

**Environmental Impact Statement
3809 Borrisokane Rd.**

Full Report

August 1, 2019

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Appendix 1 Qualifications of Report Author

1.0 INTRODUCTION

This report is an Environmental Impact Statement (EIS) prepared by Kilgour & Associates Ltd. (KAL) on behalf of the Caivan Brazeau Development Corporation (CBDC) in relation to a proposed new residential development at 3809 Borrisokane Rd. The trigger for this EIS is the potential for the presence of Species at Risk (SAR) within 120 m of the new community. The EIS must also address the potential for habitat of SAR on or adjacent to the site and/or the presence of other significant natural heritage system features or elements. This EIS also includes an inventory of trees present on site and a review of impacts to those trees, and thereby serves as the Tree Conservation Report (TCR) for the proposed development.

2.0 PROPERTY INFORMATION

The proposed new community will be located on the eastern half of the property at 3809 Borrisokane Rd. (Con 3 RF W Pt Lot 8; RP 5R-13403 Parts 2 and 3; Less RP 5R-13374 Parts 15 & 16; PIN-045920037). This property is a 39.5 ha parcel located in the southwest end of Ottawa and is currently occupied by the Brazeau sandpit. The sand pit dates back to before 1976; it is still open but will be closing soon. As per the requirements of the Ministry Natural Resources and Forestry (MNR) and the pit's closing plan, the entire site must be fully rehabilitated. The major focus of site rehabilitations is re-grading to remove the steep topography of the pit for human health and safety considerations. Only the eastern half of the parcel (23.8 ha) is located within the City's urban boundary. CBDC proposes to develop this eastern portion as a new residential community after the property has been rehabilitated.

As part of the community plan, CBCD will also develop a 4 ha stormwater management pond area for the new community, to be located in the northwest corner of the adjacent property to the north, i.e. 3713 Borrisokane Rd. (Con 3rf Pt Lot 9 RP 5r-6254; Part 2 Less RP 5r-13374 Pts; 9 & 10 Rd Widening; PIN-045920035). That property is currently owned by Drummond and has been operated as the Drummond Sandpit over a similar timeframe to the Brazeau site. It too is still operational but will be closing soon, and will be rehabilitated and regraded accordingly by Drummond.

For this report, the "site" will refer to areas on the two properties subject to development by CBDC (i.e. the new community and the SWM pond area).

3.0 SITE AND THE NATURAL ENVIRONMENT

3.1 Surface Water, Groundwater and Fish Habitat

There are no surface water features on the site. No ditches or other channelized water features cross the site or run along or near its perimeter. The 2017 air photo for the site suggests some water may have collected in low lying areas of the property in the past, though subsequent site (re)grading appears to have eliminated any potential wet pockets. There was no evidence of water collecting on site during a site visit by KAL Biologist, Rob Hallett, on November 29, 2018 despite significant rainfall in the preceding days (Figure 1). Similarly, no water features were observed on site during any of the bird surveys conducted in June and July of 2019.



Figure 1. Proposed development area on Nov. 29, 2018

3.2 Vegetation and Land Cover

Area land cover is mapped in Figure 2. The entire Brazeau property has been worked over the years, leaving only narrow bands of trees along property periphery. These hedgerows were generally left perched on tall ridges of “leftover” material. The entire area originally consisted of sand and gravel soils - Uplands and Mille-Isles formations in the west (strongly acid fine to coarse sand with limited fine gravel), to a Kars formation in the east (slightly acid to neutral, gravelly and cobbly coarse to moderately coarse textures glaciofluvial materials with a surface generally worked into beach deposits; Marshall et al. 1979). Remnant piles of this material are scattered about the site. These piles are considered very unlikely to have had time to become useful as habitat features (particularly for cliff or bank-nesting bird species); the slopes generally have less than 70% grades. Several vertically cut sand faces do occur in the central portion of the site, however, and these provide some suitability for cliff and/or bank-nesting bird species. The entire site is covered in a combination of bare sand/gravel with sparse patches of grasses and common forbs.

Highway 416 is located adjacent to the western end of the properties. The land to the east is currently being redeveloped as a residential community. The parcel to the south does have a small woodlot (~3.8 ha) but it is set back 5 to 10 m from the south side of the proposed development area.

The deciduous woodlot to the south of the site is a Dry – Fresh Sugar Maple Forest (FOD5). Large Sugar Maples with diameters at breast height (DBH) of 45cm or larger dominate the upper canopy cover although they are fairly spaced out within the lot. The understory is almost entirely Sugar Maples smaller than 10cm DBH though some small Basswoods occur near the edges of the feature. It appears as if this woodlot was previously managed as a maple sugar bush with trees being removed to facilitate the growth of the larger Sugar Maples. The larger maples show some signs of crown and branch dieback and many of them have significant cavities as a result. No Butternuts were observed on or near the property.

