Natural Heritage Impact Study
Grenadier Square, High Park

November 2013
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1.0 INTRODUCTION

High Park Bayview Inc. has made an application to amend the City of Toronto Zoning By-law 438-86 to permit the demolition of two existing townhouse blocks and their replacement with two 31-storey apartment blocks and for redevelopment of other facilities on the property. There are two existing 20-storey apartment blocks on the property that will remain. The 2.0 hectare project site is known municipally as 51-77 Quebec Avenue and 40-66 High Park Avenue and is referred to as Grenadier Square in this report.

The site has an Official Plan designation of “Apartment Neighbourhoods” on it and is within an “Avenues” area, encouraging intensification. No amendment to the Toronto Official Plan appears to be required (Bousfields, 2012). The zoning on the majority of the site is R2 ZO.6 reflecting the apartment towers and R2 ZO.35 for the existing townhouse blocks. The application seeks to rezone the townhouse blocks to permit the new towers and includes a new amenity building and reorganized outdoor spaces. A site plan is included later in this report.

The site fronts on Quebec and High Park Avenues and is about 75 metres north of Bloor Street and across from High Park which is to the south at about 100 metres distance. High Park is a major park and natural area in the City (see attached aerial photo (Figure 1.0). Parts of the Park are identified as “Natural Heritage System” in the Official Plan and have been identified as an ESA (Toronto and TRCA) and an ANSI (High Park Oak Woodlands) (MNR, 1989, 2008). The habitats in the Park also support several species listed as endangered or threatened in Ontario. These important natural features occur across Bloor Street and the subway right-of-way from the Grenadier Square project site.
Only a small part of the property is within a 120 metre distance to the identified features. However, there are significant natural features adjacent to (i.e. within 120 metres, NHRM 2009) the site triggering the need for this report.

The planning policies applicable to the approval of the Grenadier Square applications include the following.

The Provincial Policy Statement (2005) provides the overall direction in considering natural environment factors in planning decisions, including:

2.1.3 Development and site alteration shall not be permitted in:

a) **significant habitat of endangered species and threatened species**, and

2.1.4 Development and site alteration shall not be permitted in:

.....

(e) **significant areas of natural and scientific interest**

*Unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions.*

and

2.1.6 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

In the above policy, the certain terms are defined and should also be considered:

**Significant:** *means*

a) in regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;

b) in regard to habitat of endangered species or threatened species, means the habitat, as approved by the Ontario Ministry of Natural Resources, that is necessary for the maintenance, survival, and/or recovery of naturally reproducing populations of endangered species or threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle ....
**Ecological function:** means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions.

**Negative impacts:** means….

c) in regard to other natural heritage features and areas, degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities.

In this case, the description of the ANSI (High Park Oak Woodlands) by the MNR is:

“High Park Woodlands is the best remaining natural area on the City of Toronto’s Iroquois Sand Plain in Site District 7-4 (a provincially rare community type) with 4 nationally/provincially rare and 37 regionally rare plant species (Varga, 1989).

The ANSI occurs on 7 sites in High Park. These sites have been designated Nature Reserve Zones in the City of Toronto’s proposed master plan for the park. The Nature Reserves designation, in conjunction with appropriate management practices (e.g. removal of exotics, restoration of the Black Oak savannahs, etc.) would ensure the protection of High Park’s significant biological features (Varga, 1989).”

The Figure 1.0 on the following page shows in detail the extent of the sensitive features in High Park in relation to the site, including the City’s ESA as well as the ANSI.

For the consideration of the development in relation to the ANSI, the features and functions for which the area was designated are the Oak Woodland savannah and, particularly, the prairie vegetation underneath the open canopy.

**Adjacent lands:** means

a) for the purposes of policy 2.1, those lands contiguous to a specific natural heritage feature or area where it is likely that development or site alteration would have a negative impact on the feature or area. The extent of adjacent lands may be recommended by the Province or based on municipal approaches which achieve the same objectives…..

While Section 7.0 that follows considers these policies in detail, it is necessary to explore further the “adjacent lands” proviso in order to establish the extent of studies for this report.

Guidance is provided on adjacent lands (and other matters) in the Natural Heritage Reference Manual, Second Edition (Ministry of Natural Resources, 2010) (NHRM). While the PPS and NHRM include that development needs to be “contiguous” to the natural feature, intervening
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
land use can obviate the need and that the municipality (e.g. Toronto) has the discretion in requiring studies on impacts, if development is proposed within the adjacent lands to the feature. In this case, the feature would be the Provincial Life Science ANSI (High Park Oak Woodlands). Since there are “endangered” and “threatened” species in the park, their adjacent lands should also be considered. The NHRM in both cases recommends (Section 4.4, Table 4.2, p. 43) the width of the adjacent lands trigger be 120 metres. Since a part of the Grenadier Square site is within 120 metres of the ANSI, a Natural Heritage Impact Study report may be required and the applicant has agreed to provide one.

The City also has its own specific policies for the protection of natural features that are set out in Section 3.4 of its Official Plan (December 2010 Consolidation). Of relevance to this report are the following.

3.4.10 Development is generally not permitted in the natural heritage system illustrated on Map 9. Where the underlying land use designation permits development in or near the natural heritage system, development will,

a) recognize natural heritage values and potential impacts on the natural ecosystem as much as is reasonable in the context of other objectives for the area; and
b) minimize adverse impacts and when possible, restore and enhance the natural heritage system.

3.4.12 All proposed development in or near the natural heritage system will be evaluated to assess the development’s impacts on the natural heritage system and identify measures to mitigate negative impact on and/or improve the natural heritage system, taking into account the consequences for:

a) terrestrial natural habitat features and functions including wetlands and wildlife habitat;
b) known watercourses and hydrologic functions and features;
c) significant physical features and land forms;
d) riparian zones or buffer areas and functions;
e) vegetation communities and species of concern; and
f) significant aquatic features and functions including the shoreline of Lake Ontario.

To assist this evaluation, an impact study will be required in accordance with guidelines established for this purpose.

The guidelines mentioned in the policy have been drafted. A specific terms of reference for this study report is attached as Appendix 1.

A portion of Map 9 to the Official Plan which identifies the Natural Heritage System is shown below, with the general location of the Grenadier Square site indicated on it by the yellow triangle. The property is not in the Natural Heritage System, but is adjacent.
A second policy protects significant natural areas in the City.

3.4.13 Areas of land or water within the natural heritage system with any of the following characteristics are particularly sensitive and require additional protection to preserve their environmentally significant qualities:

a) habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, threatened or endangered within the City or Greater Toronto Area; or

b) rare, high quality or unusual landforms created by geomorphological processes within the City or Greater Toronto Area; or

c) habitats or communities of flora or fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or

d) areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a migratory wildlife stopover or concentration point, or serving as a water storage or recharge area.

Development will not occur on lands within the natural heritage system that exhibit any of these characteristics. Activities will be limited to those that are compatible with the preservation of the natural features and ecological functions attributed to the areas. An impact study, as referred to in Policy 12, will be required for any proposed undertaking.
in those areas not already the subject of an Environmental Assessment under the Environmental Assessment Act.

Known areas exhibiting these environmentally significant characteristics will be shown on Map 12.

The figure below (taken from Map 12) shows the environmentally significant areas (ESA, ANSI) near to the Grenadier Square site which is indicated by the yellow triangle. The Grenadier Square site does not contain any of the features itself, but is adjacent to them.

A further policy refers to Provincially significant features and mirrors the PPS policies above.

3.4.14 Provincially significant natural heritage features will be protected by:

a) prohibiting development or site alteration in provincially significant wetlands or significant portions of the habitat of threatened or endangered species;

b) only permitting development in the following locations if it has been demonstrated, through a study, that there will be no negative impacts on the natural features or functions for which the area is identified:
   i. lands adjacent to provincially significant wetlands or significant portions of the habitat of threatened or endangered species;
   ii. in or on lands adjacent to fish habitat; and
   iii. in or on lands adjacent to provincially significant woodlands, valleylands, wildlife habitat, and areas of natural and scientific interest.
In this NHIS, we first describe the environment of the site and the adjacent lands, particularly including High Park. This is followed by sections describing the proposal, assessing its potential impacts, identifying the ways to mitigate any impacts, analysis of the policy in relation to the approvals and, then, presenting conclusions and recommendations.
2.0 ENVIRONMENTAL DESCRIPTIONS

In this section, we provide a description of the environmental setting for the project that includes both physical and biological information.

2.1 Physical Environment Parameters

2.1.1 Geomorphology

The physical setting for this project provides important background on the character of the environment of the site and the adjacent High Park. This character was determined during the later stages of the last (Wisconsin) glaciation when the water levels of the glacial Lake Iroquois were substantially higher than the present Lake Ontario. This glacial lake created shoreline bluffs that fall roughly along Davenport Road to the north. The lake bottom in front of the shoreline received substantial quantities of sands and other fine materials forming the “Lake Iroquois Sand Plain” (Chapman and Putnam, 1984), as shown below as the yellow colouring.

The High Park area is in the delta of the Humber River where the geological materials were discharged to the Lake and settled to the bottom. In the vicinity to the Grenadier Square’ site, these sands have been recorded to a depth of 16 metres. The lake deposits were themselves eroded as the lake receded, creating local topography and a drainage system developed as discussed in the next section.

The topography of the area of High Park and the Grenadier Square property is shown below extracted from a 1921 topographic plan of the City (Source: University of Toronto Map Library, Item G3524.T6 C222 19 1921R).
The use of this early map is selected to show the nature of the landforms before later urban development altered them. The Grenadier Square site sits on a flat plateau above High Park at an elevation of about 350 feet asl, while Lake Ontario is at about 250 feet asl. Contours on the plan are at 25-foot intervals. Grenadier Square site is to the west of the (former) Spring Creek ravine and before the more sharply defined Wendigo Creek ravine. The later construction of Bloor Street and property development have filled the upper ends of the two ravines.

2.1.2 Subwatersheds

The High Park area falls between the large watersheds that drain from the north of Toronto to Lake Ontario – note the Humber valley to the west above. The Don River valley/watershed is to the east. Two smaller subwatersheds – Spring Creek and Wendigo Creek (see their ravines above) - developed following the retreat of Lake Iroquois. The small ravines were eroded and the drainage areas for the two creeks roughly divide the Park into two. The westerly Wendigo ravine shows steeper topographic definition and contains Grenadier Pond. Both creeks discharged directly to Lake Ontario under the CP Rail line and Lakeshore Boulevard (Queen
Street extension) to Lake Ontario. The lakeshore area has been substantially altered since 1921.

The figure below (from City of Toronto, 2008, p.18) illustrates the drainage condition now.

The contributing areas above High Park have urbanized and both Spring Creek and Wendigo Creek/Grenadier Pond receive substantially all their waters from drainage of the lots, buildings and streets via the stormwater sewer system. In both cases, the drainage features in the Park are used to channel urban runoff through culverts under the rail lines, Lakeshore Boulevard and the Gardiner Expressway before discharging to Western Beaches Stormwater Tank, and ultimately to Lake Ontario.

The Grenadier Square site is in the Spring Creek tributary area. Restoration activities have been underway on Spring Creek since 2007 in order to improve aquatic habitat conditions. Improvements also have been made on Grenadier Pond and Wendigo Creek watershed.

### 2.2 Biology

In this section, we describe the environment in terms of vegetation communities, trees, plants, wildlife, aquatic systems and environmental systems factors (biodiversity, linkages). The ecology and resources of High Park have been extensively documented in various studies, particularly:


This last document is included in Appendix 2.

