



Muncaster
Environmental
Planning Inc.

October 9, 2021

Mr. Pierre Dufresne
Vice-President, Land Development
Tartan Homes Corporation
359 Kent, Suite 303
Ottawa, ON
K2P 0R6

Dear Mr. Dufresne:

RE: 232 Donald B. Munro Drive, Carp
Environmental Impact Statement and Tree Conservation Report

This Environmental Impact Statement (EIS) and Tree Conservation Report (TCR) assesses a proposed residential development in the southeast portion of the Village of Carp. The site is on the north side of Donald B. Munro Drive, approximately 700 metres west of March Road. The approximately 25.4 hectare site was historically dominated by agricultural fields in the south and deciduous forests on bedrock outcrops in the north part. A north-south channel bisects the former agricultural fields.

In this report the site is divided into two overall components; the lands proposed for development in the south and to the north of the recommended zoning line, the Natural Environment Area lands.

Project direction is a challenge for this site. For the purposes of this report Donald B. Munro Drive is considered to be in an east-west orientation, with the Carp Hills to the north and the Carp River corridor to the south.

Methodology

This EIS and TCR was prepared in accordance with Section 4.7.8 of the City of Ottawa Official Plan following the EIS and TCR guidelines for the City of Ottawa, with guidance from the Natural Heritage Reference Manual (OMNR, 2010). The field surveys, except for butternut, and this report were completed by Bernie Muncaster, who has a Master's of Science in Biology and over thirty-three years of experience completing natural environment assessments. Michelle Muncaster assisted with some of the field surveys. In addition, Shaun St. Pierre of BCH Consulting Inc. completed butternut health assessments on and adjacent to the site on June 23rd, 2021. The purpose of the Tree Conservation Report component is to determine any tree stands that should be retained and protected and the associated protection measures. It is proposed to remove trees not identified for retention in 2022, outside of the breeding bird period. The owner

of the site is the Estate of Douglas Gordon Rivington but the applicant is Tartan Homes Corporation.

The EIS will provide the methodology to mitigate as required negative impacts on significant natural heritage features and functions. Potential Species at Risk in the general area were identified from Ministry of Natural Resources and Forestry databases, the Ontario Breeding Bird Atlas, the Ontario Reptile and Amphibian Atlas, Species at Risk reported for the overall City of Ottawa, and our work on several projects in this portion of Ottawa.

Initial field surveys of the site and adjacent lands was completed outside of the growing season on November 1st and 6th, 2006. Field surveys were completed in 2020 and 2021 by Bernie Muncaster except where noted:

Date	Time (h)	Air Temp. °C	Weather	Main Purpose
12/11/20	11:15 – 12:45	8	light air, partly cloudy	vegetation, fall wildlife
18/12/20	08:55 – 12:45	-6	light breeze, sunny	initial review of NEA line with City staff
13/05/21	11:15 – 12:45	17	light breeze, sunny	vegetation, turtles
20/05/21	11:35 – 13:15	21	light air, sunny	vegetation, turtles
22/05/21	20:40 – 21:20	15	light breeze, clear, 98 % moon exposure	whip-poor-will, evening birds & other wildlife
28/05/21	09:30 – 12:30	9	light air, sunny	determine NEA line with City staff, turtles, vegetation
30/05/18	04:30 – 04:50	10	light air, clear, 55 % moon exposure	whip-poor-will
08/06/21	10:05 – 11:15	28	light air, partly cloudy	turtles and other wildlife
15/06/21	11:50 – 13:40	19	light breeze, sunny	breeding birds, turtles, vegetation
23/06/21	08:10 – 13:50	22	light breeze, sunny	butternut assessment (BCH Consulting Inc.)
23/06/21	22:50 - 23:10	17	light breeze, clear, 98 % moon exposure	whip-poor-will
30/06/21	09:10 – 11:30	25	light breeze, partly sunny	breeding birds, other wildlife, vegetation
16/09/21	11:45 – 13:30	21	light breeze, sunny	vegetation, wildlife

In addition, an evaluation of the north-south channel was completed in the spring and summer of 2021 by Bowfin Environmental Consulting as per the Evaluation, Classification and Management of Headwater Drainage Features Guidelines created by Credit Valley Conservation and Toronto Region Conservation (updated January 2014). This evaluation included completion

of fish sampling in the spring and summer, fish habitat descriptions, flow observations in the early spring, spring, and summer, and amphibian surveys in April, May, and June. The main findings of the headwater feature assessment are presented in this report.

The targeted Species at Risk surveys for turtles and eastern whip-poor-will followed the Ministry of the Environment, Conservation and Parks (MECP) sampling protocol including timing the surveys at least one week apart and completing the surveys under good weather conditions with minimal wind, no precipitation, at least 50% moon exposure (for eastern whip-poor-will), and at or above minimum air temperatures. The breeding bird surveys met the following requirements:

- completed between May 24th and July 10th, and completed a minimum of 15 days apart;
- completed by mid-day in response to decreasing calling;
- conducted on days with no rain, little to no wind and good visibility;
- consisted of 5-min point observations located 300 metres apart (if habitat is complex additional points within 100 metres can be added)
- while walking between points, any additional observations were recorded; and
- birds were identified by sound and/or sight.

Due to the disturbed nature of the meadow habitat a point observation was completed only in the forest community (Map 1), though bird observations were made in the meadow and forest habitats during each daytime survey.

Environmental Features

The general area is a mixture of the highly rated Carp Hills Natural Area in the north portion of the site and continuing to the north, northeast and southeast (see Figure 5), residential developments to the south and west as part of the Village of Carp, and the Carp River corridor further to the south, about 500 metres to the south of the site. The south portion of the site is within the Village and is zoned Development Reserve (*DR3*) and the north portion is designated Natural Environment Area and is zoned Environmental Protection (*EP3*). As discussed below, the alignment of the zoning line between DR and EP was reviewed in detail with City staff on May 28th, with flagging tape and stakes marking the recommended line picked-up by surveyors. The Carp Hills Natural Area in the north portion of the site and further to the north is also part of the City's Natural Heritage System, as shown on the Schedule L3 and contains the closest Provincially Significant Wetlands and Area of Natural and Scientific Interest. As shown on Schedule K of the Official Plan, the site is within a Wellhead Protection Area with a vulnerability score of 4 and 6. The closest portion of the Carp Hills Provincially Significant Wetland is to the northeast of the site, approximately 400 metres to the northeast of the recommended EP zoning line. Unevaluated wetlands are in the northeast portion of the site about 140 metres north of the recommended EP zoning line (see Figure 7). No wetland communities were observed on the portion of the site proposed for development or within 120 metres.

A tributary of the Carp River is in the central portion of the site (Photos 1 and 2). The channel originates with discharge from the base of the bedrock outcrops about 190 metres north of Donald B. Munro Drive and flows south. In association with development to the south of the site, south of Donald B. Munro Drive, flow in the on-site channel now enters a storm grate on the north side of Donald B. Munro Drive in the southwest corner of the site (Photo 3) and is entombed until just north of a railway corridor, about 170 metres south of Donald B. Munro Drive.

No areas of rare vegetation, wetlands, woodlands greater than 50 years of age, or forest interior habitat were identified on the portion of the site identified for development, with a small area of rare vegetation shown in the north portion of the overall site in the Carp River Watershed/Subwatershed Study (CRWSS) (Robinson, 2004). The north portion of the site is also shown as a 'Centre of Ecological Significance' and as woodlands greater than 50 years of age by Robinson (2004). There are no areas of high or moderate recharge identified on the site, with a high recharge area shown to the south of Donald B. Munro Drive. The on-site Carp River tributary was considered 'disturbed/alerted' in the CRWSS and fish community types were not identified for the channel. The streamside environment was also considered degraded except for the very north portion of the channel.

