



Welwyn Consulting

July 18, 2023

Mohaned Sawan  
**12604515 Canada Corporation**  
402-88 Dunn St. Oakville. ON. L6J 3C7  
Off: 905-842-9080

**SUBJECT: Arborist Report and Tree Preservation Plan  
3958 Cardinal Drive, Niagara Falls, Ontario**

Dear Mohaned:

Attached please find the Arborist Report and Tree Preservation Plan that has prepared for the above property. It is the client's responsibility to review the entire report to ensure all required tree permit application forms are completed and properly filed with the Cities of Niagara Falls/Thorold/St. Catharines/Ontario

This report includes an evaluation of all subject site trees with a diameter at breast height (DBH) of **10cm or greater** and all City, neighbouring and shared ownership trees of any size on and within 6 metres of the subject site's property lines. This evaluation includes the DBH, height, canopy spread, health, and structural condition of all trees that may be affected by the currently proposed site plan. This report also provides a Tree Preservation Plan for the property, including the appropriate Tree Protection Zones (TPZ).

This information complies with the following Niagara Region By-Laws required to obtain a Site Alteration Permit:

- *City of Niagara Falls/Thorold Municipal Tree By-Law No.2004-173 (as amended by By-Law 2013-69 and By-Law 2015-58*
- *Niagara Region Tree and Forest Conservation By-Law No. 30-2008*
- *Sections 135(2) and 135(7) of the Municipal Act 2001, S.O. 2001 c.25*
- *There are currently no Private Tree Protection By-Laws for this region*

This letter is part of the Arborist Report and Tree Preservation Plan and may not be used separately. Please feel free to contact me to discuss this report further.

Best regards,

Tom Bradley B.Sc.(Agr.)  
ASCA Registered Consulting Arborist #492  
ISA Certified Arborist #ON-1182A  
ISA Certified Tree Risk Assessor  
Butternut Health Assessor #257 (OMNR)  
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# Arborist Report and Tree Preservation Plan

**3958 Cardinal Drive, Niagara Falls,  
Ontario**

Prepared For

Mohaned Sawan  
12604515 Canada Corporation  
402-88 Dunn St. Oakville. ON. L6J 3C7  
Off: 905-842-9080

Prepared By

Tom Bradley B.Sc.(Agr.)  
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Prepared On

July 18, 2023



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## Summary

This Arborist Report and Tree Preservation Plan addresses all subject site trees with a diameter at breast height (DBH) of **10cm or greater** and all City, neighbouring and shared ownership trees of any size on and within 6 metres of the subject site’s property lines that may be affected by the proposed property development, and provides recommendations for their preservation and/or removal. This report also includes hoarding distances for the Tree Protection Zones (TPZ), and provides recommendations for current and future tree health care.

Based upon the Tree Inventory for this property, there are **forty (40) trees** that may be affected by the proposed site development plan:

- Twenty six (26) trees on the subject site
- Six (6) neighbouring trees within 6 metres of the subject site’s property lines
- Five (5) shared ownership trees (subject site and neighbour to the east)
- Three (3) City-owned trees within 6m of the subject site’s property lines

**Table 1: Tree Preservation and Removal**

<u>TREES TO PRESERVE</u>	<u>TREE NUMBER</u>	<u>TOTAL</u>
i) Subject Site Trees	0	0
ii) Neighbouring Trees	11, 12, 28, 29, 36, 37	6
iii) Shared Ownership Trees	35, 38	2
iv) City-owned Trees	3, 4	<u>2</u>
	<b># of Trees to be Preserved:</b>	<b>10</b>
<u>TREES TO REMOVE</u>	<u>TREE NUMBER</u>	<u>TOTAL</u>
i) Subject Site Trees	1, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23	26
	24, 25, 26, 27, 30, 31, 32, 33, 34	
ii) Neighbouring Trees	0	0
iii) Shared Ownership Trees	17, 39, 40 (removed due to storm damage - summer 2023)	3
iv) City-owned Trees	2 (site plan conflict)	<u>1</u>
	<b># of Trees to be Removed:</b>	<b>30</b>
	<b>Total Trees on or adjacent to Subject Site:</b>	<b>40</b>

**Specific tree-related issues on this site:**

There are no specific tree-related issues on this site at this time.



## Introduction

This Arborist Report and Tree Preservation Plan provides the current condition of all subject site trees with a diameter at breast height (DBH) of **10cm or greater** and all City, neighbouring and shared ownership trees of any size on and within 6 metres of the subject site's property lines as indicated by the attached site plan in Appendix A of this report. The intent of the Tree Preservation Plan is to retain as many trees on the site as is reasonable and minimize the potential impact of construction injury to the trees through the use of Tree Protection Zones (TPZ) and other generally recognized arboricultural practices.

## Assignment

Welwyn Consulting was contacted by **ConceptLines Inc. on behalf of the property owner, 12604515 Canada Corporation** to provide an Arborist Report and Tree Preservation Plan, as required by the *Niagara Region By-Laws* on Page 1 of this report to minimize the impact that the proposed construction may have on the trees on or adjacent to this property. This report shall list specific trees to be preserved or removed, recommend any immediate maintenance required to create a safer environment for contractors and the property owner, and provide a long-term tree preservation and management plan for the site.

## Limits of Assignment

This report is limited to assessing and documenting the health and structural condition of all subject site trees with a diameter at breast height (DBH) of **10cm or greater** and all City, neighbouring and shared ownership trees of any size on and within 6 metres of the subject site's property lines on **March 22, 2023**. Evaluations are based upon a visual inspection of the trees from the ground, and the analysis of photos and any samples taken during that inspection.

### Unless specifically stated in the report:

- 1.) Neither aerial inspections nor root excavations were performed on any trees on or within 6 metres of the subject site.
- 2.) A Level II Basic Assessment using the 2011 International Society of Arboriculture (I.S.A.) *Best Management Practices* was used for tree evaluations on the subject site.
- 3.) A Level I Limited Visual Assessment was used for any off-site trees as required.

