February 1, 2018 Reference No. 086822

Mr. David Parks
Director of Planning, Development & Tourism
County of Simcoe
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Mr. Brent Spagnol, MCIP, RPP
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Township of Springwater
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Minesing, ON L9X 1A8

Mr. Chris Hibberd
Director, Planning Services
Nottawasaga Valley Conservation Authority
8195 8th Line
Utopia, ON L0M 1T0

Dear Sirs:

Re: County of Simcoe Environmental Resource Recovery Centre
Amended Scoped Environmental Impact Study Report
Ministry of Municipal Affairs File #: 43-OP-169096

The County of Simcoe (County) continues to pursue the development of the proposed Environmental Resource Recovery Centre (ERRC) located at 2976 Horseshoe Valley Road West (Site) in the Township of Springwater (Township). In support of the ERRC, applications for Amendments to the Official Plan and Zoning By-Law were submitted to Township Planning staff on November 18, 2016. In addition to these Amendments, a number of supporting studies were also submitted, including a Scoped Environmental Impact Study (EIS).

As part of the One Window Provincial Planning Service, a copy of the EIS was circulated to the Ministry of Municipal Affairs (MMA) and partner ministries including: Ministry of Natural Resources and Forestry (MNRF), Ministry of the Environment and Climate Change (MOECC), Ministry of Tourism, Culture and Sport (MTCS), Ministry of Transportation (MTO) and Ministry of Agriculture, Food and Rural Affairs (OMAFRA). The EIS was also circulated to Ainley & Associates Limited (Ainley) for review on behalf of the Township.

GHD are pleased to provide the enclosed Amended Scoped Environmental Impact Study, which has been revised to address review comments as well as document additional fieldwork (2017) that has been carried out at the Site. The review comments and responses have also been summarized in the attached table, providing an overview of the revisions made in the Amended EIS.

Should you require any additional information or clarification please do not hesitate to contact the undersigned.

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Sincerely,

GHD

Laura Lawlor, M.Sc., C.E.

BD/ll/1

Encl.

Comment No.	Submitted By	Date Submitted	Document	Comment	Response	Action
31	Ainley Group	January 24, 2017	Scoped Environmental Impact Study	We note that a portion of the site is regulated under the Conservation Authorities Act, however the proposed site location is not anticipated to impact the regulated lands. Given the forest coverage area, the characteristics of the site also comply with the County's Official Plan - Greenlands definition. The EIS suggests that the proposed development clearing of approximately 4.5 Ha equates to less than 1 % of the total contiguous woodland area and would therefore have a negligible impact on the overall County Greenlands area. However, the Planning Justification Report recommends an area equivalent to the area being cleared for this site development to be planted elsewhere as replacement, in order to maintain the net quantity of woodlands throughout the County forests (County OP - Resource Conservation). This is somewhat contradictory and the applicant's intent should be clarified by the owner.	The approximate maximum development area has been updated to 4.5 ha (facility area), and 1.0 ha associated with the access road, for a total of 5.5 ha development area. While the 5.5 ha area proposed to be cleared as part of this development is negligible with respect to the total forest area coverage, the County acknowledges that it is responsible to maintain a net balance of woodlands through the County's forest holdings. For this reason and to mitigate the impacts of the removal of the 5.5 ha area, tree planting elsewhere in the County is recommended.	Confirm the requirements for replacement tree planting and undertake tree planting elsewhere in the County to mitigate the impacts of tree removal.
32	Ainley Group	January 24, 2017	Scoped Environmental Impact Study	The EIS identifies initial perimeter works and tree clearing timing restrictions to limit impacts to breeding birds, terrestrial fauna, etc. Further timing and restriction details in the form of an Environmental Management plan should be provided at the detail site servicing stage.	An Environmental Management Plan (EMP) will be developed during the detailed design phase that includes detailed timing and restrictions relating to the initial perimeter works and tree clearing. The timing and restrictions will limit impacts to flora and fauna.	Complete the detailed design for the of MMF, including an EMP. Complete the detailed design for the OPF, including updates to the EMP.
33	Nottawasaga Valley Conservation	March 2, 2017	Scoped Environmental Impact Study	The submission has successfully demonstrated that the proposed development is outside any area of natural hazards (flooding and erosion) and there are no hazardous soils that would impact the development.	Acknowledged.	No further action required.
34	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	The stormwater management proposal is to use a treatment train approach to provide water quality and water quantity control for all stormwater prior to discharging onto Horseshoe Valley Road. This approach is reasonable for this site.	Acknowledged.	No further action required.
35	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 2.2.3 - SWMM2-1 also supports thicket swamp inclusions. Ground cover notes should include sensitive fern, marsh fern, dwarf raspberry, wetland sedges. Ground cover indicated in report is more typical of ground cover in adjacent (non-wetland) fresh-moist white pine hardwood mixed forest (FOMM9-2). Please add this information to the report.	The ground cover notes have been updated in the Amended Scoped EIS to include sensitive fern, marsh fern, dwarf raspberry and wetland sedges. It has also been noted that SWMM2-1 community supports thicket swamp inclusions.	No further action required.
36	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	NVCA staff concurs with Section 2.2.4 and 2.2.5 of the EIS. Wetlands mapping undertaken by GHD is accurate and the unevaluated MNRF wetland just west of the property is not wetland but in fact a dry-fresh sugar maple forest. It is also agreed that the previously mapped drainage feature is not present in the field as noted in the EIS (Section 4.3).	Acknowledged.	No further action required.
37	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 2.2.6.1 of the EIS notes timing of Amphibian breeding surveys, however further details on species activity (including call code as per Marsh Monitoring Protocol) by station and by survey date should be provided.	Amphibian breeding survey detail including species per station, species per survey and calling code for each species has been updated in the Amphibian Survey Results table (Table 2.4). The additional information requested has also been detailed within the Amphibian Survey section (2.2.6.1) of the Amended Scoped EIS.	No further action required.
38	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 2.2.6.2 of the EIS regarding breeding bird surveys should include further details on species activity by station.	An additional table (Table 2.5) has been created for inclusion in the Amended Scoped EIS to detail species detected at each bird survey station. Further detail on woodland area-sensitive species has also been included in the additional table and within the text of the Amended Scoped EIS (Section 4.5.2).	No further action required.
39	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 2.2.6.3 of the EIS should include observance of spotted salamander egg masses in the SWCM2-1 vernal pools on May 31, 2016. Large numbers of dead/dying tadpoles (species unknown) observed in the MASM1-2/SWCM2-1 wetland in the northeast corner of the property on July 4, 2016. Additionally, please note the drought conditions in spring/summer 2016.	The additional observance of spotted salamander egg masses have been added to the Wildlife and Habitat Feature figure (Figure 5). The spotted salamander egg masses, tadpoles and drought conditions of 2016 have been noted within the Wildlife Habitat Features (Section 2.2.6.3) section of the Amended Scoped EIS.	No further action required.
40	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Vegetation community inventory is incomplete and additional sedges and other wetland flora identified during site visits should be included.	The vegetation inventory (Appendix B) has been updated to include the additional species noted by NVCA. Two additional field visits were completed in 2017 to provide a more complete vegetation inventory within the proposed facility footprint and wetland areas within the Study Area. The results of the additional field visits are included in an updated vegetation inventory and documented within the text of the amended Amended Scoped EIS.	No further action required.
41	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Potential habitat for Hine's Emerald Dragon Fly has been appropriately shown to not be present on the property. Confirmation of Ministry of Natural Resource and Forestry (MNRF) review of bat survey protocols and proposed mitigation should be provided for bat Species at Risk considerations.	GHD consulted with MNRF on the bat survey protocols. As per MNRF recommendations, a systematic snag survey and acoustic survey was completed in 2017 to further characterize any potential bat habitat. The results of the additional surveys are detailed in Section 2.2.7 and Appendix D of the Amended Scoped EIS.	No further action required.
42	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Vegetation species of interest also identified ox eye sunflower and running strawberry bush noted as being regionally rare in the area. Mitigation should be considered for these two species should they be potentially impacted by proposed site development. Mapping showing the location(s) of these two species should be provided.	Regionally rare species were further delineated during 2017 field activities and results are documented in section 2.2.7 and Figure 5. In advance of the final design, a species-appropriate transplantation plan will be developed if species are identified to be impacted by the ERRC facility.	Develop a species-appropriate transplantation plan in advance of the final ERRC design if impacted species are identified.
43	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 4.1 of the EIS should include a note that the forests (and contiguous areas) on the property meet the size criterion for "woodlots" as outlined under Section 16.2.1.4.2 in the Township of Springwater Official Plan. In addition, identified wetlands are considered Category 1 Lands as per Section 16.2.1.4.1 of the Springwater Official Plan and should be noted as such within the EIS report.	Section 4.1 of the Amended Scoped EIS has been updated to clearly identify woodlots and Category 1 Lands.	No further action required.
44	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Section 4.5 of the EIS regarding significant wildlife habitat should include an assessment of potential Amphibian Breeding Habitat (Woodland) as per MNRF Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. As per comments on Section 2.2.6.1, insufficient documentation is provided in the report to determine either the presence or absence of this significant wildlife habitat component on the property.	Upon review of the detailed amphibian surveys and MNRF Significant Wildlife Habitat (SWH) Criteria Schedules for Ecoregion 6E, the Amended Scoped EIS identifies that amphibian SWH is present on the property.	No further action required.
45	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Additional justification is required for statement in the EIS that much of the property should not be considered as area-sensitive breeding bird habitat on the basis that it is not comprised of "large, natural blocks of mature woodland". While the property is a managed plantation, natural regeneration has occurred in many of the stands (through management) as indicated by non-plantation Ecological Land Classification (ELC) coding. Based on NVCA staff observations, a number of area-sensitive bird species are present in the forest which attests to the presence of forest interior conditions conducive to a significant wildlife habitat function. This potential function should be re-evaluated based on the appropriate ELC communities present on the property.	The evaluation of Area-Sensitive Breeding Bird Habitat (ASBBH) has been revisited specifically addressing SWH function. GHD found that although natural blocks of mature woodland within the Study Area are limited to the northeast and southeast corners, the presence of area-sensitive birds across the Study Area warrants consideration of the Study Area as candidate SWH function for Woodland ASBBH. Table 2.5 has been prepared to reflect point count results and likelihood of breeding (possible, probable or confirmed). While the results of the 2016 breeding bird surveys (2 surveys completed within the breeding bird season) do not strictly satisfy defining criteria for SWH of ASBBH, it is prudent to assume that the Study Area provides SWH function for ASBBH based on the abundance of area-sensitive birds observed within the Study Area. The Amended Scoped EIS has been updated to reflect this.	No further action required.
46	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Rationale should be provided in the EIS in support of the proposed facility footprint, clarifying why it is proposed for the current location instead of in a potentially less sensitive natural heritage areas (i.e. forest edge/near road).	Rationale for the siting of the proposed ERRC footprint is provided in Section 3.4 of the Facility Characteristics Report. The siting considered multiple factors, such as wetlands, previously disturbed areas of the Site (i.e., access road, trails), archaeologically significant areas, sensitive receptors, separation distances, and topography. The footprint location identified provided the best balance of all factors considered.	No further action required.

Comment No.	Submitted By	Date Submitted	Document	Comment	Response	Action
47	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	The existing Ontario Federation of Snowmobile Clubs (OFSC) Trail is proposed to be relocated. Identification of new trail locations should be proposed and consideration given to avoiding any impacts to the natural features identified in the EIS.	The Amended Scoped EIS identifies sensitive natural heritage features that should be avoided for trail relocation (e.g., hemlock forest stand, wetlands) in Section 5.2.2. The County considered this information when consulting with the OFSC regarding the relocation of the trail.	No further action required.
48	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	NVCA staff agrees with the report's findings outlined in Section 5.2 that the proposed facility/primary access route is sufficiently removed from the wetlands to protect their functions (including upland dispersal of amphibians) Details of proposed mitigation along the emergency access route (i.e. crossing tunnels/culverts, drift fences), should be considered at the site plan stage of the process.	The details of the mitigation along the emergency access route will be considered as part of the detailed design stage.	Complete the detailed design for the of MMF, including potential mitigation measures along emergency access route.
49	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Afforestation/offsetting is recommended to offset the 4.5 Ha loss of forest cover associated with the proposed facility footprint. NVCA staff recommends that the proposed afforestation/offsetting be undertaken in a location that will contribute to forest interior function as well as forest cover to offset the loss of forest interior habitat on this property. Typically, offsetting is undertaken on a 2 to 1 basis, which represents 9 Ha of reforestation for this project.	Recommendation for afforestation/offsetting was discussed with the NVCA and has been added to Section 5 of the Amended Scoped EIS. This includes a minimum 1:1 replacement ratio (preferably 2:1) and identification of preferred locations for planting areas that contribute to interior forest function.	Confirm the requirements for replacement tree planting and undertake tree planting elsewhere in the County to mitigate the impacts of tree removal.
50	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Further afforestation should be considered to offset the loss of forest cover associated with the proposed expansion of the primary access route and emergency access road. Afforestation of the historical and now abandoned portion of the primary access route may partially offset this loss of forest; however additional afforestation should be included to offset the net loss of forest to roadworks.	Recommendation for afforestation/offsetting was discussed with the NVCA and has been added to Section 5 of the Amended Scoped EIS. This includes a minimum 1:1 replacement ratio (preferably 2:1) and identification of preferred locations for planting areas that contribute to interior forest function.	Confirm the requirements for replacement tree planting and undertake tree planting elsewhere in the County to mitigate the impacts of tree removal.
51	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	NVCA staff agrees that the planned continued management of the plantation areas on the remainder of the property toward mature native forest form will also serve as a portion of mitigation.	Acknowledged.	No further action required.
52	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	Further mitigation techniques will need to be detailed at the site plan stage of the planning process and should include directional lighting to minimize intrusion into natural areas or fencing of the ERRC footprint to minimize inadvertent encroachment into natural areas.	Further mitigation measures surrounding lighting and fencing will be considered at the detailed design stage.	Complete the detailed design for the of MMF, including details of lighting and fencing. Complete the detailed design for the OPF, including updated lighting requirements.
53	Nottawasaga Valley Conservation Authority	March 2, 2017	Scoped Environmental Impact Study	A salvage and transplant plan should be generated for regionally rare species that may be impacted by the facility footprint and access routes.	Section 5.2.2. 'Mitigation' has been updated to identify that regionally rare species will be transplanted. A species-appropriate transplantation plan will be developed as part of the detailed design phase.	Develop a species-appropriate transplantation plan in advance of the final ERRC design if impacted species are identified.
54	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	MNRF staff request clarification with respect to the surveys conducted in support of the conclusions made in the Scoped EIS. Additional surveys and/or mitigation may be required (as outlined in the technical comments in Appendix 'A') to ensure the Scoped EIS demonstrates that there will be no negative impacts from the proposed development on the natural features or their ecological functions with respect to significant wildlife habitat in a manner consistent with the PPS.	Further clarification with respect to the surveys conducted in support of the conclusions made in the Amended Scoped EIS is provided below in the responses to Comments 57 - 61.	No further action required.
55	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	The 'Planning Justification Report' prepared by GHD (dated November 2016) states that targeted surveys for Species at Risk were carried out. Although the Scoped EIS noted incidental sightings of two bats within the study area on two separate visits, MNRF is concerned that the Scoped EIS does not identify the survey protocol that was used to identify potential roost habitat for endangered bats within the study area. This information is required in order to support the proposed mitigation measures for endangered bats. Please see Appendix 'A' for technical comments.	GHD consulted with MNRF on the bat survey protocols. As per MNRF recommendations, a systematic snag survey and acoustic survey was completed in 2017 to further characterize any potential bat habitat. The results of the additional surveys are detailed in Section 2.2.7 and Appendix D and E of the Amended Scoped EIS.	No further action required.
57	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	There were two bird species discovered within the study area that have a special concern status. These are the eastern wood-pewee and the wood thrush. The habitat of a species with special concern status under the Endangered Species Act (ESA) is considered significant wildlife habitat and should be protected. The location of these birds is not identified in the Scoped EIS, nor are there mitigation measures to protect these species from potential impacts.	The locations of these species, along with all birds observed during Site surveys, have been included in an additional table (Table 2.5) by each bird survey station. Further detail on area-sensitive species has also been included in the additional table and within the text of the Amended Scoped EIS (Section 4.5.2), along with the impact and mitigation sections.	No further action required.
58	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	There was a red-shouldered hawk identified within the study area. The habitat of this species, known as woodland raptor nesting habitat, is considered significant wildlife habitat. The location of this hawk is not identified in the Scoped EIS, nor are there mitigation measures to protect this species from potential impacts.	The location of the red-shouldered hawk has been included as part of new Table 2.5 of the Amended Scoped EIS. A stick nest survey was conducted in spring 2017 prior to leaf out to identify any raptor nest present within the Study Area, the results and implications of are included in Section 4.5.2 of the Amended Scoped EIS.	No further action required.
59	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	Area sensitive breeding bird habitat exists where three or more of the following birds are breeding in a woodlot: sapsucker, red-breasted nuthatch, very, blue-headed vireo, northern parula, black-throated green warbler, blackburnian warbler, black-throated blue warbler, ovenbird, scarlet tanager and winter wren. Ten of the eleven birds indicative of ASBBH were recorded in the study area during the breeding bird season according to the protocol of the Ontario Breeding Bird Atlas. The Scoped EIS mentions that evidence was recorded to determine if the observed species were possible, probable or confirmed breeders, however these records are not contained within the study report. Detailed information with respect to the locations and observed breeding status (possible, probably or confirmed breeder) of these birds should be provided in the Scoped EIS. Without this information, it is difficult to support the conclusion that this significant wildlife habitat feature is not present in the study area.	The evaluation of Area-Sensitive Breeding Bird Habitat (ASBBH) has been revisited specifically addressing SWH function. GHD found that although natural blocks of mature woodland within the Study Area are limited to the northeast and southeast corners, the presence of area-sensitive birds across the Study Area warrants consideration of the Study Area as candidate SWH function for Woodland ASBBH. Table 2.5 has prepared to reflect point count results and likelihood of breeding (possible, probable or confirmed). While the results of the 2016 breeding bird surveys (2 surveys completed within the breeding bird season; only 2 pairs of qualifying species were reported as confirmed breeding) do not strictly satisfy defining criteria for SWH of ASBBH, it is prudent to assume that the Study Area provides SWH function for ASBBH based on the abundance of area-sensitive birds observed within the Study Area. The Amended Scoped EIS has been updated to reflect this.	No further action required.
60	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	The Scoped EIS doesn't describe the weather conditions on the three nights when surveys were carried out for amphibian breeding habitat. Survey protocol requires that these surveys be performed during conditions when there is little wind and minimum air temperatures of 5C, 10C and 17C on each of the three respective nights of surveys. A further requirement of the amphibian surveys requires call level codes. These codes are not described in the Scoped EIS. Insufficient information is provided in the Scoped EIS to determine if this significant wildlife habitat feature is present in the study area.	As stated in the Scoped EIS, the calling amphibian survey protocols were followed for the on-Site surveys. These surveys satisfied the wind and temperatures, as noted. Amphibian breeding survey detail including species per station, species per survey and calling code for each species has been updated in the Amphibian Survey Results table (Table 2.4). The additional information requested has also been detailed within the Amphibian Survey section (2.2.6.1) of the Amended Scoped EIS.	No further action required.
61	Ministry of Municipal Affairs and Partner Ministries (MNRF, MOECC, MTCS, MTO, OMAFRA)	April 7, 2017	Scoped Environmental Impact Study	The Planning Justification Report states that the targeted surveys for Species at Risk were carried out. The Scoped EIS noted that there were incidental sitings of two bats within the Study Area on two separate visits and the GHD documented any snags that were encountered (Figure 5). Snags were considered potential roosts and documented if they exhibited cavities or crevices and possessed greater than or equal to 25 centimetre (cm) diameter at breast height (dbh). Our concern is that the Scoped EIS does not identify the survey protocol that was used to identify potential roost habitat for endangered bats within the study area. This information is required in order to corroborate the assertions made and support the proposed mitigation measures for endangered bats.	Based on the presence of bats within the Study Area (as per the two incidental sitings), the approach used was to assume that maternal roosts may be present on Site within the Study Area. As such, it is the incidental snags observed within the Study Area that were identified in the Scoped EIS. GHD has since consulted with MNRF and as per MNRF recommendations, systematic snag surveys and acoustic surveys were completed in 2017 to further characterize any potential bat habitat within the Study Area. The results of the additional surveys are documented within Section 2.2.7 and Appendix D and E of the Amended Scoped EIS.	Continued consultation with MNRF to identify if a permit for the development is required.

Amended Scoped Environmental Impact Study

Proposed Environmental Resource Recovery Center
Springwater, Ontario

County of Simcoe

GHD | 651 Colby Drive Waterloo Ontario N2V 1C2 Canada

086822 | Report No 14 | February 1 2018

Executive Summary

The County of Simcoe (County) adopted a Solid Waste Management Strategy (Strategy) in 2010 that provides the framework for the County's waste disposal options and diversion programs. Guided by the Strategy, and following further recommendations from Council, the County initiated a siting process in 2014, which mirrored the Environmental Assessment (EA) process, to identify a site for the development of an Organics Processing Facility (OPF) for the long-term processing of source-separated organics (SSO). The siting process was subsequently expanded to also identify a site for the development of a Materials Management Facility (MMF) for the transfer of garbage, recyclables, and SSO. Collectively, these facilities are referred to as the Environmental Resource Recovery Centre (ERRC). The proposed ERRC is located at 2976 Horseshoe Valley Road West, Springwater (Study Area).

The Study Area is composed of Freele County Forest tract, an approximately 65 year old mixed species plantation managed by County foresters. It represents approximately 84 hectares (ha) of a greater than 475 ha contiguous woodland area. Wetlands are present in both the northeast and southeast corners of the Study Area.

The Terms of Reference (TOR) for the scoping of the EIS were prepared in consultation with Simcoe County (County), Township of Springwater, Nottawasaga Valley Conservation Authority (NVCA), and the Ministry of Natural Resources and Forestry (MNRF). The Scoped EIS (EIS) was completed in accordance with the requirements of the Simcoe County Official Plan (OP) as approved in 2016 by the Ontario Municipal Board (OMB), the Provincial Policy Statement (2014), and the Growth Plan for the Greater Golden Horseshoe (2017). The EIS was amended to consider comments received from the various reviewing and approval agencies on the 2016 EIS.

Secondary source natural heritage information was collected and used to guide field activities. Field investigations were conducted in 2016 and 2017 and included wetland boundary delineation, verification of watercourse presence, vegetation inventory, calling amphibian surveys, breeding bird surveys, bat acoustic monitoring, snag density survey, stick nest survey, and incidental wildlife observations. NVCA verified wetland boundary delineations were field delineated and mapped. The field data was used to assign Ecological Land Classification (ELC) units to the vegetation units present, and describe the available habitats and natural features of the Study Area for a total of seven upland and four wetland ELC units. Unique within the Study Area is an older-growth hemlock stand, which is present in the southeast corner.

Based on the determination of Study Area habitats, targeted surveys for Species at Risk (SAR) were conducted for forked three-awned grass (*Aristida basiramea*). However, suitable habitat was not present within the Study Area for whip-poor-will or Hine's emerald dragonfly, SAR that secondary source information indicated may be present in the area. Therefore, targeted surveys for presence of these species were not conducted. Two bird species with provincial Special Concern status and one with federal Special Concern status were observed within the Study Area. It is also likely that low densities of SAR bats are using the Study Area for maternity roosting, feeding and commuting as they were inferred to be using the Study Area via acoustic monitoring.

A watercourse, identified on mapping layers as a west – east feature in the south end of the Study Area was determined not to be present through multiple site visits.

As the Study Area woodland is mapped as Greenlands, and is part of a greater than 10 ha woodland in the Simcoe Uplands, it meets the criteria for definition of a significant woodland under the Simcoe County Official Plan (OMB approved 2016). Environmental protection of natural heritage features in the Township of Springwater Official Plan is classified as Category 1 (most protective) or Category 2 (lesser protective) lands. The northeast portion of the Study Area associated with the northeast wetlands is designated Category 2 lands; the balance of the Study Area does not have a natural heritage designation under the Township of Springwater Official Plan.

The Natural Heritage Reference Manual (MNR, 2010) provides guidance for the implementation of the natural heritage considerations associated with the Provincial Policy Statement (PPS). Based on the criteria of evaluation for significance under the PPS the Study Area is part of a Significant Woodland. The Study Area meets the criteria for Significant Woodland, and is considered Significant Wildlife Habitat for Woodland Area-Sensitive Breeding Birds, Bat Maternity Colonies, Amphibian Breeding (Woodland) and for Species of Conservation Concern. In accordance with PPS policy 2.1.5 (MMAH, 2014), site alteration [includes development] is not permitted unless it has been demonstrated that there will be no negative impact (as defined by the PPS) on the natural features or their ecological functions.