The woodlot is located outside of the urban boundary. Its status as a Significant Woodland is therefore assessed following the Ministry of Natural Resources and Forestry's (MNRF) Natural Heritage Reference Manual. With over 15% forest coverage in the broader catchment area, the woodlot is too small (i.e., < 20 ha) to be deemed significant based on size alone. The feature has no interior forest space (i.e., habitat within the woodland that is more than 100 m from the edge), has no appreciable proximity to other wooded areas or Natural Heritage System elements, neither provides nor is connected to wildlife corridors, is not located near any water features, has remarkably low diversity (almost 100% Sugar Maples), has no rare or unique species present, no longer provides economic benefit (limited large trees are in poor condition), and does not appear to provide cultural importance as it is isolated on private property. Therefore, the feature does not constitute Significant Woodland.



Figure 2 Existing site conditions

Legend

Site Boundaries

-  Property Line
-  Urban Boundary

ELC

-  Quarry
-  Cleared land
-  FOD5

Bank Swallow

-  Colony
-  Feeding Area
-  Barn Swallow
-  Nest Location
-  Feeding Area

-  # Tree

N



0 200 m

Project: CAIV 836
 Created By: AF and RH
 MTM Zone 9
 (NAD 83)
 Printed on: 2019-08-01



3.2.1 Site Trees

A tree inventory survey was performed on the Brazeau site on November 29, 2018 by Rob Hallett. Trees observed there at the time are described in Table 1.

Table 1. Site Trees

| Tree Number | Species | Mainstem DBH (cm) | Notes |
|-------------|-------------------|-------------------|---|
| 1 | Bitternut Hickory | 60 | |
| 2 | Bitternut Hickory | 25 | |
| 3 | Bitternut Hickory | 60 | |
| 4 | Bitternut Hickory | 25 | |
| 5 | Bitternut Hickory | 50 | |
| 6 | Bitternut Hickory | 30 | Hollow |
| 7 | Basswood | 50 | Additional stem DBHs 35, 35, 35, 35, 20 |
| 8 | Bitternut Hickory | 35 | |
| 9 | Manitoba Maple | 15 | |
| 10 | Bitternut Hickory | 85 | Fungal growth on branches |
| 11 | Trembling Aspen | 12 | |
| 12 | Bitternut Hickory | 15 | |
| 13 | Bitternut Hickory | 20 | |
| 14 | Bitternut Hickory | 25 | |
| 15 | Bitternut Hickory | 30 | Additional stem DBHs 15, 25, 20, 20 |
| 16 | White Birch | 12 | |
| 17 | Bitternut Hickory | 15 | |
| 18 | Bitternut Hickory | 15 | |
| 19 | Basswood | 15 | Additional stem DBHs 10, 10, 30 |
| 20 | Basswood | 45 | Additional stem DBHs 15, 20, 13 |
| 21 | Basswood | 30 | |
| 22 | Basswood | 30 | Additional stem DBHs 15 |
| 23 | Basswood | 15 | Additional stem DBHs 15 |
| 24 | Basswood | 10 | |
| 25 | Basswood | 10 | |
| 26 | Green Ash | 15 | Additional stem DBHs 15, 15 |
| 27 | Basswood | 30 | Additional stem DBHs 20, 20, 15, 15, 15 |
| 28 | American Elm | 20 | |
| 29 | American Elm | 20 | |
| 30 | Basswood | 30 | |
| 31 | Basswood | 30 | |
| 32 | Basswood | 30 | |
| 33 | Basswood | 40 | |
| 34 | Basswood | 30 | |
| 35 | Basswood | 30 | |
| 36 | Basswood | 30 | |
| 37 | American Elm | 30 | |
| 38 | Basswood | 20 | |
| 39 | Sugar Maple | 110 | Branch Dieback |
| 40 | American Elm | 45 | |
| 41 | Basswood | 20 | |
| 42 | Basswood | 20 | |
| 43 | Basswood | 20 | |
| 44 | Manitoba Maple | 20 | |
| 45 | Basswood | 20 | |
| 46 | Sugar Maple | 15 | |
| 47 | Basswood | 15 | |
| 48 | Basswood | 80 | |
| 49 | Sugar Maple | 100 | |
| 50 | Red Maple | 20 | |
| 51 | Basswood | 20 | |
| 52 | Basswood | 40 | Additional stem DBHs 20, 20, 30 |
| 53 | Basswood | 25 | |
| 54 | Basswood | 20 | |
| 55 | Basswood | 30 | |

