McKINLEY ENVIRONMENTAL SOLUTIONS

# Richardson Ridge Phase 4 Development - Tree Conservation Report

January 2016

Prepared for Richardson Ridge Inc.

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# 1.0 INTRODUCTION AND BACKGROUND

This Tree Conservation Report (TCR) has been prepared to support the Detailed Environmental Impact Study (EIS) (in draft) for the proposed Richardson Ridge Phase 4 development (Part of Lot 7, Concession 1, Geographic Township of March). The Richardson Ridge Phase 4 development is located south of the arc of Terry Fox Drive in Kanata (Ottawa), Ontario (the Site) (Figure 1). The Site is bounded on its western side by Terry Fox Drive and on the east by the First Line Road allowance (unbuilt road). The lands east of the First Line Road Allowance are scheduled for development as part of the KNL 7 development (by different owner). The areas north of the Site are also scheduled for future subdivision development (by different owner), and so it is anticipated that the majority of habitats to the east and north will be developed in the future. The lands south of the Site represent a westward extension of the Kizell Wetland Complex (Provincially Significant Wetland) and are scheduled to be retained as part of an urban natural feature owned by the City of Ottawa (Referred to as the NEA lands). The lands further south (south of the NEA lands) are currently being developed by Richardson Ridge Inc. The proposed Richardson Ridge Phase 4 development will include construction of a fully urbanized subdivision development. This will include approximately 211 units including 40 single lots and 171 townhouse units on 9.56 hectares of developable land (Refer to Site Plan). The Site will receive municipal servicing. Further information on the subdivision design is included in the Detailed EIS (in draft).

## 1.1 Definitions

The following terms are used throughout this report:

- Diameter at Breast Height (dbh) means the measurement of the trunk of a tree at a height of 120 cm above grade for trees 15 cm diameter or greater, and at a height of 30 cm above grade for trees less than 15 cm diameter.
- The Critical Root Zone (CRZ) is 10 centimeters from the trunk of the tree for every centimeter of trunk dbh. The CRZ is calculated as dbh x 10 cm.

# 2.0 TREE INVENTORY METHODS

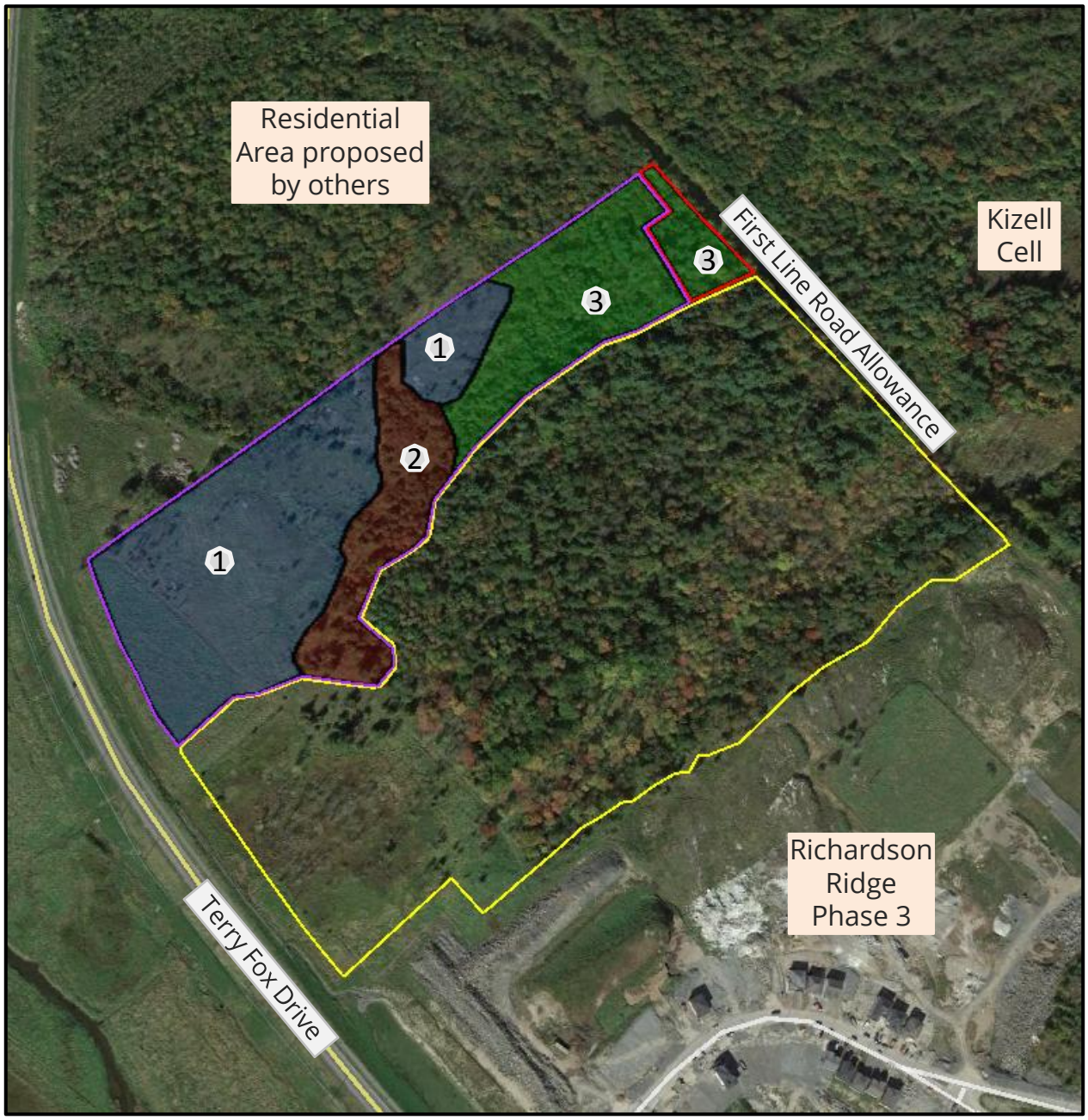
An inventory of trees and vegetation on the Site was conducted by Bernie Muncaster of Muncaster Environmental Planning (MEP) on June 17th, 2014 and July 8th, 2014 (MEP 2014). This tree inventory was updated and size distribution measurements were taken by Dr. Andrew McKinley on December 2nd, 2015. TCR plots were disbursed equally throughout the Site to attain accurate representative tree coverage. Plots were measured 5 m by 10 m to give a total survey area of 50 $m^2$ (for each plot) and were assessed for the presence of tree specimens with 10 cm dbh or greater. Plots were distributed evenly to achieve the desired density of 1 plot per hectare in forested areas. These plots were then scaled up to estimate the density per hectare of each species reaching 10 cm dbh or greater. Trees

