ENVIRONMENTAL IMPACT STATEMENT
and
FINAL TREE PRESERVATION PLAN

PROPOSED RESIDENTIAL DEVELOPMENT
PART of LOTS 5, 6 and 7, CONCESSION I
GEO TOWNSHIP MARCH
CITY of OTTAWA

RICHARDSON LANDS

A report prepared for:

Regional Group

by Muncaster Environmental Planning Inc.

Revised September, 2011
# TABLE OF CONTENTS

1.0 INTRODUCTION .............................................................................................................. 1  
1.1 Scoping the Environmental Impact Statement ......................................................... 3  

2.0 METHODOLOGY ........................................................................................................ 3  

3.0 EXISTING CONDITIONS .......................................................................................... 4  
3.1 Geologic Conditions .............................................................................................. 4  
3.2 Terrestrial Features ................................................................................................. 5  
   3.2.1 Vegetation Communities ................................................................................. 5  
   3.2.2 Wildlife ........................................................................................................... 7  
   3.2.3 Aquatic Habitat .............................................................................................. 7  
   3.2.4 Species at Risk and Natural Corridors ......................................................... 8  

4.0 DEVELOPMENT PROPOSAL .................................................................................... 11  

5.0 POTENTIAL IMPACTS ............................................................................................. 11  
5.1 On-site Habitat ..................................................................................................... 11  
5.2 Compensation Lands to the North ....................................................................... 12  
5.3 Aquatic Habitat .................................................................................................... 12  

6.0 MITIGATION MEASURES and RECOMMENDATIONS .......................................... 13  
6.1 Final Tree Conservation Plan .............................................................................. 13  
6.2 Compensation Lands and Recreational Pathway ................................................. 18  
6.3 Stormwater Mitigation .......................................................................................... 20  
6.4 Wildlife Protocol and Construction Timing ....................................................... 20  
6.5 Erosion and Sediment Controls .......................................................................... 21  

7.0 SUMMARY ............................................................................................................... 22  

8.0 REFERENCES ........................................................................................................... 23  

## FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regionally Rare Species</td>
<td>at rear</td>
</tr>
<tr>
<td>2</td>
<td>Natural Environment Features and Tree Conservation</td>
<td>at rear</td>
</tr>
<tr>
<td>3</td>
<td>Butternut Location Plan</td>
<td>at rear</td>
</tr>
<tr>
<td>4</td>
<td>Final Tree Preservation Plan</td>
<td>at rear</td>
</tr>
</tbody>
</table>

## APPENDIX

Appendix A   Tree Retention Schedule - Phase 2
1.0 INTRODUCTION

The site consists of an area of approximately 54 hectares, located within part of Lots 5, 6 and 7, Concession I, in the Geographic Township of March, City of Ottawa, Ontario. The site is located north of Richardson Side Road and east of Kanata Lakes and the unopened road First Line Road allowance with a hydro line between Lots 5 and 6. The extension of Terry Fox Drive is to the west, with the Carp River to the west of the Terry Fox Drive extension (Figure 1).

This report has been updated using the July 4th, 2011 revised draft plan of subdivision, which includes 437 lots for detached residences, with a typical urban residential lot size of 500 m$^2$ (Figure 2). There are 17 blocks for townhomes and one future multi-residential unit block. Several areas of open space and parkland are part of the draft plan, including Blocks 481, 482 and 483 along Huntsville Drive, the main entrance feature off Richardson Side Road, Blocks 443, 476 and 477 in a ‘L’ shape running from the east boundary in the central portion of the site to the west and the curving to the south to Richardson Side Road and Block 453, which is part of the Carp River floodplain. A deciduous swamp with mature upland habitat to the north, known as the ‘Compensation Lands’, are along the north boundary of the site and Block 448 is adjacent and to the south of the ‘Compensation Lands’. The ‘Compensation Lands’ area was established as part of the mitigation for unauthorized tree removal on parts of KNL’s Kanata Lakes lands to the east of the site.

The subdivision is within the General Urban Area of the City of Ottawa and will be on full municipal services.

Surrounding land uses to the site include:

- The expanding Kanata Lakes urban residential area to the east, east of the First Line Road allowance;
- Approved urban residential development on the Broughton Lands to the south of the site, south of Richardson Side Road;
- Active agricultural land to the west, along with the Carp River and the Terry Fox Drive extension; and,
- Forested lands to the north, with the core of the South March Highlands further to the north of the site. The lands between the north boundary of the site and the Terry Fox Drive extension are within the City’s Urban Area.

The central and south portions of the site, along with the north portion of the Broughton Lands form the South Richardson Lands Urban Natural Area, identified as Urban Natural Area # 3 in the City of Ottawa’s Urban Natural Area Environmental Evaluation (Muncaster and Brunton, 2005). This Urban Natural Area was rated high overall, with the Natural Area scoring well for several evaluation components including the size and shape, connectivity, regeneration, habitat maturity, representative flora and significant flora and fauna criteria. The Urban Natural Area is described as a large forested area on rugged Precambrian Shield bedrock along Hazeldean Escarpment divided by a major roadway (Richardson Side Road), with young to submature...
deciduous, mixed and coniferous forests in thin soil. Bare bedrock barrens occur throughout the Natural Area, especially along escarpment edge, with small areas of at least seasonally flooded sites in the bedrock depressions (Muncaster and Brunton, 2005).

The southeast part of the site is at the very southwest edge of the highly rated South March Highlands Natural Area, natural area 539 in the former Region of Ottawa-Carleton’s Natural Environment System Strategy (NESS) (Brunton, 1997). This large (1,478 hectares) Natural Area was broadly designated to have a high overall significance in the evaluation summary performed as part of the Region of Ottawa-Carleton’s Natural Environment System Strategy. High significance was applied to six of the eight criteria, including rare vegetation community/landform representation, common vegetation community/landform representation, vegetation community/landform diversity and endangered, threatened and rare species, hydrological features and condition of natural area. No woodlots greater than fifty years old were identified for the site by Robinson (2004) in the Carp River Watershed/Subwatershed Study (CRWSS), however the southeast forest was considered rare vegetation by Robinson (2004) and significant vegetation by Brunton (2004).

The south boundary of the Provincially-significant South March Highlands Area of Natural and Scientific Interest is to the north of the site (Brunton, 1995). Portions of the South March Highlands Provincially significant wetland complex are also to the north of the site within the ‘Compensation Lands’. The small marsh areas among bedrock depressions closer to Richardson Side Road are not part of the Provincially significant wetland complex. No Centres of Ecological Significance, as defined in the CRWSS are located in proximity to the site (Robinson, 2004).

All lands south of the ‘Compensation Lands’, including the on-site forests, were not considered by Brunton (2004) to be part of the Natural Environment Area lands and are not considered an Urban Nature Feature. The Richardson Forest is described by Brunton (2004) as moderately significant upland forest vegetation isolated from the remainder of South March Highlands significant landscape by long-standing agricultural development to the north and on-going residential development to the east. Brunton (2004) notes that the ecological function of the Richardson Forest has been increasingly impacted by expanding residential development south of Richardson Side Road.