Carp Hills Natural Area

The large (4,752 hectare) Carp Hills Natural Area was considered to have a high overall significance in the evaluation summary performed as part of the Natural Environment System Strategy (Brunton, 1997). The overall high significance rating was due to a high evaluation of several criteria. The Natural Area was considered to have high significance for: seasonal wildlife concentrations, the condition of the natural area, hydrological features, rare vegetation community/landform types, endangered, threatened and rare species, and vegetation community/landform species diversity, and low significance for common vegetation community/landform type representation. The Carp Ridge represents an inter-regional linkage.

The Natural Area is described by Brunton (1997) as a relatively homogeneous landscape of dry, upland deciduous and mixed forests on thinly-mantled Precambrian outcrops along the Carp Ridge. Numerous small, irregularly shaped shallow wetland areas are scattered across the Natural Area, supporting open water, marsh, thicket swamp and swamp forest habitat (Brunton, 1997). The degree of human disturbance for the Natural Area was considered low by Brunton (1997) with low site fragmentation and low impact of alien species.

Proposed Residential Development

The Applicant is proposing 57 detached residential units, 54 townhome units and six semi-detached units for the site, for a total of 117 residential units (the draft Plan of Subdivision is reproduced as Figure 4 at the end of this report). A ten metre wide pathway block is proposed for the west edge of the site and continuing north on the north side of the new road to access the Carp Hills. This will tie into the pathway system south of Donald B. Munro Drive and the pathway network to the north developed and maintained by the Friends of the Carp Hills. Access for the site from the north side of Donald B. Munro Drive will occur at the existing

intersections of Meadowridge Circle and Farmridge Avenue with Donald B. Munro Drive. The site will be on full municipal services. Stormwater runoff from the proposed development will be collected and conveyed via an on-site storm sewer system (minor system) to a 1050 mm diameter storm sewer at Donald B. Munro Drive. The storm sewer extends through the residential development to the south. The infrastructure to the south was designed to account for runoff from the current site. An oil and grit separator provides water quality treatment before the flow enters the Carp River (IBI, 2021). The storm sewer will also collect flows from the Natural Environment Area lands north of the lands proposed for development, though as part of the detailed design IBI (2021) note that a drainage swale will be considered. During less frequent storm events, the balance of the flow (in excess of the minor flow) is accommodated by a system of rear yard swales and street segments, called the major system (IBI, 2021). Opportunities for on-site storage in road sags across the subject site are limited due to the grades. Inlet control devices will be utilized across the site to control the surcharge in the minor system during infrequent storm events and maximize use of available on-site storage.

Existing Conditions

The site slopes to the south, with the upslope increasing approaching and within the forested portion of the land proposed for development. The topsoil of the meadow habitat has been stripped with random piles of fill were present in the meadow habitat. The height of these fill piles ranged between one and three metres. Paterson (2021) noted according to historical aerial photography, the fill piles were imported to the site between 2009 and 2010 and again in 2017. The fill material consists of dark brown silty clay to silty sand with crushed stone and gravel and traces of roots overlying very stiff to stiff brown silty clay and/or glacial till. Stiff to firm grey silty clay was encountered below the very stiff to stiff brown silty clay layer (Paterson, 2021). In the forests to the north, the soils are mapped as well drained sandy soils of limited depth over the Precambrian bedrock (Schut and Wilson, 1987). Based on available geological mapping, the Precambrian bedrock consists of intrusive rocks of the Syenite and Monzonite formation, with an overburden drift thickness of three to 25 metres in the meadow portions of the site (Paterson, 2021). Based on groundwater readings by Paterson (2021), the groundwater levels recorded ranged from 0.8 to 4.4 metres below existing ground surface.

North-South Central Channel

In 2006, cattle hoof prints were observed through the channel. Canopy cover is very good in the north part of the channel, provided by the deciduous hedgerow and deciduous forest described below (Photo 1). Discharge from the base of the bedrock provides inputs to the channel which contained a modest amount of flow during the site visits, except in September when the channel was dry with no signs of recent flow (Photo 2). Typical water depths were less than 10cm, with wetted widths up to 40cm. No fish were observed or netted during sampling by Bowfin Environmental Consulting in 2021 and no amphibians were heard or seen in association with the channel. There is no connection to potential downstream habitat as the channel enters a storm grate on the north side of Donald B. Munro Drive (Photo 3). This, in combination with the limited water volume and steeper gradient, eliminates the potential for the channel to provide direct fish habitat on the site.

Cultural Meadow

In the south and central portions of the lands proposed for development the vegetation is dominated by cultural meadows on former agricultural lands (Photos 4 and 5). Topsoil has been removed from the meadow habitat and stockpiles of sand and other material were common on the site in 2021. In 2006 the open lands were used for cattle pasture and the fields were ploughed in 2007. The cultural meadow vegetation is dominated by non-native ground flora including June meadow grass, bluegrass, common strawberry, common dandelion, red clover, white-sweet clover, alsike clover, evening primrose, common tansy, bull thistle, blueweed, garlic mustard, tufted vetch, ox-eye daisy, common yarrow, horseweed, lesser stitchwort, curled dock, chicory, lamb's quarter, daisy fleabane, silvery cinquefoil, St. John's wort, tall cinquefoil, deptford pink, thicket creeper, bird's-foot tick trefoil, common ragweed, Canada goldenrod, early goldenrod, small white aster, common mullein, field mustard, and wormseed mustard. Red raspberry, hawthorn, staghorn sumac, blackberry, and common juniper shrubs are also present.

An area of reed canary grass is along the channel as it runs parallel to Donald B. Munro Drive and east of the storm grate collecting the channel flow. Upland species are common among the reed canary grass including ox-eye daisy, field horsetail, common ragweed, daisy fleabane, red clover, chicory, tufted vetch, and curled dock. Soft-stem bulrush and willow-herb are also in this area.

Deciduous Hedgerow

A deciduous hedgerow is in the central portion of the site along the north portion of the north-south channel. Mature bur oak (100cm diameter at breast height (dbh)) and sugar maple up to 80cm dbh are along the top of slope, with smaller white elm, trembling aspen, and white birch up to 25cm dbh also present (Photo 9). The trees appeared to be in generally good condition with good leaf-out and minimal structural impacts. Staghorn sumac and nannyberry shrubs are common among the hedgerow trees, with hawthorn, chokecherry, tartarian honeysuckle, and red raspberry also observed. Regenerating stems in the hedgerow include bur oak, ash, white elm, Manitoba maple, and white spruce.

Deciduous hedgerows are also along the north side of Donald B. Munro Drive in the south-central portion of the site and along the west property line north of Donald B. Munro Drive (Photo 10). These hedgerows are dominated by Manitoba maples up to 35cm dbh, with white elm, trembling aspen, and sugar maple also present. Apple, hawthorn, pin cherry, ninebark, Bebb's willow, red-osier dogwood, gray dogwood, and crabapple shrubs and regenerating Manitoba maple, white elm, and poplar stems are also in the hedgerows along the property edges. The ground flora along the deciduous hedgerows is reflective of disturbed conditions including Canada goldenrod, reed canary grass, June meadow grass, evening primrose, common milkweed, common mullein, common strawberry, common dandelion, wild carrot, garlic mustard, and poison ivy, with blue violet and yellow violet also noted.

Upland Sugar Maple Deciduous Forest

In addition to the dominant sugar maple, ironwood is very common and bur oak, red maple, American beech, and red oak are well represented in the upland deciduous forests in the north portion of the development portion of the site, with white pine, eastern hemlock, green ash, white ash, white elm, butternut, white birch, yellow birch, and basswood also present (Photos 6 and 8). The south part of forest proposed for development has been logged and scattered larger trees are sugar maple, red oak, and bur oak in the 50cm – 60cm dbh range. Other than the ash impacted by emerald ash borer, the trees appear to be in generally good condition. Windthrow is common in some areas (Photo 7). Several areas of open tree canopy contained common juniper and Tartarian honeysuckle shrubs. White pines, including mature examples, are more common further to the north, in the less disturbed portion of the deciduous forest within the Natural Environment Area lands north of the proposed limit of development.