## Purpose and Use

The purpose of this report is to document the current health and structural condition of all subject site trees with a diameter at breast height (DBH) of **10cm or greater** and all City, neighbouring and shared ownership trees of any size on and within 6 metres of the subject site's property lines and to provide an Arborist Report and Tree Preservation Plan that complies with the *Niagara Region By-Laws* on Page 1 of this report. This report is intended for the exclusive use of **ConceptLines Inc. on behalf of the property owner, 12604515 Canada Corporation**. Upon submission by and payment to Welwyn Consulting, this report will become licensed for the use of **ConceptLines Inc. on behalf of the property owner, 12604515 Canada Corporation** at their discretion.



## Observations

The proposed development is located near the intersection of Cardinal Drive and Thorold Stone Road within the City of Niagara Falls. This site is currently an open property upon which thirty three (33) townhomes are proposed for construction. Welwyn Consulting visited the site on **March 22, 2023** to conduct the tree inventory and take photographs of all subject site trees as well as any neighbouring, shared ownership and City-owned trees that may be affected by the proposed site plan.



**Photo #1**



**Photo #2**

**Figure #1:** These 2 photos show the front and rear yard of the subject site at 3958 Cardinal Drive as they appeared during the tree inventory conducted on March 22, 2023.

## Appendices

**Appendix A** contains the most current site plan supplied by **ConceptLines Inc.** which provides the following information:

- The location of the trees on or adjacent to the subject site
- Property lines for the subject site and neighbouring properties
- Property lines for City-owned lands adjacent to the subject site
- All existing buildings and hard surfaces
- An outline of the proposed building

**Appendix B** contains the Tree Inventory for this site. All trees were assigned numbers, and measured for diameter at breast height (DBH=1.4m), height, and canopy spread. The trees' health, structural condition and physical location/ownership provide the basis for their recommended preservation or removal.

**Appendix C** contains the Tree Appraisal values for any City-owned trees on municipal property adjacent to the subject site that may be impacted by the proposed site plan.

**Appendix D** contains selected photos of trees on this site.



## Trees to Preserve (10)

### NOTES:

- 1.) It is the responsibility of the client to ensure that all architects, engineers, and contractors involved with the project be provided with a copy of the entire Arborist Report and Tree Preservation Plan for review prior to the commencement of construction activities on this site.
- 2.) A tree's root system extends 2-3 times beyond the edge of the canopy/dripline. As Tree Protection Zone (TPZ) hoarding protects only that portion of the root system governed by municipal regulations, most trees on urban residential properties may sustain a degree of injury (including but not limited to root severance, soil compaction and disturbance) during proposed construction activities.

#### ■ **Trees #3 and 4**

#### **City owned trees**

These two (2) trees are located in the west boulevard at 3958 Cardinal Drive on lands owned by the Cities of Niagara Falls. These 2 trees must be protected for the duration of the proposed construction activities on this site.

These two (2) City-owned trees must be preserved. Full implementation of the Tree Care Recommendations, Tree Preservation Plan and Tree Preservation Guidelines starting on Page 10 of this report should result in the trees' continued survival.

#### ■ **Trees #11 and 12**

#### **Neighbouring trees**

These two (2) trees are located on the neighbouring property east of the subject site at 3958 Cardinal Drive. These 2 trees must be protected for the duration of the proposed construction activities on this site.

These two (2) neighbouring trees must be preserved. Full implementation of the Tree Care Recommendations, Tree Preservation Plan and Tree Preservation Guidelines starting on Page 10 of this report should result in the trees' continued survival.

#### ■ **Trees #28 and 29**

#### **Neighbouring trees**

These two (2) trees are located in the rear yard of the neighbouring property west of the subject site at 3958 Cardinal Drive. These 2 trees must be protected for the duration of the proposed construction activities on this site.

These two (2) neighbouring trees must be preserved. Full implementation of the Tree Care Recommendations, Tree Preservation Plan and Tree Preservation Guidelines starting on Page 10 of this report should result in the trees' continued survival.



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■ **Trees #35 and 38 (shared trees) and #36-37 (neighbouring trees)**

Two (2) of these four (4) trees are located on the neighbouring property east of the subject site at 3958 Cardinal Drive (#36 and 37) and two (2) trees (#35 and 38) have shared ownership. These 4 trees must be protected for the duration of the proposed construction activities on this site.

These four (4) neighbouring/shared ownership trees must be preserved. Full implementation of the Tree Care Recommendations, Tree Preservation Plan and Tree Preservation Guidelines starting on Page 10 of this report should result in the trees' continued survival.

**NOTE:**

Tree #35 and 38 has shared ownership with the subject site at 3958 Cardinal Drive and the neighbour to the east. All shared trees must be preserved unless their removal is agreed upon in a "Letter of Agreement" signed by all owners. Full implementation of the Tree Care Recommendations, Tree Preservation Plan and Tree Preservation Guidelines starting on Page 10 of this report should result in the tree's continued survival.





## Trees to Remove (30)

Prior to construction, all trees scheduled for removal should be removed to grade level to increase the safety for both the property owner and any contractors.

### **NOTES:**

- 1.) The City of Niagara Falls requires a “Permit to Injure” application for all trees over 10cm DBH that are proposed to be injured or destroyed.
  - 2.) A tree’s root system extends 2-3 times beyond the edge of the canopy/dripline. As Tree Protection Zone (TPZ) hoarding protects only that portion of the root system governed by municipal regulations, most trees on urban residential properties may sustain a degree of injury (including but not limited to root severance, soil compaction and disturbance) during proposed construction activities.
  - 3.) While there are currently no Private Tree Protection By-Laws in the Cities of Niagara Falls/Thorold/St Catharines, replacement trees may be required as compensation for trees proposed for removal.
- **Trees #1, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 30, 31, 32, 33 and 34**  
These twenty six (26) trees are in conflict with the proposed site plan and are proposed to be safely removed to grade level prior to the commencement of any on-site construction activities.
  - **Trees #17, 39 and 40** **Shared ownership trees**  
These three (3) trees were removed by the property owner to the east due to storm damage in the summer of 2023. The owner at 3958 Cardinal Drive was consulted and approved the removals.
  - **Tree #2** **City-owned tree**  
This City tree is in conflict with the proposed site plan and is proposed to be safely removed to grade level prior to the commencement of any on-site construction activities.

