

Anthony Vacca
8178 Thorold Stone Road, Niagara Falls

Tree Inventory and Tree Protection Plan
March 2023



Prepared By
Kaitlyn Simpson - Certified Arborist

Table of Contents

Table of Contents	2
1 – Introduction	3
1.1 Description	3
2 – Scope of Work and Methods.....	3
2.1 – Scope of Work	3
2.2 – Methodology.....	3
3 – Tree Inventory.....	4
3.1 – Tree Inventory Chart.....	4
3.2 – Site Survey	6
4 – Tree Recommendations Relative to Proposed Construction.....	7
4.1 – Trees Recommended to be Removed or Pruned.....	7
4.2 – Recommended Tree Protection Zones	7
5 – Guidelines for Construction and Excavation in Specimen(s) Dripline.....	8
5.1 – Tree Protection Zones (TPZ).....	8
6 – Best Construction Practices to Minimize Tree Stress and Damage	8
6.1 – Construction Inside a TPZ.....	8
6.2 – Site Remediation	9
6.3 – Recommendations for Tree Protection – After Construction.....	9
7 – Conclusion Statement	9
8 – Disclaimer	10

1 – Introduction

This document is comprised of a tree inventory and tree preservation plan for all trees on the property of 8178 Thorold Stone Road, Niagara Falls, as well as any neighbouring trees with overhanging canopies.

1.1 Description

In February of 2023 Anthony Vacca approached Safe Tree Ltd., requesting a tree inventory and tree preservation for all trees in the area specified above, including any trees with canopies overhanging the property. There are 24 trees included in this inventory.

2 – Scope of Work and Methods

2.1 – Scope of Work

This document is comprised of a tree inventory and recommended preservation techniques for the trees in proximity to proposed construction at 8178 Thorold Stone Road, Niagara Falls. Any trees that are recommended to remain are to be protected as much as possible, with measures taken before, during, and after the proposed work to minimize tree stress and damage. More information on recommendations for tree protection can be found in section 4 of this document.

2.2 – Methodology

Safe Tree's consulting arborist, Kaitlyn Simpson, who is a certified arborist and TRAQ certification (Tree Risk Assessment Qualification) was on site for tree assessment and data collection on March 2nd, 2023. All trees were assessed by Kaitlyn during data collection. The notes and recommendations relative to tree health and vitality are relative to a timeframe of three years, in which the trees should be reassessed, or immediately after construction is completed.

A level 2 tree risk assessment is a "detailed visual inspection of a tree and its surrounding site, and a synthesis of the information collected. It is ground based and requires the arborist to inspect completely around the tree – looking at the site and visible buttress roots, trunk, and branches. Simple tools can be used to acquire more information about the tree or any potential defects." For more information, refer to ISA's Tree Risk Assessment Manual, Second Edition: Module 2.

The following data was collected:

Tree Number

Species

Vigor Rating: high, medium, low

Structural Risk Rating: high, medium, or low risk of failure

Notes and Recommendations based on tree health (recommendations listed in order)

Notes and Recommendations based on Proposed Construction (recommendations listed in order)

The location of each specimen was tracked by giving each tree a number, which correlates to the revised survey in section 3 of this document.

3 – Tree Inventory

3.1 – Tree Inventory Chart

The tree inventory comprises all trees 13cm DBH or greater. The tree inventory section of this document solely focuses on data relative to tree health and vitality. Information regarding tree recommendations based on proposed construction can be found in section 4 of this document.

Tree #	Species (Scientific Name)	Vigor:	Structural Risk:	Health Notes and Recommendations	Construction Notes and Recommendations
1	Poplar (<i>Populus spp.</i>)	Medium	Medium	1.Remove 2.Retain and monitor	1.Retain and monitor 2.Remove
2	Poplar (<i>Populus spp.</i>)	Low	High	1.Remove	1.Remove (due to health) 2.Retain and monitor
3	Unknown	N/A	N/A	Stump ~4ft tall	
4	Manitoba Maple (<i>Acer negundo</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor 2.Remove
5	Manitoba Maple (<i>Acer negundo</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor 2.Remove
6	Norway Maple (<i>Acer platanoides</i>)	Medium	Medium	1.Retain and monitor 2.Remove (invasive)	1.Retain and monitor 2.Remove (invasive)
7	Norway Maple (<i>Acer platanoides</i>).	Medium	Medium	1.Retain and monitor 2.Remove (invasive)	1.Retain and monitor 2.Remove (invasive)
8	Poplar (<i>Populus spp.</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor
9	Poplar (<i>Populus spp.</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor

10	Poplar (<i>Populus sp.</i>)	Low	High	1.Retain and monitor 2.Remove	1.Retain and monitor
11	Unknown	Low	High	1.Remove 2.Retain and monitor	1.Retain and monitor 2.Remove
12	Apple (<i>Malus spp.</i>)	Medium	Medium	1.Retain and monitor	1.Retain and monitor
13	Unknown	Low	High	1.Remove	1.Remove (due to health) 2.Retain and monitor
14	Maple (<i>Acer spp.</i>)	Medium	Medium	1.Retain and monitor	1.Retain and monitor 2.Remove
15	Ash (<i>Fraxinus spp.</i>)	Low	High	1.Remove	1.Remove (due to health) 2.Retain and monitor
16	Silver Maple (<i>Acer saccharinum</i>)	Medium	Medium	1.Retain and monitor	1.Remove 2.Retain and monitor
17	Poplar (<i>Populus sp.</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Remove 2.Retain and monitor (prune)
18	Unknown	Low	High	1.Remove <i>*could not ID due to minimal health/vitality</i>	1.Remove (due to health) 2.Retain and monitor
19	Unknown	Low	High	1.Remove <i>*could not ID due to minimal health/vitality</i>	1.Remove (due to health) 2.Retain and monitor
20	Red Oak (<i>Quercus rubra</i>)	High	Medium	Retain and monitor.	1.Remove 2.Retain and monitor
21	Spruce (<i>Picea spp.</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor 2.Remove
22	Walnut (<i>Juglans spp.</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor 2.Remove
23	Silver Maple (<i>Acer saccharinum</i>)	Medium	Medium	1.Retain and monitor 2.Remove	1.Retain and monitor (prune) 2.Remove (due to

					age, species, and condition)
24	Spruce (<i>Picea spp.</i>)	Medium	Medium	1.Retain and monitor	1.Retain and monitor 2.Remove