Regeneration of sugar maple is dominant in much of the understory with pin cherry, common buckthorn, prickly gooseberry, and American yew shrubs and regenerating ash, bur oak, red oak, and basswood stems also present. In the south portion of the forest, the distribution of common buckthorn, blackberry, hawthorn, apple, and tartarian honeysuckle is much greater and the ground flora reflects former pasture activity including dominant garlic mustard in areas, heal-all, wormseed mustard, common mullein, common strawberry, blueweed, June meadow grass, tall buttercup, herb robert, thicket creeper, spreading dogbane, common mullein, tufted vetch, white avens, yellow wood sorrel, white bedstraw, curled dock, red clover, hog peanut, helleborine, heart-leaved aster, small enchanter's nightshade, black swallowwort, and Pennsylvania sedge. Further north, the ground flora is generally composed of species reflective of less disturbed conditions including bloodroot, Virginia waterleaf, sharp-lobed hepatica, jack-in-the-pulpit, trout lily, ground pine, spotted jewelweed, hop sedge, narrow-leaved goldenrod, zig-zag goldenrod, blue-stem goldenrod, lichen on exposed bedrock, wild ginger, lady fern, bulblet bladder fern, sensitive fern, Canada mayflower, wild sarsaparilla, white trillium, and false Solomon's-seal. Blue violet, yellow violet, spreading dogbane, large-leaved aster, and heart-leaved aster are also present.

Cultural Thicket

Common buckthorn and staghorn sumac are dominant in many areas of the cultural thicket habitats in the northwest and east portions of the lands proposed for development (Photo 11). Red raspberry, hawthorn, nannyberry, and blackberry shrubs are also well represented, along with regenerating stems of sugar maple, Manitoba maple, butternut, white elm, red oak and basswood. White birch, white elm, and Manitoba maple stems up to 30cm dbh are scattered in the thicket habitat. Many of the white elm trees are dead and vine coverage was extensive on many of the thicket trees. In addition to wild grape, ground flora in the cultural thickets includes Canada goldenrod, tall goldenrod, New England aster, heart-leaved aster, tall cinquefoil, evening primrose, common milkweed, common mullein, and June meadow grass.

Cultural Woodland

Areas of cultural woodland are adjacent to the south edge of the upland maple deciduous forest in the northeast portion of the lands proposed for development (Photo 12). White elm, bur oak, and green ash up to 25cm dbh are common, with coppice basswood stems up to 45cm dbh. Many of the ash trees appeared dead. Pin cherry, crabapple, and apple are also present. Common buckthorn is thick in many areas, with staghorn sumac, nannyberry, and tartarian honeysuckle shrubs also well represented. Ash, maple, white elm, and basswood regeneration is common. As expected on the former pasture lands, the ground flora is reflective of disturbance including garlic mustard, common dandelion, early goldenrod, grey goldenrod, common yarrow, herb robert, common strawberry, yellow goat's-beard, June meadow grass, awnless brome grass, timothy, thicket creeper, blue violet, and common mullein.

Wildlife

Wildlife observed included grey squirrel, red squirrel, eastern chipmunk, woodchuck, eastern garter snake, white-tailed deer, porcupine, coyote scats, Canada goose, great-blue heron (flying overhead), American crow, common raven, turkey vulture (flying overhead), red-winged blackbird, common grackle, ruffed grouse (defending territory), belted kingfisher (flying overhead), European starling, downy woodpecker, hairy woodpecker, northern flicker, black-capped chickadee, white-breasted nuthatch, blue jay, great-crested flycatcher, least flycatcher, grey catbird, tree swallow, American robin, veery (calling to the north), red-eyed vireo, warbling vireo, ovenbird (calling to the north), American redstart, yellow warbler, chestnut-sided warbler, magnolia warbler, yellow-rumped warbler, common yellowthroat, song sparrow (with nesting material), white-throated sparrow, fox sparrow, American goldfinch, northern cardinal, Baltimore oriole, mourning dove, and ring-billed gull. A couple of the American beech trees in the portion of the upland deciduous forest proposed for development, along with a basswood and Category 1 butternut, contained larger cavities which may be used by wildlife.



*Photo 1 – Channel in the central portion of the lands proposed for development.
View looking southwest*



Photo 2 – Central channel dry on September 16th. View looking north



*Photo 3 – Channel ends at a storm grate on the north side of Donald B. Munro Drive.
View looking west*



*Photo 4 – Disturbed meadow habitat with topsoil stripped dominates the central and south portions of the
lands proposed for development. View looking west*



*Photo 5 – Another view of the disturbed meadow habitat and stockpiles.
View looking south to Donald B. Munro Drive*



*Photo 6 – Upland maple deciduous forest in the northwest portion of the lands proposed for development.
Maple regeneration is good in many areas. View looking north*



*Photo 7 – Windthrow and invasive ground flora are common in the portion of the upland deciduous forest proposed for development. This example is in the northwest portion of the development area.
View looking west*



Photo 8 – Another view of the upland deciduous forest proposed for development. This example is in the northeast portion of the development area. View looking south



Photo 9 – Mature bur oak along the north-south central channel. View looking southwest



Photo 10 – Deciduous hedgerow along the west site edge. View looking south



Photo 11 – Cultural thicket habitat in the northwest portion of the lands proposed for development, including a Category 2 butternut. View looking northwest



Photo 12 – Cultural woodland habitat in the northeast portion of the lands proposed for development site. View looking northeast

Species at Risk and Other Species of Special Interest

On May 9th, 2021, the Ministry of the Natural Resources and Forestry's Make a Map: Natural Heritage Areas website was reviewed. This site allows for a search of Threatened and Endangered species covered by the 2008 *Endangered Species Act*, as well as other species of interest. A search was conducted on the one km squares including the site and adjacent lands (18VR12--91, and -92 and 18VR22-01 and -02). Five Species at Risk were identified for these one km squares: bobolink, eastern meadowlark, chimney swift, butternut, and Blanding's turtle, with one species of special concern, snapping turtle, noted. Blanding's turtle, snapping turtle and northern map turtle, another species of special concern, were recorded for the overall 10 km square 18VR12 and 18VR22 in the Ontario Reptile and Amphibian Atlas. These turtle species are known from the Carp River corridor to the south of the site and the Carp Hills to the north. Although there is an on-site tributary of the Carp River, the flow within the tributary enters the Village infrastructure on the north side of Donald B. Munro Drive in the southwest corner of the site. There is no open channel or contiguous natural corridor for turtle movement in the new subdivisions south of Donald B. Munro Drive and due to lack of adjacent wetland habitat and minimal flows and wetted widths, the north-south channel does not appear to represent suitable turtle habitat. Thus, turtle movement via the site between the Carp Hills to the north and the Carp River to the south would seem unlikely. During five targeted May and June surveys and the other field surveys no turtles were observed on the site and no evidence of nesting was noted. No suitable wetland habitat for turtles was observed on the development portion of the site, with the closest suitable habitat approximately 140 metres to the north.

The Category 3 Blanding's turtle habitat has been mapped for the development portion of the site on Figure 7. No Category 2 habitat will be disturbed as the closest suitable turtle habitat is about 140 metres to the north of the development portion of the site. In addition, mitigation measures are presented below to protect any turtle utilization of the site. Although the north part of the development portion of the site represents Category 3 Blanding's turtle habitat per the General Habitat Description, no suitable wetland habitat for turtles was observed on the development portion of the site and there is no open space corridor to access the Carp River corridor to the south and no other adjacent wetland habitat is present to the east, south, or west which Blanding's turtle may utilize the site to reach suitable habitat. A loss of approximately 5.2 hectares of Category 3 habitat is projected, though the migrating function of Category 3 habitat is not anticipated for the site.