| Tree Number | Species | Mainstem DBH (cm) | Notes |
|-------------|-------------------|-------------------|---|
| 56 | Basswood | 25 | |
| 57 | Basswood | 30 | |
| 58 | Green Ash | 35 | |
| 59 | Basswood | 30 | |
| 60 | Basswood | 25 | Additional stem DBHs 25, 25, 20, 25, 25, 25, 20 |
| 61 | Basswood | 40 | Additional stem DBHs 20, 25, 20 |
| 62 | Red Maple | 30 | |
| 63 | American Elm | 20 | |
| 64 | Basswood | 20 | Additional stem DBHs 20. 20. 20. 30 |
| 65 | Apple | 20 | Additional stem DBHs 15, 15, 5 |
| 66 | Siberian Elm | 30 | |
| 67 | Balsam Poplar | 35 | |
| 68 | Willow | 20 | |
| 69 | Bitternut Hickory | 15 | |
| 70 | Manitoba Maple | 15 | |
| 71 | Bitternut Hickory | 20 | Fence through trunk |
| 72 | American Elm | 35 | |
| 73 | Balsam Poplar | 10 | |
| 74 | Balsam Poplar | 15 | |
| 75 | Balsam Poplar | 15 | |
| 76 | Balsam Poplar | 15 | Additional stem DBHs 15, 10, 15 |
| 77 | Balsam Poplar | 10 | Additional stem DBHs 10, 10 |
| 78 | Honey Locust | 10 | |
| 79 | Balsam Poplar | 15 | |
| 80 | Manitoba Maple | 10 | |
| 81 | Balsam Poplar | 45 | |
| 82 | Balsam Poplar | 20 | |
| 83 | Balsam Poplar | 20 | |
| 84 | Balsam Poplar | 20 | |
| 85 | Balsam Poplar | 20 | |
| 86 | Manitoba Maple | 20 | Additional stem DBHs 20, 15, 15, 10 |
| 87 | Manitoba Maple | 35 | |
| 88 | Manitoba Maple | 30 | |
| 89 | Balsam Poplar | 15 | |
| 90 | Manitoba Maple | 15 | |
| 91 | Green Ash | 45 | |
| 92 | Basswood | 45 | |
| 93 | Basswood | 15 | Additional stem DBHs 15, 15, 10 |
| 94 | Balsam Poplar | 10 | |
| 95 | Basswood | 15 | |
| 96 | abs | 15 | |
| 97 | Basswood | 75 | Additional stem DBHs 20, 35, 30, 15, 15, 25 |
| 98 | American Elm | 25 | |
| 99 | American Elm | 20 | |
| 100 | American Elm | 10 | |
| 101 | Basswood | 40 | Additional stem DBHs 18, 15, 10, 10 |
| 102 | Bitternut Hickory | 20 | |
| 103 | Manitoba Maple | 10 | |
| 104 | Bitternut Hickory | 35 | |
| 105 | Bitternut Hickory | 15 | Additional stem DBHs 10 |
| 106 | Bitternut Hickory | 15 | Additional stem DBHs 10, 10 |
| 107 | Manitoba Maple | 15 | |
| 108 | Manitoba Maple | 15 | |
| 109 | Manitoba Maple | 15 | |
| 110 | Manitoba Maple | 15 | |
| 111 | Manitoba Maple | 15 | |
| 112 | Manitoba Maple | 15 | |
| 113 | Manitoba Maple | 15 | |
| 114 | Manitoba Maple | 15 | |
| 115 | Manitoba Maple | 15 | |
| 116 | Willow Sp. | 10 | |
| 117 | Bitternut Hickory | 30 | |

Trees located along the north and south side of the property are perched somewhat precariously along the raised edges of the site. Many trees previously occurring there have already toppled over into the former pit area. While remaining individual trees provide some shading and possible nesting space for local fauna, this functionality is likely very limited. As a hedgerow, they do not lead to any other natural features and cannot provide service as a corridor.

Regardless, all trees on both the Brazeau and Drummond properties will be removed, prior to any site development by CBDC, when both areas are regraded following their closure plans.

3.3 Site Fauna

3.3.1 Breeding Bird (Day Birds)

Methods

Bird surveys were completed on site in 2019 following a methodology consistent with Breeding Bird Surveys (BBS; Bird Studies Canada, 2001) and MNRF protocols for protected birds-at risk. BBS-type studies in the Ottawa region require two surveys between May 24 and July 10, with each BBS round a minimum of 10 days apart. MNRF survey protocols for most non-forest birds (e.g., Bobolink, Barn Swallow) are generally very similar in approach but call for a third survey session during the same time period.

The surveys are always conducted on calm weather days with no precipitation from one half hour before sunrise until five hours after sunrise. Surveys are five minutes in duration with a two-minute habituation period preceding the three-minute surveys. All birds seen and heard are recorded along with associated breeding codes, and the estimated distance from the observer. Any birds observed anywhere else on site are also noted.

Results

Three rounds of BBS were completed by KAL biologists in 2019 on June 12th (by Anthony Francis), on June 25th (by Rob Hallett) and on July 4th (by Katie Black). BBS were completed at four survey stations covering all habitats types located within or adjacent to areas proposed for development (Figure 2). These were completed on calm weather days with light wind (less than 3 on the Beaufort scale) and no precipitation (Table 2).

Table 2: BBS of Eames site in 2018.

| Date | Time | Temperature (°C) | Cloud Cover (%) | Weather Conditions | Wind Conditions (Beaufort Scale) |
|------------|-------|------------------|-----------------|---------------------|----------------------------------|
| 12-June-19 | 06:30 | 21 | 5 | Sunny and clear | 1 |
| 25-June-19 | 06:25 | 23 | 100 | Cloudy with no rain | 0 |
| 4-July-19 | 06:10 | 19 | 0 | Sunny and clear | 0 |

Overall, 24 bird species were observed on or near the site during the three rounds of surveys (Table 3).