within each plot that were 10 cm dbh or greater were measured with the use of a D-tape which is a calibrated diameter at breast height tape. Measurements for each of the qualifying trees within the plot were taken 1.2 m from the ground surface and recorded. The tree inventory results are subdivided into different forest communities according to the results of the Ecological Land Classification (ELC) study and the ELC community type that the tree survey plot occurred within. The ELC community mapping is shown in Figure 1. ELC methods and detailed results are included in the Detailed EIS (in draft).

# FIGURE 1: ECOLOGICAL LAND CLASSIFICATION OVERVIEW

## Richardson Ridge Phase 4 EIS & TCR

January 2016




- Property Boundary
- Retained Tree Cover
- Boundary of NEA lands & Buffer (open space)

1 - Cultural Meadow
2 - Cultural Woodlot
3 - Sugar Maple – Ironwood Deciduous Forest Type – FOD5-4

McKINLEY ENVIRONMENTAL SOLUTIONS

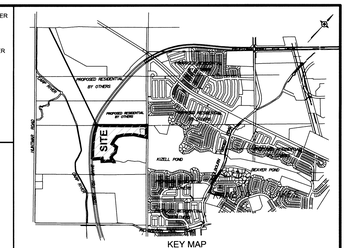
*Please Note: This is not a legal land survey. All dimensions and locations are shown as approximate.*

