June 2014

REPORT ON

Environmental Impact Assessment for the Proposed Island Harbour Club Development, Gananoque, Ontario

Submitted to:
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REPORT

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1.0 INTRODUCTION

1.1 Purpose

Golder Associates Ltd. (Golder) has been retained by RMP Construction and Development (RMP) to complete an Environmental Impact Assessment (EIA) to support the proposed Island Harbour Club development, located at 175 St. Lawrence Street, Gananoque, Ontario (the Site) (Figure 1).

Golder has reviewed the EIA requirements, as laid out in the Town of Gananoque Official Plan (OP) (Stantec, 2009) and by the Cataraqui Region Conservation Authority (CRCA) (CRCA 2005), and understand that an EIA is required due to the proximity of the proposed development to natural heritage features. The OP describes that the significant natural heritage features present in the Town include:

- Endangered or threatened species habitat;
- Woodlands; and,
- Fish habitat (St. Lawrence River and Gananoque River).

Based on our review of the Site, as well as the various schedules of the OP, it appears that fish habitat (i.e. St. Lawrence River) is within 30m of the proposed development, which is the key trigger for the undertaking of this EIA. Further, potential for the presence of endangered or threatened species at the Site must be considered.

Based on this understanding, a Terms of Reference (TOR) was prepared and circulated to the Town and CRCA on May 13, 2014 to align with the recommendations provided in Section 5.4.10.4 (Pre-consultation) of the OP, and to allow the Town and conservation authority an opportunity to discuss any concerns, review the proposed study design, and reach an agreement on the scope of the EIA. The Town indicated that the CRCA would be responsible for providing comments on the TOR, which they did by e-mail on June 2, 2014. Those comments have been addressed this report.

2.0 ENVIRONMENTAL POLICY CONTEXT

2.1 Provincial Policy Statement

The updated Provincial Policy Statement (PPS) was issued under Section 3 of the *Planning Act* and came into effect April 30, 2014 (MMAH, 2014). It replaces the PPS issued March 1, 2005 and applies to all applications, matters or proceedings commenced on or after April 30, 2014.

The natural heritage policies of the PPS indicate that:

- 2.1.4 *Development* and *site alteration* shall not be permitted in:

  a) significant wetlands in Ecoregions 5E, 6E and 7E; and,

  b) significant coastal wetlands.

- 2.1.5 Unless it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions*, *development* and *site alteration* shall not be permitted in:

  a) significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;

  b) significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);

  c) significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);

  d) significant wildlife habitat;

  e) significant areas of natural and scientific interest; and,

  f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).

- 2.1.6 *Development* and *site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements;*

- 2.1.7 *Development* and *site alteration* shall not be permitted in *habitat of endangered species and threatened species*, except in accordance with *provincial and federal requirements*;

- 2.1.8 *Development* and *site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*; and,

- 2.1.9 Nothing in policy 2.1 is intended to limit the ability of *agricultural uses* to continue.

2.2 Species at Risk

2.2.1 *Species at Risk Act* (SARA)

At the federal level, Species at Risk (SAR) designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment, species are added to the federal List of Wildlife Species at Risk (Canada, 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the *Species at Risk Act* (SARA) (Canada, 2002). On private or provincially-owned lands, only aquatic species and migratory birds listed as endangered, threatened or extirpated are protected under SARA, unless ordered by the Governor in Council.

2.2.2 *Endangered Species Act* (ESA)

Species at risk designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources, species are added to the provincial *Endangered Species Act* (ESA) which came into effect June 30, 2008 (Ontario, 2007). The legislation prohibits the killing or harming of species identified as 'endangered' or 'threatened' in the various schedules to the Act. As of June 30, 2013, the ESA provides general habitat protection to all species listed as threatened or endangered. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law as a regulation of the ESA. There are exemptions under the Act for the treatment of certain species and their habitats.

2.3 Fisheries Act

The *Fisheries Act* (Canada, 1985) protects Canada's fishery resources from activities that may impair, limit or remove their form or function. Section 35 of the *Fisheries Act* outlines that "No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery". The Act defines serious harm as "the death of fish or any permanent alteration to, or destruction of, fish habitat".

Under Section 35(2) of the Act, the Minister of Fisheries and Oceans can authorize an exemption from Section 35 if it can be shown that the adverse impacts to a fisheries resource can be mitigated compensated or otherwise demonstrated to be of sufficiently low risk.

2.4 Migratory Birds

The *Migratory Birds Convention Act* (MBCA) (Government of Canada 1994) prohibits the killing or capturing of migratory birds, as well as any damage, destruction, removal or disturbance of active nests. It also allows the Canadian government to pass and enforce regulations to protect various species of migratory birds, as well as their habitats. While Environment Canada can issue permits allowing the destruction of nests for scientific or agricultural purposes, or to prevent damage being caused by birds, it does not allow for permits in the case of industrial or construction activities.

2.5 Conservation Authorities Act

Section 28 of the *Conservation Authorities Act* (Ontario, 1990b) enables Conservation Authorities (CA's) to regulate any works and site alterations that could affect the control of flooding and erosion, the conservation of land and the straightening, changing, diverting or interference with the existing channel of a watercourse. The *Fill, Construction and Alteration to Waterways* regulation was recently replaced by the *Development,*

Interference with Wetlands and Alterations to Shorelines and Watercourses, (Ontario Regulation 97/04) (Ontario 1997), also called the "Generic Regulation". This is not a new piece of legislation, but rather amends and broadens the mandate of the existing regulations to include formerly unregulated features such as wetlands. Conservation Authorities adopted the amended regulation on May 1, 2006.

2.5.1 Cataraqui Region Conservation Authority (CRCA)

The Cataraqui Region Conservation Authority (CRCA) is the governing body which regulates flood potential and natural heritage features in the Cataraqui River watershed. Development within regulated areas is governed by Regulation 148/06 *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* (Ontario 2013). Regulation 148/06 was derived under the authority of Ontario Regulation 97/04 (Ontario 2004) and is specific to the CRCA.

Under Ontario Regulation 97/04 a regulation may:

a) Restrict and regulate the use of water in or from rivers, streams, inland lakes, ponds, wetlands and natural or artificially constructed depressions in rivers or streams;

b) Prohibit, regulate or require the permission of the authority to straighten, change, divert, or interfere in any way with the existing channel of a river, creek, stream or watercourse, or change or interfere in any way with a wetland; and,

c) Prohibit, regulate or require the permission of the authority for development if, in the opinion of the authority, the control of flooding, erosion, dynamic beaches, or pollution, or the conservation of land may be affected by the development.

Development is not necessarily restricted within the CRCA regulated area; however, it designates an area which triggers the need for a permit and, in most cases, an accompanying Environmental Impact Assessment. A review of CRCA jurisdictional mapping indicates that the portion of the Site that lies within 50 m of the St. Lawrence River is subject to this regulation.

The CRCA also has guidelines on the preparation of an EIA, which were consulted in the preparation of this report. The CRCA provides peer-review services for the Town of Gananoque with respect to natural heritage reporting.

2.6 Town of Gananoque

Proponents are required, under the Town's Official Plan (OP), to prepare an EIA that will:

i) Research, identify, map, and prioritize the natural heritage features, with attention to areas of high significance, if any are present;

ii) Describe and map the proposed development activities, including building location, excavation, site grading, landscaping, roadway construction, paving, drainage works, and sewer and water servicing in relation to the natural heritage feature;

iii) Predict the effects that the proposed development may have on various components of the environment, such as wildlife, fish, vegetation, soil, surface water, ground water, and air, taking into consideration effects during and after development or site alteration;

iv) Evaluate the significance of all predicted negative and positive effects on the various environmental components;

v) Itemize and recommend all measures that can be taken to avoid or mitigate any predicted negative impacts.

vi) Evaluate the cumulative effect that the project (and any other projects or activities) may have on the characteristics of the natural heritage feature which made it significant, after mitigation; and,

vii) Conclude with a professional opinion on whether negative impacts will prevail, and on the significance of the impacts, if any, and if ongoing monitoring is required.