### **NOTE:**

*Please refer to the Tree Replacement Planting Plan (prepared by others) for 3958 Cardinal Dr. Niagara Falls.*



## Tree Care Recommendations

### Cabling

Cabling is a practice which provides physical support for trees with structurally weak limbs, co-dominant stems, any branch or trunk unions with included bark, and tree species generally known to be weak-wooded. An aerial inspection of the tree's structural condition should be performed prior to cable installation, and any dead, diseased, or hazardous wood should be removed. Cabled trees should be inspected annually to assess both the cabling hardware and the tree's structural condition. Cabling recommendations by Welwyn Consulting are made as a part of "due diligence" to alert tree owners to the 'potential' for tree failure and to provide hazard mitigation options based upon observed conditions. Cabling reduces but does not eliminate a tree's hazard or failure potential.

- **There are no trees recommended for cabling on this site at this time.**

### Fertilization

Current research conducted through the International Society of Arboriculture (I.S.A.) indicates that preserved trees within close proximity of proposed construction activities should not be fertilized during the 1<sup>st</sup> year following construction injury. Uptake of nutrients and water in compacted soils can be reduced, and fertilizer salts may actually remove water from a tree's root zone. If and when supplemental fertilization is deemed necessary, products which stimulate root growth should be employed over those that stimulate shoot and foliage growth and be applied at low application rates.

*Supplemental fertilization needs should be assessed by a Certified Consulting Arborist upon completion of all on-site construction activities, and any recommendations should be based on site-specific soil nutrient deficiencies determined primarily through soil testing and secondarily by visual analysis of nutrient deficiencies in foliage, twigs, buds, and roots.*

### Pruning

Pruning is a practice which removes dead, diseased, broken, rubbing, crossing, and hazardous limbs 2.5 cm and larger from trees to create a safer working environment and improve tree health and vigor. Pruning also provides an excellent opportunity for an aerial inspection of the structural integrity of the tree(s). All pruning should be completed prior to any site demolition or construction.

- **There is no pruning recommended for this site at this time.**



## Root Pruning

Root pruning is performed to minimize a tree's potential loss of structural stability through root removal and/or injury due to excavation within close proximity of its root zone. While not always feasible for all projects, root pruning should occur in late autumn during tree dormancy and ideally one full growing season prior to any on-site construction or demolition to allow for root regeneration. Root pruning should be performed by a Certified Arborist in accordance with generally recognized standards and principles within the field of Arboriculture. *Dry-vac or Air-Spade technologies provide two of the least invasive methods for root zone excavation, and should be performed under the supervision of a Certified Arborist.*

### General Methodology (other than hydro-vac/air spade)

Under the direction of a Certified Consulting Arborist, and using hand and/or mechanical excavation equipment, the soil shall be carefully removed starting approximately 4m perpendicular to the edge of the proposed building foundation area. Digging in a line parallel to the roots rather than across them should minimize cracking of any large roots near the tree's base. The soil shall be removed in layers approximately 1.0m deep to minimize the potential for striking any large roots that may have been close to the soil surface.

- **There is no root pruning recommended for this site at this time.**

## Irrigation

An irrigation plan for preserved trees should be designed and implemented with the assistance of a Certified Consulting Arborist. The amount and frequency of irrigation will depend on factors such as soil type, local and seasonal precipitation patterns, duration of droughts, and the amount of construction activity near specific trees.

The top 30cm of soil in a tree's root zone should be kept moist without being saturated. Infrequent deep watering produces trees with deeper roots, while frequent shallow watering produces shallow-rooted trees. When combined with soil aeration improvement techniques such as vertical mulching, drill holes, and radial trenching, an adequate but not excessive supply of moisture to a tree's root zone can be an effective and efficient way to help alleviate construction injury.

Preserved trees should be monitored at regular intervals by a Certified Consulting Arborist for signs of drought stress or excess irrigation.

- **An irrigation plan will be developed upon determination of tree injury levels after completion of any required root pruning.**



### Horizontal Mulching

It may be determined by the Certified Consulting Arborist that trees within close proximity of construction activities will require a layer of composted wood chip mulch applied to the root zones inside the TPZ hoarding. Decomposed wood mulch 5–10 cm (2–4 inches) deep applied to a tree's root zone should help to retain soil moisture, regulate soil temperature, and provide a natural organic source of nutrients in their elemental form over time. Piling of mulch against the tree stem shall be avoided. Fresh wood chip mulch shall be applied to a depth of 10-15cm beneath steel plates or plywood on vehicle and equipment traffic areas within close proximity to the TPZ to distribute weight on the soil and help reduce potential root zone soil compaction.

- **There are no specific mulching requirements at this time.**

### Root Zone Aeration Improvements

Aeration improvement techniques such as drill holes, vertical mulching, soil fracturing, and radial trenching have the ability to reduce various degrees of soil compaction by increasing the amount of soil macro and micropores. Any form of root zone aeration improvement should be performed post-construction and under the supervision of a Certified Consulting Arborist to help remediate soil compaction caused by construction activity near preserved trees.

- **There are no root zone aeration improvements required on this site at this time.**

### Transplanting

Transplanting of larger caliper trees, through either hand digging or tree spade, allows for relocation and retention of desirable trees that might have otherwise been removed due to conflict with the proposed property construction design. Trees should be tree-spaded out by a reputable operator, and are best transplanted during dormancy in late autumn. No construction activity should take place near re-located trees either before or after transplantation.

Any transplanted trees should be fertilized using a complete fertilizer with a preferred nitrogen/phosphorus/potassium ratio of 1-2-2, with the Nitrogen component in slow release form. A 10 cm layer of composted wood mulch should be applied to the root zone, and the tree should receive regular irrigation for a period of at least one year. The tree may also require staking for a period of 1 year to provide stability while it re-establishes its root system.

- **There are no trees recommended for transplanting on this site at this time.**



## Tree Preservation Plan

The following Tree Preservation Plan shall be implemented prior to all proposed on-site construction activity.

### Hoarding

Hoarding is used to define the **Tree Protection Zone (TPZ)**, which protects a tree's root zone, trunk, and branches from injury during both construction and landscaping phases of the project. Hoarding must be installed prior to any construction activity, and remain intact until construction and landscaping is completed. The TPZ must **NOT** be used for the temporary storage of building materials, storage or washing of equipment, or the dumping of construction debris, excess fill, or topsoil.

