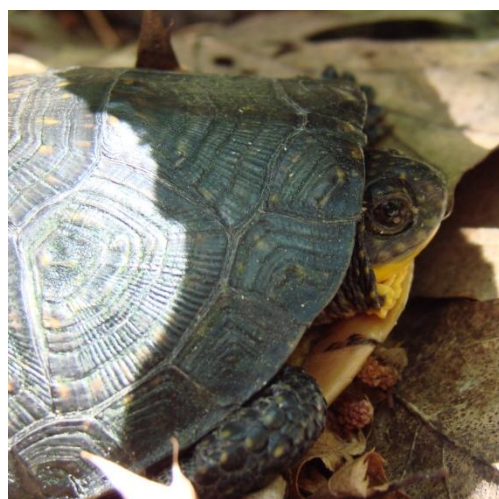


Environmental Impact Statement Guidelines



Foreword to the City of Ottawa Environmental Impact Statement Guidelines

City Council has approved the following Environmental Impact Statement (EIS) Guidelines for implementation of the natural heritage system (NHS) and EIS policies of the Official Plan and the Provincial Policy Statement 2005 (PPS). The EIS Guidelines are intended for use by City of Ottawa staff, agencies, and applicants in the preparation and review of environmental impact statements as and when required in the development review process. These guidelines do not create new policies or application requirements, but provide direction on the implementation of the policies and requirements of the Official Plan and the PPS.

The EIS Guidelines were initially approved by Ottawa City Council on July 14, 2010. As directed by Council at that time, staff conducted a review of the EIS Guidelines content and process after one full year of implementation. The EIS Guidelines were subsequently revised to address the few issues identified and to incorporate necessary updates. Council approved the revised EIS Guidelines on June 27, 2012.

Transition Period

At the time of approval of these EIS Guidelines by City Council in 2010, some applicants for development or site alteration approvals were already in the process of completing environmental impact statements based upon formal consultations with, and comments by, planning staff. In some cases, the related field studies were already underway, using methodologies that might not be entirely consistent with those required under the new EIS Guidelines. Staff did not intend for the introduction of the EIS Guidelines to create additional delays or expense for applicants who, prior to approval of the EIS Guidelines, had already received direction from staff on the preparation and requirements of an EIS for specific development or site alteration application, and who were, in good faith, following that direction.

Therefore, applicants were not required to adhere strictly to the new EIS Guidelines in the preparation of an EIS for a specific development or site alteration application if, prior to the approval and adoption of these EIS Guidelines by City Council, they had: (a) received formal direction from City planning staff on the preparation and requirements of an EIS for that specific development or site alteration application (*i.e.* during a pre-application consultation or other consultation with City staff on the specific content of that EIS); and, (b), commenced preparation of the EIS in accordance with the direction from City staff.

Similarly, applicants will not be required to adhere strictly to the revised EIS Guidelines in the preparation of an EIS for a specific development or site alteration application if, prior to the approval of the revised EIS Guidelines by City Council, they have already pre-consulted with City staff and commenced preparation of an EIS in accordance with staff's direction under the original EIS Guidelines.

It remains the responsibility of the applicant and staff to ensure that the resulting EIS meets the requirements of the Official Plan and the PPS.

This waiver only applies to development or site alteration applications already in progress at the time of the approval of the revised EIS Guidelines by City Council. Subsequent development or site alteration applications will be subject to the revised EIS Guidelines, even if the subsequent applications relate to the same property or project.

Table of Contents

Foreword to the City of Ottawa Environmental Impact Statement Guidelines	2
Transition Period	2
Table of Contents	3
1. Introduction	5
1.1. What is an Environmental Impact Statement (EIS)?	5
1.2. When is an EIS required?	6
1.3. Scope of the EIS	7
1.4. Who prepares an EIS?	8
1.5. Integrating with the Development Process	8
2. The EIS Process	9
2.1. Step 1: Pre-consultation, Scoping and Terms of Reference	9
2.2. Step 2: Information Gathering and Report Preparation	12
2.3. Step 3: Submission and Review of the EIS Report	13
2.4. Step 4: Finalization of the EIS Report	14
2.5. Step 5: Post-Approval Revisions and Updates	14
3. Contents of the EIS Report	15
3.1. Property Information	15
3.2. Description of the Site and the Natural Environment	16
3.2.1. General Map of the Natural Environment	19
3.2.2. Landforms, Soils and Geology	19
3.2.3. Surface Water, Groundwater and Fish Habitat	20
3.2.4. Vegetation Cover	22
3.2.5. Wildlife	24
3.2.6. Habitat for Species at Risk	26
3.3. Description of the Proposed Project	28
3.3.1. Constraints	28
3.3.2. Plans and Drawings	29
3.4. Impact Assessment	29
3.4.1. “No Negative Impact”	30
3.4.2. Principles of Impact Assessment	30
3.4.3. Assessing Impacts	31
3.4.4. Identifying Cumulative Impacts	32
3.5. Mitigation	33
3.5.1. Setbacks and Buffers	35
3.6. Monitoring	36
3.7. Summary and Recommendations	37
4. References	38
5. Glossary	40

Figures

Figure 1: Environmental Impact Statement Decision-Making during Pre-application Consultation.....	11
---	----

Tables

Table 1: Guide to Information Sources on Environmental Features.....	17
--	----

Appendices

Appendix 1: Scoped Environmental Impact Statement (EIS) Form	42
Appendix 2: Environmental Impact Statement (EIS) Decision Tool	54
Appendix 3: Agency Contact List.....	57
Appendix 4: City of Ottawa Data Availability and Data Requests	58
Appendix 5: General Values and Functions to be addressed for each Natural Heritage System Component during an EIS in the City of Ottawa	60
Appendix 6: Preliminary Environmental Data Collection Checklist	63
Appendix 7: Terrestrial Data Collection and Reporting Standards.....	66
Appendix 8: Characteristics of Significant Woodlands.....	72
Appendix 9: Characteristics of Significant Wildlife Habitat.....	74
Appendix 10: Standard Mitigation Measures for the City of Ottawa.....	76

1. Introduction

Ottawa has a rich and varied natural environment that includes large areas of forests, wetlands, and major rivers. Land-use planning that protects the health of the environment is central to the long-term sustainability of the community and preserves the high quality of life enjoyed by City residents.

Where development or site alteration may affect significant natural features and functions, Ontario's Provincial Policy Statement (PPS; MMAH, 2005) requires that it be demonstrated that no negative impacts will occur. Ottawa's Official Plan is consistent with the PPS, supporting the "[preservation of] natural features and the integrity of natural systems by directing land use and development in a way and to locations that maintain ecosystems functions over time," (Section 2.1). The policies in the Official Plan reflect the City's corporate commitment in its Environmental Strategy (2003) to support the goal of development in harmony with the environment, through ecosystem-based planning and the protection of natural features and functions. One of the tools employed by the City to meet this commitment is the Environmental Impact Statement (EIS). An EIS allows the City and the applicant to identify the potential environmental impacts of a proposed development or site alteration project and plan to avoid or minimise them before they occur.

This guide outlines the process and content required for the completion of an EIS under Section 4.7.8 of the Official Plan. The aims are to provide a consistent approach to assessing impacts, to increase efficiency in report preparation and review, and to improve communication between the agencies and individuals involved.

This guide contains three main sections. The first section introduces the EIS and its purpose. The second section details the steps involved in planning, conducting and submitting an EIS. Finally, the third section outlines the contents required in an EIS.

References to "City staff" in this guide should be interpreted to mean Planning staff with expertise in environmental impact assessment, i.e., environmental planners involved in development review or the Natural Systems unit, unless otherwise specified.

1.1. What is an Environmental Impact Statement (EIS)?

An EIS is an assessment of the potential environmental impacts of a proposed project. It documents the existing natural features on and around the proposed project site, identifies the potential environmental impacts of the project, recommends ways to avoid and reduce the negative impacts, and proposes ways to enhance natural features and functions. The preparation of an EIS is an important step in the development application process.

The EIS helps in both planning and decision-making. As a *planning tool*, an EIS that is begun early can help to develop a plan that avoids negative environmental impacts by identifying areas with sensitive natural features or ecological functions for preservation. As a *decision-making tool*, the EIS provides agencies with the information they need to determine whether a proposed project complies with existing policies, or if further changes are necessary.

1.2. When is an EIS required?

In the City of Ottawa, an EIS is required when development or site alteration, as defined in Section 4.7.8 of the Official Plan, is proposed in or adjacent to (i.e., within a specified distance of) environmentally designated lands or other features of the City's natural heritage system (NHS). The EIS Decision Tool (Appendix 2) provides a checklist of the natural heritage system features and adjacent areas within which an EIS is required under the policies of the Official Plan. Note that the distances that "trigger" an EIS may differ, depending on whether the project is proposed in the urban or rural planning area. These distances are based on provincial guidance in the Natural Heritage Reference Manual (OMNR, 2010) except in the case of some features within the urban area, where a 30 m adjacency distance has been adopted in recognition of the low likelihood of impacts occurring beyond that distance in a predominantly developed landscape. The adjacency distance is measured from the subject property boundary to the edge of the designated lands or natural feature, not from the proposed project area limits.

Although surface water features, groundwater features and fish habitat are all considered part of the NHS, they do not trigger the requirement for an EIS under the policies of the Official Plan. They are protected under the policies of Section 4.7.3 and Section 4.7.5 of the Official Plan, which establish the mechanisms for assessing and avoiding impacts to these features and their functions. Information from impact assessments addressing surface water, groundwater features or fish habitat, where available, should always be incorporated into an EIS to provide an integrated assessment of impacts to the overall NHS associated with the subject property.

Section 4.7.8 of the Official Plan defines development as:

"...creation of a new lot, a change in land use, or the construction of buildings and structures, requiring approval under the Planning Act, but does not include activities that create or maintain infrastructure authorized under an environmental assessment process; or works subject to the Drainage Act."

This definition includes the following types of development applications:

- Plans of subdivision;
- Severances;
- Minor variances;
- Site plan control (e.g., building, grading, road widening);
- Zoning By-law amendments; and,
- Official Plan amendments.

Site alteration is defined as:

"...activities, such as grading, excavation and the placement of fill that would change the landform and natural vegetative characteristics of a site."

Applicants are encouraged to contact their local Development Information Officers (DIO), who can advise on the need for an EIS. A DIO can be reached by calling the City's service number

“311” within the City boundaries, or at (613) 580-2424. If an EIS is required, the process and contents can vary depending on the situation, as outlined in Section 2.

In areas of federal or provincial jurisdiction, an Environmental Assessment (EA) may need to be prepared under the federal *Canadian Environmental Assessment Act* (CEAA; 1992) or the provincial *Environmental Assessment Act* (1990). An EIS is not usually required by the City of Ottawa if an Environmental Assessment is prepared, provided that the minimum requirements outlined in this guideline are met. This will be determined at the pre-consultation stage (see Section 2.1 below).

1.3. Scope of the EIS

Because the environmental issues and constraints will vary for each proposed project based on the type of project and the natural context of the site, so will the level of study required. The breadth and depth of study required is referred to as the “scope” of the EIS. City staff and the applicant will determine the preliminary scope of the EIS after reviewing the available information, as part of the first step in the EIS process (see Section 2.1 below). There are three general types of EIS outlined in Section 4.7.8 of the Official Plan:

- a) **Full site impact statements:** These assess the effects of large-scale projects, such as plans of subdivision or quarry/pit applications.
- b) **Urban Natural Feature impact statements:** These apply only to lands adjacent to an Urban Natural Feature (UNF), and specifically address ways to manage impacts of the proposed project in the urban setting.
- c) **Scoped site impact statements:** These assess potential impacts of smaller projects such as single-lot severances. They involve completing the Scoped EIS Form (Appendix 1) to address impacts. This type of study may also be appropriate where more detailed and recent impact studies exist.

In this guideline, the term “**Detailed EIS**” will be used to refer to (a) full site impact statements. Because of the larger scale of these developments and/or the greater potential for impacts to occur, they will normally require collection and analysis of a larger amount of information.

The term “**UNF-EIS**” will be used to refer to (b) Urban Natural Feature impact statements. The special requirements of a UNF-EIS are discussed under Section 3.4.2 (Assessing Impacts). Otherwise, a UNF-EIS will approximate either a Detailed EIS or a Scoped EIS, depending upon the scale of the proposed project.

The term “**Scoped EIS**” will be used to refer to (c) scoped site impact statements, where the smaller scale of development or lower risk of impacts warrants a simpler process.

In determining the scope of the EIS and the requirements for field studies, the applicant and the City will have regard for the basic principle of the EIS guidelines:

At minimum, the EIS must demonstrate that the proposed development or site alteration will have no negative impacts on the values or ecological functions for which the triggering environmentally significant lands or natural heritage features have been identified.

1.4. Who prepares an EIS?

The scale of the proposed project and the type of natural features and functions affected will determine the level of expertise required. Most applicants hire an environmental consultant to conduct the EIS on their behalf. Detailed EIS reports for larger projects such as subdivisions or quarries may require input by a team of consultants from several disciplines. For a Scoped EIS where the project will occur adjacent to, rather than within, the triggering natural feature, the applicant may be able to complete the Scoped EIS Form with input from agency staff (see Appendix 3 for agency contacts). City staff and the applicant will determine the preliminary qualifications required for completion of the EIS during pre-consultation (see Section 2.1 below). These qualifications will be relevant to the scope of work. For example:

- If the boundaries of a provincially significant wetland (PSW) require confirmation, then the assessor will have to be certified as a wetland evaluator by the Ministry of Natural Resources (MNR);
- If Ecological Land Classification (ELC) is required, then the assessor will be expected to have completed training in this method; and,
- If butternut is present on the site, then a qualified Butternut Health Assessor (BHA) will conduct the necessary assessment to enable the MNR to determine whether or not provincial authorisation is required prior to the removal of any trees.

The City maintains a list of consultants who offer EIS or related services, which will be provided to applicants upon request. Consultants wishing to be included on this list must be familiar with the City's EIS Guidelines and must provide their professional contact information to the City. Each professional contributing to an EIS must demonstrate qualifications relevant to the scope of the assessment by submitting his or her resume with the final EIS report.

1.5. Integrating with the Development Process

Some requirements of the EIS may overlap with requirements of other development studies (e.g., Tree Conservation Reports, groundwater studies, stormwater management reports) and regulations (e.g., *Conservation Authorities Act*, *Aggregate Resources Act*, *Endangered Species Act 2007*). These may be administered by other City departments or external agencies (e.g., Conservation Authorities, Ministry of Natural Resources). Consultants should co-ordinate the study requirements in order to avoid duplication, and also to ensure that any on-site investigations are scheduled appropriately (see Section 2.2 for more information on field study timing). It is the applicant's responsibility to ensure the requirements of all studies are met, and that the EIS integrates the results of other studies into the analysis of environmental impacts (see Section 3.4 below).