The more significant features of the general area are found north of the site, within the core area of the South March Highlands. For example, Brunton (2000) notes that the extensive escarpment and upland forests in the northern half of the Terry Fox Drive extension study area have been documented as being of Regional and Provincial ecological significance. The mature upland deciduous forest habitat in proximity to the north portion of the Terry Fox Drive extension, well north of the current site, contributes the greatest extent to the rich diversity of native plant and animal species, including locally unique species (Brunton, 2004).

The tree plan included in this Environmental Impact Statement (EIS) has been prepared following Section 4.7.2 of the City of Ottawa Official Plan (2003).
1.1 Scoping the Environmental Impact Statement

This EIS was prepared in accordance with Section 4.7.8 of the City of Ottawa Official Plan (2003) with guidance from the Natural Heritage Reference Manual (OMNR, 1999). The major objective of this EIS is to identify potential impacts on the adjacent lands to the north and to recommend mitigation measures to lessen any negative impacts on the significant natural features and functions in the area as much as possible. Brunton (2004) concluded that the significant features and functions of the South March Highlands Natural Area are to the north of the site, as no Natural Environment Area lands were identified south of the ‘Compensation Lands’.

The following items were identified for particular attention, recognizing that many of these issues are interrelated:

- what are the anticipated direct and indirect potential impacts on the adjacent forests, wetlands, wildlife and other terrestrial features? What are the features of the wooded areas that are proposed for development?;
- what are the anticipated impacts and associated protection measures for the ‘Compensation Lands’ to the north;
- how are the features and functions of the natural area such as linkages and unique habitats influenced or supported by the site?;
- are the special features attributable to the South March Highlands Natural Area located on the site?;
- will a new forest edge be created as a result of the development or will forest interior conditions be impacted?;
- are there any tributaries of the Carp River on the site itself capable of supporting aquatic habitat?; and,
- what are the features of the areas identified for retention in a natural state on the draft plan and how do these areas complement the adjacent lands?

2.0 METHODOLOGY

Although the current EIS guidelines, found at http://www.ottawa.ca/residents/planning/dev_review_process/guide/environmental_impact/index_en.html were not in effect during the fieldwork completed for the EIS, the level of effort for the fieldwork and analysis completed as part of the EIS were consistent with the 2010 EIS guidelines. For example, botanical observations and other fieldwork were completed in the early spring, late spring, summer and autumn, vegetation communities were described to the ‘vegetation-type’ level, potential Species at Risk were assessed and surveys were completed on other natural heritage features.

Environmental information was collected and summarized through extensive information already collected for the site including the South Richardson Lands Urban Natural Area and the South March Highlands Natural Area site summaries (Muncaster and Brunton, 2005; Brunton, 1997),
the Carp River Watershed/Subwatershed Study (Robinson, 2004), the environmental assessment work completed for the Terry Fox Drive Extension (Brunton, 2000) and the South March Highlands Special Study Area (Brunton, 2004), and a review of the Natural Heritage Information Centre database to identify potential species of interest in the vicinity of the site and the (NHIC, 2010).

Colour aerial photography (2002 and 2005) was used to assess the natural environment features in the general vicinity of the site. Field observations were conducted on October 11th, 2002, October 21st, 2004, September 18th and October 3rd, 2006 and April 3rd and June 1st, 2007, both on the site and adjacent to the site.

Ecological units were defined based on species present, the wetness index of the species, dominant species, drainage observations, health, age, topography and soil conditions.

Tracks and scats provided most of the mammal observations, although direct observations were made of some mammals. Observations were also made on the level of disturbance from human activities.

Brownell and Larson (1995) and Muncaster and Brunton (2005) were used to identify regionally rare vascular plants, birds and other wildlife. The Natural Heritage Information Centre was consulted for the current provincial and federal status for the flora and fauna observed (NHIC, 2010).

3.0 EXISTING CONDITIONS

3.1 Geologic Conditions

The site is very undulating among bedrock outcrops and depressions. The north and west portions of the site are much more level, with Champlain Sea clay deposits common in the west and in pockets south of the ‘Compensation Lands’ (GSC, 1982 and Schut and Wilson, 1987). In these areas, the soil profile generally consists of a topsoil layer overlying silty sand, with silty clay below the sand (Patterson, 2002). Precambrian bedrock was encountered at shallow depths in the test pits completed by Patterson (2002) with the depth of overburden up to 3.5 metres but often less than one metre. Groundwater was observed by Patterson (2002) in test pits only in proximity to the Carp River.

The site is located on an escarpment adjacent the Carp River floodplain with a natural west and north overland drainage route into the Carp River basin.

The Precambrian bedrock and clay deposits are unsuitable for groundwater recharge due to their very low percolation rates. This conclusion is supported by the CRWSS, which did not consider the site a moderate or high recharge area (Robinson, 2004).
3.2 Terrestrial Features

3.2.1 Vegetation Communities

On-Site

The forests north of Richardson Side Road are dominated by upland mixed and deciduous forests (Figure 2). Sugar maple, red maple, red oak, ironwood, basswood, white ash, trembling aspen and white birch are common in the dry-fresh sugar maple–oak deciduous forest, with red oak, red maple, white pine, bur oak, sugar maple, basswood, white ash, white elm, white birch, white spruce, trembling aspen and white cedar common in the dry-fresh white pine – oak mixed forest. Young to intermediate aged trees dominate both forest types, with a few mature and over mature sugar maples representing the largest trees in the deciduous and mixed forests. The largest of the maples and white pines in good condition are in the range of 55cm diameter at breast height (dbh). Some maples and white pines up to 80cm and 55cm dbh, respectively appear to be in senescence with several major broken limbs. The majority of trees are in good condition with ice storm damage generally minimal. Regenerating oak and ash stems are common. There are many breaks in the mixed and deciduous forest canopies, reflecting the harsh growing conditions and limited soil in many areas.

The impact from non-native flora appears generally low in areas with greater canopy cover, although grasses in much of the wooded areas suggest pasture activity. Ground flora in the deciduous and mixed forests include wild sarsaparilla, large-leaved aster, wild lily-of-the-valley, graceful sedge, eastern bracken, false Solomon-seal, lady fern, oak fern, evergreen wood fern, Lycopodium species. More invasive vegetation such as common juniper, tall buttercup, eastern bracken, black swallow-wort, Canada thistle, tufted vetch, common dandelion, white bedstraw, Virginia creeper, sheep sorrel, common mullein, common strawberry, Canada goldenrod and red raspberry are established in the areas with limited canopy cover. Rock harlequin and wild columbine were noted in areas of exposed bedrock.

A small area of deciduous maple swamp is along the east boundary of the site, adjacent to the First Line Road allowance hydro corridor (Figure 2). Royal fern, marsh fern, fringed sedge, sensitive fern, manna grass and narrow-leaved meadowsweet are common. This maple swamp is not connected to the much larger maple swamp that forms the core of the ‘Compensation Lands’ to the north. Pink lady’s-slipper was observed just to the north of this area, within a duff layer from adjacent white pines. Smaller pockets of cattail marsh and willow and red-osier dogwood thickets are scattered in the bedrock depressions. Standing water was observed in several of these depressions during the April 3rd, 2007 field survey.