As required by the Niagara Region/Thorold/St.Catharines, hoarding shall be constructed of 4x8 plywood or waferboard sheets using 2x4 top and bottom rail construction with supports and braces. A TPZ may be constructed of orange safety fencing using 2x4 top and bottom rail construction and supports & braces or T-bars when protecting street trees where site line obstruction is a concern. TPZ signage should be posted in visible locations on the TPZ hoarding. The architect of record for the project shall update the most current site plan/grading plan to include all existing trees properly plotted and numbered with the tree canopy diameters and TPZ hoarding locations clearly indicated and to scale.

**NOTE:** A tree's root system extends 2-3 times beyond the edge of the canopy/dripline. As Tree Protection Zone (TPZ) hoarding protects only that portion of the root system governed by municipal regulations, most trees on urban residential properties may sustain a degree of injury (including but not limited to root severance, soil compaction and disturbance) during proposed construction activities.

### Hoarding Installation

A diagram of the proposed hoarding plan for this site can be found in Appendix A on Page 18 of this report. The recommended radial distances from the trunk for installation of TPZ hoarding are listed in Appendix B starting on Page 19 of this report, and the hoarding shall be installed using the following guidelines:

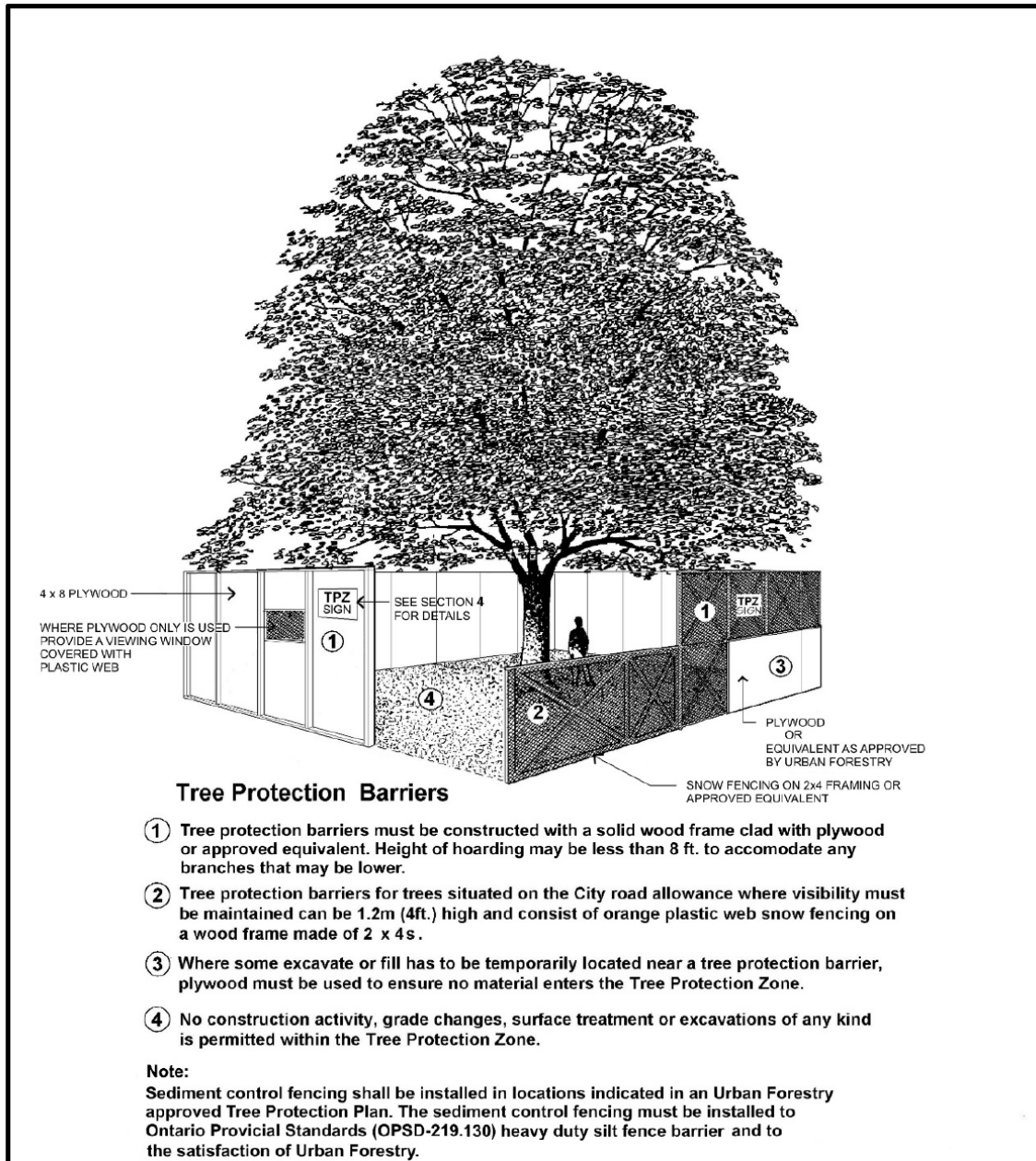
- 1) All TPZ hoarding shall be placed at the recommended radial distance from the base of all trees to be protected, or up to all existing and/or proposed hard surfaces to allow for construction.
- 2) Any large numbers of trees that can be grouped together in a closed box or continuous line system for protection shall have their TPZ hoarding placed at the recommended radial distance from the base of all of the largest peripheral trees of the system, or up to all existing and/or proposed hard surfaces to allow for construction.
- 3) Encroachment within a tree's TPZ will require a special permit from the Niagara Region/Thorold/St.Catharines and/or on-site supervision by a Certified Consulting Arborist during any proposed excavation activities for root pruning and assessment.



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## Typical Municipal TPZ Hoarding Specifications

The diagram below provides a generalized standard for Tree Protection Zone (T.P.Z) hoarding used in Ontario municipalities.





