

**144 Renfrew Avenue  
Tree Conservation Report**

144 Renfrew Avenue, Ottawa  
Proposed Mixed-Use Building  
Project 160401237



Prepared for:  
TC United Group

Prepared by:  
Stantec Consulting Ltd.

May 2, 2017

## Sign-off Sheet

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Prepared by \_\_\_\_\_

(signature)

**Isabelle Lalonde, Landscape Architect**

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>I</b>
<b>GLOSSARY .....</b>	<b>II</b>
<b>1.0 INTRODUCTION .....</b>	<b>1.1</b>
<b>2.0 TREE ASSESSMENT.....</b>	<b>2.3</b>
2.1 METHODOLOGY .....	2.3
2.2 OBSERVATIONS.....	2.3
2.2.1 Existing Vegetation.....	2.3
2.2.2 Species-at-Risk.....	2.4
2.3 VEGETATION QUALITY AND SUITABILITY FOR RETENTION .....	2.4
<b>3.0 PROPOSED DEVELOPMENT &amp; TREE RETENTION RECOMMENDATIONS .....</b>	<b>3.6</b>
3.1 PROPOSED DEVELOPMENT .....	3.6
3.2 TREE RETENTION RECOMMENDATIONS.....	3.6
3.2.1 Tree Retention .....	3.6
3.2.2 Tree Removal.....	3.8
3.2.3 Compensation Planting.....	3.9
<b>4.0 CONCLUSION .....</b>	<b>4.10</b>
<b>5.0 REFERENCES.....</b>	<b>5.1</b>
<b>LIST OF TABLES</b>	
Table 1 Existing Vegetation Schedule.....	2.4
Table 2 Retention Qualities .....	2.5
<b>LIST OF FIGURES</b>	
Figure 1: Location Plan .....	<b>Error! Bookmark not defined.</b>

## **Executive Summary**

This Tree Conservation Report has been prepared in support of Site Plan Application to permit the development of 144 Renfrew Avenue in Ottawa, Ontario. The site is currently vacant and this project is proposing the construction of a three storey mixed-use building.

The 0.04 hectare property at 144 Renfrew Avenue is located at the corner of Bronson Avenue, south of Highway 417 and north of Carling Avenue. It consists of one parcel of land currently developed with a residential building and detached garage. The site is described legally as Part of Lot 37, Registered Plan 189959, in the City of Ottawa. The site is designated "General Urban Area" and "Traditional Mainstreet" in the City of Ottawa Official Plan. The property is designated Traditional Mainstreet Zone in the 2008 City of Ottawa Comprehensive Zoning By-law.

This Tree Conservation Report will summarize the condition of the current vegetation and define trees to be retained and / or removed to permit the development of this project. A Tree Assessment Investigation was conducted to review the species and health condition of the existing vegetation growing at and in periphery of 144 Renfrew Avenue in Ottawa and on adjacent land. The construction of this project is planned to occur in 2017-2018.

## **Glossary**

Critical Root Zone (CRZ)	Zone under a tree where there should be no disturbance before, during and after construction. The CRZ is established as being 10 centimetres from the trunk of a tree for every centimetre of trunk diameter.
Diameter at Breast Height (DBH)	Diameter of a tree trunk measured at 1.4 metre above ground, standardized by the Council of Tree and Landscape Appraisers and the International Society of Arboriculture. DBH are generally measured in centimetres.
Dieback	Condition in which the ends of the branches are dying.
Distinctive Tree	Any tree with a DBH of 50 centimetres or greater.
Drip Line	Perimeter of the area under a tree delineated by the crown.
Leader	The primary terminal shoot or trunk of a tree.
Sapling	A young tree measuring one (1) to two (2) metres high and having a DBH of two (2) to four (4) centimetres.
Scaffold Branches	The permanent or structural branches of a tree.
Seedling	A plant grown from a seed with a height of not more than one (1) metre.
Significant Tree	Tree / shrub deemed valuable because it is unusually beautiful or distinctive, comparatively old, distinctive in size or structure for its species, rare or unusual in the subject area, provides a habitat for rare or unusual wildlife species in the subject area, or has an historical, cultural, or landmark significance.
Significant Woodland	Woodland that contain mature stands of trees 80 years or older, have interior forest habitat more than 100 metres from forest edge, and are adjacent to a surface water feature.
Specimen Tree	Individual tree located in the middle of a field or open space. A specimen tree is not automatically a significant tree.
Stress	Any factor that negatively affects the health of a tree.