SUBJECT TO THE CONDITIONS, IF ANY, SET FORTH IN OUR LETTER DATED

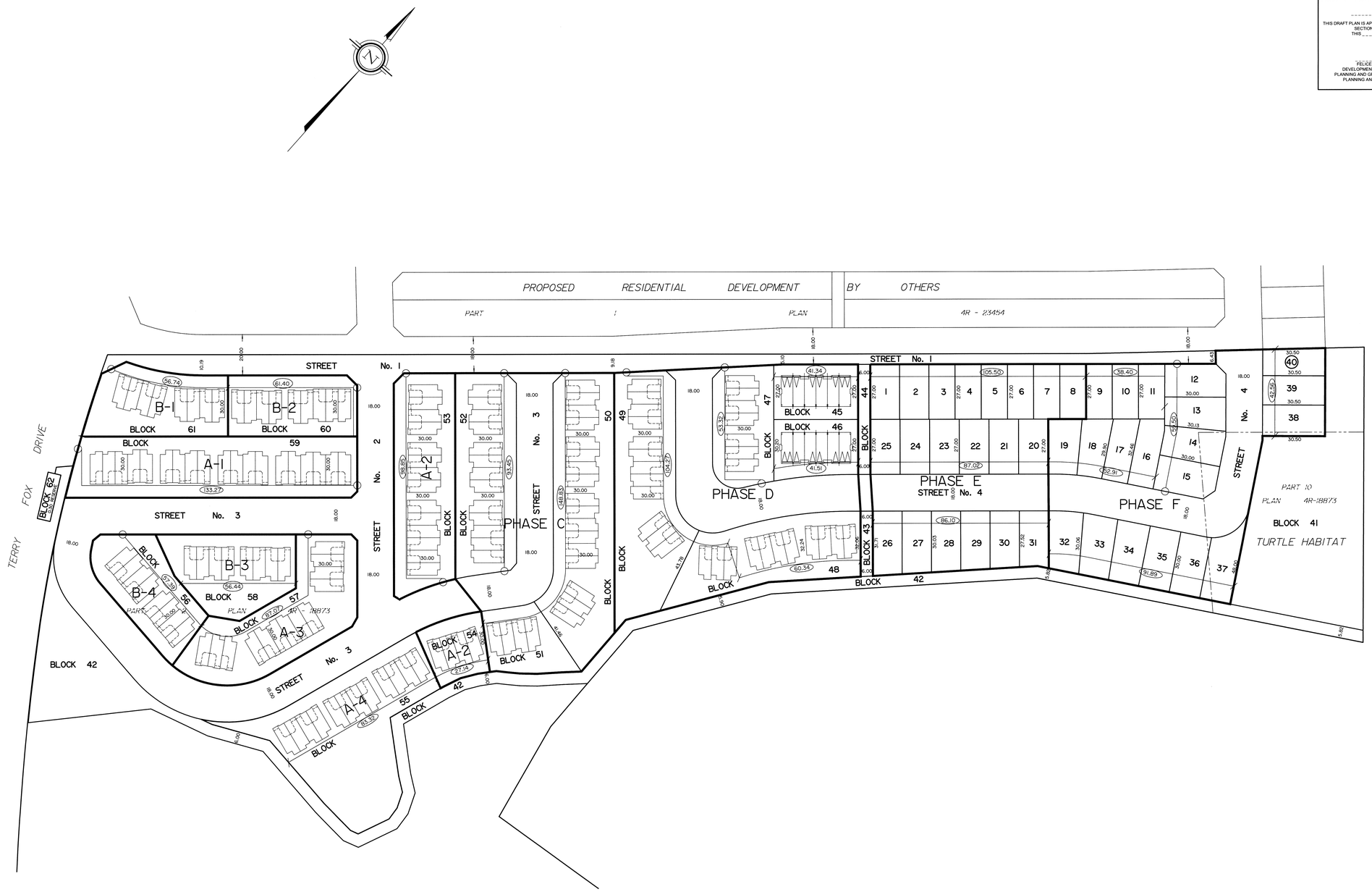
_____

THIS DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER SECTION 51 OF THE PLANNING ACT, THIS ____ DAY OF _____

_____
FELICE PETTI, P. ENG., MANAGER
DEVELOPMENT REVIEW, SUBURBAN SERVICES
PLANNING AND GROWTH MANAGEMENT DEPARTMENT
PLANNING AND INFRASTRUCTURE PORTFOLIO
CITY OF OTTAWA




KEY MAP
NOT TO SCALE




***OPTION B***

*DRAFT PLAN OF SUBDIVISION OF*

# PART OF LOT 7
# CONCESSION 1
## Geographic Township of March
## CITY OF OTTAWA

Prepared by Annis , O'Sullivan , Vollebekk Ltd.
June 4, 2015.
Revised June 11, 2015.
Revised August 21, 2015
Revised November 2, 2015

Scale 1 : 750

30 22.5 15 7.5 0 15 30 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :
The boundaries of the lands to be subdivided and their relationship to adjoining lands have been accurately and correctly shown.

_____ _____
Date Edward M. Lancaster
ONTARIO LAND SURVEYOR

| | FRONTAGES | UNIT COUNT | |
|---|---|---|---|
| | A-1 = 133.27 m. | 19 TH UNITS | 6.10 WIDE |
| | A-2 = 125.99 m. | 18 TH UNITS | |
| | A-3 = 87.07 m. | 13 TH UNITS | |
| | A-4 = 83.32 m. | 12 TH UNITS | |
| TOTAL | 429.65 m. | 62 TH UNITS | |
| | B-1 = 56.74 m. | 8 TH UNITS | 6.10 WIDE |
| | B-2 = 61.40 m. | 9 TH UNITS | |
| | B-3 = 56.44 m. | 8 TH UNITS | |
| | B-4 = 57.39 m. | 8 TH UNITS | |
| TOTAL | 231.97 m. | 33 TH UNITS | |
| | PHASE C = 242.28 m. | 34 TH UNITS | 6.10 WIDE |
| | PHASE D = 300.78 m. | 12 TH UNITS | 5.64 WIDE |
| | | 30 TH UNITS | 6.10 WIDE |
| | PHASE E = 278.62 m. | 20 LOTS | |
| | PHASE F = 285.26 m. | 20 LOTS | |
| | TOTAL = 1768.56 m. | | |