The proposed ERRC is a 4.5 ha development that will encompass the OPF, MMF, an administration building, truck servicing facility, and associated stormwater management facilities. In addition, approximately 1.0 ha will be required for an access road, drainage ditch and utility corridor to Horseshoe Valley Road to the south. If process water is generated by the selected OPF technology, it will be isolated from stormwater, temporarily stored on site and pumped out for off-site treatment and disposal. Stormwater management controls will be employed to mitigate the increase of surface runoff from the impervious areas, maintain existing water quality and quantity conditions, and address the water balance deficit. Components of the facility include: vegetative filter strips, a vegetated swale, a stormwater management pond (SWMP), and a drainage ditch along the access road to convey any overflow from the SWMP. The ERRC entrance from Horseshoe Valley Road is proposed to be located east of the existing entrance; the balance of the access roads within the Study Area will utilize existing paths/access roads.

Negative impact, as defined in the PPS and applicable to this scoped EIS, is defined as “degradation that threatens the health and integrity of the natural features or ecological functions for which and area is identified due to single, multiple or successive development or site alteration activities”.

A number of direct and indirect potential impacts from the construction and/or operation of the proposed ERRC on the vegetation, wildlife and habitat are identified, along with measures to mitigate these impacts. While the development of the proposed ERRC will result in the loss of approximately 5.5 ha of the Freele County Forest tract, this conservatively represents a 1 percent loss of the total contiguous woodland feature. Further, it is the most natural areas of the Study Area (wetlands to the northeast, old growth hemlock stand to the southeast) that will first and foremost be avoided. These will remain undisturbed and therefore not be impacted by the development of the

ERRC. The mitigation measures provided herein are protective of a range of vegetation and wildlife species.

Given consideration of the mitigation measures committed to as part of the ERRC development, the ERRC will not result in a negative impact, as defined under the PPS, on the larger woodlot feature and associated functions. This is based on the proposed location of the ERRC, the plantation history of the Site, the actively managed nature of the Study Area and the implementation of the recommended mitigation measures, which adequately avoid, compensate and replace natural features (i.e. vegetation/plantings) within the wider woodlot feature.

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1. Introduction

1.1 Introduction

GHD Ltd. has been retained by Simcoe County (County) to complete a Scoped Environmental Impact Study (Scoped EIS) for the proposed co-located development of a Materials Management Facility (MMF), an Organics Processing Facility (OPF), and ancillary uses, which will collectively be referred to as the Environmental Resource Recovery Centre (ERRC). The proposed ERRC is located at 2976 Horseshoe Valley Road West, Springwater (Study Area) and the Scoped EIS was completed in accordance with the requirements of the Simcoe County Official Plan (OP; OMB approved December 29, 2016), which designates the property as County Greenlands.

The proposed development is located within Freele County Forest. Freele County Forest is roughly 84 hectares (207 acres) in area, and rectangular in shape, with approximate dimensions of 625 metres (m) wide and 1,370 m long (2,050 feet by 4,500 feet). The Study Area features established mixed plantation and an unevaluated wetland in the north-east corner. This forest is managed by the County for timber harvest, and is currently used by the community for walking and as a snowmobiling trail. It is expected that the ERRC facility, access road, drainage ditch and utility corridor will comprise a footprint of around 6.5 percent of the Study Area, covering an area of approximately 5.5 hectares (13.5 acres), and is proposed to be situated on an elevated area north-west of the Study Area mid-point; the ancillary access road, drainage ditch and utility corridor will connect the ERRC facility to the south to Horseshoe Valley Road. A Study Area Location Map is provided as Figure 1 which outlines the limits of the Study Area.

The Terms of Reference (TOR) for this Scoped EIS was developed on April 1, 2016 in consultation with the Nottawasaga Valley Conservation Authority (NVCA), the Ministry of Natural Resources and Forestry (MNRF), Simcoe County, and the Township of Springwater to include an evaluation of all relevant natural features and species present within the Study Area. This Amended Scoped EIS is provided as an update to the November 2016 Scoped EIS based on comments received from and further consultation with the reviewing agencies.

In accordance with Schedule 5.1 of the Simcoe County OP, the entire Study Area is designated as Greenlands as the property supports a forested area greater than 10 hectares (ha). This report has been prepared to address the requirements stipulated in the Simcoe County OP to satisfy the requirements of Provincial and County OP policies, as well as other relevant legislation.

1.2 Project Team

The following individuals contributed to the development of this Scoped EIS report.

Project Manager Brian Dermody, P.Eng.

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2. Existing Conditions, Natural Features and Resources

2.1 Background Review

2.1.1 Secondary Sources

Available secondary sources of information were obtained and reviewed to determine existing Natural Environment conditions within the Study Area. The sources reviewed are outlined in **Table 2.1.**

Table 2.1 Secondary Source Information Reviewed

Source	Information Reviewed
MNRF	• Species at Risk (SAR) • Natural Heritage Features data layers from Land Information Ontario • Regionally Rare Vegetation Lists
Fisheries and Oceans Canada	• Species at Risk Fish and Mussel Maps (2015)
Ontario Breeding Bird Atlas	• Breeding bird data for the Study Area
County of Simcoe	• County of Simcoe Official Plan • Freele County Forest management documents
iNaturalist	• Plant and animal observations in the Study Area
Government of Canada	• The Atlas of Canada - Toporama

Table 2.1 Secondary Source Information Reviewed

Source	Information Reviewed
Ontario Reptile and Amphibian Atlas	• Species records for Study Area
Ontario Butterfly Atlas	• Species records for Study Area
eBird	• Avian species records in vicinity of Study Area

2.1.2 Previous Studies

The Study Area is currently a County managed forest and routine tree inventories and tree health surveys are conducted. Relevant documents were obtained from the County and reviewed prior to field activities. The materials received and reviewed included a forest inventory and stand health evaluations. No additional environmental studies are known to have been completed within the Study Area.

2.2 Field Investigations

An initial field reconnaissance was conducted by a GHD ecologist on January 27, 2016. Observations made were limited to general vegetation communities, incidental wildlife, and likely location of a mapped watercourse due to the season and snow covered ground, with a focus on the proposed facility footprint and associated development (e.g. access road). An in-depth characterization of the property could not be completed at this time due to the time of year and extensive snow cover. As per the requirements of the County OP and stipulations established in the TOR, extensive field surveys (outlined in **Table 2.2**) were conducted during the appropriate field season in 2016 to confirm relevant habitat features and species presence. Based on the results of the 2016 surveys and correspondence with the agencies and stakeholders, additional field surveys were completed in 2017 to further characterize Study Area habitats and species presence, as per Table 2.2.

Table 2.2 Field Investigations

Field Investigation	Dates
Study Area Reconnaissance	January 27, 2016
Ecological Land Classification (ELC)	Collected and refined during all Study Area visits (April – August 2016)
Watercourse Verification	May 10, 2016
Wetland Delineation	May 31, 2016; July 4, 2016
Species at Risk Habitat Verification	Collected during all Study Area visits Forked three awned grass: August 23, 2016; September 28, 2016
Amphibian Surveys	April 18, 2016; May 10, 2016; June 16, 2016
Breeding Bird Survey	May 31, 2016; June 17, 2016
Snag Density and Stick Nest Survey	April 19, 2017

Table 2.2 Field Investigations

Field Investigation	Dates
Bat Acoustic Monitoring	June 14 – June 29, 2017
Vegetation Inventory	June 14, 2017; July 25, 2017
Incidental Species Observations	Collected during all Study Area visits

2.2.1 Physiography and Soil Conditions

Physiography of the Study Area is shown on Figure 2. The Study Area is dominated by Sand Plains, with Till Plains present in the northwest portion. Based on available mapping resources (Simcoe County, 2015), the Study Area features low to medium vulnerability groundwater recharge areas, particularly in areas that coincide with wetlands.

2.2.2 Natural Heritage Features

Available natural heritage mapping from MNRF NRVIS data layers were used to screen for the presence of natural heritage features within and adjacent to the Study Area. These layers are presented on Figure 3 along with site delineated features. There are no Areas of Natural or Scientific Interest (ANSI) or Significant Ecological Areas (SEA) identified as occurring within the Study Area. Unevaluated wetlands are mapped in the northeast portion of the Study Area, and an isolated wetland to the west of the Study Area. A watercourse is also shown to occur within the southern portion of the Study Area. These identified features were examined during field investigations. Verification of the presence of the watercourse was conducted on May 10, 2016, and no watercourse was found to be present in this area (discussed in Section 2.2.4). The boundaries of Study Area wetlands were verified and refined during visits with GHD and NVCA biologists and are discussed in greater detail in Section 2.2.5.

The County's OP identifies the entire property as Greenlands (Schedule 5.1, as approved December 29, 2016).

Based on the size and attributes of the forested area on and adjacent to the property, the characteristics of this forest comply with the criteria of the OP significant woodland definition, and therefore under the County Greenlands designation.

Under the 2015 Township of Springwater OP, environmental protection of natural heritage features is classified under one of two designations: Category 1 – primarily undeveloped natural areas of high environmental quality and significance or sensitivity; or Category 2 – areas of lesser environmental significance or sensitivity (e.g. lands adjacent to Category 1 lands), previously altered lands or water or impacted and developed areas which exhibit a variety and mix of existing uses. The northeast corner of the Study Area is designated Category 2 Lands, while the balance of the Study Area does not have a natural heritage designation, as per Schedule B of the Township of Springwater OP.

2.2.3 Ecological Land Classification (ELC) and Flora

As specified in the County OP requirements, a detailed vegetation inventory following standard ELC protocols is required to document vegetation. A current Freele County Forest tract management unit

tree inventory was provided to GHD by the County Forestry Department. Field verification was completed and refined by qualified GHD ecologists over multiple Study Area visits to confirm the expected vegetation communities. ELC mapping of the Study Area was prepared following Ecological Land Classification for Southern Ontario: A First Approximation (Lee et al., 1998) Local plant rarity status was assessed according to Riley (1989).

2.2.3.1 Vegetation Communities

ELC communities are presented on Figure 4. Twelve ecological land classification community classes are represented within the Study Area and include swamp, marsh, meadow, forest, plantation, naturalized plantation and transportation. Each of these communities are characterized by sandy soils.

The majority of the Study Area has been disturbed in the past, with plantation tree plantings introduced approximately 65 years ago across the Study Area. The natural vegetation units are present in the northeast and southeast corners of the Study Area, and generally associated with the wetland features. As the plantation is maturing, it is developing some characteristics of a naturalized woodlot and is used as such. It is however a managed woodlot that is routinely assessed for harvest and is harvested. As such, the distinctions of natural, naturalizing plantation, and plantation are used herein to describe the treed units within the Study Area.

Further characteristics of each of the identified community types are provided in the following paragraphs. The vegetation inventory is presented in **Appendix B** and a photo log of the vegetation communities in **Appendix C**.

Upland communities

FOCM6: Naturalized Coniferous Plantation

The origin of the Study Area as a conifer plantation is evident in the southern portions where various planted conifer species such as white spruce (*Picea engelmanni),* eastern white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) dominate the canopy and sugar maple characterizes the subcanopy. Some red oak (*Quercus rubra*) and American beech (*Fagus grandifolia*) are also present throughout this unit. This portion of the Study Area exhibits evidence of disturbance with areas that have Manitoba maple (*Acer negundo*) and staghorn sumac (*Rhus typhina*) present. The shrub layer is sparse and composed of red raspberry (*Rubus ideaus*), while garlic mustard (*Alliaria petiolata*) dominates the sparse ground cover layer.

FOCM6-2: Dry-Fresh Red Pine Naturalized Coniferous Plantation

The origin of the Study Area as a conifer plantation is also evident in this community where red pine dominates the canopy and sugar maple characterizes the subcanopy. The understory is patchy to absent with sugar maple saplings in some areas, and small patches of brambles (*Rubus spp.)* are present throughout this community, particularly along the margins of any pathways/logging roads and where openings in the canopy exist. Other species present include fern spp., red trillium (*Trillium erectum*), jack-in-the-pulpit (*Arisaema triphyllum*), and garlic mustard.

FODM5: Dry-Fresh Sugar Maple Naturalized Deciduous Plantation

The entire Study Area is managed as a coniferous plantation but a combination of less conifers planted and harvesting activities in the middle portion of the Study Area has allowed successional species to colonize the area and create this community. This community occurs within an area that is generally characterized by gently sloping topography, with limited areas of steeper grades. The canopy is dominated by sugar maple with red oak, American beech, and black locust (*Robinia pseudoacacia)* occurring in varying quantities throughout. Limited amounts of red and white pine are also present. The understory is almost exclusively sugar maple (*Acer saccharum*) and the ground layer is characterized by heavy leaf litter and minimal vegetation. Blue cohosh (*Caulophyllum thalictroides*), baneberry (*Actaea sp.*), jack-in-the-pulpit, ostrich fern (*Matteuccia struthiopteris*), herb-Robert (*Geranium robertianum*), spotted jewelweed (*Impatiens capensis*), wild sarsaparilla (*Aralia nudicaulis*) and wild leek (*Allium tricoccum*) comprise the herbaceous and ground layer vegetation in a patchy distribution.

FOMM6-2: Fresh-Moist Hemlock-Hardwood Mixed Forest

This community exists in the south east corner of the Study Area and is primarily composed of eastern hemlock (*Tsuga canadensis)* with some yellow birch (*Betula alleghaniensis*) and red maple (*Acer rubrum*) in the canopy; American beech is present in the subcanopy. The ground cover is minimal and consists mainly of fern species with some Canada mayflower (*Maianthemum canadense*). This community is unique to the Study Area as it represents the oldest vegetation community within the Study Area (trees older than 80 years) and one of the least disturbed. This unit appears to continue eastward onto the adjacent property.

FOMM9-2: Fresh-Moist White Pine Hardwood Mixed Forest

This community is present in the northeast corner of the Study Area and borders the two larger wetlands within the Study Area. The canopy is primarily composed of white pine and red maple. Both the understory and groundcover are limited and patchy. The groundcover is composed of northern starflower (*Lysimachia borealis*), partridgeberry (*Mitchella repens*), sarsaparilla and red trillium, while the understory is dominated by red maple saplings.

MEMM3: Dry-Fresh Mixed Meadow

This vegetation community is linear as it occurs along the pathways/logging trails and margins of the access road, and is characterized by exposed sandy substrates. The community is highly disturbed and patchy in areas as a result of its proximity to the pathways. Rubus species dominate the shrub layer while the ground layer is characterized by patches of exposed sand and herbaceous species such as garlic mustard, common plantain (*Plantago major*), tall anemone (*Anenome virginiana*), goldenrod species (*Solidago spp.*), grass species, oxeye daisy (*Leucanthemum vulgare*), northern willowherb (*Epilobium ciliatum ssp. ciliatum*), strict blue-eyed grass (*Sisyrinchium montanum*) and sulphur cinquefoil (*Potentilla recta*).

TAGM1: Coarse Mineral Coniferous Plantation

This community is present in the northwest portion of the Study Area, and is dominated by planted conifer species such as Norway spruce (*Picea abies*), European larch (*Larix decidua*) and red pine. The understory and groundcover is generally absent with few sugar maple saplings throughout.

CVI-1: Transportation

A well-traveled gravel/sandy access road is present through the approximate centre of the Study Area, connecting Rainbow Valley Rd. East to the north with Horseshoe Valley Rd. to the south. Vegetation is near absent, with patchy areas dominated by opportunistic species such as common plantain.

Wetland Communities

SWCM2-1: White Pine-Hemlock Mineral Coniferous Swamp

This community is present in the northeast portion of the Study Area and as a small inclusion in the southeast corner. It is characterized by complex microtopography that promotes vernal pools. The substrate is a shallow layer of organic material underlain by sand. The canopy is composed of red maple, eastern hemlock, white pine, silver maple (*Acer saccharinum*) and some poplars (*Populus sp*.). The groundcover is dominated by sensitive fern (*Onoclea sensibilis*) and partridgeberry. Other species present include goldthread (*Coptis trifolia*), peat moss (*sphagnum sp.*), jack-in-the-pulpit, fringed sedge (*Carex crinita*) and harlequin blue flag (*Iris versicolour*). This community appears to be connected with the same or similar vegetation communities adjacent to, but outside of the Study Area in both the northeast and southeast occurrences.

SWMM2-1: Red Maple-Conifer Mineral Mixed Swamp

This wetland community is located on the north side of the Study Area and is present as parts of two polygons adjacent to Rainbow Valley Rd. East. A small ephemeral channel is connecting the southern and northern portions of the largest occurrence of this unit within the Study Area. The community is characterized by complex microtopography and sandy soils overlain by a thin layer of organic material. This community also supports small thicket swamp inclusions throughout.

The canopy is dominantly red maple, white pine, with some white spruce. The ground layer is characterized by sensitive fern, eastern marsh fern (*Thelypteris palustris var. pubescens*), dewberry (*Rubus pubescens*), partridgeberry and various wetland sedges. The slightly higher and drier micro-habitats within this unit include drier species such as bracken fern (*Pteridium aquilinum*) and Canada mayflower. Other herbaceous species of note include pink lady's slipper *(Cypripedium acaule)*.

MASM1: Graminoid Mineral Shallow Marsh

This community exists as an inclusion within SWMM2-1 (red-maple conifer mixed swamp) on the north portion of the Study Area. The substrate is characterized by a fine later of organic material that is underlain by coarse sandy soils. The vegetation is characterized by sedge species, goldthread, and sphagnum moss.

MASM1-2: Bulrush Mineral Shallow Marsh

This community exists as an inclusion in SWCM2-1 (white pine-hemlock mineral coniferous swamp) on the northeast portion of the Study Area. The substrate is characterized by a fine layer of organic material underlain by coarse sandy soil. Willows (Salix spp.) are present in low densities around the margin and scattered throughout this community; however, the dominant vegetation layer is the

groundcover which is characterized by bulrush sp. (*Scirpus spp.*), fringed sedge, bladder sedge (*Carex intumescens*), beggarticks (*Bidens sp.*), and common water-parsnip (*Sium suave*).

2.2.3.2 Flora

One-hundred and ninety-nine (197) species were recorded during field surveys, ten (10) of which could not be identified beyond genus due to insufficient characters for identification. Of the identified species, 76 percent are native and 24 percent are non-native. All (100 percent) of the native species for which information is available have S-Ranks[1] of S4 and S5, indicating they are 'apparently secure' or 'secure' in the province, with the majority (91 percent) being S5. The majority (81 percent) of the species have co-efficient of conservatism (CC)[2] values of 0-6, indicating they are tolerant to moderately tolerant of disturbance. Twenty-five (25) species have CC values of 7 – 8, indicating a lower tolerance to disturbance. The majority of these species are located within the wetlands or plantation areas that are outside of the project footprint. Isolated occurrences of wild leek, a species with CC of 7, are present within the footprint as well as in other areas around the Site.

The following species were observed and are considered regionally rare in the area (Riley 1989): false sunflower (*Heliopsis helianthoides var. helianthoides*), tall goldenrod (*Solidago altissima var. altissima*), running strawberry bush (*Euonymus obovatus*), grey dogwood (*Cornus racemosa*), black walnut (*Juglans nigra*), old-field cinquefoil (*Potentilla simplex*), and Virginia creeper (*Parthenocissus quinquefolia*). These are discussed further in Section 2.2.7.

No provincially or federally listed (SC, THR, END) vascular plant species were observed during the surveys.

2.2.4 Watercourse Verification

A small watercourse was indicated on NVCA regulation and NHIC mapping in the southern extent of the Freele County Forest property. GHD staff investigated the vicinity of the mapped watercourse but did not find evidence of an existing feature in the location indicated. This was confirmed over the course of site visits throughout 2016, including the SWCM2-1 wetland boundary verifications with NVCA staff in spring 2016.

2.2.5 Wetland Delineation

NVCA regulated areas mapping and the NHIC natural heritage features mapping indicate the presence of wetlands within and adjacent to the Study Area. Delineations of wetlands within the Study Area took place on May 31, 2016 and July 4, 2016 with an NVCA representative, following the Ontario wetland Evaluation System: Southern Manual methods (3rd Edition – 1993, with

1 Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

2 Rank of 0 to 10 based on plant's degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.(Oldham et al. 1995)

updates). Wetland boundaries were flagged and the location recorded with handheld Garmin® global positioning system (GPS) by both GHD and NVCA, and provided good correlation between the duplicate positioning data sets. These field verification activities resulted in a refinement and reduced wetland areas within the Study Area from that of the existing NVCA and MNRF mapping layers. Wetland boundaries based on these field verifications are shown on Figures 4 and 5; wetland vegetation communities are described in Section 2.2.3.

2.2.6 Wildlife

To determine the potential for wildlife presence within the Study Area, a desktop review was completed and incidental wildlife observations were collected at each visit.

A desktop review of eBird observations in the vicinity of the Study Area (Copeland Forest to the east) noted the potential for many forest-interior bird species, as well as several SAR birds. The results of the breeding bird surveys and the SAR screening are discussed in Sections 2.2.6.2 and 2.2.7, respectively. Review of the Ontario Reptile and Amphibian Atlas noted the presence of 18 species of reptiles and amphibians, and 9 species of butterflies (Ontario Butterfly Atlas), in the greater area surrounding the Study Area.

Throughout all Study Area visits, observations of incidental wildlife species encountered were recorded, and are presented in Table 2.3. In addition, calling amphibian, breeding bird surveys and acoustic bat monitoring were conducted, the results of which are discussed in the following sections.

2.2.6.1 Amphibian Surveys

Calling amphibians were surveyed according to the Great Lakes Marsh Monitoring Protocol at five stations placed in suitable habitat within the Study Area. Note that four stations were surveyed during the first visit, but subsequent field investigation indicated additional amphibian habitat, and a fifth station was created.

Three visits were conducted between April and June, 2016. At each station, all calling frogs and toads were recorded. Direction of call, distance of call, species and numbers of individuals were documented. When too many individuals of one species were calling, making it difficult to detect separate individuals and make an accurate estimate of their number, they were recorded as a chorus.

During the first season of amphibian surveys, nighttime temperatures should be a minimum of 5^{o} C with low wind and no precipitation. This survey was conducted on April 18, 2016 where the temperature was 14^{o} C, wind was documented as between 12-19 kilometres per hour (km/h) and there was no precipitation.

During the second season of amphibian surveys, nighttime temperatures should be between 10-15^{o} C with low wind and no precipitation. This survey was conducted May 10, 2016 where the temperature was 10^{o}C, with no wind and no precipitation.

During the third season of amphibian surveys, nighttime temperatures should be greater than 17^{o} C. This survey was conducted June 16, 2016 where the temperature was 22 ^{o}C and there was no wind or precipitation.

Four species of calling amphibians were detected during the amphibian surveys: spring peeper (*Pseudacris crucifer*), wood frog (*Lithobates sylvaticus*), American toad (*Anaxyrus americanus*), and gray tree frog (*Hyla versicolor*). Amphibian survey results are presented in Table 2.4, and are displayed by station. At each station, except for Station 5, the highest call level code which corresponds to a chorus was recorded. At Stations 1, 2 and 3 choruses of spring peepers were detected. At Station 4 choruses of spring peeper, wood frog and gray tree frog were detected. At Station 5, gray tree frog was recorded outside of the 100 m survey station area during the specified survey time. Three additional species were incidentally detected outside the calling amphibian surveys: western chorus frog (*Pseudacris triseriata*), northern leopard frog (*Lithobates pipiens*) and green frog (*Lithobates clamitans*). All three incidental species were detected immediately north of Rainbow Valley Road, outside of the Study Area. A complete list of calling amphibians detected during field investigations is presented in Table 2.3.

2.2.6.2 Breeding Bird Surveys

Breeding bird surveys were conducted on May 31 and June 17, 2016, during the breeding bird season when most birds are on their territories engaged in breeding activities. Surveys were conducted between 5:00 and 11:00 a.m. A point count methodology was utilized, where a point count location was surveyed for 5 minutes and all species seen and heard were recorded. Seven bird stations were established within the Study Area (Figure 5). Breeding evidence was recorded to determine if the species was a possible, probable or confirmed breeder following protocols of the Ontario Breeding Bird Atlas (Cadman et al., 2007). Point count locations were situated to ensure representation of the predominant habitat types within the Study Area. Incidental species observations, including those of birds, were also collected on all Study Area visits.

In total, 49 species of birds have been observed within and in the vicinity of the Study Area by GHD ecologists (see Table 2.5). The Study Area is part of a large contiguous forest; as such, many area-sensitive interior forest songbird species were present. Bird species by survey station and area-sensitive species are detailed in Table 2.5. At each station, the area-sensitive ovenbird (*Seiurus aurocapilla)* was present. At Station 5, ovenbird was the only area-sensitive species present; this is likely due to where the station is situated at the edge of the forest, adjacent to the road and an agricultural field. In contrast, the other stations ranged from three to five area-sensitive species present. After ovenbird, the most commonly present area-sensitive species were black-throated blue warbler (*Setophaga caerulescens*) and blackburnian warbler (*setophaga fusca*). Three bird species with Species at Risk (SAR) classifications were also noted within the Study Area, these include: eastern wood-pewee (*Contopus virens*), wood thrush (*Hylocichla mustelina*), and red-shouldered hawk (*Buteo lineatus*). Species at Risk are discussed in greater detail in Section 2.2.7.