Table 3: Bird species observed during field surveys of Eames site in 2018.

| Common Name | Scientific Name | Common Name | Scientific Name |
|------------------------|------------------------------|----------------------|----------------------------------|
| American Crow | <i>Corvus brachyrhynchos</i> | Grey Catbird | <i>Dumetella carolinensis</i> |
| American Goldfinch | <i>Spinus tristis</i> | Killdeer | <i>Charadrius vociferus</i> |
| American Robin | <i>Turdus migratorius</i> | Mallard | <i>Anas platyrhynchos</i> |
| Bank Swallow | <i>Riparia riparia</i> | Morning Dove | <i>Zenaida macroura</i> |
| Barn Swallow | <i>Hirundo rustica</i> | Northern Cardinal | <i>Cardinalis cardinalis</i> |
| Black-capped Chickadee | <i>Poecile atricapillus</i> | Ring-billed Gull | <i>Larus delawarensis</i> |
| Chipping Sparrow | <i>Spizella passerina</i> | Red-winged Blackbird | <i>Agelaius phoeniceus</i> |
| Common Grackle | <i>Quiscalus quiscula</i> | Rock Dove | <i>Columba livia</i> |
| Common Snipe | <i>Gallinago gallinago</i> | Song Sparrow | <i>Melospiza melodia</i> |
| Common Yellowthroat | <i>Geothlypis trichas</i> | Savannah Sparrow | <i>Passerculus sandwichensis</i> |
| Eastern Wood-pewee | <i>Contopus virens</i> | Warbling Vireo | <i>Vireo gilvus</i> |
| European Starling | <i>Sturnus vulgaris</i> | Yellow Warbler | <i>Setophaga petechia</i> |

Most of the birds observed are common species in the Ottawa region. Three bird species observed, however, are listed SAR. A single Eastern Wood-pewee was noted in the FOD5 ecosite (woodland) south of the property. Eastern Wood-pewee is designated as a species of Special Concern under the *Endangered Species Act* (ESA; 2007).

Two Bank Swallows (listed as Threatened under the ESA) were noted flying over the site during the first survey, though neither appeared to be using the Brazeau property. From the ridge along the north side, however, more Bank Swallows were observed above the Drummond Sandpit. CBDC obtained permission for KAL Biologists to access the Drummond site on the second survey. During the second survey on June 25th, Rob Hallett found a Bank Swallow colony in a vertical sandbank on that site, near the property line with the Brazeau site (Figure 2). The colony (Figure 4) is not located on the Brazeau site though the associated feeding habitat for the species, which is considered to be the area extending out 500 m from a nest colony, does include the subject property. By the time of the third survey, Bank Swallows had established a secondary colony on a vertical sand face in the center of the Brazeau site.

On the third bird survey, Barn Swallows (listed as Threatened under the ESA) were observed feeding over the southwest corner of the property near Borrisokane Rd. The species was not previously present on site. A thorough search of that portion of the property found six new active nests (Figure 2) in a temporary garage-type structure that had been erected using old shipping containers (Figure 3).

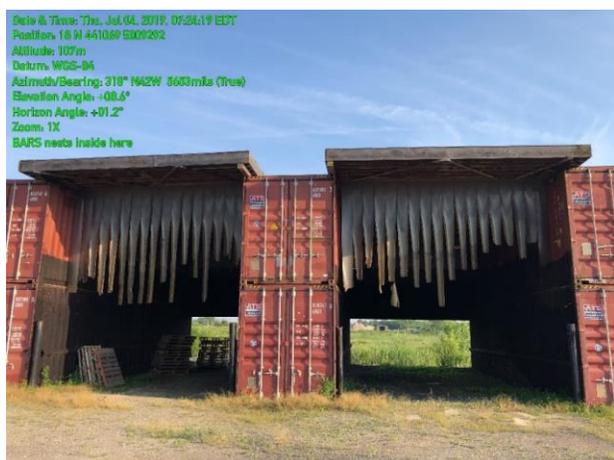


Figure 3. Barn Swallow nesting site.



Figure 4. Bank Swallow nesting site.

3.4 Species at Risk

Table 2 indicates the habitat requirements of SAR known to be potentially present within the broader area and whether the property may provide significant habitat.

Three listed SAR were observed to occur on or adjacent to the development area. A single Eastern Wood-pewee was heard in the forest ecosite adjacent to the area of the proposed new community, just south of the Brazeau property. As it was heard on two occasions there, the species must be assumed to be nesting in the woodlot. Designated as a species of Special Concern however, it is not afforded any specific legal protection of individuals or habitat under the ESA, though individuals and active nests are protected under the federal *Species at Risk Act* (SARA) and the *Migratory Bird Convention Act* (MBCA). Forest areas supporting nesting Eastern Wood-pewees constitute Significant Wildlife Habitat (SWH; i.e., as habitat for species of Special Concern).

Bank and Barn Swallows (both listed provincially and federally as Threatened) were observed to be nesting directly within the proposed development area on the Brazeau property. Bank Swallows were also noted to be nesting just north of the new community site on the Drummond Property. Barn Swallows were found to be nesting on the eastern end of the Brazeau property, but more than 200 m from any proposed development areas.