## Tree Preservation Plan Summary

### I.) Pre-Construction Phase

- It is recommended that an on-site meeting take place with the project Certified Consulting Arborist, a representative from Cities of Niagara Falls/Thorold/St. Catharines Urban Forestry Department, the property owner(s), and any Architects, Engineers, and contractors involved with the project to discuss the Tree Preservation Plan.
- Complete all Tree Care Recommendations, including pruning and any required tree removals.
- Install Tree Protection Zone (TPZ) hoarding as required.
- Where required, apply composted wood mulch to tree root zones within the TPZ hoarding, and apply fresh wood mulch over steel plates and/or plywood to any high-traffic areas immediately adjacent to the TPZ hoarding to help reduce soil compaction.
- If permitted by the Cities of Niagara Falls/Thorold/St. Catharines, root-prune any preserved trees adjacent to excavation areas prior to construction under the supervision of a Certified Consulting Arborist.
- Establish an irrigation plan with the assistance of a Certified Consulting Arborist.

### II.) Construction Phase

- Maintain and respect TPZ hoarding throughout the construction phase. Do not store or dump materials in this area.
- Continue irrigation plan as directed by a Certified Consulting Arborist.
- If permitted by the Cities of Niagara Falls/Thorold/St. Catharines, prune any roots exposed during excavation under the supervision of a Certified Consulting Arborist.
- On-going monitoring by a Certified Consulting Arborist to evaluate construction injury/stress and make recommendations.

### III.) Post-Construction Phase

- Remove hoarding only after permission from the Cities of Niagara Falls/Thorold/St. Catharines
- Continue irrigation program as directed by a Certified Consulting Arborist.
- Supplemental fertilizer needs assessment by a Certified Consulting Arborist.
- Post-construction monitoring of all trees by a Certified Consulting Arborist.

#### NOTE: Post-Construction Monitoring

Construction injury may take several years to become apparent. All preserved trees should be inspected by a Certified Consulting Arborist on a semi-annual basis for a period of up to 2 years to pro-actively address any tree health related issues as they occur.



## ASSUMPTIONS AND LIMITING CONDITIONS

Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, by-laws, or other governmental regulations.

Care has been taken to obtain all information from reliable sources, and all data has been verified insofar as possible. The consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

Loss or alteration of any part of this report invalidates the entire report.

Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone other than the person to whom it is addressed without the prior expressed written or verbal consent of the consultant/appraiser.

Neither all nor any part of the contents of this report, nor any copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society, institute, or any initialed designation conferred upon the consultant/appraiser as stated in his/her qualification.

This report and the values expressed herein represent the opinion of the consultant/appraiser, and the consultant/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as either engineering or architectural reports or surveys.

Unless expressed otherwise: 1) Information contained in this report covers only those items that were examined and reflections the condition of those items at the time of inspection, and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.





## CERTIFICATE OF PERFORMANCE

I, Tom Bradley, certify that:

- I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of any evaluation or appraisal is stated in the attached report and the Limits of Assignment.
- I have no current or prospective interest in the vegetation of the property that is the subject of this report, and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions and conclusions stated herein are my own, and are based on current scientific procedures and facts.
- My compensation is not contingent upon the reporting of a pre-determined conclusion that favours the cause of the client or any other party, or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.
- My analysis, opinions and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to the consultant, except as indicated within the report.

I further certify that I am a Registered Consulting Arborist with the *American Society of Consulting Arborists (A.S.C.A)*, and both a Certified Arborist and Certified Tree Risk Assessor with the *International Society of Arboriculture (I.S.A)*. I have been involved in the fields of Arboriculture and Horticulture in a full-time capacity for a period of more than 20 years.

Signed: \_\_\_\_\_

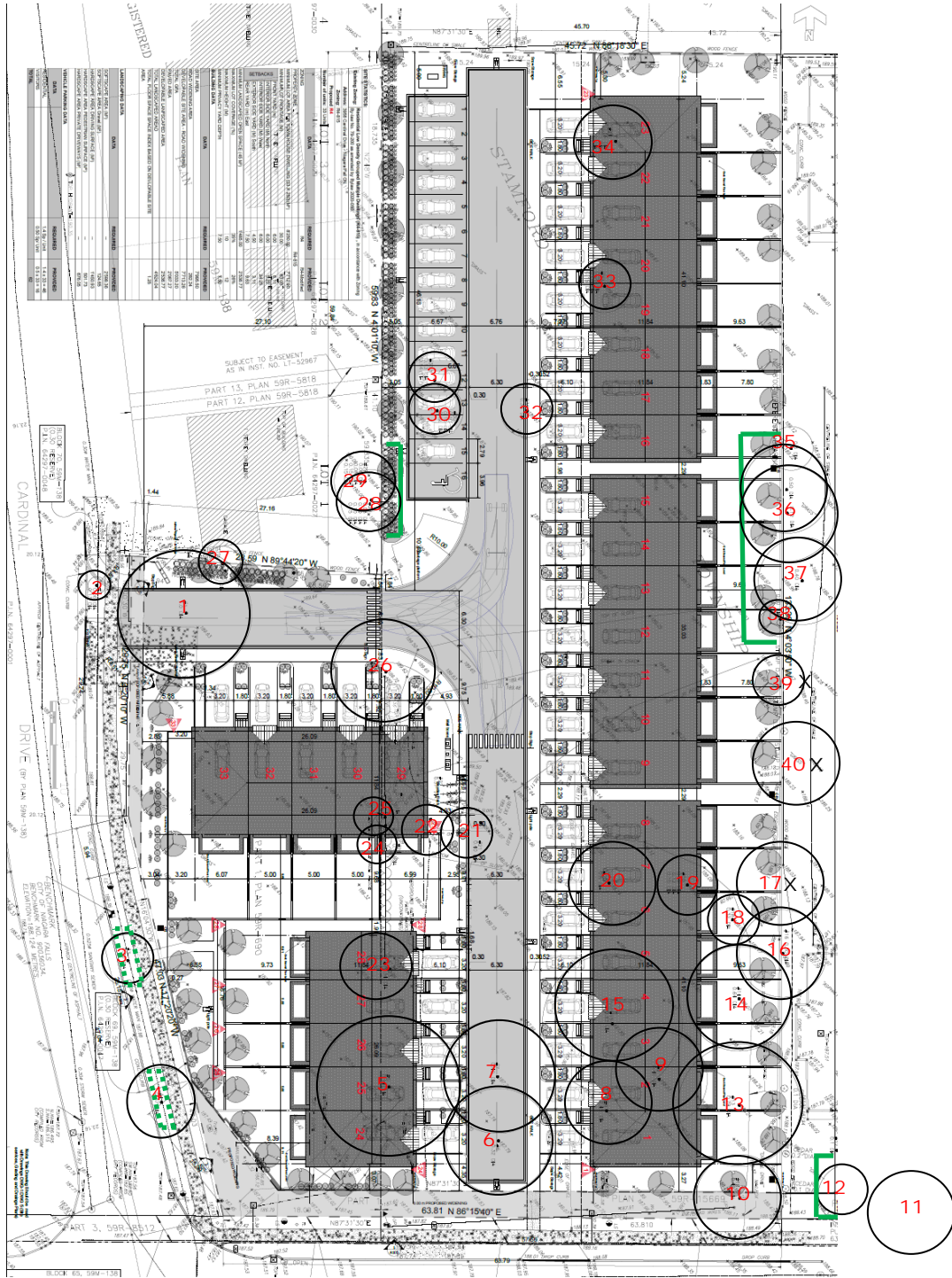
Date:

July 18, 2023



### Appendix A: Proposed Site Plan – 3958 Cardinal Drive, Niagara Falls

Note: The proposed Tree Protection Zone (TPZ) hoarding is drawn as green lines and shall be drawn to scale on the proposed site/grading plan by the project architect. Please refer to the proposed landscape plan (prepared by others) for replacement tree information. X denotes trees that were removed by the neighbour in the summer of 2023 due to storm damage.



**Legend:**

Solid Hoarding (water and sanitary services to be determined)

Framed Hoarding



**Appendix B: Tree Survey – 3958 Cardinal Drive, Niagara Falls**

Tree Location Categories:

- 1.) Trees with diameters of 10 cm or more situated on private property on the subject site.
- 2.) Trees with diameters of 10 cm or more situated on private property within 6 m of the subject site.
- 3.) Trees of all diameters situated on City owned parkland within 6 m of the subject site.
- 4.) Trees of all diameters situated within the City road allowance adjacent to the subject site.
- 5.) \* denotes estimated DBH values due to restricted site access/private property

I.D #	Owner and Category	Tree Species Common Name	Tree Species Botanical Name	DBH (cm)	Height (m)	Canopy (m)	Tree Health	Structural Condition	Comments	Minimum TPZ unless otherwise stated
1	Subject Site (#1)	Basswood	<i>Tilia americana</i>	100	20	15	Good	Good	Small-caliper deadwood in canopy; branch canopy above 2m	Remove: Proposed site plan in conflict with the tree
2	City tree (#4)	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'	6, 13 (14)	5	2	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1m from tree base; branch canopy above 1.8m	Remove: Proposed site plan in conflict with the tree
3	City tree (#4)	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'	30	12	6	Good	Good	Small-caliper deadwood in canopy; branch canopy above 2m	Preserve: TPZ = 2.4m
4	City tree (#4)	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'	37	12	8	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1.8m from tree base; branch canopy above union	Preserve: TPZ = 2.4m
5	Subject Site (#1)	Silver Maple	<i>Acer saccharinum</i>	94	22	16	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with narrow included bark union 2m from tree base; branch canopy above union	Remove: Proposed site plan in conflict with the tree
6	Subject Site (#1)	Persian Walnut	<i>Juglans regia</i>	32	12	12	Good	Fair	Small-caliper deadwood in canopy; 3 large aspect ratio co-dominant stems with included bark union 2m from tree base; branch canopy above union and shaded/reduced on north side	Remove: Proposed site plan in conflict with the tree
7	Subject Site (#1)	Persian Walnut	<i>Juglans regia</i>	40	15	13	Good	Fair	Small-caliper deadwood in canopy; 3 large aspect ratio co-dominant stems with included bark union 6m from tree base; branch canopy shaded/reduced on northeast side	Remove: Proposed site plan in conflict with the tree
8	Subject Site (#1)	Austrian Pine	<i>Pinus nigra</i>	45	15	10	Good	Good	Small-caliper deadwood in canopy; branch canopy shaded/reduced on north side; branch canopy above 2m	Remove: Proposed site plan in conflict with the tree



I.D #	Owner and Category	Tree Species Common Name	Tree Species Botanical Name	DBH (cm)	Height (m)	Canopy (m)	Tree Health	Structural Condition	Comments	Minimum TPZ unless otherwise stated
9	Subject Site (#1)	Paper Birch	<i>Betula papyrifera</i>	41	12	11	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1.8m from tree base; <u>Taxus spp.</u> at tree base	Remove: Proposed site plan in conflict with the tree
10	Subject Site (#1)	Northern Catalpa	<i>Catalpa bignonioides</i>	49	13	10	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 2m from tree base; canopy previously pollarded with regrowth; decay within branch canopy union	Remove: Proposed site plan in conflict with the tree
11	Neighbour (#2)	Red Maple	<i>Acer rubrum</i>	35*	16	7	Good	Good	Small-caliper deadwood in canopy; branch canopy above 2m	Preserve: TPZ = 2.4m
12	Neighbour (#2)	White Spruce	<i>Picea glauca</i>	10*	6	4	Good	Good	Small-caliper deadwood in canopy	Preserve: TPZ = 2.4m
13	Subject Site (#1)	Northern Catalpa	<i>Catalpa bignonioides</i>	79	19	14	Good	Poor	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1.5m from tree base; canopy previously pollarded with regrowth; decay within branch canopy union	Remove: Proposed site plan in conflict with the tree
14	Subject Site (#1)	Northern Catalpa	<i>Catalpa bignonioides</i>	64	16	12	Good	Poor	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1.5m from tree base; canopy previously pollarded with regrowth; decay within branch canopy union	Remove: Proposed site plan in conflict with the tree
15	Subject Site (#1)	Norway Maple	<i>Acer platanoides</i>	83	20	16	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with narrow included bark union 1.8m from tree base; branch canopy above union	Remove: Proposed site plan in conflict with the tree
16	Subject Site (#1)	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'	30	10	10	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 2m from tree base; previously topped at 2m with canopy regrowth	Remove: Proposed site plan in conflict with the tree
17	Shared Ownership (#1+2)	Mulberry	<i>Morus alba</i>	10 x 3cm, 6 x 5cm, 4 x 3cm, 2 x 2cm (16)	14	10	Good	Fair	Small-caliper deadwood in canopy; multiple small and large aspect ratio co-dominant stems with included bark unions at tree base	Removed by neighbour due to storm damage – summer 2023