3.2 – Site Survey

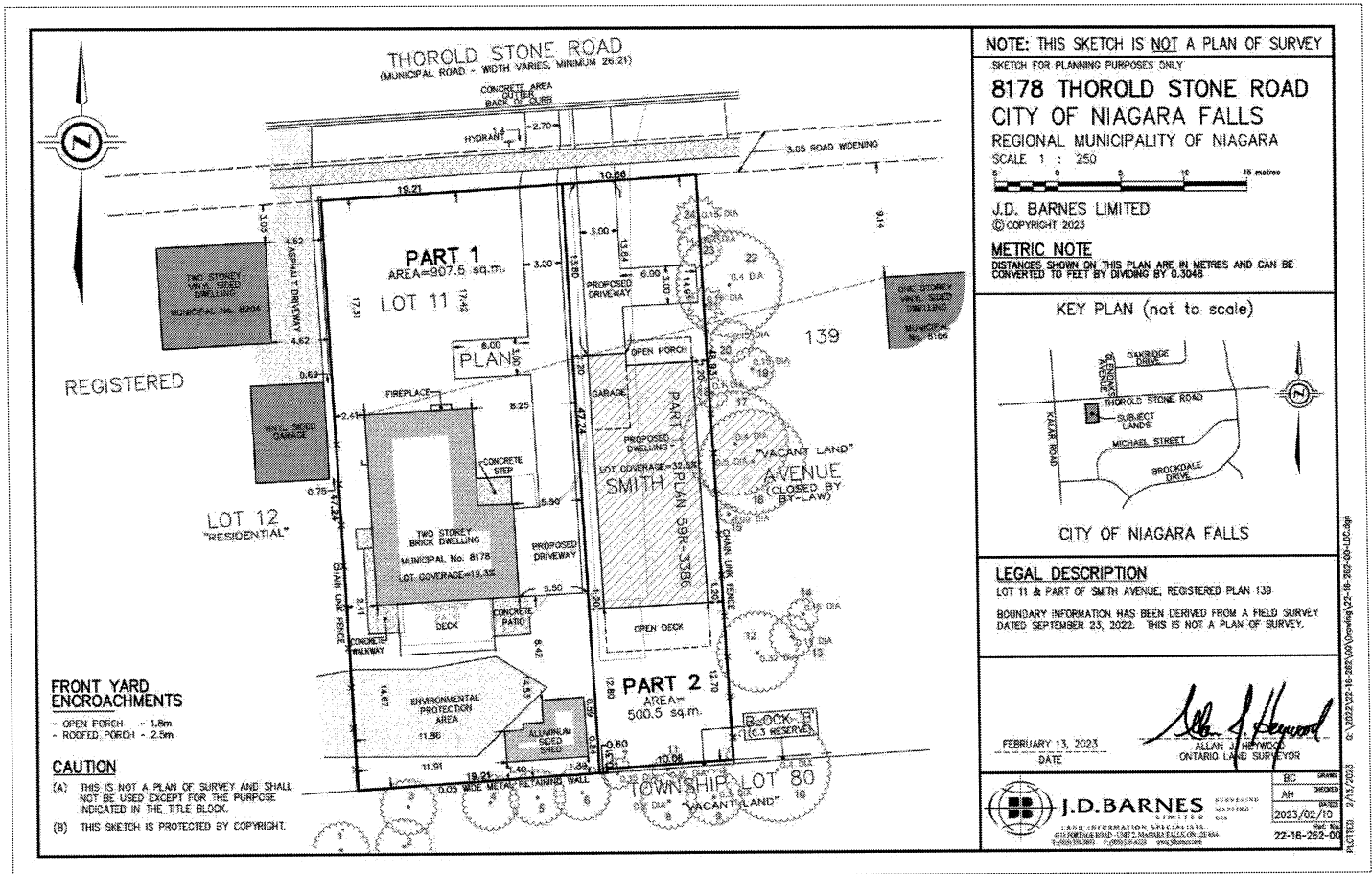


Figure 1 the site survey for the property in question. Red numeric values are relative to the tree inventory numbers in section 3.1 of this document.

4 – Tree Recommendations Relative to Proposed Construction

4.1 – Trees Recommended to be Removed or Pruned

After assessment, it is recommended to remove the follow specimens:

Removals due to health: 1, 2, 11, 13, 15, 18, 19.

Removals due to proximity to the proposed construction: 16, 17, 20

In respect to the trees recommended to be removed due to the proximity to the proposed construction, the proposed construction would create too much impact on the specimen's root systems in which retaining the specimens in question throughout the construction process is not practical nor effective. Both structural and absorption roots would be negatively altered, and the trees would undergo a significant amount of stress. This scenario will also increase the structural integrity of the trees and increase hazards on the job site, and to the public. Based on tree species, age, and potential severity of stress, it is not practical to attempt to retain the trees. Even with mitigation and best management practices, such as root pruning, tree protection zones, or fertilizing, these trees would still undergo significant stress that could permanently alter the vigor and vitality of each specimen. Therefore, it is recommended that these three trees should be removed prior to construction commencing, and two native, urban environment tolerant trees are planted after construction to mitigate the impact of the removal.

Tree Pruning due to proposed construction: 17, 23.

After assessment, trees 17 and 23 should be pruned, if tree(s) are not removed, to ensure branches are not damaged during construction. Removing specific limbs that overhang 8178 Thorold Stone Road and are low enough that equipment may come in contact with equipment during construction should be pruned prior to construction commencing. All pruning should be done by an ISA Certified Arborist, or Ontario Qualified Arborist to ensure best arboricultural practices are used.

4.2 – Recommended Tree Protection Zones

At this time, there are no by-laws in the City of Niagara Falls that requires tree protection zones, therefore the following information is **solely a recommendation** based on the City of Toronto's Tree Protection Zone Policy.

After assessment, it is recommended that the following trees have a Tree Protection Zone, as per figure 1 below, installed for the duration of the proposed construction:

10, 12, 21, 22.

The trees indicated above does **not** include any trees that are recommended for removal.

If tree protection zones are installed, the minimum protection distance recommended should be followed based on the figure below.

Trunk Diameter (DBH) ¹	Minimum Protection Distances Required ² City-owned and Private Trees	Minimum Protection Distances Required Trees in Areas Protected by the Ravine and Natural Feature Protection By-law
		Whichever of the two is greater:
<10cm	1.2 m	The drip line ⁴ or 1.2 m
10- 29 cm	1.8 m	The drip line or 3.6 m
30 ³ – 40 cm	2.4 m	The drip line or 4.8 m
41 – 50 cm	3.0 m	The drip line or 6.0 m
51 – 60 cm	3.6 m	The drip line or 7.2 m
61 – 70cm	4.2 m	The drip line or 8.4 m
71 – 80cm	4.8 m	The drip line or 9.6 m
81 – 90 cm	5.4 m	The drip line or 10.8 m
91 – 100 cm	6.0 m	The drip line or 12.0 m
>100 cm	6 cm protection for each 1 cm diameter	12cm protection for each 1 cm diameter or the drip line ⁵

Figure 2 the minimum tree protection zone determination. Source: City of Toronto’s Tree Protection Policy and Specifications for Construction Near Trees.