Both species are subject to protection of individuals and of habitat under the ESA. Following the filing of a Notice of Activity under O. Reg. 242/08 Section 23.14, however, species occurring on the site would no longer be subject to protections under the ESA. Once the Brazeau pit and the Drummond pit to the north have been duly registered, the pits may continue to operate so long as suitable Bank Swallow nesting areas are maintained. Upon their official closure, however, the Bank Swallow nesting areas on both sites can (and in fact must, per the approved closure plans for each site) be removed as they close and are rehabilitated due to human health and safety concerns. The removal of the habitat must occur outside of nesting season. With no Bank Swallow nesting habitat left on site after the pit closures, there will be no feeding habitat remaining either. Under the Notice of Activity, Barn Swallow nests can be removed any time outside of nesting season, so long as appropriate provisions are made elsewhere in the broader vicinity to support new nests.

Table 4. Species-at-risk potential

| Species Name | Provincial (ESA) Status | Habitat Requirement | Habitat on Site | Project Concerns Associated with Habitat on Site |
|--|-------------------------|---|---|--|
| Birds | | | | |
| Bank Swallow (<i>Riparia riparia</i>) | Threatened | Nest in banks or earthen walls cut by meandering streams and rivers, but artificial banks created by mining may also be used. Foraging occurs over fields, streams, wetlands, farmlands, and still water. | Vertical banks both on and adjacent to the sites currently (i.e., in 2019) provide nesting habitat. Feeding habitat extends out 500 m from nesting areas fully covering most of the proposed development area. | <p>Aggregate pits having SAR present on them must compete a registration of activity with MECP under O.Reg 242/08 Section 23.14. Upon registration, the pit operator must develop a management plan implementing best management practices (BMPs) to minimize the impact of mining activities on the identified species. Upon completing the registration, the site is exempt from Sections 9 and 10 of the ESA (i.e., prohibitions on impacting individuals or habitat, respectively).</p> <p>Under the management plan, the pit must (as per BMPs):</p> <ol style="list-style-type: none"> 1) be operated to allow for the continued presence of the species during mining activities, but 2) have all Bank Swallow nesting habitat removed at site closure once the birds have left for the season. |
| Barn Swallow (<i>Hirundo rustica</i>) | Threatened | Terrestrial open & manmade structures for nesting, near open areas for feeding. | Barn Swallows have built nests on the only potentially habitat-supporting structure on the site. The structure (shipping containers stacked to form a vehicle shed), and the space within 5 m of it, are considered protected nesting habitat. Feeding habitat extends over open areas up to 200 m from the structure. Feeding areas are thus limited to the western half of the site outside of the proposed development area. | <p>Aggregate pits having SAR present on them must compete a registration of activity with the MECP under O.Reg 242/08 Section 23.14. Upon registration, the pit operator must develop a management plan implementing BMPs to minimize the impact of mining activities on the identified species. Upon completing the registration, the site is exempt from Sections 9 and 10 of the ESA (i.e., prohibitions on impacting individuals or habitat, respectively).</p> <p>Under the management plan, Barn Swallow nests may be removed outside of the nesting season as required.</p> |

| Species Name | Provincial (ESA) Status | Habitat Requirement | Habitat on Site | Project Concerns Associated with Habitat on Site |
|--|-------------------------|---|--|---|
| Bobolink (<i>Dolichonyx oryzivorus</i>) | Threatened | Periodically mown, dry meadow for nesting. Habitat (meadow) should be > 10 ha, and preferably > 30 ha before Bobolink are attracted to the site. Not near tall trees. | Vegetation on site is sufficiently sparse and site activity is sufficiently noisy to generally limit site suitability. | Limited potential for presence. None observed. Not a concern for this project. |
| Chimney Swift (<i>Chaetura pelagica</i>) | Threatened | Nests in open chimneys and sometimes in tree hollows (tree > 60 cm dbh). Tend to forage close to water as this is where the flying insects they eat congregate. | No suitable habitat on or adjacent to site. | Negligible potential for presence. None observed. Not a concern for this project. |
| Common Nighthawk (<i>Chordeiles minor</i>) | Special Concern | Nests in wide variety of open sites, including beaches, fields and gravel rooftops. | Ground of site is potentially suitable but is subject to too much disturbance to provide general utility as habitat. | Limited potential for presence. None observed. Not a concern for this project. |
| Eastern Meadowlark (<i>Sturnella magna</i>) | Threatened | Periodically mown, dry meadow for nesting. Habitat (meadow) should be > 10 ha, and preferably > 30 ha before bobolink are attracted to the site. Not near tall trees | No suitable habitat on the site. There is a record of the species from 2003 south of the site (Natural Heritage Information Centre; NHIC). The property to the south, however, has been stripped since 2014 and is therefore unlikely to currently provide any suitable habitat. | Limited potential for presence. None observed. Not a concern for this project. |
| Least Bittern (<i>Ixobrychus exilis</i>) | Threatened | Found in large quiet marshes and, usually near cattails. | No suitable habitat on or adjacent to site. | Negligible potential for presence. Not a concern for this project. |
| Loggerhead Shrike (<i>Lanius ludovicianus</i>) | Endangered | Short, sparsely vegetated "pasture land" with scattered shrub species (e.g., Hawthorn). | No suitable habitat on or adjacent to site. | Limited potential for presence. None observed. Not a concern for this project |
| Eastern Whip-poor-will (<i>Caprimulgus vociferus</i>) | Threatened | Mix of open and forested areas, such as savannahs, open woodlands, or openings in more mature, deciduous, coniferous, and mixed forests. | No suitable habitat on or adjacent to site. | Limited potential for presence. None observed. Not a concern for this project |
| Eastern Wood-pewee (<i>Contopus virens</i>) | Special Concern | Woodland species, often found near clearings and edges. | Trees and edges of the FOD5 woodlot south of the site provide some habitat suitability (a single Eastern Wood Pewee was observed during two bird surveys). | Eastern Wood-pewee was observed in the forest habitat south of the site that will be fully retained regardless. The change of land usage on areas next to the forest, from mining to residential, would not impact the utility of the forest habitat itself. The species would still feed along the woodlot edges, regardless of whether houses were added along the north side. Not a concern for this project. |