**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

Structural Defect	Flaws, decay, or other faults in the trunk, branches, or root collar of a tree, which may lead to failure.
Topping (Topped)	Cutting back a tree to buds, stubs, or laterals not large enough to become a new leader on the tree.
Tree Protection Zone (TPZ)	The area surrounding a tree that is marked and fenced off and where there is no storage of materials of any kind, no parking or moving of vehicles, and no disturbance of the soil or grade.
Tree Shoots	Tree shoots are sprouts that emerge from dormant buds along the trunk or branch of a tree. In an urban environment shoots are often associated with stress to the tree. Trees with severe dieback due to winter injury, drought and salt spray often produce many shoots as a means of compensating for the loss of leaf surface due to stress or injury.
Tree Suckers	Tree suckers are sprouts that form from the roots of existing trees and tend to form new trees or shrubs. In an urban environment suckers can be associated with stress to the tree and are prevalent after a disturbance such as when mature trees are cut down. Some tree species have the tendency to sucker.
Vigour	Overall health; capacity to grow and resist stress.

# 144 RENFREW AVENUE TREE CONSERVATION REPORT

Introduction  
May 2, 2017

## 1.0 INTRODUCTION

Stantec Consulting Ltd. was retained by TC United Group to complete a Tree Conservation Report for 144 Renfrew Avenue in support of a Site Plan Application to permit the construction of a three storey mixed-use building. The site is situated within the City of Ottawa at the corner of Renfrew Avenue and Bronson Avenue, south of Highway 417 and north of Carling Avenue. This proposed infill development would consist in a total of 14 residential units and commercial space. The site is described legally as Part of Lot 37, Registered Plan 189959, in the City of Ottawa. The site is designated "General Urban Area" and "Traditional Mainstreet" in the City of Ottawa Official Plan. The property is designated Traditional Mainstreet Zone in the 2008 City of Ottawa Comprehensive Zoning By-law.

**Figure 1: Location Plan**



The objectives of this Tree Conservation Report are:

- To describe the existing woody vegetation growing on site including trees and large shrubs where applicable. The description for each tree and / or large shrubs will include species, size, vigour, and health condition.



**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

Introduction  
May 2, 2017

- To assess the environmental value and suitability for retention of the woody vegetation.
- To evaluate the anticipated impact of the proposed development on the existing woody vegetation.
- To provide recommendations related to tree protection and mitigation measures to reduce negative impact on the woody vegetation to be retained.
- To provide recommendations for the development of a compensation planting plan.

**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

Tree Assessment  
May 2, 2017

## **2.0 TREE ASSESSMENT**

A Tree Assessment Investigation was conducted on November 9, 2016, by Brad De Vries, Landscape Technologist at Stantec Consulting Ltd., to review the species and health condition of the existing vegetation growing at 144 Renfrew Avenue in Ottawa. In addition, our investigation included trees growing in the road right-of-way and in the easement at the back of the subject land.

### **2.1 METHODOLOGY**

A complete assessment of every specimen tree growing on the property was completed. The approximate DBH of trees was measured on site during the Tree Assessment Investigation. The species were determined based on bark, bud, and leaves identification. The vigour was assessed based on visible defects only. The assessment of trees growing on the property line or on adjacent properties was completed on a visual basis only.