Under Section 4.7.2 of the Official Plan, a Tree Conservation Report (TCR) is required in support of all applications for subdivision, condominiums affecting vegetation cover on site, or site plan approval. City Council approved the Tree Conservation Report Guidelines in conjunction with the Urban Tree Conservation By-law in June 2009; however, the TCR Guidelines apply to all TCRs prepared in the City (urban or rural). They specify that, in cases where a TCR and an EIS are both required, the TCR elements will be incorporated into the EIS so that only one report (the EIS) is submitted. The requirements of the TCR Guidelines must be met by the EIS in these cases. The TCR Guidelines are available on the City's website at: http://ottawa.ca/en/env_water/tlg/trees/preservation/guidelines/index.html

2. The EIS Process

The steps outlined in the following sections provide a general outline of the EIS process. Emphasis is placed on **early consultation** with the City and other review agencies (e.g., Conservation Authority, Ministry of Natural Resources). This helps to improve communication, identify issues and constraints at an early stage, avoid costly delays, and make efficient use of time and resources. On-going dialogue and reporting is expected throughout the process.

2.1. Step 1: Pre-consultation, Scoping and Terms of Reference

Pre-application consultation, or pre-consultation, is a required step in the development review process for most major applications, and is encouraged for all applications. From the EIS perspective, the aim of pre-consultation is to:

- a) screen proposed projects to determine the type of EIS required, if any, and
- b) identify preliminary ecological constraints and other issues requiring assessment.

A pre-consultation meeting for an EIS will include the City's planning staff (specifically, an environmental planner or Natural Systems planner), other review agency staff (i.e., Conservation Authority and/or MNR) where appropriate, and the applicant. If the applicant has already retained a consultant to complete the EIS, then the consultant should also be included in this meeting. City staff and the applicant will complete the EIS Decision Tool (Appendix 2) during pre-consultation to assist in the determination of whether an EIS is required, and if so, the preliminary scope of the EIS (i.e., the breadth and depth of study required). The preliminary scope of the EIS will depend on the following:

- The scale and nature of the proposed development or site alteration;
- The character of the natural environment and its associated ecological functions;
- The site's setting within the landscape and/or watershed; and,
- The availability of previous studies and information.

In some cases, City staff may determine that the requirement for a Scoped EIS should be deferred to a later date (e.g., in cases where no physical development or site alteration is immediately proposed) or that the risk of impacts is so low, based on the type of project proposed and the known environmental context of the site, that the completion of the Scoped EIS Form by the applicant is unnecessary. The staff review of the proposal and site will constitute the Scoped EIS in the latter case. The EIS Decision Tool, Part C, provides guidance on when deferral or waiving of the Scoped EIS Form is appropriate. Staff should ideally have direct personal knowledge of the site (i.e., have visited the site or be thoroughly familiar with the area in which it is located) in order to make this determination. However, conversations with other City or agency staff who have such knowledge, or the use of available mapping and imagery (such as [geoOttawa](#)) may suffice. All such decisions to defer or waive the completion of the Scoped EIS Form will be documented in the pre-consultation meeting notes or in subsequent written correspondence with the applicant, with the rationale for the decision. These decisions are to be made on a case-by-case basis and cannot be automatically extended to other projects proposed in the same area, or on the same site. Staff may specify conditions under which the exemption applies, such as requiring standard mitigation measures (e.g., timing constraints, setbacks to be respected, etc.) and may also set a time limit on the exemption, after which the applicant would need to re-confirm the EIS requirements before

proceeding with the project. Any such conditions or time limits will also be documented in writing and will be retained on file by City staff.

A schematic illustration of this EIS decision-making process, with reference to the EIS Decision Tool in Appendix 2, is presented in Figure 1.

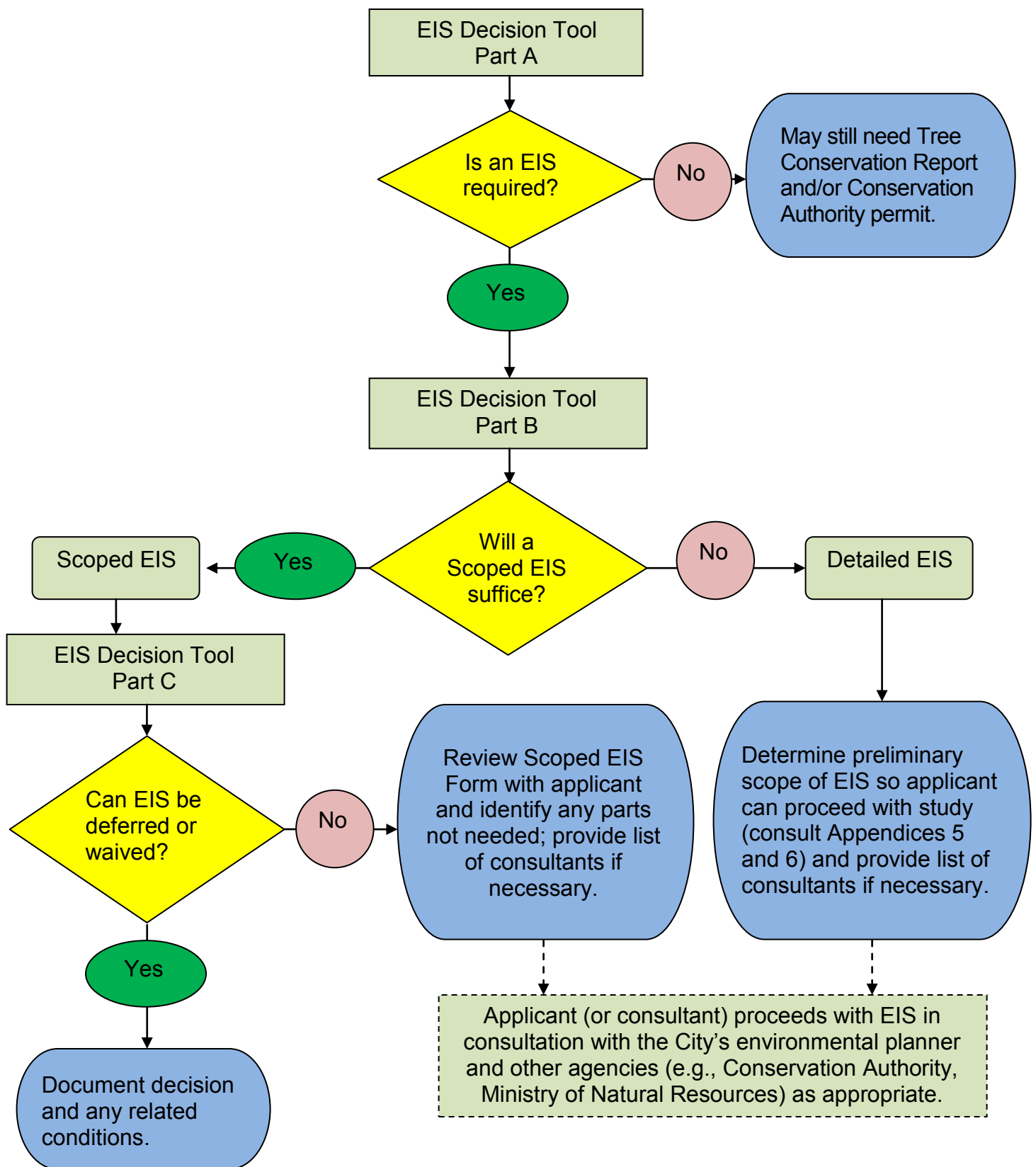
A list of agency contacts and existing information sources will be provided to applicants at the pre-consultation meeting (see Appendices 3 and 4). A list of consultants willing to conduct an EIS will also be provided upon request.

To meet the basic principle of these guidelines, the EIS must address (at a minimum) the values and ecological functions for which the triggering lands or features were identified. Appendix 5 outlines the general values and functions associated with each of the natural heritage system components identified as an EIS trigger in the Official Plan, at a coarse level, along with recognised standards for evaluation where available. This information is intended to provide a consistent basis of evaluation for use in all EIS reports, but it is only a minimum standard. The specific, detailed values and functions for any particular natural heritage system component must be determined on a case-by-case basis during the course of each EIS study. For example, an EIS that is triggered by the presence of a significant wetland must assess the potential impacts of the project on the specific values and functions that were documented as part of the official wetland evaluation record, in order to determine whether the project could negatively impact the wetland's status.

Some specific study requirements for the EIS, such as breeding bird surveys or field investigations of potential species at risk and their habitats, may be identified and agreed upon during pre-consultation, based upon the known natural heritage features and ecological functions that could be affected by the proposed project. These requirements will be documented in the meeting notes, using the Preliminary Environmental Data Collection Checklist found in Appendix 6. This checklist, once completed, will identify specific topics or issues that the EIS must address, as well as any specific field study requirements (e.g., timing or methodology of study). The checklist is intended to provide a preliminary overview of the EIS requirements only, since these requirements may need to be revised during the course of the EIS if additional natural heritage features or ecological functions are discovered.

The applicant is responsible for working with the City and, where appropriate, other review agency staff to determine the final scope of the EIS during the development pre-application process. In certain cases, where the size and the potential impacts of a project warrant, the City may require the applicant to prepare and submit for approval a "Terms of Reference" for a Detailed EIS, to further specify the scope or other aspects of the study. The scope will not be considered final until the background information review and field study components have been substantially completed, to allow for any necessary revisions based on new information discovered as part of the EIS.

FIGURE 1: ENVIRONMENTAL IMPACT STATEMENT DECISION-MAKING DURING PRE-APPLICATION CONSULTATION



2.2. Step 2: Information Gathering and Report Preparation

Once the preliminary scope of the EIS has been determined, the assessor can proceed to gather information from available background sources and/or original field studies, confirm the scope of the EIS with the City, conduct the impact assessment and report on the study findings. While the basic components of an EIS report are identified in Section 4.7.8 of the Official Plan, the contents of the report will differ, depending on the outcome of the scoping exercise. For more information on the required contents of an EIS report, refer to Section 3 below.

For a Scoped EIS, the amount of information required is significantly less than the requirements for a Detailed EIS. This is because of the reduced risk of impacts associated with the types of development for which a Scoped EIS is deemed sufficient. If it is determined during pre-consultation that a Scoped EIS is required, applicants or their consultants must complete and submit the Scoped EIS Form found in Appendix 1. Depending upon site conditions, City staff may waive the requirement to complete certain sections of this form.

A Detailed EIS requires a more comprehensive report, containing all of the elements described in these EIS Guidelines. A Detailed EIS must include a review of any land use planning documents, such as subwatershed studies, secondary plans or Environmental Management Plans, for information, policies or guidelines that may be applicable to the development application. The EIS report and the development application will be assessed against any such planning documents.

Specifications for field investigations are provided in Section 3. In general, however, applicants and their consultants should be aware that at least one site visit is required for every EIS, regardless of the scope. An EIS prepared without direct, personal observations of the site will be considered incomplete. Site visit(s) will occur during the growing season rather than in winter, when snow cover and normal seasonal dormancy severely limit potential observations. Multiple site visits may be required to provide an adequate understanding of the existing conditions at the site; in these cases, winter site visits may be acceptable for the purpose of investigating seasonal wildlife habitat (e.g., deer yards) or locating heronries and raptor nests, which are more easily seen when the trees are bare of leaves.

The initial site visit for the EIS should occur prior to any clearing of natural vegetation or intrusive site investigations (e.g., installation of test wells or boreholes). If, during this initial site visit, any potential areas of constraint are identified where intrusive surveys could result in negative impacts on significant natural features or ecological functions, recommendations to avoid or minimise these impacts will be required. In the area regulated by the City's Urban Tree Conservation By-law, this can be accomplished through the preparation of a preliminary Tree Conservation Report, which is required to support early servicing or other pre-application on-site work. In the rural area, the use of a similar preliminary report is strongly encouraged, to reduce the potential environmental impacts.

Ongoing dialogue between applicants, their consultants and City staff is expected during the completion of the EIS. Concerns or questions may be raised with staff at any time. Recommended points of contact with City staff include:

- Following the background information review and field study, to confirm the scope of the EIS and discuss any environmental constraints identified; and,

- During the impact assessment, to discuss potential impacts, options for mitigation, and possible monitoring requirements.

In some cases, it may be beneficial to hold such discussions at the site, with other agency staff included where appropriate.

2.3. Step 3: Submission and Review of the EIS Report

The EIS report is submitted to the City as part of the development application. If the report is not complete or the content is insufficient, it will be returned to the applicant or consultant for modification, and the application will be deemed incomplete.

While a Scoped EIS (i.e., completed Scoped EIS Form and supporting maps or other documents) may be submitted in hard copy only, electronic (PDF) copies are encouraged. Detailed EIS reports should be submitted in both hard copy and electronic format (PDF and Word, when requested) to facilitate the review process. The planner for the application file will specify the numbers of hard copies and format of the electronic submission required. Applicants should be aware that the EIS, along with other supporting materials, may be posted on the City's website as part of the public consultation process.

The City and the three local Conservation Authorities have formally agreed that Conservation Authority staff have a role in the review of development applications. City staff (i.e., the environmental planner and/or Natural Systems planners) and Conservation Authority staff will evaluate the EIS on the basis of its methods, analysis, recommendations and conclusions. Above all, reviewers must be satisfied that the findings, recommendations and conclusions of the EIS and the proposed development are consistent with the policies of the Official Plan and the PPS. Reviewers will also assess which recommendations can reasonably be monitored and verified.

Ministry of Natural Resources staff may also participate in the review of the EIS when significant wetlands, significant areas of natural and scientific interest (ANSIs) and/or endangered and threatened species and their habitat are addressed. The MNR must confirm any new provincially significant wetlands, significant ANSIs or significant habitat for endangered and threatened species identified as part of an EIS, and must approve any reported changes to the boundaries or status of these features.

Staff may require one or more site visits in the course of reviewing an EIS, in order to gain a better understanding of the environmental context of the proposed project or to verify the findings of the EIS. Staff will notify the applicant prior to any proposed site visits, to arrange for access to the property.

Based upon the results of the review, an EIS report may be accepted as written, or it may require revision to address comments and concerns raised by the reviewers or changes to the proposed project arising during the application review process. The resolution of comments or concerns may be achieved through discussions or meetings, or may in some cases require additional research or field investigations, with subsequent revision of the report. Open, ongoing communications between the assessor and the City during the preparation of the EIS should significantly reduce the likelihood of substantial revisions being required.

In some cases, the City may determine that an independent peer review of the EIS is required. This may apply when there is an unusually high level of public concern and/or environmental sensitivity involved, or when there is a significant unresolved difference of opinion between the

applicant's consultant and the agency reviewers. In these cases, the City will arrange for the services of a peer reviewer (either a private consultant or an outside agency).

2.4. Step 4: Finalization of the EIS Report

Recommendations in the final EIS report will be incorporated into conditions of approval between the City and the applicant. A security (i.e., financial deposit or bond) may be required at this time and incorporated into the agreement to ensure adherence to the conditions of approval.