UNIT COUNT

SINGLE LOTS = 40
6.10 WIDE TOWNS = 159
5.64 WIDE TOWNS = 12

TOTAL NUMBER OF UNITS = 211

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT

(a) see plan
(b) see plan
(c) see plan
(d) single family, multi-family residential housing, open space
(e) see plan
(f) see plan
(g) see plan
(h) City of Ottawa
(i) see soils report
(j) see plan
(k) sanitary, storm sewers, municipal water, bell, hydro, cable and gas to be available
(l) see plan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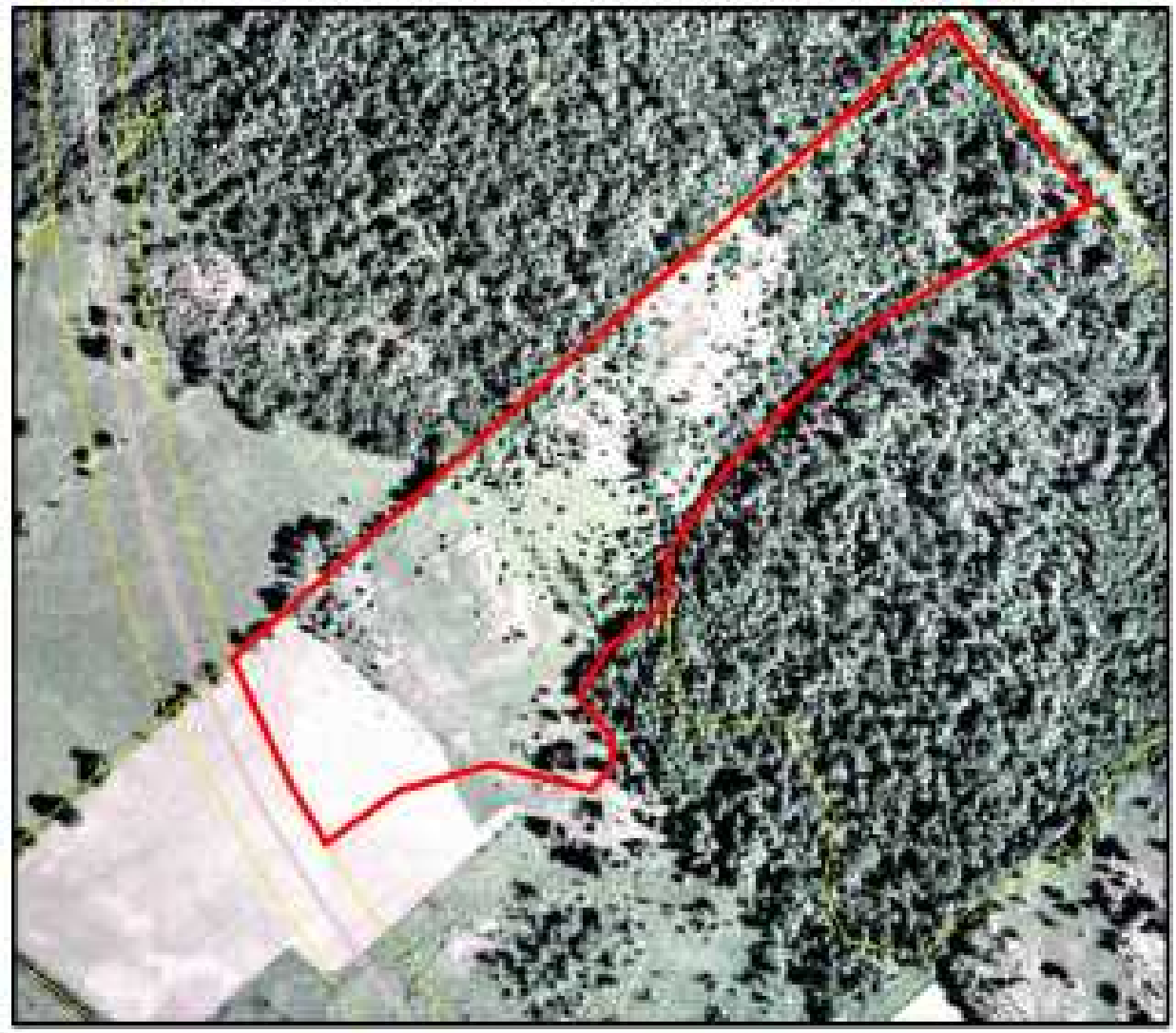
Ontario Land Surveyors

Job No. 14946-14 Regional Pl4 Pl LT 7 Cl MA OPS 08 | 5

# 3.0 TREE INVENTORY

## 3.1 Forest History

As shown in Figure 1, currently approximately 60% of the Site consists of predominantly open areas with sparse tree cover. Most of the Site has been historically cleared for farming within the last 40 years and historic air photos indicate that only the eastern part of the Site and portions of the NEA lands south of the Site have forest older than approximately 40 years (Photographs 1 and 2, below). The western (approximately) half of the Site is occupied by a Cultural Meadow with little tree cover. The central part of the Site includes a recent regrowth Cultural Woodland which began to regenerate following the abandonment of farmland in this area (approximately early 2000s as shown in Photograph 1). The eastern (approximately) third of the Site is occupied by a Dry to Fresh Sugar Maple - Ironwood Deciduous Forest Type (FOD 5-4) of varying age. As shown in Photograph 2, portions of the Sugar Maple – Ironwood Deciduous Forest (the eastern and southern areas) appear to be older than 40 years of age and include large specimens of some species. The western portion of the Sugar Maple – Ironwood Deciduous Forest appears to have been cleared as recently as 1976. This creates variability in the age and tree size within the Sugar Maple – Ironwood Deciduous Forest, such that the eastern and southern portions are larger with older trees.



**Photograph 1**: Historic Air Photo from 2005. Property boundary shown in red. Note area that is currently shown as Cultural Woodland was predominantly cleared in 2005 (Photos from City of Ottawa 2016). Note that property boundaries are shown as approximate; please refer to Site Plan for accurate property boundaries.

**Photograph 2**: Historic Air Photo from 1976. Property boundary shown in red. Note the western portion of the area that is currently shown as Sugar Maple – Ironwood Deciduous Forest and the Cultural Woodland were predominantly cleared in 1976. The portion of the Sugar Maple – Ironwood Deciduous Forest at the eastern side of the Site and the NEA lands to the south were not cleared in 1976 (Photos from City of Ottawa 2016). Note that property boundaries are shown as approximate; please refer to Site Plan for accurate property boundaries.