We also reviewed the following in the City of Toronto Biodiversity Series

- Birds of Toronto
- Butterflies of Toronto
- Fishes of Toronto
- Spiders of Toronto:

### 2.2.1 Vegetation Communities

The ecology of High Park has been extensively documented as noted above. This includes a mapping of the vegetation communities of the Park that dates back to a 1989 study by Varga. His work has been updated and consolidated in the North-South Environmental and Dougan & Associates (2012) report (provided by City Planning in draft form and subject to a data sharing agreement with them).

Conveniently, the City translated (City of Toronto, 2002) the 1989 Varga work into an Ecological Land Classification (ELC) figure that is included on the next page, utilizing the
FIGURE 3.
ECOLOGICAL LAND CLASSIFICATION
HIGH PARK, CITY OF TORONTO

TERRESTRIAL SYSTEMS
1. TALLGRASS PRAIRIE, SAVANNAH AND WOODLAND COMMUNITIES
   a. TALLGRASS WOODLAND SERIES
      i. DRY TALLGRASS WOODLAND ECOSITE
         Dry Black Oak White Oak Tallgrass Woodland Type
   b. FOREST COMMUNITIES
      i. MIXED FOREST SERIES
         DRY - FRESH HARDWOOD - HEMLOCK MIXED FOREST ECOSITE
         Dry Fresh Hardwood Hemlock Mixed Forest Type
      ii. DECIDUOUS FOREST SERIES
          DRY - FRESH OAK DECIDUOUS FOREST ECOSITE
          Dry Fresh Red Oak Deciduous Forest Type
          DRY - FRESH OAK-MAPLE-HICKORY DECIDUOUS FOREST ECOSITE
          Dry Fresh Oak Maple Hickory Deciduous Forest Type
      iii. FRESH MOST LOWLAND DECIDUOUS FOREST ECOSITE
           Fresh Most Willow Lowland Deciduous Forest Type
   c. CULTURAL COMMUNITIES
      i. CULTURAL PLANTATION SERIES
         DECIDUOUS PLANTATIONS
         Red Oak Deciduous Plantation Type
      ii. CONIFEROUS PLANTATIONS
          White Spruce Eastern White Spruce Coniferous Plantation Type
          EXOTIC FORESTS (Not an EUC Category)
   iii. CULTURAL MEADOW SERIES
        MINERAL CULTURAL MEADOW ECOSITE
        Dry Moist Old Field Meadow Type

WETLAND SYSTEMS
1. SWAMP COMMUNITIES
   a. THICKET SWAMP SERIES
      MINERAL THICKET SWAMP ECOSITE
      Red-oak Mineral Meadow Marsh Type
   b. MARSH COMMUNITIES
      i. MEADOW MARSH SERIES
         MINERAL MEADOW MARSH ECOSITE
         Bluejoint Marsh Mineral Meadow Marsh Type
      ii. SHALLOW MARSH SERIES
          MINERAL SHALLOW MARSH ECOSITE
          Cattail Marsh Mineral Shallow Marsh Type
   c. SHALLOW WATER COMMUNITIES
      i. SUBMERGED SHALLOW AQUATIC SERIES
         SUBMERGED SHALLOW AQUATIC ECOSITE
         Pondweed Submerged Shallow Aquatic Type


NOTES:
accepted current mapping system (Lee, et al, 1998). The important vegetation community is the *Dry Black Oak-White Oak Tallgrass Woodland Type* Ecosite (#1- Light Green on the Figure.

(Note that on this figure north and the Grenadier Square proposal is to the left side).

There are a number of such communities in the Park that total 22.7 ha (56 acres). The boundaries of the ANSI, specifically in the central area of the Park, have been adjusted recently by the City and Ministry of Natural Resources. These new boundaries are reflected later and are shown on Figure 1. The important consideration for the Grenadier Square development is that one of the important Oak communities is across Bloor Street in the central and northeast corner of the Park. A photo on a following page illustrates the Oak Woodland. There are also active park areas, other woodland types and Grenadier Pond in High Park, creating a diversity of habitats. The High Park savannah is a remnant of the approximately 2500 ha savannah that occupied the Toronto’s Lake Iroquois Sand Plain before settlement – see Roots, Chant and Heidenreich, 1999.

In order to analyze the effects of the Grenadier Square development, it was necessary to extend the High Park ELC mapping into the surrounding area. This required an adaptation of the ELC classification to the surrounding urban area as the standard classification would identify all of it only as developed land or “anthropogenic” – but it does have an ecological character and contribution.

The City has recently undertaken an analysis of its tree canopy:


The report is a broad scale analysis that will be referenced later. A more focused analysis on High Park and the Grenadier Square site is necessary for this report and was completed.
The following Figure 2.0 – High Park and Adjacent Tree Canopy describes High Park and the adjacent developed areas in terms of their contribution of tree canopy to the local ecology. On this figure, we show the conditions for a 240 metre radius around the Park. This radius was selected as it is a standard distance used in assessing separation distances/relationships between features in a landscape (Ontario Ministry of Natural Resources, 2009). Thus, the modification to the ELC description is to indicate the type of land use involved and a measurement of the extent of the tree canopy for the various polygon units based comparative patterns on aerial photography (see Lee, al (1998), p. 218-219) for the templates. It measures the extent of the tree canopy and is less sophisticated that the automated computer estimates developed for the City. However, the need here is more focused and the results seem comparable (see later discussion).
Legend

- Commercial Transportation (C/T)
- Residential (R)
- High Density Residential (RHD)
- Park - Active (P)
- Park Natural (PN)
- Woodland (W)
- Open Aquatic (OA)

Tree Canopy (%)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
The result is the following:

<table>
<thead>
<tr>
<th>AREA MEASURED</th>
<th>TOTAL AREA (ha)</th>
<th>TREE CANOPY (ha, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Park</td>
<td>161 hectares</td>
<td>97.1 hectares (60.3%)</td>
</tr>
<tr>
<td>240 metres Adjacent</td>
<td>107.8 hectares</td>
<td>39.3 hectares (36.5%)</td>
</tr>
<tr>
<td>TOTAL (Park &amp; Adjacent)</td>
<td>268.8 hectares</td>
<td>136.4 hectares (50.7%)</td>
</tr>
<tr>
<td>Bloor Street Corridor (Keele St. to High Park Ave.)</td>
<td>2.5 hectares</td>
<td>.73 hectares (30%)</td>
</tr>
<tr>
<td>Grenadier Square Site – Current</td>
<td>2.0 hectares</td>
<td>.40 hectares (20%)</td>
</tr>
<tr>
<td>Grenadier Square Site – Redeveloped</td>
<td>2.0 hectares</td>
<td>.40 hectares (20%)</td>
</tr>
</tbody>
</table>

High Park is a substantial wooded area within the City – 97 hectares of canopy over its 161 hectares area. It is surrounded beneficially by older residential neighbourhoods that have between 30 and 80% canopy coverages. There are notable areas of reduced canopy along the south limit of the Park (Railway, Gardiner Expressway, Lakeshore Boulevard) and the Bloor Street corridor where the street is wide and development denser. Parkside Drive does provide a break along the east boundary, but the adjacent neighbourhoods are mature and show 40 to 50% canopies. The west side of the Park is the most interesting as the lots appear larger and more responsive to retaining tree canopy – 60-90% for the best streets.

The Grenadier Square site is in a high density residential classification in terms of character with its polygon showing a 30% canopy. The Grenadier Square site itself has a 20% canopy. Photos illustrating conditions are included on following pages. Substantial re-plantings are proposed as shown later and are reflected in the Table.
An inventory of the specific vegetation features on the Grenadier Square property was prepared by Bruce-Irvine and Associates (October 22, 2013) that is attached as Appendix 2. There are 126 regulated trees identified on and adjacent to the property. These trees are predominantly planted Austrian Pine (Pinus nigra), but include five (5) Black Oaks (Quercus velutina) up to 92.5 cm DBH. The two largest Black Oak specimens may have a natural (pre-settlement) origin. The largest Black Oak is showing signs of declining health and the other major Oak is in fair condition. There are also planted Colorado Blue Spruce (Picea pungens), and Norway maple (Acer plantanoides) and some successional species that have occupied the site.
View south on High Park Avenue showing townhouse block to be replaced, and Austrian Pines adjacent to it.
View north on Pacific Avenue showing the townhouse block to be replaced and Austrian Pine beside it. There are three Black Oak stems behind the lamppost on the left.
2.2.2 Fauna

Two types of analysis were conducted to determine the potential impacts on wildlife habitat on site and in the Park. First, an inventory of breeding and migratory bird use of the Grenadier Square property was undertaken in the spring of 2013 and, secondly, the species noted in inventories of the Park were examined to see if any were dependent on the Grenadier site during their life cycles.

A total of 80 wildlife species have been identified during the various surveys (breeding bird, amphibian, flora) conducted within High Park, in proximity to the proposed development and are. This includes one (1) species of amphibian, six (6) reptiles, sixty-six (66) birds and seven (7) mammals. The majority of species are common to urbanized parks, but also included are a number of avian (Chimney Swift, Common Nighthawk, and Red-headed Woodpecker) and aquatic (Blanding's Turtle, Snapping Turtle) that are of special interest as they are “Threatened” or of “Special Concern”.

Area sensitive birds are defined as those species that prefer to breed in habitat patches greater than 20ha in size. No area sensitive species are likely to breed on the development site.

The extent of this list does indicate High Park is a rich area with diverse habitats.

Some of the common urban species observed in High Park may use the Grenadier Square site, but none would be dependent on it for their needs.

None of the Threatened or Special Concern species in High Park are likely to utilize the Grenadier Square site at present.

The redevelopment of the property might improve the site in terms of suitability for one species at risk (provincially designated as special concern, federally as threatened). Common Nighthawk was noted as possibly nesting in High Park and the provisioning of a flat roof post-development may provide suitable nesting habitat for this species.

Migratory birds require habitat to rest and feed during spring and fall migration. As birds make landfall after a continuous flight across a large body of water, such as the Great Lakes, natural habitat can be act as important stopover areas to rest and feed. The City of Toronto, located along the Lake Ontario shoreline, is generally considered to be in a broad migratory corridor and has a number of known migratory bird stopover locations. Figures presented in the Migratory Birds in the City of Toronto (Dougan and Associates and North-South Environmental, 2009) detail High Park as one of the major stopover areas within the City. The data presented in this Dougan report suggest the majority of migratory landbirds utilize the southern portion of High Park, in closer proximity to the lakeshore, and that this “migratory hotspot” does not extend as far north as the proposed development site at Bloor Street, approximately 1900 metres from the lakeshore. The position of the site north of High Park indicates that birds looking to refuel would be required to pass through a large area of suitable
natural habitat (e.g., High Park) to reach the less suitable habitat. Therefore, usage of the site by migratory landbirds for stopover habitat is likely limited.

In order to test this hypothesis, maintenance staff on the property examined the base of one of the existing 20 storey buildings for fatalities every morning in May 2013 and repeated the exercise in October and November 2013. During this observation period no fatalities or injured birds were found. See appended data for May. The fall survey is still on-going, but no birds have been found to date (November 1, 2013).

Also, a report by Stantec on the migratory and breeding birds at the site from April to June is included in the Appendix 3.

Seven species of birds were observed on the Grenadier Square site during three site visits by Stantec. Four common species (S5: common, widespread, secure) were considered to be breeding on the property. For comparative purposes, the northern part of High Park was inventoried at the same time. Forty-three species were observed in the Park with eight considered to be breeding, including area sensitive species. All breeding species are rated as S5 (common, secure).

Consequently, the conclusion is that the Grenadier Square property has limited potential for breeding use and has limited potential for collisions. Comparatively, the north part of High Park is more diverse and productive, particularly for migrants.