2.5. Step 5: Post-Approval Revisions and Updates

Revisions to proposed projects and the associated technical documents are often required during the development review process, and the implications of such revisions for an EIS have already been addressed in the preceding sections. Even after an application has been draft approved, however, there is still the potential for significant changes to occur between the time of approval and the time of registration (or of actual construction). This is particularly prevalent in cases where large-scale projects such as subdivisions are being developed in phases over the course of several years, or where a draft-approved project is not implemented promptly. In the interim, changes may be made to the development plans, or to the legislation and policies that apply. When such changes occur, it is appropriate to revisit the EIS to ensure that its findings and recommendations are still valid prior to allowing the project to proceed further in the approval process.

Ottawa City Council moved to support this approach with respect to phased subdivisions when the EIS Guidelines were first approved in July 2010. Council directed that where a project is proceeding in phases, the EIS shall be updated as necessary prior to registration of each phase. This ensures that the EIS reflects the final plan as approved, and addresses any changes to the anticipated impacts and recommended mitigation measures that may be required as a result of changes to the draft plan, or changes in the known environmental context of the site. A condition of draft approval for subdivisions has been prepared to implement Council's direction on this issue.

A similar approach will be followed where a project has not proceeded promptly after draft approval (e.g., an extension of draft plan approval is required) or where subsequent planning approvals are necessary to implement the project (e.g., zoning by-law amendments or site plan applications that follow a draft plan of subdivision). Staff will identify the need to update a previously accepted EIS under these circumstances at the time of pre-consultation.

The City's environmental planner will determine whether an EIS needs to be updated on the basis of known changes occurring to either the proposed plan or its environmental context, in consultation with the lead planner for the project file. If no such changes have occurred, or if the changes are not relevant to the EIS (e.g., the development limits remain constant, or a new species at risk has been listed by the province but the habitat at the site is clearly unsuitable) then the environmental planner can proceed to clear the draft condition, with a note to the file documenting the rationale for this decision. Where the environmental planner believes that the changes could warrant revisions to the EIS, the proponent (or their consultant) will need to ensure that the findings and recommendations of the EIS are updated as necessary, to the satisfaction of the General Manager, Planning and Growth Management, prior to registration. The process for updating an EIS shall include, but not be limited to, the following:

- A review of the current list of species at risk in Ottawa and the associated regulatory lists at the provincial and national level, in comparison with the species list for the site compiled as part of the EIS and the most recent species occurrence data available from sources such as the Natural Heritage Information Centre. The purpose of this review is to ensure that any species at risk either added to the regulations or discovered in the vicinity of the site since the submission of the original EIS are not overlooked;
- Re-assessment of the anticipated impacts, based on the final plan (if changes have occurred since the EIS was accepted at the time of draft plan approval) and on any new information or additional details about the proposed development that may be available; and,
- Confirmation that the significant features and ecological functions are protected from negative impacts, with any necessary adjustments to the recommended mitigation measures to reflect changes in the draft plan, or recommendation of additional mitigation measures if warranted.

In cases where the EIS needs to be updated as a result of this process, an addendum to the original report will be required to describe the timing and methodology of the review, the issues identified, and the revisions recommended to address these issues. This addendum shall be incorporated into the original report, i.e., bound with the hard copies and/or integrated into a single PDF file, to reduce the possibility of the addendum becoming lost or separated from the parent document. If no changes are needed, then a brief letter will suffice to outline the timing and methodology of the review, and the consultant's professional opinion that the original EIS report does not require revision.

3. Contents of the EIS Report

The contents of an EIS are outlined below. The appropriate level of detail required will vary depending on the type of EIS (Scoped or Detailed). Detailed EIS reports should follow the same basic structure outlined below, unless the scoping exercise during pre-consultation has determined that some sections are not required. A contact list of partnering agencies that may be able to provide relevant information for the EIS is found in Appendix 3.

The City has produced and maintains a document called the Characterization of Ottawa's Watersheds, based on an integrated City-wide environmental geographic information system (GIS) database. This document and the database provide an analytical framework and high level environmental information which should be utilized and consulted in the preparation of EIS reports. Information in the document and database should always be ground-truthed through site investigations as part of the EIS. For further information on the Characterization document, available data and procedures for data requests, see Appendix 4.

Always cite the sources of information used in preparing the maps, figures and written descriptions. Detailed EIS reports should include a complete reference list and list of agency contacts as appendices.

3.1. Property Information

Basic information on the property must be included at the beginning of the report. This includes:

- Owner's name;

- Location of the property (municipal address, lot and concession numbers and geographic township, Property Identification Number(s));
- Current planning designation and zoning; and,
- Existing and historic land uses.

The current planning designation(s) for the property may be provided by City staff during the pre-consultation, or it may be determined by the applicant using the Official Plan, which can be obtained from any City of Ottawa Client Service Centre or on the City's website at:

<https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan>

Land use designations for properties in the rural area are shown on Schedule A. Land use designations for properties within the National Capital Commission's Greenbelt and the urban area are shown on Schedule B. Printed copies of the Official Plan may not always include recent Official Plan amendments, and any land use information obtained from a printed copy should be confirmed through the City's website, by a Development Information Officer, or at the pre-consultation meeting.

The zoning for the property may be provided by City staff during the pre-consultation, or it may be determined by the applicant using the City's interactive Comprehensive Zoning By-law mapping application: <http://ottawa.ca/en/residents/laws-licenses-and-permits/laws/city-ottawa-zoning-law>

Applicants should also consult with staff to determine whether the property has been included in any area-specific planning studies such as a secondary plan, subwatershed plan, environmental management plan or community design plan.

3.2. Description of the Site and the Natural Environment

The description of the subject site and its environmental context provides the basis for the assessment of impacts to follow. This description must include the lands adjacent to the site, not just the site itself. The level of detail required will vary based on the type of EIS; in all cases, however, it is recognised that lack of access to adjacent lands may result in less detailed information. For a Detailed EIS, the description should include a brief introductory overview that establishes the environmental setting for the proposed project relative to any known significant natural heritage features on or adjacent to the site, followed by more detailed discussions of the various environmental components as outlined in Sections 3.2.2 through 3.2.6 below. A map that clearly illustrates the key features associated with the site will be required to accompany every EIS (see Section 3.2.1 below for more details). The use of photographs to illustrate and accompany the EIS (whether Scoped or Detailed) is also encouraged.

The EIS must provide a descriptive summary of each natural heritage feature known to be present on, or adjacent to, the site. This may require information in agency documents (e.g., wetland assessments at the MNR district office in Kemptville, NESS or UNAEEs reports at City Hall); see Table 1 below for guidance on which agency to contact for background information. **The summary must discuss the value(s) assigned to the feature, clearly identify aspects of the feature that contribute to its significance, and assess the sensitivity of the feature to the proposed development.** Refer to Appendix 5 for information on the basic values and functions associated with each type of natural heritage

feature. This information is critical to the assessment of impacts. EIS reports that fail to present clearly this information will be considered incomplete.

Table 1 Guide to Information Sources on Environmental Features

Feature	Official Plan Section(s)	Source(s) of Background Information
Natural heritage system	2.4.2; Schedule L	City of Ottawa
Significant Wetlands	3.2.1; Schedules A and B	MNR Kemptville, Natural Heritage Information Centre (NHIC)
Natural Environment Areas	3.2.2; Schedules A and B	City of Ottawa
Urban Natural Features	3.2.3; Schedule B	City of Ottawa
Rural Natural Features	3.2.4 (also 3.7.2); Schedule A	City of Ottawa
Areas of Natural and Scientific Interest (Earth or Life Science)	3.2.2 (Life Science) 4.7.7; Schedule K (Earth Science)	MNR Kemptville, NHIC
Habitat of endangered and threatened species	4.7.4	MNR Kemptville, NHIC (occurrence data)
Significant woodlands	2.4.2	City of Ottawa
Significant valleylands	2.4.2	City of Ottawa
Significant wildlife habitat	2.4.2	City of Ottawa, MNR (see MNR Technical Guidelines)
Surface and groundwater features	4.7.3	Conservation Authority, City of Ottawa
Fish habitat	4.7.3	MNR Kemptville, Conservation Authority, City of Ottawa

Depending on the location of the site, City staff may be able to provide background information and/or mapping from the following resources:

- Characterization of Ottawa's Watersheds;
- Watershed and subwatershed studies;
- Environmental management plans;
- GIS data layers (see Appendix 4);
- Natural Environment Systems Study (NESS) area summary reports, 1997;
- Urban Natural Areas Environmental Evaluation Study (UNAEES) summary reports, 2006;
- Environmental assessments for infrastructure (e.g., from recent pipeline or transportation projects); and/or,
- Other EIS reports, e.g., for recent subdivisions in the area.

The City may be able to provide some information on evaluated wetlands, Areas of Natural and Scientific Interest, known significant wildlife habitat, and species at risk occurrences;

however, this information may not be complete and must be confirmed by staff from the MNR Kemptville District office. Similarly, while the City may have information on flood plains and other regulatory limits associated with wetlands and watercourses, or on fish habitat associated with such features, this information should be confirmed with the appropriate local Conservation Authority.

In many cases, the City's information will be limited because fieldwork has not previously been completed within features on private land (e.g., Rural Natural Features, significant woodlands or significant wildlife habitat). This may result in significant features remaining undiscovered until an EIS is conducted. For example, a Rural Natural Feature may contain additional significant features such as habitat for species at risk not indicated in an existing assessment. Any previously unreported features that meet the criteria for inclusion in the City's natural heritage system must be identified and addressed in the EIS. The discovery of any such unreported features must be promptly reported to City staff so that any necessary changes to the scope of the EIS can be determined in a timely fashion.

Field confirmation of boundaries (e.g., for provincially significant wetlands, significant ANSIs or significant woodlands) will be required, and any proposed changes will require agency approval. Field studies for the EIS will also confirm and/or update the available background information. Details on data collection and reporting standards for field inventories that may be required as part of a Detailed EIS (e.g., flora and fauna surveys) are outlined in Appendix 7. Site characteristics of areas considered by the City to be significant woodlands and significant wildlife habitat must be confirmed during field studies for the EIS (see Appendix 8 and Appendix 9, respectively). Thorough searches in the appropriate season, time of day, and habitat must occur for any species at risk reported at or near the site in question. The EIS report must include a fieldwork summary table including date and time of all site visits, personnel involved, weather conditions, and purpose of each visit.

In addition to the identification and assessment of natural features associated with the property, the EIS must also address the ecological *functions* that may be affected by development. Ecological functions are defined in the PPS (2005) and Section 4.7.8 of the Official Plan as:

“...the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes, including biological, physical and socio-economic interactions.”

For example, natural areas may provide wildlife habitat, allow groundwater infiltration or discharge, prevent erosion, control stormwater, or filter pollutants. In some cases, these ecological functions may not be restricted to a single, visible natural feature. This makes the long-term health and viability of natural functions more difficult to assess and preserve.

The EIS must specifically discuss the nature and extent of the ecological functions provided by the site, in relationship to the surrounding area. The EIS must include:

- A description of ecological functions provided by the site and identification of any functions that have contributed to the area being identified as significant;
- An assessment of the significance of the function, using quantitative information if possible, and relating this to the quality and integrity of the area; and,
- An assessment of the sensitivity of the function to the type of development proposed.

Again, this information is critical to the assessment of impacts, and reports without this information will be considered incomplete.

3.2.1. General Map of the Natural Environment

A general map of the natural environment will always be required. It should include a key map to show the subject site's location in relation to the surrounding major roads and other landmarks. The use of recent aerial photography as a base for the natural environment map is strongly encouraged.

Any map prepared by a professional consultant should be submitted as both a printed and electronic document. The electronic map should be submitted in a format compatible with ArcMAP Version 9.3-10.1, and it should include all supporting data files (i.e., shapefiles, projection files, coverages) as well as a PDF version. The standard City of Ottawa projection is NAD83 3 degree Modified Transverse Mercator (MTM). The City can provide the projection file if requested.

The map will:

- Illustrate the existing natural environment on the site (note: the property line must be clearly identified) and in the surrounding area;
- Be drawn to scale, with standard mapping elements such as a scale bar, north arrow, date, and legend;
- Identify all of the terrestrial and aquatic natural features, natural ecosystems and vegetation communities on the site;
- Identify all of the terrestrial and aquatic natural features, natural ecosystems and vegetation communities in the surrounding area that might be affected by the proposed development or site alteration;
- Identify the feature[s] that triggered the requirement for an EIS; and,
- Include topographic information (i.e., elevation contours) at a level of detail sufficient to show general slope trends and specific topographic features such as valleys or gullies, cliffs or escarpments, hills, post-glacial features (e.g., drumlins, eskers, kettles), etc.

In cases where the EIS will also function as a TCR, the requirements established by the Tree Conservation Report Guidelines for Map #1 – Current Vegetation must be met.

3.2.2. Landforms, Soils and Geology

While a brief description of the physical characteristics of the site is always relevant (e.g., “The property is primarily flat with deep, heavy clay soils,” or “The property is located in the Carp Hills, and has shallow soils with frequent rock outcrops,”) detailed information on soils and geology is not required for every EIS report. The need for this information will be determined through pre-consultation and the EIS scoping checklist. In general, a description of the soils and geology on the development site and in the affected surrounding area will be required for any EIS in which the environmental values or functions of the feature[s] or designation[s] that triggered the EIS may be dependent upon or sensitive to the potential effects of the project on landform features, soils or geological conditions.

Some examples where a description of soils and geology would be required include (but are not limited to) development or site alteration:

- Adjacent to a significant wetland;
- Within or adjacent to a significant valleyland;
- Within or adjacent to an escarpment;
- Within or adjacent to an Earth Science ANSI;
- In or adjacent to unstable slopes or areas of organic soils as indicated on Schedule K; or,
- Within the recharge or discharge area of a sensitive groundwater feature.

Detailed information will also be required in areas where there are natural vegetation communities or specialised plant or animal species that depend upon certain site conditions, such as:

- Shallow bedrock (e.g., alvars or rock barrens);
- Organic soils (e.g., wetlands); or,
- Well-drained (i.e., highly permeable) glacio-fluvial or glacio-lacustrine soils, such as those on sand and gravel.

Maps showing soils, surficial geology and bedrock geology for the Ottawa area are available from Natural Resources Canada; this information is also available in digital format from the City as part of the Characterization of Ottawa's Watersheds. Site-specific studies conducted in support of development applications (e.g., hydrogeological and terrain analyses, geotechnical studies and/or slope stability analyses) should be referenced, when available.

Soils: A brief description of soils on the site and surrounding area, based on available information, is expected. If additional site-specific information is required, this background data should be supplemented with further soil characterization resulting from Ecological Land Classification field studies or other investigations (e.g., geotechnical studies). Where relevant, shallow and poorly drained soils should be indicated.