| Species Name | Provincial (ESA) Status | Habitat Requirement | Habitat on Site | Project Concerns Associated with Habitat on Site |
|--|-------------------------|--|--|--|
| Wood Thrush (<i>Hylocichla mustelina</i>) | Special Concern | Mature deciduous and mixed (conifer-deciduous) forests. | Trees in the FOD5 woodlot provide limited habitat suitability and is generally too small for this species. | Very unlikely to be present. None observed, but habitat would be retained regardless. Not a concern for this project. |
| Mammals | | | | |
| Little Brown Bat (<i>Myotis lucifuga</i>) | Endangered | Widespread, roosting in trees and buildings. Hibernate in caves or abandoned mines. | Trees in the FOD5 woodlot provide some habitat suitability. If present, the species would feed along the woodlot edges, regardless of whether housing were added along the north side. | Very unlikely to be present, but roosting habitat would be retained regardless. Feeding potential along woodlot edges would remain under the proposed development. Not a concern for this project. |
| Northern Long-eared Bat (<i>Myotis septentrionalis</i>) | Endangered | Associated with boreal forests, choosing to roost under loose bark and in the cavities of trees. Hibernate in caves or abandoned mines. | No suitable habitat on or adjacent to site. | Negligible potential for presence. Not a concern for this project. |
| Eastern Small-footed Bat (<i>Myotis leibii</i>) | Endangered | Coniferous forest in hilly country. Hibernate in smaller caves. Subject to air movement. | No suitable habitat on or adjacent to site. | Negligible potential for presence. Not a concern for this project. |
| Tri-coloured Bat (<i>Perimyotis subflavus</i>) | Endangered | Forage over water courses or open fields with large trees nearby. They never forage in deep woods. Hibernate in caves or abandoned mines. | Trees in the FOD5 woodlot provide some habitat suitability. If present, the species would feed along the woodlot edges, regardless of whether housing were added along the north side. | Very unlikely to be present, but roosting habitat would be retained regardless. Feeding potential along woodlot edges would remain. Not a concern for this project. |
| Turtles | | | | |
| Blanding's Turtle (<i>Emydoidea blandingii</i>) | Threatened | Quiet lakes, streams, wetlands with abundant emergent vegetation and hummock development and associated upland areas. Overwinters in wetlands. | No wetland habitat occurs on or adjacent to the site. Nearest drains are >1.3 km away, and they only provide tenuous connection to suitable habitat areas >2 km beyond that. | Negligible potential for presence. Not a concern for this project. |
| Vascular Plants | | | | |
| Butternut (<i>Juglans cinerea</i>) | Endangered | Variable but typically on well-drained soils. | The site and areas within 50 m are not suitable habitat (too highly disturbed). No Butternuts were observed on site or in the adjacent FOD5 woodlot. | Negligible potential for presence. Not a concern for this project. |

3.5 Other Natural Heritage Features

The Cambrian Woods UNA is located 105 m north of the north side of the Drummond property. There are no Provincially Significant Wetlands, wetlands found in association with Significant Woodlands, Significant Valleylands or Life Science Areas of Natural and Scientific Interest on or adjacent to the site.

While the FOD5 woodlot is too small to be considered a significant woodland, the presence of frog breeding areas (vernal pools), significant numbers of non-listed bat species (e.g., Big Brown or Silver Haired) and the presence of Special Concern species such as Eastern Wood Pewee would cause the feature to be considered Significant Wildlife Habitat. The dry/fresh coarse sand/gravel soils of the woodlot, however, should provide excellent drainage and are therefore very unlikely to permit the development of vernal pools. Frog breeding areas are thus considered very unlikely within the woodlot. It is unlikely the feature supports a roosting colony or large numbers of bats. The presence of Eastern Wood-pewee, however, does mean that the woodlot constitutes Significant Wildlife Habitat.

4.0 PROJECT DESCRIPTION

The project addressed by this EIS is a proposed residential community on the eastern half of the Brazeau property and the SWM pond area on the northwest corner of the Drummond property (Figure 5). The community will include a mix of single and town homes with a 1.72 ha neighbourhood park in the middle of the residential development.

Extraction activities are ceasing on the entire Brazeau site and on the Drummond pit to the north in support of this development. Both pit areas will be fully regraded as part of the rehabilitation required under their closing plans. Impacts to SAR and SAR habitat of the rehabilitation work are permitted and managed under the Notice of Activity filed with the MECP. The pit closures and rehabilitations will precede the proposed site development. As such, they are not directly addressed by this EIS as this EIS aims to address impacts and mitigations for the proposed residential community.