2.2.6.3 Wildlife Habitat Features

Habitat features that were encountered during field investigations were mapped using a handheld GPS and are shown on Figure 5. Snags that had the potential to provide roosting habitat for bats were encountered throughout the Study Area. The majority of snags within the Study Area are situated within the older growth FOMM6-2 hemlock stand in the southeast corner of the property. Due to the size of the Study Area and the presence of FOMM6-2 a bat study was conducted in

2017 accordance with MNRF recommendations and guidance. The results of the bat study are detailed in **Appendix D** are summarized in Section 2.2.7.

Vernal pools were encountered throughout the wetland portions of the Study Area. On May 31, 2016, an isolated pool containing spotted salamander (*Ambystoma maculatum*) egg masses was observed within the SWMM2-1 wetland unit (**Figure 5**). On April 19, 2017, spotted salamander egg masses were also observed within the SWCM2-1 wetland unit (**Figure 5**), and an eastern red-backed salamander was observed nearby. Spotted salamanders are typically found in moist mixed hardwood forests or in swamps/near water (Crowley, 2016). During migration salamanders can travel up to 250 m from pond edges to their terrestrial homes but average travel distance is approximately 115 m (Savage and Zamudio, 2016). Additionally, on July 4, 2016, large numbers of dead and dying tadpoles (species unknown) were observed in the northeast SWCM2-1 wetland unit. This observance is likely reflective of the unseasonally dry conditions during the spring and summer of 2016.

Based on the Study Area size and that it is entirely forested, interior forest habitat is present within the Study Area. This provides habitat for a variety of interior forest breeding birds. Interior forest habitat is defined as occurring at least 200 m from forest edge habitat (MNRF, 2015b).

2.2.7 Species at Risk and Regionally Rare Species

GHD determined the potential for SAR within the Study Area through a combination of secondary source review, agency consultation with MNRF Midhurst District Office and NVCA, and field investigations. SAR identified through these sources as having the potential to occur within or in the vicinity of the Study Area summarized in Table 2.6 below.

Table 2.6 Species at Risk Summary

Species		Observed within Study Area	Conservation Status	
Common Name	Scientific Name		SARO	SARA
Birds				
Canada warbler	*Cardellina pusilla*	No	Special Concern	Threatened
Eastern whip-poor-will	*Caprimulgus vociferus*	No	Threatened	Threatened
Eastern wood-pewee	*Contopus virens*	Yes	Special Concern	Special Concern
Red-shouldered hawk	*Buteo lineatus*	Yes	No Status	Special Concern
Wood thrush	*Hylocichla mustelina*	Yes	Special Concern	Threatened
Amphibians				
Western Chorus Frog*	*Pseudacris triseriata*	No	No Status	Threatened
Reptiles				
Blanding's turtle	*Emydoidea blandingii*	No	Threatened	Threatened

Table 2.6 Species at Risk Summary

Species		Observed within Study Area	Conservation Status	
Common Name	Scientific Name		SARO	SARA
Snapping turtle	*Chelydra serpentine*	No	Special Concern	Special Concern
Milksnake	*Lampropeltis triangulum*	No	Special Concern	Special Concern
Plants				
Butternut	*Juglans cinerea*	No	Endangered	Endangered
Forked three-awned grass	*Aristida basiramea*	No	Endangered	Endangered
Mammals				
Little brown myotis	*Myotis lucifugus*	Yes	Endangered	Endangered
Northern long-eared myotis	*Myotis septentrionalis*	Yes	Endangered	Endangered
Small footed myotis	*Myotis leibeii*	Yes	Endangered	Endangered
Insects				
Hine's emerald dragonfly	*Somatochlora hineana*	No	Endangered	No Status

Note:
* Observed outside of but immediately adjacent to the Study Area
SARO – Species at Risk in Ontario
SARA – Species at Risk Act, Schedule 1 status (federal)

Incidental species observations, including observations of any SAR, were collected during each Study Area visit. Furthermore, the presence of suitable habitat for the identified SAR was investigated over the course of multiple Study Area visits. Habitat verification was also undertaken for the Hine's emerald dragonfly and eastern whip-poor-will. Suitable habitat was not found to exist for the Hine's emerald, due to the presence of a closed canopy and the lack of cattails (*Typha sp.)* which this species is often associated with. Habitat for the eastern whip-poor-will was also determined to not be present within the Study Area due to the presence of a relatively closed forest canopy throughout the Study Area.

Mammals

Additional habitat features identified in the Study Area have the potential to be used by other SAR, in particular bat species. The potential for bat roosting habitat was raised for consideration during the pre-consultation meeting on April 1, 2016. In response to this and incidental sighting of two bats within the Study Area on two separate visits, GHD documented any snags that were incidentally encountered in 2016 (Figure 5). Snags were considered potential roosts and documented if they exhibited cavities or crevices and possessed ≥ 25 centimetre (cm) diameter at breast height (dbh). In response to further comments received on the draft EIS and continued consultation with MNRF , GHD conducted a snag density survey within the proposed ERRC footprint, linear snag survey along the proposed access route, and an acoustic monitoring survey within the Study Area in 2017.

There were two potential bat trees found along the access road and seven trees found in the area where the proposed access road extension will be developed (**Appendix D; Figure 1**). Nine snag density plots were established within the proposed development footprint, within which a total of 10 potential bat trees were identified. This equates to a density of **22.22 potential bat trees per hectare**. The deciduous forest community within the proposed development footprint appears to be similar in composition to the remainder of the community with the same classification, and presumably has the same density of potential bat trees. The area to be removed as part the development represents 6.5 percent of the treed community within the property and a much smaller proportion of the connected and contiguous forest cover in the overall landscape. Therefore, the removal of this area is unlikely to have a significant impact on the overall function of the community as bat roosting habitat.

The results of the acoustic survey indicate that the bat species most commonly recorded from the Study Area were big brown bats (*Eptesicus fuscus*), followed by little brown myotis. Three species of SAR bats were recorded across the Study Area, namely, little brown myotis, northern long-eared myotis and eastern small-footed myotis. The timing of the recordings suggests that low densities of little brown myotis and northern myotis may be roosting, feeding and or/commuting within the Study Area. Small-footed myotis were also recorded but the timing of these recordings does not suggest that it is roosting in close proximity to the detectors, rather, these detectors were located along a likely movement route. There is no known suitable roosting habitat (rocks) for this species within the Study Area, so it is likely travelling through the Study Area between its roosting area and feeding areas. Additionally, there were several recordings classified as myotis unknown; from manual review of these files, most are obscured with echoes and noise and were likely from bats recorded at the outer limits of the detection range of the microphone (estimated to be 30-50 m). They also appear to contain more than one individual bat in many of the files (which further complicates species classification). While these could be made by any bat in the myotis genus, the call pattern most closely resembles that of little brown myotis in many files. This data further suggests that low densities of little brown myotis is using the habitat for roosting, feeding and/or commuting.

Based on the results, it is likely that relatively low densities of SAR and non-SAR bats are using the Study Area for maternity roosting, feeding and commuting, and the area to be removed is a small proportion of the habitat available overall for this area. Therefore, it is unlikely that permitting will be required due to the relative size of the development footprint within the Study Area and the larger contiguous Copeland Forest. Consultation with MNRF regarding the results of the snag density survey and acoustic monitoring are provided in **Appendices D** and **E**.

Plants

As part of the field investigations, joint Study Area visits with NVCA biologists noted the higher habitat potential for the forked three-awned grass, and recommended that survey for this species were warranted. As it flowers late in the growing season, surveys for forked three-awned grass were conducted on August 23, 2016 and September 28, 2016. Suitable habitat (i.e., sandy edges of roads and trails) was surveyed systematically along the access road and parking area, with a focus on non-shaded sandy areas with little tree/canopy cover. Forked three-awned grass was not detected during either of the targeted surveys or any other Study Area visits.

The following plant species were observed and are considered regionally rare in the area (Riley 1989): false sunflower, tall goldenrod, running strawberry bush, grey dogwood, black walnut, old-field cinquefoil, and Virginia creeper.

All of these species are considered common by the NHIC and are found throughout southern Ontario (including Ecoregion 6E). The rarity ranks provided in Riley (1989) are reflective of the best available information at the time and are now more than 28 years old; as such, they are likely not reflective of currently known species distributions. The black walnut observed within the FOCM6-2 and various locations throughout the Study Area is very likely of planted or non-natural origin given the cultural / managed history of the Study Area and the moderate size class of the observed trees (i.e., generally 20 – 30 cm in diameter, likely established at around the same time as the managed conifers). Grey dogwood was observed in isolated occurrences at the edge of the wetlands well outside of any project components. Old-field cinquefoil was observed along the existing gravel roadway.

False sunflower and tall goldenrod were observed in the MEMM3 meadow community along the margins of the existing gravel roadway. Tall Goldenrod is known to be common in the area. False sunflower may be rare in the County but may also be under-identified throughout its range due to its similarity to other species in the family. The specific locations of this species are mapped on **Figure 5**. The running strawberry bush was noted from a Site visit in 2016 in the FODM5 forest community within the proposed ERRC footprint. This species has not been observed or relocated since the original sighting so it is likely that this species is no longer present.

3. Preliminary Development Plan

The evaluation criteria identified during the siting process were used to create a preliminary map of the Site identifying potential constraints such as source water protection areas, wetlands, and distance to sensitive receptors. Based on this mapping, an elevated area of the Study Area to the northwest of the mid-point was identified as having fewer constraints, representing the best potential location for the development of the ERRC.

A number of field investigations of the Study Area were carried starting in April 2016 in order to confirm Study Area conditions and to provide guidance on the siting of the ERRC footprint. Key studies included: a Scoped EIS, a hazard land assessment, a hydrogeological study, an agricultural impact assessment, and archaeological investigations. Based on these studies and a review of additional information, the following constraints were used to determine the optimal location for the ERRC footprint:

- Wetlands were identified in the northeast area of the Study Area. The Ontario Wetland Evaluation System (OWES) identifies the significance of wetlands (regionally significant or provincially significant) as well as minimum setback distances. In determining the location of the footprint, the wetlands within the northeast part of the Study Area have been considered as if they were provincially significant (although they remain *unevaluated* according to MNRF), and a minimum setback distance of 120 m was applied to the ERRC footprint. This is the standard setback distance considered protective of provincially significant wetlands.

- Previously disturbed areas of the Study Area (i.e., access road, trail) were encompassed within the ERRC footprint to minimize potential impacts.
- An archaeologically significant area was identified on the Study Area. Investigations were carried out to map its extents, and a minimum setback distance of 10 m was applied surrounding the area. Protection of this area in-situ and relocation of the footprint was considered to be preferred over excavation.
- A minimum separation distance of 100 m was maintained between the ERRC footprint and all property lines, and the maximum separation distance possible was maintained from sensitive receptors. Maintaining a buffer to separate the facility from sensitive receptors is used in combination with good design and operational practices to mitigate impacts such as odour and noise.
- Topography was sought that would minimize the amount of grading required and maximize the usage of existing slopes for drainage and operations.

The setbacks noted above were used as minimum guidelines only. Setbacks were increased between the ERRC footprint and identified constraints wherever possible.

Based on the application of these setbacks to the originally proposed area, the footprint for the ERRC was shifted approximately 100 m towards the southeast, remaining just to the northwest of the Study Area mid-point.

This location is large enough to accommodate required infrastructure. The footprint is generally rectangular to provide flexibility in design. General descriptions of each sub-facility at the ERRC are as follows:

- OPF – a location where source-separated organics (i.e., green bin material) and potentially materials such as leaf and yard waste, pet waste, and diapers are processed under controlled conditions and converted into other valuable products, such as compost or fertilizer. The County's procurement process for the OPF will be open to all types of aerobic composting and anaerobic digestion technologies. Both are engineered biochemical conversion processes involving the decay of organic materials, but involve different conditions and produce different outputs, and have differing cost factors.
- MMF (also known as a transfer station) – a location for the consolidation of waste (garbage, recyclables, and organics) from multiple collection vehicles into larger, higher-volume transfer vehicles for more economical shipment to other disposal or processing locations. The MMF will likely be a multi-storey building approximately 10 to 15 m high and consist of a pre-engineered steel frame structure with exterior walls constructed of concrete and steel sheeting.
- Truck Servicing Facility – a provision for at least two bays servicing the County's fleet of Solid Waste Management vehicles within the MMF building.
- Administrative Facility – a location for administrative staff and resources including administrative facility will include offices, meeting spaces, washroom and change room facilities, a lunchroom/kitchen, and potentially a public education area.

- Materials Recovery Facility (MRF) – a location for the processing and separating of commingled recyclable material into its core components (e.g., paper, glass, metals, plastic) for marketing and shipping to end-user manufacturers.
- Stormwater management facility – a location for proposed stormwater management controls that will mitigate the increase of surface runoff from the impervious areas, maintain existing water quality and quantity conditions, and address the water balance deficit. Components of the facility include: vegetative filter strips, a vegetated swale, a stormwater management pond (SWMP), and a drainage ditch along the access road to convey any overflow from the SWMP. These components are further discussed in Section 5.2.2.

Additional details of the proposed development are available in GHD's Facility Characteristics Report, provided under separate cover.

4. Regulatory/Policy Framework

4.1 Township of Springwater

As per the Township of Springwater OP, all development is required to adequately demonstrate that no negative impact to significant/sensitive natural heritage features or ecological functionality will occur due to development or site alteration. Specifically outlined in the OP, the significance of a natural feature will be determined based on provincial guidelines, existing information, municipal criteria and other agency approaches. Lands can be classified as either Category 1 (schedule A) or Category 2 (schedule B), with Category 1 lands being the most sensitive and occur on undeveloped areas and feature any of the following: PSWs, ANSIs, SAR, or significant watercourses or ravines. Category 2 lands feature any of the following: lands situated adjacent to Category 1 lands, unique and/or significant wildlife habitat (SWH; such as woodlots or forests), linkage features between core habitats, groundwater recharge areas, or natural fish habitat.

Since Freele County Forest harbours several key components listed under the Category 2 designation, all development planning within the forest boundaries must be subject to development requirements as set out in the Springwater OP. Under Township development regulations, no development is permitted within 120 m of a wetland feature unless subjected to a complete Environmental Impact Assessment (EIA) to determine no negative impacts. Similarly, development within 50 m of SWH (deer wintering yards, fish spawning/nursery areas, and waterfowl staging areas) as determined through available MNRF habitat information is also restricted based on an EIA. As per the OP, a Woodlot is defined as a contiguous wooded area, which is greater than 30 ha in size, irrespective of maturity, composition or density. At 84 ha, the Study Area meets the size criterion and is considered a Woodlot as per the Township of Springwater OP. The significance of Forests or Woodlot areas are determined based on features such as size, shape, age and composition and require an EIA within 50 m and 15 m respectively.

Identified wetlands within the Study Area are considered Category 1 Lands as per the Township of Springwater OP; as such, no development is permitted within 30 m. Further restrictions apply to PSWs, fish habitat, core areas, movement corridors, valleylands, rare/specialized habitats,

headwater areas, shorelines, ANSIs, lakes and significant landform features but are not applicable to this Study Area based on mapping results.

4.2 Simcoe County

The Simcoe County OP was consulted to determine any specific land use designations within the Study Area. During the initial evaluation process, GHD utilized County Greenlands mapping that was approved under the previous OP, as well as the 2008 Draft Simcoe County Greenlands Designation/ Mapping, which altered policies and mapping related to County Greenlands. The revised Simcoe County OP was partially approved in April, 2013. Under current policies (Schedule 5.1 Land Use as approved December 29, 2016), the entirety of the Study Area falls within County Greenland designation, due to the size of the contiguous forest habitat present within the Study Area and connectivity to the forest area to the east.

4.3 Nottawasaga Valley Conservation Authority

Although the proposed development is not within an NVCA regulated feature, it is in proximity to the wetlands in the northeast corner of the Study Area, which are regulated features. As such, development should proceed in accordance with O. Reg 172/06: Nottawasaga Valley Conservation Authority Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses.

An additional regulated area is identified as crossing the south end of the property in west/east fashion. Based on Site investigations by GHD staff and in conjunction with NVCA staff, it was confirmed that the watercourse feature that dictates the presence of a regulated area is in fact not present within the Study Area. There is, however, a small wetland present in this vicinity which appears to drain to the east to what may represent the upstream extent of the mapped watercourse feature.

The NVCA is also mandated through the *Conservation Authority Act* to regulate lands that are subject to five types of natural hazards:

- Flood
- Erosion
- Hazardous Soil
- Karst
- Dynamic Beach

Based on the *Natural Hazards Technical Guide (December 2013),* the NVCA *Planning and Regulation Guidelines,* the MOECC *Stormwater Management and Design Manual,* and the MNRF *Natural Technical Guides,* the natural hazards either do not apply to the Study Area or any potential risk can be mitigated. The natural hazards were further described and assessed in relation to the Study Area under separate cover in the Hazard Land Assessment memorandum (**Appendix F**).

As such, the NVCA regulated areas within the Study Area are limited to the wetlands present in the northeast corner of the Study Area. As these wetlands are unevaluated, a conservative approach of 120 m off-set for assessment of impacts has been applied in this Scoped EIS.

4.4 Species at Risk Legislation

SAR in Ontario may be protected by one of or both provincial and federal SAR legislation. This includes the federal *Species at Risk Act* (SARA), and provincial *Endangered Species Act* (ESA). As the Study Area is not on federal lands, and aquatic features are absent from the Study Area, SARA is not applicable to this review.

The ESA and ON Reg. 242/08 are provincial regulatory tools that prohibit the harm and harassment of provincially listed Threatened and Endangered species, and include habitat protection. No ESA Threatened or Endangered species were directly observed within the Study Area during the course of this study; however, the acoustic surveys in 2017 identified use of the Study Area by SAR bat species.

Should an ESA protected species be encountered, there are a number of avenues that may apply to facilitate development proceeding while being protective of the species. These include avoidance (through design, timing, and methodologies), adherence to an applicable Notice of Activity, or by obtaining an Overall Benefit Permit. Mitigation of potential SAR and their habitat is further discussed in Section 5.0.

4.5 Provincial Policy Statement

The Natural Heritage Reference Manual (MNR, 2010), provides guidance for implementation of the natural heritage considerations associated with the PPS. This guidance document addresses the considerations for evaluation of significance of natural features, a designation that ascribes development constraints under the PPS. When one or more of the criteria for Significance of a particular attribute are satisfied, the feature should be considered Significant. Those attributes present within the Study Area that based on the proposed ERRC development warrant consideration for evaluation of Significance as defined by the PPS include Significant woodlands and Significant Wildlife Habitat.

4.5.1 Significant Woodland

The four criteria related to the evaluation of Significance as pertains to woodlands include: size, ecological function, uncommon characteristics, and economic and social functional values. The tests for these criteria are detailed in the Natural Heritage Reference Manual (MNR, 2010).

As noted throughout this report, the Study Area is predominantly composed of mixed tree plantation, with limited natural woodland communities in the northeast and southeast corners. Conservatively, these natural woodlands within the Study Area comprise less than 25 percent of the Study Area, but are associated with contiguous communities on adjacent lands to the east. Overall, the proposed ERRC footprint of 5.5 ha represents an extremely small disturbance to a greater than 475 ha contiguous woodland of the 32,000 ha Simcoe County Forest (1 percent and 0.02 percent, respectively).

The Study Area is at a functional boundary of the contiguous wooded area, with an agricultural field located to the west. One criterion for assessment of ecological function associated with woodlands is the presence of interior forest size of 20 ha or greater where woodland cover is greater than 60 percent. Based on the size of the wooded area, the Study Area contributes to an interior forest habitat that meets this minimum size criterion. The proposed ERRC footprint starts approximately 100 m from the western edge of the Study Area. Therefore by size of the contiguous woodland feature, the minimum ecological functions criteria of interior forest size of 20 ha or more where forest cover is 60 percent or greater is satisfied, **and Significant Woodland is by definition present within the Study Area.** While this may be the initial limit for consideration of interior forest habitat, this function is temporary as the proposed ERRC footprint is part of a managed and actively-harvested woodlot. Ecological function is further considered under assessment as Significant Wildlife Habitat.

As an actively managed and harvested plantation woodlot, the proposed ERRC footprint and immediately adjacent areas do not exhibit uncommon characteristics or economic and social functional values as defined in the Natural Heritage Reference Manual (MNR, 2010). The older growth FOMM6-2 unit present in the southeast corner of the Study Area is the one unit that exhibits some uncommon characteristics for the Study Area based on the age of the trees. The proposed development is located greater than 30 m from this unit, and will not negatively impact this unit.

4.5.2 Significant Wildlife Habitat

The assessment of Significant Wildlife Habitat (SWH) follows the guidelines in *Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E* (MNRF, 2015). There are four categories of SWH which include the following:

- Seasonal Concentration Areas of Animals
- Rare Vegetation Communities or Specialized Habitat for Wildlife
- Habitat for Species of Conservation Concern
- Animal Movement Corridors

Each of these categories includes various SWH types. The potential for candidate SWH is described below, and the field surveys for breeding birds, amphibians, vegetation, bats and incidental wildlife observation serve to evaluate whether these exist within the Study Area or could be impacted by the development.

In some cases, the Seasonal Concentration Areas of Animals include places where birds, bats, reptiles, deer or butterflies stopover during migration, overwinter, or use for breeding grounds. As the Study Area is a mixed forest stand greater than 10 hectares in size with large trees present, it is considered candidate SWH for Bat Maternity Colonies. The defining criteria to confirm SWH for Bat Maternity Colonies is the presence of greater than 10 big brown bats using the forest. During the acoustic monitoring survey (**Appendix D**), big brown bats were recorded within the Study Area in significant quantities to confirm the likely use by a maternity colony.

Rare Vegetation Communities were searched for during the ELC and vegetation inventories, but none of these were identified within the Study Area.

Specialized Habitats for Wildlife include nesting areas for birds, turtles or amphibians or seeps and springs. Through the Study Area visits for amphibian and breeding bird surveys, the Study Area was determined to have a high abundance and diversity of amphibians or birds; therefore, the Site does qualify as SWH for Woodland Area-Sensitive Breeding Bird Habitat and Amphibian Breeding Habitat (woodland). The defining criteria is detailed in the following paragraphs.

According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, Woodland Area-Sensitive Breeding Bird Habitat is specialized habitat defined by large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario (MNRF, 2015b). Characteristics of Woodland Area-Sensitive Breeding Bird Habitat include presence of breeding birds (13 species in particular), an area of 30 ha or greater than 60 years old, and FOC, FOM, FOD, SWC, SWM or SWD ELC communities. Although natural blocks of mature woodland within the Study Area are limited to the northeast and southeast corners, the Study Area does still satisfy the considerations as candidate SWH for Woodland Area-Sensitive Breeding Bird Habitat. Further, breeding bird surveys documented the presence of six area-sensitive species within the Study Area; the presence of these six species represents a defining criterion for confirming SWH for Woodland Area-Sensitive Breeding Bird Habitat.

According to the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E, Amphibian Breeding Habitat (Woodland) is specialized habitat that is extremely important to amphibian biodiversity in a landscape and often represents the only breeding habitat for local amphibian populations (MNRF, 2015b). Characteristics of Amphibian Breeding Habitat (Woodland) include presence of amphibians (seven species in particular), presence of a wetland/pond/pool greater than 500 m^2, and FOC, FOM, FOD, SWC, SWM or SWD ELC communities. Based on these criteria, the Study Area does satisfy the considerations as candidate SWH for Amphibian Breeding Habitat (Woodland). Further, amphibian surveys confirm the SWH as three species (spring peeper, gray tree frog and wood frog) were documented with call level codes corresponding to a chorus. Additionally, the observance of spotted salamander egg masses indicates a breeding population; the presence of a salamander breeding population in itself confirms the presence of SWH for Amphibian Breeding Habitat (Woodland).

Due to the observation of red-shouldered hawk and broad-wing hawk during field investigations, the Study Area was identified as candidate SWH for Woodland Raptor Nesting Habitat. During the 2017 leaf-off season, a stick nest survey was conducted to determine the presence or absence of nesting raptors. No stick nests were observed in the proposed ERRC footprint or within the Study Area; as such Woodland Raptor Nesting SWH is not present within the Study Area.

Habitat for Species of Conservation Concern was assessed through the amphibian and breeding bird surveys, vegetation inventory and incidental wildlife observation. No species of conservation concern were identified; however, two provincially-designated Special Concern species, namely eastern wood-pewee and wood thrush were documented. The presence of these Special Concern species confirms SWH for Special Concern and Rare Wildlife Species under the Habitat for Species of Conservation Concern category. No terrestrial crayfish chimneys were found at the Site.