Chimney swifts use open brick chimneys and historically tree cavities for nesting. No potential structures are present on the site for chimney swift or barn swallow nesting. Bobolink and eastern meadowlark utilize larger grasslands such as hayfields for nesting. The on-site meadow habitat is former agricultural land which has been heavily disturbed by topsoil stripping and stockpiling and does not represent potential nesting habitat for these grassland Species at Risk. No bobolink or eastern meadowlark were observed during the field surveys.

Many butternuts were observed on and adjacent to the development portion of the site, with 35 butternut health assessments completed on June 23rd, 2021 by Shaun St. Pierre (Figure 3). Of these 35 butternuts, thirteen were assessed as Category 1, fifteen as Category 2, and seven were

assessed as Category 3. Once the 30 day Ministry review period of the butternut health assessment has passed, the unhealthy butternuts (Category 1) can be removed pending nesting birds and any other concerns. Prior to any site alterations that may impact the healthy butternuts, compensation for the removal or harm of these butternuts must be completed following the ESA process in place at the time of the proposed removal. It appears the following healthy butternuts will need to be removed: # 1 (38cm dbh, Category 2), # 13 (1cm dbh), # 17 – 18 (each 1cm dbh), # 21 – 25 (each 1cm dbh), # 30 (32cm dbh, Category 2), # 31 (37cm dbh, Category 2), and # 32 (32cm dbh, Category 2). The other healthy butternuts may be harmed or will be far enough away from the areas to be disturbed that they will not be harmed. Currently, removal or harm of Category 3 butternuts would require an Overall Benefit Authorization under the Endangered Species Act. There is a proposal under public review to increase the number of butternuts that can be registered on-line to 15, including 5 Category 3 trees. If this new process is approved, an Overall Benefit Authorization permit would not be required for the removal/harm of healthy butternuts on and adjacent to the site.

Species at Risk reported in the Breeding Bird Atlas for the 10 km square 18VR12 and 18VR22 are bobolink, eastern meadowlark, barn swallow, bank swallow, eastern whip-poor-will and chimney swift. In addition to the species discussed above barn swallow nests on structures with open rafters such as barns, larger agricultural sheds and bridges, while bank swallow is a colonial nester; burrowing in eroding silt or sand banks and sand pit walls. No structures are present for barn swallow. Temporary sand piles may provide suitable nesting habitat for bank swallows but none were observed during several late May and June field surveys, including an emphasis on observed holes in the face of one of the sand piles. Eastern whip-poor-will requires large wooded areas with open patches, and/or open woodlands or alvar habitats. No eastern whip-poor-will were heard during targeted May and June surveys or during 2015 surveys for the site to the east.

Four suitable cavity trees for bats were observed on the proposed development area but the density is less than the 10 per hectare Ministry threshold required for good quality potential summer bat colony habitat.

No aquatic Species at Risk are reported for this portion of the Carp River watershed in the database maintained by the Department of Fisheries and Oceans (<http://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>).

The potential Species at Risk historically reported for the overall City of Ottawa and their habitat requirements were also reviewed, including butternut, American ginseng, eastern prairie fringed-orchid, butternut, wood turtle, spiny softshell, Blanding's turtle, Henslow's sparrow, loggerhead shrike, eastern meadowlark, barn swallow, bobolink, eastern whip-poor-will, bald eagle, golden eagle, least bittern, little brown bat, eastern small-footed myotis, northern long-eared bat, olive hickorynut, eastern cougar, lake sturgeon, cerulean warbler, and American eel. Other than butternut no Species at Risk are anticipated to utilize the development portion of the site.

Significant Woodlands

As the site is in the rural portion of the City of Ottawa, the significance of woodlands is evaluated using the criteria in the Natural Heritage Reference Manual (OMNR, 2010). The forest in the north portion of the site is contiguous with very large forested areas extending to the north and west, and to a lesser extent to the east. Due to size of the overall contiguous forest, a large amount (in the range of 273 hectares) of forest interior habitat, Provincially Significant Wetlands, extensive social use, water protection function, woodland diversity, and likely other characteristics, the overall contiguous forests of the Carp Hills, including the forests in the north portion of the lands proposed for development, would be considered significant woodlands.

Significant Wildlife Habitat

The potential for significant wildlife habitat is assessed using the guidance in OMNR (2010) and MNRF (2015). Potential components which may lead to a designation of significant wildlife habitat include seasonal concentration areas of animals, rare vegetation communities or specialized habitat for wildlife, habitat for species of conservation concern, and animal movement corridors.

The overall Carp Hills Natural Area would be considered significant wildlife habitat for a variety of features and functions, including a large amount of forest interior habitat that would support species of special concern such as eastern wood pewee and wood thrush. Large areas of wetlands represent significant wildlife habitat for amphibians and turtles, as well as seasonal wildlife concentration areas for waterfowl. Rare vegetation communities are supported on exposed bedrock, and fissures in the bedrock may be used by snakes and other wildlife.

The lands proposed for development do not appear to support significant wildlife habitat. The on-site meadow habitat is too disturbed with minimal early successional habitat to be used by Species of Conservation Concern indicators (MNRF, 2015) such as brown thrasher, clay-coloured sparrow, field sparrow, eastern towhee, upland sandpiper, or grasshopper sparrow. No evidence of animal movement corridors, such as those for deer or amphibians, were noted in the meadow habitat. Other field observations on the lands proposed for development would not trigger a significant wildlife habitat designation with respect to the ELC communities present. For example, the cultural habitats do not support waterfowl stopover or staging areas, colonial nesting bird breeding habitat or other examples of seasonal concentration areas. No rare vegetation communities or rare or specialized habitats as described in MNRF (2015) were observed in the meadows or forests adjacent to the meadows. No wetlands with the potential to support amphibians were observed on or within 120 metres of the lands proposed for development. No potential bat hibernacula or maternity colonies, or suitable turtle nesting or wintering areas were noted. Stone piles and areas of broken and fissured rock for potential use by snakes, including potential reptile hibernaculum, were not observed nor was evidence of raptor utilization. Fissured rock was frequently observed in the exposed bedrock in the forest to the north, in the Natural Environment Area lands. Discharge into the north-south channel is present but there was no amphibian usage or other significant features associated with the discharge and channel.

Significant wildlife linkage functions are within the Carp Hills Natural Area, including connections from the South March Highlands. Linkage functions on the portion of the site proposed for development are anticipated to be minimal due to the disturbed nature of the meadow habitat and adjacent residential areas and Donald B. Munro Drive.

Natural Environment Area Boundary Determination

On May 28th, 2021, City staff and the author reviewed the south portion of the forest to determine the south limit of the Natural Environment Area lands. This boundary will also form the south boundary of the candidate life science Carp Hills Area of Natural and Scientific Interest (ANSI). The following was provided to MNRF by Dr. Nichols Stow, Senior Planner at the City of Ottawa:

ANSI and NEA boundaries were identified in the past from aerial photography, usually without detailed ground-truthing. Consequently, when evaluating a development application adjacent to an ANSI/NEA, the City normally organizes a "boundary flagging" exercise. During this process, biologists representing the development proponent and the City walk the site and agree upon a precise boundary, based upon such factors as vegetation, topography, condition, etc.

The City and Tartan Homes recently flagged a portion of the boundary between the Village of Carp and the adjacent Carp Hills Natural Environment area, which protects the Carp Hills Candidate Life Science ANSI. Bernie Muncaster represented Tartan Homes. Sami Rehman and I represented the City. The attached map shows the subject property in light blue. It shows the original boundary of the Candidate ANSI as a yellow line. It shows the original boundary of the Natural Environment Area as an orange line. It shows the ground-truthed boundary as a red line (added note – this red line has been transferred to Maps 1 and 2 as ‘Proposed NEA Line’ and represents the north property line of the adjacent lots on Figure 4).