## 3.2 Forest Composition

Most tree species occurring at the Site are deciduous. A list of species observed is presented in Table A. The Cultural Meadow accounts for approximately 60% of the Site and is occupied by sparse woody vegetation including low growing shrubs and isolated Green Ash, White Pine, and White Elm up to 25

cm dbh. The forest communities are divided according to ELC criteria and the results of the ELC study are noted in greater detail in the Detailed EIS (in draft). The following represents a summary of the ELC forest types:

- **Cultural Woodland:** The Cultural Woodland is predominantly a recent regrowth area which began to substantially regenerate in the early 2000s (Refer to Photograph 1). Green Ash were most common in this ELC community, accounting for approximately 32% of stems. White Pine, American Elm, Bitternut Hickory, and White Spruce are all well represented. Some isolated older White Pine are present up to approximately 30 cm dbh. For all other species most trees were in the 10 to 20 cm dbh size range. Smaller American Basswood and Apple Trees are also present, as well as Butternut Trees (discussed below).
- **Dry to Fresh Sugar Maple – Ironwood Deciduous Forest Type (FOD 5-4):** Sugar Maple are the dominant tree in the Sugar Maple – Ironwood Deciduous Forest with approximately 34% occupancy. Ironwood and White Pine are co-dominant (26% and 16% occupancy). Bitternut Hickory, American Basswood, White Ash, American Beech, White Spruce, and Bur Oak are also represented and each represent <10% of stems. As noted previously, the Sugar Maple – Ironwood Deciduous Forest shows a variation in age, where the western portion is younger and the eastern portion and southern boundary are older and less disturbed. Evidence of selective logging of larger trees was noted, and in general the forest can be characterized as having isolated older specimens interspersed with areas of abundant regenerating stems. Due to this wide variability in tree size and the dominance of smaller stems, the average tree sizes presented below in Table A understate the size of some of the older specimens in the eastern portion of the Site. Isolated Sugar Maple specimens up to 80 cm dbh were noted, though none fell within the random sampling plots. Within the sampling plots there were three (3) White Pine noted in the 80 to 90 cm dbh size range. Overall, the average size of trees is substantially smaller than these large specimens due to the large number of comparatively small stems in the western part of the forest.

## Table A: Inventory of Trees Identified on Site

| Common Name | Scientific Name | Average DBH | DBH Standard Deviation | % Occupancy | Estimated Stems/Ha |
|---|---|---|---|---|---|
| **Cultural Woodland** | | | | | |
| Green Ash | Fraxinus pennsylvanica | 14 | 5 | 32% | 1200 |
| White Pine | Pinus strobus | 25 | 4 | 21% | 800 |
| American Elm | Ulmus americana | 10 | 1 | 16% | 600 |
| Bitternut Hickory | Carya cordiformis | 13 | 3 | 16% | 600 |
| White Spruce | Picea glauca | 16 | 6 | 16% | 600 |
| **Dry to Fresh Sugar Maple - Ironwood Deciduous Forest Type (FOD 5-4)** | | | | | |
| Sugar Maple | Acer saccharum | 15 | 6 | 34% | 1040 |
| Ironwood | Ostrya virginiana | 15 | 4 | 26% | 800 |
| White Pine | Pinus strobus | 35 | 31 | 16% | 480 |
| Bitternut Hickory | Carya cordiformis | 17 | 6 | 8% | 240 |
| American Basswood | Tilia americana | 15 | 5 | 5% | 160 |
| White Ash | Fraxinus americana | 31 | 25 | 5% | 160 |
| American Beech | Fagus grandifolia | 10 | 1 | 3% | 80 |
| White Spruce | Picea glauca | 35 | 1 | 3% | 240 |
| Bur Oak | Quercus macrocarpa | 10 | N/A | 1% | 40 |

N/A Values in the DBH Standard Deviation are due to only one tree of that species being observed within the sample plot.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**Photograph 3:** Cultural Meadow, note sparse tree cover (looking east from Terry Fox Drive) (December 2, 2015).

**Photograph 4:** Cultural Woodland, note generally young recent regrowth (December 2, 2015).

**Photograph 5:** Western portion of Sugar Maple – Ironwood Deciduous Forest. Note predominantly young recent regrowth (December 2, 2015).

**Photograph 6:** Southern portion of Sugar Maple – Ironwood Deciduous Forest. Note older White Pine surrounded by younger stems (December 2, 2015).

**Photograph 7:** Eastern portion of Sugar Maple – Ironwood Deciduous Forest (December 2, 2015).

## 3.3 Species at Risk

Two Species at Risk (SAR) are known to occur within the Site. SAR are discussed in greater detail in the Detailed EIS (in draft). The following is a summary of the SAR present:

- **Butternut Trees (Endangered):** A Butternut Health Assessment (BHA) report has been completed for the Site (Bowfin Environmental Consulting 2014). The BHA documented 62 Butternuts within the Site. This included 53 non-retainable trees (Category 1), 4 retainable trees (Category 2), and 5 potentially archiveable trees (Category 3). All Butternut Trees will be removed as part of the proposed development. An application for an Overall Benefit Permit under clause 17(2)(c) of the Endangered Species Act (ESA) has been submitted to the Ontario Ministry of Natural Resources and Forestry (OMNRF) to allow for removal of Butternut Trees.
- **Blanding's Turtles (Threatened):** Category 2 and 3 Blanding's Turtle habitat is present within the Site. This includes three (3) vernal pools within the eastern portion of the Site which are Category 2 habitat for Blanding's Turtle. One (1) of these pools will be retained as part of the proposed Block 41 (discussed below). The majority of the remainder of the Site is Category 3 Blanding's Turtle habitat. Impacts to Blanding's Turtle and their habitat are discussed in greater detail in the Detailed EIS (in draft). The application for an Overall Benefit Permit under clause 17(2)(c) of the Endangered Species Act (ESA) includes permitting for Blanding's Turtle.