Higher densities of white pine were observed in the east portion of the forest west of the First Line Road allowance. However the density and age of the pines would not appear consistent with a white pine grove reported by Brunton (2004) in this area. Much larger white pine, and at a greater percent of pines in the canopy cover are present in the north portion of the ‘Compensation Lands’. Brunton (2004) also described this portion of the on-site forest as Dry Forest Taxa lands, defined in Brunton (2004) as an area where significant vascular plant species are
concentrated. This portion of the forests north of Richardson Side Road was identified as a moderate priority for retention in Brunton (1992).

White elm, white ash, basswood, white cedar and bur oak are the common tree species in the cultural woodland habitats. The ground flora is reflective of disturbed conditions in these areas including Canada goldenrod, common milkweed, brome grass, common dandelion, silvery cinquefoil and Virginia creeper, along with blue-eyed grass and red raspberry shrubs. A few mature deciduous trees are scattered among the agricultural fields in the west and north portions of the site. Some of the largest trees such as a 100cm dbh basswood, 100cm dbh bur oak and 75cm dbh white pine and red maple appear to be in relatively good condition. Others such as white elms up to 62cm dbh and red maples up to 80cm dbh are in poor condition with broken major limbs and decaying trunks.

The bedrock outcrops in the central portion of the site support grasses, common juniper, red raspberry and staghorn sumac shrubs and regenerating maple, oak and white pine stems. These areas continue to be used for pasturing.

Although the forests on-site were generally identified as rare in the CRWSS (Robinson, 2004), these forest communities are common throughout the South March Highlands and Carp Hills.

The many breaks in the forest cover and use of the land for pasture reduce some of the natural environment features and functions of the forests, but the vast majority of trees are in relatively good condition.

Compensation Lands

The ‘Compensation Lands’ were delineated in 2002 to include a diversity of wetland and upland habitat. This provides retention of a variety of habitat benefiting both wildlife and the nature appreciation experience of the area. The area is characterized by upland vegetation that transitions abruptly to deciduous maple swamp wetlands in depressional areas of organic material. The transition is pronounced along the north boundary of the site and less so on the north side of the ‘Compensation Lands’. The ‘Compensation Lands’ were identified by Brunton (2004) as both Significant Vegetation and an area of Significant Native Plant Species Concentration.

The most prominent wetland community in the ‘Compensation Lands’ is an organic deciduous maple swamp in the south and central portions. Red maple, yellow birch, silver maple, black ash and black spruce are common in the deciduous swamp. Build up of material along the First Line Road Allowance appears to have reduced the extent of surface drainage into the wetlands from the lands to the east. To the northwest of the deciduous swamp is a reed canary grass mineral marsh. This marsh is more disturbed than the deciduous swamp, with evidence of recent pasture use in the marsh. Where the disturbances were more pronounced, portions of the reed canary grass community were not included in the ‘Compensation Lands’. There are upland areas within
the wetlands, especially in the central portion of the ‘Compensation Lands’, where there is a striking bedrock knoll.

The upland forests are predominantly deciduous, with a mixed forest in the northeast corner of the ‘Compensation Lands’. In contrast to the on-site forests, the deciduous forests in the ‘Compensation Lands’ are generally mature and dominated by sugar maple. Scattered large (up to 80cm dbh) white pine specimens stand out in the forests. Other species included red maple, sugar maple, basswood, red oak, white cedar ironwood and poplar. The ‘Compensation Lands’ boundary was designed to be large enough to include a core protected forested area of a minimum of 10 hectares for area sensitive breeding birds.

Some of the larger deciduous trees adjacent to the south side of the ‘Compensation Lands’ are entering senescence and if at the edge of the forested areas were not necessarily included in the ‘Compensation Lands’.

The pristine forested areas of the ‘Compensation Lands’ have high aesthetic qualities and provide a variety of wildlife habitat. In contrast to much of the site and the Kanata Lakes area to the east, the ‘Compensation Lands’ have generally not been impacted by human disturbances such as logging in the last several decades, a trail network including mountain bike activity, cattle grazing and other agricultural activity.

### 3.2.2 Wildlife

Approximately four hectares of forest interior habitat is identified north of Richardson Side Road in the South Richardson Lands Urban Natural Area site summary, although Brunton (2004) does not identify the area north of Richardson Side Road as interior forest habitat. Four hectares is a small percentage of interior forest relative to the overall forested area. The breaks in forest canopy and impending adjacent urban natural areas further reduce the quality of this forest interior habitat.

White-tailed deer trails are very common through the site and deer were observed during the site surveys. Bird species observed during the field surveys included black-capped chickadee, golden-crowned kinglet (spring migrant), blue jay, common grackle, American robin, dark-eyed junco (spring migrant), chipping sparrow, red-eyed vireo, cedar waxwing, alder flycatcher, great-crested flycatcher, northern flicker, yellow warbler, red-tailed hawk, American crow, common grackle, brown-headed cowbird, American goldfinch, chipping sparrow, white-throated sparrow, brown thrasher and song sparrow. Porcupine, red squirrel, woodchuck and American toad were also noted.

### 3.2.3 Aquatic Habitat

No tributaries of the Carp River with fish habitat potential are on the site itself. The Carp River adjacent to the west boundary of the site is considered by Robinson (2004) to be tolerant warmwater fish habitat in disturbed/altered conditions, with very poor water quality identified at
Richardson Side Road. The site is not identified as a recharge area by Robinson (2004). The closest headwater areas identified by Brunton (2004) were in the ‘Compensation Lands’ to the north of the subdivision lands.

### 3.2.4 Species at Risk and Natural Corridors

Several regionally rare species have been documented for the general area, with most observations to the north of the current study area. Two grass species may occur in the study area, southern blue grass (*Poa saltuensis*) and wood-rush (*Luzula acuminata*). Brunton (2004) documents these grasses as occurring throughout upland hardwood deciduous forests in the general area. *Carex brevior* is reported to the south of the study area, on the Broughton Lands south of Richardson Side Road. Three regionally rare plants were identified in the Open Space Blocks. Confirmation of the sedge identifications was provided by Daniel Brunton. The locations of the regionally rare plants are provided in Figure 1 at the end of this report.

Two of the specimens were identified in Open Space Block 481:

- There are several populations of *Carex foenea*, including one at 18T 426490E, 5018711N; and,

- *Poa saltuensis* was observed at 18T 426533E, 5018700N.

A second regionally rare sedge, *Carex scoparia* was observed in Open Space Block 443 at 18T 426404E, 5018829N.

![Carex foenea](image)

*Carex foenea*
Carex scoparia

Poa saltuensis among other plants
A total of fifty-eight butternuts are on the site, ranging in size from 2 to 91 cm dbh. The butternut locations are shown on Figure 3. Butternut is now designated an endangered species on both the Provincial and Federal level due to a rapid decline in the population from the Butternut Canker. The health of the butternuts was assessed, as detailed in Section 6.1 of this report. Several butternuts in poor condition are at the base and on a bedrock knoll/cultural woodland just south of the southeast portion of the ‘Compensation Lands’. The largest of these butternuts is 86 cm dbh, with the rest up to 35 cm dbh. Many of these butternuts were assessed as non-retainable and have very little leaf-out, several broken limbs and damage to many areas of the trunks. No flower production was observed. It is interesting to note the much reduced leaf-out on the large butternut on June 1st, 2007 relative to the leaf-out observed three-years earlier in a photo taken by Brunton (2004) on June 4th, 2004. Other butternuts were observed throughout the south portion of the site (Figure 3). These butternuts were generally in better condition with greater leaf-out and less trunk damage.