We determined the new line based mainly on two observations. First, it represents a logical eastward extension of the NEA boundary. Moving east across the site, the new line ties into the bottom of a steep, six-meter-high rock outcrop, which is the most continuous topographic feature on the site. Second, although several rock outcrops lie south and outside of the proposed NEA boundary, they tend to be more disturbed, with signs of past grazing. In contrast, the rock outcrop north of the line appears to have effectively limited past disturbance.

Impact Assessment and Mitigation Measures

The significant woodlands associated with the forest and Species at Risk (butternut) are the significant natural heritage features associated with the lands proposed for development habitat. To the north in the Natural Environment Area lands the forests and wetlands, in addition to significant woodlands, support significant wildlife habitat, Species at Risk, and significant wetlands, including fens, are present.

Channel Assessment

The north-south channel is not considered a significant feature and is not proposed for retention. During spring and summer sampling completed by Bowfin Environmental Consulting no fish were collected or observed and no amphibians were heard along the channel corridor during three spring surveys. The channel was dry in the September. The Headwater Guidelines indicate a recommendation of *Mitigation* for the channel. Potential mitigation recommendations include retaining an open feature in some form, including vegetated swales. However, the approved Carp Community Design Plan (City of Ottawa, 2012) and the proposed Carp Village Secondary Plan do not include retention of the channel. Thus, it is proposed to meet the management recommendation intent by maintain the flow to the downstream connection and where detailed grading and servicing assessments permit use lot level conveyance measures such as vegetated swales.

Although discharge from the bedrock was observed, the channels does not support fish or amphibians. In addition, the channel enters a storm grate in the southwest corner of the site and there is no open channel connection to downstream habitat. The stormwater management design for the development will ensure that existing downstream contributions post-development match the pre-development conditions in terms of quantity or quality. The existing contributions to the channel will be collected in a drainage swale or the on-site infrastructure.

Protection of the Natural Environment Area Lands, Tree Retention and Tree Planting

The lots backing on the Natural Environment Area lands are extra deep (Figure 4) and as shown on Map 2 tree retention will occur in these areas. The depth of tree retention south of the Natural Environment Area line will be a minimum of 15 metres. This will provide excellent protection for the critical root zones of the outer trees in the Natural Environment Area lands, which are a maximum of 50cm dbh. Based on the root protection, well forested nature of the 15 metres, installation of permanent fencing; upward slope towards to the natural area, and greater distance than 15 metres to the new residences and in combination with the other mitigation measures presented below, the 15 metre setback is considered a sufficient buffer to protect the features and functions of Natural Environment Area from potential indirect impacts associated with surface runoff, pets, and increases in noise, dust and light. Note that the buffer is reduced in the northeast portion of the development lands, where the Natural Environment Area line is within cultural woodland or cultural thicket habitat rather than the upland maple deciduous forest.

It is proposed to install permanent fencing along the south edge of the tree retention. This will avoid backyard creep into the buffer area south of the Natural Environment Area line and prevent access to the Natural Environment Area lands outside of the designated trailhead. Pet access and depositing yard waste will be avoided.

The walkway block will provide a trailhead to the Carp Hills pathway system to the north. The Applicant is committed to working with Friends of the Carp Hills to develop a pathway connection that protects sensitive features.

Potential impacts associated with stormwater runoff should be minimal as the retained Natural Environment Area lands are at a higher elevation than the development to the south. No inputs currently occur from the development lands to the Natural Environment Area lands and inputs will not occur post-construction.

In addition to protecting the trees, the above measures will protect the associated significant wildlife habitat and wetland habitat in the Natural Environment Area lands, as well as any Species at Risk utilization. Approximately two hectares of forest is proposed for removal and there will be a minor reduction of forest interior habitat, in the range of 0.9 hectares. All of the forest within and immediately adjacent to the Natural Environment Area lands will be retained. Overall, the contiguous forest extends north to Thomas A. Dolan Parkway and contains approximately 273 hectares of forest interior habitat. Thus, there will be no impacts on the overall forest to continue to function as significant woodlands. Forest interior bird observations were minimal on the lands proposed for development. An agitated ruffed grouse was observed in the northeast portion of the development lands, not within forest interior habitat but within an area of tree retention.

Tree retention along the property boundaries will protect any co-owned trees or adjacent trees with critical root zones extending onto the site. Along the west site boundary, the existing hedgerow trees along the west site boundary are proposed for retention, subject to detailed grading and servicing assessments, within the 10 metre wide walkway block. To minimize disturbances and potential impacts on critical root zones, a stonedust pathway is recommended for the walkway block. No City owned trees are adjacent to the south site boundary in the Donald B. Munro Drive road allowance. Most of the east boundary contains no trees, with those in the northeast corner of the development lands to be retained and adjacent trees to the east to be protected.

Due to its location in the central portion of the lands proposed for development, the central north-south deciduous hedgerow cannot be retained.

Although the south portion of the maple deciduous forest is more disturbed from former pasture activity and associated non-native impacts, the trees proposed for removal do provide ecological functions including local wildlife habitat, and an area of tree cover with associated climate, air quality, wildlife, and nature appreciation benefits. Potential impacts during construction of the residential development and associated removal of trees and other vegetation includes impacts on wildlife, increased erosion and release of sediments and other potential contaminants from truck traffic and construction activity, harm to wildlife remaining in the work area during construction, and impacts associated with an increase in noise, dust and light. The following mitigation measures are designed to address these potential impacts.

1. All trees to be retained are to be protected with temporary fencing at least 1.2 metres in height installed from the tree trunk, where possible, a distance of ten times the retained tree's diameter (the critical root zone);
2. Signs, notices or posters are not to be attached to any tree;

3. No grading, heavy machinery traffic, stockpiling of material, machinery maintenance and refueling, or other activities that may cause soil compaction is to occur within three metres of the critical root zone of the trees to be retained and protected;
4. The root system, trunk or branches of the trees to be retained are to be protected and not damaged unless necessary. Exposed roots of retained trees are to be either kept moist and protected until they can be backfilled, or as advised by a certified arborist, the roots cut cleanly and as far from the tree as possible at a proper angle to facilitate healing;
5. Overhanging branches that may be damaged by the construction are to be trimmed by a certified arborist prior to construction;
6. Exhaust fumes from all equipment during construction will not be directed towards the canopy of the retained trees;
7. All of the supports and bracing for the protective fencing should be placed outside of the protected area and should be installed in such a way as to minimize root damage, and,
8. Since the desired effect of the barrier is to prevent construction traffic from entering the trees' critical root zones, the barrier should be kept in place until all site construction has been completed in the vicinity of the trees.

In terms of planting sensitivities, tree and shrub species that have a high water demand are not recommended for the site due to the clay soils. These species include willows, poplars, and elm. To ensure adaptability and longevity, it is important that native trees from a local seed stock be used for planting whenever possible. Plantings of native trees and shrubs are recommended to add to the natural attributes of the site. A mix of coniferous and deciduous species such as sugar maple, red maple, white spruce, white pine, red oak, basswood, native dogwoods, ninebark, and nannyberry is recommended.

Butternuts

It is anticipated that 13 healthy butternuts will need to be removed while others may be harmed. The removal and harm of butternuts will be compensated for with off-site plantings of pure butternut stems, collection of seeds, and archiving of butternuts that shows the potential for some resistance from the butternut canker. Under the current process, a permit from MECP is required for the removal or harm of Category 3 butternuts. The Category 2 butternuts to be removed or harmed can be registered on-line.

Blanding's turtle

Although a loss of approximately 5.2 hectares of Category 3 Blanding's turtle habitat is projected, the migrating function of Category 3 habitat is not anticipated for the site. Mitigation measures are presented below to protect turtles during the construction and operational phases of the residential development.

Other Mitigation Measures

Many helpful wildlife oriented mitigation measures are detailed in the City's Protocol for Wildlife Protection during Construction (City of Ottawa, 2015). Contractors are to review in detail and understand the City's Protocol for Wildlife Protection during Construction prior to

commencement of construction. Listed below are specific mitigation measures associated with the Protocol for Wildlife Protection during Construction (City of Ottawa, 2015).