I.D #	Owner and Category	Tree Species Common Name	Tree Species Botanical Name	DBH (cm)	Height (m)	Canopy (m)	Tree Health	Structural Condition	Comments	Minimum TPZ unless otherwise stated
18	Subject Site (#1)	Colorado Blue Spruce	<i>Picea pungens 'Glauca'</i>	32	14	6	Good	Fair	Small-caliper deadwood in canopy; 3 large aspect ratio co-dominant stems with included bark union 4m from tree base; lower branch canopy above 2m	Remove: Proposed site plan in conflict with the tree
19	Subject Site (#1)	Saucer Magnolia	<i>Magnolia xsoulangiana</i>	12, 12, 15 (23)	6	7	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union at tree base; lower branch canopy clearance pruned 2m from tree base	Remove: Proposed site plan in conflict with the tree
20	Subject Site (#1)	Austrian Pine	<i>Pinus nigra</i>	50	14	11	Good	Good	Small-caliper deadwood in canopy; lower branch canopy clearance pruned 2m from tree base	Remove: Proposed site plan in conflict with the tree
21	Subject Site (#1)	Colorado Blue Spruce	<i>Picea pungens 'Glauca'</i>	40	12	3	Good	Good	Small-caliper deadwood in canopy; branch canopy clearance pruned 2m from tree base	Remove: Proposed site plan in conflict with the tree
22	Subject Site (#1)	Colorado Blue Spruce	<i>Picea pungens 'Glauca'</i>	37	12	3	Good	Good	Small-caliper deadwood in canopy; branch canopy clearance pruned 2m from tree base	Remove: Proposed site plan in conflict with the tree
23	Subject Site (#1)	Scots Pine	<i>Pinus sylvestris</i>	34	10	8	Good	Good	Small-caliper deadwood in canopy; branch canopy clearance pruned 2m from tree base	Remove: Proposed site plan in conflict with the tree
24	Subject Site (#1)	Norway Maple	<i>Acer platanoides</i>	15	10	3	Good	Good	Small-caliper deadwood in canopy; growing within Privet hedge	Remove: Proposed site plan in conflict with the tree
25	Subject Site (#1)	Norway Maple	<i>Acer platanoides</i>	10	9	2	Good	Good	Small-caliper deadwood in canopy; growing within Privet hedge	Remove: Proposed site plan in conflict with the tree
26	Subject Site (#1)	Thornless Honey Locust	<i>Gleditsia triacanthos var.inermis</i>	45, 48 (66)	13	12	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union at tree base; branch canopy above 2m	Remove: Proposed site plan in conflict with the tree
27	Subject Site (#1)	Pin Cherry	<i>Prunus pensylvanica</i>	17	10	4	Good	Fair	Small-caliper deadwood in canopy; branch canopy shaded/reduced on south west side; growing at fence line	Remove: Proposed site plan in conflict with the tree



I.D #	Owner and Category	Tree Species Common Name	Tree Species Botanical Name	DBH (cm)	Height (m)	Canopy (m)	Tree Health	Structural Condition	Comments	Minimum TPZ unless otherwise stated
28	Neighbour (#2)	Common Pear	<i>Pyrus communis</i>	8, 10, 10, 15 (22)*	6	7	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union at tree base; fence on east side of stem	Preserve: TPZ = 2.4m
29	Neighbour (#2)	Common Pear	<i>Pyrus communis</i>	8, 8, 15, 15 (24)*	6	7	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union at tree base; fence on east side of stem	Preserve: TPZ = 2.4m
30	Subject Site (#1)	Apple	<i>Malus spp.</i>	10, 10, 12 (19)	4	6	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1m from tree base	Remove: Proposed site plan in conflict with the tree
31	Subject Site (#1)	Apple	<i>Malus spp.</i>	13, 14 (19)	4	6	Good	Poor	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 0.5m from tree base; approx. 45 degree lean east	Remove: Proposed site plan in conflict with the tree
32	Subject Site (#1)	Plum	<i>Prunus spp.</i>	33	6	6	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 1.5m from tree base; branch canopy above union	Remove: Proposed site plan in conflict with the tree
33	Subject Site (#1)	Common Pear	<i>Pyrus communis</i>	8, 8, 15 (19)	4.5	6	Good	Good	Small-caliper deadwood in canopy	Remove: Proposed site plan in conflict with the tree
34	Subject Site (#1)	Apple	<i>Malus spp.</i>	16, 21, 22 (34)	6	9	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 0.5m from tree base	Remove: Proposed site plan in conflict with the tree
35	Shared Ownership (#1+2)	Siberian Elm	<i>Ulmus pumila</i>	8, 12, 25 (29)*	12	5	Good	Fair	Small-caliper deadwood in canopy; small aspect ratio co-dominant stems with narrow included bark union at tree base; fence on east side of stem	Preserve: TPZ = 2.4m
36	Neighbour (#2)	Red Maple	<i>Acer rubrum</i>	30, 30 (42)*	18	10	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with narrow included bark union 4m from tree base; branch canopy above 3m; fence on west side of stem	Preserve: TPZ = 3.0m



I.D #	Owner and Category	Tree Species Common Name	Tree Species Botanical Name	DBH (cm)	Height (m)	Canopy (m)	Tree Health	Structural Condition	Comments	Minimum TPZ unless otherwise stated
37	Neighbour (#2)	Thornless Honey Locust	<i>Gleditsia triacanthos var.inermis</i>	35*	18	11	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 4m from tree base; branch canopy above union; fence on west side of stem	Preserve: TPZ = 2.4m
38	Shared Ownership (#1+2)	Manitoba Maple	<i>Acer negundo</i>	4, 6, 8, 10, 18, 21 (32)	10	10	Fair	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark unions at tree base (epicormics); dieback in mid-canopy	Preserve: TPZ = 2.4m
39	Shared Ownership (#1+2)	Green Ash	<i>Fraxinus pennsylvanica</i>	15	8	3	Good	Fair	Small-caliper deadwood in canopy; large aspect ratio co-dominant stems with included bark union 4m from tree base; fence on west side of stem	Removed by neighbour due to storm damage – summer 2023
40	Shared Ownership (#1+2)	Siberian Elm	<i>Ulmus pumila</i>	11, 27 (29)	14	10	Good	Fair	Small-caliper deadwood in canopy; small aspect ratio co-dominant stems with included bark union 0.5m from tree base; fence on west side of stem	Removed by neighbour due to storm damage – summer 2023