Surficial geology: Any local landforms should be identified (see Appendix 4). Site-specific information may be available from terrain studies and analyses completed previously (e.g., boreholes).

Bedrock geology: Any relevant aspects of bedrock formations may be described.

The significance and characteristics of any earth science features (e.g., significant valleylands, Earth Science ANSIs) identified on or near the site must be described in detail in this section.

3.2.3. Surface Water, Groundwater and Fish Habitat

As previously discussed in Section 1.2, surface water, groundwater features and fish habitat do not trigger the requirement for an EIS under the policies of the Official Plan. However, water features connect and contribute to the significance of other natural heritage system features and functions. While a detailed description of surface water, groundwater and fish habitat will

not be required for every EIS, the following information must be described and mapped in the EIS:

- Existing surface water drainage pattern;
- Watercourse features (including municipal drains) and associated setbacks, as per Section 4.7.3 of the Official Plan;
- Boundaries of wetlands, vernal pools, lakes and ponds (may need to be verified during fieldwork);
- Existing areas of erosion;
- Existing culverts, dykes, etc.;
- Locations of seeps, springs, sinkholes, and other groundwater discharge/recharge areas; and,
- Locations and usage of wells on the site and surrounding area.

Much of this information is included in the Characterization of Ottawa's Watersheds, but it should be verified and augmented, where necessary, during fieldwork.

Detailed descriptions of surface water and groundwater conditions will be required when the values or functions of the significant feature(s) that triggered the EIS are wholly or partially dependent upon any water feature. Examples where detailed descriptions would be required include, but are not limited to:

- Projects adjacent to provincially significant wetlands;
- Projects within or adjacent to wetlands associated with significant woodlands;
- Projects within or adjacent to significant valleylands;
- Projects that might affect natural vegetation communities or plant and wildlife species dependent upon groundwater discharge (i.e., significant wildlife habitat); and,
- Projects that might affect natural vegetation communities or plant and wildlife species dependent upon permanent or seasonal surface water supply.

If the need for detailed description of water features is identified, then a detailed description of the soils and geology of the site will also be required, in order to adequately inform the assessment of potential impacts from erosion, sedimentation and changes in local hydrogeology.

Background information may be available in area planning studies (e.g., source water protection plans, watershed or subwatershed studies, environmental management plans) or servicing reports such as stormwater site management plans, groundwater impact analyses or wellhead protection plans. The appropriate Conservation Authority must be consulted to obtain available information and also to determine whether a permit is required under the Conservation Authorities Act. If so, the applicant should ensure that the EIS will also meet the Conservation Authority's requirements, to facilitate the review process.

If not already completed as a result of other studies, the following in-depth field studies may be required under Official Plan policies relating to flood plains, watercourse setbacks and groundwater resources (Sections 4.8.1, 4.7.3 and 4.7.5, respectively):

- Flood plain mapping;
- Geomorphological assessment of watercourses, to determine appropriate meander belt width and other channel characteristics;
- Flow monitoring;
- Borehole installation to determine groundwater elevation and direction of flow (must be completed by a qualified engineer or geologist); and/or,
- Investigation of connections between groundwater and surface water features.

The relevant findings of any of these studies or other hydrologic or hydrogeological assessments must be summarised in the Detailed EIS, especially with respect to their potential environmental impacts and existing constraints. The scope of such assessments must include sufficient detail to define the relationship between groundwater and surface water features (i.e., hydrologic function).

The local Conservation Authority will co-ordinate the regulatory review of applications involving potential impacts to fish and fish habitat. Like other sections, the scope of the aquatic component of the EIS will be established during the pre-consultation stage. Assessments of fish habitat must follow the Eastern Conservation Authorities' Fish and Fish Habitat Review Guidelines. Assessments of benthic macroinvertebrate communities, if required, must follow the Ontario Stream Assessment Protocol (OSAP) and/or the Ontario Benthos Biomonitoring Network (OBBN) protocol.

Recommended sources of background information on fish and benthic macroinvertebrate communities are included in the Eastern Conservation Authorities' Fish and Fish Habitat Review Guidelines. Some additional or more specific local references include:

- Watershed /subwatershed studies or environmental management plans (where available);
- Past sampling records from the City's Water Environment Protection program, the local Conservation Authority, or the Ministry of Natural Resources (where available);
- Other ecological inventories, where available (e.g., City Stream Watch assessments, wetland evaluation reports);
- Fishes of Canada's National Capital Region, by Brian Coad (<http://www.briancoad.com/main.asp?page=title%20pageNCR.htm>)
- Database records from the NHIC (<http://www.mnr.gov.on.ca/en/Business/NHIC/>);
- Ontario Odonata Atlas (2005);
- Local field naturalists' reports and journal articles (e.g., *The Canadian Field-Naturalist*, *Trail and Landscape*, etc.); and,
- Local scientists, naturalists, anglers and residents.

3.2.4. Vegetation Cover

A description of the vegetation communities, including dominant species of trees, shrubs and/or groundcover for each community on the subject site and in the affected surrounding area is required for all EIS reports. Each of the vegetation communities described must be

clearly identified on the map of the natural environment. A detailed plant species list for the property is not required in every case. The level of detail required will vary with the size and complexity of the proposed project and the amount of natural vegetation that may be affected. The vegetation communities identified should be consistent with the MNR's Ecological Land Classification (ELC) for Southern Ontario; this approach will be required for all Detailed EIS reports.

Any provincially significant wetlands on or adjacent to the subject property must be addressed in the EIS and shown on the map of the natural environment. The MNR has recently (2008) provided updated provincially significant wetland mapping to the City, and this mapping has been incorporated into the Official Plan and Comprehensive Zoning By-law. However, wetlands are dynamic features and their boundaries are subject to change over time. The MNR must approve any adjustments to the official boundaries of provincially significant wetlands. Any re-evaluations of provincially significant wetlands, or new evaluations of unclassified wetlands, must be conducted by a qualified wetland evaluator using the MNR's Ontario Wetland Evaluation System (Southern version) for review and approval by the MNR.

Significant wetlands are regulated by the local Conservation Authorities under the *Conservation Authorities Act*. Applicants are strongly encouraged to consult with the appropriate Conservation Authority prior to commencing an EIS involving significant wetlands, in order to ensure that the study will meet their requirements. Applicants should also be aware that the *Conservation Authorities Act* defines "development" more broadly than the *Planning Act*, and that other wetlands (i.e., non-significant wetlands) may be subject to regulation under the *Conservation Authorities Act* in the future. It would therefore be prudent to consult with the local Conservation Authority regarding potential permit requirements for any proposed project involving wetlands, even if no *Planning Act* approval is required.

The EIS must also confirm or refute the presence of any significant woodlands and associated wetlands (whether significant or not) on or adjacent to the subject property. Section 2.4.2 of the Official Plan defines significant woodlands in the rural area as woodlands that combine all three features listed below in a contiguous, forested area:

- Mature stands of trees 80 years of age or older; and,
- Interior forest habitat located more than 100 m inside the edge of a forest patch; and,
- Woodland adjacent to a surface water feature such as a river, stream, drain, pond, or wetland, or any groundwater feature including springs, seepage areas, or areas of groundwater upwelling.

For more information on how to interpret and apply these criteria, refer to Appendix 8. The Official Plan also allows for the use of additional criteria to define significant features (such as significant woodlands) in watershed or subwatershed planning, reflecting unique characteristics of an area or the relative abundance or scarcity of such features in the subject area. If the subject property is located within the limits of a Council-approved watershed, subwatershed or environmental management plan, any additional criteria recommended by that plan must be used in the EIS.

Vegetation communities that are classified as provincially rare by the NHIC (e.g., alvars, sand barrens, cliff or talus slope communities) are considered significant wildlife habitat under the MNR's Significant Wildlife Habitat Technical Guide (2000) and in the City of Ottawa (see

Appendix 9). The presence of any such communities on or adjacent to the subject property must be addressed in the EIS.

For a Detailed EIS, a thorough desktop review of existing studies and data, which has been ground-truthed through fieldwork, is the minimum standard expected. Sources of information for this review may include but are not limited to:

- Watershed /subwatershed studies or environmental management plans (where available);
- NESS or UNAEES site summary reports;
- Other ecological inventories, where available (e.g., wetland evaluation reports);
- Database records from the NHIC (<http://www.mnr.gov.on.ca/en/Business/NHIC/>);
- Local field naturalists' reports and journal articles (e.g., *The Canadian Field-Naturalist*, *Trail and Landscape*, etc.); and,
- Local scientists, naturalists and residents.

In some cases, a three-season floral inventory may be required. Pre-consultation is important in order to clarify the requirements of the EIS, prior to starting fieldwork. This will help to ensure that projects proceed in a timely manner and are not subject to delays due to insufficient information.

A Detailed EIS report will include the following:

- A description of vegetation communities, cross-referenced to the map of the natural environment for the site;
- A list of vascular plants on or adjacent to the site, presented in tabular format with notes on each species' status according to Brunton (2005) and whether it was directly observed or previously reported (if identified as a requirement in the preliminary or final scope);
- Confirmation of the boundaries of any significant wetlands on or adjacent to the site;
- An assessment of the site's suitability for any significant species (including species at risk, as defined in Section 3.2.6 below) or communities; and,
- Determination of whether or not the tree cover on or adjacent to the site fulfills the City's significant woodlands criteria (see Appendix 8) and if so, whether there are any wetlands associated with the significant woodlands.

If a TCR is also required under Section 4.7.2 of the Official Plan or the Urban Tree Conservation By-Law, then it should be incorporated into the EIS. Refer to the Tree Conservation Report Guidelines for additional information on the specific requirements of the TCR.

3.2.5. Wildlife

As with vegetation cover, a thorough review of available background information on wildlife is expected as part of any Detailed EIS. Incidental observations will be the minimum standard required from fieldwork. The need for specific field studies of various taxonomic groups (e.g.,

breeding bird surveys, etc.) may be identified during pre-consultation. Sources of background information include, but are not limited to:

- Watershed /subwatershed studies or environmental management plans (where available);
- NESS or UNAEES site summary reports;
- Other ecological inventories, where available (e.g., wetland evaluation reports);
- Database records from the NHIC (<http://www.mnr.gov.on.ca/en/Business/NHIC/>);
- Ontario Breeding Bird Atlas website (<http://www.birdsontario.org/atlas/index.jsp>);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Ontario Herpetofaunal Atlas Summary (Oldham and Weller, 2000);
- Reptiles and Amphibians of Ontario (Ontario Nature, 2010);
- Ontario Odonata Atlas (2005);
- Ottawa Bird Count (<http://www.glel.carleton.ca/ottawabirds/>)
- Local field naturalists' reports and journal articles (e.g., *The Canadian Field-Naturalist*, *Trail and Landscape*, etc.); and,
- Local scientists, naturalists, birders and residents.

A Detailed EIS report will include:

- Lists of the species observed, reported or expected to occur on or adjacent to the site, presented in tabular format (usually as an appendix) with notes on the species' relative abundance at the site, its residency status (i.e., is it present year-round, seasonally or only periodically; does it live on the property, forage there or use it as part of a movement corridor) and the evidence supporting its inclusion on the list (e.g., sighting, tracks, previous report);
- Description and mapping of any "wildlife trees" (i.e., trees with visible stick nests, or large trees with cavities) or other features (e.g., rock faces, large logs) that could provide nesting or den sites;
- An assessment of the site's suitability for any significant species (including species at risk, as defined in Section 3.2.6 below, or declining bird species, as indicated in Appendix 7.1); and,
- An assessment of whether or not any significant wildlife habitat is present on or adjacent to the site (see Appendix 9).

For a Scoped EIS, a list of incidental species observations may be considered sufficient. The list should include all wildlife species known or suspected to occur in the vicinity of the property, and should indicate why it is believed to be present (e.g., direct observation, tracks seen, call heard, reported previously). Where possible, the EIS should specify whether the animal lives on the property or whether it is a visitor (e.g., looking for food or migrating through). The Scoped EIS Form provides a table for such information as shown below.

Example:

Species Name	Resident/Visitor	Evidence
American robin	Resident	Nest with eggs
Raccoon	Visitor – foraging around pond	Tracks seen
Snapping turtle	Resident in pond	Reported by neighbour
Monarch butterfly	Visitor – adult feeding on flowers in garden	Seen

3.2.6. Habitat for Species at Risk

The general term “species at risk” (SAR) is used here to include any species listed at the provincial or federal level under the *Endangered Species Act, 2007* (ESA, 2007) or the *Species at Risk Act* (SARA) respectively. These lists are similar, but not always consistent in terms of which species are included and in which risk category (extinct, extirpated, endangered, threatened, special concern). The legislated lists are periodically updated to reflect changes in species status. Natural Systems staff at the City maintain a list of species at risk known or suspected to occur here, for use in development review and other planning. The City’s list, and the official provincial and federal lists, must be compared against the species lists compiled for the EIS (described in Sections 3.2.4 and 3.2.5 above); any species at risk identified must be highlighted in the EIS species lists, with its current status noted. The EIS must cite the date on which each list was consulted, so that the currency of the information in the EIS can be verified during the review process.

The Ministry of Natural Resources implements the provincial *Endangered Species Act, 2007*. It has developed a review process for projects or activities that might affect endangered or threatened species, to ensure that applicants do not contravene the Act. In cases where impacts to the species or its habitat cannot be avoided, Section 17 of the Act provides for specific circumstances under which it may be possible to obtain a permit. The City’s EIS process is generally consistent with the MNR review process (e.g., preliminary screening, information gathering, impact assessment and mitigation) although the MNR has developed its own preferred forms for applicants to use. More information on the MNR review and permit process is available at:

<http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/244440.html>.

As part of the pre-consultation process, the City will conduct a basic species at risk screening and inform the applicant if any known areas of potential or confirmed habitat for species at risk occur near the subject site. The screening process consists of a review of the mapping provided for such purposes by the MNR, other available information on species occurrence and range, and the known habitat characteristics of the subject site (based on aerial photography and other available background information). This information must be verified during the preparation of the EIS in consultation with the MNR Species at Risk Biologist for the Kemptville District. Species occurrence data from the Natural Heritage Information Centre database and other sources of background information (see below) must also be verified with the Species at Risk Biologist to ensure that species are not overlooked. The absence of information does not necessarily imply absence of the species or its habitat; it is the applicant’s responsibility, via the EIS, to demonstrate whether or not significant habitat exists.

Sources of information on species at risk include those listed in Sections 3.2.3 through 3.2.5 above, as well as:

- Species status and assessment reports by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) available through the Species at Risk Public Registry at http://www.sararegistry.gc.ca/sar/index/default_e.cfm
- The Species at Risk in Ontario (SARO) site at <http://www.mnr.gov.on.ca/en/Business/Species/index.html>
- For aquatic species at risk, distribution maps provided by the Department of Fisheries and Oceans and the Conservation Authorities of Ontario can be accessed at <http://conservation-ontario.on.ca/projects/DFO.html>.