## 4.0 TREE PRESERVATION

The major open space commitment as part of the Richardson Ridge developments is the conveyance of the NEA lands to the City of Ottawa in order to protect the western extension of the Kizell Provincially Significant Wetland and surrounding vegetation (Figure 1). As shown in Figure 1, a large block of land is designated as open space between Richardson Ridge Phase 3 and 4. This block of land includes the western extension of the Kizell Provincially Significant Wetland as well as a 30 m vegetated setback from the wetland edge. The wetland edge and the 30 m setback from this edge were determined and mapped in consultation with Nick Stow of the City of Ottawa and the OMNRF in 2011. The eastern portion of the NEA lands is currently owned by the City. Following registration of the development, the block of land between Terry Fox Drive and the City-owned NEA lands (Block 453) will be conveyed to the City. This will effectively create a corridor of protected habitat from Goulbourn Forced Road west to Terry Fox Drive. The preservation of Block 453 and the remainder of the NEA lands ensures protection of the highest quality forest in the area. Within the Richardson Ridge Phase 4 subdivision boundary, Block 41 will also be preserved at the eastern edge of the development. Block 41 was designated as open space in consultation with the OMNRF in order to protect the most important vernal pool that serves as Blanding's Turtle habitat. Block 41 also connects to the adjacent NEA lands and effectively increases the size of the NEA conservation lands. As noted above, the eastern and southern portions of the Sugar Maple – Ironwood Deciduous Forest have the oldest trees compared to the western portion of the forest. The preservation of Block 41 and the 30 m buffer from the wetland boundary (which is part of the NEA lands) therefore protects the oldest trees in the vicinity and ensures that the most significant and least disturbed portion of this forest community is preserved.

## 5.0 VEGETATION REMOVAL

As shown in the phasing plan (below), tree removal will be undertaken in four (4) separate phases. These will include the following:

- **Phase 1:** Phase 1 will include selective tree removal in the western part of the Site in order to facilitate stockpiling of material from the nearby construction Site in Richardson Ridge Phase 3. This will primarily occur within the Cultural Meadow where tree and shrub cover is sparse. The use of this area for stockpiling of materials prior to the obtainment of the Overall Benefit Permit has previously been approved by OMNRF (Lisa McShane, OMNRF Management Biologist, electronic communication, October 29th, 2015). Clearing and stockpiling will be undertaken between January 31st and April 15th, 2016.
- **Phase 2:** Phase 2 will include clearing of the road network within the proposed subdivision. This will be undertaken to provide access for equipment for surveying, geotechnical and hydrological studies. Phase 2 will be undertaken following obtainment of the Overall Benefit

Permit, which will allow for the removal of Butternut Trees and impacts to designated Blanding's Turtle habitat features. This will occur between October 31st, 2016 and April 15th, 2017.

- **Phase 3:** Phase 3 will include clearing of the remainder of the development area, with the exception of a 6 m wide buffer of retained trees at the back of lots along the southern and eastern property boundaries (adjacent to Block 41 and the NEA lands). Phase 3 timing will be dependent on the progression of approvals and design work, but will be undertaken between the dates of October 31st and April 15th in any given year.
- **Phase 4**: Phase 4 will include selective tree removal within the retained 6 m buffer at the back of lots. Trees within this 6 m buffer will be removed selectively once final grading and excavation requirements have been determined. Trees will be retained within the 6 m buffer at the back of lots where feasible.

APPROVED UNDER SECTION 51 OF THE PLANNING ACT
BY THE CITY OF OTTAWA

THIS _____ DAY OF _____

MICHAEL MIZZI, MCIP RPP, ACTING GENERAL MANAGER
PLANNING AND GROWTH MANAGEMENT DEPARTMENT
PLANNING AND INFRASTRUCTURE PORTFOLIO
CITY OF OTTAWA

Part of PIN 03902-0500 : All of Lots .....

# PLAN 4M-

I CERTIFY THAT THIS PLAN
IS REGISTERED IN THE LAND REGISTRY OFFICE
FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON NO. 4
AT _____ O'CLOCK ON THE _____ DAY OF _____
AND ENTERED IN THE PARCEL REGISTER FOR
PROPERTY IDENTIFIERS _____

AND THE REQUIRED CONSENTS ARE REGISTERED AS
PLAN DOCUMENT NO. _____

_____
LAND REGISTRAR

This plan comprises all of the land identified by PIN

PART OF LOTS - BLOCKS SUBJECT ARE TO EASEMENT INST. XXX

*PLAN OF SUBDIVISION OF*

PART OF LOT
CONCESSION
Geographic Township of
CITY OF OTTAWA

Surveyed by Annis , O'Sullivan , Vollebekk Ltd.

Scale 1 : 1000

0 10 20 30 40 50 60 Metres

Metric
DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The Survey was completed on the ___ day of _____ 2015.

