Assessment of Oak Trees

at **2 &d 4 Neville Park Boulevard** and
438 & 440 Lakefront Lane.
Toronto, ON

D. Andrew White M. Sc. ISA Certified Arborist ON-0734.
78 Marcella St. Toronto, ON, M1G 1L2, tel. 416 431 2453, e-mail daw@msi.net.

1. Introduction

1.1 Objectives:

This report is a tree assessment report for the properties at 2 & 4 Neville Park Boulevard and 438 & 440 Lakefront Lane, in Toronto, Ontario ('Subject Site'). The purpose of this investigation was to assess the condition of the trees on the said properties. The species of primary concern was northern red oak. There are concerns regarding a proposal to remove several red oaks, for purposes of site development, the likely loss of two other red oak trees that are proposed to be retained and the loss of a significant canopy that frames the properties along the small escarpment abutting the beach.

1.2 Witness Qualification:

I am an ISA certified arborist. I specialize in tree assessment, data mensuration, and preparing arborist reports in accordance with tree protection bylaws.

- Vegetation Inventories for property sale & assessment.
- Arborist reports for *Private Trees* (Municipal Code Chapter 813).
- Arborist Reports for TRCA *Ravine* trees (Municipal Code Chapter 658).
- Tree Replacement Plans for residential and commercial projects.
- Expert witness, at OMB, county court and municipal hearings.

I have been an International Society of Arboriculture certified arborist since 2001. Further information about my experience and qualifications are outlined on the attached résumé.

2. Methods

On July 31, 2009, I made an on site inspection of the Subject Site. The sizes of individual trees were measured as diameter at breast height (DBH), breast height being 140 cm from ground level. The locations of these trees are indicated on the site plan (Fig. 1). From the data collected plant Condition Rating (CR), Location Rating (LR), Species Rating (SR), and minimum Tree Protection Zones (TPZ), were estimated. The methods of calculating these ratings are described in the listed *References* 1 & 2.

3. Discussion

3.1 Subject Site:

Within the footprint, and workspace buffer, of the proposed new buildings on the Subject Site, there are four large red oaks and several smaller maples and birch trees. All of the larger trees within the proposed building footprint would need to be removed, if the proposed construction were to occur as planned. On the basis of condition ratings, the oak trees on the Subject Site should not be considered for removal. The red maple and birch trees are of mediocre condition, but they are not 'hazard' trees and there is no reason to remove them (Table 1 & 2, Fig. 1).

3.2 Red Oak:

Northern red oak is the most important and valuable species on the Subject Site. Northern red oak (*Quercus rubra*) is a member of the Fagaceae family. They are one of several 'red' oak species in the subfamily (Erythrobalanus). Red oak, and its close relative black oak (*Quercus velutina*), are climax late-succession species in the eastern Great Lakes Region. Red and black oak can hybridise, and there is some evidence that the oak trees on the Subject Site are hybrids [3]. Northern red oak is considered to be a valuable urban tree. It is esteemed as an ornamental tree, and it has been planted in cities far outside of its native range [5].

The International Society of Arboriculture (ISA) has rated tree species and varieties by Species Rating. These ratings are consensus values agreed upon by a panel of ISA certified arborists. The Ontario Chapter of the ISA has assigned a high Species Rating for northern red oak (81%). Of the one hundred and five botanical names listed By the ISA's Ontario Chapter, red oak is within the upper ten percent (9.6%) of the most valuable tree species in Ontario [1-2].

3.3 Oak Savannah:

Neville Park is dominated by large mature red oaks, with a few white oaks and sugar maples. The canopy in this neighbourhood resembles the 'climax' forest type of the lakefront. The High Park black oak is a less disturbed example of a similar eco-system. These areas have been characterised as 'oak savannah', 'oak woodland' or 'oak opens'.