Summary of Mitigation Measures

1. The extent of exposed soils shall be kept to a minimum at all times. Re-vegetation of exposed, non-developed areas shall be achieved as soon as possible;
2. During construction, sediment and erosion control measures will be implemented as required, including filtering of pumped groundwater, properly installed and maintained silt fencing, and seepage barriers deployed in any temporary drainage ditches, until the construction is completed. These control measures must be properly maintained to maximize their function during construction. For example, the silt fencing must be properly keyed in to filter runoff and be maintained as required, including repair of broken panels and removal of accumulated sediment;
3. The contractor is to be aware of potential Species at Risk in the vicinity of the site such as butternut and Blanding's turtle. Appendix 1 of City of Ottawa (2015) describes these species. All healthy butternuts are to be protected with sturdy temporary fencing until their removal has been authorized using the appropriate MECP process. The contact biologist for this project, as described in Appendix 1, is Bernie Muncaster (613-748-3753). Any new Species at Risk sightings are to be immediately reported to the project manager and the MECP, and activities are to be stopped until further direction is received from the Ministry;
4. As recommended in City of Ottawa (2015), prior to beginning work each day thorough visual inspections of the work space and immediate surroundings are to be completed for wildlife. See Section 2.5 of the City's Protocol for Wildlife Protection during Construction (City of Ottawa, 2015) for additional recommendations on construction site management. Any turtles and snakes in the work area are to be relocated to the Natural Area to the north. Animals should be moved only far enough to ensure their immediate safety. Only those trained in handling Species at Risk should relocate these species. See Appendix 1 and the links in Section 4 of City of Ottawa (2015) for suggestions on how to effectively relocate turtles and snakes;
6. To protect breeding birds, no tree or shrub removal should occur between April 15th and August 15th unless a breeding bird survey conducted by a qualified biologist within five days of the woody vegetation removal identifies no active nests in the trees or shrubs. Note it can be very difficult to properly assess for nesting birds in the upper canopy of forests once the trees are in a leaf-out condition. This window will also avoid tree removal during the summer bat maternity roosting period of May 1st to July 15th. The ideal time for tree removal with potential wildlife cavities is between August 15th and October 15th to protect both breeding birds and overwintering wildlife in cavity trees. Depending on the year, April may also be a suitable time. If winter tree removal is anticipated, surveys should be undertaken ahead of time to determine no overwintering

wildlife use in trees with suitable cavities. No stick nests or other evidence of raptor utilization was observed in the trees proposed for removal;

7. Sturdy temporary fencing to be installed at least 1.2 metres in height to protect the trees to be retained as shown on Map 2 and additional tree protection measures are described above;
8. Temporary exclusion fencing (as per the Species at Risk Branch Best Practices Technical Note Reptile and Amphibian Exclusion Fencing Version 1.1, July 2013) will be used during construction to ensure that any turtles and other sensitive wildlife cannot access the construction area. Education and awareness training will be provided to on site workers by a qualified professional to ensure that they know how to identify a Blanding's turtle and know what to do if one is found on site. Sweeps of the work area will be completed prior to each work day and any Species at Risk occurrences will be submitted to the Natural Heritage Information Centre, MECP, and project biologist as soon as possible. Work that may impact the species will be halted until direction is obtained from the Ministry;
9. To discourage wildlife from entering the work areas during construction, the site should be kept clear of food wastes and other garbage, and proper drainage provided to avoid accumulation of standing water, which could attract amphibians, birds, and other wildlife to the work areas;
10. Municipal by-laws and provincial regulations for noise will be followed and utilities will be located as required in the vicinity of the site prior to construction;
11. Waste will be managed in accordance with provincial regulations. The contractor will have a spill kit on-hand at all times in case of spills or other accidents;
12. It is very important that pets be under control at all times. Pets allowed to roam freely have a serious impact on wildlife, especially bird predation by domestic cats; and,
13. Permanent fencing will be installed along the south edge of the tree retention for lots backing onto the Natural Environment Area lands. The fencing type will not permit human or pet access to the Natural Area to the north and gates will not be allowed.

Schedule of Proposed Works

Removal of woody vegetation will occur in the cultural woodlands, the maple deciduous forest in the north portion of the lands proposed for development, and the central north-south deciduous hedgerow. This removal is proposed for 2022, outside of the breeding bird season. City of Ottawa forestry staff are to be contacted at least two business days prior to any tree removal so staff have the opportunity to verify that the protective fencing has been properly constructed.

Conclusion

The site includes two overall components; the lands proposed for development in the south and to the north of the recommended zoning line, the Natural Environment Area lands. The proposed development lands include highly disturbed meadow habitat on former agriculture lands and the south portion of the upland maple deciduous forest. This south portion of the forest is part of the significant woodlands, the Carp Hills Natural Area, and the City's Natural Heritage System but is impacted by former pasture activity. A very small portion of forest interior habitat (less than one hectare) will be removed but the overall impressive Carp Hills Natural Area will continue to support significant woodlands. Butternut, a Species at Risk, is the only other natural heritage features, as defined in the Provincial Policy Statement, identified for the lands proposed for development. An overall benefit will be provided off-site for removal or harm of healthy butternuts. The details of the compensation plan will be determined in consultation with MECP. An on-site channel does not support direct fish habitat or other significant features, and wetland habitat is not within 120 metres of the proposed development.

Mitigation measures are presented to protect the Carp Hills Natural Area and adjacent significant natural heritage features, including significant woodlands, significant wildlife habitat, Species at Risk, and significant wetlands.

This EIS and TCR concludes that it is the professional opinion of the author that the construction and operation of the proposed village residential units will not have a negative impact, as defined in the Provincial Policy Statement, on the significant natural heritage features and functions of the Carp Hills Natural Area, including the significant woodlands, provided the above recommended mitigation measures are properly implemented.

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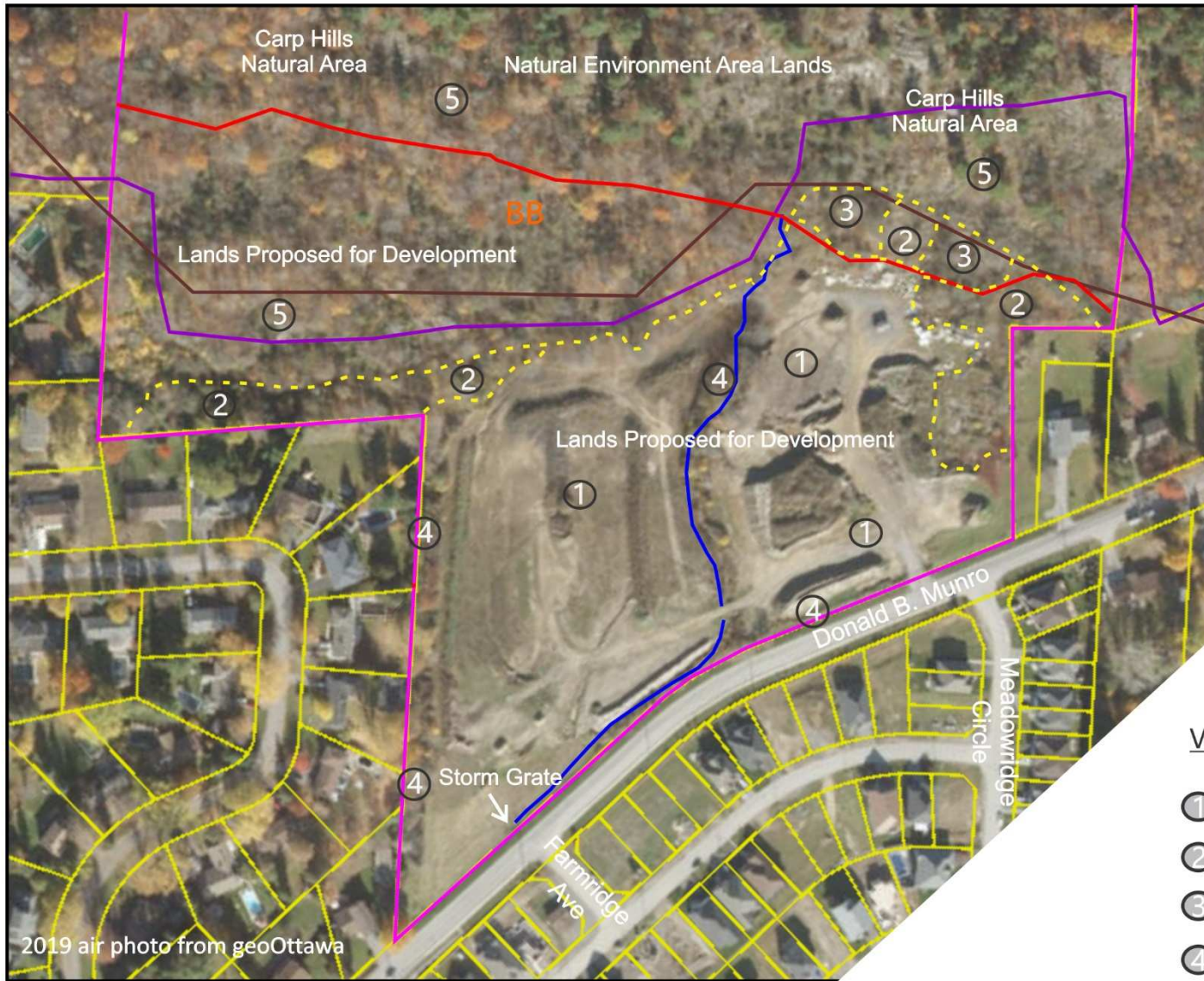
Please call if you have any questions regarding this EIS and TCR