Animal Movement Corridors focus on deer or amphibian movement between significant seasonal concentration areas. Although wildlife likely move along the trail within the Study Area, there is no

significant habitat within the Study Area that suggests that the Study Area is part of an Animal Movement Corridor.

4.5.3 Places to Grow

The Growth Plan for the Greater Golden Horseshoe (2017) was issued under authority of the Places to Grow Act (2005). The 2017 Growth Plan came into effect July 1, 2017 and replaces the original Growth Plan (2006).

This document was developed and amended provide a framework for the province of Ontario's vision for building strong, prosperous communities and to better manage growth in the region. The Growth Plan is intended to inform decision making regarding growth management and ensure environmental protection.

The Growth Plan builds upon the overall policy directions of the PPS. The Growth Plan is to be read in conjunction with the PPS. The policies of this plan take precedence over the policies of PPS to the extent of any conflict, except where relevant legislation provides otherwise. Where it relates to the natural environment, the direction that provides more protection prevails.

Under Section 4.2.3 of the Growth Plan, outside settlement areas, development or site alteration is not permitted in key natural heritage features that are part of the Natural Heritage System. Key natural heritage features is defined as any habitat of endangered species and threatened species, fish habitat, wetlands, ANSIs, significant valleylands, significant woodlands, significant wildlife habitat (including habitat of species concern species), sand barrens, savannahs, tallgrass prairies and alvars. The Natural Heritage System refers to the system to be mapped and issued by the Province composed of natural heritage features, areas and linkages. There are certain exceptions to this provision related to forest management, flood and erosion control, infrastructure authorized under an environmental assessment process, mineral aggregates and agriculture.

The proposed ERRC is defined as infrastructure under the definitions contained in the Growth Plan. As such it is exempt from the provisions of Section 4.2.3. Additional rationale for this is provided in the Planning Justification Report (GHD, November 2016 – amended February 2018).

4.5.4 Summary

The Study Area meets the criteria for Significant Woodland, and is considered SWH for Woodland Area-Sensitive Breeding Birds, Bat Maternity Colonies, Amphibian Breeding Woodland, and for Species of Conservation Concern. In accordance with PPS policy 2.1.5, site alteration [includes development] is not permitted unless it has been demonstrated that there will be no negative impact (as defined by the PPS) on the natural features or their ecological functions. The identification of impacts and mitigation are explored in Section 5.

5. Potential Environmental Impacts and Mitigation

5.1 Impact Assessment Process

The proposed ERRC is located within a complex Study Area that functions in part as a managed tree plantation and as a naturalized forest. Extensive surveys and Study Area investigations were completed to describe the habitat, species present and potential species use. The results of surveys and investigations have been considered to identify potential effects in a landscape and local scale context for both the construction and operation stages of the ERRC.

Negative Impact is defined in the PPS as:

a) In regard to policy 2.2, degradation to the quality and quantity of water, sensitive surface water features and sensitive ground water features, and their related hydrologic functions, due to single, multiple or successive development or site alteration activities.

b) In regard to fish habitat, the harmful alteration, disruption or destruction of fish habitat, except where, in conjunction with the appropriate authorities, it has been authorized under the Fisheries Act, using the guiding principle of no net loss of productive capacity.

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

Impacts to surface water quality are addressed in this report, while surface water quantity, groundwater features and hydrologic function are assessed under separate cover in the Study Area Hydrogeological Assessment Report (GHD, November 16, 2016 – amended December 2017). As the mapped watercourse is not present in the Study Area, fish habitat is not present and therefore not assessed for impact as a result of the development. An overview of the identified potential effects, impacts and mitigation for each of the natural features and ecological functions is provided in **Table 5.1**.

Table 5.1 Ecosystem Component Impact and Mitigation Summary

Ecosystem Component	Potential Effects	Impacts	Mitigation
Vegetation Communities (Including Wetlands)	Development and operation of the ERRC	1. Removal of vegetation 2. Introduction of non-native or invasive species	1. Minimize removal of vegetation where possible. 2. Clearly delineate development footprint. 3. Avoid operating heavy equipment outside development footprint. 4. Evaluate if there are any vegetation species within the ERRC footprint that there is value in relocating for enhancement of either on site areas or other local public lands (e.g. false sunflower). 5. Complete site preparation/vegetation clearing activities in the fall. 6. Clearly define ERRC boundaries. 7. Implement afforestation efforts within the County that improve contiguous woodland area by at least 5.5 ha. 8. Ensure post-construction planting and landscaping efforts include native vegetation species.
	Changes to runoff water quality and quantity	1. Contamination of wetlands due to increased erosion potential 2. Alteration of hydrologic regime	1. ERRC is located over 120 m away from wetland features. 2. ESC measures in place during construction and until vegetation is fully established in disturbed areas. 3. Storm water management in place to capture site run-off and ensure post-development conditions do not exceed pre-development conditions peak discharge flowrate. 4. Series of stormwater management controls to allow for distribution of stormwater to features as appropriate.
	Relocation of OFSC Trail	1. Removal of vegetation	1. Relocate to western edge of Study Area. 2. Minimize removal of vegetation where possible. 3. Clearly delineate development footprint. 4. Complete site preparation/vegetation clearing activities in the fall.
Wildlife and Habitat	Noise (during construction and operation)	1. Interruption and potential deterrent to wildlife	1. Limit daily construction and facility operation hours to 6 am – 7 pm.

Table 5.1 Ecosystem Component Impact and Mitigation Summary

Ecosystem Component	Potential Effects	Impacts	Mitigation
	Light pollution	1. Interruption and potential deterrent to wildlife	1. Limit facility hours of operation to 6 am – 7 pm to minimize night time site use and associated artificial lighting. 2. Review ERRC lighting needs; minimize site-associated lighting to the extent possible while achieving user safety requirements. 3. Utilize down-cast, low-wattage lights only. Implement the use of motion-activated lights where possible.
	ERRC operational odour	1. Potential wildlife attractant 2. Increased predation on ground-nesting birds	1. Fence the ERRC perimeter. 2. Store and manage ERRC materials using best management practices to minimize attractant odours, including indoor storage of all ERRC materials.
	Habitat removal	1. Decreased available habitat for breeding birds, bats, mammals, etc.	1. Optimize ERRC facility footprint and locate as close to the west or southwest Study Area boundary as feasible and minimize removal of vegetation as possible. 2. Prepare Tree Preservation and Wildlife Management Plans to be implemented during construction and operation phases. 3. Vegetation removal to take place outside of the breeding bird timing and bat roosting window, preferably between late September – February. 4. Stop work to allow wildlife to passively move out of the construction zone. 5. Implement conservative speed limits during construction and operation. 6. Install amphibian tunnels with drift nets to facilitate salamander crossings beneath ERRC access road. 7. Install bat boxes and snag poles in the Study Area. 8. Implement afforestation efforts within the County that improve contiguous woodland area by at least 5.5 ha.
	Road improvement	1. Loss of connectivity/ increased fragmentation 2. Collision mortalities	
	Relocation of OFSC Trail	1. Loss of habitat	

Each of the potential impacts identified and associated mitigation measures are discussed in Section 5.2 or 5.3.

An Environmental Management Plan (EMP) will be prepared and implemented during the construction period to clearly outline the mitigation and monitoring programs appropriate for the development. ERRC facility operations manual(s) can provide an equivalent function during the long-term operational stage of the facility. An adaptive management approach should be applied to the mitigation and monitoring components of these documents to adapt to changing conditions if and as identified.

5.2 Vegetation Communities (Including Wetlands)

5.2.1 Potential Impacts

Vegetation will be lost during construction activities, with the loss being restricted to the proposed facility footprint, new entrance, and narrow margin along the existing access road. The vegetation communities that will be directly affected are Dry-Fresh Sugar Maple Naturalized Deciduous Plantation (FODM5), Dry-Fresh Mixed Meadow (MEMM3), Naturalized Coniferous Plantation (FODM6), and Dry-Fresh Red-Pine Naturalized Coniferous Plantation (FOCM6-2). The Fresh-Moist Hemlock Hardwood Mixed Forest (FOMM6-2) may be indirectly affected by the proposed activities based on proximity to the proposed ERRC entrance off Horseshoe Valley Road.

As the proposed facility will handle compostable waste, introduction of invasive plant species is a potential impact.

The proposed works include construction of the ERRC greater than 120 m away from any identified wetlands within the Study Area, therefore no loss of wetlands is anticipated. Contamination of wetlands from construction activities is a potential impact if appropriate mitigation measures are not maintained to mitigate runoff and increased erosion potential. Permanent alteration of wetland habitat may also occur through alteration of the hydrologic regime of the local wetland features due to the increase of surface runoff from the addition of impervious areas within the Study Area.

The existing Ontario Federation of Snowmobile Clubs (OFSC) Trail is proposed to be relocated as it currently runs the length of the Study Area along the existing gravel roadway. The existing roadway will become the access road for the proposed ERRC facility. Additionally, the existing roadway north of the proposed ERRC footprint will act as the emergency access route for the facility. The relocation of the OFSC trail may cause isolated impacts to the vegetation communities depending on location.

5.2.2 Mitigation

The vegetation communities that will be altered as part of the proposed ERRC development are not unique areas within the Study Area or locally rare/significant. The areas that will be disturbed represent small percentages of the total community area present within the Study Area, and has considered the locations of previous disturbance (i.e. on logging roads/pathways). Enhancement opportunities of plantation areas will also mitigate the loss of the facility footprint habitat. This may include felling of some non-native species from the TAGM1 unit (e.g. Norway spruce, European larch), to open the canopy and facilitate growth opportunities of the sugar maple understory. The

impacts of vegetation removal will be further mitigated through afforestation efforts within the County that will increase available contiguous woodland vegetation by a minimum of 5.5 ha. One element of this may include the restoration and afforestation of the existing Study Area access road/parking area off of Horseshoe Valley Road. It is also recommended that any additional afforestation efforts be focused on sites that are as close to the Study Area as possible (within 5 km), are additions to the forest community, and are preferentially selected to infill forest gap areas.

The ERRC facility entrance off Horseshoe Valley Road has been situated with consideration given to driver safety, while maintaining a minimum 30 m buffer from the limit of disturbance associated with the access road to mitigate direct or indirect impacts to the natural, old-growth FOMM6-2 community.

Regionally rare plant species were identified within the Study Area (false sunflower, tall goldenrod, running strawberry bush, grey dogwood, black walnut, old-field cinquefoil, and Virginia creeper). Based on currently known species distributions and consultation with NVCA, false sunflower was identified as the only species warranting transplantation. The specific locations of false sunflower are mapped on **Figure 5**. In advance of construction, a transplantation plan will be developed if species are identified to be impacted by the ERRC facility. Briefly, transplantation will involve excavation of the entire plant and root mass and transportation to a location outside of the ERRC footprint with similar habitat. Transplantation locations will be documented and should be monitored for successful growth following transplantation. To mitigate impacts to vegetation an ecologist should be present on-site during project start-up to participate in the clear delineation of the construction area and flag any high sensitivity areas for avoidance around the ERRC footprint. Staging areas will be kept to a minimum to reduce unnecessary vegetation clearing, and situated in existing disturbed areas (e.g. existing entrance from Horseshoe Valley Road or within ERRC footprint). Vegetation to be removed from this footprint will be reviewed to identify if there any species within the footprint that have value in relocation for enhancement of other on site areas or other local public lands.

To limit the introduction of invasive species into the Study Area, the proposed ERRC will include measures to adequately contain any compostable materials such that the surrounding Study Area is protected (e.g. indoor storage of any leaf, brush or yard-waste additives).

Mitigation of the potential impacts on wetlands as a result of siltation and altered flow during construction will occur through installation and maintenance of heavy duty erosion and sediment controls, such as large diameter siltsoxx. Impacts to wetland communities will be mitigated by maintaining existing Study Area hydrology function through an appropriately designed stormwater management facility that includes infiltration elements.

Temporary erosion and sediment control (ESC) measures and a stormwater management plan will be implemented to provide short and long term controls, respectively. The temporary ESC measures are intended to provide controls for the construction period until the long term stormwater management measures are in place, fully functional and exposed areas have established vegetative cover. The ERRC includes post-development conditions that are designed to match pre-development conditions for peak discharge flow rate, and all runoff from within the proposed footprint will be contained within the limits of the footprint and infiltrated into the ground surface.

There will be no collected runoff discharging overland towards the wetland. The temporary ESC measures proposed include the following:

- Implement construction Best Management Practices when handling material to minimize siltation and erosion potential.
- Vegetate disturbed areas with native seeds and plants as soon as practical to reduce erosion potential.
- Installation and maintenance of enhanced erosion and sediment controls. Enhanced heavy duty silt fence with straw bales and biodegradable coir logs or large diameter siltsoxx will be included as part of the erosion and sediment control protection measures around the working perimeter (including access road).
- Construction phase vehicle fueling, storage, and maintenance should occur outside of the Study Area (off site).
- ESC measures should be kept in place and be routinely inspected, modified as required, and maintained during the construction and vegetation establishment period.

The stormwater management plan includes the following measures which will also serve to mitigate impacts to hydrology and water quality:

- Surface runoff will drain overland from the facility footprint to a proposed vegetated filter strip along the east side of the facility footprint which will filter sediment discharging from the ERRC.
- Once through the vegetated filter strip, surface runoff will discharge into an enhanced vegetated swale to convey the runoff to the downstream SWMP. Rock check dams will be spaced accordingly to further dissipate sediment within the surface runoff and encourage infiltration.
- The proposed SWMP will be sized to capture, store, and infiltrate all rainfall events, up-to and including the 100-year storm event (excluding events greater than the 100-year storm event and large concurrent storm events). Since the underlying soil conditions consist of highly infiltrative soils (sand to sandy silt) and that existing land conditions consist of heavily forested area, pre-development peak flows are assumed to be minimal.
- The proposed drainage ditch along the access road will convey overflow from the proposed SWMP and access road drainage swale to the existing drainage ditch along Horseshoe Valley Road West. The proposed ditch will also be vegetated with appropriate native species and fitted with rock check dams to further dissipate sediment within the surface runoff and encourage infiltration.

To mitigate any impacts to vegetation and wetlands as a result of the OFSC trail relocation, the established buffers around all wetland features will be maintained as well as the old growth hemlock stand to the southeast. These features will be avoided and remain undisturbed as the relocated OFSC trail will be established along the western edge of the Study Area.

5.3 Wildlife and Habitat

5.3.1 Potential Impacts

Equipment noise during construction and operational noise will likely deter and interrupt wildlife such as large mammals (bear, deer, etc.), small mammals, birds, amphibians, and reptiles.

Odours generated from the ERRC will be mitigated through proper handling and storage of materials, however may prove to attract some wildlife. Pest species may increase, such as raccoons, which are predatory on ground-nesting birds. Light pollution of the area immediate area surrounding the ERRC may disrupt wildlife using those near-facility areas.

Vehicular traffic will increase during and after construction of the ERRC, and may increase the incidence of vehicular related mortality. Increased traffic may also have an impact on general species dispersal. Noise related to traffic may discourage use by migratory bird species as they typically prefer secluded areas.

Complex micro-topography within the Study Area supports vernal pooling and provides suitable salamander habitat. Although the ERRC is proposed to be located approximately 180 m away from a known spotted salamander breeding pond, the development may decrease the available area for salamander dispersal.

Permanent alteration due to decreased connectivity and fragmentation may occur during construction and operation. The footprint of the facility and entrance will result in the permanent loss of herbaceous and wooded upland habitat. The proposed access road clearing width will be to a total width of 15 – 20 m (inclusive of the existing access road). Connectivity across the Study Area will be impacted between the east and west portions of forested areas as a result of the entrance, roadway and facility. Fragmentation may increase the occurrence of nest predators as many forest edge birds are nest predators.

Removal of vegetation will decrease the available nesting habitat for breeding birds and available cover for mammals and insects.

Bat maternity roosts are also a habitat consideration due to incidental sightings of bats, documented snags and acoustic monitoring results. Although snag concentration was highest in the Fresh-Moist Hemlock Hardwood Mixed Forest, bats were documented across the Study Area via acoustic monitoring; therefore, any tree removal could negatively impact the habitat of bats. Both the little brown and northern long-eared bats typically occupy cavities in old growth and mature trees within their home range which are selected based on temperature, shelter availability, and are usually close to a water source for insect foraging. Both the little brown and northern long-eared Myotis show high nest fidelity and will return to specific areas and trees (Kunz,et. Al., 2010; USFWS, 2014); therefore, disturbance/impacts to any roosts during the breeding season may result in abandonment.

5.3.2 Mitigation

Wildlife and habitat impact mitigation measures have considered the recommendations provided in the Significant Wildlife Habitat Mitigation Support Tool (MNRF, 2014).

Wildlife incidentally encountered during ERRC construction and operation activities will not be knowingly harmed and will be allowed to move away passively, where possible. The EMP should address the procedures for who to contact should in the event wildlife is encountered (e.g. Site Supervisor will contact MNRF).

The proposed regular ERRC facility hours of operation are 6:00 am until 7:00 pm, thereby providing 11 hours per day without operations noise. These work hours will also mitigate the risks of light pollution. This can be further mitigated by optimizing the lighting needs to a scenario that provides the minimum user visibility requirements while reducing artificial light to the extent reasonable. Utilizing down-cast, low-wattage, and motion-activate lights will further mitigate any impacts of light pollution.

To address odour pollution, storage and handling of the materials should include storage of materials under cover and/or management of materials within buildings as appropriate. Other mitigative design features may include operation under negative pressure, or fast-acting doors. These features will serve to reduce and deter pest species that may predate on ground nesting bird species.

All construction traffic and Study Area contractors will be advised to stop/pause work to allow any encountered wildlife to move passively out of the construction area and conservative speed limits will be recommended during construction and operation to mitigate vehicular related mortality As an additional mitigation, it is recommended that signage be installed that will alert all users to potential wildlife crossing and instructs that in the presence of wildlife, vehicles should stop to allow wildlife to cross. Regular hours of operation (6:00 am - 7:00pm) will allow wildlife to freely move within the Study Area when the ERRC is closed.

The existing portion of the north access road is intended to be retained as emergency access only. A terrestrial buffer zone will be established from ponds/wetlands to protect amphibians. To encompass most salamander species, terrestrial buffer zones of breeding ponds will extend approximately 160 m from the edge of the pond; this distance represents the movements of 95 percent of the adults in a population (Savage and Zamudio, 2016). Provision of permanent amphibian tunnels north of the ERRC, beneath the emergency access road, with associated drift nets along the perimeter of the emergency access road should mitigate loss of connectivity, increased fragmentation and collision mortalities of amphibians under increased road traffic. Amphibian tunnels south of the ERRC will also be installed to mitigate fragmentation. The enhancement of TAGM1, outlined in Section 5.2.2 can also provide habitat enhancement for salamanders if some of the felled logs are laid down within the unit, providing cover and hibernation habitat for the salamanders known to be in the area. Similarly, felled logs as a result of any vegetation clearing within the Study Area will be used to enhance the habitat complexity for salamanders as appropriate. The ERRC footprint is located approximately 190 m from the documented salamander pool. All construction operators and delivery contractors should be notified of the possible presence of reptiles and amphibians in the surrounding areas. This will include visual identification tools in the form of a handout and instructions in case of an encounter. Initial perimeter works (e.g. construction fence installation to isolate access to work area) will be completed when dispersal is anticipated to be minimal (between late October and February thaw/ice-off) where possible. Individuals conducting the perimeter works will be advised to stop work immediately if any of the reptiles or amphibians identified in the provided handout are found,

inform the Site Supervisor, and resume perimeter works only after the animal has passively moved out of the work area.

Clearing, grubbing, and tree removal works should be conducted in a manner to avoid nesting birds and wildlife where possible. Development of site specific tree protection measures and a Wildlife Management Plan will assist in the mitigation of impacts to Study Area habitats and wildlife by providing recommendations for protection and contingency measures for these ecosystem components. Vegetation removal should take place in the fall (September – December) to avoid the breeding bird timing window, the bat maternity roost timeframe, and limit disturbance to terrestrial fauna. The EMP and Wildlife Management Plan should include alternate protection and mitigation measures should the clearing works not be conducted in the recommended fall season. Ecologists, arborists, and the County forester should be involved in the development and implementation of these plans to provide wholesome mitigation of the potential impacts to habitats and wildlife in the vicinity.

Bat feeding habitat within the Study Area exists in the Fresh-Moist Hemlock Hardwood Mixed Forest in the southeast of the property. Maintenance of a 30 m buffer between this unit and any development or construction activities should mitigate impact to any maternity roosts present. Snags were also documented within the proposed ERRC footprint and proposed roadway. Removal of any snags during the hibernation season (i.e. between September – April) should mitigate the risk of disturbing any potential roosting activity. Further details of mitigation (e.g. snag poles or bat boxes) and avoidance of any necessary permitting will be developed in advance of construction in consultation with MNRF.

In a similar manner to mitigation to the impacts of removal of vegetation, the impacts of habitat availability, loss of connectivity and increased fragmentation, will be further mitigated through afforestation efforts within the County that will increase available contiguous woodland habitat by a minimum of 5.5 ha, and preferably 11 ha. Afforestation sites should be chosen as close as possible to the Study Area (within 5 km) and in a location that serves to enhance or increase the available interior forest habitat within the Copeland Forest by infilling existing gaps in the forest unit. One element of this may include the restoration and afforestation of the existing Study Area access road/parking area off of Horseshoe Valley Road.

To mitigate any impacts to wildlife and habitat as a result of the OFSC trail relocation, installation of the trail should be done outside of the breeding bird window and tree removal should be limited. To minimize removal of habitat, GHD recommends that the relocated OFSC trail run along the western edge of the Study Area.

With consideration given to the plantation nature and management of almost the entire Study Area and the impacts and mitigation measures detailed in Section 5, negative impacts to the identified natural features and ecological function are not anticipated.

6. Conclusions

The Freele County Forest tract (Study Area) is a woodlot that is actively managed and harvested by Simcoe County. The Study Area is composed of active plantation, hardwood forest, wetland,

meadow, and a sandy gravel access road. As part of a contiguous landscape-level woodland feature, the Study Area satisfies the conditions of woodland Significance under the Simcoe County Greenlands designation and the Provincial Policy Statement. The Study Area is an actively managed and harvested forest tract with temporary ecologic function as trees from the Study Area, and ERRC footprint specifically, are scheduled to be harvested as part of on-going management of this tract. Despite this temporary function, the Study Area is providing habitat to many species. Specifically, the Study Area is considered Significant Wildlife Habitat for Bat Maternity Colonies, Woodland Area-Sensitive Breeding Birds, Breeding Amphibians and Special Concern species. It is also likely that relatively low densities of SAR bats are using the Study Area for maternity roosting, feeding and commuting.

While the development of the proposed ERRC will result in the loss of approximately 5.5 ha of the Freele County Forest tract, this conservatively represents a 1 percent loss of total contiguous woodland feature and 6.5 percent of the Study Area. A commitment to afforestation at a 2:1 ratio (e.g. 11 ha) to expand and/or enhance the contiguous woodland feature within the vicinity of the Study Area will, along with the detailed site design and operation considerations, serve to mitigate the loss.

Further, it is the most natural areas of the Study Area (wetlands to the northeast, old growth hemlock stand to the southeast) that will first and foremost be avoided and will therefore remain undisturbed and not be impacted by the development of the ERRC. Therefore, the mitigation measures provided herein are protective of the range of vegetation and wildlife species present. With respect to SAR bats, it is unlikely that permitting under the Endangered Species Act will be required due to the relative size of the development footprint within the Study Area, but continued consultation with the MNRF will be necessary in advance of development.

The development of the ERRC will not result in a negative impact, which is defined under the PPS as “degradation that threatens the health and integrity of the natural features or ecological functions for which an area is identified due to single, multiple or successive development or site alteration activities”. This is based on the proposed location of the ERRC, the plantation history of the Site, the actively managed nature of the Study Area and the implementation of the recommended mitigation measures, which adequately avoid, compensate and replace natural features (i.e. vegetation/plantings) within the wider woodlot feature. No environmental impacts on the larger woodlot feature are anticipated from the development of the proposed ERRC.