Once the site is developed, there may be some potential for a green roof to provide habitat, although little to no research has been conducted on the potential for a green roof to support migratory stopover habitat in Toronto (Dougan and Associates and North-South Environmental, 2009).

It is also noted that the Grenadier Square site is in an Apartment Neighbourhoods area where there are other tall buildings (up to 30 storeys) now, without apparent problems.
3.0 NATURAL HERITAGE FEATURES & FUNCTIONS

Based on the information in Section 2.0, we can now describe the natural heritage features and functions of the Grenadier Square site as well as the adjacent areas, particularly High Park. This is done on two scales (Park and site) and uses the format suggested by the Natural Heritage Reference Manual.

3.1 High Park and Its Environment

For purpose of this report and analysis, we looked at High Park and its supporting environment as the boundary of the Park and a 240 metre adjacent area to it as shown on Figure 1.0. The following analyses are the general categories for discussion of development impacts as described in the Natural Heritage Reference Manual (OMNR, 2010).

3.1.1 Significant Wetlands

There are wetland features identified in High Park along the Spring Creek valley below Howard Pond down to Lake Ontario and around Grenadier Pond on the Wendigo Creek drainage. As well, there is a wetland apparent on the south and west side of the Park across Ellis Avenue in the south end of Rennie Park. None of these wetland features is a Provincially Significant Wetland (PSW). Grenadier Pond is included in the recommended ESA for High Park.

The Spring Creek and Howard Pond constitute a riparian corridor in terms of the City’s interest through the Terms of Reference (Appendix 1)

The Grenadier Pond wetland in High Park is considered significant as an ESA. The other wetlands are locally significant

3.1.2 Endangered and Threatened Species

High Park does support a diversity of habitat types (23 vegetation community types) and numerous interesting species (rankings provided by MNR, NHIC):

- 136 L1 to L4 flora species
- 41 L1 to L4 fauna species

These species ranks are in terms of their local rarity.

Provincially, there is one Endangered species (Butternut), two Threatened species (Chimney Swift, Blandings Turtle) and three of Special Concern (Snapping Turtle, Common Nighthawk, Redheaded Woodpecker) found in High Park.
Of note for discussion, Black Oak itself carries a Provincial rank of S4 (Common, believed secure).

It is the Black Oak Tallgrass Prairie community that is the rarity (S1, G1).

### 3.1.3 Fish Habitat

The fish populations within High Park appear not to have been studied recently. The City of Toronto (2008) report referenced above describes a 1976 report by the MNR (Wainio) as reporting poor water quality in the Grenadier pond system, but 17 species of fish that can persist in these conditions.

While not sampled/described, it is likely that the ponds in the lower Spring Creek drainage support similar populations as they receive combined sewer overflows.

### 3.1.4 Significant Woodlands and the Urban Forest

The NHRM that we are using as guidance assigns the determination of significance of woodlands to the municipalities. Toronto has not undertaken (directly) such a planning exercise. The City ESA study does indirectly cover this topic and the High Park woodlands (particularly the Oak Savannah Woodland) would qualify as Provincially Significant as well as locally significant.

None of the numerous Oaks in High Park is, as yet, identified as having a significant historical or cultural heritage value.

Since this site is urban, the scope of the woodland and tree issue has been expanded for this impact study. Trees and particularly the tree canopy provide important benefits within the urban environment (see City of Toronto, Every Tree Counts - cited above):

- Carbon sequestration,
- Reduced heating and cooling requirements
- Shade
- Improved air quality
- Reduce stormwater runoff
- Wildlife habitat
- Scenic attributes
- Economic and social benefits

Based on the inventory of tree canopy presented in the previous section, High Park is identified as a substantial reservoir of trees within the West Toronto/Swansea area as well as city-wide. There is 136.4 hectares of canopy identified within the Park and the adjacent lands (within 240 metres) we inventoried. This includes both the Park woodlands as well as the
trees within the mature residential neighbourhoods that are adjacent. This is an important consideration in evaluating the development proposal.

### 3.1.5 Significant Valleylands and Landform

Certainly the geological history of High Park is of interest as it contributes to the current ecological interests. However, there are no landform features in the Park or area that are identified as Significant in a Provincial Earth Science ANSI. The Lake Iroquois Sand Plain appears relatively undisturbed, but is not particularly sensitive to disturbance/loss. The Toronto Region Conservation Authority does regulate valley and stream corridors, but the High Park drainage features are not indicated (Valley and Steam Corridor Management Program, 1994) as being of interest. Certainly the valley corridor along Spring Creek terminates before Bloor Street as it has disappeared with the development of the lands above there and in the corner of the Park that have altered the landform.

### 3.1.6 Areas of Natural and Scientific Interest

At this point it is clear that the principal feature of High Park from an ecological perspective is the High Park Oak Woodlands identified as a Provincially Significant Life Science ANSI (#1298) by the MNR. The information described previously in this report will not be repeated here. However, it is to be noted that the ANSI designation recognizes the feature as of vegetation significance and does not include the broader features, attributes and functions of High Park, but the updated mapping includes Grenadier Pond.

### 3.1.7 Significant Wildlife Habitat

This category of analysis contains four subsets of considerations.

#### 3.1.7.1 Migration Corridors and Linkages

Generally speaking, the major wildlife corridors (for terrestrial species) in the City include the Don and Humber River valleys and the Toronto waterfront features (Leslie Street Spit, Toronto Islands, etc.). The reference in the NHRM is primarily focused on terrestrial movement corridors.

High Park is not in a major terrestrial movement corridor. Environmental planning in Ontario has evolved to include the consideration of “natural heritage systems” (linked features) in the landscape. As mentioned earlier, 240 metres around features is a standard distance within which to review landscape linkages. For High Park, this distance is shown on the previous figures. Within this surround to the Park, there are adjacent natural features on the west side in Rennie Park. This connection is constrained by the lots and roads along Ellis Avenue.
On the north side of the Park, there are no natural features that the Park connects to. The matrix of roads (particularly the 27 metre width of Bloor Street) and residential lots limit any potential connections/movements to only those species that can exist or disseminate in the urban environment.

Thus, terrestrial corridors and linkages are not an issue in terms of development impacts.

3.1.7.2 Seasonal Concentration Areas

High Park has an important role due to the extent of the woodland features and water of Grenadier Pond. The Park is an excellent and recognized area to observe birds (songbirds, waterfowl, shorebirds, etc.) during the migration periods as indicated previously.

The City report on migratory birds (noted above) concludes this and indicates the prime locations for observing the various “guilds” of birds, showing a concentration at the south end around the pond and woodlands. Hawk Hill near the Grenadier Café is a noted location to observe the fall migration of raptors. Bird movements in the High Park area tend to be east/west related to the shorter crossing distances across the Lake that are found in the Oakville-Hamilton area. There are records for migratory birds in Parks that are about a kilometer to the north and to the west.

3.1.7.3 Rare or Specialized Habitat

The rare habitat in High Park is the Oak Woodland, but it does not appear to perform a specialized habitat function for wildlife.

3.1.7.4 Species of Conservation Concern

As noted above, the inventories for High Park indicate Provincially there are three Species of Concern (Common Nighthawk, Redheaded Woodpecker and Snapping Turtle) found in High Park.

3.2 The Grenadier Square Site

3.2.1 Significant wetlands

There are no wetlands on or adjacent to the Grenadier Square site nor are there riparian lands.

3.2.2 Endangered and Threatened Species

None identified for the Grenadier Square site.
3.2.3 Fish Habitat

None present on the site.

3.2.4 Significant Woodlands and the Urban Forest

No woodlands present on the Grenadier Square property as it is all landscaped and maintained.

The Grenadier Square site is within an area along Bloor Street where there is a lower extent of tree canopy due to the transportation, higher density and commercial land uses – 30% canopy. The Grenadier Square site has trees on it and a canopy of an estimated 20%. This produces a canopy estimate equal to .40 hectares for the property.

Given the number of Oak trees protected in the adjacent High Park and the lack of any specific historical or cultural values to the Grenadier Square property, the trees on site are not historically or culturally significant. A check of the Trees Ontario website (October 10, 2013) found no reference to their “heritage” value. Two other oaks in West Toronto have been recognized, but they had specific attributes and associations with historical events/figures.

3.2.5 Significant Valleylands and Landform

None present on the Grenadier Square site.

3.2.6 Areas of Natural and Scientific Interest

None present on the Grenadier Square site.

3.2.7 Significant Wildlife Habitat

There are four sub-categories considered below.

3.2.7.1 Migration Corridors and Linkages

The Grenadier Square site is not in or near a migration corridor or linkage between any natural areas.

3.2.7.2 Seasonal Concentration Areas

The Grenadier Square site is one to two kilometres from the Grenadier Pond and the waterfront areas of concentration, respectively. It is closer to the woodlands that are attractive
to songbirds, but it is small and within an area of high human activity/disturbance. The Grenadier Square site was found not to be utilized by any substantive numbers of breeding or migrating birds.

However, there are general movements of birds in the area and the risk that the building poses to them should be considered further.

3.2.7.3 *Rare or Specialized Habitat*

None present on the Grenadier Square site.

3.2.7.4 *Species of Conservation Concern*

None present on the Grenadier Square site.
## 3.2 Feature and Functions: Conclusions

<table>
<thead>
<tr>
<th>Feature or Function</th>
<th>High Park &amp; Adjacent</th>
<th>Grenadier Square Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Local and riparian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Grenadier Pond ESA</td>
<td>o None, no further</td>
</tr>
<tr>
<td></td>
<td>o Spring Creek pockets and riparian corridor</td>
<td>consideration</td>
</tr>
<tr>
<td></td>
<td>o Rennie Park</td>
<td>o None on site, consider off-site impacts</td>
</tr>
<tr>
<td>Endangered and Threatened Species</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Fauna</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Chimney Swift</td>
<td>o None</td>
</tr>
<tr>
<td></td>
<td>Blandings Turtle,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Snapping turtle in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grenadier Pond</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Common Nighthawk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Redheaded Woodpecker</td>
<td></td>
</tr>
<tr>
<td>• Flora</td>
<td>o Butternut</td>
<td>o None</td>
</tr>
<tr>
<td>• Communities</td>
<td>o Black Oak Tallgrass Prairie, including 40 indicator species.</td>
<td>o None</td>
</tr>
<tr>
<td>Fish Habitat</td>
<td></td>
<td></td>
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<tr>
<td>• Grenadier Pond</td>
<td>o Warm water, pollution tolerant species</td>
<td>o None, no further</td>
</tr>
<tr>
<td>• Spring Creek</td>
<td>o Warm water pollution tolerant species</td>
<td>consideration</td>
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<tr>
<td></td>
<td></td>
<td>o None, no further</td>
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<td></td>
<td></td>
<td>consideration</td>
</tr>
<tr>
<td>Significant Woodlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o High Park woodlands, including the Oak Savannah would be significant</td>
<td>o No woodland present on site, consider impact on adjacent</td>
</tr>
<tr>
<td>Urban Forest</td>
<td>o 136.4 hectares of tree canopy</td>
<td>o .40 hectares of tree canopy to be replaced</td>
</tr>
<tr>
<td>Significant Valleylands and Landform</td>
<td>o Lake Iroquois Sand</td>
<td>o None present, no</td>
</tr>
</tbody>
</table>
### Table 3.1 FEATURES AND FUNCTIONS CONCLUSIONS

<table>
<thead>
<tr>
<th>Feature or Function</th>
<th>High Park &amp; Adjacent</th>
<th>Grenadier Square Site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Areas of Natural and Scientific Interest</strong></td>
<td>o High Park Oak Woodland ANSI (#1298). Provincially Significant Life Science</td>
<td>o None present, consider impact on adjacent ANSI</td>
</tr>
<tr>
<td><strong>Significant Wildlife Habitat</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Migration Corridors and linkages</td>
<td>o There are no specific identified migration corridors</td>
<td>o No specific migration corridors or landscape linkages present.</td>
</tr>
<tr>
<td>• Seasonal Concentration Areas</td>
<td>o High Park is a recognized stopover for a variety of migratory bird guilds</td>
<td>o No seasonal concentration areas. Consider impact of structure on general migration of birds.</td>
</tr>
<tr>
<td>• Rare or Specialized Habitat</td>
<td>o The rare habitat in High Park is a plant community</td>
<td>o No rare or specialized wildlife habitat requiring consideration</td>
</tr>
<tr>
<td>• Species of Conservation Concern</td>
<td>o None</td>
<td>o No species of conservation concern.</td>
</tr>
</tbody>
</table>

☑ Carried forward

Based on this analysis, there are five issue areas of potential impact, highlighted above in yellow, which will be carried forward for further analysis and mitigation in Section 5.0.
4.0 PROJECT DESCRIPTION

The Grenadier Square site is a relatively flat parcel of 2 hectares with frontages on Quebec Street (177 m.) and High Park Avenue (189 m.). The property is currently occupied by two towers of 20 storeys and two townhouse blocks.