The location of the woody vegetation as shown on the **Current Vegetation Plan (L100)** was established based on the Topographic Plan surveyed by Annis, O'Sullivan, Vollebek Ltd.

### **2.2 OBSERVATIONS**

The property is currently developed with a residential building and detached garage located at the back of the property with driveway access from Bronson Avenue. The property is relatively flat.

#### **2.2.1 Existing Vegetation**

In general, the trees inventoried on this property appeared in healthy condition, are a mix of mature and young trees and show no visible signs of disease. A total of six (6) trees were assessed as part of this assessment. Tree species composition included mainly deciduous species and one coniferous tree. The complete list of all trees and large shrubs located on or immediately adjacent to the property is indicated in **Table 1 – Existing Vegetation Schedule** below. This table shall be read in conjunction with the **Current Vegetation Plan (L100)** accompanying this report.

**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

Tree Assessment  
May 2, 2017

**Table 1 Existing Vegetation Schedule**

SYM	Tree Species (Botanical Name / Common Name)	Condition		
		DBH (cm)	Health	Other Remarks
1	Acer saccharum / Sugar Maple	80	Good	Street tree
2	Fraxinus spp. / Ash	15	Poor	Multi-stem and ground suckers; no visible signs of Emerald Ash Borer
3	Acer platanoides / Norway Maple	15	Good	
4	Acer negundo / Manitoba maple	35	Poor	Multi-stem; large quantity of ground suckers form a dense understorey; overhang Bronson Avenue
5	Acer negundo / Manitoba maple	45	Good	It used to be multi-stem (2 stems); a 1.5m high stump remains on site; several pruning of branches occurred in the past; overhead wires are over and adjacent to the crown
6	Pinus strobus / White Pine	10	Good	

**2.2.2 Species-at-Risk**

No trees considered as species-at-risk or endangered species were observed on or adjacent to the property.

**2.3 VEGETATION QUALITY AND SUITABILITY FOR RETENTION**

Existing trees growing on the frontage of the property, in the sideyards, and in the backyard provide a mature character to the property. In addition, the large maple growing in the backyard provides shade for the property and adjacent owners.

Although a quantity of trees growing on this property show good health conditions, other factors should be evaluated when establishing the suitability for retention of a tree. These factors include the following:

- Structural condition;
- Age and expected longevity of the tree;
- Species invasiveness; and



**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

Tree Assessment  
May 2, 2017

- Species response and tolerance to disturbance.

By considering all the factors listed above, trees recommended for retention will have a higher chance to respond positively to new site conditions for an extended period of time providing a safe environment for the property users.

In addition to the factors listed above, **Table 2 – Retention Qualities** describes the suitability for each tree species for retention. The suitability for retention considers the capacity of the trees to survive to stress and changes in their environment. As noted above, the suitability for retention should also study the proposed development of the property including grading works around the Critical Root Zones (CRZ) of trees and the proximity to construction, access roads, and / or built structures. This type of analysis will be completed in the following section of this report.

**Table 2 Retention Qualities**

<b>Tree Species (Botanical Name / Common Name)</b>	<b>Remarks</b>	<b>Suitability for Retention</b>
Acer negundo / Manitoba maple	Invasive species. Branches have tendency to lean and break easily.	Moderate to Poor
Acer platanoides / Norway Maple	Invasive species. Tolerant to poor soils, compaction, and pollution.	Good to Moderate
Acer saccharum / Sugar Maple	Intolerant of fill, of increased light, and of restricted root space; can be sensitive to urban conditions.	Moderate
Fraxinus spp. / Ash	Sensitive to the Emerald Ash Borer. Only trees already injected with TreeAzin shall be preserved.	Not recommended
Pinus strobus / White Pine	Intolerant of changes in soil moisture; intolerant to soil compaction	Moderate

## **3.0 PROPOSED DEVELOPMENT & TREE RETENTION RECOMMENDATIONS**

### **3.1 PROPOSED DEVELOPMENT**

The project for 144 Renfrew Avenue proposes the construction of a three storey high mixed-use building with associated asphalt drive aisle, walkways, and landscaping. The construction of the new building will necessitate the removal of the existing buildings and associated driveway. The proposed development shown on the **Tree Preservation Plan (L200)** illustrates the location of the proposed building and affiliated infrastructure.