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All of Which is Respectfully Submitted,

GHD

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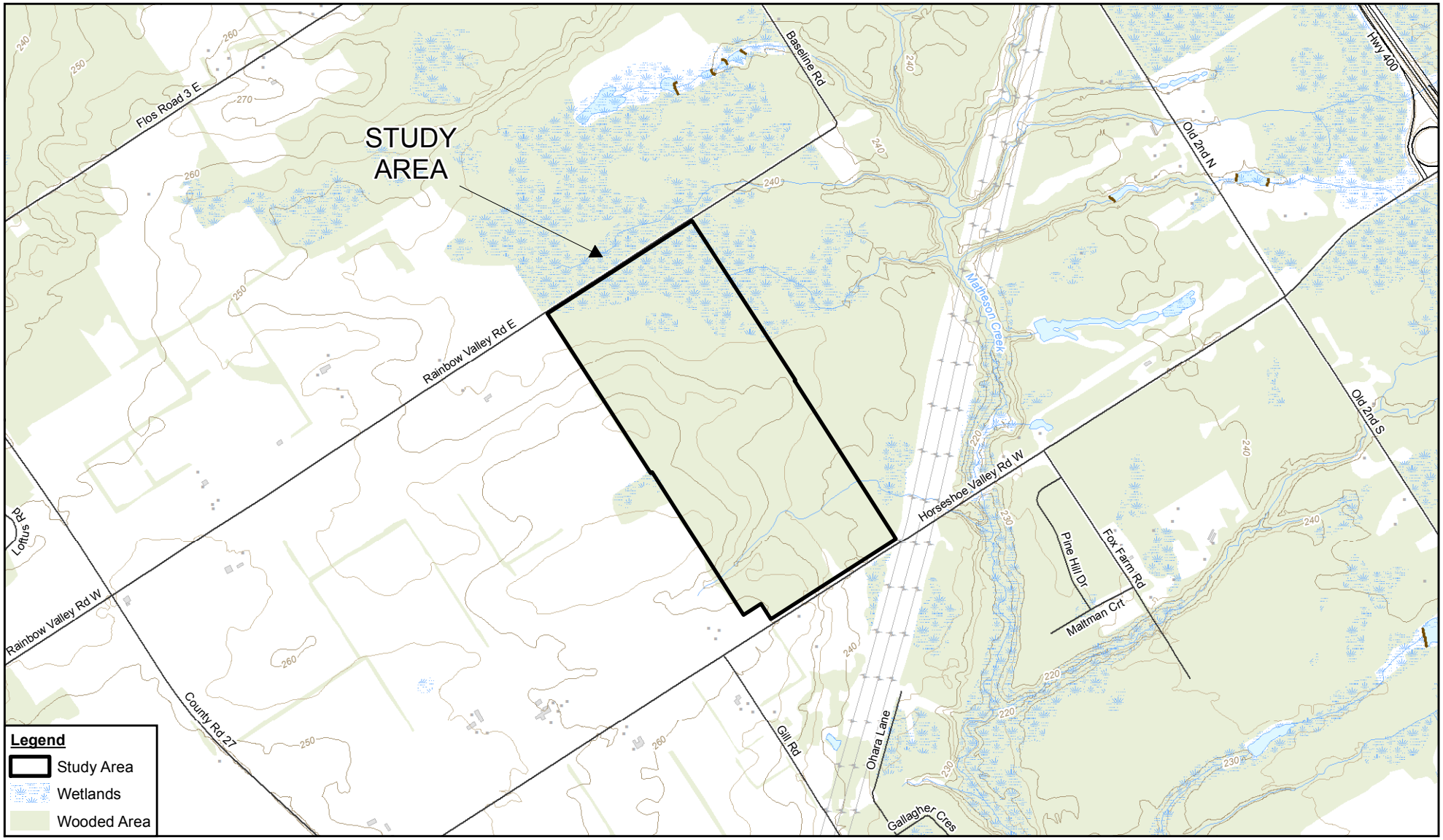
Blair Shoniker, M.A., RPP



Source: MNRF NRVIS, 2014. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2016

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Meters

Coordinate System:
NAD 1983 UTM Zone 17N

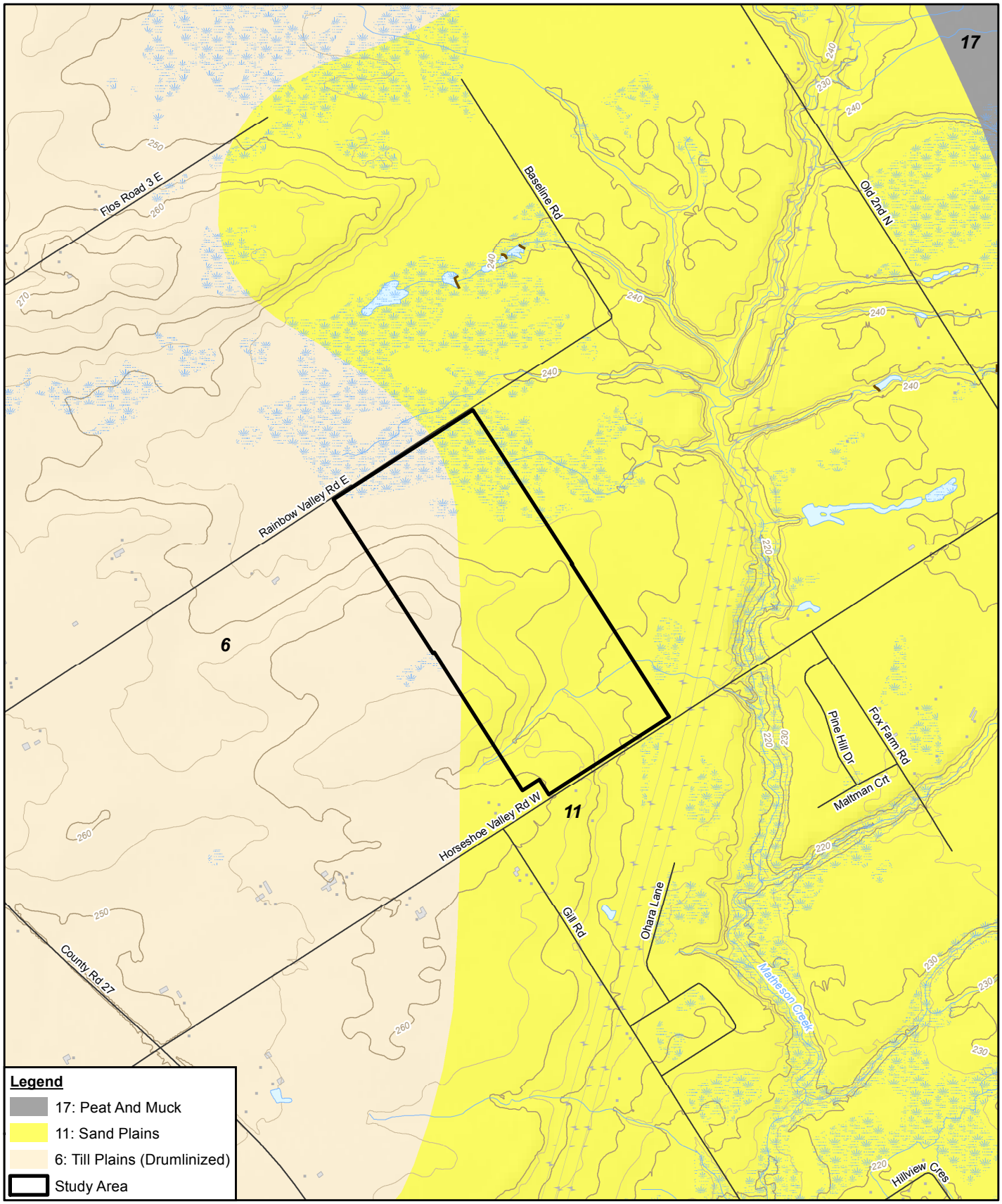
ENVIRONMENTAL RESOURCE RECOVERY CENTRE
SPRINGWATER, ONTARIO
SCOPED ENVIRONMENTAL IMPACT STUDY

086822-00
Nov 7, 2016

STUDY AREA LOCATION MAP

FIGURE 1

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA001.mxd



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Chapman, L.J. and Putnam, D.F. 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release—Data 228.

0 200 400 600
Meters

Coordinate System:
NAD 1983 UTM Zone 17N

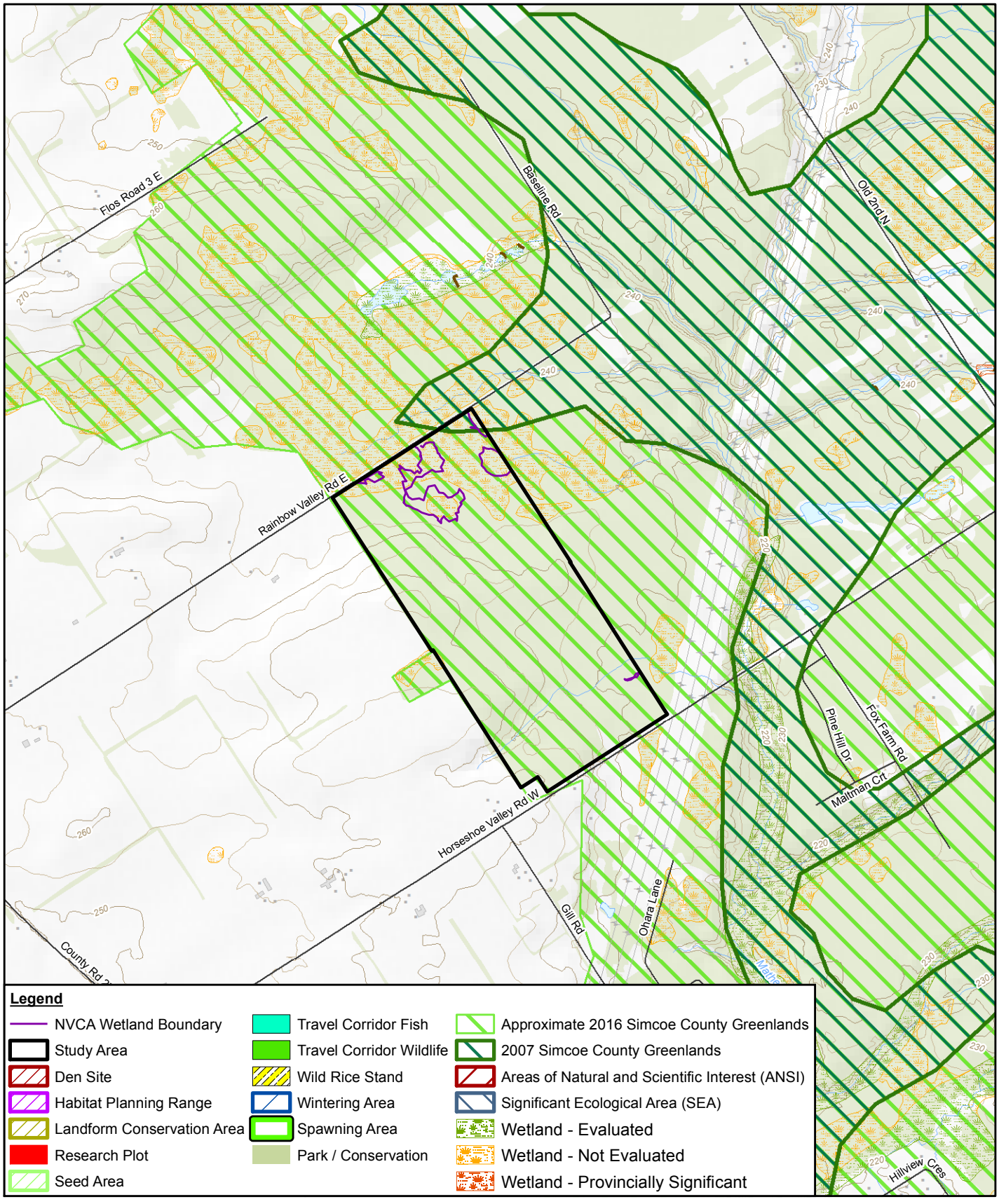
ENVIRONMENTAL RESOURCE RECOVERY CENTRE (ERRC)
2976 HORSESHOE VALLEY ROAD WEST, SPRINGWATER
SCOPED ENVIRONMENTAL IMPACT STUDY

086822-00
Nov 4, 2016

PHYSIOGRAPHY

FIGURE 2

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA002.mxd



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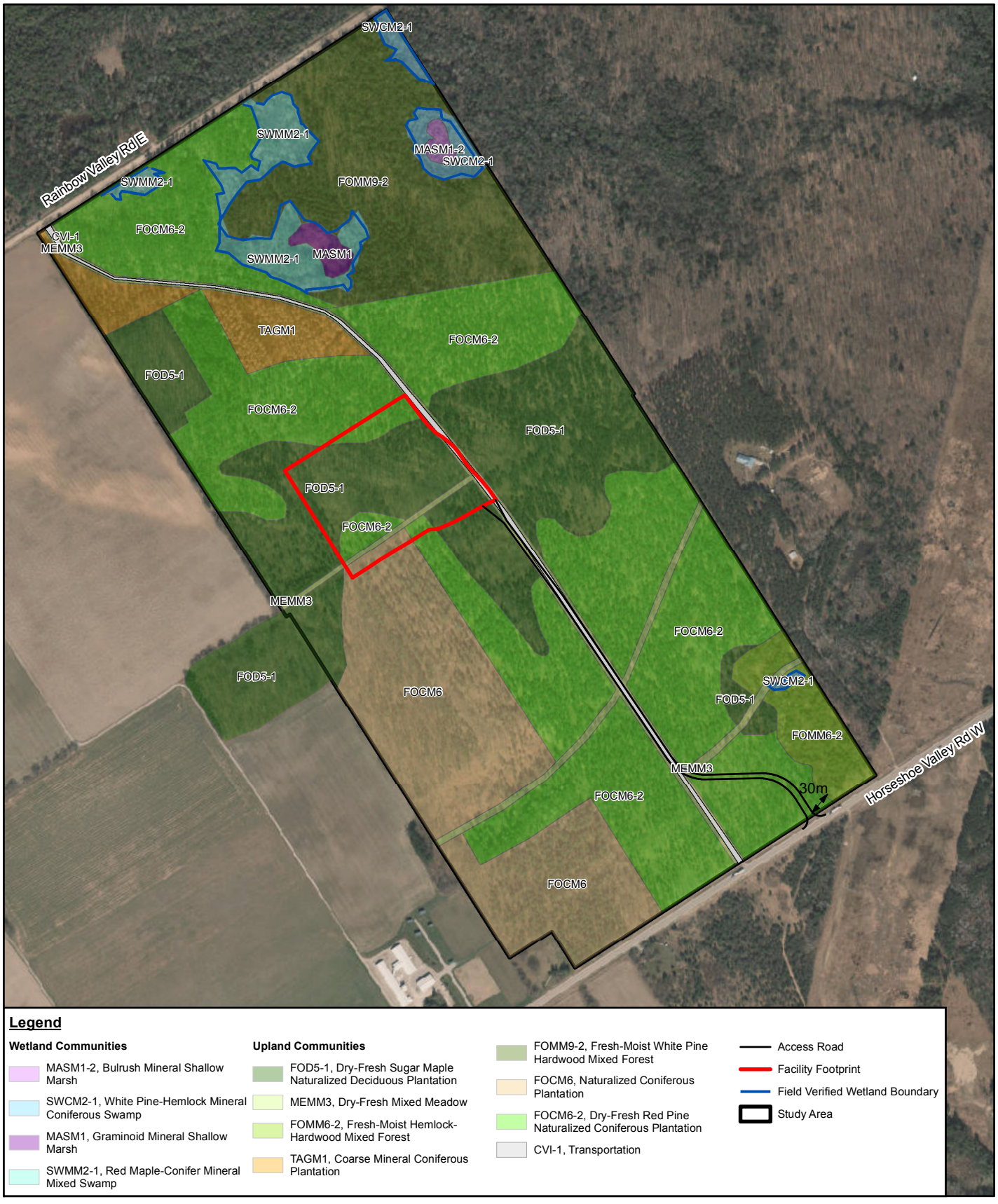
Coordinate System:
NAD 1983 UTM Zone 17N

ENVIRONMENTAL RESOURCE RECOVERY CENTRE
SPRINGWATER, ONTARIO
SCOPED ENVIRONMENTAL IMPACT STUDY

086822-00
Nov 8, 2016

NATURAL HERITAGE FEATURES FIGURE 3

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA003.mxd



Source: MNRF NRVIS, 2016. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2017

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Coordinate System:
NAD 1983 UTM Zone 17N

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GHD

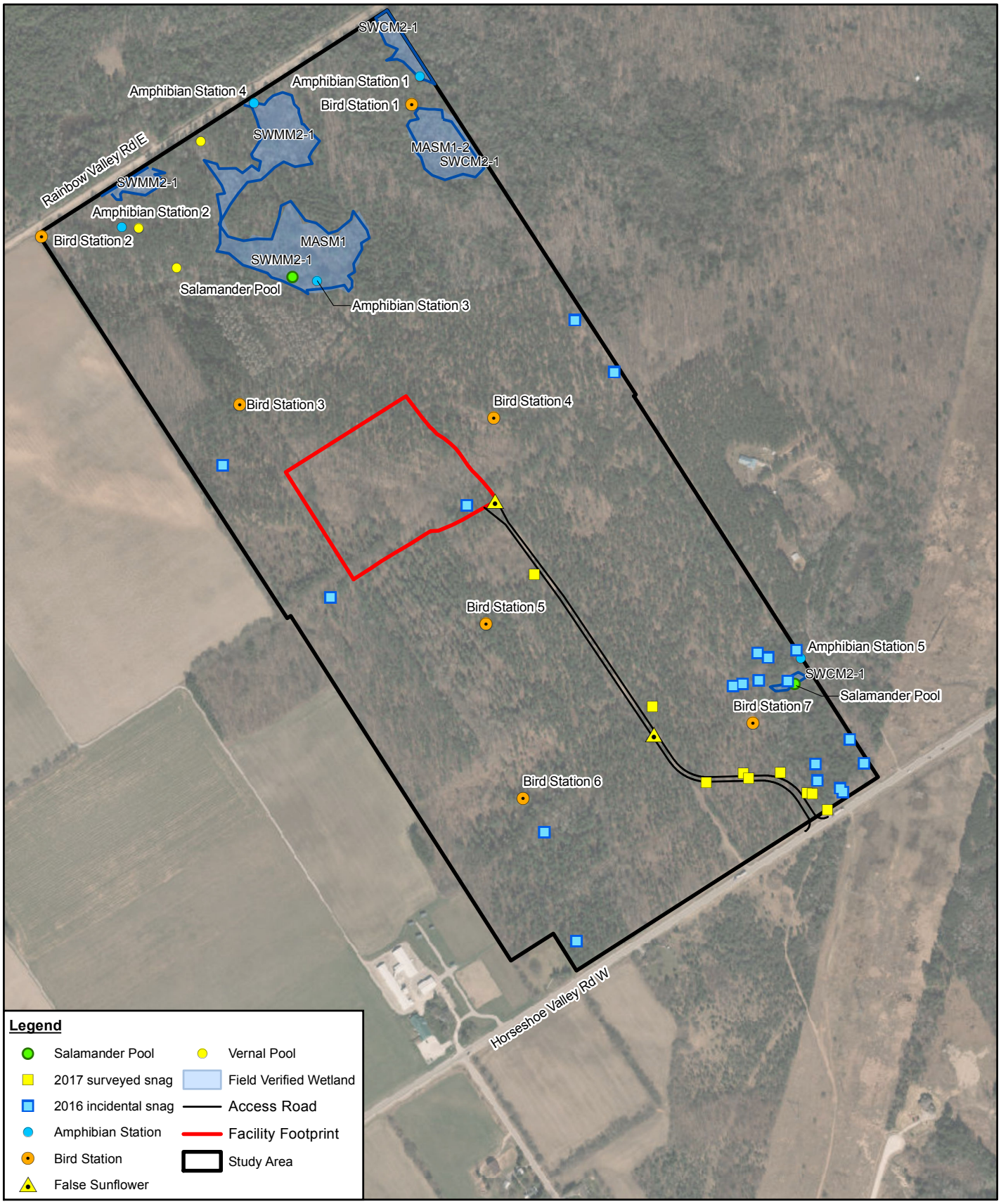
ENVIRONMENTAL RESOURCE RECOVERY CENTRE
SPRINGWATER, ONTARIO
SCOPED ENVIRONMENTAL IMPACT STUDY

086822
Nov 16, 2017

ECOLOGICAL LAND CLASSIFICATION

FIGURE 4

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA004.mxd



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Coordinate System:
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ENVIRONMENTAL RESOURCE RECOVERY CENTRE
SPRINGWATER, ONTARIO
SCOPED ENVIRONMENTAL IMPACT STUDY

086822
Nov 2, 2017

WILDLIFE AND HABITAT FEATURES FIGURE 5

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA005.mxd

Table 2.3

Wildlife Observations
Scoped EIS
County of Simcoe
Springwater, ON

Species		Provincial Status	Conservation Status	
Common Name	**Scientific Name**		**SARO**	**SARA**
Reptiles and Amphibians				
American toad	*Anaxyrus americanus*	S5	No Status	Threatened
Western chorus frog*	*Pseudacris triseriata*	S4		
Gray tree frog	*Hyla versicolor*	S5		
Green frog*	*Lithobates clamitans*	S5		
Northern leopard frog*	*Lithobates pipiens*	S5		
Eastern red-backed salamander	*Plethodon cinereus*	S5		
Spotted salamander	*Ambystoma maculatum*	S4		
Spring peeper	*Pseudacris crucifer*	S5		
Wood frog	*Lithobates sylvaticus*	S5		
Mammals				
Bat sp.	*Chiroptera sp.*	-		
Coyote*	*Canis latrans*	S5		
Eastern gray squirrel	*Sciurus carolinensis*	S5		
Red squirrel	*Tamiasciurus hudsonicus*	S5		
White-tailed deer	*Odocoileus virginianus*	S5		
Insects				
Common whitetail	*Plathemis lydia*	S5		
Eastern tiger swallowtail	*Papilio glaucus*	S5		
Eight-spotted forester	*Alypia octomaculata*	S5		
Mourning cloak	*Nymphalis antiopa*	S5		
Red-spotted purple	*Limenitis arthemis astyanax*	S5		
Silver-spotted skipper	*Epargyreus clarus*	S4		
Viceroy	*Limenitis archippus*	S5		

Notes:

All species observed within the Study Area unless otherwise noted
*observed outside of, but adjacent to, the immediate Study Area

SARA: Species at Risk Act
SARO: Species at Risk in Ontario
S4: Common in Ontario; apparently secure with over 80 occurrences in the province
S5: Demonstrably secure; species is widespread in Ontario
- : Indicates no information available
Rank qualifiers (e.g. S1B,S2N) are used for some migratory or transitory species to indicate different conservation statuses at specific times of the year, such as during the breeding (B) and non-breeding (N) seasons.

Table 2.4

2016 Amphibian Survey Results
Scoped Environmental Impact Study
County of Simcoe
Springwater, ON

Call Level Code[1]

Common Name	Scientific Name	*Station 1*			*Station 2*			*Station 3*			*Station 4*			*Station 5*[2]		
Visit Date		***18-Apr***	***10-May***	***6-Jun***	***18-Apr***	***10-May***	***6-Jun***	***18-Apr***	***10-May***	***6-Jun***	***18-Apr***	***10-May***	***6-Jun***	***18-Apr***	***10-May***	***6-Jun***
Spring peeper	*Pseudacris crucifer*	3	3	-	3	-	-	3	3	-	3	2	-	N/A	-	-
Wood frog	*Lithobates sylvaticus*	1	-	-	-	-	-	2	-	-	3	-	-	N/A	-	-
American toad	*Anaxyrus americanus*	-	-	-	-	2	-	-	-	-	-	1	-	N/A	-	-
Gray tree frog	*Hyla versicolor*	-	-	-	-	-	1	-	-	1	-	-	3	N/A	-	1*

Notes:

Surveys were completed on April 18, 2016, May 10, 2016 and June 6 2016.