If the potential is identified for species at risk to occur in the area, and suitable habitat exists on the subject property, then a field survey must be conducted by a qualified person who is familiar with the species, during the appropriate time(s) of year. The proposed field survey methodology must be reviewed by the MNR Species at Risk Biologist prior to commencement of the work, to ensure that the proposed approach is appropriate and to determine whether any permits will be required under the ESA, 2007 or the *Fish and Wildlife Conservation Act, 1997*. The survey methodology (including timing and level of effort) must be clearly stated in the EIS, along with the results, whether positive or negative. If the presence of species at risk is confirmed, the EIS must include a map showing location(s) of species observations, specific habitat area(s) and movement corridors on the development site or in the affected surrounding area. The general map of the natural environment may also serve as the map of habitat for species at risk, if the scale and resolution allow precise depiction of species' locations and habitats. **The MNR may require that this map and other specific data on the location(s) be removed from the EIS report prior to public circulation for the protection of the species.** In such cases, the map of habitat for species at risk cannot be combined with the general map of the natural environment. All observations of species at risk should be reported to the NHIC (using the on-line reporting form at <http://www.ontario.ca/page/report-rare-species-animals-and-plants>) and to the Kemptville District Species at Risk Biologist.

In cases where apparently suitable habitat is identified adjacent to the subject property, but access cannot be obtained to conduct the field survey, the EIS must proceed on the basis that the species may be present, and map the habitat as unconfirmed. Recommendations for mitigating any potential impacts on the species or its habitat from the proposed project must be included in the EIS.

The City protects the habitat of species at risk in two ways, depending on species status. Policies relating to the protection of significant habitat for provincially endangered and threatened species are provided in Section 4.7.4 of the Official Plan. The Provincial Policy Statement and the Official Plan forbid development or site alteration within such areas of significant habitat, and require an EIS to demonstrate that no negative impacts will occur for development or site alteration adjacent to significant habitat. The Ministry of Natural Resources will review all EIS reports that identify significant habitat for endangered and threatened species, and will approve the extent of any significant habitat for these species.

Significant habitat for provincial species of special concern is considered significant wildlife habitat, which is also protected under the Provincial Policy Statement and the Official Plan, although not to the same degree. Significant wildlife habitat is included in the City's natural heritage system in Section 2.4.2 of the Official Plan. Development or site alteration may occur

within or adjacent to significant wildlife habitat provided that an EIS demonstrates no negative impact will result. For more information on the interpretation and assessment of significant wildlife habitat in the City of Ottawa, refer to Appendix 9.

The federal *Species at Risk Act* applies mainly to federally owned land, and thus is not normally relevant to the City's development review process, since federal development projects have their own environmental assessment process and do not typically require municipal approval. However, it should be noted that fish and migratory birds are both under federal jurisdiction wherever they occur, and thus the provisions of SARA apply to private land in those specific cases. The level of protection afforded by SARA depends upon which schedule and risk category a species is listed under. Areas of significant habitat for any species listed under SARA, which is not also listed as endangered or threatened provincially, will be considered significant wildlife habitat. In cases where a proposed project may impact fish or other aquatic species listed under SARA, or their critical habitat, the Conservation Authority will consult with the Department of Fisheries and Oceans to determine whether federal authorisation will be required in addition to any ESA, 2007 permit that may be needed.

3.3. Description of the Proposed Project

In order to assess the environmental impacts of the proposed project on the identified natural features and functions on and adjacent to the site, a clear understanding of the project is required. The project description must include information about all phases of the project, including site preparation, construction, landscaping and intended use of the property once the construction work is completed, and (in some cases) decommissioning, if this information is available. Any related off-site works by the proponent should also be included in the project description and impact assessment. For changes in land use, the project description must identify the current and proposed Official Plan designation(s) and/or zoning, and discuss the associated changes in permitted land use(s). The level of detail should reflect the size and complexity of the development or site alteration; for example, a simple country lot severance may require only a single paragraph of description, whereas a plan of subdivision may require supporting plans, studies and reports. The description must be accompanied by one or more graphic representations of the project (e.g., concept plan, preliminary site plan or plan of subdivision, proposed land use schedule, etc.). The Tree Conservation Guidelines provide additional direction on the preparation of maps showing the proposed development.

It is common for proponents to plan their development or site alteration prior to commencing an EIS. However, such plans may not adequately address significant natural features or other environmental constraints associated with the property, and must therefore be considered to be preliminary and subject to change, based on the results and recommendations of the EIS and other technical studies, as well as on feedback received during the development review process. Development planning is frequently an iterative process, such that the plans (and supporting studies) may need to be revised several times before the application is approved.

3.3.1. Constraints

All environmental constraints associated with the subject site must be shown on the proposed plan for the subject site. These constraints may have been identified during pre-consultation (e.g., lands already designated and zoned for environmental protection, development limits established as part of a subwatershed study or environmental management plan) or they may have been determined as part of the site-specific investigations in support of the application

(e.g., geotechnical limits, confirmed areas of significant habitat for endangered and threatened species).

Ideally, most environmental constraints will have been identified prior to site design, to the extent possible. This allows the project to be designed to avoid existing constraints, rather than trying to engineer a solution or mitigate impacts from a less optimal design.

3.3.2. Plans and Drawings

The use of actual concept plans, development plans, site plans or other figures to illustrate and support the project description is strongly encouraged. At a minimum, the EIS must include one or more plans showing the proposed development or site alteration as an overlay applied to the map of the natural environment. The following information should be included in the plan(s), to the extent possible:

- Location of all existing and proposed lot lines, building envelopes and structures, fences, driveways, parking areas and roads;
- Services, including stormwater management facilities and drainage systems, septic system envelopes (where applicable), public infrastructure and utility corridors;
- Erosion and sediment control measures;
- Grading limits and post grading contours; and,
- Natural features and areas of vegetation that will be removed.

It is recognised that this level of detail will not be available nor appropriate for all projects, that additional information may still be in development, and that the results of the EIS will (and should) inform and be incorporated into the final plans for the project.

In cases where the EIS will also function as a Tree Conservation Report, the requirements established by the Tree Conservation Report Guidelines for Map #2 – Proposed Development and Conserved Vegetation must be met. The required information may be incorporated into the proposed plan overlay accompanying the EIS, or may be submitted as a separate Tree Conservation Plan.

3.4. Impact Assessment

Once an understanding of both the natural environment context and the proposed project has been established, the identification and assessment of impacts can begin. Assessing impacts and recommending appropriate mitigation measures is the most difficult and important task of the EIS. Although these topics are discussed separately below, they may be combined within the EIS report. The EIS may also present options under different development scenarios, clearly outlining impacts and mitigation for each one.

Applicants who are completing a Scoped EIS without the assistance of consultants with professional experience in impact assessment should refer to the standard mitigation measures for specific circumstances provided in Appendix 10. The provincial Natural Heritage Reference Manual (MNR, 2010) also provides examples of typical impacts and associated mitigation measures in Table C-1 of Appendix C. Where wetlands and watercourses are involved, the Conservation Authorities may be able to provide additional input. City planning

staff may also be able to provide some assistance in the identification of impacts and mitigation measures.

3.4.1. “No Negative Impact”

The Official Plan and the PPS both use the phrase, “no negative impact” when establishing the performance standard for the effect of a development or site alteration on certain features and functions of the natural heritage system. Where uncertainties or disagreements arise regarding the determination of impacts as described in the following sections, the Provincial Policy Statement may provide useful guidance on their resolution. According to the PPS, “negative impacts” means:

- 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; and
- 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. (p. 33)

The policy of “no negative impact” does not prohibit a project from affecting the features or ecological functions of the natural heritage system, although it is intended as a very high standard. Rather, the definition in the Official Plan and the PPS provides City of Ottawa staff, agencies and applicants with the criteria by which they should evaluate the effects of a proposed project on the natural heritage system to determine if it can proceed, and if so, under what conditions of approval.

3.4.2. Principles of Impact Assessment

Human activities associated with development and site alteration cause changes to the local environment, which are also termed environmental effects. Negative effects, commonly referred to as impacts, are the normal focus of an EIS. The impact assessment, as with other aspects of the EIS, must include the adjacent lands and not be limited to only the subject site. Some projects, such as habitat restoration or enhancement works, or the restriction of land uses for environmental protection, are undertaken for the express purpose of creating positive environmental effects. Other development or site alteration projects also have the potential to produce some positive environmental effects, when appropriately designed and implemented. The EIS should identify any positive effects associated with the project.

Impact assessment is predictive and often requires experienced professional judgment. Three key factors to the production of a solid, defensible impact assessment are:

Integration: Because many potential impacts interact, the assessment must integrate all study areas (e.g., terrestrial and aquatic biology, hydrogeology, surface water, and engineering

aspects of the proposed project). This will require a high level of communication among members of multi-disciplinary teams.

Quantification: Whenever possible, measure potential impacts using empirical evidence against existing benchmarks. For example, how many hectares of forest cover or interior forest may be lost? What percentage of the site, the feature and/or the subwatershed does this represent? Although quantitative information may not always be available, an effort must be made to include it.

References: Impact assessments, especially those indicating “no impact” or “low impact” must be supported by scientific literature or relevant secondary sources (e.g., local or case studies, current research). This is especially important where quantitative information is not available.

The precautionary principle should be applied in any impact assessment, such that wherever the potential for serious negative impacts exists, or where there is a lack of full scientific certainty, the assessor’s recommendations should be designed to prevent any such impacts occurring.

3.4.3. Assessing Impacts

The major steps in assessing impacts are outlined below.

1. Compare the proposed project activities with the existing natural environment, and identify all activities that will change or cause stress to the natural features and ecological functions both on and off the site. Environmental effects may result from initial planning (i.e., project design), site preparation and construction activities (including clearing, grading and installation of services), site occupancy, or subsequent decommissioning/demolition, so all stages of the development or site alteration project must be included in the assessment. Changes in land use may not in themselves cause environmental effects, but they enable these effects to occur by altering the permitted uses of the lands.
2. Classify the potential environmental effects into negative impacts and positive environmental effects, and characterise them using standard criteria such as:
 - **Nature of impact:** Is it direct, such as the loss of a feature, or indirect, such as an increase in downstream sedimentation?
 - **Magnitude:** What is the severity of the impact, especially as compared with available benchmarks or targets?
 - **Geographic extent:** How large an area will be affected?
 - **Duration and timing:** Is the impact temporary or permanent? Is it seasonal?
 - **Likelihood:** What is the probability that the impact will occur?
 - **Potential for cumulative impacts:** What is the potential for interacting impacts as a result of previous or future development or site alteration? See Section 3.4.3 below.
3. Evaluate the significance of the potential impacts of development, with respect to the *sensitivity* and *significance* of the *features* and/or ecological *functions* affected.

4. Negative impacts expected on specific values or functions that contribute to the significance of a designated natural area or natural heritage system component *must* be addressed (e.g., the removal of the mature stand, interior forest habitat or connection to water from a significant woodland; the loss of vernal pools or other amphibian breeding sites in areas of significant wildlife habitat).

Potential impacts on natural features and functions that are not identified as part of the natural heritage system should also be addressed, where applicable.

For developments adjacent to Urban Natural Features, the analysis should focus on identifying potential impacts of the project on the natural area, using the UNAEEES evaluation criteria as a benchmark for determining the significance of any impacts. Typically, an UNF-EIS will address impacts from projects occurring adjacent to the designated feature, such as local changes in drainage or soil conditions, loss of nearby open habitats not included in the designated area, or increased recreational usage of the natural area by residents from new developments.

Negative impacts will need to be reassessed to determine whether the impact can be completely mitigated or not (i.e., is there a residual impact remaining after the implementation of recommended mitigation measures). Projects with residual negative impacts to significant natural features or ecological functions may not be approved.

3.4.4. Identifying Cumulative Impacts

Cumulative impacts are compound environmental effects that may result due to multiple or successive development or site alteration activities. Cumulative impacts may affect natural features or their ecological functions, water quality or quantity, sensitive surface or groundwater features, and their related hydrologic functions. They are an important consideration in any environmental impact assessment, at the municipal, provincial or federal level.

Potential cumulative impacts are estimated by considering project effects within an expanded geographic area as well as a longer timeframe. For example, a cumulative impacts analysis should consider a reasonable and ecologically relevant broader area within which the proposed development is located (e.g., subwatershed). Development in the recent past (e.g., 10-20 years) and probable development activities in the future should be described, and if relevant, mapped.

Examples of potential cumulative impacts include:

- Expected direct and indirect impacts of development applications in progress (or approved) in the area that may affect regional features or functions (e.g., total forest cover, cumulative loss of portions of a significant feature, regional availability of interior habitat, surface water quality or quantity, groundwater quality or hydrologic function);
- Potential for further demand on resources (e.g., likelihood for nearby development based on location, demographics, designation or zoning, or presence of available resources such as aggregates).

Possible sources of information for assessment of cumulative impacts include:

- Past and present aerial photographs;

- Subwatershed studies, where available;
- City of Ottawa Official Plan and Schedules;
- City of Ottawa Development Application Search website (for development applications received after February 1, 2008) at <http://app01.ottawa.ca/postingplans/home.jsf?lang=en> ;
- City planning staff (for development applications received prior to February 1, 2008);
- Water quality data (Ottawa's Water Environment Protection Program, provincial Water Quality Monitoring Network); and,
- Observations of local scientists, residents, naturalists, or biologists (e.g., Ottawa Field-Naturalists' Club, Conservation Authorities or MNR staff).

3.5. Mitigation

Mitigation measures must be identified for each potential negative impact, to eliminate or reduce the impact to the extent possible. Preferred mitigation measures avoid or minimise impacts, and may be supported by compensatory measures such as site rehabilitation or restoration. Examples of possible mitigation measures are included in the provincial Natural Heritage Reference Manual (MNR, 2010; refer to Table C-1 of Appendix C). The City's Protocol for Wildlife Protection during Construction provides guidance on mitigating impacts to wildlife.

In most cases, the selection of appropriate mitigation measures will be the responsibility of the applicant and/or their consultants, for approval by the City as part of the EIS and development application review process. In certain specific cases, however, the City is recommending standard mitigation measures be adopted (see Appendix 10). EIS recommendations that vary from these standard measures will need to be accompanied by a detailed explanation of the rationale behind the change, along with scientific evidence or other support for the alternative approach. Applicants and/or their consultants are advised to consult City staff regarding any proposed variation from these standard measures prior to the submission of the EIS report, to determine whether the proposed alternative is acceptable.

Avoiding or eliminating impacts through design (or redesign, where necessary) is the preferred approach, and should always be considered as a first step. Designing around the feature is the only option when significant wetlands or significant habitat for endangered and threatened species occur within a proposed project's boundaries. Recommendations for the preservation of natural features within or adjacent to the project area must be accompanied by recommendations regarding appropriate setback distance(s) and any buffer required to protect the feature and its ecological functions from impact.