_____ Date

_____
E.H. Harwayer
Ontario Land Surveyor

OWNER'S CERTIFICATE
THIS IS TO CERTIFY THAT:

1. Lots X, both inclusive, Blocks X, both inclusive, and the Streets namely X, the Street Widenings namely Blocks X and the Reserves namely Blocks X have been laid out in accordance with our instructions.
2. The Streets and Street Widenings are dedicated as public highways.

Dated the _____ day
of _____ 2015

_____
XXX, President
XXXXXX
I have authority to bind the corporation.

NOTES AND LEGEND

| | | |
|---|---|---|
| denotes | | Survey Monument Planted |
| denotes | | Survey Monument Found |
| SIB | - | Standard Iron Bar. |
| SSIB | - | Short Standard Iron Bar. |
| CC | - | Cut Cross. |
| IB | - | Iron Bar. |
| CLF | - | Chain Link Fence |
| BF | - | Board Fence |
| (AOG) | - | Annis, O'Sullivan, Vollebekk Ltd. |
| (P1) | - | Plan |
| (P2) | - | Plan |

All planted survey monuments are IB's unless otherwise noted.
Distances shown on curved limits are Arc distances unless otherwise noted.

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.9999xx.

Bearings are grid, derived from Can-Net 3.0 Real Time Network GPS observations on reference points A and B, shown hereon, having a bearing of Nx°xx'xx"W and are referenced to Specified Control Points 01919791338 and 01919871649, MTM Zone 9 ( 76°30' West Longitude ) NAD-83 (original).

For comparison purposes, bearings shown on Plans P1 ... are astronomic bearings.

(12) For bearing comparisons, a rotation of 0°00'00" counter-clockwise was applied to bearings on plan

Coordinates are derived from Can-Net 3.0 Real Time Network GPS observations referenced to Specified Control Points 01919791338 and 01919871649, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

Coordinate values are to urban accuracy in accordance with O. Reg. 216/10

| | | | | |
|---|---|---|---|---|
| . 01919791338 | Northing | 5006055.96 | Easting | 346140.91 |
| . 01919871649 | Northing | 5007189.87 | Easting | 372435.05 |
| . Point A | Northing | | Easting | |
| . Point B | Northing | | Easting | |

Caution: Coordinates cannot, in themselves, be used to re-establish corners or boundaries shown on this plan.

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Email: lawyers@aovltd.com

STREET No. 1
STREET No. 2
STREET No. 3
STREET No. 4
BLOCK 41
BLOCK 42
BLOCK 43
BLOCK 44
BLOCK 45
BLOCK 46
BLOCK 47
BLOCK 48
BLOCK 49
BLOCK 50
BLOCK 51
BLOCK 52
BLOCK 53
BLOCK 54
BLOCK 55
BLOCK 56
BLOCK 57
BLOCK 58
BLOCK 59
BLOCK 60
BLOCK 61
BLOCK 62
BLOCK 63
BLOCK 64
BLOCK 200
BLOCK 205
BLOCK 241

*PLAN TO ILLUSTRATE*
TREE REMOVAL PHASES ON
PHASE 4
RICHARDSON RIDGE
CITY OF OTTAWA
Prepared by Annis , O'Sullivan , Vollebekk Ltd.
January 26, 2016

## Legend

- Phase 1 of Tree Removal
- Phase 2 of Tree Removal
- Phase 3 of Tree Removal
- Phase 4 of Tree Removal

# 6.0 WILDLIFE AND SPECIES AT RISK MITIGATION

Mitigation for Species at Risk (SAR) and wildlife during tree clearing are summarized here and discussed in greater detail in the Detailed EIS report (in draft). These requirements conform to the guidance outlined in the City of Ottawa (2015) *Protocol for Wildlife Protection During Construction*.

The following mitigation is required during Phase 1 to avoid potential impacts to Butternut Trees, Blanding's Turtle, and their habitat prior to obtainment of the Overall Benefit Permit:

- In order to avoid habitat of Butternut Trees, a 25 m buffer will be marked around Category 2 and 3 trees. This area will be avoided during any tree clearing;
- A 30 m buffer around the vernal pools must also be marked and avoided to protect Category 1 and 2 Blanding's Turtle habitat; and
- Any work required within the 25 m buffer around Butternut Trees or the 30 m buffer around Category 1 and 2 Blanding's Turtle habitat must be completed without tree removal. This may necessitate the use of hand sampling tools.

Please note that the Phase 1 area shown in the phasing plan (above) does not overlap the Blanding's Turtle and Butternut habitat buffers. These buffers are temporary and will not be required for Phase 2, 3 or 4 of tree removal, following obtainment of the Overall Benefit Permit.