Oak woodlands are eco-systems, with a discontinuous forest canopy of mostly oaks, and groundcover dominated by grasses and small herbaceous plants. These oak woodlands tend to occur in sandy areas, in dry uplands, or on alvars where the soil is very shallow. In temperate regions these habitats tend to become dominated by dry-land species of oak (*Quercus* spp.). In southern Ontario white pine (*Pinus strobus*) often is a co-dominant with oak [5-8]. Patches of oak woodland can be found in Ontario. The most well known is High Park's 'black oak savannah'. Remnants of oak woodland exist in the Pinery Park, Pelee Island's Stone Road Alvar and in the Ojibway Prairie Complex in Windsor-Essex County. Oak woodlands have been much reduced in extent by human activities. Less than 0.01 percent of the original oak woodlands still exist in southern Ontario [6].

In my opinion, the red oaks on the Subject Site are splendid examples of the *oak savannah* climax forest eco-type. It is not as pristine as the woodlot at High Park, but it is unique in having the canopy structure of oak savannah, while at the same time being part of a residential neighbourhood.

3.4 The Site Assessment:

The proposed construction on the Subject Site would necessitate the removal of several large oak trees, and a number of smaller trees (Trees 9-20). The proposed construction would also entail building very close to two of the red oak trees (Trees 8 & 21).

The developer is proposing to retain the two oak trees that are situated just outside the south-east and south-west corners of the proposed building. . In my opinion, construction this close to the two oak trees would not be advisable. The excavation, construction and landscaping would infringe into the trees' crowns and root zones (Table 1, Photos 1-6, Trees: 8 & 21). The injuries that those two trees are likely to incur as a consequence of the proposed construction activity would be such as to risk mortal injury to the trees, given that:

(1) Both oaks would be only a few metres from the building. The crowns of both trees would require trimming in order to accommodate the upper storeys of the proposed building. The proximity is such that about seventy percent (70%) of the foliated crowns would need to be removed.
(2) The trees would be so close to the building that strong winds could cause the

upper crowns to hit the building's upper storeys.

(3) The raised decks would cover part of the oak trees' root systems, which would block access to rainwater. Semi-porous surfaces intercept rainwater, and reduce the amount of water that reaches the root zones. Up to forty percent of the trees' root area (40%) could be covered by these proposed decks or balconies.

(4) Excavation, for the new foundation, would almost certainly require the injury of some of the oak trees' roots. For both trees the proportion of the root systems injured by excavation could be more than one half of the live-roots (50-60%).

In summary, the proposed building and its decks would severely stress these oak trees. The construction plans, as presently formulated, would be not be compatible with the survival of these two oak trees.

3.5 Other Trees of Concern:

The proposed construction on 4 Neville Park Blvd would place some small trees at risk of injury. The maple and ailanthus near the corner of the site could be protected with barriers during the work on the site. The smaller spruce trees in the backyard are moribund or in poor condition. The maples and birch between 2 and 4 Neville Park Blvd are small and in mediocre condition. The neighbour's maple tree would be more than one full drip-line distance from the proposed worksite (Table 2, Fig. 1, Trees: 38-52).

3.6 Site Rehabilitation:

Red oaks are slow growing, compared to maples. Oak trees gain roughly one centimetre in diameter per year, with a slowing pace of growth in later years [5]. There is evidence that the Subject Site had few trees in the first decade of the last century. This implies that the trees on the site are between sixty to ninety years old. New trees would, in practice, be at most 70 mm calliper. It would therefore take at least sixty years for newly transplanted red oaks to form a closed canopy similar to the original oaks.

If the proposed condominium were to be built, there would remain only the strip on the south of the site that would be available for new trees. The north side would be too shaded by the building. The right-of-way to the north would also limit the available space. The main building, and its hardscape, would leave space for at most two large oak trees, in the central-south yard. Creating space for these trees would necessitate changing the walkways, terraces and gardens that have been planned for the site. The spacing given for the proposed new trees would be less that adequate to accommodate wide crowns similar to the existing oaks (Fig. 1). It would therefore be difficult to replicate a similar closed canopy by transplanting large calliper trees to the site. In my opinion, an oak-dominated canopy could not be replicated with new trees, if the construction and landscaping were to be completed planned.