### **3.2 TREE RETENTION RECOMMENDATIONS**

#### **3.2.1 Tree Retention**

The Site Plan developed for this application proposes limited locations where existing trees can be conserved. As indicated on the Tree Preservation Plan, we recommend the preservation of the maple growing on the property line as a street tree for Renfrew Avenue (Tree 1), and all plant material growing on adjacent lands. Based on the Tree Assessment Investigation, all trees to be retained and growing on the subject land show good health condition. As indicated in table 2 above, these trees also present good retention qualities.

To ensure tree survival during and after construction, mitigation measures should be considered during construction. Adequate protection of the trees to be retained and their immediate environment is crucial for the survival of these trees. As such, the Contractor shall apply the following measures to prevent damages to these trees.

##### **3.2.1.1 Tree Health Monitoring**

Trees located adjacent to construction works will experience change in their immediate environment. As a result, tree health should be monitored. Photographs of trees to remain should be taken prior to construction, if possible when the trees are in full leaf, as a record of their condition. Monitoring tree health both during and after construction should be made a priority. Actions should be taken as early as possible if / when the health of a protected tree declines. Damages may include:

- Physical damage on tree bark;
- Broken branches;
- Compaction of root systems due to equipment and materials stored within the protected areas;

## 144 RENFREW AVENUE TREE CONSERVATION REPORT

Proposed Development & Tree Retention Recommendations  
May 2, 2017

- Cutting of the roots; and
- Root exposure following excavation adjacent to trees to be preserved.

Services of an arborist should be used in order to give adequate care to damaged trees.

Trees that have died or have been damaged beyond repair by the Contractor during construction shall be removed and replaced by the Contractor as directed by the project landscape architect.

### 3.2.1.2 Temporary Tree Protection Fencing

The roots of a tree are located in the top 150 to 250 millimetres of soil and can very easily be inadvertently damaged. To ensure protection of the root system of trees to remain, temporary tree protection fencing shall be installed at the critical root zone (CRZ) of trees located inside or adjacent to the construction area. **The CRZ of a tree is the zone around the trunk where there should be no disturbance before, during, and after construction. The CRZ is established as being 10 centimetres from the trunk for every centimetre of trunk diameter.**

Temporary tree protection fencing shall be installed according to information indicated on the Proposed Development and Conserved Vegetation Plan inserted in Appendix A of this report. Fencing shall be maintained in good repair at all times during construction operations, and shall only be removed upon completion and when agreed by the contract administrator. Temporary removal of fencing shall not be permitted without the approval from the contract administrator.

Within the CRZ of trees, as delineated by temporary tree protection fencing there should be:

- No disturbance or alteration of the existing grade without approval including addition of fill, excavation, or scraping of the soil;
- No installation of signs, notices or posters on trees;
- No storage of construction materials, surplus soil, construction waste, or equipment;
- No disposal (dumping or flushing) of contaminants or liquids; and,
- No movement of vehicles (personal or business), equipment or pedestrians.

Section 3.2.1.3 addresses mitigation strategies should disturbances or alterations within the tree protection zone be unavoidable.

## 144 RENFREW AVENUE TREE CONSERVATION REPORT

Proposed Development & Tree Retention Recommendations  
May 2, 2017

### 3.2.1.3 Work within Protected Root Zones

#### 3.2.1.3.1 Excavation Work

To ensure the roots are not disturbed more than necessary and where excavation works are unavoidable within the CRZ of trees, the following mitigation measures shall be used:

- **All excavation within the CRZ of trees shall be by hand or hydro excavation using the smallest tools.** Root cutting shall be made using a sharp spade or knife at the limit of disturbance prior to any construction activities.
- **The Contractor shall only tunnel or bore within the CRZ,** instead of creating a trench.
- **Any roots that are exposed by construction activities must be covered with native topsoil immediately,** to ensure that the roots do not dry out or have any further damage occur to them.