Minimising impacts to the extent possible is expected when avoidance is not feasible. Examples include the establishment of strict limits on the extent of vegetation clearing for new residential lots, or the use of specific timing windows for construction to reduce impacts on wildlife by avoiding sensitive life stages such as breeding seasons or hibernation. The supporting rationale for these measures should be included in the EIS.

Compensation may be required in specific circumstances where impacts cannot be avoided or minimised. For example, the Department of Fisheries and Oceans may require fish habitat in one area be rehabilitated or restored in order to replace lost habitat in other areas.

Compensation plantings may be required as a condition of the permit to remove trees under the City's Urban Tree Conservation By-law. Restoration and enhancement may also be recommended in the absence of such legal requirements, to support the long-term conservation of the City's natural heritage system.

In proposing mitigation measures, an EIS should refer to recent science and/or guidelines, where necessary, to demonstrate that the measures will be sufficient to minimise impacts or replace lost habitat. This is particularly appropriate in the determination of appropriate setbacks and buffer widths, as well as in the design of habitat restoration or enhancement projects. The province's Natural Heritage Reference Manual (MNR, 2010) provides lists of references that may be useful.

Specific changes made to the proposed project as a result of the EIS analysis must be outlined in full and mapped, if relevant. Location and plan details should be provided, and a judgment made about the impact reduction that would result from proposed mitigation. Again, be as specific and quantitative as possible. Mitigation measures may also be presented as a series of options if desired.

For projects involving changes in land use or severance of lots, where there may be no physical impacts associated with the project (in the absence of actual site alteration or construction), the recommended mitigation measures should focus on avoiding or minimising the potential for future impacts from subsequent projects. This can be accomplished through restricting potential land uses in identified significant natural features and other areas subject to environmental constraints, through Official Plan designations, zoning, or other site-specific measures such as conservation easements. Recommendations regarding specific EIS requirements for subsequent applications may also be appropriate, particularly in the case of Official Plan Amendments.

For developments adjacent to Urban Natural Features, the analysis should focus on mitigating impacts on the feature(s) of the designated natural area (e.g., establishing development setbacks and vegetated buffers, addressing increased recreational use, educational materials for local residents, etc.). Opportunities for restoration or enhancement of the natural area, and any measures that would support its long-term conservation in the urban landscape, should be identified in the EIS.

A Scoped EIS will include a summary table of potential impacts and recommended mitigation measures, based on the template provided in the Scoped EIS Form. The information in the table may be supported with plans or drawings where available (e.g., sediment and erosion control plans, Tree Conservation Plan).

A Detailed EIS will include the following:

- A full description of proposed mitigation measures, including recommendations for timing windows or other specifications for implementation, for all potential negative impacts;
- For each negative impact, an indication of whether there will be any residual impact following implementation of the recommended mitigation measure(s);
- A description of proposed restoration or enhancement plans to compensate for impacts that cannot be avoided or minimised;

- Maps and/or drawings (if relevant) depicting the location, extent, and design details of proposed mitigation measures (e.g., sediment and erosion control plan); and,
- A summary table of potential impacts and recommended mitigation measures, based on the template provided in the Scoped EIS Form.

3.5.1. Setbacks and Buffers

While these terms are often used interchangeably, setbacks and buffers are not the same thing. A **setback** is the separation distance required between a natural feature (or hazard) and a project area, to prevent impacts from occurring to either the feature or the project. It is sometimes referred to as the development limit. **Buffers** are areas of natural vegetation that serve to attenuate and otherwise reduce impacts on the natural feature and its functions. They may occupy part or all of a given setback distance, or may extend beyond the setback if the adjacent land use allows (e.g., passive park features, golf course roughs, undeveloped portions of private properties).

The determination of appropriate setback distances and buffer widths is often controversial, due to conflicts between the desire to maximise the useful developable area of a property, and the need to adequately protect significant natural features and functions. The City has not established standard setbacks and buffers in many cases, due to the many variables involved in determining what the distance should be. The Official Plan does provide direction on how setbacks along watercourses and unstable slopes are to be determined (refer to Section 4.7.3). For other natural features, the appropriate width will be determined based on the sensitivity of the feature or its ecological functions, and on the type of project proposed. Additional considerations may include the need to provide access for maintenance activities by the City (e.g., municipal drains, urban woodlands) or the desire to incorporate recreational trails along the edges of features. Some specific notes on various natural features include:

- Setback and buffer distances for significant wetlands need to be designed to allow continued access to critical function zones (i.e., upland areas that provide necessary habitat for wetland species during part of their life cycle, such as nesting or foraging sites).
- Setbacks and buffers around significant woodlands, Urban Natural Features and other wooded features are often particularly contentious, so the rationale for these recommendations must be clearly explained and well referenced.
- Setbacks along significant valleylands must address geotechnical issues, fish habitat (if present) and wildlife habitat functions. The ecological contributions of any natural habitat areas on the adjacent tablelands must also be considered.

The Natural Heritage Reference Manual (MNR, 2010) provides useful recommendations and background information, including an annotated bibliography, on the subject of buffers for various natural heritage features.

When recommending setbacks and buffers, it is vitally important to clearly define the basis of measurement to reduce the risk of errors in interpretation at the time of implementation. Specify where the distance is to be measured from, and what information any diagrams or mapping provided are based on (i.e., topographic mapping, aerial photo interpretation or legal surveys). Key points to keep in mind include:

- For watercourses located in a valley, regardless of the valley's significance, setbacks will be measured from the top of the valley slope, not the watercourse bank.
- For specimen trees and wooded features, setbacks and buffers are often measured "from the drip line," however, the City prefers the following terminology when identifying setbacks for activities around trees:
 - The critical root zone (CRZ) is the area around the tree at a radius 10 times the diameter of the tree (at breast height). It is the minimum area that must remain unaltered by cutting, filling, trenching, soil compaction or contamination during construction to avoid harming the tree. The City's Tree Conservation Report Guidelines include standard protection measures for the CRZ of trees to be retained (see Appendix 10). The Municipal Trees and Natural Areas Protection By-law No. 2006-279 requires the protection of the critical root zone for all trees on municipal property.
 - The primary root zone (PRZ) is the area to the drip line (or outer edges of the canopy), or a circle with the radius equal to the height of the tree, whichever is greater. Activity in this area should be limited. The area can be altered with the guidance of an arborist.
 - The auxiliary root zone (ARZ) is the area one and a half times the canopy, or with a radius one and a half times the height of the tree, whichever is greater. Activities in this area have less effect on the tree; however, some activities still need to be restricted.
- For some natural features, the boundary of the feature and any associated setbacks or buffer distances may need to be confirmed in the field as a joint exercise between the applicant, their consultant(s) and relevant agency staff.
- Once agreed upon, all setbacks must be clearly delineated on the project plans.
- Mitigation measures relating to the protection of setbacks and buffers during on-site works (such as fencing) must be implemented prior to the commencement of those works. The City may impose conditions to this effect.

3.6. Monitoring

Where impacts have been avoided or minimised through the EIS process, using conventional mitigation measures with proven effectiveness, monitoring may not be needed. In cases where negative impacts have not been eliminated, or where innovative solutions are being used, monitoring may be required to measure impacts over time. The EIS must identify any monitoring needs associated with the project, and should provide recommendations regarding the design and implementation of the required monitoring program. Consultation with City staff will be required to establish the scope of all monitoring programs, and to ensure that recommendations are feasible and appropriate.

Monitoring will usually be site-specific and may be required during the pre-construction, construction, and/or post-construction periods. The EIS should:

- Clearly differentiate between monitoring recommendations aimed at ensuring effectiveness of mitigation, and any monitoring required for legal compliance (e.g., to meet conditions of a Certificate of Approval);
- Specify the appropriate stage(s), schedule and duration for the monitoring program;

- Propose appropriate thresholds or benchmarks for monitoring purposes;
- Identify who will be responsible for monitoring, and the reporting structure required to ensure that results are acted upon as needed; and,
- Outline contingency plans if an impact is detected or if the proposed thresholds are not met.

3.7. Summary and Recommendations

A Detailed EIS report must include a concise summary that addresses **major** points, and highlights any issues of concern from each subject area. Limitations of the study should be clearly identified (e.g., assumptions, timing, context). However, do not repeat large amounts of information already present in the report. The summary table of potential impacts and recommended mitigation measures referred to in Section 3.5 above will constitute a significant component of the report summary.

This section must include a **conclusion** based on the results of the impact analysis. The assessor's professional opinion must be stated, responding to the following questions:

- Provided that the recommended mitigation measures are implemented as planned, will there be any residual negative impacts on natural features or ecological functions as a result of the proposed project?
- What is the significance of any such residual negative impacts to the natural heritage system component(s)?
- Can the proposed project be accepted as planned, or should it be (further) revised to prevent, eliminate or reduce impacts? If so, what specific changes are recommended to the proposal?

If the EIS report concludes that the project will have a residual negative impact on one or more of the values or functions of the triggering feature(s), then a recommendation to proceed with the project must be accompanied by a rationale for proceeding that is based upon the provisions of the Official Plan and the Provincial Policy Statement. **Projects with residual negative impacts to significant natural features or ecological functions may not be approved.**

For complex reports incorporating material from several contributors on a multi-disciplinary team, the report must include a statement that all contributors have read the entire report, and have integrated relevant information into the recommendations for their subject area, where appropriate. This includes cases where the EIS is combined with a TCR, unless both studies were conducted by the same person.

Full names and signatures of the individuals who completed the assessment must be included at the end of the report.

Appendices to the report should include:

- Literature cited;
- A list of people contacted during the study, along with their title and agency affiliation, where applicable, and the subject(s) on which they were consulted;

- Species lists; and,
- Resumés of those who contributed to the report (including field technicians).

Final recommendations and conclusions will be subject to review and revision by City staff. Once agreed upon, recommendations will be incorporated into development agreements between the City and the applicant.

4. References

Beacon Environmental. 2010. *Recommendations for Conducting Wetland Environmental Impact Studies (EIS) for Section 28 Regulations Permissions*. Prepared for Conservation Ontario by Beacon Environmental in association with SCS Consulting Group and Blackport and Associates.

Bird Studies Canada. 2003. *Marsh Monitoring Program Training Kit and Instructions for Surveying Marsh Birds, Amphibians, and their Habitats*. Available through: <http://www.bsc-eoc.org/volunteer/glmp/index.jsp>

Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas Website. <http://www.birdsontario.org/atlas/index.jsp>

Brunton, D.F. 2005. *Vascular Plants of the City of Ottawa, with Identification of Significant Species*. Appendix A of Ottawa's Urban Natural Areas Environmental Evaluation Study. City of Ottawa, March 2005.

Cataraqui Region Conservation Authority, Mississippi Valley Conservation, Raisin Region Conservation Authority, Rideau Valley Conservation Authority and South Nation Conservation Authority. 2008. *Eastern Conservation Authorities Fish and Fish Habitat Review Guidelines (DRAFT)*.

City of Ottawa. 2006. *Urban Natural Areas Environmental Evaluation Study*. Report by Muncaster Environmental Planning and Brunton Consulting Services.

City of Ottawa. *Official Plan* (on-line consolidation). http://www.ottawa.ca/en/city_hall/planningprojectsreports/ottawa2020/official_plan/index.html

Coad, Brian W. 2011. *Fishes of Canada's National Capital Region*. Available at: <http://www.briancoad.com/main.asp?page=title%20pageNCR.htm>

Dobbyn, J. 1994. *Atlas of the Mammals of Ontario*. Federation of Ontario Naturalists. 355 Lesmill Road, Don Mills, Ontario. Available at: <https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan>

Environment Canada. 2013. *How Much Habitat is Enough? A Framework for Guiding Habitat Rehabilitation in the Great Lakes Areas of Concern (Third Edition)*. Available at: <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=1B5F659B-B931-4F37-A988-3DD73DF656B7>

Environment Canada. 2010. *Species at Risk Public Registry: A to Z Species Index*. Available at: http://www.sararegistry.gc.ca/sar/index/default_e.cfm

Environment Canada. 2014. Incidental Take of Migratory Birds in Canada. Available at: <http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=C51C415F-1>

Government of Ontario. 2010. Ontario Regulation 230/08: Species at Risk in Ontario List. Available at: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080230_e.htm

Layberry, R.A., P.W. Hall, and J.D. Lafontaine. 1998. *The Butterflies of Canada*. University of Toronto Press. Information accessed via the Government of Canada's SpeciesBank at http://www.cbif.gc.ca/spp_pages/butterflies/index_e.php.

Layberry, R.A. 2006. Butterflies of the Ottawa District: 103 species...and counting. *Trail & Landscape* 41(1):16-36.

Lee, H.R., W. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and its Application*. Ontario Ministry of Natural Resources, North Bay.

Oldham, M.J. and W.F. Weller. 2000. Ontario Herpetofaunal Summary Atlas. Natural Heritage Information Centre, Ontario Ministry of Natural Resources.

Ontario Breeding Bird Atlas (OBBA). 2001. *Guide for Participants*. Atlas Management Board, Federation of Ontario Naturalists, Don Mills. Available at http://www.birdsontario.org/atlas/download/obba_guide_en.pdf

Ontario Ministry of Municipal Affairs and Housing (MMAH). 2005. *Provincial Policy Statement*. Available at: <http://www.mah.gov.on.ca/Page1485.aspx>

Ontario Ministry of Natural Resources (OMNR). 2000. *Significant Wildlife Habitat Technical Guide*. Available at: http://www.mnr.gov.on.ca/en/Business/FW/Publication/MNR_E001285P.html

OMNR. 2010. *Natural Heritage Reference Manual (Second Edition)*. Available at: <http://www.mnr.gov.on.ca/en/Business/LUEPS/Publication/249081.html>

OMNR. 2010. Natural Heritage Information Centre database. Available at: <http://www.mnr.gov.on.ca/en/Business/NHIC/>

Ontario Nature. 2010. Reptiles and Amphibians of Ontario. Available at: http://www.ontarionature.org/protect/species/reptiles_and_amphibians/index.php

Ontario Odonata Atlas. 2005. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. <http://nhic.mnr.gov.on.ca/MNR/nhic/odonates/atlas.html> (updated 15-02-2005).

Regional Municipality of Ottawa-Carleton (RMOC). 1997. *Natural Environment System Strategy*.