4. Conclusions

4.1 Summary

In my opinion, the red oaks on the Subject Site are in fairly good condition, considering their age class. Based on their Condition and Location Ratings, the trees should be considered worthy of preservation. The trees are relatively healthy, and they add aesthetically to the character of the neighbourhood. Furthermore, these oaks represent an example of the oak 'savannah' that was once common along the shoreline of Lake Ontario. Preservation of the oak trees would help to preserve the few remaining oak savannah remnants along the lakeshore.

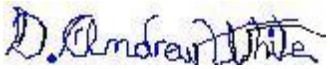
4.2 Specific Concerns

In my opinion, the proposed construction on the Subject Site would be too close to the two large oak trees that the developer is proposing to retain (Trees 8 & 21). Construction this close to the oak tress would be inadvisable and likely result in the death of those two trees, because the proposed building would:

(1) Cover too much of the oak trees' root zones with semi-permeable covers,
(2) Require excavation that would injure too many live feeder roots, and
(3) Necessitate excessive trimming of both oak trees' crowns.

The proposed construction would endanger all of the oak trees on the Subject Site. To preserve the oak trees, the proposed buildings would need to be reduced in overall footprint, such that the oak trees would be more than their drip-line distances from the worksites. Grade changes within the drip-lines of the oak trees would need to be avoided. In my opinion, the building plans, as proposed to date, would be incompatible with the preservation of all of the oak trees on the site. These oak trees should all be preserved.

D. Andrew White M. Sc.



August 22, 2009

References

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3- White, D.A. Tree Assessment for 2-4 Neville Park Boulevard, and 438-440 Lakefront Lane, Toronto, ON. September 23, 2007. D. Andrew White M. Sc. ISA Certified Arborist ON-0734.

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7- WWF. 2009. Upper Midwest forest-savanna transition (NA0415): World Wildlife Fund: http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0415_full.html

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Table #1, Proposed Tree Injuries / Removals. Tree tag number, comments and tree location relative to the *proposed* building. The DBH data, for this table, were taken from the Kelly's Tree Care arborist report (Ref. 4) as checked and updated by D.A. White.

Tree Tag #	Comments
#8 red oak **Near Footprint** **DBH:** 85.5 cm	The tree is partly topped, but the disfigurement not greatly noticeable with surrounding trees. It would not be suitable for risking major crown reduction or injury to its root system. Condition Rating: 65% , Location Rating: 90% Northern red oak (*Quercus rubra*) has a Species Rating of 81%.
#9 red oak **In Footprint** **DBH:** 63.5 cm	The crown of this oak is somewhat crowded, and small. This appears to be due to its location between two oaks with larger crowns. It has some deadwood in its upper bole. Condition Rating: 65%, Location Rating: 90%
#10 red oak **In Footprint** **DBH:** 77 cm	Tree appears to be in good condition, but it is close to a fence and raised garden. There are several small dead branches, and branch scars. Condition Rating: 75% , Location Rating: 90%
#18 red maple **Landscape Area** **DBH:** 18.5 cm	The maple tree is in relatively poor condition. Native red maples do not do well in urban milieus. It was the only non-oak tree of significant value that would need to be removed. Condition Rating: 60%, Location Rating: 90% Red maple (*Acer rubrum*) has a Species Rating of 61 to 69%.
#19 red oak **In Footprint** **DBH:** 80 cm	Trunk has some included bark in a major fork at circa 9 metres height, otherwise not a 'hazard tree' per se. It is very close to the wall of a house. Condition Rating: 70%, Location Rating: 80%
#20 red oak **In Footprint** **DBH:** 69/62 cm	Its overall condition is 'fair', but a cable brace is still present, because the tree has a double trunk, forking at circa 0.7 metres height, with included bark to ground level. Condition Rating: 60%, Location Rating: 90%
#21 red oak **Near Footprint** **DBH:** 70.5 cm	Tree in fairly 'good' condition, with a broad crown. It has one fairly large deadwood section. It would not be a suitable tree for risking the crown reduction or injury to its root system. Condition Rating: 75%, Location Rating: 90%

Table #2a, trees of primary concern. Tree number (Fig. # 1), comments and tree condition, and diameter at breast height (DBH). Trees designated for possible injury or removal are indicated in bold font. The DBH data, for this table, were taken from the Kelly's Tree Care arborist report (Ref. 4) as checked and updated by D.A. White.