No fauna species of interest were identified for the site, either during the background review or the field surveys. The regionally rare breeding birds and reptiles discussed by Brunton (2000) and Brunton (2004), including golden-winged warbler and Blanding’s turtle, were not in the current study area. One rare fauna observation was noted for the general area in the Natural History Information Centre Database, a 1981 observation of loggerhead shrike (NHIC, 2004). This species has experienced severe decline in the Ontario breeding population in recent decades. A review of the updated breeding bird atlas data indicated that no breeding pairs of loggerhead shrikes were recorded in Square 24 (generally the new City of Ottawa and surrounding areas) in recent years. Extensive searches completed by TSH (2005) did not find any loggerhead shrikes in the general area. The potential non-forested habitat on the site is too small as a breeding pair of shrikes need in the range of 75 hectares. The eastern milksnake is a Species of Special Concern found in a variety of habitats where mice and other prey are, including farms, rocky slopes and the edges of forests. The open space blocks and ‘Compensation Lands’ will provide habitat for this reptile if it is in the vicinity of the site.

Effective September 28, 2010 (date of filing of amendments to Ontario Regulation 230/08; to be incorporated in a subsequent consolidation, O. Reg., 373/10), Bobolink, a member of the blackbird family, is now listed as Threatened under the Endangered Species Act, 2007 and as such, individual Bobolinks and their habitat receive protection. Bobolink lives year-round in grassland habitats ranging from abandoned pasture to active hay fields. In addition to the earlier cutting of hay, more frequent cuts now occur each year, thus increasing the risk of mortality to nestlings and recent fledglings. Bobolink breeds almost exclusively in upland grasslands; they place their nests on or very close to the ground in well-concealed places, such as under tufts of old vegetation.

As the open areas of the Richardson lands are active pasture land, with no hay fields or other grassland vegetation more than a few cm in height, the Phase 2 lands do not support potential Bobolink habitat. No Bobolink have been observed on or adjacent to the Phase 2 lands, including the overall site.
Major linkages were identified by Brunton (2004) from the forested lands north of Richardson Side Road to the Richcraft lands to the east and from the ‘Compensation Lands’ to the Kizell Pond area to the east. The former linkage has been lost as the Richcraft Lands are now completely cleared of woody vegetation. Minor linkages exist along the Carp River corridor, and from the Carp River to the ‘Compensation Lands’ to the east. As Kanata develops within and around the site, the extent of the natural corridors will be reduced but some function is anticipated to remain along the Carp River corridor and along the ‘Compensation Lands’ and the Kanata Lakes NEA lands to the east. The First Line Road allowance will remain in its existing condition, with another six metres along the east limit of the draft Plan of Subdivision added to the existing twenty metre width of the road allowance. As the road allowance provides a direct connection to the ‘Compensation Lands’, the Natural Environment Areas on the KNL Kanata Lakes lands to the east and the South March Highlands to the north, the importance of the road allowance as a linkage will likely increase.

4.0 DEVELOPMENT PROPOSAL

The draft plan of subdivision includes 443 residential lots, with a typical urban residential lot size of 500 m$^2$ (Figure 4). Blocks for multi-residential units are in the northwest and southwest portions of the site. Several areas of open space and parkland are part of the draft plan, including Blocks 481, 482 and 483 along Huntsville Drive, the main entrance feature off Richardson Side Road, Blocks 443, 476 and 477 in a ‘L’ shape running from the east boundary in the central portion of the site to the west and the curving to the south to Richardson Side Road and Block 453, which is part of the Carp River floodplain.

The lands identified for development are generally currently forested or agricultural lands (Figure 4). Construction is anticipated to begin in 2011.

A Conceptual Stormwater Management Plan will be prepared for the site. The Plan will describe how the site characteristics will be utilized to design stormwater mitigation in the form of Best Management Practices. The pond proposed west of Terry Fox Drive will be used for runoff from both the development and the adjacent transportation network.

5.0 POTENTIAL IMPACTS

The potential impacts of the proposed development considered critical to the local natural system were scoped from features identified in the South Richardson Lands Urban Natural Area site summary, surveys and analysis completed for the Terry Fox Drive corridor and the Special Study Area and field visits to the site and adjacent lands.

5.1 On-site Habitat

The Plan of Subdivision has utilized Design with Nature concepts to retain portions of the existing forest and bedrock outcrops as part of open space blocks. Although the revised Plan of Subdivision has reduced the open space in the southwest portion of the site, this area is open with
minimal woody vegetation and is a less pronounced escarpment feature. The features of the blocks are described in Sections 3 and 6.1.

The features and functions of the forests north of Richardson Side Road, including the area identified as dry forest taxa by Brunton (2004), will be impacted by the residential development on this land which is designated General Urban Area and not identified as a Natural Environment Area by Brunton (2004) or for retention in the Implementation Plan associated with the Urban Natural Features Environmental Evaluation Study. The impacts include loss of forest cover and associated wildlife habitat. Section 6.1 describes how these features and functions will be retained to some extent through blocks of tree retention and other natural features in the open space blocks. As the lands develop to the south and east, and with agricultural land use to the west, the extent of linkage functions on the site will be curtailed. The open space blocks in combination with the Carp River corridor, the ‘Compensation Lands’ and the First Line Road allowance should be able to provide the extent of linkage function possible within the adjacent developed landscape. The reduction in open space in the southwest portion of the site should not impact the linkage function as this open space ends at Richardson Side Road with the developing Broughton Lands to the south and Terry Fox Drive to be to the west and southwest.

As Richardson Side Road, the First Line Road Allowance and agricultural fields border the site and the retained ‘Compensation Lands’ are adjacent to existing fields, no new forest edge or other impacts on adjacent lands are anticipated.

Tree retention on individual residential lots will be difficult given the extent of bedrock at or very close to the surface that will make installation of urban services and other infrastructure intrusive. Section 6.1 identifies areas where the single residential urban lot size has been increased to permit tree retention on the individual lots.

5.2 Compensation Lands to the North

These lands are the most significant remaining natural environment feature in the immediate vicinity to the site. As the core of the wetland habitat is in the depression area and buffered by woody vegetation up the staggered slopes and onto the fringe of the tablelands, retention of the adjacent woody vegetation will provide good protection for the wetland habitat. This is discussed in more detail in Section 6.2.

5.3 Aquatic Habitat

Although there is no on-site aquatic habitat, stormwater management measures outlined in the Stormwater Management Brief will be designed to ensure that the development can proceed without adversely affecting downstream receiving watercourses in terms of water quality or peak flow rates. Best management practices identified in Section 6.3 will ensure that any downstream habitat associated with the Carp River system will not be impacted.
The Carp River itself is to the west of the site, west of the Terry Fox Drive extension. The aquatic and riparian habitat of the Carp River will be protected within a 100 metre corridor north of Richardson Side Road as described in the CRWSS (Robinson, 2004).

6.0 MITIGATION MEASURES AND RECOMMENDATIONS

This section outlines recommendations to minimize potential impacts to the natural environment features within and adjacent to the site.

This section also provides a Preliminary Tree Study and Conservation Plan and further addresses the Design with Nature concepts. The Design with Nature concept encourages ways to maintain and use the natural features of the site.