The Town OP identifies the Site as being designated 'Lowertown' (Schedule A) with no environmental designations such as significant woodland, fish spawning or floodplain (Schedules E, F and G).

3.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The Island Harbour Club is located at 175 St. Lawrence Street in Gananoque, Ontario. On the edge of the St. Lawrence River and adjacent to Joel Stone Park, the Island Harbour Club will provide views of the St. Lawrence.

The vision for the Island Harbour Club is a mixed use, medium density development focusing on street level retail (seven commercial units totalling 10,000 square feet) and 60 residential condominiums above (Figure 2).

The building is four stories in height. The property is principally designed to encourage pedestrian traffic and multiple diverse users.

A large courtyard dominates the design; creating an inviting common area for both tenants and the public, it is flanked on two sides by residential units and headed by commercial rental space on Water Street. The design encourages pedestrian traffic across the property, with access points from each street to the courtyard via barrier-free, accessible connections. A street patio is proposed along Water Street, facilitating easy transitions between the street and the courtyard via the adjoining walkways.

4.0 METHODS

4.1 Background Review

The investigation of existing conditions within the Study Area included a background information search and literature review to gather data about the local area and provide context for the evaluation of the natural features. As part of the background review, a number of resources were used to evaluate the existing conditions in the Study Area including:

- MNR Natural Heritage Information Centre (NHIC) Biodiversity Explorer geographic, species and natural areas information queries and data request (MNR, 2013);
- MNR fisheries data;
- Department of Fisheries and Oceans (DFO) Distribution of Fish Species at Risk – Cataraqui Region Conservation Authority mapping (DFO, 2013);
- Existing and readily available information and mapping available through the Cataraqui Region Conservation Authority (CRCA);
- Atlas of Breeding Birds of Ontario (Cadman, *et al.* 2007);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Ontario Herpetofaunal Summary Atlas (Oldham and Weller 2000);
- Town of Gananoque Official Plan (Stantec 2009);
- Information contained in natural heritage related map layers from Ontario Base Map series, Natural Resource Values Information System (NRVIS) mapping and Land Information Ontario (LIO); and,
- Existing high resolution aerial imagery and mapping.

The desktop assessment was used to identify significant natural areas, Species at Risk (SAR) and/or their habitats in the Study Area, as well as identifying SAR or suitable habitat that have the potential to occur. The Ministry of Natural Resources (MNR) was contacted by email in order to obtain natural heritage information for the Study Area, with a response received May 15, 2014. Information provided by the MNR has been included and considered in this report.

4.2 Screening for Species at Risk (SAR)

An assessment was conducted to determine which species listed under the SARA or ESA have the potential to be located in the Study Area. The potential for SAR to occur was assessed based on species range information, known records, review of the habitat observations made during the site visit, historic land use practices, and the preferred habitat requirements of these species (Appendix A). Species with ranges overlapping the Study Area, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions in the Study Area.

The probability for the species to occur was determined through a probability of occurrence. A ranking of low indicates no suitable habitat availability for that species in the Study Area, and no specimens identified. Moderate probability indicates more potential for the species to occur, as suitable habitat appeared to be present in the Study

Area, but no occurrence of the species recorded. High probability indicates a known species record in the Study Area (including observation during field surveys or background data review), and good quality habitat is present.

During the field survey, suitable habitats for all SAR identified through the desktop screening were searched for, and signs of individuals were recorded.

4.3 Field Survey

The habitats and communities on-site were characterized through a single site visit on May 5, 2014. During the site visit, two ecologists (one specializing in terrestrial and one in aquatic ecology) traversed the Site and surrounding Study Area. A photographic log of the Study Area was prepared (Appendix B).

4.3.1 Terrestrial Assessment

A visual encounter survey was conducted and all wildlife, plant, and habitat observations were recorded. Searches were also conducted to document the presence or absence of suitable habitat, based on habitat preferences, for those species identified in the desktop SAR screening described above. As no naturally occurring plant communities are present in the Study Area, no community mapping was undertaken.

4.3.2 Aquatic Assessment

An assessment of the St. Lawrence River in the vicinity of the Site, in terms of aquatic habitats present, was undertaken. Observations on the aquatic habitats present, in terms of depths, substrates, micro-habitats, submergent and emergent vegetation, and human impacts were recorded. Water quality parameters, including pH, dissolved oxygen, temperature and conductivity were recorded using a hand-held water quality metre. Incidental observations of fish were also made, although no formal fish community surveys (e.g. electro-fishing) were undertaken.

5.0 EXISTING CONDITIONS

5.1 Soils and Geology

Surface conditions at the Site currently consist of asphaltic concrete parking lot. Below this, information provided the Patterson Group (2013) indicates that portions of the Site are occupied by poor quality fill materials. The Site slopes gently downward to the northwest.

As described by the Patterson Group (2013), Geological Highway Map – Southern Ontario, Ontario Geological Survey (Map 2441; 1979) indicates that the area of the Site is underlain by felsic intrusive rocks including: granite, granophyres, granodiorite, quartz, diorite, quartz monzonite, syenite, trondhjemite, and derived gneisses of late to middle Precambiran age.

5.2 Hydrology and Hydrogeology

As described above, the Site slopes downward to the northwest, and given the impermeable surface it is likely that surface flows move across the Site in this direction and are deposited into a storm drain at the northwest corner of the Site. No surface water features are present at the Site, and the nearest waterbody is the St. Lawrence River, represented at its closest point by a boat launch approximately 20 m from the west corner of the Site.

The Patterson Group (2013) noted that there is one existing groundwater monitoring well on the Site that was installed by others in 2009 as part of a previous Phase II ESA. This groundwater monitoring well had an approximate depth of 1.8 m below surface grade, indicating that groundwater is within this distance of ground surface on-site.

5.3 Terrestrial Conditions

The Site consists of a parking lot and abandoned building (theatre) which was being demolished at the time of the site visit. Surrounding the Site are manicured lawns, a small recreational beach, buildings and pathways. The shoreline consists primarily of “rip-rap” and trees in the vicinity are mainly young planted individuals. Surrounding land uses include residential, recreational and marina uses. Wildlife observed during the site visit included: American Robin, Red-winged Blackbird, Common Grackle, European Starling, Canada Goose, American Crow and Barn Swallow. As the Study Area contained no natural communities, no list of plant species present was recorded, however, plant SAR were searched for (e.g. Butternut) and none were observed.

5.4 Aquatic Conditions

The nearest aquatic receptor to the Site is the St. Lawrence River, represented at its closest point by a boat launch approximately 20 m from the west corner of the Site. Height of land at the Site drains surficially in a general northwest direction, and surface water appears to concentrate at a sewer grate on St. Lawrence Street. Surplus water draining past the sewer continues down gradient to the boat launch, entering the St. Lawrence River.

Water depth at the boat launch and within the boat launch vicinity averaged approximately 3 m. Turbidity was low allowing a visual assessment of the bottom substrate using polarized glasses. Sediment appeared to be comprised of mainly sand and silt. Only dead matted aquatic vegetation was noted, especially within the inner protected inlets of the boat mooring area to the southwest. Two Yellow Perch were observed at the boat launch.

Fish habitat at the boat launch and associated boat slips was comprised predominantly of overhead cover and structure provided by the docks and pilings. It can be assumed that aquatic vegetation would regenerate where areas of dead macrophytes were observed. No significant micro habitats were noted at the time of the site visit. Water quality was recorded near the boat launch, where water temperature was 8.5°C; dissolved oxygen was 13.41 mg/L; conductivity was 250 µs/cm; and pH was 7.84. Aquatic receptors located adjacent to the boat launch include a sand/gravel beach, and park jetty.