Yours Sincerely,
MUNCASTER ENVIRONMENTAL PLANNING INC.








Bernie Muncaster, M.Sc.
Principal

232 Donald B EISTCR

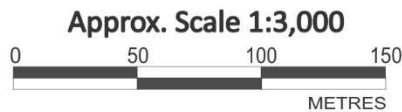


- Legend**
-  Site
 -  Proposed NEA Line
 -  Carp Hills Natural Area
 -  Natural Heritage System per Schedule L3
 -  Channel
 -  Vegetation Communities
 -  Breeding Bird Point Count

Vegetation Communities

-  Cultural meadow
-  Cultural thicket
-  Cultural woodland
-  Deciduous hedgerow
-  Upland maple deciduous forest

2019 air photo from geoOttawa



Map 1

FILE: 06 - 34

August 23, 2021

Prepared for: **Tartan Homes Corporation**

Prepared by:



ENVIRONMENTAL IMPACT STATEMENT

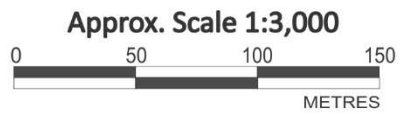
**232 Donald B. Munro
Carp, City of Ottawa**



- ### Legend
- Site
 - Proposed NEA Line
 - Carp Hills Natural Area
 - Natural Heritage System per Schedule L3
 - Channel
 - Vegetation Communities
 - Potential tree retention (pending detailed grading & servicing assessments)

- ### Vegetation Communities
- Cultural meadow
 - Cultural thicket
 - Cultural woodland
 - Deciduous hedgerow
 - Upland maple deciduous forest

2019 air photo from geoOttawa



Map 2

FILE: 06 - 34

August 23, 2021

Prepared for: Tartan Homes Corporation

Prepared by:  Muncaster Environmental Planning Inc.