6.1 Final Tree Conservation Plan

The purpose of this Final Tree Conservation Report is to update which vegetation can be retained and protected on the site based on engineering input, and to provide important mitigation measures for the retained vegetation. Urban residential development is proposed for the site. Removing the woody vegetation on the site commenced in 2010 outside of the breeding bird season.

As indicated in Section 5 retention of healthy trees and regenerating tree stems will focus on the open space blocks in the draft Plan of Subdivision and at the rear of the larger lots backing onto Richardson Side Road and the First Line Road allowance. Tree retention along the south and east boundaries of the site will provide screening along Richardson Side Road and the First Line Road allowance.

Tree retention on the other residential lots that are a more typical urban size is not likely. Transplanting of smaller tree stems from these lots is also difficult with the abundance of rock.

Retention of trees in open space blocks will provide a future source of seeds and regenerating stems and will add to the aesthetic and wildlife value of the trees as nodes of woody vegetation are retained. The risk of potential impacts from sunscald and wind throw will be reduced. The open space blocks represent a diversity of habitat to be retained including intermediate and submature coniferous and deciduous trees, an escarpment to the south of the agricultural field south of the ‘Compensation Lands’, other representation of rock barren outcrops that support a more unique and sensitive floral community, areas of less disturbance including an apparent absence of more recent logging activity and less impact from non-native flora and seasonally moist depressional areas that add to the biodiversity of the area.

The Preliminary Tree Preservation Plan identified twenty-two examples of trees and associated areas that should be considered for retention and protection based on the draft Plan of Subdivision. The attached Figure 2 identifies nine of those trees at the rear of lots along the west side of Richardson Side Road and the northwest portion of the site that have been
considered not feasible for retention by the Project Engineer based on lot re-grading and road pattern constraints.

Figure 4 summarizes the tree retention for the site. There are five levels of tree preservation; full preservation, partial preservation, park preservation on Blocks 449 and 476, no-touch (in Block 453, including the lands likely to be designated provincially significant wetland in the area originally proposed for a stormwater management pond), and development reserve preservation for the lands to north of the Compensation Lands.

The following descriptions utilize the lot and block numbers shown on the revised Draft Plan of Subdivision dated July 4, 2011. Full preservation of trees will occur within the following Open Space Blocks: Block 443, Block 448, Block 477 and Block 481 (Figure 4). In addition trees and shrubs will be retained along the entirety of the unopened First Line Road Allowance along the entire length of the Plan of Subdivision, and Block 453 to the west of the Compensation Lands and east of Terry Fox Drive where a stormwater management pond was originally planned. All woody vegetation will be retained within these Blocks. These Open Space Blocks are to remain in their existing original ‘natural state’, and not ‘cleaned up’, since the regenerating stems in the undergrowth represent the healthy future for the existing vegetation, as a source of future seeds in addition to the trees themselves as they mature.

Tree preservation on the smaller Blocks 480 and 482 between the divided portion of Huntsville Drive (Streets 1 and 2) was not possible during the road construction, although tree retention was intended for this area. Thus re-forestation will be undertaken on these Blocks by the Applicant.

Block 454 to the north of the Compensation Lands is identified as development reserve preservation on Figure 4 and is subject to future Planning and Growth Management (PGM) Approval. Urban Tree Conservation By-law 2009-200 applies and no tree removal is permitted prior to approvals from PGM staff and the issuance of a City of Ottawa Tree Permit.

Where rear yards are perpendicular to the above Open Space Blocks, it is proposed to use a two zone approach in the rear yard, representing partial preservation of trees. This area of protection will include the setback from tree trunks and canopy for those trees in the adjacent open space blocks. A further area of 3 to 5 metres may include retention of additional trees dependent on the depth and contouring of the lots. The tree retention will not occur within servicing corridors such as Blocks 436, 440 and 478.

The lots (Lots 326 - 350) adjacent to Open Space Block 439 and the unopened First Line Road Allowance will also include an area varying from 3 to 5 metres from the rear property line where it is intended that additional trees will be retained. In the central portion of this area (generally lots 333-346) grades are steeper and 5 metres will be retained in its natural state. Grades to the north and south of these central lots because of grading requirements will be filled. An attempt will be made to retain trees within 3 metres where possible. In each case setback from trunks and canopies of the adjacent open space blocks will be encompassed in this area.
Trees in the rear of Lots 239 – 259 to the east and south of Park Block 476 and Open Space Block 477 (located in the north and west upper escarpment area) will be retained five metres from the rear property line where grades permit. Setback from trees and canopies in the adjacent open space block will be included in this setback area.

Trees in the rear of the Lots 312 to 325 backing onto Open Space Block 443 in the north upper escarpment area will be retained five metres from the rear property line where grades permit. The exception are Lots 312 to 317 that are within a high area where grading requirements will generally not permit retention of trees. Setback from trees and canopies in Block 443 will be included in the setback area of lots 318 to 325 and recommended setbacks for trees within the Open Space Block 443 adjacent to lots 312 to 317 will be provided within the Block.

A similar tree retention schedule has been developed for the Phase 2 lands and is included in Appendix A of this report. Open Space Block 448 was planned to provide protection to the NEA lands and was identified and surveyed in the field with City staff. Trees within 0 to 7 metres of the rear property line of lots 25-60 backing onto Block 448 will be retained where grades permit, as outlined in Appendix A.

In addition tree retention will occur within the rear three to five metres for lots that back onto Richardson Side Road. These are Lots 352 – 361 and Lots 273 – 277. Tree retention in these areas is subject to infrastructure approval of non-standard grading to accommodate the tree retention and final grading plans.

As shown on Figure 4, partial tree preservation will also occur in the vista blocks between Block 477 and Boundstone Way (Street 9) and on Blocks 471 and 472 in the southwest corner of the site. The trees on Block 437 will be preserved at this time however there is the potential for a pumping station to be required on this Block and this area is also identified as partial tree preservation. The intention for the partial preservation areas is to retain the vegetation within the buffers and blocks identified during all preliminary site works. The partial tree preservation areas have been identified on lots where the owner would like to retain trees but where they know it is difficult because of the rock excavation required for subdivision grading, lot grading and house construction. At the time of these works the owners in consultation with their landscape architect, engineer and site personal will make a decision as to the viability of these trees. At the sole discretion of the owner additional trees may be planted to replace any trees that have been removed.

The following trees and associated areas are examples of trees that will be retained within the above Open Space Blocks and at the rear of yards (missing letters were originally identified in the preliminary tree plan as good candidates for tree retention, but could not be retained once the detailed engineering work was completed):

F. white pines up to 43cm dbh, along with regenerating white pine and maple stems in the east portion of the Open Space Block 481;
H. an over mature 80cm dbh sugar maple with wildlife habitat potential and white pine and white birch trees up to 20cm dbh in the southeast portion of Open Space Block 481;
I. a 38cm dbh red maple and a 45cm dbh white pine in the central portion of Open Space Block 481;
J. a 35cm dbh white pine and smaller maple trees in the north portion of Open Space Block 481;
K. white pines up to 50cm dbh in the east portions of Lots 325 and 326 and Open Space Block 439 to the rear of these lots. For habitat diversity, the wetland area to the south of these trees will also be retained in Open Space Block 439 along with a pink lady’s-slipper to the north of the swamp area;
L. a 80cm dbh white pine in the east portion of Open Space Block 443;
M. white pines up to 65cm dbh and smaller red oak and white birch in the central portion of Open Space Block 443;
N. a 52cm dbh white pine in the central-west portion of Open Space Block 443;
O. butternut trees between 15 and 23cm dbh assessed as retainable and white cedars up to 34cm dbh in the west portion of Open Space Block 443;
P. a 37cm dbh white pine along the west edge of Open Space Block 443;
Q. a 75cm dbh red maple in the northeast portion of Open Space Block 477;
R. a 100cm dbh basswood in the north-central portion of Open Space Block 477; and,
T. a 38cm dbh red oak along with regenerating deciduous stems in the south portion of Lots 275 and 276.