5 – Guidelines for Construction and Excavation in Specimen(s) Dripline

5.1 – Tree Protection Zones (TPZ)

Tree protection zones are an established and agreed upon area surrounding a tree which cannot in any way be disturbed by the construction process. It is a minimum area of protection designed to retain the number of roots required for tree stabilization as well as nutrient absorption. Root systems are important to protect as they provide two essential functions: they absorb water and nutrients from the soil and anchor a tree to the ground providing stabilization in inclement weather. TPZ may be amalgamated if specimens are within proximity to each other, and individual TPZ would overlap. TPZ should be assessed at minimum once a month by the project’s arborist, to ensure all procedures to protect retained trees are followed throughout the construction process.

6 – Best Construction Practices to Minimize Tree Stress and Damage

6.1 – Construction Inside a TPZ

Root pruning is an example of a best practice within a TPZ. This is comprised of the use of compressed air, hydro-excavation, or hand tools to carefully remove soil from around root structures.

Once roots are exposed, proper root pruning of only structures necessary to project completion can be performed. Any pruning of a canopy necessary for a construction project should also take into consideration the extent of root pruning required and be factored in the tree protection plan.

6.2 – Site Remediation

Site remediation is an important final step to preserving tree health after a construction project has completed. Excavation within a root zone is stressful for a tree, causing it to lose nutrient absorption abilities and perhaps even destabilizing the specimen. It is recommended that steps be taken prior, during and after construction to improve soil quality in areas outside the construction envelope. Compaction of the surrounding area is a common tree stressor during a construction project. Frequent trampling of a root zone causes the soil to become compacted, which decreases its ability to absorb and retain water and creates difficult root growth conditions. Application of mulch throughout a tree's dripline before, during and after construction, helps alleviate compaction, introduces biomatter into the soil, and helps retain soil moisture.

6.3 – Recommendations for Tree Protection – After Construction

Once the construction project is complete, the mulch can be removed and any TPZ can be uninstalled. The ground should be assessed by the consulting arborist to indicate if soil compaction is present. If so, soil remediation should take place to increase the bulk density, porosity, and oxygen present within the soil. There are many techniques to do this, which can be discussed, if needed, once the construction is complete.

Another recommendation is to deep root fertilize. This will help minimize stress to the trees that may occur due to the construction. It is recommended to fertilize twice annually, for a minimum of one season, to aid in maintaining the health and vitality of the trees.

7 – Conclusion Statement

In my professional opinion, there are 7 trees that could be removed due to tree health, 3 trees that should be removed due to proposed construction, and 2 trees that should be pruned prior to construction commencing.

For any trees that will be retained throughout the construction process, proper stress mitigation techniques should be implemented, to minimize the severity of any stress that may occur. It is recommended that the project's arborist assess the site minimum once a month, to ensure all procedures are followed throughout the proposed scope of work.

8 – Disclaimer

LIMITATIONS OF THIS REPORT

This report is based on an assessment of the circumstances and observations as they existed at the time of the site inspection of the customer's property and the trees situated thereon and upon information provided by the customer to Safe Tree Ltd. The opinions in this report are given based on observations made and using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this report are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered or made as to the length of the validity of the results, observations, recommendations and analysis contained within this report. As a result, the customer shall not rely upon this report, 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 report should be re-assessed periodically.

RESTRICTION OF ASSESSMENT

The assessment carried out was restricted to the property. No assessment of any other trees or plants has been undertaken by Safe Tree. Safe Tree is not legally liable for any other trees or plants on the property except those expressly discussed herein. The conclusions of this assessment do not apply to any areas, trees, plants, or any other property not covered or referenced in this report.

PROFESSIONAL RESPONSIBILITY

In carrying out this report, Safe Tree Ltd and any assessor/arborist appointed for and on behalf of Safe Tree Ltd to perform and carry out the Assessment contained in this report 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, discoloured foliage, 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 report, none of the trees examined on the property were dissected, cored, probed, climbed, or viewed with arial devices 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, this risk can only be eliminated if the tree is removed. Without limiting the foregoing, no liability is assumed by Safe Tree or

its directors, officers, employees, contractors, agents or Assessors or Arborist 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; d) the accuracy of any other information provided to Safe Tree by the Customer or third parties; e) any consequential loss, injury or damages suffered by the customer 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 report.

GENERAL

Any plans and/or photos in this report are included only to help the Customer visualize the issues and shall not be relied upon for any other purposes.