The proposal for redevelopment consists of replacing the townhouse blocks with two new towers, revisions to the central area of the property and a new amenity building is on the next page.

North is to the right on the figure.

The two new tower buildings will contain a total of 610 residential units, a new recreation centre, amenity spaces and a total of 895 parking spaces. The buildings will each consist of a 3 storey podium and a 28 storey tower, totaling 100 metres in height.

The site access will be improved, the central area of the site revised and a new outdoor amenity building provided.

An important aspect of the proposal is that a “green” roof of 745 m² will be provided. This is described later. 124 trees will be planted to offset the removals required for construction.

The proposal is consistent with the policies and provisions of the Provincial Policy Statement, the Greater Golden Horseshoe Growth Plan and the City of Toronto Official Plan, all of which support and encourage such intensification within urban built-up areas.

The proposal details are found in various reports supporting the application, the principal of which with an environmental component are summarized below.

4.1 Site Services

Services for the development have been study in engineering reports on transportation, water, sewage and stormwater management. The first three aspects were determined to have sufficient capacity and are not dealt with here as they did not have natural environment implications.

Stormwater does require consideration as the character of the site is changed and discharges potentially move through High Park through the Spring Creek drainage in minor flows and when the capacity of the combined-flow collection sewers are exceeded. LEA Consultants prepared an analysis (November, 2012, REV October 2013) that is part of the submissions package.
LEA determined that the following criteria need to be met:

- Water balance control – retain the first 5 mm from each rainfall through on-site infiltration, evapo-transpiration and rainwater re-use;
- Water quality control – long-term average removal of 80% of total suspended solids (TSS) on an annual basis;
- Water Quantity Control – post-development flows not to exceed pre-development for up to the 100 year storm;
- Erosion and sediment Control – measures to be provided to retain sediments on site during construction

When these criteria are met, the development will bring an improvement to the current discharges from the site by infiltrating water and providing quality controls from area that are not now governed by these criteria.

### 4.2 Tree Conservation

An inventory of the specific vegetation features on the Grenadier Square property was prepared by Bruce-Irvine and Associates that is attached as Appendix 2 and was described earlier. There are 126 regulated trees identified on and adjacent to the property. A total of 68 regulated trees on and adjacent to the site are to be removed. These trees are predominantly planted Austrian Pine (*Pinus nigra*), but and include three (3) Black Oaks (*Quercus velutina*) adjacent to High Park Avenue.

Specific tree protection measures are set out for trees to be retained, specifically including the mature trees along the north property boundary (including the two large Black Oaks).

### 4.3 Landscape Architecture

A general site plan has been submitted showing the arrangement of the buildings and open space/amenity areas and re-plantings to compensate for tree removals.

The design of proposed building meets the Toronto Green Standard Tier 1 for Mid-Rise to High-Rise development, including Ecology standards for:

- Automobile infrastructure
- Cycling infrastructure
- Pedestrian infrastructure
- Urban heat island reduction
- Minimum energy performance
- Systems commissioning
o Construction activity
o Stormwater retention
o Water quality – stormwater runoff
o Water efficiency
o Urban forest: tree protection
o Urban forest: encourage tree growth
o Natural heritage site
o Soil quality and planting conditions
o Glass and other design features for migratory birds
o Light pollution

Some of these factors have been addressed above. The bird-friendly design of the building requires further explanation.

The bird-friendly design standard results from studies undertaken by the City with others:


The primary objective is to ensure that best efforts are made to minimize collisions between birds in flight by making the buildings more visible and less misleading to them. Standards are required in building design to achieve this objective. For the Grenadier Square building, this includes the following elements that are illustrated for the south-facing façade of the building facing High Park (the other views are also available in the submission package):

- The form of the building is broken up by solid elements and by recessed balconies
- The buildings are oriented with the narrow faces towards High Park
- All vision glass in the first 12 metres of the building will have a frit pattern (5mm dots spaced at 100mm) to provide a visual marker for birds
- All vision glass adjacent to the green roofs and vegetated outdoor amenity areas is treated to a height of 12 metres with the same frit pattern as above
- All spandrel glass panels are low reflectance glass (<8.5%)
- Outdoor lighting will be downcast

The applications were also supported by shadow studies and a pedestrian-level wind report that showed no significant impacts on these elements of compatibility with the local neighbourhood.

The proposal will meet the Toronto Green Standard (TGS) Tier 1 level, as discussed.
A Planning Act cash-in-lieu contribution will be made in order to meet parkland dedication requirements.
5.0 IMPACT ASSESSMENT

In this section, we examine the potential impacts from the proposed redevelopment as described above.

In this analysis, the proposal does not involve any changes to the environment outside of the Grenadier Square site. Thus, there will be no potential direct impacts on the features or functions in High Park. The analysis in this section considers direct impacts on the ecology of the Grenadier Square property and any indirect effects due the changes that this may bring.

The first step in the impact assessment is to identify the potential impact issues based on the screening that was undertaken in Section 3.0 of this report. Based on the analysis presented there, the five potential impact areas that require consideration are discussed below and that are identified on Figure 3.0 that follows.

5.1 Local Wetlands

In the description of the ELC vegetation types in High Park, it was noted that there are moist, cooler communities along the Spring Creek drainage and swamp and marsh communities along the valley bottom.

The ELC map for the Park is presented in Section 2.2.1. It shows the Fresh-Moist Lowland Deciduous Forest on the east side of Howard Pond. Thus, it is more than 250 metres from the Grenadier Square site and topographically isolated by the valley. The Swamp and Marsh communities are small and below Spring Road, some 350+ metres distant. There are no specific sensitive features identified for the communities.

The general area contributing to the pond (surface and groundwater) is developed so the changes that might impact the communities have already occurred some time ago. In the area of the Grenadier Square site, this included the deep tunnel for the Bloor Street Subway.

The re-development of the Grenadier Square property will bring a slight change to the contributing area to Spring Creek. The basic re-development will bring a minor change to area infiltration (the site is small compared to the watershed), but the rainwater harvesting will be used on site – thus, conserving water. The increased height for the buildings does not introduce any additional concerns.

Services are available for the property, particularly the stormwater management and disposal system which is a combined sewer. When it overflows, the discharge is taken down the Spring Creek drainage and flows through the lower pond into the Humber Bay stormwater tunnel for
Legend

- **Grenadier Square Site**
- **ESA and ANSI**
- **ESA and ANSI - 10m Adjacent Area**
- **ESA and ANSI - 30m Adjacent Area**
- **ESA and ANSI - 120m Adjacent Area**
- **ESA and ANSI - 240m Adjacent Area**

Potential Impacts

- Impacts on Significant Woodland and ANSI, close to site
- Impacts on Local Wetlands

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2013.
sedimentation and chlorination prior to discharge to Lake Ontario. The redevelopment of the property brings a slight improvement to the performance on the SWM system as the site attenuates follows from the current situation. Oil-grit separators will protect water quality.

This is not carried forward for further consideration.

5.2 Significant Woodland

The potential for impact on the significant Oak Woodland in High Park is flagged as an issue. There are three areas of concern identified for consideration.

The first area of concern is potential physical impact on the woodland. Such an impact can occur through changes to the environment supporting the trees, including water, light and wind. The significant woodlands in High Park primarily occur on the dry, warm, upland sites where prairie plants occur under the canopy. The redevelopment will not bring any changes to water supply to the woodlands nor will it alter wind or light patterns. The effect of the glass surface on light was mentioned as an issue, but such impacts (even if a concern) are generally very local, occurring very close to buildings or lighting. The glass on the building will be low-reflectance, for other reasons, and provides a mitigation component. The wind study of the building was related to pedestrian considerations. However, it shows that the building will not funnel wind and produces only very local changes.

As a part of this report, Figure 3.0 was produced that illustrates the standard impact zones around woodland features. The first zone is 10 metres from the tree dripline and is generally regarded as sufficient protection from direct impacts. The second zone is 30 metres in width and is required by policy in the sensitive rural situations in the Greenbelt and on the Oak Ridges Moraine. For the High Park Woodland opposite the Grenadier Square site, most of this zone (27 metres) is occupied by Bloor Street. The other two zones (120 metres, 240 metres) show the surround to the Park has already been developed to the same degree and the Woodland still survives.

The second issue is the potential loss of the Black Oaks on the Grenadier Square property to the viability of the Oaks in High Park. Five Black Oaks are found on the property and three cannot be retained. Given the large population of Oaks protected in High Park (there are several hundred in the northern part of the Park opposite the Grenadier Square site); this will not reduce the genetic viability of those trees. For Oaks, both male (pollen) and female flowers (fruiting) occur on any tree and the pollen is wind disseminated. We can identify no unique characteristics to the trees on the Grenadier Square site. Thus, the genetic pool of the Park is widely available to each individual. The Oaks (Red and Black) frequently hybridize producing mixed progeny.

The two Black Oaks along the rear property line will be retained and protected – the protection meeting the City’s Tree Protection Policy and Standards (June 2013).
Finally, as discussed in the introduction, there was once a large Oak Savannah in west Toronto. High Park is the remaining large portion of it. Two of the oaks on the Grenadier Square site may be a residual of this savannah or of more recent origin. In either case, there are not the prairie associates on the Grenadier Square site that make the Oak Woodland in High Park significant. There are larger oaks in High Park and there is no specific association of any of the Grenadier Square oaks with events or historic personalities so that they are not considered to be “heritage trees”

This issue is not carried forward for further consideration.

5.3 Urban Forest

In the analysis of potential impacts, a possible reduction in the urban tree canopy on the site was identified as an impact to be addressed. There is currently an estimated 68 trees to be removed. Re-plantings will match the removals to meet TGS standards.

This issue is not carried forward for further mitigation consideration.

5.4 ANSI Impact

The identified ANSI feature is the High Park Oak Woodlands Life Science ANSI (Provincially significant). The significant features and functions of the ANSI are the Prairie communities under the open canopy of the woodland. Based on the review of potential impact pathways, there is no likelihood of direct physical impacts due to root damage or drainage changes, light, wind, etc. The communities are well separated from the proposal and co-exist now with the adjacent Bloor Street and urban development.

It should also be noted that the redevelopment required a cash-in-lieu contribution to the City to offset the increased recreational parkland demands by the extra residents.

There are two areas that do deserve comment. First, the development will increase the use of the Park as additional residents will be in the vicinity. However, the Park now receives a million visits a year (City of Toronto, 2008) and has a management plan (City of Toronto, 2002) to protect and manage its features, including a trail system and delimited sensitive zones where foot traffic is discouraged. The Park is urban and for people and the additional local population from the redevelopment should not be an impact issue.