All trees within the Open Space Blocks will be retained and will be protected with sturdy and highly visible fencing installed a distance of ten times the trunk diameter from the trunk or the dripline edge. The barrier will be signed as an "Environmentally Sensitive Tree Preservation Area" and no tree removal will be permitted within the Open Space Blocks. This tree protection fencing will be installed at the limits of Blocks 443, 448, 476, 477 and 481. No site preparation activities or tree clearing shall occur within the fenced limits. The protective fencing will be extended to include the rear yards of adjacent lots as described above. The protective fencing is also to be installed around trees to be retained outside of the Open Space Blocks at a distance of ten times the trunk diameter from the trunk or the dripline edge. This area shall be signed as a critical root zone. The protective fencing will only be removed at the end of the construction period. No grading or activities that may cause soil compaction such as heavy machinery traffic or stockpiling of material are permitted within the fencing. No machinery maintenance or refuelling, storage of construction materials or stockpiling of earth is to occur within five metres of the outer edge of the dripline of the trees to be retained and protected. The existing grade is not to be raised or lowered within the fencing and no digging is permitted within the fencing. Exhaust fumes from all equipment during future construction will not be directed towards the canopy of the retained trees. Note that where the bedrock precludes reasonable installation of the protective fencing flagging will be used.
The root system, trunk or branches of the trees to be retained must not be damaged. If any roots of trees to be retained are exposed during site alterations, the roots shall be immediately reburied with soil or covered with filter cloth or woodchips and kept moist until the roots can be buried permanently.

The plan of subdivision has been designed to retain the existing contouring wherever possible and utilize the natural topography to provide spectacular viewsheds to the west. In contrast to the lands to the east of this site, the use of natural topography has permitted retention in their existing state large open space blocks and associated trees and escarpments.

The above tree retention can be enhanced through minimizing the extent of woody vegetation removal as much as possible and additional planting of native trees on a lot by lot basis. To provide a natural appearance, trees should be planted in a random, cluster fashion rather than in a grid system. Native species present in the existing forests, as identified in Section 3 should be preferred.

**Butternut Health Assessment**

Bernie Muncaster, certified Butternut Health Assessor # 115, completed butternut health assessments of butternut trees during leaf-out condition on September 20th, 2009 and June 9th and June 25th, 2010. Butternut is an endangered species protected under the Endangered Species Act. A total of fifty-eight butternuts were assessed, ranging in size from 2 to 91 cm dbh. The butternut locations are shown on Figure 3. The butternut trees were numbered sequentially with white paint so they can be identified as retainable, non-retainable. Twenty-six of the butternut trees were assessed as non-retainable from a condition perspective based on factors such as lack of vigour of sunlit crown, open cankers and sooty patches on the root flare and main stem and lack of callused wounds. These butternuts can be removed without compensation.

Of the thirty-two butternuts assessed as retainable, seventeen can be retained in Open Space Blocks and at the rear of lots as shown on Figure 3. Thus fifteen butternuts assessed as healthy are proposed for removal as part of the development. These three trees ranged between 7 and 44 cm dbh and are shown on Figure 3. Three retainable butternuts proposed for removal fall in the 3 – 14 cm range, with a compensation planting ratio of 5:1 (planted trees: removed retainable trees). Twelve of the retainable butternuts to be removed fall in the 15 – 81 cm range and therefore the planting ratio for these trees is 20:1. The total number of compensation plantings required is thus 15 (3 * 5) + 240 (12 * 20) = 255 plantings. These compensation plantings will be placed along the north edges of the site, in the open space blocks as shown on Figure 3. None of the butternut trees showed putative resistance to butternut canker and therefore no cloning and/or archiving is recommended for the trees on the site.

The butternuts were protected with a 25 metre no-touch radius around the trunk of the tree, and fencing set up around the perimeter of the no-touch area, until the butternut compensation plan was accepted by the Ministry of Natural Resources. The compensation agreement is now
complete, with a permit issued on April 27th, 2011. The butternuts that cannot be retained have been removed.

Blasting will be necessary due to the amount of bedrock which will need to be removed from many portions of the lands prior to development. If not done carefully this work will have far-reaching consequences for trees as their root-soil interfaces will likely be disturbed within the critical root zone. It is these intimate interfaces which allow for the absorption of moisture and nutrients from the soil. Typically it is anticipated that no blasting will occur within 10 metres of Opens Space Blocks with the exception of a limited number of shallow lots which may have rock removed between 5.5 metres and 7 metres of the rear yards adjacent to Open Space Blocks 443 and 448. The following mitigation measures will occur for blasting:

1. Prior to any blasting the soil within any nearby trees’ critical root zone, defined as ten times the trunk diameter or the dripline edge, should be soaked with water to help increase the cohesiveness of the soil matrix; and,
2. During blasting only dynamite should be used as the explosive product. Since dynamite is oxygen-balanced as well as waterproof it will completely burn off, leaving only CO$_2$ as the by-product of the explosion. An incomplete burn will produce unburnt gases which are toxic to tree roots.

All butternut trees were flagged and temporarily protected with construction fencing at a 25 metre radius. The butternut trees were retained and protected until a compensation agreement was signed by the Ministry of Natural Resources.

6.2 Compensation Lands and Recreational Pathway

As described in Section 3 the core of the ‘Compensation Lands’ are a maple swamp forest and upland habitat to the north. The setback necessary to protect this habitat is not a geotechnical buffer as the slopes are stable but an ecological buffer within the transition zone from wetland to tableland agricultural fields. The ‘Compensation Lands’ themselves have a buffer to the wetland within the transition zone up the slope. The ‘Compensation Lands’ do not include the south portion of the woody vegetation to the tablelands where the canopy cover is broken and the habitat is discontinuous and impacted by grazing and non-native vegetation. Brunton (2004) reached a similar conclusion in his analysis and delineation of the natural environment area boundary within the Special Study Area.

Although the wetland habitat within the Compensation Lands was not originally identified as provincially significant during production of the EIS, given the features and functions of the wetland habitat component of the Compensation Lands, the assessment was completed in a similar fashion as if the wetland habitat was provincially significant and it is anticipated that this wetland habitat will be designated provincially significant wetland as part of an ongoing re-evaluation of the Kizell Wetland.
To augment the wetland buffer afforded within the ‘Compensation Lands’ themselves Block 448 has been added to the draft Plan of Subdivision. Block 448 contains scattered deciduous trees and red raspberry shrubs among goldenrod, brome grass and other generally invasive flora.