ENVIRONMENTAL IMPACT STATEMENT PROPOSED CONSERVED VEGETATION

232 Donald B. Munro
Carp, City of Ottawa

FIGURE 3 – BUTTERNUT LOCATIONS and ASSESSMENT CATEGORIES

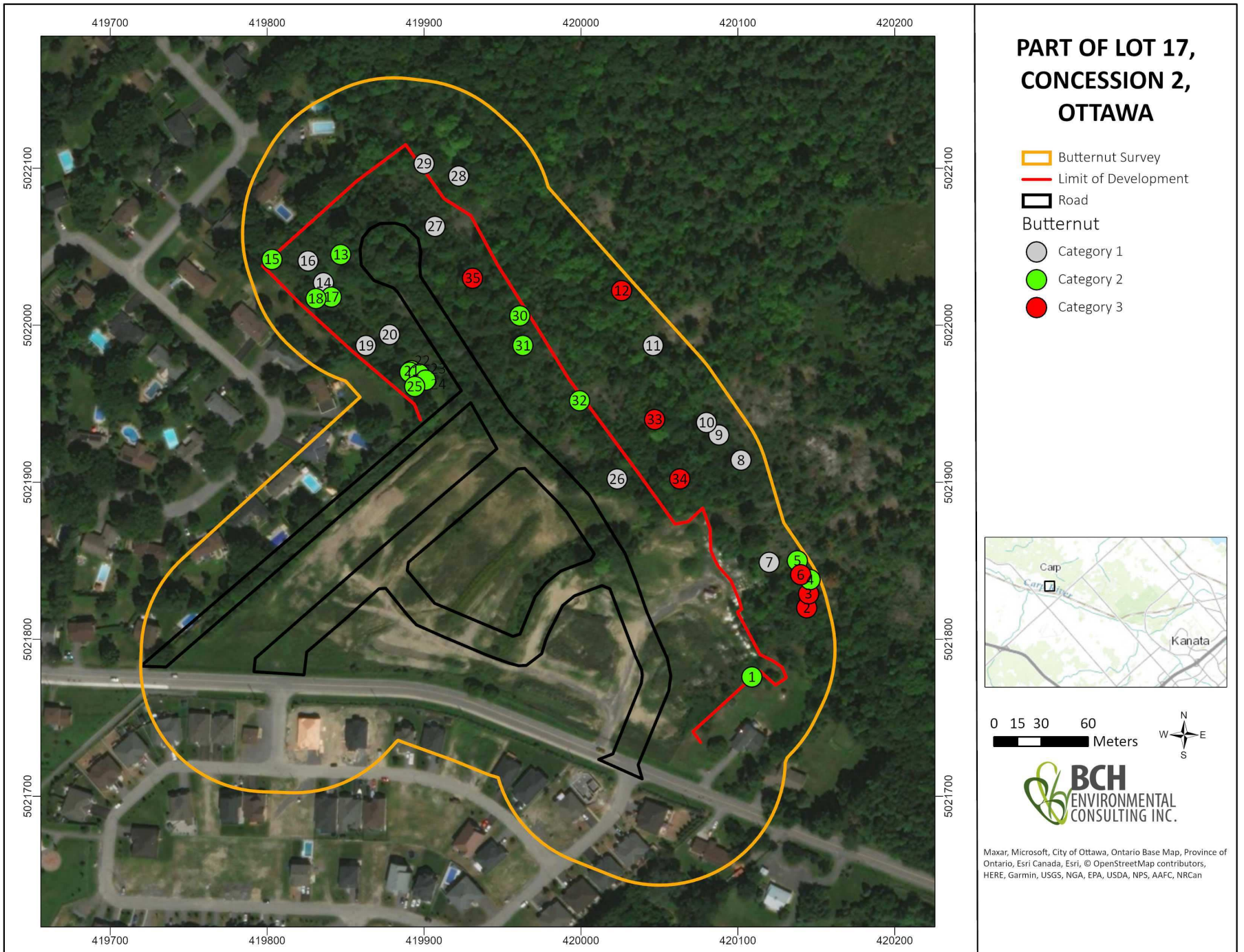


FIGURE 4 – DRAFT PLAN of SUBDIVISION



PART 1 PLAN 44-00014

FIGURE 5 – CONTIGUOUS FOREST in CARP HILLS NATURAL AREA

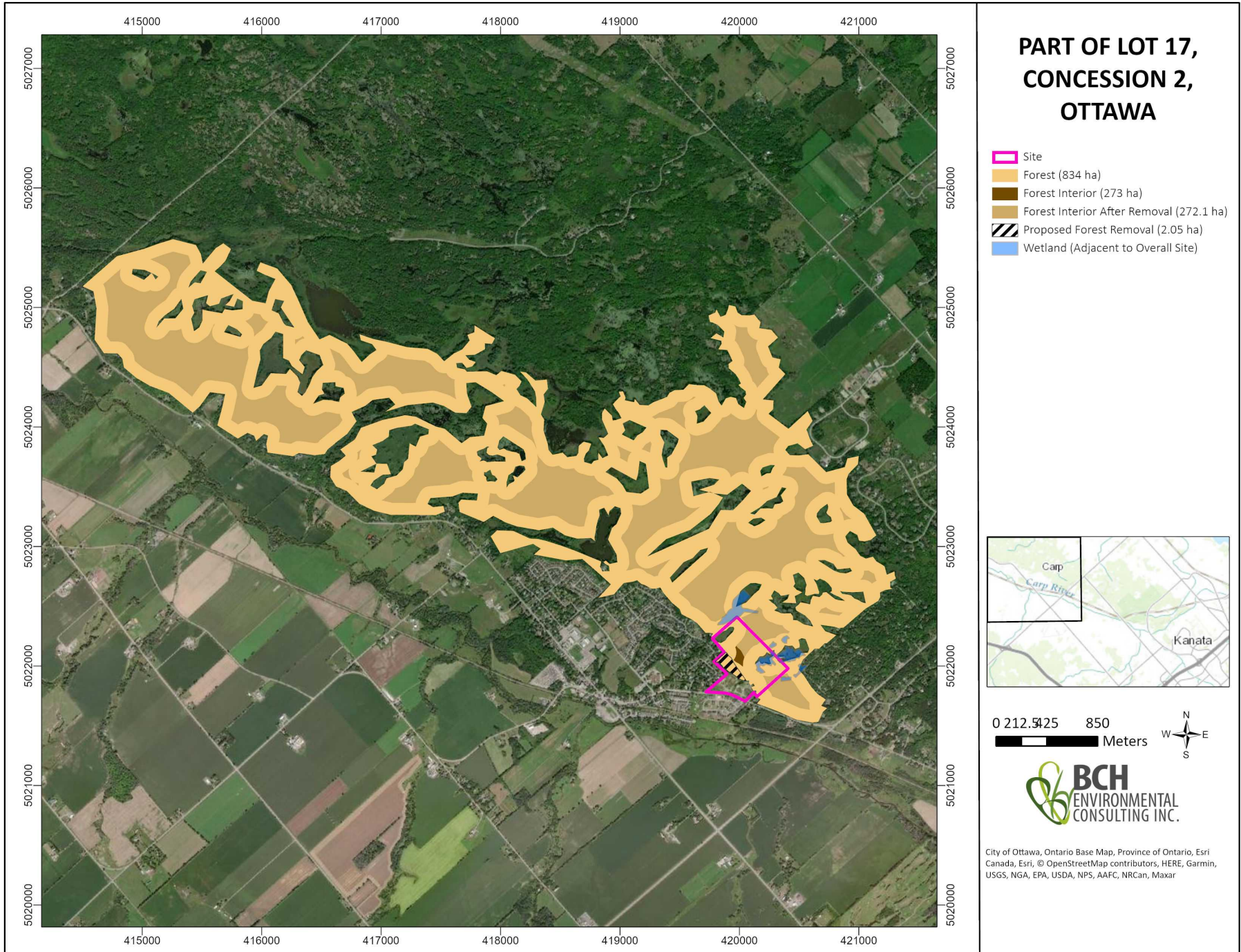


FIGURE 6 – CONTIGUOUS FOREST and WETLANDS on OVERALL SITE

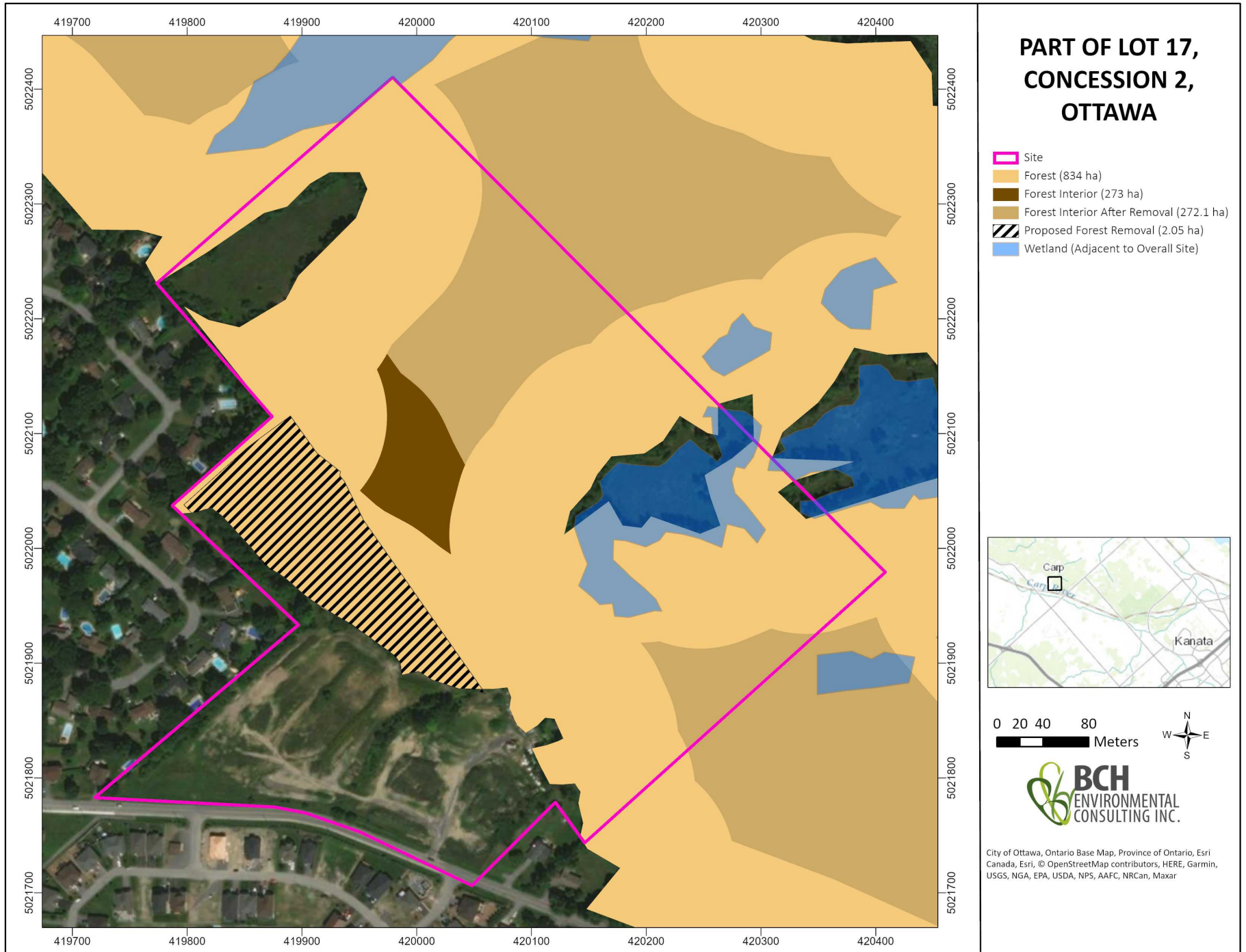


FIGURE 7 – BLANDING’S TURTLE HABITAT