The following mitigation is required during all phases of tree clearing to avoid impacts to Blanding's Turtle and other wildlife. These recommendations include provisions from the City of Ottawa (2015) *Protocol for Wildlife Protection During Construction*:

- **Pre-Stressing:** Prior to tree removal the area should be pre-stressed by traversing the area with a loud noise such as an excavator horn. This will encourage wildlife to leave the area;
- **Tree Clearing Direction:** Tree clearing should proceed from west to east. This will encourage wildlife to leave the work area and move in the direction of the retained habitats of the NEA lands. During tree clearing a path of retained habitat connecting to the NEA lands must be maintained at all times in order to provide wildlife with a corridor to escape the work area;
- **Temporary Fencing:** Silt fencing will be arranged to also function as temporary wildlife exclusion fencing to reduce the likelihood of turtles, frogs, mammals and other wildlife from entering the work area. Temporary fencing will be utilized until completion of permanent exclusion barriers. Silt fencing should be put in place prior to the turtle active season (April to end of October). The arrangement of the fencing will follow the fencing design shown in the Overall Benefit Permit for Blanding's Turtle;
- **Inspections:** The fencing and work area will be inspected by a qualified biologist prior to commencement of work to ensure that the arrangement will reduce the likelihood of wildlife

entering the work area. Any wildlife or significant wildlife habitat features that are encountered will be identified and marked;

- **Sweeps:** Prior to vegetation clearing, preconstruction sweeps of vegetated areas will be undertaken to ensure wildlife are not present. Construction staff will be briefed on wildlife and SAR mitigation (see below) and a designated staff member will be required to conduct daily sweeps each morning prior to commencement of work to ensure wildlife have not entered the work area. The designated staff member will also periodically inspect the temporary exclusion fencing to ensure no gaps or holes in the fence exist;
- **Permanent Fencing:** Permanent turtle exclusion fencing and other turtle movement barriers are required as part of the Overall Benefit Permit for Blanding's Turtle. These measures are discussed in greater detail in the Detailed EIS;
- **Staff Briefing:** Tree clearing staff will be provided with briefing materials summarizing mitigation requirements. This briefing will identify the potential presence of SAR, it will provide instructions on the necessary mitigation measures, it will include photographs to identify SAR, and instructions on what to do if an SAR or other wildlife is encountered. Contact details for the OMNRF, the project biologist, and other wildlife officials will be included;
- **General Provisions:** General provisions for Site management will be included in the briefing. These include:
    - Do not harm, feed, or unnecessarily harass wildlife;
    - Drive slowly and avoid hitting wildlife;
    - Keep Site tidy and free of garbage and food wastes. Secure all garbage in appropriate sealed containers;
    - Ensure proper Site drainage so that standing water does not accumulate on Site. This will reduce the likelihood that turtles and other wildlife may enter the Site;
    - Any stockpiles should be properly secured with silt fencing to prevent wildlife from accessing areas of loose fill; and
- **Timing Windows:** Vegetation clearing and site preparation will be undertaken outside of the active season of Blanding's Turtle (outside of mid-April to end of October) in order to minimize the likelihood of encountering turtles moving around the landscape. This also avoids the core migratory bird breeding season of April 15th to August 15th each year.

## 7.0 TREE MITIGATION

In order to protect trees in adjacent forest areas occurring south and east of the development (e.g. Block 41 and the NEA lands) during the various phases of construction, the following mitigation measures will be implemented where trees occur close to construction activities:

- Soil compaction, vegetation damage, intrusion of construction equipment and other potential impacts on the core of the root system of trees adjacent to the edge of the Site will be avoided by restricting grading and other site alteration activities to the Site. This will be achieved by providing construction fencing or suitable boundary definition to clearly mark the boundaries between the edge of the Site and adjacent properties (where required) during each phase of tree clearing and construction; and
- If offsite vegetation damage occurs, an arborist should review any damage to determine the best course of action to restore the original vegetative functions.

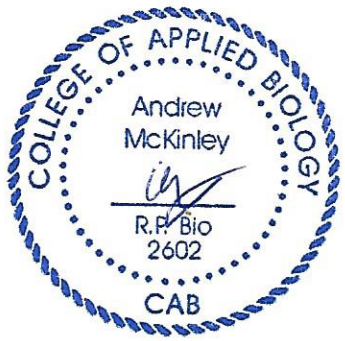
Tree mitigation measures have been proposed to help protect and preserve trees around the proposed development. Trees to be retained adjacent to the tree clearing area should be protected by the following tree preservation measures:

- Mark the edge of the tree clearing area to ensure only designated trees are removed. Protect the critical root zone (CRZ) of retained trees, where the CRZ is established as being 10 cm from the trunk of a tree for every centimeter of trunk dbh. The CRZ is calculated as dbh x 10 cm;
- When trees to be removed overlap with the CRZ of trees to be retained, cut roots at the edge of the CRZ and grind down stumps after tree removal. Do not pull out stumps. Ensure there is not root pulling or disturbance of the ground within the CRZ;
- If roots must be cut, roots 20 mm or larger should be cut at right angles with clean, sharp horticultural tools without tearing, crushing, or pulling;
- Hand work only where required within the CRZ, absolutely no machinery permitted;
- Do not place any material or equipment within the CRZ of any tree;
- Do not attach any signs, notices, or posters to any tree;
- Do not disturb, raise or lower the existing grade within the CRZ without approval;
- Only tunnel or bore when digging within the CRZ of a tree;
- Do not damage the root system, trunk, or branches of any tree; and
- Ensure that exhaust fumes from all equipment are directed away from any tree canopy.

## 8.0 CLOSURE

We trust that the above information is sufficient; should you have any questions or require further information, please do not hesitate to contact the undersigned, at your convenience.

Sincerely,

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# 9.0 REFERENCES

Bowfin Environmental Consulting (2014a) Blanding's Turtle Survey Results – Spring 2014 for Bernie Muncaster.

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