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**Appendix C: Tree Valuation Appraisals (City trees)**

**TREE APPRAISAL  
Trunk Formula  
Method**

Tree Number: Two (2)  
 Address: 3958 Cardinal Drive, Niagara Falls  
 Owner: City of Niagara Falls  
 Date of Appraisal: March 22, 2023  
 Appraiser: Tom Bradley  
 Certification Number: R.C.A. #492 (A.S.C.A.)

Field Observations (based on *Guide for Plant Appraisal, 9th Edition*)

1	Species:	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'
2	Condition:	75 %	
3	DBH:	14 cm	
4	Location:	67 %	

Regional Plant Appraisal Committee Information - *Guide for Plant Appraisal, 9th Edition*

5	Species Rating:	70 %
6	Replacement Plant Size:	9 cm
	Trunk	
6b	Area:	63.585 cm <sup>2</sup>
7	Replacement Plant Cost:	\$270.00
8	Installation Cost: (1.5x Plant Cost)	\$405.00
9	Installed Tree Cost:	\$675.00
10	Unit Tree Cost:	\$10.62

*Calculations by Appraiser Using Field and /or Regional Information*

11	Appraised Trunk Area (using Table 4.6) :	154 cm <sup>2</sup>
12	Appraised Tree Trunk Increase (#11 - #6b):	90 cm <sup>2</sup>
13	Basic Tree Cost (#12 x #10 + #9) :	\$1,634.82
14	Appraised Value (#13 x #5 x #2 x #4) :	\$572.19
15	Appraised Value > \$5000.00 is rounded to the nearest \$100.	
16	Appraised Value < \$5000.00 is rounded to the nearest \$10.	

APPRAISED VALUE: \$570





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# TREE APPRAISAL Trunk Formula Method

Tree Number: Three (3)  
 Address: 3958 Cardinal Drive, Niagara Falls  
 Owner: City of Niagara Falls  
 Date of Appraisal: March 22, 2023  
 Appraiser: Tom Bradley  
 Certification Number: R.C.A. #492 (A.S.C.A.)

## Field Observations (based on *Guide for Plant Appraisal, 9th Edition*)

1	Species:	Crimson King Norway Maple	<i>Acer platanoides</i> 'Crimson King'
2	Condition:	75 %	
3	DBH:	30 cm	
4	Location:	68 %	

## Regional Plant Appraisal Committee Information - *Guide for Plant Appraisal, 9th Edition*

5	Species Rating:	70 %
6	Replacement Plant Size:	9 cm
	Trunk	
6b	Area:	63.585 cm <sup>2</sup>
7	Replacement Plant Cost:	\$270.00
8	Installation Cost: (1.5x Plant Cost)	\$405.00
9	Installed Tree Cost:	\$675.00
10	Unit Tree Cost:	\$10.62

## Calculations by Appraiser Using Field and /or Regional Information

11	Appraised Trunk Area (using Table 4.6) :	707 cm <sup>2</sup>
12	Appraised Tree Trunk Increase (#11 - #6b):	643 cm <sup>2</sup>
13	Basic Tree Cost (#12 x #10 + #9) :	\$7,505.31
14	Appraised Value (#13 x #5 x #2 x #4) :	\$2,692.53
15	Appraised Value > \$5000.00 is rounded to the nearest \$100.	
16	Appraised Value < \$5000.00 is rounded to the nearest \$10.	

**APPRAISED VALUE: \$2,690**



# TREE APPRAISAL Trunk Formula Method

Tree Number: Four (4)  
 Address: 3958 Cardinal Drive, Niagara Falls  
 Owner: City of Niagara Falls  
 Date of Appraisal: March 22, 2023  
 Appraiser: Tom Bradley  
 Certification Number: R.C.A. #492 (A.S.C.A.)

### Field Observations (based on *Guide for Plant Appraisal, 9th Edition*)

1	Species:	Crimson King Norway Maple	
2	Condition:	75	%
3	DBH:	37	cm
4	Location:	68	%

*Acer platanoides*  
'Crimson King'

### Regional Plant Appraisal Committee Information - *Guide for Plant Appraisal, 9th Edition*

5	Species Rating:	70	%
6	Replacement Plant Size:	9	cm
	Trunk		
6b	Area:	63.585	cm <sup>2</sup>
7	Replacement Plant Cost:	\$270.00	
8	Installation Cost: (1.5x Plant Cost)	\$405.00	
9	Installed Tree Cost:	\$675.00	
10	Unit Tree Cost:	\$10.62	

### Calculations by Appraiser Using Field and/or Regional Information

11	Appraised Trunk Area (using Table 4.6) :	1075	cm <sup>2</sup>
12	Appraised Tree Trunk Increase (#11 - #6b):	1011	cm <sup>2</sup>
13	Basic Tree Cost (#12 x #10 + #9) :	\$11,411.89	
14	Appraised Value (#13 x #5 x #2 x #4) :	\$4,094.02	
15	Appraised Value > \$5000.00 is rounded to the nearest \$100.		
16	Appraised Value < \$5000.00 is rounded to the nearest \$10.		

**APPRAISED VALUE: \$4,090**



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**Appendix D: Site Photos – 3958 Cardinal Drive, Niagara Falls (City trees)**



**Photo #3 (Tree #2 – City tree proposed for removal)**



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**Appendix D: Site Photos – 3958 Cardinal Drive, Niagara Falls (City trees) (cont.)**



**Photo #4 (Tree #3 – City tree to be preserved)**



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**Appendix D: Site Photos – 3958 Cardinal Drive, Niagara Falls (City trees) (cont.)**



**Photo #5 (Tree #4 – City tree to be preserved)**