Secondly, it is necessary to periodically burn the prairie areas to reduce plant competition, kill invasives and encourage those special species (prairie plants are resistant to fire). This has caused local concern despite best efforts when it occurs. This issue is carried forward for additional consideration in mitigation.
5.5 Bird Hazard

We have identified that the Grenadier Square site is of limited attraction to breeding birds and not a hazard to migratory birds in its present condition.

Taller buildings do pose a potential risk to birds due to collisions, particularly with reflective surfaces. Toronto has prepared guidelines to minimize this risk and the design of the Grenadier Square building complies with and exceeds these standards as follows:

- The form of the building is broken up by solid elements and by recessed balconies
- All glass balcony guards will have a “frit” pattern with a density no more than 100mm apart
- All vision glass in the first 12 metres of the building will have a frit pattern (5mm dots spaced at 100mm) to provide a visual marker for birds
- All vision glass adjacent to the green roofs and vegetated outdoor amenity areas is treated to a height of 12 metres with the same frit pattern as above
- All spandrel glass panels are low reflectance glass (<8.5%)
- Outdoor lighting will be downcast

Our assessment is that the building is not in a particularly high risk location, although it is adjacent to High Park. It is in a neighbourhood in which there are groupings of taller buildings and is removed from the areas of highest bird movement activity.

This is not to conclude that there will not be bird collisions, but that the steps to minimize the result have been taken.

Thus, the bird hazard issue is not carried forward for further mitigation. Any risk from the building that is designed to the required standard is accepted as a residual impact for the proposal.

5.6 Endangered and Threatened Species

The inventories for High Park found the six species that were Endangered, Threatened or of Special Concern.

- Butternut (Endangered) is recorded in the Park, but not observed near or on-site;
- Chimney Swift (Threatened) is recorded as possibly breeding in the Park, but no suitable habitat is found near or on-site
- Blandings Turtle (Threatened) is in Grenadier Pond at distance from the site
- Snapping Turtle (Special Concern) is recorded in Grenadier Pond at distance from the site
- Common Nighthawk (Special Concern) is recorded as possibly breeding, but no suitable habitat is found near or on site
- Redheaded Woodpecker (Special Concern) utilizes dead tree with cavities. No such trees were noted on or near the site.

It has been noted that the Nighthawk has been viewed foraging in the air over the neighbourhood that includes the Grenadier Square site. This area is not viewed as a substantial producer of flying insects and this activity is not normally treated as a critical part of the species life cycle. Thus, the observation does not fall under a factor requiring further consideration.

A request was made to the Ministry of Natural Resources with respect to their information on Species at Risk. They mention two additional species (Short-eared Owl and Barn Swallow) that did not show up in the Park inventories (Section 2.0), but are recorded for the general area. The Short-eared Owl is unlikely in the Park and certainly not to be found on the Grenadier Square site as it requires extensive grassland areas for nesting. The Barn Swallow is possible for High Park, but not for the Grenadier Square site. It requires suitable structures to nest in. Thus, there is no concern with these two species from the redevelopment proposal.

Consequently, it is concluded that the development will not affect any of these species and the potential concern has been addressed.

5.7 Summary and Conclusions on Impacts

The following table summarizes the analysis in this section.
<table>
<thead>
<tr>
<th>Impact Analysis</th>
<th>Site Redevelopment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Local wetlands</td>
<td></td>
</tr>
<tr>
<td>o Water available through seeps</td>
<td>o Minor change to infiltration for site, no impact likely</td>
</tr>
<tr>
<td>o Stormwater flows</td>
<td>o Reduces combined sewer overflows bringing a benefit</td>
</tr>
<tr>
<td>2. Significant Woodlands</td>
<td></td>
</tr>
<tr>
<td>o Physical impacts</td>
<td>o Substantial buffer provided by Bloor Street, no impacts</td>
</tr>
<tr>
<td>o Population impacts</td>
<td>o High Park contains a large protected population</td>
</tr>
<tr>
<td>o Historic character</td>
<td>o Site not savannah, no historic associations</td>
</tr>
<tr>
<td>3. Urban Forest</td>
<td></td>
</tr>
<tr>
<td>o Loss of tree canopy</td>
<td>o no reduction in canopy</td>
</tr>
<tr>
<td>4. ANSI</td>
<td></td>
</tr>
<tr>
<td>o Impact on significant features and functions</td>
<td>o Additional Park use not an issue</td>
</tr>
<tr>
<td></td>
<td>o Objections to prescribed burns. <strong>Recommended for additional mitigation.</strong></td>
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### Table 5.1  
**Impact Analysis**  
**Site Redevelopment**

<table>
<thead>
<tr>
<th>Impact Analysis</th>
<th>Site Redevelopment</th>
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</thead>
<tbody>
<tr>
<td>5. Bird hazard</td>
<td></td>
</tr>
<tr>
<td>o Hazard to migrating birds</td>
<td>Building location in lower hazard area</td>
</tr>
<tr>
<td></td>
<td>Design meets TGS Tier 1 Standards</td>
</tr>
<tr>
<td></td>
<td>Not recommended for additional mitigation</td>
</tr>
<tr>
<td></td>
<td>Taller building poses slightly more risk</td>
</tr>
<tr>
<td>6. Endangered and Threatened Species</td>
<td>None identified in the Park as close to the Grenadier Square site- buffered</td>
</tr>
<tr>
<td>o Endangered/Threatened Species</td>
<td>Not present, no impacts to High Park</td>
</tr>
<tr>
<td>o Rare Community</td>
<td></td>
</tr>
</tbody>
</table>

- **✓** Carry forward for additional mitigation
- **➢** Treat as consequence of redevelopment
6.0 MITIGATION

In the previous sections, the potential impacts of the redevelopment have been reduced down to one area where mitigation measures additional to the design of the site and building and the efforts to meet the TGS Tier 1 Standards seem appropriate. The issue does not seem major, but could be further reduced.

The concern is with new residents objecting to the prescribed burning in the Park. It is recommended that the documents (leases, agreements of purchase and sale, etc.) for the building contain an information clause on this activity and that the building manager cooperates with the City is advising its residents when this prescribed burning will occur.

A second issue in the Table (brought forward from table 5.1) is the increase in risk to birds associated with the taller building.

The Table below summarizes the position on this final impact result.

<table>
<thead>
<tr>
<th>Table 6.1 Final Mitigation</th>
<th>Site Redevelopment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribed burning</td>
<td>o Notice to residents/owners</td>
</tr>
<tr>
<td>Bird hazard</td>
<td>o Building meets TGS Tier 1 Standards, but some collisions are expected. o Taller building poses slightly more risk</td>
</tr>
</tbody>
</table>

The issue highlighted above of a taller building posing slightly more risk to birds is a residual that would need to be accepted for the redevelopment. This is concluded to be acceptable in balancing the potential environmental impacts from the redevelopment with the other planning objectives in the City Official Plan and Provincial Policy Statement and other documents, including the objective of intensification.

Given the low impact nature and certainty of the proposal, it is not recommended that additional ecological monitoring or adaptive management approaches be attached to the approval.
7.0 POLICY ANALYSIS

As outlined in the introduction to this report, it is intended to satisfy the policies that apply.

A Terms of Reference was prepared and agreed to with the City in order to direct the preparation of this Natural Heritage Impact Study (NHIS).

The planning policies applicable to the approval of the Grenadier Square’ applications include the following.

The Provincial Policy Statement (2005) provides the overall direction in considering natural environment factors in planning decisions, including:

2.1.3 Development and site alteration shall not be permitted in:

b) significant habitat of endangered species and threatened species,

and

2.1.4 Development and site alteration shall not be permitted in:

…..

(e) significant areas of natural and scientific interest

Unless it has been demonstrated that there will be no negative impacts on the features or their ecological functions.

and

2.1.6 Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

This report demonstrates that there are no Provincially Significant features on the Grenadier Square site so that PPS policies 2.1.3 and 2.1.4 above are satisfied.

The property is within 120 metres of a Provincially Significant Life Science ANSI (High Park Oak Woodland). It is separated from the northernmost part of the ANSI by a 27 metre wide Bloor Street and the subway. No direct or indirect impacts on the features and functions for which the ANSI was identified were found. Thus, the proposal conforms to the PPS policies on Natural Environment.
The City also has its own specific policies for the protection of natural features that are set out in Section 3.4 of its Official Plan (December 2010 Consolidation). Of relevance to this report are the following.

3.4.10 Development is generally not permitted in the natural heritage system illustrated on Map 9. Where the underlying land use designation permits development in or near the natural heritage system, development will,

c) recognize natural heritage values and potential impacts on the natural ecosystem as much as is reasonable in the context of other objectives for the area; and
d) minimize adverse impacts and when possible, restore and enhance the natural heritage system.

3.4.12 All proposed development in or near the natural heritage system will be evaluated to assess the development’s impacts on the natural heritage system and identify measures to mitigate negative impact on and/or improve the natural heritage system, taking into account the consequences for:

g) terrestrial natural habitat features and functions including wetlands and wildlife habitat;
h) known watercourses and hydrologic functions and features;
i) significant physical features and land forms;
j) riparian zones or buffer areas and functions;
k) vegetation communities and species of concern; and
l) significant aquatic features and functions including the shoreline of Lake Ontario.

To assist this evaluation, an impact study will be required in accordance with guidelines established for this purpose.

This report meets the requirements of these policies by analyzing the potential negative impacts of the Grenadier Square proposal that is outside of the significant features and outside but near to the City’s natural heritage system and meets the City policy with respect to this consideration.

3.4.13 Areas of land or water within the natural heritage system with any of the following characteristics are particularly sensitive and require additional protection to preserve their environmentally significant qualities:

e) habitats for vulnerable, rare, threatened or endangered plant and/or animal species and communities that are vulnerable, threatened or endangered within the City or Greater Toronto Area; or
f) rare, high quality or unusual landforms created by geomorphological processes within the City or Greater Toronto Area; or
g) habitats or communities of flora or fauna that are of a large size or have an unusually high diversity of otherwise commonly encountered biological communities and associated plants and animals; or 

h) areas where an ecological function contributes appreciably to the healthy maintenance of a natural ecosystem beyond its boundaries, such as serving as a migratory wildlife stopover or concentration point, or serving as a water storage or recharge area.

Development will not occur on lands within the natural heritage system that exhibit any of these characteristics. Activities will be limited to those that are compatible with the preservation of the natural features and ecological functions attributed to the areas. An impact study, as referred to in Policy 12, will be required for any proposed undertaking in those areas not already the subject of an Environmental Assessment under the Environmental Assessment Act.

Finally, the City Policy also protects Provincial features:

3.4.14 Provincially significant natural heritage features will be protected by:

c) prohibiting development or site alteration in provincially significant wetlands or significant portions of the habitat of threatened or endangered species;

d) only permitting development in the following locations if it has been demonstrated, through a study, that there will be no negative impacts on the natural features or functions for which the area is identified:

i. lands adjacent to provincially significant wetlands or significant portions of the habitat of threatened or endangered species;

ii. in or on lands adjacent to fish habitat; and

iii. in or on lands adjacent to provincially significant woodlands, valleylands, wildlife habitat, and areas of natural and scientific interest.

This Natural Heritage Impact Report demonstrates that these policies in the City’s Official Plan have been satisfied.
8.0 RECOMMENDATIONS AND CONCLUSIONS

In this Natural Heritage Impact Assessment, I have identified the potential issues with the proposed site redevelopment by GWL Realty for the Grenadier Square High Park property. The study has refined the mitigation for the proposal so that there is only a very minor residual impact issue due to the risk that the building poses to birds. The proposal meets all the applicable standards, particularly the TGS Tier 1 standards as well as the applicable Provincial and City policies.