The western half of the Brazeau property and the remainder of the Drummond property (i.e. outside of the SWM pond area) will be reserved for future development. Main access to the proposed community will be from Borrisokane Road to the west. The community will be designed to allow for street access to the future residential community to the east. Servicing will be in accordance with the Functional Servicing Report prepared by DSEL. The stormwater management area for the development will be located within the northwest corner of the property. The pond will outlet to a pipe which goes down Borrisokane to Cambrian where it outlets into a roadside ditch and eventually into the Jock River.

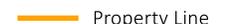
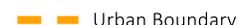
Site closure and rehabilitation of both the Brazeau pit and the Drummond pit to the north is anticipated to be completed during the winter of 2019 or 2020. With the area fully regraded, ground works for the new community and housing construction will begin with an anticipated start date in mid-summer of 2020. All construction is anticipated to be completed by the summer of 2023.. Any other works associated with the pit rehabilitations beyond site regrading (e.g., revegetation of areas outside of the new community) can proceed in tandem with community construction.



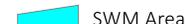
Figure 5 Proposed development

Legend

Site Boundaries

-  Property Line
-  Urban Boundary Points

Block Plan

-  Park
-  SWM Area

N



0 200 m

Project: CAIV 836
 Created By: AF and RH
 MTM Zone 9
 (NAD 83)
 Printed on: 2019-08-01



5.0 IMPACT ASSESSMENT

5.1 Impacts to Surface Water and Fish Habitat

No surface water features exist on or adjacent to the site. Stormwater will be conveyed in accordance with the Functional Servicing Report prepared by DSEL. No negative impacts can be expected to the surface water features and/or fish habitat.

5.2 Impacts to Site Trees

Both the Brazeau and Drummond properties will be filled and regraded as part of their required site rehabilitation prior to the commencement of the community development. This process will remove all trees from the both properties. As such, no trees will be present on site at the beginning of the start of site development by CBDC. Details of trees to be planted on site will be provided within the landscape plan for the proposed development.

5.3 Impacts to Species at Risk

Two SAR protected under the *ESA* (Bank Swallow and Barn Swallow) were observed directly on the properties in 2019. The rehabilitation and regrading of both the Brazeau and Drummond properties will be completed in accordance with Notices of Activity to be filed (separately for each property) prior to the commencement of site development by CBDC. The regrading of the properties will remove all Bank Swallow habitat from the site and its broader vicinity. As such, the proposed development itself will have no impact on that species.

Barn Swallows on site are currently nesting in a temporary garage structure made of piled cargo containers, which also must be removed from site as part of the broader site rehabilitation (i.e., prior to the proposed community development). When Barn Swallow nesting structures are removed, they must be replaced with new nesting structures to be located within approximately 1 km of the site. The new nest structures must then be maintained for three years. These new nest structures will be located in open areas more than 200 m from the proposed development. As such, the proposed development by CBDC will not be considered to have any impact on the new habitat area.

The woodlot to the south of the property provides habitat for Eastern Wood-pewee. The species is not protected under the *ESA*, though forest areas supporting the species are considered SWH. Impacts to SWH are discuss in Section 5.4.

5.4 Impacts to Natural Features

The woodlot south of the site serves as habitat for Eastern Wood-pewee (a SAR listed as Special Concern) and so is therefore considered SWH. The woodlot itself however, is separated from the proposed development area by about 10 m and will remain fully intact. Eastern Wood-pewee are somewhat urban tolerant and frequently inhabit forests areas adjacent to residential communities. The new residential area is not anticipated to be any more disruptive to the woodlot than the current pit. As such, replacing the pit with residential units should have no impact on the species, which could continue to nest in the woodlot.

Treed areas north of the Drummond property could also supply nesting space for Eastern Wood-pewee and should therefore be considered as SWH. At the time of development by CBDC – i.e. after the rehabilitation of the Drummond property – no trees will be present in the proposed SWM pond area. Restoration of the newly-opened land there as a SWM area, would have no impact on any Eastern Wood-pewee that may occur in treed areas on the adjacent property to the north.

Wooded areas adjacent to the Brazeau and Drummond properties could also provide habitat for non-listed bats, though this is unlikely they would be present in sufficient numbers for those area to constitute SWH for bats. Regardless, as the wooded areas off the properties will remain fully intact, and will retain will retain undeveloped/open lands on their other sides, no negative impacts would be anticipated to their utility as Significant Wildlife Habitat.

The SWM area on the Drummond property will be located over 100 m from the southern most edge of the Cambrian Woods UNA. The south-most 200 m of that UNA however, are listed as “Category 3 – Development Approved” under the City’s Urban Natural Features Strategy. Thus the SMM area will be located over 300 m from a protected UNA. More over, the trees on the intervening properties will be fully retained under the proposed CBDC development regardless. As such, no impacts are anticipated to the UNA.

No other natural features occur on site or within 120 m of the proposed development areas. Therefore, we predict no impacts to natural features from the proposed development.

6.0 MITIGATIONS

6.1 Mitigations for surface water features

To protect surface water features in the broader vicinity of the project, standard erosion and sediment control measures must be implemented on site during construction to limit the potential for sediment deposition off site by either surface water flows or by wind erosion. Details of the erosion and sediment control mitigation measures must be included in either the environmental management or servicing plan for the site.