Brunton (2004) notes that land use within the buffer is acceptable if the significant features and functions of the natural environment area are not compromised. A recreational pathway alignment has been staked in the field. The pathway is proposed to be three metres wide and of stonedust construction. Open Space Block 448 varies in width but generally provides a minimum ten metre setback between the south boundary of the ‘Compensation Lands’ and the rear yards of the residential lots to the south. The dripline of the trees along the edge of the ‘Compensation Lands’ easily fall within Open Space Block 448. This Open Space Block ensures no new forest edge will be created adjacent to the ‘Compensation Lands’. The pathway will be a minimum distance of three metres from the edge of the ‘Compensation Lands’ and three metres from the rear yards.

A fence will be constructed along the rear property line of the residences to the south to further protect the features and functions of the ‘Compensation Lands’. The fence will avoid encroachment of gardens and maintained areas into Open Space Block 448. As a recreational pathway will be present in Open Space Block 448, gates will be permitted in the fence. The location of the path, the method of construction (including mitigation measures for the Compensation Lands to the north and preserved trees) and the materials used will be determined in consultation with an arborist and the City’s PGM Department. Homeowners will be advised in a Conservation Handbook of the importance of staying on the recreational pathway and ensuring no debris, yard waste or other disturbances occur within the ‘Compensation Lands’ or Open Space Block 448. The Conservation Handbook will have many recommendations to assist the new homeowners in implementing mitigation measures to protect the notable ecological features and functions of the adjacent lands and on-site open space blocks and to maximize nature appreciation opportunities.

It is anticipated that the wetland and upland habitat to the north, which represents the core of the ‘Compensation Lands’, will be sufficiently protected with the above-described buffers within the transition lands of the ‘Compensation Lands’ and Open Space Block 448. The woody vegetation in the buffers will provide protection with respect to noise, dust and light. The rocky conditions are generally not susceptible to erosion or other conditions with may increase the sensitivity of the wetland to disturbances. The drainage plan for the subdivision, included in the Conceptual Stormwater Management Brief will ensure no changes in the quality or quantity of surface or ground water inputs to the ‘Compensation Lands’.

Prior to any site alterations silt fencing will be installed along the north boundary of the work areas adjacent to Open Space Block 448. It is important that the fencing be properly keyed in where soil conditions permit and the fencing is maintained as required.
6.3 Stormwater Mitigation

The Conceptual Stormwater Management Plan identified how the site characteristics will be utilized to design stormwater mitigation in the form of Best Management Practices. The subdivision will utilize the existing topography of the land as much as possible. On-site stormwater quality and quantity control will be provided in appropriately sized stormwater management pond(s).

Infiltration is not identified as a significant attribute for the site. Best management practices for the protection of water quality and quantity were included in the stormwater management plan. Practices include directing roof leaders to landscaped areas to promote infiltration and to reduce surface runoff.

As the lands east of Terry Fox Drive where a stormwater management pond was originally planned will likely become part of a provincially significant wetland, the permanent stormwater management feature has been relocated to the west of Terry Fox Drive (Figure 4).

6.4 Wildlife Protocol and Construction Timing

The following recommendations are provided for the protection of wildlife during site preparation and construction of the urban residential development. It is important that the best management practices recommended in this wildlife protocol are properly implemented during the site alteration and construction phases to ensure as much as possible that wildlife migrates from areas that will be disturbed to natural areas that are not being developed. This will avoid wildlife being "fenced in" and isolated. Wildlife is to be encouraged to relocate to the north and northeast to retained natural areas. Site disturbances are to begin in the south, southeast and southwest portions of the site and work inward and northward to facilitate this objective. This wildlife strategy is intended to fulfill Condition 76 of the Draft Conditions.

To protect breeding birds, no tree or shrub removal occurred or will occur between April 15th and July 30th, unless a breeding bird survey conducted within five days of the woody vegetation removal identified no active nests in the trees or shrubs.

To encourage wildlife relocation to the north, site alterations and development of the residential lots will begin in the south and work towards the north. At the end of each phase, the outer edge of development will extend further north, allowing the wildlife to respond by moving north to the ‘Compensation Lands’ and other natural areas further to the north. This phasing of the development is consistent with the City of Ottawa’s Wildlife Protocol that requests the construction be phased to avoid trapping wildlife.
The following best management practices were deployed to minimize impacts to wildlife:

- Construction fencing will be installed around the open space blocks and adjacent areas where tree retention will occur. This construction fencing should be no more than 1.5 metres in height and made of flexible material such as silt fencing or orange plastic fencing. Three metre breaks in construction fencing should be provided about every fifty metre as “escape routes” for deer and other larger mammals;
- Tree removal and other site disturbances began furthest from the Compensation Lands, in the south portion of the site. This encouraged deer and other larger mammals to relocate to the Compensation Lands and open areas to the north and Natural Environment Areas to the northeast as the tree removal and site disturbances proceed. A similar process will be undertaken for the Phase 2 lands;
- Prior to tree removal and other site disturbances each section of tree removal was pre-stressed by traversing the section using noise (voice and/or a loud radio) to attempt to relocate wildlife to the north, away from the construction activity. As indicated above the pre-stressing began in the south portion of the site and continued to the north;
- Prior to blasting in proximity (within 100 metres) of the retained Open Space Blocks, the retained areas in the Open Space Blocks should be pre-stressed with noise (voice and/or a loud radio) immediately prior to blasting to discourage wildlife in the remaining natural area from being in close proximity to the blasting; and,
- The site is to be managed to deter wildlife during construction. To avoid attracting wildlife, contractors must be diligent in cleaning up food garbage daily. Construction materials can also attract wildlife. Large diameter piping provides ready-made denning sites for fox, porcupines, raccoons, and skunks. Smaller diameter piping can attract mice. Mice lodged in the piping can cause malfunctions once the pipes are installed. Pipe ends should be closed off with plastic or other suitable material or inspected and any resident wildlife dislodged prior to utilization. Ponded water on development sites will attract wildlife but may be unsuitable for drinking.

### 6.5 Erosion and Sediment Controls

An erosion and sediment control plan will be prepared outlining the erosion and sediment controls to be undertaken during construction. The following items are part of the erosion and sediment plan for the development:

- Rock check dams with filter cloth and/or straw bale barriers will be placed as required in downstream of disturbed areas during construction. These control measures must be properly maintained to maximize their function during construction;
- Silt fencing will be placed along the north edge of the work area, adjacent to Open Space Block 448 and around stockpiles;
- Groundwater in trenches will be pumped into a filter mechanism, such as a trap made up of geotextile filters and straw, prior to release to the environment;
• Bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewer. These bulkheads will trap any sediment carrying flows thus preventing any construction-related contamination of existing sewers;
• Construction vehicles will leave the site at designated locations. Exits will consist of a bed of granular material, in order to minimize the tracking of mud off-site;
• Stockpiles of cleared materials as well as equipment fuelling and maintenance areas will be located away from the ‘Compensation Lands’ and Open Space Blocks;
• Sediment loading to the forebay of the stormwater management pond may be relatively high during construction. There should be annual inspections of the forebay, with clean-outs of the area as required;
• Until rear yards will be sodded or until streets are asphalted and curbed, all catchbasins and manholes will be constructed with a geotextile filter fabric located between the structure frame and cover; and,
• After complete build-out of the subdivision, all sewers will be inspected and cleaned. All sediment and construction fencing should be removed following construction, providing there is no exposed soil or other potential sources of sedimentation.