The proposal will bring an improvement to stormwater management on the site.

It should be noted that, as a result of this review and report, the Grenadier Square redevelopment proposal has seen minor improvements from the initial concept.

Derek J. Coleman, PhD., R.P.P.
Ages Consultants Limited
REFERENCES


APPENDICES

1. - Terms of Reference, Grenadier Square

2. – Arborist Report and Tree Protection Plan, Bruce-Irvine and Associates, October 22, 2013

3. – Stantec, September 2013, Migratory and Breeding Bird Study, 3p. and tables.

4. – Bird Collision Observations
This site is near to High Park – a major park and natural area in the City (see attached aerial photo figure). Parts of the Park are identified as “environmentally significant area” and “Natural Heritage System” in the Official Plan and have been identified as an ESA (TRCA) and as an ANSI (Black Oak Savannah) by the MNR. These important natural features occur across Bloor Street from the site where a development is proposed by High Park Bayview Inc.

While only a small portion of the property is within the 120 metres “adjacent lands” criterion (NHRM, 2009) to the Park, these Terms of Reference are prepared to provide for the preparation of the Natural Heritage Impact Study (NHIS) to meet the Provincial Policy Statement (2005) Policy 2.1.6 and the City of Toronto Official Plan Policy (Section 3.1.12) with respect to development that is on the adjacent lands to or near important natural features.

It is also noted that the proposal will be subject to the Toronto Green Standard, including Bird Friendly design requirements as well as the Green Roof By-law.

PURPOSE

The purpose for this report is to assess the development proposal that seeks to redevelop the site and to increase the height and density permitted in the Zoning By-law 438-86. It is to be an objective, science-based study, prepared by a qualified expert, of the proposal’s potential impact on the natural heritage system shown on Map 9 of the City of Toronto’s Official Plan (2006) and the PPS with respect to adjacent lands and on the ways to mitigate negative impacts and/or improve the natural heritage system.

REPORT CONTENTS

1.0 Background/Context

This section will describe the location, ownership and development proposal as well as the general character of the adjoining natural heritage features.

2.0 Natural Heritage Features and Functions

The natural heritage issues will be scoped as outlined in 3.0 below. This section will provide details on the ecology of the site and Park sufficient to address PPS and Toronto Official Plan policies, including:
a. Terrestrial natural habitat features and functions including wetlands and wildlife habitat;
b. Known watercourses and hydrologic features and functions;
c. Significant physical features and landforms.
d. Riparian zones or buffer areas and functions;
e. Vegetation communities and species of concern, including Endangered Species Act species;
f. Significant aquatic features and functions; and
g. Areas regulated by the RNFP, Natural Heritage and TRCA

There are available extensive background reports on High Park (MNR ANSI Report; Toronto, Natural Heritage Study, (2001) ESA Study (2008), High Park Management/Restoration Plans (2002, 2008), Migratory Birds Report (2009), Toronto ESA Study (2012) as well as studies of the development site (Tree Specialists, November 20, 2012; Bruce Tree Expert Company); Site Servicing, Lea, November 2012; Planning Rationale, Bousfields, November 2012. Local site specific observations will be completed to describe the site and adjacent features and functions.

3.0 Impact Identification and Analysis

The potential natural environment impacts of the proposed site redevelopment and increases in height and density will be identified in terms of construction and post construction phases. Issues to be studied include:

- Loss of wildlife habitat on site
- Impacts on the High Park Black Oak savannah
- Loss of genetic diversity for Black Oak in the area
- Impacts on local drainage features
- Hazard to migratory birds
- Impact on City and local tree canopy

4.0 Responses to Impacts

In this section, the measures that will be taken to avoid, mitigate and/or compensate for the potential negative impacts that are identified in the analyses above will be specified, for both construction and operation of the proposal. Any buffers from sensitive features that are necessary will be identified and shall not be less than 10 metres.

Eliminating impacts rather than mitigating them will be preferred. Measures that the proponent can take to enhance natural heritage features or functions will be identified. Recommendations on monitoring and adaptive management approaches will be identified.

5.0 Conclusion/Recommendations
The findings of the study will be summarized and any residual impacts clearly identified. Recommendations for approval, including any follow-up monitoring, will be included, if appropriate.
ARBORIST REPORT
AND
TREE PROTECTION PLAN

Pertaining to:

Grenadier High Park
40 and 52-66 High Park Ave.,
and 51-65 and 77 Quebec Ave.,
Toronto, Ontario

Prepared for:

High Park Bayview Inc.
c/o GWL Realty Advisors Inc.
330 University Ave., Suite 300
Toronto, Ontario M5G 1R8

Prepared by:

BRUCE - IRVINE
& ASSOCIATES
Arboriculture and Urban Forestry Consultants

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BTEC File #: 5366-0001
Last revised: Oct. 22nd, 2013
Introduction

Bruce-Irvine & Associates was retained by Mr. Andrew Konev of GWL Realty Advisors Inc., on October 8th, 2013, to complete an arborist report and tree preservation plan for lands held by High Park Bayview Inc.: 40 and 52-66 High Park Ave., and 51-65 and 77 Quebec Ave., Toronto. The report was requested relative to development being proposed for the site.

The proposal would see the demolition of two townhouse blocks (52-66 High Park Ave. and 51-66 Quebec Ave.) and the construction of two new residential apartment buildings with underground parking and a two-storey amenity building on the site; the existing residential towers (40 High Park Ave. and 77 Quebec Ave.) are to remain.

A Tree Inventory Report was completed by Bruce-Irvine & Associates on Sept. 17th, 2013 to inform the client of the existing species, size, and condition of trees on the site. The report also provided preliminary tree preservation recommendations to inform the design process.

In this report the tree inventory has been revised to include specific tree preservation or removal actions based on the landscape plan prepared by Alexander Budrevics & Associates Ltd., provided on Oct. 21st, 2013 and the site plan prepared by Page + Steele / IBI Group Architects provided on Oct. 7th, 2013. A Tree Protection Plan has been prepared showing the location of tree protection measures required during construction based on the current survey and landscape plans.

As a result of the proposed design, the following trees will be affected:

- Removal of 15 of the 42 trees protected by the City Street Trees Bylaw (City of Toronto Municipal Code Article II, Chapter 813).
- Removal of 48 of the 84 trees protected by the Private Tree Bylaw (City of Toronto Municipal Code Article III, Chapter 813).
- Encroachment within the Tree Protection Zone of 5 trees protected by the Private Tree Bylaw.

The client is to submit the required tree removal/injury permit applications to Urban Forestry for approval for the removal and/or encroachment of these trees.

As compensation for the removal of these trees, the client is proposing to replant on the site and/or provide cash in lieu of replanting. Landscape plans have been prepared by Alexander Budrevics & Associates Ltd. to address replanting on the site.
Method

1. Bruce-Irvine & Associates conducted a site inspection and tree assessment work on Sept. 3-6th, 2013.

2. The methods used to collect data and the information provided below comply with the details and instructions provided in the City of Toronto Urban Forestry Services document entitled “Arborist Report for Development Applications”, March 2013.

3. Reference was made during data collection to a survey of the site prepared by KRCMAR Surveyors Ltd., dated Nov. 30th, 2011.

4. The following additional documents were provided by Mr. Andrew Konev of GWL Realty Advisors Inc. for reference:

5. The City of Toronto, Urban Forestry requires that trees within the following five categories be reported upon in arborist reports for development applications:
   1. Trees with diameters of 30 cm or greater, situated on private property on the subject site.
   2. Trees with diameters of 30 cm or greater, situated on private property within 6 meters of the subject site.
   3. Trees of all diameters situated on City owned parkland within 6 meters of the subject site, or within 10 meters of proposed development.
   4. Trees of all diameters on lands designated under City Municipal Code, Chapter 658, Ravine Control By-law.
   5. Trees of all diameters situated within the City road allowance adjacent to the subject site.

6. Trunk diameter was measured using a calibrated diameter tape. The measurement was taken at 1.4 meters above ground level, generally referred to as the diameter at breast height (DBH). Trees located on adjacent property were viewed from the subject site and DBH was estimated.

7. Trees were assessed by visual inspection from the ground. Trees were evaluated in consideration of overall health and structural integrity and assigned a condition rating ranging from good to fair to poor. Refer to Appendix I.

8. Trees were tagged on the subject site using metal number-stamped tags. Tags were affixed to trees at the 1.5m – 2m mark. Tree tags that were affixed to some trees from a previous tree inventory were left as is for cross-referencing by the surveyor.

9. The arborist met with the field staff from KRCMAR Surveyors Ltd. on Sept. 10th, 2013 to review the following items:
a. Trees on site that were missing from the survey described in item 3,
b. Trees shown on the survey described in item 3, that were no longer present on
the ground, to be removed from the updated survey.
c. Select trees that appeared close to, or on, property boundaries were to be
plotted at the base of the trunk and the distance calculated to the property line
by the surveyor.
d. The property line was to be indicated on the ground by the surveyor using spray
paint.
e. Removal of surveyor’s trunk diameter measurements from the survey to avoid
confusion with the arborist’s diameter measurements. The arborist’s tree
diameter measurements were taken at 1.4m from the ground, the standard
required by the City of Toronto.

10. A site visit was conducted by the arborist on Sept. 17 2013 to review the updated survey
with respect to those trees located close to, or on, property boundaries. For select trees,
the trunks up to the first branch were observed relative to the property boundary. The
property boundary was marked by the surveyor on the ground using orange spray paint.
Ownership was determined to the best of the arborist’s ability. Refer to the Tree Inventory
(Appendix I) for ownership category and further details.

11. Draft site plans were provided by Mr. Konev on Oct. 7th, 2013, prepared by Alexander
Budrevics & Associates Ltd. and Page + Steele / IBI Group Architects. Alexander Budrevics
& Associates Ltd. provided updated landscape plans on Oct. 17th, 2013. These plans were
relined by the consulting arborist for preservation and removal feedback. Updated
landscape plans were provided on Oct. 21st, 2013.

12. Bruce-Irvine & Associates created a Tree Protection Plan by adding tree tag numbers and
tree protection/removal comments to the Oct. 21st, 2013 landscape plans and using the
survey described in item 3 above (updated by KRCMAR Surveyors Ltd on Sept. 16 2013).
The Tree Location Plan is to be read in conjunction with this report (Appendix II, attached).

**Tree Inventory**

**Overview**

A total of 126 trees were deemed as protected by the City of Toronto tree protection bylaws. A
total of 42 trees are located on municipal property and are protected by the City Street Tree
Bylaw; the remaining 84 trees measure 30cm DBH or greater, and are protected by the Private
Tree Bylaw.