1. Call Level 1: Calls not simultaneous, number of individuals can be accurately counted
   Call Level 2: Some calls simultaneous, number of individuals can be reliably estimated
   Call Level 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated
2. Four amphibian stations were surveyed during the first visit, but subsequent field investigation indicated additional amphibian habitat, and a fifth station was created

N/A Station not survyed; data not available

\- Species not detected

* Species detected outside of 100 metre protocol station area

Table 2.5

Bird Survey Results
Scoped EIS
County of Simcoe
Springwater, ON

Species		Provincial Status	Conservation Status		Bird Survey Location							Notes
Common Name	**Scientific Name**		**SARO**	**SARA**	**PC1**	**PC2**	**PC3**	**PC4**	**PC5**	**PC6**	**PC7**	
American crow	*Corvus brachyrhynchos*	S5B			O:X			o:X	o:X	O:X		
American goldfinch	*Spinus tristis*	S5				p:S				P:S		
American redstart	*Setophaga ruticilla*	S5B										Possible breeding: singing male
American robin	*Turdus migratorius*	S5B				P:S			P:S			
Baltimore oriole	*Icterus galbula*	S4B			p:S	P:S						
Barred owl	*Strix varia*	S5										feather of species found within Study Area
Blackburnian warbler	***Setophaga fusca***	**S5B**					**p:S**			**P:S**	**P:S**	
Black-capped chickadee	*Poecile atricapillus*	S5			P:S	P:S	P:S		P:S			
Black-throated blue warbler	***Setophaga caerulescens***	**S5B**			**P:S**		**p:S**	**P:S**	**P:S**	**P:S**		***Probable breeding: pair observed in suitable nesting habitat outisde of breeding bird surveys, south of the proposed facility footprint***
Black-throated green warbler	***Setophaga virens***	**S5B**			**P:S**				**P:S**			
Blue jay	*Cyanocitta cristata*	S5			P:H		P:H				P:H	
Blue-headed vireo	***Vireo solitarius***	**S5B**										**Possible breeding: singing male**
Broad-winged hawk	*Buteo platypterus*	S5B							o:X		o:X	Flyover
Brown creeper	*Certhia americana*	S5B										
Brown thrasher	*Toxostoma rufum*	S4B			P:S							
Chestnut-sided warbler	*Setophaga pensylvanica*	S5B						P:S	P:S	P:S		
Chipping sparrow	*Spizella passerina*	S5B								P:S	P:S	
Common grackle	*Quiscalus quiscula*	S5B										
Common yellowthroat	*Geothlypis trichas*	S5B			P:S							
Downy woodpecker	*Picoides pubescens*	S5				p:H						
Eastern wood-pewee	*Contopus virens*	S4B	Special Concern	Special Concern			P:S		p:S			
Great crested flycatcher	*Myiarchus crinitus*	S4B			p:H		P:H					
Gull sp.	*Laridae sp.*	-				O:X						-
Hairy woodpecker	*Picoides villosus*	S5			PR:P/V							
Hermit thrush	*Catharus guttatus*	S5B			P:S							
House wren	*Troglodytes aedon*	S5B							p:S			
Indigo bunting	*Passerina cyanea*	S4B				P:S		p:S	P:S			
Killdeer	*Charadrius vociferus*				o:X	O:X						
Magnolia warbler*	*Setophaga magnolia*	S5B					P:S					
Mourning dove	*Zenaida macroura*	S5				P:H						
Mourning warbler	*Geothlypis philadelphia*	S4B					P:S		p:S			
Northern flicker	*Colaptes auratus*	S4B										
Northern parula	***Setophaga americana***	**S4B**					**p:S**					
Ovenbird	***Seiurus aurocapilla***	**S4B**			**P:S**	**P:S**	**P:S**	**P:S**	**P:S**	**P:S**	**P:S**	***Probable breeding: pair observed in suitable nesting habitat outside of breeding bird surveys, immediately south west of the proposed facility footprint***
Pileated woodpecker	*Dryocopus pileatus*	S5										*Probable breeding: pair observed in suitable nesting habitat outisde of breeding bird surveys in vicinity of the proposed facility footprint*
Pine warbler	*Setophaga pinus*	S5B										Possible breeding: singing male
Red-shouldered hawk	*Buteo lineatus*	S4B	No Status	Special Concern								Flyover
Red-breasted nuthatch	***Sitta canadensis***	**S5**			**p:S**		**P:S**	**P:S**				
Red-eyed vireo	*Vireo olivaceus*	S5B			P:S	P:S	P:S	P:S	P:S	P:S	P:S	
Rose-breasted grosbeak	*Pheucticus ludovicianus*	S4B										Possible breeding: singing male
Ruffed grouse	*Bonasa umbellus*	S4B			p:H				p:H			

Table 2.5

Bird Survey Results
Scoped EIS
County of Simcoe
Springwater, ON

Species		Provincial Status	Conservation Status		Bird Survey Location							Notes
Common Name	**Scientific Name**		**SARO**	**SARA**	**PC1**	**PC2**	**PC3**	**PC4**	**PC5**	**PC6**	**PC7**	
Scarlet tanager	***Piranga olivacea***	**S4B**									**p:S**	
Song sparrow	*Melospiza melodia*	S5B			p:S	P:S						
Veery	***Catharus fuscescens***	**S4B**			**p:S**					**P:S**		
Vesper sparrow*	*Pooecetes gramineus*	S4B				P:S						
White-breasted nuthatch	*Sitta carolinensis*	S5			p:S							
White-throated sparrow	*Zonotrichia albicollis*	S5B										Possible breeding: singing male
Winter wren	***Troglodytes troglodytes***	**S5B**			**p:S**							
Wood thrush	*Hylocichla mustelina*	S4B	Special Concern	Threatened	P:S							
Yellow warbler	*Setophaga petechia*	S5B					P:S	P:S				

Notes:

All species listed were observed within the Study Area unless otherwise noted, if species listed are not documented in a point count they were incidentally observed during other field investigations
All species listed were identified by song/vocalizations unless otherwise noted
*observed outside of, but adjacent to, the immediate Study Area
O: Species observed ('X' qualifier: observed during breeding season but no evidence of breeding)
P: Possible breeding ('S' qualifier: singing male present; 'H' qualifier: species observed in breeding season in suitable nesting habitat)
PR: Probable breeding ('P/V' qualifier: Pair observed, visiting probable nest site)
Capitilized P, O, PR: Observed within standardized bird survey time
Lower case p, o, pr: Observed outside of standardized bird survey time
Bolded species are considered area sensitive as per MNRF Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E
SARA: Species at Risk Act
SARO: Species at Risk in Ontario
S4: Common in Ontario; apparently secure with over 80 occurrences in the province
S5: Demonstrably secure; species is widespread in Ontario
- : Indicates no information available
Rank qualifiers (e.g. S1B,S2N) are used for some migratory or transitory species to indicate different conservation statuses at specific times of the year, such as during the breeding (B) and non-breeding (N) seasons.

Appendices

Appendix A
Environmental Impact Study Terms of Reference

Memorandum

To:	Stephanie Mack (Simcoe County)	Ref. No.:	086822
From:	Laura Lawlor/aj/3	Date:	May 10, 2016
CC:	Brian Dermody (GHD) Blair Shoniker (GHD)		

Re: Simcoe Organics Facility – Site Natural Features and Scoped EIS Terms of Reference
2976 Horseshoe Valley Road West, Springwater, ON

The following has been prepared for the purpose of outlining the Terms of Reference for the Scoped Environmental Impact Study (EIS) pertaining to the Organics Processing Facility (OPF) and Materials Management Facility (MMF) proposed at 2976 Horseshoe Valley Road West, Springwater. It has been prepared based out our review of the Simcoe County Official Plan EIS requirements, Nottawasaga Valley Conservation Authority (NVCA) Planning and Regulations Guidelines, and the April 1, 2016 meeting with representatives of the County, Township of Springwater, NVCA, and Ministry of Natural Resources and Forestry (MNRF).

Task 1: Pre-Consultation Meeting

Attended by the County, Township of Springwater, NVCA, MNRF, GHD at the County Administration Center on April 1, 2016. The objective of this meeting was to verify the Terms of Reference for the Scoped EIS.

Task 2: Desktop Review

Using resources such as the MNRF database, NVCA, County and Township records (including forestry management records), and eCommunal sources (e.g., eBird, iNaturalist, etc.), GHD will document the existing conditions of the entire property at 2976 Horseshoe Valley Road West (208 acres), with a focus on the proposed facility location (11 acres). Existing conditions of adjacent properties will also be documented as they relate to the subject property. Features will include:

- Available natural feature mapping (e.g., wetlands, significant woodlands, significant natural features etc.)
- Surface water features and NVCA regulated areas
- Species at Risk (SAR) data
- Municipal natural heritage, forestry, and wildlife records or applicable management plans
- Wildlife databases and records

GHD Limited
651 Colby Drive Waterloo Ontario N2V 1C2 Canada
T 519 884 0510 F 519 884 0525 W www.ghd.com

Connectivity of natural features identified on or adjacent to the site will be mapped and identified as part of Task 2.

The desktop review is expected to be completed in April 2016.

Task 3: Field Investigation

GHD initially conducted a preliminary Site reconnaissance to review woodlot composition and presence of natural features within the Study Area (January 27th, 2016). Additional field investigations will verify all previously collected information and characterize the natural features present on the property. The focus of the field investigation will include:

- Ecological Land Classification (ELC) – document forest/vegetation communities
  - Two events (May and July)
  - In accordance with the MNR First Approximation methods (1998)
- Watercourse verification
  - Two events (April and July)
  - Visual observation
- Incidental Wildlife Observations
  - Two events (May and July)
  - Visual and auditory observations
- Wetland delineation
  - Two events (May and July)
  - Will be conducted with NVCA and GHD staff, and in accordance with the Southern Ontario Wetland Evaluation System and ELC methodologies
- Breeding Bird Survey
  - Two spring events (early June and late June or early July)
  - In accordance with industry standard monitoring methods (e.g., Marsh Monitoring Protocol, Toronto Region Conservation Authority EIS Guidelines, Parks Canada Forest Bird Monitoring Program, many MNRF SAR survey protocols)
- Amphibian Survey
  - Three events (April, May, early June)
  - In accordance with the Marsh Monitoring Program protocol guidelines (Bird Studies Canada)
- Species specific habitat verification (Hine's emerald dragonfly, eastern whip-poor-will, bat roosting)
  - Two events (May and July)
  - Initial review of records indicate that these species are not known to be present on-site. Using known habitat requirements for these species (MNRF and Committee on the Status of Endangered Wildlife in Canada), the presence of suitable on-site habitat will be reviewed

All field investigations are expected to be carried out concurrently (where possible) in Spring/Summer 2016, and as appropriate for the survey type. Timing of the field investigations will be determined by weather, seasonal climate, and site conditions. No fall surveys are planned as part of this workplan based on GHD's initial assessment of the site. At the April 1, 2016 meeting, it was suggested by NVCA that there may be the potential for a SAR grass (forked three-awned grass; *Aristida basiramea*) to be present on-site. Should it be determined through the spring and summer field investigations that there may be suitable habitat for this species, GHD will notify the County as surveys for the presence/absence of this species will require a single fall survey event.

Task 4: Analysis and Reporting

Based on the results from the desktop review and field investigations, an assessment of impacts on identified natural features and recommended mitigation strategies will be presented. A detailed description of the proposed site development will be included, and provide the basis for assessment of impacts. As this scoped EIS is being prepared as the supporting documentation for a zoning and Official Plan amendment application to the Township of Springwater, the scoped EIS report will include a discussion of the proposed site development with respect to municipal natural heritage planning policies.

GHD anticipates providing the County with a draft of the scoped EIS for review in August 2016. The final report will be provided to the County within one week of receipt of the County's review of the draft scoped EIS report. GHD anticipates that the final report will be issued by mid-September 2016, in advance of the proposed Planning application deadline in late September 2016.

Should it be determined through the spring and summer investigations that a fall survey is required, the schedule for the draft and final scoped EIS reports will be revised accordingly.

Appendix B
Vegetation Inventory

Appendix B

Vegetation Inventory
Scoped EIS
County of Simcoe
Springwater, ON

Scientific Name[1]	Common Name[1]	Coefficient of Conservatism[2]	Wetness Index[3]	Weediness Index[4]	Provincial Status S-Rank[5]	OMNR Status	COSEWIC Status	Local Status Simcoe[6]
PTERIDOPHYTES	**FERNS & ALLIES**							
Dennstaedtiaceae	**Bracken Fern Family**							
Pteridium aquilinum var. latiusculum	Eastern Bracken Fern	2	3		S5			X
Dryopteridaceae	**Wood Fern Family**							
Dryopteris carthusiana	Spinulose Wood Fern	5	-2		S5			X
Dryopteris cristata	Crested Wood Fern	7	-5		S5			X
Dryopteris intermedia	Evergreen Wood Fern	5	0		S5			X
Dryopteris marginalis	Marginal Wood Fern	5	3		S5			X
Equisetaceae	**Horsetail Family**							
Equisetum sp.	Horsetail sp.							
Equisetum sylvaticum	Woodland Horsetail	7	-3		S5			X
Onocleaceae	**Sensitive Fern Family**							
Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	5	-3		S5			X
Onoclea sensibilis	Sensitive Fern	4	-3		S5			X
Osmundaceae	**Royal Fern Family**							
Osmundastrum cinnamomeum	Cinnamon Fern	7	-3		S5			X
Osmunda regalis var. spectabilis	Royal Fern	7	-5		S5			X
Thelypteridaceae	**Marsh Fern Family**							
Thelypteris noveboracensis	New York Fern	7	-1		S4S5			X
Thelypteris palustris var. pubescens	Eastern Marsh Fern	5	-4		S5			X
GYMNOSPERMS	**CONIFERS**							
Cupressaceae	**Cypress Family**							
Thuja occidentalis	Eastern White Cedar	4	-3		S5			X
Pinaceae	**Pine Family**							
Abies balsamea	Balsam Fir	5	-3		S5			X
Larix decidua	European Larch		5	-1	SNA			
Picea glauca	White Spruce	6	3		S5			X
Picea pungens	Blue Spruce				SNA			
Pinus resinosa	Red Pine	8	3		S5			X
Pinus strobus	Eastern White Pine	4	3		S5			X
Tsuga canadensis	Eastern Hemlock	7	3		S5			X

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DICOTYLEDONS	**DICOTS**							
Adoxaceae	**Moschatel Family**							
Sambucus racemosa ssp. pubens	Red Elderberry	5	2		S5			X
Viburnum lantanoides	Hobblebush	8	0		S5			X
Viburnum lentago	Nannyberry	4	-1		S5			X
Amaranthaceae	**Amaranth Family**							
Chenopodium album	Common Lamb's-Quarters		1	-1	SNA			X
Anacardiaceae	**Cashew Family**							
Rhus typhina	Staghorn Sumac	1	5		S5			X
Toxicodendron radicans var. radicans	Eastern Poison Ivy	5	-1		S5			X
Apiaceae	**Carrot Family**							
Daucus carota	Wild Carrot		5	-2	SNA			X
Osmorhiza claytonii	Hairy Sweet Cicely	5	4		S5			X
Sium suave	Common Water-Parsnip	4	-5		S5			X
Apocynaceae	**Milkweed Family**							
Apocynum androsaemifolium ssp. androsaemifolium	Spreading Dogbane	3	5		S5			X
Asclepias incarnata ssp. incarnata	Swamp Milkweed	6	-5		S5			X
Asclepias syriaca	Common Milkweed	0	5		S5			X
Aquifoliaceae	**Holly Family**							
Ilex mucronata	Mountain Holly	8	-5		S5			X
Ilex verticillata	Common Winterberry	5	-4		S5			X
Araliaceae	**Ginseng Family**							
Aralia nudicaulis	Wild Sarsaparilla	4	3		S5			X

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Asteraceae	**Aster Family**							
Achillea millefolium	Common Yarrow		3	-1	SNA			X
Ageratina altissima var. altissima	Common White Snakeroot	5	3		S5			X
Ambrosia artemisiifolia	Common Ragweed	0	3		S5			X
Artemisia vulgaris	Common Wormwood		5	-1	SNA			X
Cichorium intybus	Wild Chicory		5	-1	SNA			X
Cirsium arvense	Canada Thistle		3	-1	SNA			X
Erigeron annuus	Annual Fleabane	0	1		S5			
Heliopsis helianthoides var. helianthoides	False Sunflower	3	5		SU			R4
Hieracium vulgatum	Common Hawkweed		5	-1	SNA			X
Lactuca sp.	Lettuce sp.							
Lapsana communis	Common Nipplewort		5	-2	SNA			X
Leucanthemum vulgare	Oxeye Daisy		5	-1	SNA			X
Solidago sp.	Goldenrod sp.							
Solidago altissima var. altissima	Tall Goldenrod	1	3		S5			R4
Solidago gigantea	Giant Goldenrod	4	-3		S5			X
Symphyotrichum lateriflorum var. lateriflorum	Calico Aster	3	-2		S5			X
Taraxacum officinale	Common Dandelion		3	-2	SNA			X
Tussilago farfara	Coltsfoot		3	-2	SNA			X
Balsaminaceae	**Touch-Me-Not Family**							
Impatiens capensis	Spotted Jewelweed	4	-3		S5			X
Berberidaceae	**Barberry Family**							
Caulophyllum thalictroides	Blue Cohosh	6	5		S5			
Betulaceae	**Birch Family**							
Betula alleghaniensis	Yellow Birch	6	0		S5			X
Betula papyrifera	Paper Birch		2		S5			X
Ostrya virginiana	Eastern Hop-Hornbeam	4	4		S5			X
Bignoniaceae	**Bignonia Family**							
Campsis radicans	Trumpet Creeper	3	0		S2?			
Brassicaceae	**Mustard Family**							
Alliaria petiolata	Garlic Mustard		0	-3	SNA			X
Boraginaceae	**Borage Family**							
Hackelia virginiana	Virginia Stickseed	5	1		S5			X

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Campanulaceae	**Bellflower Family**							
Campanula rapunculoides	Creeping Bellflower		5	-2	SNA			X
Caprifoliaceae	**Honeysuckle Family**							
Diervilla lonicera	Northern Bush-Honeysuckle	5	5		S5			X
Lonicera canadensis	Canada Fly Honeysuckle	6	3		S5			X
Caryophyllaceae	**Pink Family**							
Dianthus armeria ssp. armeria	Deptford Pink		5	-1	SNA			X
Celastraceae	**Spindle Tree Family**							
Euonymus obovatus	Running Strawberry Bush	6	5		S4			R2
Cornaceae	**Dogwood Family**							
Cornus alternifolia	Alternate-Leaved Dogwood	6	5		S5			X
Cornus canadensis	Bunchberry	7	0		S5			X
Cornus racemosa	Grey Dogwood	2	-2		S5			R2
Cornus stolonifera	Red-Osier Dogwood	2	-3		S5			X
Ericaceae	**Heath Family**							
Monotropa uniflora	Indian Pipe	6	3		S5			X
Fabaceae	**Legume Family**							
Lotus corniculatus	Garden Bird's-Foot Trefoil		1	-2	SNA			X
Melilotus albus	White Sweet-Clover		3	-3	SNA			X
Robinia pseudoacacia	Black Locust		4	-3	SNA			X
Trifolium pratense	Red Clover		2	-2	SNA			X
Vicia cracca	Tufted Vetch		5	-1	SNA			X
Fagaceae	**Beech Family**							
Fagus grandifolia	American Beech	6	3		S4			X
Quercus rubra	Northern Red Oak	6	3		S5			X
Geraniaceae	**Geranium Family**							
Geranium sp.	Geranium sp.							
Geranium robertianum	Herb-Robert		5	-2	S5			X
Grossulariaceae	**Currant Family**							
Ribes cynosbati	Eastern Prickly Gooseberry	4	5		S5			X
Ribes rubrum	European Red Currant		5	-2	SNA			X

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Hypericaceae	**St. John's-Wort Family**							
Hypericum fraseri	Fraser's St. John's-Wort	7	-5		S5			X
Hypericum perforatum ssp. perforatum	Common St. John's-Wort		5	-3	SNA			X
Juglandaceae	**Walnut Family**							
Juglans nigra	Black Walnut	5	3		S4?			R1
Lamiaceae	**Mint Family**							
Lycopus uniflorus	Northern Water-Horehound	5	-5		S5			X
Monarda fistulosa var. fistulosa	Wild Bergamot	6	3		SU			X
Nepeta cataria	Catnip		1	-2	SNA			X
Origanum vulgare	Wild Marjoram		5	-2	SNA			X
Prunella vulgaris ssp. vulgaris	Common Self-Heal		0	-1	SNA			X
Malvaceae	**Mallow Family**							
Tilia americana	Basswood	4	3		S5			X
Oleaceae	**Olive Family**							
Fraxinus nigra	Black Ash	7	-4		S4			X
Fraxinus pennsylvanica	Green Ash	3	-3		S4			X
Onagraceae	**Evening-Primrose Family**							
Circaea canadensis ssp. canadensis	Canada Enchanter's Nightshade	3	3		S5			X
Epilobium ciliatum ssp. ciliatum	Northern Willowherb	3	3		S5			X
Orobanchaceae	**Broom-Rape Family**							
Epifagus virginiana	Beechdrops	6	5		S5			X

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Oxalidaceae	**Wood Sorrel Family**							
Oxalis montana	Common Wood-Sorrel	8	3		S5			X
Oxalis stricta	European Wood-Sorrel	0	3		S5			X
Plantaginaceae	**Plantain Family**							
Plantago major	Common Plantain		-1	-1	SNA			X
Veronica officinalis	Common Speedwell		5	-2	SNA			X
Polygonaceae	**Buckwheat Family**							
Persicaria lapathifolia	Pale Smartweed	2	-4		S5			X
Rumex sp.	Dock sp.							
Rumex acetosella	Sheep Sorrel		0	-2	SNA			X
Rumex crispus	Curled Dock		-1	-2	SNA			X
Rumex obtusifolius	Bitter Dock		-3	-1	SNA			X
Primulaceae	**Primrose Family**							
Lysimachia borealis	Northern Starflower	6	-1		S5			X
Ranunculaceae	**Buttercup Family**							
Actaea pachypoda	White Baneberry	6	5		S5			X
Actaea rubra ssp. rubra	Red Baneberry	5	5		S5			X
Anemone acutiloba	Sharp-Lobed Hepatica	6	5		S5			X
Anemone americana	Round-Lobed Hepatica	6	5		S5			X
Anemone virginiana	Tall Anemone		5		S5			X
Coptis trifolia	Goldthread	7	-3		S5			X
Ranunculus acris	Common Buttercup			-2	SNA			X
Rhamnaceae	**Buckthorn Family**							
Frangula alnus	Glossy Buckthorn		-1	-3	SNA			X
Rhamnus cathartica	European Buckthorn		3	-3	SNA			X
Rosaceae	**Rose Family**							
Amelanchier sp.	Serviceberry sp.							
Fragaria vesca	Woodland Strawberry	4	4		S5			X
Potentilla recta	Sulphur Cinquefoil		5	-2	SNA			X
Potentilla simplex	Old Field Cinquefoil	3	4		S5			R5
Prunus pensylvanica	Pin Cherry	3	4		S5			X
Prunus serotina var. serotina	Black Cherry	3	3		S5			X
Prunus virginiana var. virginiana	Chokecherry	2	1		S5			X
Rubus allegheniensis	Alleghany Blackberry	2	2		S5			X
Rubus idaeus ssp. strigosus	North American Red Raspberry	0	-2		S5			X
Rubus occidentalis	Black Raspberry	2	5		S5			X
Rubus pubescens	Dewberry	4	-4		S5			X
Spiraea alba var. alba	White Meadowsweet	3	-4		S5			X
Spiraea tomentosa	Steeplebush	5	-3		S4			X

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Rubiaceae	**Bedstraw Family**							
Galium obtusum	Blunt-Leaved Bedstraw	6	-5		S4S5			X
Mitchella repens	Partridgeberry	6	2		S5			X
Salicaceae	**Willow Family**							
Populus balsamifera	Balsam Poplar	4	-3		S5			X
Populus deltoides ssp. deltoides	Eastern Cottonwood	4	-1		S5			X
Salix sp.	Willow sp.							
Sapindaceae	**Maple Family**							
Acer negundo	Manitoba Maple	0	-2		S5			X
Acer rubrum	Red Maple	4	0		S5			X
Acer saccharum	Sugar Maple	4	3		S5			X
Acer x freemanii	Freeman's Maple				HYB			
Solanaceae	**Nightshade Family**							
Solanum dulcamara	Bittersweet Nightshade		0	-2	SNA			X
Ulmaceae	**Elm Family**							
Ulmus americana	White Elm	3	-2		S5			X
Verbenaceae	**Vervain Family**							
Verbena hastata	Blue Vervain	4	-4		S5			X
Verbena stricta	Hoary Vervain	7	5		S4			
Vitaceae	**Grape Family**							
Parthenocissus quinquefolia	Virginia Creeper	6	1		S4?			R1
Vitis riparia	Riverbank Grape	0	-2		S5			X
MONOCOTYLEDONS	**MONOCOTS**							
Amaryllidaceae	**Amaryllis Family**							
Allium tricoccum var. tricoccum	Wild Leek	7	2		S4			X
Araceae	**Arum Family**							
Arisaema triphyllum	Jack-In-The-Pulpit	5	-2		S5			X
Asparagaceae	**Asparagus Family**							
Convallaria majalis var. majalis	European Lily-Of-The-Valley		5	-2	SNA			X
Maianthemum canadense ssp. canadense	Wild Lily-Of-The-Valley	5	0		S5			X
Maianthemum racemosum ssp. racemosum	Large False Solomon's Seal	4	3		S5			X
Colchicaceae	**Colchicum Family**							
Streptopus lanceolatus var. lanceolatus	Eastern Rose Twisted-Stalk	7	0		S5?			X