The effectiveness of the sediment and erosion control measures must be monitored during construction. A qualified general environmental inspector should conduct visits during construction to ensure that the contractor is constructing the project in accordance with the design drawings and mitigation measures are being implemented as specified. The inspector must ensure that construction vehicles and chemicals, fuels and other potentially hazardous materials remain in designated areas. The inspector will document all environmental activities with site inspections, photographs and progress reports, and will issue a final summary report upon completion of the construction.

7.0 SUMMARY

The site is within the Urban Area of the City of Ottawa and designated General Urban Area. The forests north of Richardson Side Road were not part of the Natural Environment Area lands identified in the 2004 Special Study Area investigations and are not identified as an Urban Natural Feature. The closest identified Natural Environment Area lands will be retained within the ‘Compensation Lands’ to the north, with mitigation measures identified in the Environmental Impact Statement to protect the significant ecological features and functions of the wetland and upland habitat within the ‘Compensation Lands’.

As urban residential development continues to the north in Kanata, many of the features and functions of the south portion of the South March Highlands are lost. Urban residential developments adjacent to the site include the Broughton Lands to the south and the Richcraft and KNL lands to the east and northeast.
The draft Plan of Subdivision has been designed to retain several areas of open space blocks that will be retained in their existing natural condition, including escarpments, rock barrens, small wetland areas and forests. The blocks in combination with the Carp River corridor, the ‘Compensation Lands’ and an enhanced corridor along the First Line Road allowance will provide natural linkages suitable for the reduced features and functions of the general area. Through utilization of the existing topography much greater retention of natural features is feasible as part of the development and magnificent views are retained. Over-sized lots are along Richardson Side Road and the First Line Road allowance to permit tree retention at the rear of these lots, providing environmental and screening functions.

No new forest edge will be created and the adjacent natural area to the north will be protected. No aquatic habitat potential outside of the Carp River corridor was identified in or immediately adjacent to the site. All butternuts, an endangered species, proposed for removal have been assessed by a certified Butternut Health Assessor and compensated for through an agreement with the Ministry of Natural Resources.

8.0 REFERENCES


## APPENDIX A
### Richardson Ridge and Uniform Developments Subdivision
### Tree Retention Schedule
### Phase 2

<table>
<thead>
<tr>
<th>Location</th>
<th>Lot or Block</th>
<th>Setback to Save Trees From Rear Property Line</th>
<th>Setback Fencing from Rear Property Line</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>34</td>
<td>3m</td>
<td>4m</td>
<td>Lot is at the end of the Open Space Block</td>
</tr>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>Because of topography it will be difficult to protect trees and can only be determined at time of lot grading</td>
</tr>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>36-37</td>
<td>Trees will be protected at base of hill</td>
<td>0</td>
<td>Lots are at the top of a hill overlooking old trail</td>
</tr>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>38-44</td>
<td>2-3m</td>
<td>3-4m</td>
<td>These lots are backing onto Block 448 that was designed to provide the buffer.</td>
</tr>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>45-52</td>
<td>2-5m</td>
<td>3-6m</td>
<td>These lots are backing onto Block 448 that was designed to provide the buffer. Lot depths vary from 33 m to 41 m which causes the variation.</td>
</tr>
<tr>
<td>Adjacent to Buffer Block 448 and NEA</td>
<td>53-58</td>
<td>3-7m</td>
<td>4-8m</td>
<td>These lots are backing onto Block 448 that was designed to provide the buffer.</td>
</tr>
<tr>
<td>Transition at NE corner - adjacent to Buffers and unopened Road Allowance</td>
<td>59-61</td>
<td>3m to irregular</td>
<td></td>
<td>This is irregular shaped and effort will be made to protect as many trees as possible. The grade raise may impact on this ability.</td>
</tr>
<tr>
<td>Location</td>
<td>Lot or Block</td>
<td>Setback to Save Trees From Rear Property Line</td>
<td>Setback Fencing from Rear Property Line</td>
<td>Comment</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>East Side of Street No 3 adjacent to Open Space and Dedicated 6 metre open space</td>
<td>62-76</td>
<td>1m</td>
<td>2m</td>
<td>The 6 metre open space was designed to provide a natural buffer. The lots are shallower being 33 metres in depth and on addition to the grade raise necessary for servicing there is less opportunity to protect trees at the rear.</td>
</tr>
<tr>
<td>Transition at SE corner - East Side of Escarpment at bottom adjacent to 6metre buffer and unopened Road Allowance</td>
<td>77-79</td>
<td>Varies 3-5 m</td>
<td>4-6m</td>
<td>Because of the depth of the lots there is an ability to protect additional area although the grade raise may impact on this ability.</td>
</tr>
<tr>
<td>North Side of Escarpment at bottom, south side street no 3</td>
<td>80-92</td>
<td>2m</td>
<td>3m</td>
<td>Setback to protect Open Space</td>
</tr>
<tr>
<td>North Side of Escarpment at bottom, south side of Street 3 at intersection with Street No 1.</td>
<td>93-96</td>
<td>0</td>
<td>0</td>
<td>Grade Raise due to Street 1 makes it difficult to save trees on property</td>
</tr>
<tr>
<td>Rock Knob</td>
<td>Lots 106-115</td>
<td>No protection</td>
<td>No protection</td>
<td>This rock knob will be removed together with all trees. Awaiting Approval for removal of Butternuts</td>
</tr>
<tr>
<td>Location</td>
<td>Lot or Block</td>
<td>Setback to Save Trees From Rear Property Line</td>
<td>Setback Fencing from Rear Property Line</td>
<td>Comment</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Rock Outcrop</td>
<td>98-100 123-121</td>
<td>No protection</td>
<td>No protection</td>
<td>This rock out crop will be removed because of grading. Awaiting approval for removal of Butternuts</td>
</tr>
<tr>
<td>Secondary Escarpment Lower</td>
<td>Lots both sides of Street 6 Street 5 northeast side of street 9</td>
<td>No protection</td>
<td>No protection</td>
<td>There are a number of large standalone trees but because of grading and safety considerations these trees cannot be retained.</td>
</tr>
<tr>
<td>Uniform Development Lands</td>
<td>Block 472 Heritage House</td>
<td>Existing healthy trees will be protected where possible</td>
<td></td>
<td>Requirements of Heritage Designation are being followed.</td>
</tr>
<tr>
<td>Remainder of Uniform lands</td>
<td></td>
<td>No retention</td>
<td>No retention</td>
<td>Due to densities and grade raise and rock removal it will not be possible to protect trees.</td>
</tr>
<tr>
<td>Blocks adjacent to opens space Block 477</td>
<td>473-475</td>
<td>0</td>
<td>0</td>
<td>Every effort will be made to protect trees on Block 477 at the lot line to be determined on site.</td>
</tr>
<tr>
<td><strong>General Notes</strong></td>
<td></td>
<td>Every effort will be made to save additional trees where feasible based on grading decisions on site.</td>
<td>Setback is based on a minimum 10x trunk diameter (30cm trees=3m)</td>
<td></td>
</tr>
</tbody>
</table>