According to information received from the MNR (May 2014), the St. Lawrence is considered is a warm water body and is known to support the following fish species: bowfin, alewife, rock bass, American eel, freshwater drum, common carp, gizzard shad, northern pike, muskellunge, fantail darter, johnny darter/tesselated darter, tessellated darter, banded killifish, mooneye, channel catfish, brook silverside, longnose gar, pumpkinseed, burbot, smallmouth bass, river chub, golden shiner, emerald shiner, common shiner, blackchin shiner, spottail shiner, spotfin shiner, mimic shiner, yellow perch, logperch, sea lamprey, bluntnose minnow, black crappie, fallfish, central mudminnow, grass pickerel, bridle shiner, sturgeon, grass pickerel, golden shiner, North American catfishes, logperch, longnose dace, mottled sculpin, johnny darter/tesselated darter, northern pike, banded killifish, brown bullhead, brook stickleback, fathead minnow, central mudminnow, brown bullhead, white perch, bluegill, brook silverside, and largemouth bass.

6.0 SIGNIFICANT NATURAL HERITAGE FEATURES

The following section provides a discussion of the significant natural heritage features in the Study Area, as defined in the PPS and the Natural Heritage Reference Manual (NHRM) (MNR, 2010). All key natural heritage features that have the potential to be impacted by the proposed extraction are discussed further in Section 7.0.

6.1 Significant Wetlands

Wetlands are designated provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, specifically, the Ontario Wetland Evaluation System (MNR, 2013b). No significant wetlands, or any wetlands, were identified within the Study Area.

6.2 Endangered or Threatened Species

The screening provided in Appendix A represents the list of SAR potentially present at the Site based on a review of published sources and discussion with relevant agencies. The rankings provided were determined through the observations and habitat assessment conducted during the field survey.

Below is a discussion of those endangered and/or threatened species identified in the screening as having a moderate or high potential to be present at the Site. Species identified as having a low potential, based on an absence of suitable habitat and no known records, are not discussed further in this report.

Barn Swallow

Barn Swallow is designated threatened under the ESA and was identified as having moderate potential to be found on the Site. This species breeds in areas that contain a suitable nesting structure (including man-made structures), open areas for foraging, and a body of water. Barn Swallows were observed foraging over the marina adjacent to the Site, however, no evidence of past or current nesting was observed at the structure on-site. Further, the on-going demolition at the Site makes it unlikely that this species will attempt to nest there this season. No impacts to this species are anticipated as a result of the proposed development, therefore no further discussion of this species is warranted in this report.

Other endangered or threatened species may be present and/or have been recorded in the natural areas surrounding the Site, primarily within the St. Lawrence River. These could include fish species, primarily. It is unlikely that the proposed development will affect these species or their habitats, provided standard construction practices are put in place to ensure no off-site impacts during construction. Therefore, no further discussion of these species is warranted in this report.

6.3 Fish Habitat

As discussed in Section 5.0, fish habitat is present in the Study Area in the form of the St. Lawrence River, which is located approximately 20 m from the west corner of the Site. Potential impacts to the St. Lawrence River are discussed in Section 7.0.

6.4 Significant Woodlands

Significant woodlands are defined and designated by the local planning authority (MNR, 2010). No significant woodlands are mapped by the Town's OP as being present in the Study Area, nor were any woodlands observed during the site visit.

6.5 Significant Valleylands

Recommended criteria for designating significant valleylands under the PPS include prominence as a distinctive landform, degree of naturalness, importance of its ecological functions, restoration potential, and historical and cultural values. There are no significant valleylands in the Study Area.

6.6 Significant Areas of Natural and Scientific Interest (ANSIs)

Areas of Natural and Scientific Interest (ANSIs) are designated by the province according to standardized evaluation procedures. There are no ANSI identified within the Study Area.

6.7 Significant Wildlife Habitat

Significant wildlife habitat (SWH) is one of the more complicated natural heritage features to identify and evaluate. The NHRM includes criteria and guidelines for designating significant wildlife habitat. There are two other documents, the Significant Wildlife Habitat Technical Guide (SWHTG) and the Significant Wildlife Habitat Decision Support System (SWHDSS) (MNR 2000a; 2000b), that can be used to help decide what areas and features should be considered significant wildlife habitat. More recently the MNR has released draft Significant Wildlife Habitat Ecoregion Criterion Schedules (SWHECS) (MNR, 2012), which provide specific values and criteria for identifying SWH. Each of these resources was used in the analysis of SWH in this report to identify SWH in the Study Area.

There are four general types of significant wildlife habitat: migration corridors, seasonal concentration areas, rare or specialized habitats, and species of conservation concern. All types of significant wildlife habitat are discussed below in relation to the Study Area.

6.7.1 Migration Corridors

The SWHTG defines animal movement corridors as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. This is generally in response to different seasonal habitat requirements. For example, trails used by deer to move to wintering areas or areas used by amphibians between breeding and summer habitat. To qualify as significant wildlife habitat, these corridors would be a critical link between habitats that are regularly used by wildlife.

No migration corridors have been identified in the Study Area.

6.7.2 Seasonal Concentration Areas

Seasonal concentration areas are those where large numbers of a species congregate at one particular time of the year. Examples include deer yards, amphibian breeding habitat, bird nesting colonies, bat hibernacula, raptor roosts, and passerine migration concentrations. If a species is at risk, or if a large proportion of the population may be lost if significant portions of the habitat are altered, all examples of certain seasonal concentration areas may be designated.

The SWHTG and SWHECS identify 14 types of seasonal concentrations of animals that may be considered significant wildlife habitat:

- Winter deer yards;
- Moose late winter habitat;

- Colonial bird nesting sites (bank/cliff, ground, tree/shrub);
- Waterfowl stopover and staging areas;
- Waterfowl nesting areas;
- Shorebird migratory stopover areas;
- Landbird migratory stopover areas;
- Raptor winter feeding and roosting areas;
- Wild turkey winter range;
- Turkey vulture summer roosting areas;
- Reptile hibernacula;
- Bat hibernacula, maternity colonies and stopover areas;
- Bullfrog concentration areas; and,
- Migratory butterfly stopover areas.

Deer management is an MNR responsibility, and deer winter congregations areas considered significant are mapped by the MNR. There have been no deer yards identified in the Study Area nor is there suitable Moose late winter habitat (conifer stands with a canopy closure of at least 60%, with most trees being at least 6 m tall).

There are no cliffs, banks, rocky islands or peninsulas suitable for colonial bird nesting habitat within the Study Area. Further, no heronries were identified during the field investigations.

The Study Area is unlikely to provide support to waterfowl during nesting and migration times (stopover and staging). No evidence of concentrated use within the Study Area by waterfowl was noted during field surveys.

Shorebird stopover sites are typically well-known and have a long history of use, and no such habitat was observed within the Study Area.

The Study Area does not contain sufficient natural cover to constitute a landbird migratory stopover area.

Ideal raptor winter roosting areas are generally located in mature mixed or coniferous woodlands that abut windswept fields that do not get covered by deep snow. There are no suitable areas in the Study Area for raptor winter feeding and roosting.

Suitable habitat for wild turkey includes a mix of forest and open land such as natural grassland or agriculture. For wintering, wild turkeys tend to prefer large dense coniferous forests adjacent to open land and close to both a food source and groundwater seeps. There is no suitable habitat for wild turkey in the Study Area.

Reptile hibernacula and active reptiles were searched for during field investigations in the Study Area. There were no partially buried piles of rocks, building foundations or similar structures in the Study Area which could provide potential hibernacula.

No wetlands or other suitable turtle wintering areas are present in the Study Area.

There are no identified bat hibernacula, nor suitable habitat to be used as hibernacula, in the Study Area, nor does the Study Area provide the necessary number (>10/ha) of large (>25cm DBH) wildlife trees to be considered significant maternity roost habitat. Criteria for identifying bat migratory stopover areas are still being developed, however, the Study Area is not likely to provide significant habitat of this type given its lack of natural cover.