**In all those instances where root pruning is required, the service of a Certified Arborist or Qualified Tree Worker under the supervision of a Certified Arborist shall be retained.** In addition, all remedial works must be conducted by a certified care professional to ensure proper care is administered in order to enable the continued health of the trees.

#### 3.2.1.3.2 Grading Work

Where re-grading is required within the CRZ, it should be performed by hand under the supervision of a Certified Arborist.

### 3.2.1.4 Additional Protection Measures

The following mitigation measures shall also be respected:

- When working near vegetation, **the Contractor shall ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.**
- **Where limbs or portions of trees are removed to accommodate construction work, they will be removed carefully in accordance with accepted arboricultural practices.**
- **Where necessary, the trees will be given an overall pruning to restore their appearance.** Not more than one-third of the total branching shall be removed during a single operation. The services of a Certified Arborist shall be retained for this task.

## 3.2.2 Tree Removal

Based on the proposed Site Plan and in order to provide a safe environment, we recommend the removal of the trees growing in both sideyards (Tree 2, 3, and 6).



## **144 RENFREW AVENUE TREE CONSERVATION REPORT**

Proposed Development & Tree Retention Recommendations  
May 2, 2017

### **3.2.2.1 Clearing and Grubbing of Trees**

It should be noted that no tree shall be removed without the City of Ottawa written approval as deemed under By-law number 2009-200.

Any trees designated for removal and located outside a protected root zone will have the stumps completely excavated and removed unless such removal will adversely affect existing trees / ecology to remain.

### **3.2.2.2 Wildlife Protection**

Clearing operations are prohibited during the breeding migratory bird period which extends from April 15 to July 31 of any year for most migratory birds. Should tree removal during this period be unavoidable, the contractor is required to retain the services of a qualified Avian Biologist who will conduct a breeding migratory bird screening. This screening will identify and ensure there is no evidence of breeding migratory bird activities. Tree removal will be allowed within five days of conducting the screening.

### **3.2.3 Compensation Planting**

In general, the number of proposed trees for this development should compensate for the loss of vegetation on site and should propose a mix of deciduous trees, where applicable. In addition, we recommend the following:

- Replacement of the trees facing Bronson Avenue;
- Planting of non-invasive tree species only;
- Tree species selected to compensate tree loss shall not correspond to tree species removed on site. Tree species adequate for this site and the neighbourhood include maples, serviceberries, spruces, oaks, and cedars;
- Planting of shrubs and perennials shall also be included as part of this development. A mix of ornamental and native species shall be used to reflect the residential character of the neighbourhood.

Conclusion  
May 2, 2017

## 4.0 CONCLUSION

The proposed development offers the **opportunity to preserve the mature street tree** growing on Renfrew Avenue providing a residential character with adjacent neighbouring properties. Overall, the mature maple located on the frontage of the property is recommended for retention and three (3) trees including one (1) ash will require removal. To ensure survival of the tree to be retained, protection measures recommended in this report shall be applied. Preservation of this tree will be possible by **limiting the footprint of the work area and visually delineating the protected zones from the construction zones**. By installing a tree protection fence, damages to trunks, branches, and root systems will be limited.

By following the mitigation recommendations outlined in this report and **ensuring compensation planting is included as part of this development**, we believe this development will benefit the community.

**144 RENFREW AVENUE  
TREE CONSERVATION REPORT**

References  
May 2, 2017

## **5.0 REFERENCES**

City of Ottawa Tree Conservation – Urban By-law 2009-200.

# **APPENDIX A - DRAWINGS**