5. Glossary

Area of Natural and Scientific Interest (ANSI)

Auxiliary Root Zone (ARZ)

Butternut Health Assessor (BHA)

Committee on the Status of Endangered Wildlife in Canada (COSEWIC)

Conservation Authority (CA)

Canadian Environmental Assessment Act (CEAA)

Critical Root Zone (CRZ)

Development Information Officer (DIO)

Ecological Land Classification (ELC)

Endangered Species Act, 2007 (ESA, 2007)

Environmental Assessment (EA)

Environmental Impact Statement (EIS)

Forest Resource Inventory (FRI)

Geographic Information System (GIS)

Ministry of Municipal Affairs and Housing (MMAH)

Ministry of Natural Resources (MNR)

Modified Transverse Mercator (MTM)

Natural Environment Area (NEA)

Natural Environment Systems Study (NESS)

Natural Heritage Information Centre (NHIC)

Natural Heritage System (NHS)

Ontario Benthos Biomonitoring Network (OBBN)

Ontario Breeding Bird Atlas (OBBA)

Ontario Stream Assessment Protocol (OSAP)

Portable Document Format (PDF)

Primary Root Zone (PRZ)

Provincial Policy Statement (PPS)

Regional Municipality of Ottawa-Carleton (RMOC)

Rural Natural Feature (RNF)

Species at Risk (SAR)

Species at Risk Act (SARA)

Species at Risk in Ontario (SARO)

Tree Conservation Report (TCR)

Urban Natural Areas Environmental Evaluation Study (UNAEES)

Urban Natural Feature (UNF)

Appendix 1: Scoped Environmental Impact Statement (EIS) Form

This form is intended for use by applicants (primarily private landowners) who need to conduct a Scoped EIS in support of minor development applications such as single lot severances or minor changes in land use. Instructions on the types of information needed are included in the form, with additional information provided following the form. The form also includes references to specific sections of the City of Ottawa's *Environmental Impact Statement (EIS) Guidelines* for more detailed information on EIS requirements.

You may not need to complete every section of this form. City of Ottawa staff (the Environmental Planner, Development Review) can advise you which sections need to be completed for your specific project.

If you do not know the answer to a question, please enter "unknown." City staff may be able to assist you in answering the question during their review of the development application and EIS.

Completion of this form does not constitute or guarantee any type of planning approval.

When is an EIS Required? (EIS Guidelines, Section 1.2)

You have been asked to provide an EIS because you are proposing a development or site alteration project in or adjacent to environmentally designated lands or other significant parts of the City's natural heritage system (NHS). The EIS Decision Tool (Appendix 2 of the EIS Guidelines) provides a checklist of these EIS 'triggers.' Note that the distances that trigger an EIS may be different for urban and rural areas. These distances are normally measured from your property boundary to the edge of the designated lands or natural feature.

In accordance with the Provincial Policy Statement and the Official Plan, the basic principle of the EIS Guidelines is that:

At minimum, the EIS must demonstrate that the proposed development or site alteration will have no negative impacts on the values or ecological functions for which the triggering environmentally significant lands or natural heritage features have been identified.

In many cases, you can avoid or greatly reduce the risk of negative impacts by locating your project (whether it is a new building or a new lot) away from the significant natural features identified. In other cases, you may need to schedule parts of the work to occur outside of sensitive times of the year for wildlife.

REQUIREMENT FOR PRE-CONSULTATION

(EIS Guidelines, Sections 1.3, 2.1 and 2.2)

Before completing this form, you must discuss your proposed project with the Development Review planners of the City of Ottawa. They will determine if an EIS is required, and if so, whether you need to submit this form or a Detailed EIS report.

Please provide the name(s) of the City staff you have discussed this EIS with, and the date(s) of the discussion:

1. PROPERTY IDENTIFICATION

(EIS Guidelines, Section 3.1)

1.1 Property Owner's Name:

1.2 Municipal Address of Property:

1.3 Lot, Concession and Township (rural properties only):

1.4 Property Information Number(s):
(available at <http://maps.ottawa.ca/geoOttawa/>)

1.5 Mailing Address (if different from property address):

1.6 Land Use Designation[s] and Zoning from the Official Plan
(http://www.ottawa.ca/en/city_hall/planningprojectsreports/ottawa2020/official_plan/index.html) **and**
Zoning By-Law (<http://ottawa.ca/en/residents/laws-licenses-and-permits/laws/city-ottawa-zoning-law>):

1.7 Existing and past land uses:

REQUIREMENT FOR SITE VISIT

(EIS Guidelines, Sections 2.2 and 3.2)

If you currently live on the property, please indicate how long you have lived there:

You must have visited the site at least once during the growing season for the purpose of evaluating the proposed project impact on the natural environment. Please fill in the following table with the required site visit information.

Date	Time	Personnel Involved	Weather Conditions	Purpose of Visit

2. Description of the Site and the Natural Environment

(EIS Guidelines, Sections 1.5, 2.1, 2.2 and 3.2)

2.1 General Map of the Natural Environment

(EIS Guidelines, Section 3.2.1)

Please attach a map showing your property in relation to the surrounding environment, including the natural features on and/or adjacent to the site (note: your property line must be clearly indicated). Recent aerial images can be obtained through the City's interactive mapping tool at <http://maps.ottawa.ca/geoOttawa/>.

Photographs of the property also help to illustrate the existing conditions on the site.

Please describe the significant natural feature(s) on or adjacent to your property and indicate the feature's location(s) relative to your project.

2.2 Landforms, Soils and Geology

(EIS Guidelines, Section 3.2.2)

Please describe the physical environment: the landform (e.g., sloped, flat, valley, hill, etc.) soils (e.g., silty, sandy, clay, peat, etc.) and depth to bedrock and type (e.g., limestone, shale, granite, etc.). Identify the source(s) of information used (e.g., personal knowledge, well record, available mapping). Attach copies of mapping and other supporting documentation when available.

2.3 Surface Water, Groundwater and Fish Habitat

(EIS Guidelines, Section 3.2.3)

Please describe the surface water features (e.g., creeks, drains, ponds, etc.) including their approximate widths and depths, duration of flow (i.e., is water present all year round or not) and location relative to your project. Are there any places where ponds occur during springtime or after storms? Describe drainage and groundwater conditions, including depth to groundwater where known.

Do any of the surface water features contain minnows or other fish? Please list the kinds of fish present (if known).

2.4 Vegetation Cover

(EIS Guidelines, Section 3.2.4)

Describe each of the types of vegetation community shown on the natural environment map (e.g., lawn, cropped field, old field, marsh, thicket/scrub, swamp, woods, etc.). List the most common plants observed in each of these communities, if possible.

2.5 Wildlife

(EIS Guidelines, Section 3.2.5)

List all wildlife species known or suspected to occur in the vicinity of the property. Where possible, specify whether the animal lives on the property or whether it is a visitor (e.g., looking for food or migrating through). Indicate why each species has been included on this list (e.g., seen, tracks found, call heard, reported previously).

Species Name

Resident/Visitor

Evidence

2.6 Habitat for Species At Risk

(EIS Guidelines, Section 3.2.6)

List any species at risk known or suspected to occur in the vicinity of the property. Indicate why each species has been included on this list (e.g., seen, tracks found, call heard, reported previously). Provide photographs if available.

3. DESCRIPTION OF THE PROPOSED PROJECT

(EIS Guidelines, Section 3.3)

Please attach any available drawings or plans of your proposed project, to illustrate the information provided below.

3.1 What is the purpose of the development or site alteration? (e.g., creation of a new lot for a single detached home, expansion of an existing home, etc.)

3.2 What site preparation, if any, will be required? (e.g., brush-clearing, tree removal, blasting, grading, filling, etc.)

3.3 What construction or demolition activities, if any, will be required? (e.g., excavation, preparation of foundation/pad, installation of public or private utilities, construction/demolition of a building, landscaping, etc.)

3.4 What ongoing activities, if any, will occur at the site? (e.g., private residence, operation of a small business, farming, etc.)

3.5 Have you consulted with other regulatory agencies (e.g., Conservation Authority, Ministry of Natural Resources, Ministry of Environment) to determine whether your project will require their authorisation?

4. IMPACTS AND MITIGATION

(EIS Guidelines, Sections 3.4 and 3.5)

4.1 Based on the information provided above, complete the attached summary table to identify the potential impacts of the various project activities on the natural environment on or adjacent to your property, and the mitigation measures that will be used to avoid or reduce these impacts.

4.2 Will the project result in any positive effects on the natural environment? Please include positive effects in the summary table, and provide a brief description below.

5. CONCLUSION

(EIS Guidelines, Section 3.7)

Will the proposed project result in any negative impacts to natural features or ecological functions, once the recommended mitigation measures have been implemented? *NOTE: residual negative impacts to significant natural features or ecological functions may mean that the project cannot be approved as proposed.*

6. DECLARATION

(EIS Guidelines, Section 3.7)

Please provide the names and affiliations of all individuals who contributed to the preparation of this EIS, and indicate their role(s) in the process (e.g., EIS author, biologist, planning consultant, geotechnical engineer). Attach resumés where needed to demonstrate professional qualifications.

I hereby certify that the information contained within this EIS is accurate and complete, to the best of my knowledge. I acknowledge that incomplete or incorrect information may delay the development review process.

Signature of Owner/Applicant

Date

Signature of EIS Author
(if different from above)

Date

NOTE: Completion of this EIS form does not constitute or guarantee any type of planning approval

EIS Form, Section 4.1: Impacts and Mitigation Summary Table

Activity	Natural Heritage Feature/Function	Potential Effect (may be positive or negative)	Proposed Mitigation	Residual Effect (may be positive or negative)
Site Preparation				
Construction				
Operation				
Other				

Examples

<i>Site Preparation: Vegetation clearing to allow for house construction.</i>	<i>Natural vegetation (note: no significant species or significant woodlands known to occur on site)</i>	<i>Loss of natural vegetation from site</i>	<i>Only clear the area that is required to allow for development (house, well, septic, laneway)</i>	<i>Loss of X ha of natural vegetation within development footprint</i>
---	--	---	---	--

OR

<i>Other: Severance of 2 ha vacant lot for sale</i>	<i>Significant woodland on property</i>	<i>If new lot developed in woods, could lose up to 2 ha of woodland</i>	<i>New lot will be located outside of woodland</i>	<i>None</i>
---	---	---	--	-------------

GENERAL INSTRUCTIONS FOR COMPLETING THE SCOPED EIS FORM

For more detailed instructions, please refer to the appropriate section of the EIS Guidelines. City of Ottawa staff can provide advice on what information is needed for your project.

The Scoped EIS may include materials prepared for other purposes, including the associated development application form, which will provide much of the property information requested in Section 1 of the EIS Form.

You may attach as much information to this form as needed. Maps, plans, drawings and photographs are all useful items to include.

The preliminary scope and level of detail required in the description of the site and the natural environment will be established in discussion with City staff during the pre-consultation process.

2. Description of the Site and the Natural Environment

(EIS Guidelines, Sections 1.5, 2.1, 2.2 and 3.2)

- In this section of the form, you will provide information about the existing condition of your property and the surrounding area, identifying any natural features and functions (e.g., significant wetlands, significant woodlands and any associated wetlands, significant valleylands, significant wildlife habitat or habitat for an endangered or threatened species, areas of natural and scientific interest, urban natural features, natural corridors) that might be affected by the proposed development or site alteration.
- Each natural feature that is present on, or adjacent to, the site must be identified and described in a brief summary. At a minimum, the description of the site and the surrounding area must identify, locate and describe the feature(s) that triggered the requirement for the EIS; however, any other features discovered during the EIS must also be included.
- If a Tree Conservation Report (TCR) is required under Section 4.7.2 of the Official Plan or the City of Ottawa's Urban Tree Conservation By-Law, it should be combined with the EIS. Refer to the TCR Guidelines for additional specifications regarding information and mapping requirements (http://ottawa.ca/en/env_water/tlg/trees/preservation/guidelines/index.html).
- The City of Ottawa can provide useful background information and digital mapping (EIS Guidelines, Appendix 4). In some cases, the City of Ottawa's public geoOttawa interactive mapping service (<http://maps.ottawa.ca/geoOttawa/>) may suffice for the production of figures, aerial photographs and maps. Another useful resource for the production of figures and maps is Land Information Ontario (<http://www.mnr.gov.on.ca/en/Business/LIO/>).
- Always cite the sources of information used in preparing the maps, figures and written descriptions.

2.1 General Map of the Natural Environment

(EIS Guidelines, Section 3.2.1)

- A general map of the natural environment is always required. It should include a key map to show the subject site's location in relation to the surrounding major roads and other landmarks.
- The use of aerial photography as a base for the natural environment map is strongly encouraged (and is required under the TCR Guidelines).
- The map will include standard mapping elements such as a scale bar, north arrow, date and legend.
- The map will illustrate and identify all of the existing natural features and vegetation communities on the site and in the surrounding area, including the feature(s) that triggered the requirement for an EIS.
- The map will include topographic information such as general slope trends and specific features such as valleys or gullies, cliffs or escarpments, hills, drumlins, eskers, kettles, etc.

2.2 Landforms, Soils and Geology

(EIS Guidelines, Section 3.2.2)

- A description of the physical environment of the subject site and the affected surrounding area will be required for any EIS where the feature(s) or designation(s) that triggered the EIS are dependent upon or sensitive to the potential effects of the project on landform features, soils or geological conditions (e.g., significant wetlands, significant valleylands, Earth Science areas of natural and scientific interest, etc.).

2.3 Surface Water, Groundwater and Fish Habitat

(EIS Guidelines, Section 3.2.3)

- All surface water features (natural watercourses, drains, ponds, wetlands, etc.) must be included on the map of the natural environment (see Section 2.1 above). Direction of flow, including overland drainage, must also be indicated on the map.
- A description of the surface water features, drainage, and groundwater conditions on the subject site and in the affected surrounding area will be required for any EIS where the feature(s) or designation(s) that triggered the EIS are dependent upon or sensitive to the potential effects of the project on surface water or groundwater flows.
- Examples of cases where a description of surface water and groundwater conditions would be required include (but are not limited to) projects:
 - Adjacent to a significant wetland;
 - Within or adjacent to a wetland associated with a significant woodland;
 - Within or adjacent to a significant valleyland;
 - That might affect natural vegetation communities or plant and wildlife species dependent upon groundwater discharge; and,
 - That might affect natural vegetation communities or plant and wildlife species dependent upon permanent or seasonal surface water supply.
- Such a description will always be accompanied by a description of soils and geology (see Section 2.2 above).
- Information on fish and fish habitat may be available from City or Conservation Authority staff or documents.

2.4 Vegetation Cover

(EIS Guidelines, Section 3.2.4)

- All vegetation community types on the subject site and in the affected surrounding area must be included on the map of the natural environment (see Section 2.1 above). Mapped communities must be clearly labelled to make it easy to match the description provided with the appropriate community on the map.
- A description of the vegetation communities, including (where known) the most common species of trees, shrubs and/or groundcover for each community is required. For example: Woods – sugar maple, ash, white pine over poison ivy and wildflowers. Old field – long grass, Queen Anne’s lace, clover and milkweed.
- The locations of any significant wetlands, significant woodlands and wetlands associated with significant woodlands should be shown on the map of the natural environment.
- See also Section 2.6 below regarding the potential occurrence of species at risk.
- If a Tree Conservation Report is required under Section 4.7.2 of the Official Plan or the City of Ottawa’s Urban Tree Conservation By-Law, it should be included with this EIS. Refer to the Tree Conservation Report Guidelines for additional information (http://ottawa.ca/en/env_water/tlg/trees/preservation/guidelines/index.html).