No suitable habitat for Bullfrogs was seen in the Study Area.

The Study Area provides little-to-no natural cover and is therefore not considered suitable migratory butterfly stopover habitat.

6.7.3 Rare or Specialized Habitat

6.7.3.1 Rare Habitats

Rare habitats are those with vegetation communities that are considered rare in the province, such as sand barrens, alvars, old growth forests, savannah and tallgrass prairie. It is assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. Generally, communities assigned an SRANK of S1 to S3 (extremely rare to rare-uncommon) by the NHIC qualify.

No natural plant communities were identified in the Study Area.

6.7.3.2 Specialized Habitats

Specialized habitats are microhabitats that provide a critical resource to some groups of wildlife. The SWHTG defines 14 specialized habitats that may be considered significant wildlife habitat. They are:

- Habitat for area-sensitive species;
- Forests providing a high diversity of habitats;
- Old-growth or mature forest stands;
- Foraging areas with abundant mast;
- Amphibian woodland breeding ponds;
- Turtle nesting habitat;
- Specialized raptor nesting habitat;
- Moose calving areas;
- Moose aquatic feeding areas;
- Mineral licks;
- Mink, otter, marten, and fisher denning sites;
- Highly diverse areas;
- Cliffs; and,
- Seeps and springs.

In addition to the above list, the SWHECS considers waterfowl nesting habitat, bald eagle and osprey nesting, foraging and perching habitat, woodland raptor nesting habitat, and amphibian wetland (i.e. non-woodland) breeding habitat as specialized habitat for wildlife. Waterfowl nesting habitat was discussed under Section 6.7.2.

No suitable habitat for woodland area-sensitive species is present in the Study Area.

No natural plant communities are present in the Study Area, therefore no highly diverse areas, old growth forest, or areas of abundant mast are present.

No woodlands or wetlands offering woodland amphibian breeding habitats are present in the Study Area.

The small manicured beach area south of the Site may provide very limited nesting opportunities for turtles, but the viability of any nests in such a highly-used area is extremely low. Further, the proposed development will not affect this feature or any natural functions is may perform.

Nesting habitat for raptors, as well as perching and foraging habitat for Bald Eagle and Osprey, was not identified within the Study Area as mature trees were extremely scarce. Further, no raptors or raptor nests were observed during field investigations.

No Moose calving or aquatic feeding areas, mineral licks, or Mink, Otter, Marten or Fisher denning sites were observed during field investigations within the Study Area.

Highly diverse areas are described in the SWHTG as areas with a high species or vegetation community diversity. This type of habitat was not identified within the Study Area.

No cliffs, seeps or springs were identified during field investigations within the Study Area.

6.7.4 Species of Conservation Concern

Species of conservation concern includes four types of species: those that are rare, those whose populations are significantly declining, those that have been identified as being at risk to certain common activities, and those with relatively large populations in Ontario compared to the remainder of the globe.

Rare species are considered at five levels: globally rare, nationally rare, provincially rare, regionally rare (at the Site Region level); and locally rare (in the municipality or Site District). This is also the order of priority that should be attached to the importance of maintaining species. Some species have been identified as being susceptible to certain practices, and their presence may result in an area being designated significant wildlife habitat. Examples include species vulnerable to forest fragmentation and species such as woodland raptors that may be vulnerable to forest management or human disturbance. The final group of species of conservation concern includes species that have a high proportion of their global population in Ontario. Although they may be common in Ontario, they are found in low numbers in other jurisdictions.

In addition to the above, the SWHECS identifies marsh bird breeding habitat, woodland area-sensitive bird breeding habitat, open country bird breeding habitat, shrub/early successional bird breeding habitat, and terrestrial crayfish habitat as habitat for species of special concern. Woodland area-sensitive bird breeding habitat was discussed above under Section 6.7.3.2.

The screening provided in Appendix A represents the list of SAR potentially present at the Site based on a review of published sources and discussion with relevant agencies. The rankings provided were determined through the observations and habitat assessment conducted during the field survey.

Below is a discussion of those species of special concern identified in the screening as having a moderate or high potential to be present at the Site. Species identified as having a low potential, based on an absence of suitable habitat and no known records, are not discussed further in this report.

Eastern Milksnake

Eastern Milksnake is designated special concern under the ESA and was identified as having moderate potential to be found at the Site. Milksnake is found in a wide variety of habitat types, including semi-urban areas. The proximity of the Site to the shoreline and natural areas to the west, in combination with the abandoned structure, make it potential habitat for this species. However, the demolition of the structure will remove all habitat value for this species at the Site. Further, surrounding habitats offer superior features (e.g. food sources, natural shelter, etc.) for this species. No impacts to this species are anticipated as a result of the proposed development, therefore no further discussion of this species is warranted in this report.

Other species of conservation concern may be present and/or have been recorded in the natural areas surrounding the Site, primarily within the St. Lawrence River. These species could include fish (e.g. Silver Lamprey) and turtle species (e.g. Snapping Turtle), primarily. It is unlikely that the proposed development will affect these species or their habitats, provided standard construction practices are put in place to ensure no off-site impacts during construction. Therefore, no further discussion of these species is warranted in this report.

No suitable breeding habitat for marsh, open country, or shrub/early successional bird species was observed in the Study Area. No evidence of terrestrial crayfish was observed.

7.0 IMPACT ANALYSIS

The proposed development was assessed for potential direct and indirect effects on the natural environment. Direct effects may include removal of on-site habitat or biota, while indirect effects may include contamination of off-site receptors.

The following provides a summary of the impact analysis on the significant features carried forward from the screening process. This impact analysis deals with features and functions that have the potential to be affected by the proposed development. Further discussion is required to evaluate mitigation requirements and net effects.

7.1 Fish Habitat

Fish habitat is present in the Study Area in the form of the St. Lawrence River, which is located approximately 20 m from the west corner of the Site. The potential impacts to surface water and the associated fish habitat present is primarily confined to the demolition and construction phases of the project, through possible site run-off. It is expected that the implementation of standard construction practices, such as silt fencing around the perimeter of the Site, will provide sufficient mitigation. Special care should be employed to ensure no site run-off enters the storm drains on the surrounding roads. It is recommended that the sediment and erosion control plan for the project be reviewed, approved and periodically inspected by the proper authorities.

7.2 Other Potential Impacts

As with all construction projects, there is the potential to impact local soil, groundwater and air resources. Impacts to these resources can be incurred through accidental spills, alteration of pervious or impervious cover, emissions from construction vehicles and activities (e.g. dust), including noise. Standard Best Management Practices (BMPs) to control these potential impacts on adjacent resources should be employed, and should include but not be limited to:

- Clear demarcation and fencing of the Site boundary prior to any works;
- Regular maintenance of fencing to ensure it is functional;
- Development and implementation of a Sediment and Erosion Control Plan;
- Maintain equipment to reduce noise and potential for leaks;
- Store hazardous materials off-site where feasible, or in a designated well-protected area on-site away from receptors;
- On-site spill kits and procedures to mitigate for any spills or leaks;
- Enforced speed limits to reduce generation of dust on roads, and implementation of dust-suppression measures (e.g. watering) when necessary;
- No storage of garbage or equipment outside of the project area;
- Operating during daylight to avoid disruption of nocturnal wildlife activities; and,
- Limited use of safety lighting at the Site, and ensuring it is downward pointing to reduce light-scatter.

It is anticipated that the implementation of BMP's will ensure no negative effects resulting from the proposed works on adjacent natural features and receptors through migration of dust, noise, lighting, waste, spills, etc. off-site.

During the operations phase, implementation of design features to protect and enhance the natural environment should be employed, including but not limited to:

- Use of native species, or at least non-invasive species wherever possible in landscaping;
- Use of bird-friendly glass to reduce the number of collisions; and,
- Limited use of exterior lighting and ensuring it is downward pointing to reduce light-scatter.