Tree Tag Number	Comments	DBH
#8 red oak (injure) *Quercus rubra*	S of house 2 Neville Pk Blvd. Good condition – partly topped.	85.5 cm
#9 red oak (remove)	S of house 2 Neville Pk Blvd. Fair condition – crowded crown	63.5 cm
#10 red oak (remove)	Central near fence & garden, 2 Neville Pk Blvd. Good condition	77 cm
#11 birch (remove) *Betula papyrifera*	S edge of 2 Neville Park Blvd, Poor-fair condition	5-12 cm
#12 hawthorn (injure) Crataegus sp.	Near steps to beach. Fair condition	38 cm
13-17 green ash (*Fraxinus Pennsylvanica*), **lilacs (Syringa sp.)** & birches (*Betula sp*.)	On 2 Neville Pk Blvd. Poor to fair condition. Poorer ones to **remove**.	16-24 cm
#18 red maple (remove / injure) *Acer rubrum*	S of house. Poor condition	18.5/ 15.5 cm
#19 red oak (remove)	Near house, 2 Neville Pk Blvd. Fair condition – included bark	80 cm
#20 red oak (remove)	SW corner of 2 Neville Pk Blvd. Fair condition – old cable brace	69/62 cm
#21 red oak (injure)	SW corner of 2 Neville Pk Blvd. Good condition	70.5 cm

Table #2b. Trees of secondary concern: Tree number (Fig. # 1), comments and tree condition, and diameter at breast height (DBH) Trees designated for possible injury or removal are indicated in bold font. The DBH data, for this table, were taken from the Kelly's Tree Care arborist report (Ref. 4) as checked and updated by D.A. White.

Tree Tag Number	Comments	DBH
#1 crab-apple Malus sp.	Neville Park, near cul de sac. Fair condition	35 cm
#2 red oak *Quercus rubra*	Neville Park, near cul de sac	82 cm
#3 white oak *Quercus alba*	Neville Park, near cul de sac. Fair condition	63 cm
#4 red oak *Quercus rubra*	S Neville Park Blvd. Good condition	64 cm
#5a red oak (removal recommended)	Dead tree, S Neville Park Blvd. City of Toronto / TRCA removal.	84 cm
#5b sugar maple *Acer saccharum*	Neville Park Blvd, near dead oak. Low-Fair	34 cm
#6-7 spruces *Picea* spp	On 2 Neville Park Blvd. Fair condition	10-31 cm
# 22-23 birches	S edge of 2 Neville Pk Blvd. Fair condition	10-34 cm
#24 birch (remove)	S edge of 2 Neville Pk Blvd. Good condition	10 cm
#25-37 spruces (remove)	SW on 2 Neville Pk Blvd. Fair-good condition	10-29 cm
#38-41 maples *Acer platanoides & A. negundo*	NW margin of 2 Neville Pk Blvd. Low-fair condition	18-26 cm
#42 birch	N margin of 2 Neville Pk Blvd. Fair condition	23-25 cm
#43-45 red maples *Acer rubrum*	N margin of 2 Neville Pk Blvd. Fair & good condition	15-32 cm
#48 silver maple *Acer saccharinum*	NE corner of 4 Neville Pk Blvd. Low-good condition	51 cm
#49 ailanthus *Ailanthus altissma*	SE corner of 6 Neville Pk Blvd. Fair condition (for this sp.)	75 cm
#50 Norway maple	W of 6 Neville Pk Blvd. Poor-fair condition	43 cm
#51-52 white spruces *Picea glauca*	NW corner of 6 Neville Pk Blvd, poor to moribund trees	18-32 cm
#53 white mulberry *Morus alba*	Near wall 4 Neville Pk Blvd. Fair condition	24 cm
#54 catalpa *Catalpa bignonoides*	In yard 4 Neville Pk Blvd. Poor condition	31 cm