The majority of trees on the site appear to have been planted as landscape features; as well,
there a few mature, native trees that were likely present on the landscape prior to the current
development on the site.
The species composition of inventoried trees is as follows:

<table>
<thead>
<tr>
<th>Species</th>
<th>Count</th>
<th>Species</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abies concolor (white fir)</td>
<td>1</td>
<td>Liriodendron tulipifera (tuliptree)</td>
<td>1</td>
</tr>
<tr>
<td>Acer x freemanii (Freeman maple)</td>
<td>1</td>
<td>Malus spp. (apple)</td>
<td>1</td>
</tr>
<tr>
<td>Acer platanoides (Norway maple)</td>
<td>17</td>
<td>Morus alba (white mulberry)</td>
<td>4</td>
</tr>
<tr>
<td>Acer rubrum (red maple)</td>
<td>2</td>
<td>Picea glauca (white spruce)</td>
<td>1</td>
</tr>
<tr>
<td>Acer saccharinum (silver maple)</td>
<td>10</td>
<td>Picea pungens glauca (Colorado blue spruce)</td>
<td>4</td>
</tr>
<tr>
<td>Acer saccharum (sugar maple)</td>
<td>1</td>
<td>Pinus nigra (Austrian pine)</td>
<td>35</td>
</tr>
<tr>
<td>Ailanthus altissima (tree of heaven)</td>
<td>1</td>
<td>Prunus cerasifera (purple leaf plum)</td>
<td>3</td>
</tr>
<tr>
<td>Betula papyrifera (paper birch)</td>
<td>1</td>
<td>Pseudotsuga menziesii (Douglas fir)</td>
<td>4</td>
</tr>
<tr>
<td>Cercidiphyllum japonicum (katsura)</td>
<td>2</td>
<td>Quercus bicolor (swamp white oak)</td>
<td>1</td>
</tr>
<tr>
<td>Cercis canadensis (eastern redbud)</td>
<td>1</td>
<td>Quercus palustris (pin oak)</td>
<td>1</td>
</tr>
<tr>
<td>Cladrastis kentukea (American yellowwood)</td>
<td>1</td>
<td>Quercus velutina (black oak)</td>
<td>5</td>
</tr>
<tr>
<td>Fagus sylvatica (European beech)</td>
<td>1</td>
<td>Robinia pseudoacacia (black locust)</td>
<td>2</td>
</tr>
<tr>
<td>Fraxinus excelsior (European ash)</td>
<td>2</td>
<td>Syringa reticulata (Japanese tree lilac)</td>
<td>1</td>
</tr>
<tr>
<td>Fraxinus pennsylvanica (green ash)</td>
<td>6</td>
<td>Tilia americana (basswood)</td>
<td>7</td>
</tr>
<tr>
<td>Ginkgo biloba (ginkgo)</td>
<td>2</td>
<td>Ulmus americana (American elm)</td>
<td>3</td>
</tr>
<tr>
<td>Gleditsia triacanthos (honey locust)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the assessment carried out by the project arborist, 9 (7%) of the inventoried trees were rated in good condition; 78 (62%) were rated in fair or fair to good condition; and 39 (31%) were rated in less than fair or poor condition.

**Tree-by-Tree Inventory**

See Appendix I, attached.
Tree Protection and Removal Plan

Permits and Permission

1. The proposed design will affect the following trees:

Construction-related tree removals

<table>
<thead>
<tr>
<th>Ownership/Location</th>
<th>Tag Number</th>
<th>Total No. Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>City-owned Trees</td>
<td>27, 30, 36, 39, 40, 42, 80, 81, 86, 87, 88, 92, 94, 95, 96</td>
<td>15</td>
</tr>
<tr>
<td>Private trees, subject property</td>
<td>26, 31, 32, 33, 34, 35, 38, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 82, 83, 84, 85, 89, 90, 91, 93, 98, 99, 100-112</td>
<td>48</td>
</tr>
</tbody>
</table>

Construction-related tree injuries

<table>
<thead>
<tr>
<th>Ownership/Location</th>
<th>Tag Number</th>
<th>Total No. Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private trees, subject property</td>
<td>64, 65, 67</td>
<td>3</td>
</tr>
<tr>
<td>Private trees, adjacent property or shared</td>
<td>68, 69</td>
<td>2</td>
</tr>
</tbody>
</table>

1. The client must submit permit applications for the injury or removal of any trees protected by the Private Tree Bylaw or City Street Tree Bylaw, and receive approval from Urban Forestry prior to any work on the site.

2. Consent from the adjacent property owner (70 High Park Ave. and 105/107 Quebec Ave.) is to be obtained prior to the removal or injury of any trees in which any part of the trunk trunk up to the first branch overhangs the private property boundary. Approval from Urban Forestry for the removal or injury of trees does not preclude civil action.

3. Prior to any work on site, the site supervisor is to be provided with this report and accompanying Tree Protection Plan.

Tree Protection - General

4. Protective hoarding is to be installed around all trees to be retained prior to any construction commencing on site as shown on the Tree Protection Plan. Notice is to be provided to Urban Forestry Services prior to commencement of any work on the site for a site inspection.
5. Tree protection barriers are to be located at the outer limit of the minimum Tree Protection Zone (TPZ) which has been established by Urban Forestry and is correlated to trunk diameter (see table below).

<table>
<thead>
<tr>
<th>Trunk Diameter (DBH)</th>
<th>Minimum Protection Distances Required for Private or City Street Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 cm</td>
<td>1.2 m</td>
</tr>
<tr>
<td>11 – 29 cm</td>
<td>1.8 m</td>
</tr>
<tr>
<td>30 – 41 cm</td>
<td>2.4 m</td>
</tr>
<tr>
<td>41 – 50 cm</td>
<td>3.0 m</td>
</tr>
<tr>
<td>51 – 60 cm</td>
<td>3.6 m</td>
</tr>
<tr>
<td>61 – 70 cm</td>
<td>4.2 m</td>
</tr>
<tr>
<td>71 – 80 cm</td>
<td>4.8 m</td>
</tr>
<tr>
<td>81 – 90 cm</td>
<td>5.4 m</td>
</tr>
<tr>
<td>91-100 cm</td>
<td>6 m</td>
</tr>
</tbody>
</table>

6. The barriers enclose the tree protection zone (TPZ), within which no construction-related activity is permitted without permission from Urban Forestry. Within a TPZ there is to be,
   - No construction
   - No altering of grade due to cut and fill, surface scraping, excavating (including hydrovac or day lighting), or soil disturbance
   - No storage of construction materials, soil, waste, or debris
   - No disposal of any solid or liquid
   - No parking, operation, or passage of vehicles or equipment
   - No personal access

7. Unless otherwise stipulated on the Tree Protection Plan, the barriers are to be 4 feet high, and constructed of plywood (a minimum of ½” thickness) nailed to a 2x4 wood frame. Supports and braces for the barriers must be installed outside the TPZ. The barriers are to be built to the specifications outlined in the City of Toronto, Urban Forestry document entitled “Tree Protection Policy and Specifications for Construction Near Trees”, March 2013 (TP-1). In areas indicated on the site plan, the barriers may consist 8-foot fencing or of 4-foot high orange plastic snow fencing on a wood frame.

8. Along the north property line of the subject site, adjacent to Trees 063-069, the Tree Protection Plan has specified two locations for the tree protection fencing. Fencing A is to be installed prior to any work on the site and during all major construction on the site, including the construction of the tower on High Park Ave. and the amenity building. This tree protection fencing location will afford these mature trees a larger area in which no disturbance is to occur, while allowing access for residents to the north entrance of 70 Quebec Ave.

For the construction of the driveway adjacent to the amenity building and for access to 70 Quebec Ave., Fencing A is to be dismantled and reinstalled in the location of Fencing B. This
will allow for construction of the new driveway. Refer to the Driveway Construction section below for further details.

9. Urban Forestry requires signs to be mounted on the tree protection barrier for the duration of the project to identify the TPZ. The signs should be a minimum of 40cm x 60cm and made of white gator board or equivalent material. The signs are available from Urban Forestry Services.

10. It is the responsibility of the site supervisor to inspect the condition of tree protection fencing each morning. If damage is observed it is to be repaired prior to work commencing on site that day. To not do so is a breach of the Public Tree Protection By-Law and could result in an immediate “stop-work” order being issued for the site.

11. Prior to any construction on the site, trees that have received approval for removal from Urban Forestry are to be removed.

Tree Protection – Specific Tree Protection Recommendations for Row of Trees 063-069

12. There is a row of mature trees located along the north property line of the subject site that the client is proposing to retain on the site (T063-T069). The trees within this row vary in terms of health and condition. The proposed driveway adjacent to the amenity building and to the north entrance of the 70 Quebec Ave. tower falls within the minimum Tree Protection Zones of these trees. Although the ground surface below this row of trees is currently soft ground surface, it is very likely that construction of the underground parking lot for the 70 Quebec Ave. tower had an impact on at least some of these trees in the past.

- T063 – Norway maple, 58cm DBH. This tree is located on the shared property boundary with 70 High Park Ave. There is a 30cm diameter pruning wound on the north side of the trunk, beside a large canker wound, which will likely continue to cause decay in the stem over time. The crown of the tree appears in fair to good health, though asymmetrical due to shading by adjacent trees and likely the adjacent building to the north. This tree should be monitored closely due to the trunk wounds. The proposed driveway is outside the minimum TPZ of this tree.

- T064 – Black oak, 92.5cm DBH. This native tree is one of the largest trees on the site and is likely a remnant of the forest in the area prior to heavy development on the site. This tree is in decline, with only approximately 25% live crown remaining, and chlorotic. The trunk appears to be straight and sound, with no obvious defects. It is strongly recommended that this tree be pruned to remove the deadwood from the crown. The proposed driveway falls within approximately 1/6th of this tree’s minimum TPZ.

- T065 – Norway maple, 62.5cm DBH. This tree appears to be in good health, with only a small amount of small diameter deadwood in the crown and slightly asymmetrical due to shading by adjacent trees. This tree forms part of a north-south
row of mature Norway maples, north of the subject site. The proposed driveway falls within approximately 1/10th of this tree’s minimum TPZ.

- **T066** – Norway maple, 50-60cm DBH. This tree is located north of the subject site on 70 High Park Ave. The tree appears to be in good health and forms part of a north-south row of mature Norway maple trees on the adjacent property at 70 High Park Ave. The proposed driveway is outside of this tree’s minimum TPZ.

- **T067** – Black oak, 73.5cm DBH. This tree has a single, straight trunk with no obvious defects. The crown appears in fair health, somewhat sparse at the very top, but otherwise healthy. This tree has been recommended as a high priority for retention on the site. The proposed driveway falls within approximately 1/3 to 1/2 of this tree’s minimum TPZ.

- **T068** – American elm, 33.5cm DBH. This tree appears in good health, with a spreading canopy. There is a slight curve in the trunk, though no major defects. The base of the tree extends just over the north property boundary with 107/109 Quebec Ave. The proposed driveway falls within 1/5th of this tree’s minimum TPZ.

- **T069** – American elm, 52cm DBH. This tree appears in fair to good health, with the top of the crown somewhat sparse, and no obvious structural defects on the trunk or crown. The base of the tree extends just over the north property boundary with 107/109 Quebec Ave. The proposed driveway falls within approximately 1/3 of this tree’s minimum TPZ.

13. As described above, two fencing locations have been prescribed for this row of trees. Prior to any work on the site, tree protection fencing is to be installed as per the location shown for location A. The fencing is to fully encompass the minimum tree protection zones of each of the trees and is to be constructed of 8’ high sheets of plywood, a minimum of ½” thick, supported by 2x4s as per detail TP-1 (or equivalent as approved by Urban Forestry). Fencing A is to be maintained until completion of the new High Park Ave. tower and amenity building.

14. Upon completion of the High Park tower and amenity building, tree protection fencing for the above row of trees is to be reconstructed to location B. This adjusted fencing location will allow for the construction of the proposed driveway adjacent to the amenity building and to the north entrance of 70 Quebec Ave.

15. The proposed driveway adjacent to Trees 063-069 is to be constructed on-grade in order to minimize the impact to roots below by allowing a. The following prescription is to be followed for installation of the driveway:
1. Geotechnical Materials

a. Geogrid Interface: Biaxial geogrid, constructed of a polypropylene material; determination of ultimate tensile strength; and junction strength to be specified by others based on prevailing conditions.

b. Geotextile Fabric: A non-woven geotextile fabric; water flow rate minimum 4480 l/min./m²; determination of grab tensile strength, mullen burst strength to be specified by others based on the prevailing conditions.