7.3 Cumulative Impacts

There are no predicted impacts on the natural environment as a result of the proposed development provided the mitigation measures discussed in this report are implemented. Therefore, no cumulative impacts are anticipated.

8.0 CONCLUSIONS AND RECOMMENDATIONS

This study has addressed the reporting requirements and the Terms of Reference for an Environmental Impact Assessment in the Town of Gananoque and the Cataraqui Region Conservation Authority jurisdiction. Based on these analyses, it is expected that there will be no negative impacts to the natural features and functions in the Study Area provided the mitigation measures discussed in this report are implemented.

9.0 CLOSURE

We trust this report meets your current needs. If you have any questions regarding this report, please contact the undersigned.

GOLDER ASSOCIATES LTD.

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Ecologist

Sean Miller, M.Sc.
Associate, Senior Ecologist

GW/SAM/kf
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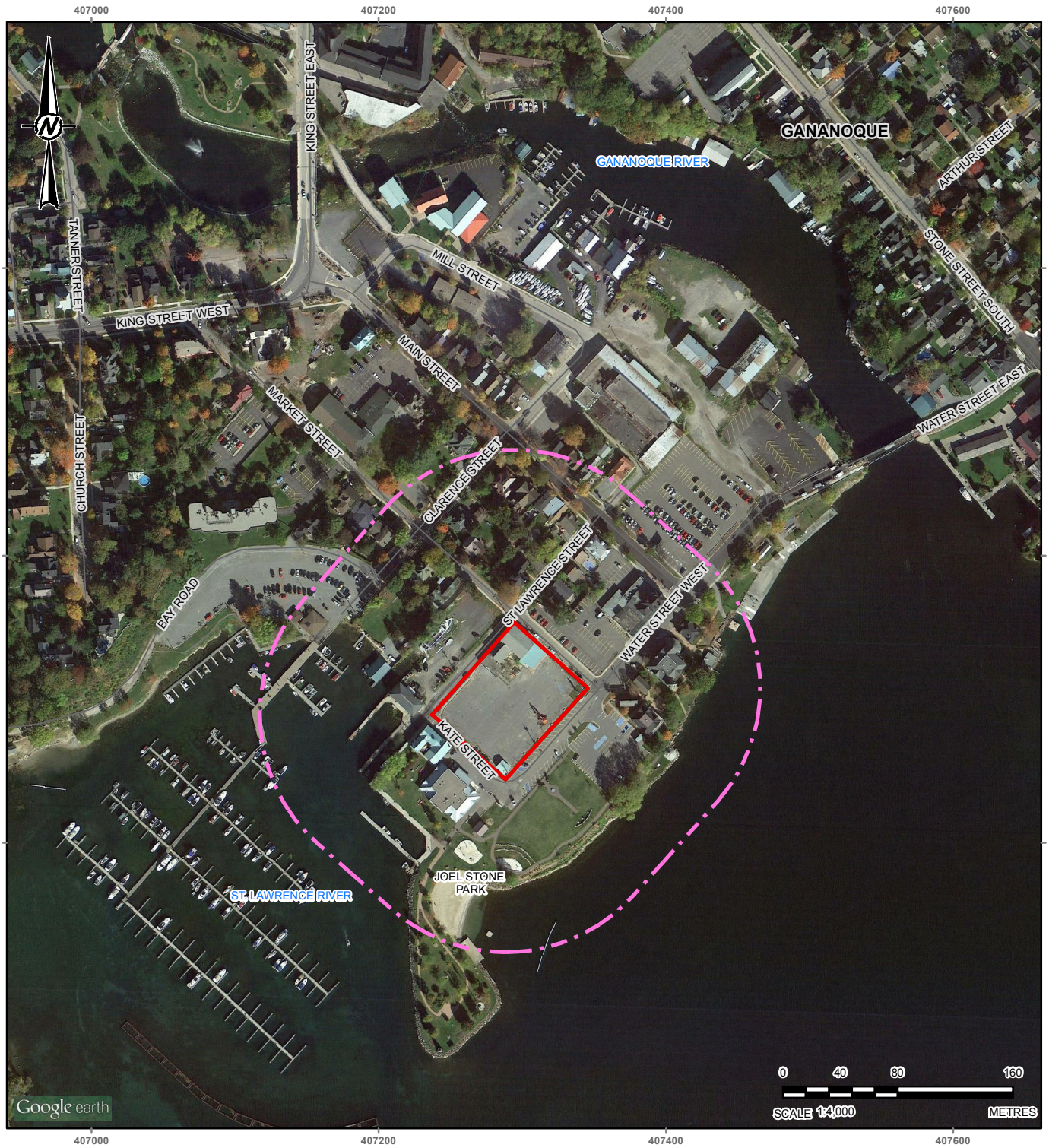

LEGEND

- ROAD
- APPROXIMATE PROPERTY BOUNDARY
- STUDY AREA

NOTES

THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1403457.

REFERENCE

GOOGLE EARTH PRO, 2013.
LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2011
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18

CLIENT
ISLAND HARBOUR CLUB INC.

PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT
ISLAND HARBOUR CLUB
175 ST. LAWRENCE STREET, TOWN OF GANANOQUE, ONTARIO

TITLE
KEY PLAN

CONSULTANT
Golder Associates

YYYY-MM-DD	2014-06-05
PREPARED	BR
DESIGN	BR
REVIEW	GW
APPROVED	SAM

PROJECT	PHASE	Rev.	FIGURE
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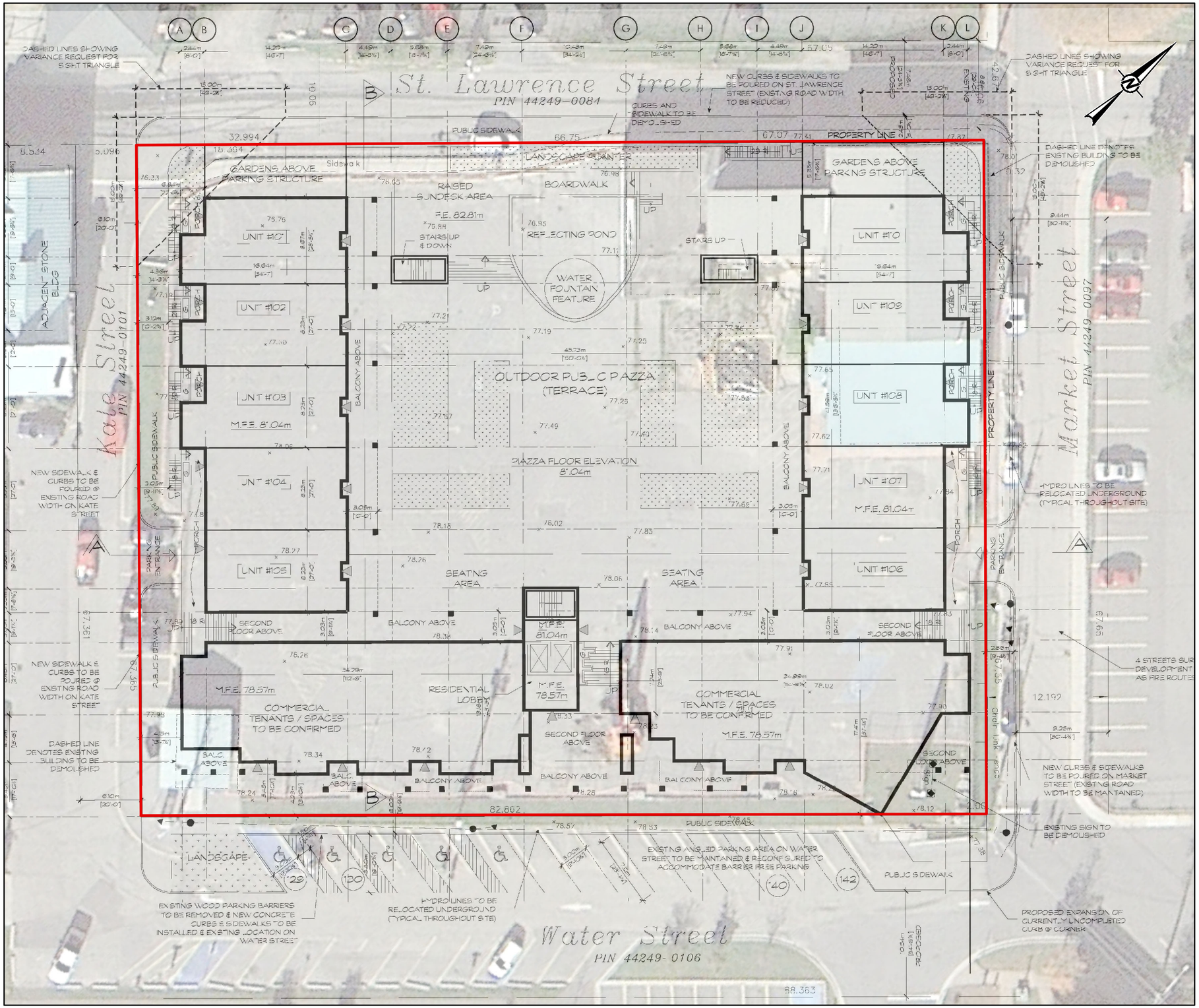