6.2 Mitigations for Trees

Please note that the City’s acceptance of this report does not directly constitute permission to remove any trees. Removal of trees within the urban areas of the site (i.e., the eastern half) can only be undertaken upon the issuance of a tree removal permit from the City of Ottawa. This report however, in conjunction with a landscape plan, may be used to support the application for that permit and to advise mitigation measures imposed by the permit. No trees, however, are anticipated to remain on site following the pit rehabilitation.

To minimize impacts to any remaining trees located on and adjacent to the development area, the following protection measures are indicated as necessary during construction:

- Erect a fence beyond the critical root zone (CRZ; i.e., 10 x the trunk diameter at breast height) of trees. The fence should be highly visible (e.g., orange construction fence) and paired with erosion

control fencing. Pruning of branches is recommended in areas of potential conflict with construction equipment;

- Do not place any material or equipment within the CRZ of trees;
- Do not attach any signs, notices or posters to any tree;
- Do not raise or lower the existing grade within the CRZ of trees without approval;
- 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 NOT directed towards any tree's canopy.
- The *Migratory Bird Convention Act* (Canada, 1994) protects the nests and young of migratory breeding birds in Canada. The City of Ottawa guidelines stipulate no clearing of trees or vegetation between April 1 and August 15, unless a qualified biologist has determined that no nesting is occurring within 5 days prior to the clearing.

Specific trees to be planted on site will be identified in the landscape plan for the development. Tree species to be planted must be non-invasive and should be native to the Ottawa area. Recommended tree species to consider in the landscaping plan include Red Maple, White Pine, White Spruce, White Birch, Black Cherry, and White Cedar. Burr Oak may be considered where spacing allows for future showcase trees. Common Juniper, Maple-leaf Viburnum, Nannyberry, Serviceberry and Northern Bush-honeysuckle may be considered as appropriate shrub species. Trees must be planted within housing areas to a density equivalent to at least one per unit, though the distribution of specific planting locations may be varied such that a tree is not planted on every lot, as may be dictated by individual lot considerations. The landscape plan should include additional tree planting within the park space as may be accommodated by the final configuration of that area.

6.3 Mitigations for Species at Risk

The Brazeau and Drummond properties have both been observed to support SAR. As such, the pit operators or owners must file a Notice of Activity with the MNFR using the on-line, "One-Key" system. Once each property has been duly registered, the species and their habitats occurring on those properties are no-longer subject to protection by the MECP under the *ESA*. The properties will be regraded and rehabilitated upon their closure, following management plans as per regulations associated with the Notice of Activity registration.

Following the rehabilitation the pit areas, no SAR protected under the *ESA* will occur on or near the development area, and no further SAR specific mitigations would thus be required for the development proposed by CBDC.

6.4 Mitigations for Natural Features

As per standard tree protection measures indicated in Section 6.2, construction fencing should be run along the south edge of the site between planned construction work and the FOD5 woodlot (outside of the CRZ of trees therein) during the development period to prevent intrusion into that feature. As no other significant natural features occur on site or within 120 m of the site, no other specific mitigations are required.

6.5 Mitigations for Wildlife

Wildlife is generally anticipated to be absent from the immediate development area if ground works begin during the winter of 2019. Some common, urban-tolerant wildlife however may occur within areas near the site and could, on occasion, traverse the development area. The following mitigation measures must be implemented on site during construction of the project:

- Do not harm, feed, or unnecessarily harass wildlife.
- Keep food wastes and other such garbage in secured wildlife-proof containers, and promptly removal this material from the site (especially in warm weather).
- Drive slowly and avoid hitting wildlife where possible.
- Avoid providing unintended wildlife shelters. Effective mitigation measures include:
 - Covering or containing piles of soil, fill, brush, rocks and other loose materials;
 - Capping ends of pipes where necessary to keep wildlife out;
 - Ensuring that trailers, bins, boxes, and vacant buildings are secured at the end of each work day to prevent access by wildlife.
- Check the work site (including previously cleared areas) for wildlife prior to beginning work each day.
- Inspect protective fencing or other installed measures daily and after each rain event to ensure their integrity and continued function.
- Monitor construction activities to ensure compliance with the project-specific protocol (where applicable) or any other requirements.

7.0 SUMMARY AND RECOMMENDATIONS

It is my professional opinion that no negative impacts are anticipated to listed SAR or other natural heritage features under the proposed development.



Anthony Francis, PhD
KILGOUR & ASSOCIATES LTD.

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Appendix 1
Qualifications of Report Author

Anthony Francis, PhD

Dr. Francis is an ecologist with over 18 years of experience in both terrestrial and aquatic projects. His doctoral thesis work on global plant diversity patterns included conducting tree surveys across North America. As a consulting ecologist he has worked on diverse ecological projects including literature reviews of forestry management and species-at-risk; environmental studies of contaminants (metals and suspended particulates); geomatic and statistical analyses for federal and provincial ministries as well as for private industry; and aquatic and terrestrial species inventories. He has contributed to environmental impact statements and federal environmental screening assessments for creek realignments and other infrastructure projects across Ontario.