2. Method of Installation

Within the TPZs of Trees 064-069, the following method will be used to ensure adequate aeration and moisture infiltration to tree roots and to encapsulate the aeration/moisture infiltration feature. This method may be used in a wider area as identified by project landscape architect and/or architect:

a. The arborist will be on site for the duration of the process described below.

b. There is to be no significant changes to the grade below the drip lines of the above trees. Minor leveling required to prepare the ground surface for treatment as prescribed further in this prescription, will be done by hand and with hard rakes only. Sandy-loam topsoil (50-60%sand, 20-40% silt, 6-10% clay, 2-5% organic, pH 7.5 or less) may be added to a depth of no greater than 3” (7cm).

c. To prevent the upward movement or mixing of soil particles with the gravel layer to be placed above, a non-woven geotextile is to be placed directly on the existing soil prior to placing the geogrid.

d. Supply and install the geogrid interface over the entire driveway surface within the TPZs of trees.

e. If engineering standards for construction of the driveway permit, runs of “Big O” perforated drain tile are to be installed in the gravel aeration layer radiating out from the trunk to a meter outside the TPZ, in a wheel and spoke fashion. These drain tiles should be spaced approximately 1 meter apart at the tree trunk end, be held down with wire “staples” and should be oriented from high to low grade to ensure gravitational flow. The ends of the drainpipes extending through the tree well, will be capped with sections of ½” hardware cloth to prevent rodent entry and clogging by debris. These tiles facilitate air and water movement to the roots and future manual watering of the root zone as may be necessary, under the completed driveway.

f. Supply and install a uniform 15 cm thick layer of 1 ½ - 2-inch clear gravel over the entire surface of the geogrid interface. The gravel must be commencing or matching the
existing grade at least 30 cm (1ft) from the base of any of the trees to ensure no materials are in direct contact with the bark of trees.

g. The granular layer shall be placed by wheelbarrow, by mechanical device such as a “slinger” located outside the “Protection Zone” or by some mechanical device, which does not bear on the area being protected. Trucks or mechanical devices must not enter the exposed soil surface within the TPZs to dump/place aggregate material.

h. The outer edge of the granular layer will be tapered to match existing grade at or beyond the outer edge of the geogrid layer/TPZ.

i. Supply and install a layer of non-woven geotextile fabric over the entire surface of the granular layer to just beyond the outer extent prescribed and in contact with the existing soil surface.

3. Installation of Finished Road Surface

a. Supply and install road-base aggregate and finished surface materials as specified by others and using methods that do not require mechanical equipment to travel over the aeration layer within the TPZ of the tree.

b. It is recommended that the new driveway surface consist of permeable pavers such as Uniloc's Eco-Priora or Opti-Loc to increase water filtration.

c. Due to the higher grade of the driveway using the geogrid installation, a step may be required to the north entrance of 70 Quebec Ave.

4. Installation of Retaining Wall around tree trunk

a. A retaining wall will be necessary between the row of trees and the driveway as the driveway will be approximately 1-2 feet above the base of the trees. The retaining wall must be located at least 60 cm from the outer face of the trunk of all trees.

b. The wall will be constructed entirely on top of the gravel aeration layer and be constructed of pre-cast engineered modular wall system such as Roman Pisa, Pisa 2 or Sienna Stone, as specified by others. This modular system will allow some flexibility with freeze/thaw cycles and is to be installed using a method that does not require a compacted base course or any excavation.

5. Watering of Trees

a. It is extremely important to regularly monitor the soil moisture levels within the root zones of the row of trees during the months from April to November, and ensure
adequate supplemental watering is done promptly as necessary. The objective of the watering is to provide the trees with deep, thorough watering when rainfall is insufficient to keep the soil moist 2" below the surface.

b. It is strongly recommended that someone who will be on-site for the duration of the project be assigned this responsibility and be given clear instructions on how to check moisture levels, how and where to apply the water and how much.

6. Site Supervision by the Arborist

a. It is strongly recommended that the client retain a construction-phase project arborist to be make routine site inspections to monitor tree protection and tree conditions and provide follow-up summary reports and/or recommendations for tree care or protection related work.

Additional Tree Protection Comments

16. There is a proposed driveway along the south side of the site from Quebec Ave. The driveway currently shows a vehicle turn around that conflicts with Tree 114 and 115. Discussion with Mr. Stephen Hood of Page + Steele/IBI Group Architects, the turn around may be redesigned to allow for the preservation of these trees.

17. There are a number of City Street Trees that are recently planted and in good condition that have been proposed for removal from the site. The client may consider transplanting the following trees elsewhere on the site rather than removal: Tree 030, 036, 086, 092, 095, and 096. A tree relocation prescription planting locations would need to be specified prior to this action.

Concluding Remarks

It is not expected that the proposed construction will have any effect on the long-term health or structure of those trees located outside of the area of work (in front of 40 High Park Ave. and 77 Quebec Ave.).

The tree preservation prescriptions recommended in this report for those trees to be protected on the site have been prepared following the City of Toronto’s minimum Tree Protection Zone guidelines. It is anticipated that for those trees within which these minimum tree protection zones are fully observed, these trees will not be markedly affected by the proposed development.

With respect to the row of mature trees along the north perimeter of the site (T063-069), a driveway has been proposed adjacent to these trees to provide access to 70 Quebec Ave. and to an amenity building. We have provided a prescription for the installation of the driveway that
will provide the least impact to this row of trees, as it is the client’s desire to keep this row of significant trees on the landscape.

If there are any questions regarding this report, please do not hesitate to contact Ian Bruce at 647 219-9057 or Sarah Lamon at 416 268-7453.

Ian Bruce, NPD, Senior Consultant
I.S.A. Certified Arborist
ASCA Reg. Consulting Arborist
PNW Cert. Tree Risk Assessor

Sarah Lamon, M.F.C.,
I.S.A. Certified Arborist
Appendix I – Tree Inventory, attached
Appendix II – Tree Protection Plan, attached
Memo

To: Derek Coleman, Ages Consulting
From: Melissa Straus
Stantec Guelph

File: 62677230
Date: September 9, 2013
Date of surveys
April 19, 2013
May 17, 2013
June 14, 2013

Reference: GWL Realty and High Park
Migratory and Breeding Bird Survey 2013

Bird surveys were conducted on the GWL Realty property lands on April 19, 2013 by Jim Heslop between 06:35 and 07:00, on May 17, 2013 by Jim Heslop between 09:20 and 09:45, and on June 14, 2013 by Bob Stamp between 06:44 and 06:50. Weather conditions of the April 19th survey had approximate temperatures of 15°C, with a wind of 1 (Beaufort scale) and 100 % cloud cover. The May 17th survey had approximate temperatures of 9°C, with a wind of 1 (Beaufort scale) and no cloud cover. The June 14th survey had approximate temperatures of 17°C, with a wind of 2 (Beaufort Scale) and 10 % cloud cover.

Bird surveys were conducted by traversing the property on foot, recording all species of birds that were heard or seen. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season (i.e., during the June 14th visit) were assumed to be breeding.

A complete list of birds observed is appended. In total, 7 species of birds were observed; only 4 of which were observed during the appropriate season to be considered breeding and included Rock Pigeon, American Robin, European Starling and House Sparrow. All species expected to be breeding onsite are ranked S5 (Secure; common and widespread) or SNA (status not applicable – not a conservation priority). The remaining three species were considered flyovers (Ring-billed Gull) or not observed during the June visit (Red-tailed Hawk, Mourning Dove).

Area sensitive birds are defined as those species that prefer to breeding in habitat patches greater than 20ha in size. No area sensitive species were observed.

The Partners In Flight (PIF) program plan for Bird Conservation Region (“BCR”) 13 (Lower Great Lakes/St. Lawrence Plain region of southern Ontario) has identified
a number of species that are considered conservation priorities for the region (Ontario PIF, 2006). No priority species were observed onsite.

High Park

South of the North Drive Property and across Bloor Street West (a busy four-lane road) is High Park. High Park is identified as a known migratory bird stopover location in the Migratory Birds in the City of Toronto (Dougan and Associates and North-South Environmental, 2009). Surveys were conducted as outlined above within three habitats (ravine, active, and savannah) within High Park adjacent to Bloor Street West in conjunction with surveys at the North Drive Property.

Surveys were conducted as on April 19, 2013 by Jim Heslop between 7:00 and 10:15, on May 17, 2013 by Jim Heslop between 07:25 and 09:20, and on June 14, 2013 by Bob Stamp between 05:41 and 06:33. Weather conditions of the April 19th survey had approximate temperatures of 14-15°C, with a wind of 1-2 (Beaufort scale) and 100 % cloud cover. The May 17th survey had approximate temperatures of 10-12°C, with a wind of 1 (Beaufort scale) and no cloud cover. The June 14th survey had approximate temperatures of 17°C, with no wind and 50 % cloud cover.

A complete list of birds observed is appended. In total, 43 species of birds were observed, the majority of which were considered to be migrating through the area and utilizing the site as a stopover area. This includes a number of migratory warblers, such as Black-and-white, Tennessee, Blackburnian, Black-throated Blue, and Yellow-rumped Warblers.

Six (6) flyovers of the site were documented and included: Canada Goose, Common Loon, Double-crested Cormorant, Ring-billed Gull, Chimney Swift and Barn Swallow.

A total of 8 species were considered to be breeding within High Park, observed during the June visit and not as flyovers. All species observed are ranked S5 (Secure; common and widespread), or S4 (Apparently secure; uncommon but not rare), with the exception of those species listed as SNA (status not applicable, exotic species). This included Mourning Dove, Great Crested Flycatcher, Red-eyed Vireo, American Robin, European Starling, Northern Cardinal, Common Grackle, and House Finch.

Area sensitive birds are defined as those species that prefer to breeding in habitat patches greater than 20ha in size. Eight (8) area sensitive species were observed within High Park, although the majority of these species were observed as flyovers (e.g., Common Loon, Double-crested Cormorant) or considered to be migrating through the area (e.g., Yellow-bellied Sapsucker, Brown Creeper, Black-and-white Warbler, American Restart, Blackburnian Warbler, Black-throated Blue Warbler).
The Partners In Flight (PIF) program plan for Bird Conservation Region (“BCR”) 13 (Lower Great Lakes/St. Lawrence Plain region of southern Ontario) has identified a number of species that are considered conservation priorities for the region (Ontario PIF, 2006). A total of 5 PIF species were identified within High Park, and include: Chimney Swift (flyover), Northern Flicker (April visit), Eastern Wood-Pewee (May visit), Field Sparrow (April visit) and Baltimore Oriole (May visit).

Two species at risk (threatened or endangered) were identified onsite, and included the provincially and federally threatened Chimney Swift and Barn Swallow (no schedule designation federally) as flyovers. Eastern Wood-Pewee has recently been listed federally as Special Concern, although has not currently been placed on any schedule.

Conclusion

In closing, High Park is considered an important migratory bird stop over area, supported by these visits conducted on behalf of Ages Consulting Ltd. The GWL Realty property has approximately one-sixth of the total observations of those at High Park, distinctly lacking migratory observations. Breeding observations were low at both sites, with only 4 species at GWL Realty compared to 8 at High Park. No threatened or endangered species were identified utilizing either site with area-sensitive or PIF species observations greater at High Park (0 compared to 8; 0 compared to 5, respectively). Therefore, the capacity of the GWL Realty Property to provide migratory stopover and breeding bird habitat relative to what is available in the landscape (i.e., High Park) is limited.

Stantec Consulting Ltd.

Melissa Straus
Terrestrial Ecologist
melissa.straus@stantec.com
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