LEGEND

APPROXIMATE PROPERTY BOUNDARY

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NOTES

THIS FIGURE IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GOLDER ASSOCIATES LTD. REPORT NO. 1403457.

REFERENCE

PROPOSED SITE PLAN PDF DRAWING PROVIDED BY CLIENT.
GOOGLE EARTH PRO, 2013.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: UTM ZONE 18

CLIENT
ISLAND HARBOUR CLUB INC.

PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT
ISLAND HARBOUR CLUB
175 ST. LAWRENCE STREET, TOWN OF GANANOQUE, ONTARIO

TITLE
DEVELOPMENT PLAN

CONSULTANT

Golder Associates

YYYY-MM-DD	2014-06-05
PREPARED	BR
DESIGN	BR
REVIEW	GW
APPROVED	SAM

PROJECT No.	PHASE	Rev.	FIGURE
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APPENDIX A

Species at Risk Screening

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Amphibian	Western chorus frog - Great Lakes St. Lawrence/Canadian Shield Population	*Pseudacris triseriata*	THR	—	S3	In Ontario, this amphibian species habitat typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel [pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding.	Low
Arthropod	Monarch	*Danaus plexippus*	SC	SC	S2N, S4B	In Ontario, monarch is found throughout the northern and southern regions. This butterfly is found wherever there are milkweed (*Asclepius spp.*) plants for its caterpillars and wildflowers that supply a nectar source for adults; often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes.	Low
	Mottled duskywing	*Erynnis martialis*	—	END	S2	In Ontario, the mottled duskywing is found in the same habitat as its food plant Ceanothus spp.: open or partially open dry sandy areas, or limestone alvars. These habitats are relatively uncommon and include dry open pine and pine oak woodland, other open dry woodlands, alvars, savannah and other dry open sandy habitats. Usually seen nectaring on wildflowers, or on wet sandy roads in the company of other duskywing species.	Low
	Rusty-patched bumble bee	*Bombus affinis*	END	END	S1	In Ontario, rusty-patched bumble bee is found in areas from the southern Great Lakes – St. Lawrence forest region southwards into the Carolinian forest. It is a habitat generalist, but it is typically found in open habitats, such as mixed farmland, savannah, marshes, sand dunes, urban and lightly wooded areas. It is cold – tolerant and can be found at high elevations. Most recent sightings in Ontario have been in oak savannah habitat with well-drained, sandy soils and moderately open canopy. It requires an abundance of flowering plants for forage. This species most often builds nests underground in old rodent burrows, but also in hollow tree stumps and fallen dead wood.	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Arthropod	West Virginia white	*Pieris virginiensis*	—	SC	S3	In Ontario, west virginia white is found primarily in the southern region of the province. This butterfly lives in moist, mature, deciduous woodlands, and the caterpillars feed only on the leaves of toothwort (*Cardamine* spp), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated.	Low
Bird	Barn swallow	*Hirundo rustica*	—	THR	S4B	In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared rights-of-way, and wetlands. Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused.	Moderate
	Black tern	*Chlidonias niger*	—	SC	S3B	In Ontario, the black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching.	Low
	Bobolink	*Dolichonyx orizivorus*	—	THR	S4B	In Ontario, the bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation. Bobolinks prefer grassland habitat with a broad-leaf component and a substantial litter layer. They have low tolerance for presence of woody vegetation and are sensitive to extensive mowing. They are found in greater numbers in old fields where mowing and re-sowing are infrequent. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more broad-leaved forbs.	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Bird	Cerulean warbler	*Setophaga cerulea*	SC	THR	S3B	In Ontario, breeding habitat of the cerulean warbler consists of second-growth or mature deciduous forest with a tall canopy of uneven vertical structure and a sparse understory. This habitat occurs in both wet bottomland forests and upland areas, and often contains large hickory and oak trees. This species may be attracted to gaps or openings in the upper canopy. The cerulean warbler is associated with large forest tracks, but may occur in woodlots as small as 10 ha. Nests are usually built on a horizontal limb in the mid-story or canopy of a large deciduous tree.	Low
	Chimney swift	*Chaetura pelagica*	THR	THR	S4B, S4N	In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used.	Low
	Common nighthawk	*Chordeiles minor*	THR	SC	S4B	These aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits and gravel rooftops in cities.	Low
	Eastern meadowlark	*Sturnella magna*	—	THR	S4B	In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlarks prefer moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component. They prefer well drained sites or slopes, and sites with different cover layers.	Low
	Eastern Wood-Pewee	*Contopus virens*	—	SC	S4B	In Ontario, the eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. Tends to inhabit edges of younger forests having a relatively dense midstory. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, one to two meters above the ground, in a wide variety of deciduous and coniferous trees.	*Low*

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Bird	Golden-winged warbler	*Vermivora chrysoptera*	THR	SC	S4B	In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as rights-of-way, field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening.	Low
	Least bittern	*Ixobrychus exilis*	THR	THR	S4B	In Ontario, the least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation. Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency.	Low
	Peregrine falcon (anatum subspecies)	*Falco peregrinus anatum*	SC	SC	S3B	In Ontario, the peregrine falcon breeds in areas containing suitable nesting locations and sufficient prey resources. Such habitat includes both natural locations containing cliff faces (heights of 50 - 200 m preferred) and also anthropogenic landscapes including urban centres containing tall buildings, open pit mines and quarries, and road cuts. Peregrine falcons nest on cliff ledges and crevices and building ledges. Nests consist of a simple scrape in the substrate.	Low
	Red-headed woodpecker	*Melanerpes erythrocephalus*	THR	SC	S4B	In Ontario, the red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs. They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees.	Low

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Bird	Short-eared owl	*Asio flammeus*	SC	SC	S2N,S4B	In Ontario, the short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clearcuts, burns, pastures and occasionally agricultural fields. The primary factor in determining breeding habitat is proximity to small mammal prey resources. Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment.	Low
	Eastern Whip-poor-will	*Antrostomus vociferus*	THR	THR	S4B	In Ontario, the whip-poor-will breeds in semi-open forests with little ground cover. Breeding habitat is dependent on forest structure rather than species composition, and is found on rock and sand barrens, open conifer plantations and post-disturbance regenerating forest. Territory size ranges from 3 to 11 ha. No nest is constructed and eggs are laid directly on the leaf litter.	Low
	Wood Thrush	*Hylocichla mustelina*	—	SC	S4B	During the breeding season, the Wood Thrush is found in moist, deciduous hardwood or mixed stands, often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. Wood Thrushes choose habitats based on the structure of the forest. Specifically, this species selects nesting sites with the following characteristics: lower elevations with trees >16 m in height, a closed canopy cover (>70 %), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter.	Low
Fish	American eel	*Anguilla rostrata*	—	END	S1?	In Ontario, the American eel is native to Lake Ontario, St. Lawrence River and Ottawa River watersheds. Their current distribution includes lakes Huron, Erie, and Superior and their tributaries. The Ottawa River population is considered extirpated. The preferred habitat of the American Eel is cool water of lakes and streams with muddy or silty substrates in water temperatures between 16 and 19°C. The American eel is a catadromous fish that lives in fresh water until sexual maturity then migrates to the Sargasso Sea to spawn.	Low