Appendix B

Vegetation Inventory
Scoped EIS
County of Simcoe
Springwater, ON

Scientific Name[1]	Common Name[1]	Coefficient of Conservatism[2]	Wetness Index[3]	Weediness Index[4]	Provincial Status S-Rank[5]	OMNR Status	COSEWIC Status	Local Status Simcoe[6]
Cyperaceae	**Sedge Family**							
Carex sp.	Sedge sp.							
Carex arctata	Drooping Woodland Sedge	5	5		S5			X
Carex bromoides ssp. bromoides	Brome-Like Sedge	7	-4		S5			X
Carex brunnescens ssp. brunnescens	Brownish Sedge	7	-3		SU			X
Carex canescens ssp. canescens	Hoary Sedge	7	-5		S5			X
Carex crinita var. crinita	Fringed Sedge	6	-4		S5			X
Carex deweyana var. deweyana	Dewey's Sedge	6	4		S5			X
Carex gracillima	Graceful Sedge	4	3		S5			X
Carex intumescens	Bladder Sedge	6	-4		S5			X
Carex leptalea	Bristle-Stalked Sedge	8	-5		S5			X
Carex leptonervia	Finely-Nerved Sedge	5	0		S5			X
Carex lupulina	Hop Sedge	6	-5		S5			X
Carex peckii	Peck's Sedge	6	5		S5			X
Carex projecta	Necklace Sedge	5	-4		S5			X
Carex rosea	Rosy Sedge	5	5		S5			
Carex sparganioides	Burreed Sedge	5	0		S4S5			X
Carex sprengelii	Sprengel's Sedge	6	0		S5			X
Carex tuckermanii	Tuckerman's Sedge	7	-5		S5			X
Carex utriculata	Northern Beaked Sedge	7	-5		S5			X
Carex vulpinoidea	Fox Sedge	3	-5		S5			X
Scirpus sp.	Sedge sp.							
Scirpus atrovirens	Dark-Green Bulrush	3	-5		S5			X
Scirpus cyperinus	Common Woolly Bulrush	4	-5		S5			X
Iridaceae	**Iris Family**							
Iris versicolor	Harlequin Blue Flag	5	-5		S5			X
Sisyrinchium montanum	Strict Blue-Eyed Grass		-1		S5			X
Juncaceae	**Rush Family**							
Juncus dudleyi	Dudley's Rush	1	0		S5			X
Juncus effusus ssp. solutus	Soft Rush	4	-5		S5?			X
Liliaceae	**Lily Family**							
Erythronium americanum ssp. americanum	Yellow Trout Lily	5	5		S5			X
Melanthiaceae	**Bunchflower Family**							
Trillium erectum	Red Trillium	6	1		S5			X
Trillium grandiflorum	White Trillium	5	5		S5			X
Orchidaceae	**Orchid Family**							
Cypripedium acaule	Pink Lady's-Slipper	7	-3		S5			X

Appendix B

Vegetation Inventory
Scoped EIS
County of Simcoe
Springwater, ON

Scientific Name[1]	Common Name[1]	Coefficient of Conservatism[2]	Wetness Index[3]	Weediness Index[4]	Provincial Status S-Rank[5]	OMNR Status	COSEWIC Status	Local Status Simcoe[6]
Poaceae	**Grass Family**							
Bromus inermis	Smooth Brome		5	-3	SNA			X
Calamagrostis canadensis var. canadensis	Bluejoint Reedgrass	4	-5		S5			X
Dactylis glomerata	Orchard Grass		3	-1	SNA			X
Danthonia spicata	Poverty Oatgrass	5	5		S5			X
Elymus virginicus var. virginicus	Virginia Wildrye	5	-2		S5			X
Glyceria grandis var. grandis	Tall Mannagrass	5	-5		S5			X
Glyceria striata	Fowl Mannagrass	3	-5		S5			X
Lolium arundinaceum	Tall Fescue		2	-1	SNA			X
Oryzopsis asperifolia	Rough-Leaved Mountain Rice	6	5		S5			X
Panicum sp.	Panicum sp.							
Phalaris arundinacea var. arundinacea	Reed Canary Grass	0	-4		S5			X
Phleum pratense ssp. pratense	Common Timothy		3	-1	SNA			X
Phragmites australis ssp. australis	European Reed				SNA			
Poa palustris	Fowl Bluegrass	5	-4		S5			X
Poa saltuensis ssp. saltuensis	Old Pasture Bluegrass	7	5		S4			X
Smilacaceae	**Catbrier Family**							
Smilax sp.	Greenbrier sp.							

Notes:

[1]**Scientific and Common Name**: From Newmaster et. al, 1998.

[2]**Co-efficient of Conservatism**: This value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific habitat integrity.

[3]**Wetness Index**: This value, ranging from -5 (obligate wetland) to 5 (upland) provides the probability of a species occurring in wetland or upland habitats.

[4]**Weediness Index**: This value, ranging from -1 (low) to -3 (high) quantifies the potential invasiveness of non-native plants. In combination with the percentage of non-native plants, it can be used as an indicator of disturbance.

[5]**Provincial Status:** Provincial ranks are used by the NHIC to set protection priorities for rare species and natural communities. These ranks are not legal designations. S4 and S5 species are generally uncommon to common in the province. Species ranked S1-S3 are considered to be rare in Ontario. Species ranked as SNA are not at risk.

[6]**Local Status:**

X: native species present (collection-based) and all exotic species

R: native species locally rare (number of sites): Hamilton-Wentworth (<6 sites), Durham (<10 sites), GTA (<40 sites), Site District 6E7 (<20 sites), Oak Ridges Moraine (20 or fewer sites), Halton (<5 sites); Peterborough (suspected of being rare, 5 or fewer occurrences); CVC/Peel Region (<11 sites)

?: More work required to determine status

References:

Riley, J.L., 1989. Distribution and Status of the Vascular Plants of Central Region. Ontario Ministry of Natural Resources, Central Region, Richmond Hill, ON. 110 pp.

Appendix C
Study Area Photo Log

Photo 1 - FODM5 Dry-Fresh Sugar Maple Deciduous Forest

Photo 2 - FOMM6-2 Fresh-Moist Hemlock Hardwood Mixed Forest

Site Photographs

Photo 3 - FOMM9-2 Fresh-Moist White Pine Hardwood Mixed Forest

Photo 4 - MEMM3 Dry-Fresh Mixed Meadow

Photo 5 - FOCM6 Naturalized Coniferous Plantation

Photo 6 - FOCM6-2 Dry-Fresh Red Pine Naturalized Coniferous Plantation

Photo 7 - TAGM1 Coarse Mineral Coniferous Plantation

Photo 8 – CVI-1 Transportation

Photo 9 - SWCM2-1 White Pine Hemlock Mineral Coniferous Swamp

Photo 10 - SWMM2-1 Red Maple Conifer Mineral Mixed Swamp

Photo 11 - MASM1 Graminoid Mineral Shallow Marsh

Photo 12 - MASM1-2 Bulrush Mineral Shallow Marsh

Appendix D
Snag Density and Acoustic Bat Survey Results

Technical Memorandum

August 11, 2017

To:	Brian Dermody	Ref. No.:	086822
From:	Derek Morningstar/aj/9	Tel:	519-884-0510
CC:	Laura Lawlor, Heather Polan		
Subject:	**Snag Density and Acoustic Bat Survey Results**		

1. Introduction

The potential for bat roosting habitat was raised for consideration during a pre-consultation meeting on April 1, 2016. In response to comments received on the draft EIS and further consultation with MNRF, GHD conducted a snag density survey and an acoustic monitoring survey for bats. The details of the surveys are described herein.

The purpose of this study was to determine if species at risk (SAR) bats are using the Study Area as maternity roosting habitat, and if it is therefore protected under the *Endangered Species Act* (ESA). The bat species protected under the ESA include the Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), Eastern Small-footed Myotis (*Myotis leibii*) and Tri-colored Bat (*Perimyotis subflavus*), hereafter referred to collectively as SAR bats. All of these bats have suffered severe declines due to a novel fungal infection called White-nose Syndrome (WNS) which lead to their listing on the ESA.

Little Brown Myotis was once one of the most common bats in Ontario before WNS (Frick *et al*, 2015), and used a wide variety of places to roost. This species most frequently uses buildings for maternity roosting, but it will often use the cavities of large trees (Lacki, 2007). It is often found feeding over wetlands and edge habitat (Nelson and Gillam, 2017), and is well accustomed to human development. During the winter, it hibernates in underground features such as caves, mines or tunnels where the temperature and humidity are stable. Distances between summer roosts and hibernacula are variable but often over 500 km, and can be in non-latitudinal directions (Norquay *et al*, 2013).

Northern Myotis was also very common before WNS, but it is more closely associated with large trees in intact forests (Broders *et al*, 2

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006). It will most often have maternity roosts in tree cavities or exfoliating bark, and very rarely in buildings. It often stays within the forest to feed, using open corridors and streams. During the winter, it hibernates in the same types of underground features as does the Little Brown Myotis.

Small-footed Myotis is considered to be saxicolous (rock-loving) and is most often found roosting in the summer between the cracks of rocks in talus, rock piles, cliffs and crevices (Moosman *et al*, 2015). It is rarely found roosting within buildings and bridges (Thomson, 2013), but the biology of this species is not well studied. During the winter, it also hibernates in underground spaces, but appears to have a higher tolerance to colder temperatures than other species in the Myotis genus (Veilleux, 2006).

Tri-colored Bat biology is very poorly understood in Ontario. From studies in other regions, it typically roosts within leaf clumps, squirrel nests or hanging moss in the foliage of trees especially near water (Poissant *et al*, 2010). There are also anecdotal records of it using buildings as roosts. This species also hibernates underground, but may travel long latitudinal migrations between summer and winter areas (Fraser *et al*, 2012).

Due to the habitat present within the Study Area, a more refined habitat assessment for bats was made to estimate the number of bat trees in the facility footprint and road extension and improvement areas. Further, an acoustic bat survey was completed to determine if SAR bats are present at the Study Area and evaluate the patterns of how they use it.

2. Methods

2.1 Bat Tree Density Estimation

The Study Area was visited on April 19, 2017 to conduct a snag (bat tree) density count in accordance with guidance from the Ministry of Natural Resources and Forestry (MNRF, 2017). A bat tree is any tree that has a visible cavity, exfoliating bark or a leaf clump that is suitable as a roost for bats. This survey followed two methods. For the road extension and the existing road which will require improvements, a transect was completed to count all bat trees that occur. For the facility footprint, nine plots were established within which the bat trees were counted. Each plot had an area of 0.05 ha, so that a density of bat trees could be calculated.

2.2 Acoustic Survey

In accordance with guidance from the Ministry of Natural Resources and Forestry (MNRF, 2017) and industry practice, stationary acoustic monitoring devices (bat detectors) were installed and left to record for a minimum of 10 nights between June 1 to July 15. The bat detectors were installed on June 14 and collected on June 29 (16 nights) at four locations (**Figure 1**). However, the detectors at stations SIMB01 and SIMB04 did not function properly, so they were re-installed on June 29 until July 14 (14 nights).

The bat detectors were SM4BAT+ model from Wildlife Acoustics, set to record nightly from 30 minutes before sunset to 30 minutes after sunrise. The detectors were set to record wave files of up to 15

seconds in duration any time they detected a sound in the frequencies typically used by bats (although these could also be other noises). Data was downloaded at the conclusion of the monitoring period.

Once the data was downloaded, it underwent a multi-step analysis procedure. First, the data was passed through the Sonobat Batch Attributer, version 6.5 to assign project details and parameterize each file. The data was then processed in the SonoBatch Northnortheast Classifier, version 4.2.0 to assign species identifications to each file. From these automated identifications, all files determined to have a high-frequency (HiF) component were manually reviewed in SonoVet to confirm the correct species classification. The focus on HiF files was because all four of the SAR bats are in the HiF range along with Red Bat (*Lasiurus borealis*). The bat specialist reviewing these files has over 10 years of experience in bat sonogram analysis in Ontario and throughout North America. The resulting classification table was imported into RStudio to count the total number of files classified to each species or species group per night and plot the activity levels through the night. The total files per night and per species or species group was then exported to Excel to determine the average bat passes per night, and the standard deviation from the average (a bat pass is considered to be one file classified to a species). For SAR bats, the total bat passes across the survey period and the maximum number of passes on a particular night were also calculated. These parameters, along with the time of the recordings of SAR bats, were used to make an inference about the likelihood that SAR bats are using these features as maternity roosts or feeding areas.

3. Results

3.1 Bat Tree Density Estimation

There were two bat trees found along the road and seven trees found in the area where the road extension will be developed (Figure 1). Nine bat plots were established (Figure 1) within which a total of 10 bat trees were identified. This equates to a density of **22.22 bat trees per hectare**. The area within which this was measured is 4.5 ha, which is 5.5% of the property that is mostly forested, and a much smaller percent of the larger Copeland Forest.

3.2 Acoustic Survey

The bat species most commonly recorded at the Study Area were Big Brown Bats (*Eptesicus fuscus*), followed by Little Brown Myotis, although there were several files that could only be classified at the group level of “LoF unknown” or “Myotis unknown” (**Table 1**). Three species of SAR bats were recorded across the Study Area. The overall bat activity was distinctly higher along the road at stations SIMB02 and SIMB03 than at the interior stations SIMB01 and SIMB04.

The time of the recordings is indicative of whether bats are using the location as a maternity roost. If a maternity roost is present, there would be a distinct increase in activity at the start of the night when bats are emerging from the roost, typically another peak in activity mid-way through the night when they return to rest or feed young pups and depart again, and then another peak in the morning when they return to the roost to sleep through the day.

Little Brown Myotis were recorded at all four stations with the highest level of activity at SIMB03 with a total of 26 passes and the most recordings on one night on June 19 (**Table 2**). At this station, the pattern of higher activity at the start and end of the night is apparent for HiF bats (**Figure 2**), which is predominantly Little Brown Myotis and Unknown Myotis (**Table 1**). At this station, SIMB01 and SIMB02, recordings of Little Brown Myotis were broadly distributed across nights (**Table 2**), except for the 12 passes on the night of June 19 at SIMB03. At SIMB04, a total of six recordings of Little Brown Myotis were made, with five of these being on the night of July 5. One of the recordings was at 12:45am and four recordings were between 4:21am and 4:22am. The other recording of Little Brown Myotis was on the night of July 6 at 10:55pm. The timing of these recordings suggests that at least one Little Brown Myotis was likely roosting in close proximity to this detector for the day of July 6. Otherwise, there was very little bat activity overall at this station, which is expected due to its location within the forest interior.

Northern Myotis were recorded at stations SIMB01, SIMB03 and SIMB04. The station of the highest level of activity was at SIMB01, where at total of 16 recordings of this species were made, five of which on the night of July 7. Otherwise, the recordings were distributed across six of the 14 nights at this station. At SIMB03 and SIMB04, only one pass was recorded on any particular night. This species is typically a quiet bat and often within the forest interior which makes it difficult to record. Therefore, the number of recordings made are indicative that there are more bats flying in the area which may not have been recorded. It was not recorded at SIMB02, which is the most open location and likely why the species was not recorded here. Since this species rarely ventures outside of the forest interior, these data suggest that the species is roosting in the trees within this forest.

Eastern Small-footed Myotis were recorded at stations SIM02 and SIMB03, but with only two recordings at SIMB02 (June 21 at 4:01am and June 27 at 3:20am) and on one night at SIMB03 (June 28 at 1:58am). The timing of these recordings does not suggest that it is roosting in close proximity to the detectors, but these detectors were located along a likely movement route. There is no known suitable roosting habitat (rocks) for this species within the Study Area, so it is likely travelling through the Study Area between its rooting area and feeding areas.

There were several recordings classified as Myotis unknown, particularly at SIMB03. From manual review of these files, most are obscured with echos and noise and were likely from bats recorded at the outer limits of the detection range of the microphone (estimated to be 30-50 m). They also appear to contain more than one individual bat in many of the files (which further complicates species classification). While these could be made by any bat in the Myotis genus, the call pattern most closely resembles that of Little Brown Myotis in many files. This data further suggests that Little Brown Myotis is using the habitat for roosting, feeding and/or commuting.

Table 1 Mean bat passes (Standard Deviation) for each bat species at each of the bat monitoring stations

Station	Nights	Tot Pass (Spp or Grp)	LoF Unknown[1]	Myotis Unknown[2]	Hoary Bat	Silver-haired Bat	Big Brown Bat	Red Bat	Little Brown Myotis	Northern Myotis	Small footed Myotis	Tricolored Bat
SIMB01	14	6.29 (4.71)	0.93 (1.21)	0.14 (0.36)	0.43 (0.65)	0.14 (0.36)	2.36 (3.1)	0	1.14 (1.03)	1.14 (1.61)	0	0
SIMB02	16	48.63 (38.64)	3.88 (4.21)	1 (1.75)	0.38 (0.81)	1.13 (1.89)	37 (32.17)	4.19 (3.9)	0.94 (1.18)	0	0.13 (0.34)	0
SIMB03	15	53.27 (62.4)	3.73 (5.35)	4.73 (5.18)	0.07 (0.26)	0.27 (0.59)	41.2 (51.99)	1.33 (2.35)	1.73 (3.03)	0.13 (0.35)	0.07 (0.26)	0
SIMB04	14	1.57 (2.03)	0.29 (0.61)	0.14 (0.36)	0.07 (0.27)	0	0.43 (0.76)	0	0.43 (1.34)	0.21 (0.43)	0	0

Note:
Units are “bat passes,” not individual bats
[1] - Recordings classified as bats with low frequency calls but could not be classified to the species level, typically including Hoary Bat, Big Brown Bat and Silver-haired Bat
[2] - Recordings classified as bats with high frequency calls but could not be classified to the species level, typically including Tri-colored Bats and all bats in the Myotis genus

Table 2 Total and maximum bat passes for each SAR bat species at each monitoring station

	Little Brown Myotis		Northern Myotis		Small-footed Myotis	
	Total	Max	Total	Max	Total	Max
SIMB01	16	3	16	5	0	0
SIMB02	15	4	0	0	2	1
SIMB03	26	12	2	1	1	1
SIMB04	6	5	3	1	0	0

Note:
Units are “bat passes,” not individual bats

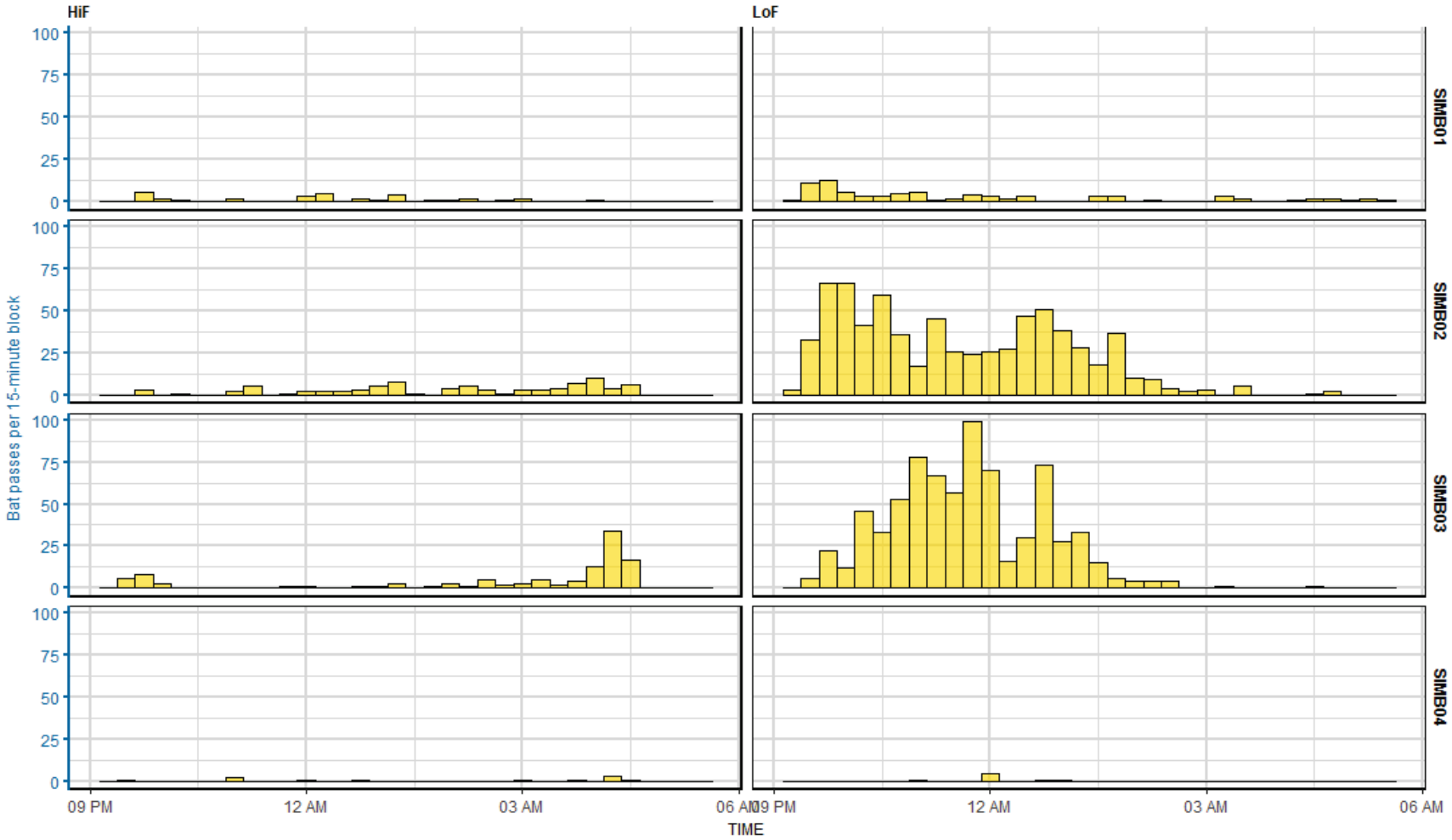

Figure 2 Time spectrum of HiF (Myotis, Tri-colored Bat and Red Bat) and LoF (Hoary, Silver-haired and Big Brown Bat)

4. Conclusion

Based on the results provided here, it is our interpretation that relatively low densities of SAR and non-SAR bats are using the Study Area for maternity roosting, feeding and commuting. It is unlikely that permitting will be required due to the relative size of the development footprint within the Study Area but continued consultation with the MNRF will be completed.

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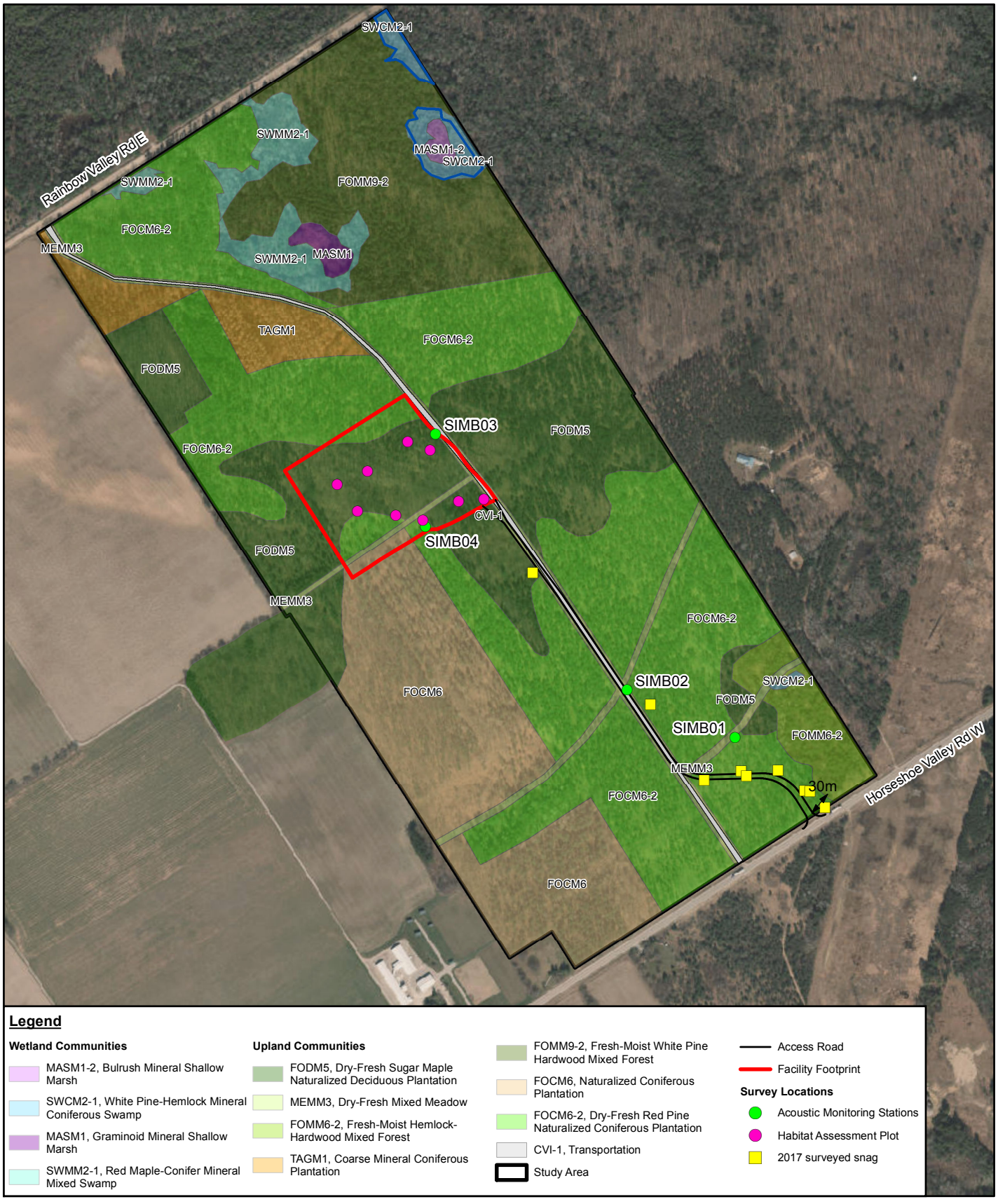

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0 75 150 225
Meters

Coordinate System:
NAD 1983 UTM Zone 17N

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GHD

ENVIRONMENTAL RESOURCE RECOVERY CENTRE
SPRINGWATER, ONTARIO
SNAG DENSITY AND ACOUSTIC BAT SURVEY

086822
Nov 2, 2017

BAT SURVEY LOCATIONS

FIGURE 1

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\007\86822-00(007)GIS-WA007a.mxd

Appendix E
MNRF Consultation

From: Shirley, Brent (MNRF)
To: Heather Polan
Cc: Laura Lawlor; Derek Morningstar; Eplett, Megan (MNRF); Filing-NA
Subject: RE: 86822-Bat and Bat Habitat Surveys of Treed Habitats
Date: Wednesday, November 15, 2017 9:48:52 AM

Hi Heather,

Sorry for not responding earlier, I think I was off on vacation when the original email came through.

