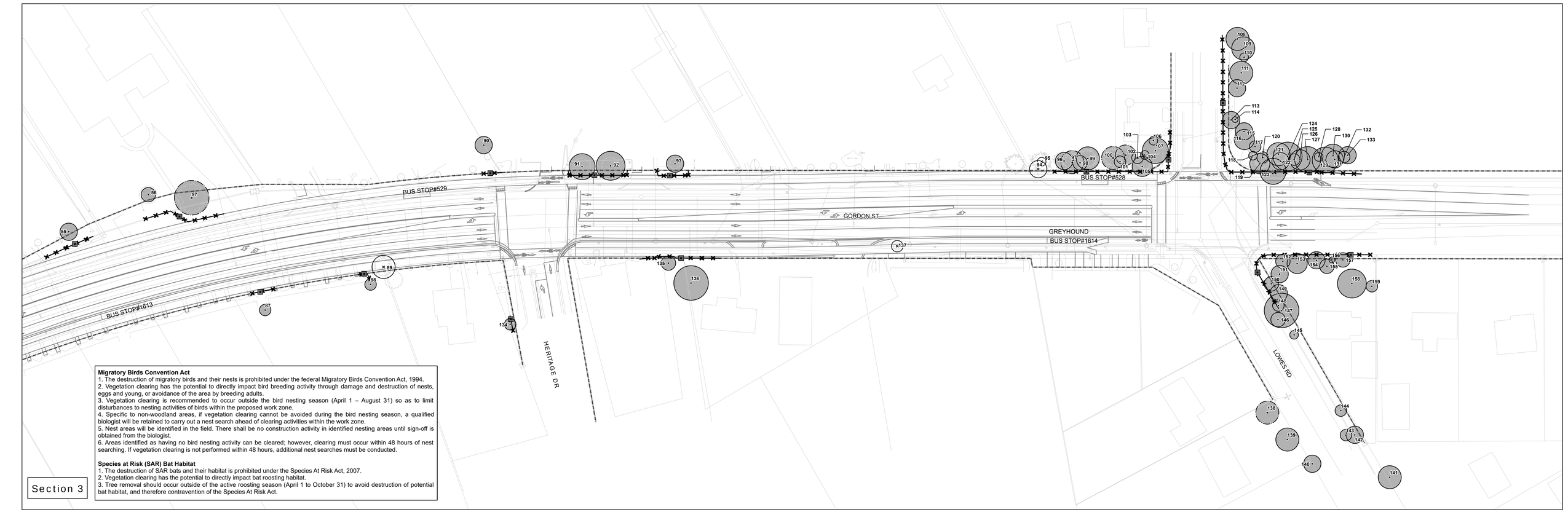
- Inventoried Tree to be Retained (Crown to Scale)
- Retain and Prune
- Inventoried Tree to be Removed (Crown to Scale)
- Tree Protection Fencing
- Tree Protection Fencing Signage
- Right of Way (ROW)
- Proposed Alignment
- Existing Conditions

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2252
Date: May 6, 2020

NAD83 - UTM Zone 17
Size: 24x36"
1:600

0 10 20 30 Meters



Migratory Birds Convention Act
1. The destruction of migratory birds and their nests is prohibited under the federal Migratory Birds Convention Act, 1994.
2. Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs and young, or avoidance of the area by breeding adults.
3. Vegetation clearing is recommended to occur outside the bird nesting season (April 1 – August 31) so as to limit disturbances to nesting activities of birds within the proposed work zone.
4. Specific to non-woodland areas, if vegetation clearing cannot be avoided during the bird nesting season, a qualified biologist will be retained to carry out a nest search ahead of clearing activities within the work zone.
5. Nest areas will be identified in the field. There shall be no construction activity in identified nesting areas until sign-off is obtained from the biologist.
6. Areas identified as having no bird nesting activity can be cleared; however, clearing must occur within 48 hours of nest searching. If vegetation clearing is not performed within 48 hours, additional nest searches must be conducted.

Species at Risk (SAR) Bat Habitat
1. The destruction of SAR bats and their habitat is prohibited under the Species At Risk Act, 2007.
2. Vegetation clearing has the potential to directly impact bat roosting habitat.
3. Tree removal should occur outside of the active roosting season (April 1 to October 31) to avoid destruction of potential bat habitat, and therefore contravention of the Species At Risk Act.

Section 3