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Fish	Bridle shiner	*Notropis bifrenatus*	SC	SC	S2	In Ontario, the bridle shiner is a species found only in the St. Lawrence River and its tributaries. Preferred habitat conditions include substrates of sand, silt or organic debris and relatively warm, clear water. Bridle shiner is freshwater fish species that inhabit slow-moving areas of unpolluted streams with abundant aquatic vegetation. The bridle shiner is not acid tolerant and so distribution in Precambrian shield may be limited. Typical spawning habitat is in water of depth 45-120 cm over medium to high density of submerged aquatic vegetation, and fine substrates of clay, silt or sand.	Low
	Cutlip minnow	*Exoglossum maxillingua*	—	THR	S1S2	In Ontario, the cutlip minnow is found in the St. Lawrence River and its tributaries. The cutlip minnow is a freshwater fish found in small to moderate sized streams and rivers with slower moving water. They prefer clear warm water with substrates representing a combination of gravel, cobble and sand over firm rocky bottom. This fish species is tolerable of cool water but is not a cold water species.	Low
	Grass pickerel	*Esox americanus ssp. vermiculatus*	SC	SC	S3	In Ontario, the grass pickerel is found in Lake Huron, Lake St. Clair, Lake Erie, Niagara River, Lake Ontario and St. Lawrence River and their tributaries, and an isolated population occurs in the Severn River system. The grass pickerel is a subspecies of redfin pickerel, Esox americanus. This fish species is found in warm, slow moving streams and shallow bays of lakes. It prefers clear to tea-coloured water and dense aquatic vegetation. The grass pickerel typically occurs over mud substrates, but has also been found over rock and gravel. Spawning occurs in vegetated areas of streams and lakes.	Low
	Greater redhorse	*Moxostoma valenciennesi*	—	—	S3	The Greater Redhors) is a warmwater fish that prefers medium to large sized clear-water rivers and lakes. Habitat preference includes swift water, runs and pools. The substrate preference for these fishes includes gravel, cobble and boulder. Spawning is thought to occur in the spring of the year when water temperature range from 13 to 19 degrees Celsius, typically between May and Jun).	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Fish	Lake sturgeon - Great Lakes / upper St.Lawrence Population	*Acipenser fulvescens*	—	THR	S2	In Ontario, the lake sturgeon, a large prehistoric freshwater fish, is found in all the Great Lakes and in all drainages of the Great Lakes and of Hudson Bay. This species typically inhabits highly productive shoal areas of large lakes and rivers. They are bottom dwellers, and prefer depths between 5-10 m and mud or gravel substrates. Small sturgeons are often found on gravelly shoals near the mouths of rivers. They spawn in depths of 0.5 to 4.5 metres in areas of swift water or rapids. Where suitable spawning rivers are not available, such as in the lower Great Lakes, they are known to spawn in wave action over rocky ledges or around rocky islands.	Low
	Pugnose shiner	*Notropis anogenus*	END	END	S2	In Ontario, the pugnose shiner is present at five sites; three sites in southwestern Ontario and two sites in the St. Lawrence River. The species has a limited distribution and it is often absent from apparently suitable habitat within its range. They require areas of quiet, clear water with abundant vegetation and sand, silt, or clay bottoms. Habitat includes large lakes, stagnant channels, and large rivers — primarily on sand bottoms with decomposing organic matter. It is found in the marshy bays of lakes, ponds and in slow-moving streams where the water is clear.	Low
	Spotted gar	*Lepisosteus oculatus*	THR	THR	S1	In Ontario, spotted gar occurs in Lake Erie, Bay of Quinte, and Lake St. Clair. This species inhabits warm waters of shallow (0-5 m) nearshore areas and slow areas of rivers. Preferred habits include substrates generally composed of clays, silt, organic debris and soft muck, but also often sand. They prefer abundant vegetation, and are tolerant of warm waters and low dissolved oxygen levels. Preferred spawning habitat is shallow water (0-1 m) with aquatic vegetation, brush or debris, in areas such as flooded riparian zones.	Low
	Silver Lamprey (Great Lakes - Upper St. Larence River population)	*Ichthyomyzon unicuspis*	—	SC	S3	In Ontario, the silver lamprey is known to occur in the Great Lakes and its tributaries, St. Lawrence River, Lake Nipissing, Lake-of-the-Woods and its tributaries, and the Ottawa River. Silver lamprey is a parasitic freshwater species that undertake spawning migrations in rivers and streams. They are often confused with sea lamprey. Adults prefer the clear waters of large streams, rivers, and lakes. Adults migrate in flowing water with stoney or gravelly bottom material for nesting. Larvae seek out slow flow areas initially with thick organic layers where they will grow until moving out into predominantly sandy environments where they will reside until they reach adulthood.	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Mammal	Eastern cougar	*Puma concolor couguar*	—	END	SU	This species historically inhabited extensive forested areas in Ontario.	Low
	Grey fox	*Urocyon cinereoargenteus*	THR	THR	S1	While the Ontario range of this species extends across much of southern and southeastern Ontario, the only known population in the province is on Pelee Island, with very rare sightings elsewhere in the province at points close to the border with the United States. This species inhabits deciduous forests and marshes, and will den in a variety of features including rock outcroppings, hollow trees, burrows or brush piles, usually where dense brush provides cover and in close proximity to water. This species is considered a habitat generalist.	Low
	Eastern small-footed myotis	*Myotis leibii*	—	END	S2S3	In Ontario, the eastern small-footed myotis occurs primarily in hemlock forest. The species generally roosts on the ground under rocks, in rock crevices, and under loose tree bark. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.	Low
	Little Brown Myotis	*Myotis lucifugus*	—	END	S4	In Ontario, this species range is extensive and covers much of the province. It will roost in both natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Low
	Northern Myotis	*Myotis septentrionalis*	—	END	S3	In Ontario, this species range is extensive and covers much of the province. It will usually roost in hollows, crevices, and under loose bark of mature trees. Roosts may be established in the main trunk or a large branch of either living or dead trees. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.	Low