I agree with the summary you have provided below.

Best Regards,
Brent

From: Heather.Polan@ghd.com [mailto:Heather.Polan@ghd.com]
Sent: November-13-17 9:32 AM
To: Shirley, Brent (MNRF)
Cc: Laura.Lawlor@ghd.com; Derek.Morningstar@ghd.com; Eplett, Megan (MNRF); filing@craworld.com
Subject: RE: 86822-Bat and Bat Habitat Surveys of Treed Habitats

Hi Brent,

Can you please confirm that you agree with the below summary of the call that took place on Friday August 11, 2017? Please let me know if you have any questions or need any more information.

Regards,

Heather

From: Heather Polan
Sent: Monday, August 14, 2017 8:19 AM
To: Shirley, Brent (MNRF) <brent.shirley@ontario.ca>
Cc: Laura Lawlor <Laura.Lawlor@ghd.com>; Derek Morningstar <Derek.Morningstar@ghd.com>; Eplett, Megan (MNRF) <Megan.Eplett@ontario.ca>; Filing-NA <filing@craworld.com>
Subject: RE: 86822-Bat and Bat Habitat Surveys of Treed Habitats

Hi Brent and Megan,

Thanks again for your time on Friday. Here is a summary of the call:

- Reviewed results of the snag density survey and acoustic monitoring completed
  - Results of snag density survey indicate habitat within the proposed development footprint
  - Results of the acoustic monitoring indicate relatively low density and use by SAR and non-SAR bats
- It is assumed that the Study Area surrounding the proposed development footprint provides habitat (in the form of potential bat trees) in a similar density to the proposed footprint
  - To confirm this, MNRF recommends that density plots are conducted in the Study Area during leaf-off
  - If snag densities similar to those found in the proposed development footprint are confirmed within the surrounding Study Area:
    - The loss of habitat as a result of the proposed development is negligible due to the relative small size (5.5%) in relation to the Study Area
    - The Study Area will still provide habitat to support bat use
    - No impacts are anticipated as a result of the proposed development
    - Clearing of vegetation outside of sensitive timing windows (late April to end of August) for birds and bats would be sufficient mitigation, no replacement of potential bat trees is necessary
- MNRF does not anticipate a permit will be required if snag densities in the Study Area are consistent with the proposed facility footprint densities

Please let me know if you are in agreement of the above summary. Regards,

Heather Polan M.Sc., P.Biol

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Appendix F
Hazard Lands Assessment

Memorandum

November 16, 2016

To:	Stephanie Mack (County of Simcoe)	Ref. No.:	086822
From:	Brian Dermody	Tel:	416-360-1600
cc:	Tom Reeve (Nottawasaga Valley Conservation Authority)		

Subject: **Simcoe Environmental Resource Recovery Centre**
Hazard Land Assessment of 2976 Horseshoe Valley Road West

1. Project Background

The County of Simcoe (County) adopted a Solid Waste Management Strategy (Strategy) in 2010 that provides the framework for the County's waste disposal options and diversion programs. Guided by the Strategy, and following further recommendations from Council, the County initiated a siting process in 2014 to identify a site for the development of an Organics Processing Facility (OPF) for the long-term processing of source-separated organics (SSO). The siting process was subsequently expanded to also identify a site for the development of a Materials Management Facility (MMF) for the transfer of garbage, recyclables, and SSO.

Siting work for these facilities followed a comprehensive process in keeping with the Ontario Environmental Assessment (EA) Act. Although an EA is not required under the EA Act for either facility, the County chose to follow this process to ensure a robust and thorough evaluation of candidate sites. Through a rigorous and comprehensive multi-step evaluation process, one preferred site was determined from the original list of 502 sites. It was also determined that co-locating the facilities together on one site would be advantageous from technical and financial perspectives, with the combined facility being referred to as the Environmental Resource Recovery Centre (ERRC). The ERRC will also include a truck servicing facility, an administrative facility with possible public education space, and an area reserved for a potential future materials recovery facility to sort blue box recycling.

Further details on the site selection process and the site itself are provided in the following reports:

- County of Simcoe Organics Processing Facility – Part 1 – Planning – Siting Methodology and Evaluation Criteria (Conestoga-Rovers & Associates, February 2015).
- County of Simcoe Materials Management Facility – Part 1 – Planning – Siting Methodology and Criteria (Conestoga-Rovers & Associates, February 2015).
- County of Simcoe – Organics Processing Facility, Part 2 – Long List Evaluation (GHD, July 2015).

- County of Simcoe – Materials Management Facility, Part 2 – Long List Evaluation (GHD, July 2015).
- County of Simcoe – Organics Processing Facility, Materials Management Facility, and Co-located Facility – Part 3 – Short List Evaluation (GHD, February 26, 2016).

For reference, previous staff reports, communication material from public information and consultation sessions, and minutes of Community Engagement Committee meetings can be found at www.simcoe.ca/errc.

2. Preferred Site

The siting process resulted in the identification of a preferred site for the development of the ERRC at 2976 Horseshoe Valley Road West (Site). The Site is situated on the north side of Horseshoe Valley Road West, approximately 3 kilometres west of Highway 400 (Figure 1). The Site is rectangular in shape and is described as Lot 2, Concession 1 in the Township of Springwater (Springwater), County of Simcoe. The Site is identified as the Freele County Forest Tract and is covered by a forest area with the exception of a small access road/trail. The Site is roughly 84 hectares (207 acres) in area, rectangular in shape, with approximate dimensions of 625 metres wide and 1,370 metres deep (2,050 feet by 4,500 feet). It is expected that the ERRC facility will occupy a footprint representing approximately 5.5% of the overall Site area, covering an area of approximately 4.5 hectares (11 acres), which is proposed to be situated on an elevated area of the Site to the northwest of the mid-point. Access to the Site will be established from Horseshoe Valley Road West in the south, and will generally follow the alignment of an existing trail.

The current County Official Plan (OP) designation is Greenlands (Schedule 5.1), while Springwater's OP designates the majority of the Site as Rural, with the southwest portion of the Site designated as Agricultural. The Site is currently zoned Agricultural under the Springwater's Zoning By-Law (ZBL).

Various Planning studies are required in support of amendments to the Springwater OP and ZBL, and to the County OP. Following a pre-consultation meeting with Springwater Planning staff in December 2015, a number of studies required to support these amendments were identified, including an Environmental Impact Study (EIS) and a Hazard Land Assessment (HLA) to the satisfaction of the Nottawasaga Valley Conservation Authority (NVCA). In addition, the HLA will confirm areas of the Site that are viable for the development of the ERRC, and will inform design and construction recommendations and constraints for the proposed development.

3. Hazard Land Assessment

Natural hazards are defined by the Ministry of Natural Resources and Forestry (MNRF) as:

> *Natural, physical environmental processes that occur near or at the surface of the earth [that] can produce unexpected events of unusual magnitude or severity.*

The NVCA is mandated through the *Conservation Authority Act* to regulate lands that are subject to five types of natural hazards:

- Flood
- Erosion
- Hazardous Soils
- Karst
- Dynamic Beach

In order to assist with the evaluation of these natural hazards in support of new development, the NVCA has prepared the *Natural Hazards Technical Guide (December 2013)*. The guidelines present procedures, computation methods, and input parameters used in the evaluation, and are intended to work in conjunction with the NVCA *Planning and Regulation Guidelines*, the Ministry of the Environment and Climate Change (MOECC) *Stormwater Management and Design Manual*, and the Ministry of Natural Resources and Forestry (MNRF) *Natural Technical Guides*.

The NVCA has also prepared *NVCA Regulation Mapping* to identify areas that fall under their jurisdiction that may be affected by these natural hazards. In order to further assist in the evaluation of these natural hazards in the context of the Site, the *Regulatory Mapping* has been overlaid on top of the proposed facility footprint and access road (Figure 2). Each of the five natural hazards are described and assessed in relation to the Site in the sections that follow. Further details of the natural environment are provided under separate cover in the EIS report.

3.1 Flood

In Ontario, the extent of the Regulatory Floodplain is determined through either storm-centred events, flood frequency based events, or an observed event. The NVCA uses the “flood produced by the Timmins Storm (1961) or the 100 year flood, whichever is greater” as the flood standard to define the floodplain limits.

The NVCA identified areas that are potentially impacted due to floodplain inundation as part of the *NVCA Regulation Mapping*. The regulatory floodplain for river or stream valley systems is the area adjacent to a watercourse which would be inundated by a flood event resulting from the Timmins Storm or by the 100 year frequency based event. The regulated area includes the floodplain and a maximum 15 metre setback from the hazard for valley systems that are not apparent. Within Ontario, there are three policy concepts for floodplain management:

- ***One-Zone*** – In most river or stream valleys in Ontario, a one-zone concept is applied. This area encompasses the entire regulatory flood plain.
- ***Two-Zone*** – For areas adjacent to existing urban or built-up areas, where it can be demonstrated by the municipality that the one-zone approach is too restrictive, selective application of the two-zone concept may be considered.

- ***Special Policy Area*** – Where the one-zone or two-zone approaches have been demonstrated to be too stringent and would likely cause significant social and economic hardships to the community, Special Policy Areas (SPAs) may be considered.

Based on the above guidelines and the NVCA mapping, the proposed facility footprint location does not fall within the regulatory floodplain, as shown in Figure 2. The footprint is also located on an elevated area of the Site, further removing it from the areas potentially impacted by flooding.

Although the proposed access road does cross an area that falls within the regulatory floodplain, the associated watercourse was found not to exist following multiple Site visits with GHD ecologists and NVCA staff. This was also confirmed by County staff who visited the Site during the 2016 spring freshet. Further details on these visits and the existing surface water conditions at the Site are provided in the Environmental Impact Study Report.

Notwithstanding this, the existing topography of the Site and the inclusion of a stormwater ditch adjacent to the west side of the access road will allow any surface runoff to be conveyed to the roadside ditch on the north side of Horseshoe Valley Road West, mitigating the risk of any potential flooding.

3.2 Erosion

Erosion hazard assessments are requested for applications that are located within the estimated erosion hazard based on NVCA regulation mapping. Erosion hazard assessments may be one of two types:

1. Apparent (confined).
2. Not Apparent (unconfined).

3.2.1 Apparent River and Stream Valleys

Apparent river and stream valleys are ones in which the physical presence of a valley corridor containing a river or stream channel, which may or may not contain flowing water, is visibly discernible (i.e., valley walls are clearly definable) from the surrounding landscape by either field investigations, aerial photography and/or map interpretation. The location of the river or stream channel may be located at the base of the valley slope, in close proximity to the toe of the valley slope (i.e., within 15 metres), or removed from the toe of the valley slope (i.e., greater than 15 metres).

3.2.2 Not Apparent River and Stream Valleys

Not apparent river and stream valleys are ones in which a river or stream is present but there is no discernible valley slope or bank that can be detected from the surrounding landscape. For the most part, unconfined systems are found in fairly flat or gently rolling landscapes and may be located within the headwater areas of drainage basins. The river or stream channels contain either perennial (i.e., year round) or ephemeral (i.e., seasonal or intermittent) flow and range in channel configuration from seepage and natural channels to detectable channels.

3.2.3 Erosion Hazard

The erosion hazard of a river or stream valley is the furthest extent of the erosion hazard or flooding hazard plus an allowance. The regulation limit associated with the erosion hazard is generally defined as:

- The river or stream valley extending to the long term stable top of slope (Apparent); or, the maximum extent of the predicted meander belt of the river or stream (Not Apparent).
- An allowance of 15 metres from the stable top of slope (Apparent); or, an allowance of 15 metres from the edge of the predicted meander belt (Not Apparent).

Based on the above guidelines and the NVCA mapping, the proposed facility footprint location does not fall within the erosion hazard limit, as shown in Figure 2. The footprint is also located on an elevated area of the Site, further removing it from the areas potentially impacted by erosion.

Although the proposed access road does cross an area that falls within the erosion hazard limit, the associated watercourse was found not to exist following multiple Site visits with GHD ecologists and NVCA staff. This was also confirmed by County staff who visited the Site during the 2016 spring freshet. Further details on these visits and the existing surface water conditions at the Site are provided in the Environmental Impact Study Report.

Notwithstanding this, the existing topography of the Site and the inclusion of a stormwater ditch adjacent to the west side of the access road will allow any surface runoff to be conveyed to the roadside ditch on the north side of Horseshoe Valley Road West, mitigating the risk of any potential erosion.

3.3 Hazardous Soils

Hazardous soils are typically defined by unstable soil or bedrock. The potential for catastrophic failures in some areas of unstable soil and unstable bedrock warrant site specific studies to determine the extent of these hazardous lands, and therefore the appropriate limits of the hazard and regulation limits.

Unstable soil includes but is not necessarily limited to areas identified as containing sensitive marine clays (e.g., leda clays) or organic soils (Conservation Ontario & MNRF, 2005). Due to the high variability of organic soils, the potential risks and hazards associated with development in this type of hazardous land are also highly variable. As such, assessment of development potential in areas of organic soils is site specific.

GHD has undertaken hydrogeological and geotechnical investigations at the Site, including the advancement of eight boreholes (up to 8 metres deep) along the proposed access road and in the vicinity of the facility footprint, and the collection of soil samples for laboratory testing. Additional details of the subsurface conditions at the Site, including borehole logs, are provided in the Hydrogeological Assessment Report (GHD, November 2016).

The general stratigraphy below the ground cover at the borehole locations consists of surficial fill materials overlying native sand deposits that extend to the termination depth of the boreholes. As such, no hazardous soils have been identified at the Site and the subsoil conditions provide adequate stability for the development of the ERRC. Additional investigations will be carried out during the detailed design stage to further confirm that there are no hazardous soils present.

3.4 Karst

Unstable bedrock includes but is not necessarily limited to areas identified as karst formations. Karst formations may be present in limestone or dolomite bedrock, and are extremely variable in nature. Local, site-specific studies are required for identifying karst formations. Air photo interpretation of surface features such as sink holes may provide an indication of karst formations (MNRF and Conservation Ontario, 2005).

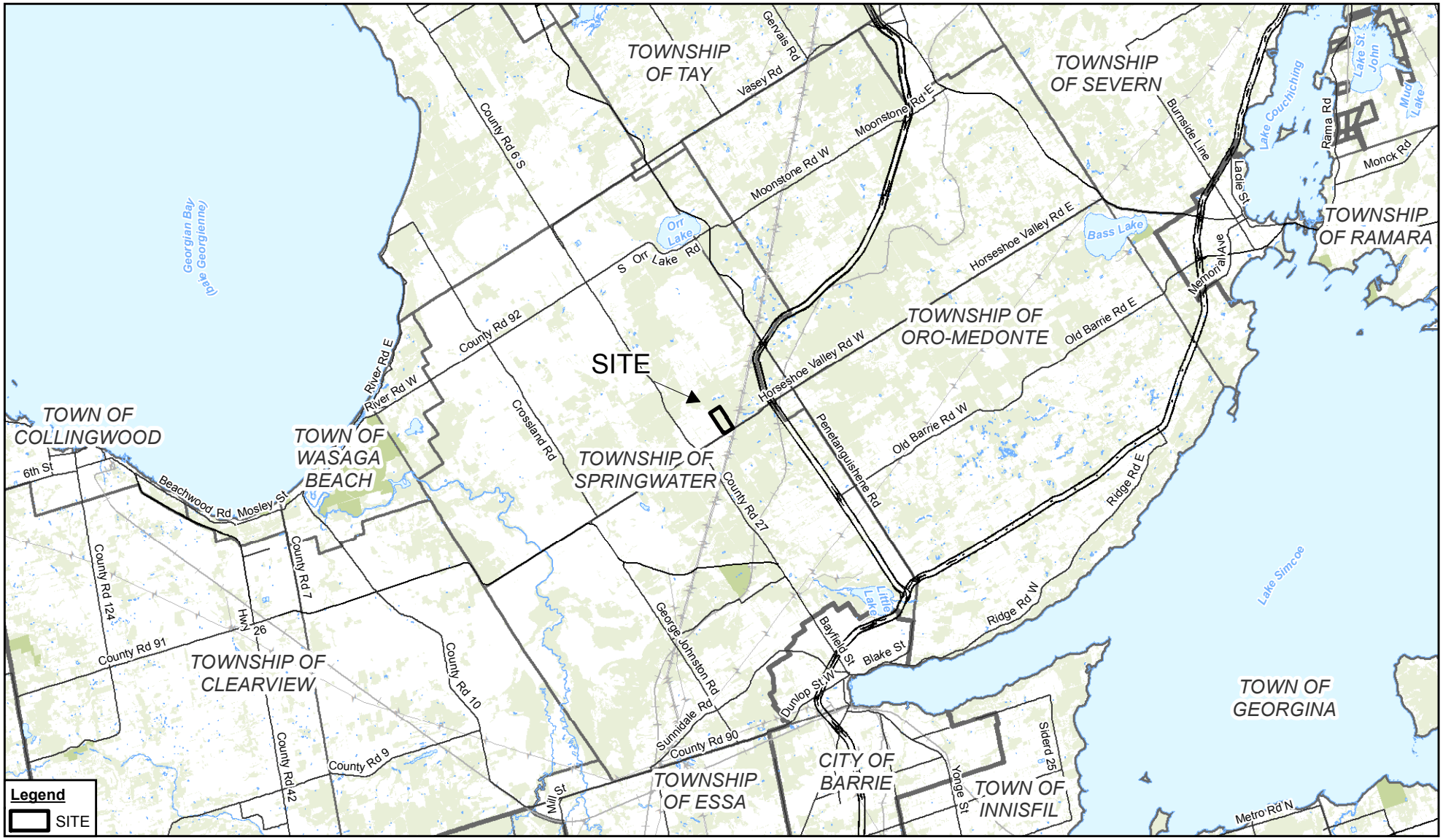
As noted in Section 3.3, the hydrogeological investigations carried out at the Site to date have not identified the presence of any karst formations, as the overburden is very thick beneath the Site, greater than 30 metres. Notwithstanding this, additional investigations will be carried out during the detailed design stage to further assess the bedrock.

3.5 Dynamic Beach

A dynamic beach is defined in the MNRF's *Great Lakes – St. Lawrence River System and Large Inland Lakes – Technical Guides* as a term used to emphasize and describe beach profiles that "undergo changes on a broad range of time scales, from hours or days to years and decades, in response to changing wave, wind and water level conditions and to changes in the rate of sediment supply to a particular section of shoreline".

Within the NVCA jurisdiction, the application of dynamic beach principles is limited to development that is adjacent to the Georgian Bay Shoreline as well as part of the adjoining channel of the Nottawasaga River. This is not the case for the proposed Site. There are no shoreline flood or erosion hazards, or issues surrounding dynamic beaches.

Figures



Source: Source: MNRF NRVIS, 2015. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2016.

0 3 6 9
Kilometers

Coordinate System:
NAD 1983 UTM Zone 17N

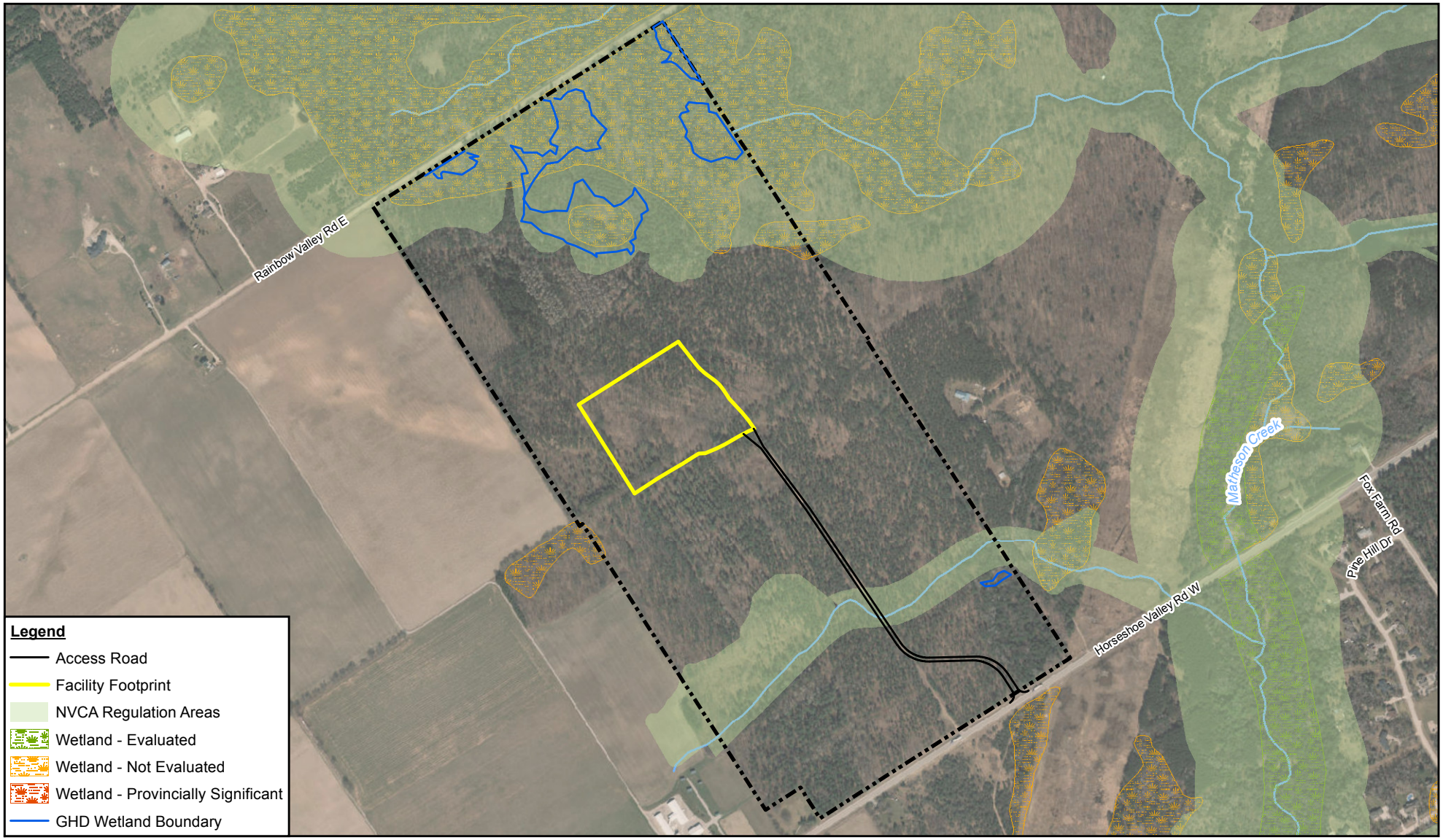
ENVIRONMENTAL RESOURCE RECOVERY CENTRE (ERRC)
2976 HORSESHOE VALLEY ROAD WEST, SPRINGWATER
HAZARD LAND ASSESSMENT

86822
Oct 27, 2016

SITE LOCATION MAP

FIGURE 1

GIS File: Q:\GIS\PROJECTS\86000s\86822\Layouts\MACK015\86822-00(MACK015)GIS-WA001.mxd



Source: Source: MNRF NRVIS, 2015. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2016.

0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 17N

ENVIRONMENTAL RESOURCE RECOVERY CENTRE (ERRC)
2976 HORSESHOE VALLEY ROAD WEST, SPRINGWATER
HAZARD LAND ASSESSMENT

86822
Oct 27, 2016

NVCA REGULATION AREAS

FIGURE 2

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