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Reptile	Blanding's turtle - Great Lakes/St.Lawrence population	*Emydoidea blandingii*	THR	THR	S3	Blanding's turtle will utilize a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers, but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in to order reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies.	Low
	Eastern ribbonsnake - Great Lakes population	*Thamnophis sauritius*	SC	SC	S3	Eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds.	Low
	Gray ratsnake - Great Lakes/St. Lawrence Population (Frontenac Axis)	*Pantherophis spiloides*	THR	THR	S3	Gray ratsnake of the Great Lakes - St.Lawrence population require a mosaic of habitats, showing a preference for a mixture of forest and open habitats with a strong preference for edge habitats. Microhabitats such as snags, hollow logs, rock crevices and rocks provide shelter. Communal hibernation takes place in underground sites, such as rock fissures, mammal burrows and root systems, often on south-facing, rocky slopes.	Low
	Milksnake	*Lampropeltis triangulum*	SC	SC	S3	Milksnake utilizes a wide range of habitats including prairies, pastures, hayfields, wetlands and various forest types, and is well-known in rural areas where it frequents older buildings. Proximity to water and cover enhances habitat suitability. Hibernation takes place in mammal burrows, hollow logs, gravel or soil banks, and old foundations.	Moderate
	Northern map turtle	*Graptemys geographica*	SC	SC	S3	Northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Hibernation takes place in soft substrates under deep water.	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Reptile	Snapping turtle	*Chelydra serpentina*	SC	SC	S3	Snapping turtle utilizes a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways.	Low
	Spiny softshell	*Apalone spinifera*	THR	THR	S3	Spiny softshell will typically inhabit rivers with soft bottoms but occasionally lakes, impoundments, bays, marshy lagoons, as well as ditches and ponds near rivers. Soft sandy or muddy substrates with aquatic vegetation are essential habitat features. Hibernation takes place in deep pools with soft substrates. Nesting areas consist of sandy or gravelly areas, relatively free of vegetation and close to water.	Low
	Spotted turtle	*Clemmys guttata*	END	END	S3	Spotted turtle habitat consists of shallow, slow-moving and unpolluted water such as ponds, bogs, marshes, ditches, vernal pools and sedge meadows. It is also occasionally found in woodland streams or sheltered shallow bays. These habitats are characterized by soft substrates and abundant aquatic vegetation. Females lay eggs in soil and leaf litter in wooded areas close to wetlands. Hibernation takes place in substrates under water, often under moss hummocks or muskrat dens.	Low
	Stinkpot or Eastern musk turtle	*Sternotherus odoratus*	THR	THR	S3	Eastern musk turtle is very rarely out of water and prefers permanent bodies of water that are shallow and clear, with little or no current and soft substrates with abundant organic materials. Hibernation occurs in soft substrates under water. Eggs are sometimes laid on open ground, or in shallow nests in decaying vegetation, shallow gravel or rock crevices.	Low
Vascular Plant	American ginseng	*Panax quinquefolius*	END	END	S2	American ginseng is found in moist, undisturbed and relatively mature deciduous woods often dominated by sugar maple. It is commonly found on well-drained, south-facing slopes. American ginseng grows under closed canopies in neutral, loamy soils.	Low

Taxon	Common Name	Scientific Name	Species at Risk Act, Schedule 1 List of Wildlife SAR Status[1]	Endangered Species Act, Reg. 230/08 SARO List Status[2]	Provincial Rarity Rank[5]	Ontario Habitat Descriptions	Probability of Occurrence Ranking
Vascular Plant	Broad beech fern	*Phegopteris hexagonoptera*	—	SC	S3	Broad beech fern inhabits rich, undisturbed mature deciduous forest dominated by beech and maple. It typically grows in moist to wet, sandy soils of lower valley slopes and occasionally swamps.	Low
	Butternut	*Juglans cinerea*	END	END	S3?	Butternut is found along stream banks, on wooded valley slopes, and in deciduous and mixed forests. It is commonly associated with beech, maple, oak and hickory. Butternut prefers moist, fertile, well-drained soils, but can also be found in rocky limestone soils. This species is shade intolerant.	Low
	Buttonbush dodder	*Cuscuta cephalanthi*	—	—	S2	Buttonbush dodder grows in moist habitats, including wetlands, pond and creek edges, as well as moist woods and ditches.	Low
	Deerberry	*Vaccinium stamineum*	THR	THR	S1	Deerberry inhabits open deciduous woodlands, especially oak, as well as rock barrens on both steep slopes and flat ground. It is currently found only in the Niagara Region and St. Lawrence Thousand Islands area. Deerberry grows in dry, acidic, sandy soils.	Low
	Green arrow-arum	*Peltandra virginica*	—	—	S2	Green arrow-arum grows in the shallow waters of marshes, streams and rivers.	Low
	Pitch pine	*Pinus rigida*	—	—	S2?	Pitch pine is often associated with oak. It grows in shallow soil on quartizite and granite-gneiss outcroppings and ridges. It can also be found on exposed Potsdam sandstone pavements.	Low

[1] Species at Risk Act (SARA), 2002. Schedule 1 (Last amended 8 March 2013); Part 1 (Extirpated), Part 2 (Endangered), Part 3 (Threatened), Part 4 (Special Concern)

[2] Endangered Species Act (ESA), 2007 (O.Reg 242/08 last amended 13 Dec 2013 as O.Reg 323/13). Species at Risk in Ontario List, 2007 (O.Reg 230/08 last amended 24 Jan 2013 as O.Reg 25/13, s. 1.); Schedule 1 (Extirpated - EXP), Schedule 2 (Endangered - END), Schedule 3 (Threatened - THR), Schedule 4 (Special Concern - SC)

[3] Committee on the Status of Endangered Wildlife in Canada (COSEWIC) http://www.cosewic.gc.ca/

[4] Global Ranks (GRANK) are Rarity Ranks assigned to a species based on their range-wide status. GRANKS are assigned by a group of consensus of Conservation Data Centres (CDCs), scientific experts and the Nature Conservancy. These ranks are not legal designations. G1 (Extreemly Rare), G2 (Very Rare), G3 (Rare to uncommon), G4 (Common), G5 (Very Common), GH (Historic, no record in last 20yrs), GU (Status uncertain), GX (Globally extinct), ? (Inexact number rank), G? (Unranked), Q (Questionable), T (rank applies to subspecies or variety). Last assessed August 2011

[5] Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological communities, by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists produced annually. SX (Presumed Extirpated), SH (Possibly Extirpated - Historical), S1 (Critacally Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet), SAB (Breeding Accident), SAN (Non-breeding Accident), SX (Apparently Extirpated). Last assessed August 2011.

[6] General Habitat Protection is applied when a species is newly listed as endangered or threatened on the SARO list under the ESA, 2007. The definition of general habitat applies to areas that a species currently depends on. These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration. General habitat protection will also apply to all listed endangered or threatened species without a species-specific habitat regulation as of June 30, 2013 (ESA 2007, c.6, s.10 (2)). Regulated Habitat is species-specific habitat used as the legal description of that species habitat. Once a species-specific habitat regulation is created, it replaces general habitat protection. Refer to O.Reg 242/08 for full details regarding regulated habitat.

[7] Refer to the individual species' federal recovery strategy for a full description of the critical habitat (http://www.sararegistry.gc.ca/sar/recovery/recovery_e.cfm)

+Species Codes derived from the following sources: Birds – 53rd AOU Supplement (2012); Amphibians – Marsh Monitoring Program (Bird Studies Canada 2003); Fish – Golder; Reptiles – Golder.

*NHIC (Natural Heritage Information Centre); ROM (Royal Ontario Museum); OBBA (Ontario Breeding Bird Atlas); Herp Atlas (Herptofaunal Atlas of Ontario); Odonata Atlas (of Ontario); Mammal Atlas (of Ontario); BCI (Bat Conservation International); Butterfly Atlas (Ontario Butterfly Atlas)

'—' No status

APPENDIX B

Photographic Log

Photopoint #1: *looking north across the boat launch*

Photopoint #2: *looking east at boat launch area from edge of pier*

Photopoint #3: *looking south along shore toward inside harbor*

Photopoint #4: *looking west from edge of pier to outer bay*

Photopoint #5: *looking north from end of pier across inside harbor*

Photopoint #6: *looking northeast along armoured shoreline*

Photopoint #7: *looking north from park jetty toward inner harbor*

Photopoint #8: *from park jetty toward small beach area along armoured banks*

Photopoint #9: *looking northeast from park jetty across small beach area*

Photopoint #10: *looking northeast from park jetty across small beach area*

Photopoint #11: *Looking northwest across site*

Photopoint #12: *looking northwest across site*

Photopoint #13: *existing structure at site*

Photopoint #14: *existing structure at site*

Photopoint #15: *existing structure at site*

Photopoint #16: *looking west down St. Lawrence Street toward launch*

Photopoint #17: *looking east across site*

Photopoint #18: *looking southeast across site*

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