2.5 Wildlife

(EIS Guidelines, Section 3.2.5)

- Incidental observations of wildlife in the vicinity of the property should be described. “Wildlife” may include birds, mammals, reptiles, amphibians or invertebrates such as insects and molluscs. Fish should be included under Section 2.3 above.
- See also Section 2.6 below regarding the potential occurrence of species at risk.

2.6 Habitat for Species At Risk

(EIS Guidelines, Section 3.2.6)

- The City of Ottawa maintains a list of species at risk known or expected to occur in the city. Staff will inform you if any of these species could potentially be present on or adjacent to your property. The presence of species at risk may mean that you need a professional biologist to assist you with the preparation of your EIS.
- A map of habitat for species at risk will be required if the development site or the affected surrounding area contains species at risk or habitat for species at risk, meaning any species listed under the federal Species at Risk Act or the Ontario Endangered Species Act, 2007 and its regulations.
- The general map of the natural environment may also serve as the map of habitat for species at risk, if the scale and resolution allow precise depiction of species’ locations and habitats, and provided that the publication of this map is not restricted by the Ministry of Natural Resources for the protection of the species.

3. DESCRIPTION OF THE PROPOSED PROJECT

(EIS Guidelines, Section 3.3)

- In this section, you will provide information about your proposed project.
- You may attach as much information to this form as needed.
- The description must include a brief summary of any site preparation activities, construction activities, required servicing or utilities, landscaping plans, and activities associated with anticipated future uses of the site.
- The description may consist of materials prepared for other purposes, including the associated development application form.
- If you do not know the answer to a question, please enter “unknown.” City staff may be able to assist you in answering the question during their review of the development application and EIS.
- The description must be accompanied by a plan showing the proposed development or site alteration overlaid on the map of the natural environment. The proposed plan must show all identified environmental constraints.
- Refer to the TCR Guidelines for additional specifications regarding information and mapping requirements (http://ottawa.ca/en/env_water/tlg/trees/preservation/guidelines/index.html).
- The use of actual concept plans, development plans, site plans or other figures is strongly encouraged.

4. IMPACTS AND MITIGATION

(EIS Guidelines, Sections 3.4 and 3.5)

- In this section, you will identify how your proposed project could impact the natural environment, and what mitigation measures will be used to avoid or reduce any negative impacts.
- The purpose of this EIS is to demonstrate how your project will be accomplished with no negative impact on any significant natural features or their ecological functions, as required by the Provincial Policy Statement. **Projects that cannot meet this requirement may not be approved.**
- Not all impacts are negative. In some cases, the use of mitigation measures such as restoration or enhancement of natural habitat areas, or removal of invasive non-native vegetation, may result in a net benefit to the natural environment.
- Negative impacts can often be avoided by locating your development away from any significant natural features, especially if you keep or create a buffer of natural vegetation between the feature and your project area.
- The City of Ottawa has established some standard mitigation measures for use in specific circumstances. These mitigation requirements are identified in Appendix 10 of the EIS Guidelines.
- More examples of potential impacts and mitigation measures are provided in the provincial Natural Heritage Reference Manual (MNR, 2010) which can be accessed online at <http://www.mnr.gov.on.ca/en/Business/LUEPS/Publication/249081.html>

Appendix 2: Environmental Impact Statement (EIS) Decision Tool

PART A – EIS TRIGGER

1(a). Is the subject property located in or within 120 m of any of the following? Check all that apply:

- ☐ Significant Wetland (as designated on Schedules A and B of the Official Plan, OR as identified by the Ministry of Natural Resources; refer to Section 3.2.1 of the Official Plan)
- ☐ Natural Environment Area (as designated on Schedules A and B; refer to Section 3.2.2 of the Official Plan)
- ☐ Known or potential significant habitat for an endangered or threatened species (as identified through consultation with the Ministry of Natural Resources and City of Ottawa staff; refer to Section 4.7.4 of the Official Plan)

YES: Development potential within any of these features is limited (refer to the relevant sections of the Official Plan for permitted uses). An EIS is required for all permitted development or site alteration in or within 120 m of the feature.

Continue to 1(b), 2 and 3 below to determine whether any additional EIS triggers are present, then proceed to Part B – Type of EIS to determine whether a Scoped or Detailed EIS is required.

OR

- ☐ 1(b). Is the subject property located in or within 30 m of an Urban Natural Feature, as designated on Schedule B of the Official Plan?

YES: Development potential within an UNF is limited (refer to Section 3.2.3 of the Official Plan). An EIS is required for all permitted development or site alteration in or within 30 m of the feature. If this is the **only** EIS trigger, use the guidance in Part B to determine whether the project requires an UNF-EIS that is comparable to a Scoped EIS or a Detailed EIS.

If none of the above apply, proceed to 2(a) below.

2(a). Is the subject property located in or within:

- ☐ 120 m of a Rural Natural Feature (as designated on Schedule A; refer to Section 3.2.4); and/or,
- ☐ 50 m of an Earth Science Area of Natural and Scientific Interest (as shown on Schedule K; refer to Section 4.7.7)?

2(b). Is the subject property located in or within 30 m (in the urban area) or 120 m (in the rural area) of any of the following Natural Heritage System features (as defined in Section 2.4.2 of the Official Plan)? Check all that apply:

- ☐ Significant woodlands (i.e., rural woodlands that include mature stands and interior habitat in a contiguous forest patch located adjacent to a surface or groundwater feature)
- ☐ Wetlands associated with significant woodlands
- ☐ Significant valleylands (i.e., natural valleys with slopes greater than 15% and lengths over 50 m)
- ☐ Significant wildlife habitat (including escarpments)
- ☐ Life Science Areas of Natural and Scientific Interest
- ☐ Forest remnants and natural corridors that are identified through planning or environmental studies such as watershed or subwatershed plans, environmental management plans, community design plans, environmental impact statements or tree conservation reports as linkages between the significant features defined above, but may not meet the criteria for significance in their own right.

YES: If any of the conditions listed in 2(a) or (b) apply, an EIS is required to ensure that the proposed development or site alteration does not result in negative impacts to the natural features or their ecological functions. Continue to 3 below, then proceed to Part B – Type of EIS to determine whether a Scoped or Detailed EIS is required.

If none of the above apply, proceed to 3 below.

- ☐ 3. Is the property subject to an EIS, based on recommendations made as part of a Council-approved subwatershed study, environmental management plan or other area planning study? If yes, proceed to Part B to determine the scope of the EIS.

If none of the conditions listed above apply, then no EIS is required by the City. Other studies may still be required under the policies of the Official Plan (e.g., Tree Conservation Report, required under Section 4.7.2), or by other regulatory agencies such as Conservation Authorities under separate legislative processes (e.g., assessments of fish habitat, referenced under Section 4.7.3(15) of the Official Plan).

PART B – TYPE OF EIS

The following types of project and situations are considered to have a relatively low risk of negative environmental impact, provided that all work is done in accordance with applicable regulations and industry standards:

- Single lot severance
- Construction of a single-detached dwelling and/or accessory buildings on an existing lot
- Minor site alteration
- Minor changes in existing land use, e.g., minor variance or zoning by-law amendment
- Other types of development or site alteration occurring over 100 m away from the natural feature, which will not produce off-site impacts on the feature through servicing requirements or other related activities
- Other types of development or site alteration in established settlement areas where similar development or site alteration has already occurred between the feature and the subject property

A Scoped EIS will suffice for these projects. Proceed to Part C to determine whether the completion of the Scoped EIS Form can be deferred or waived.

All other projects will normally require a Detailed EIS. Confirm study requirements with City staff and proceed with EIS.

PART C – WHEN TO DEFER OR WAIVE A SCOPED EIS

The City's environmental planner may elect to defer or waive the requirement for an applicant to submit the Scoped EIS Form in cases where he or she is satisfied that (a) the Scoped EIS would be more appropriately conducted at a later date, or (b) the risk of negative impacts occurring as a result of the proposed project is extremely low to non-existent, such that the completion of the Scoped EIS Form would not afford any useful benefit to the environment, the applicant or the City.

Circumstances that may warrant deferral of the Scoped EIS Form include:

- Single lot severances where the lot to be severed is already developed and/or is located outside the adjacency distance to the natural feature(s), and the EIS would be more appropriately conducted to support the future development of the retained parcel.
- Minor changes in land use, provided that the EIS is conducted prior to any physical changes to the property.

In cases where the completion of the Scoped EIS Form is deferred, the environmental planner will work with the file lead planner to ensure that the requirement for the Scoped EIS is appropriately documented and applied in future (e.g., as a condition of approval, development agreement, holding zone, etc.).

Circumstances that may warrant waiving of the Scoped EIS Form include:

- Minor developments (i.e., single lot severance, construction of a single-detached dwelling and/or accessory buildings on an existing lot, minor site alteration or minor

changes in existing land use) where the natural feature(s) that triggered the EIS requirement are located adjacent to, not on, the subject property.

- Single lot severances where the lot to be severed is already developed and/or is located outside the adjacency distance to the natural feature(s), and the retained parcel is either already developed or will be prohibited from development in future through conditions of severance (e.g., agricultural severances).
- Minor changes in existing land use that will not result in any significant physical changes to the property.

In cases where the completion of the Scoped EIS Form is waived, the environmental planner's review of the proposal will constitute the Scoped EIS. Their decision to waive the completion of the form will be documented in meeting notes, with supporting rationale and any required mitigation measures as determined by staff.

Otherwise, confirm study requirements with City staff and complete the Scoped EIS Form accordingly.

Appendix 3: Agency Contact List

Agency	Staff Contact(s)	Telephone	Information/Authority on:
City of Ottawa	Planner:	(613) 580-2424 ext.	Development application review process
	Environmental Planner: Matthew Hayley Sami Rehman	(613) 580-2424 ext. 23358 ext. 13364	EIS and other municipal environmental policies
	Forester-Planning: Martha Copestake Mark Richardson	(613) 580-2424 ext. 17922 ext. 23839	Tree Conservation Report and urban tree removal
Conservation Authority – usually only one will be involved in any given application	Mississippi Valley Rideau Valley South Nation	(613) 253-0006 (613) 692-3571 (613) 984-2948	Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation; also deal with fish and fish habitat issues (will contact Department of Fisheries and Oceans when necessary). Provide technical review of EIS.
Ministry of Natural Resources (Kemptville District office)	Management Biologist	(613) 258-8204 (main office)	Wetlands; Areas of Natural and Scientific Interest; significant wildlife habitat; provincially protected species at risk (occurrence data, habitat information, advice and applications for permits under the <i>Endangered Species Act, 2007</i> ; list of qualified Butternut Health Assessors in Ottawa area).

Appendix 4: City of Ottawa Data Availability and Data Requests

City staff have developed the Characterization of Ottawa's Watersheds document as the first compilation and integrated analysis of existing technical information on key indicators for the City's watersheds and subwatersheds. The report draws upon datasets from numerous sources including the City's Water Environment Protection Program, subwatershed studies and other projects and plans, Conservation Authorities and provincial and federal agencies. The purpose of the Characterization of Ottawa's Watersheds is to provide:

- A city-wide framework and context of watershed resources;
- Consistent information on the existing conditions of the watershed environment for technical professionals; and,
- Coordinated baseline analyses and interpretation.

Accordingly, the Characterization document provides a comprehensive introduction to information on Ottawa's topography, geology and soils; climate; hydrology; water quality and temperature; and land cover; as well as an initial integrated comparative analysis of the watershed areas and their functions.

The Characterization of Ottawa's Watersheds is available on the City's website at: <http://www.ottawa.ca/cs/groups/content/@webottawa/documents/pdf/mdaw/mdgy/~edisp/cap083402.pdf>. Its supporting information will also be made available to project proponents, partners (including the Conservation Authorities), and reviewing agencies including Ministry of the Environment and Ministry of Natural Resources.

Data available from the City or Province will include:

City of Ottawa:

- Aerial photography (latest available; earlier photos may also be available upon request, depending on location)
- Official Plan Land use designations (in PDF)
- Comprehensive Zoning By-law (via [geoOttawa](http://www.ottawa.ca/geo) or in PDF)
- Roads and pathways
- Water quality

Province of Ontario:

- Soils, including hydrologic soil groups
- Surficial geology
- Depth of overburden/drift
- Bedrock types
- Physiographic information
- Water wells
- Stream network and municipal drains
- Water bodies
- Evaluated wetlands
- ANSIs
- Vegetation polygons (note that these high-level polygons provide background information only, and do not replace ELC field studies if these are required)

A data license may need to be signed by the recipient of the data (either the applicant or their consultant). A fee may be administered to cover reproduction and distribution costs.

For further information, or to make a data request for digital information, please contact the City planner for the development application file.

Information on NESS areas (RMOC, 1997), Urban Natural Areas (City of Ottawa, 2006) and environmental planning studies (e.g., subwatershed studies, environmental management plans) is also available from planning staff.

Appendix 5: General Values and Functions to be addressed for each Natural Heritage System Component during an EIS in the City of Ottawa

Natural Heritage System Component	Values and Functions to be addressed in the EIS
Significant Wetlands	<p>As identified in the official Wetland Evaluation record (available from the Ontario Ministry of Natural Resources):</p> <ul style="list-style-type: none"> • Biodiversity; • Hydrology; • Social and economic; and, • Special features.
Natural Environment Area	<p>Where the NEA includes a candidate or confirmed ANSI, the values and functions responsible for recognition of the area as significant (see Earth Science/Life Science ANSI values and functions below).</p> <p>Each one of the eight evaluation criteria that received a rating of moderate or greater during the assessment of the area as part of the Natural Environment System Strategy (RMOC, 1997):</p> <ul style="list-style-type: none"> • Landscape attributes; • Common vegetation community/landform representation; • Rare vegetation/landform representation; • Endangered, threatened, and rare species; • Vegetation community/landform diversity; • Seasonal wildlife concentrations; • Hydrological features; and, • Condition of natural area.
Urban Natural Feature	<p>Each one of the nine evaluation criteria that received a rating of moderate or greater during the assessment of the feature as part of the Urban Natural Areas Environmental Evaluation Study (City of Ottawa, 2006):</p> <ul style="list-style-type: none"> • Connectivity; • Absence of disturbance; • Habitat maturity; • Natural communities; • Regeneration; • Representative flora; • Significant flora and fauna; • Size and shape; and, • Wildlife habitat.
Rural Natural Feature	<p>Where the RNF includes a candidate or confirmed ANSI, the values and functions responsible for recognition of the area as significant (see Earth Science/Life Science ANSI values and functions below).</p> <p>Each one of the eight evaluation criteria that received a rating of moderate or greater during the assessment of the area as part of the Natural Environment System Strategy (RMOC, 1997):</p>

Natural Heritage System Component	Values and Functions to be addressed in the EIS
	<ul style="list-style-type: none"> • Landscape attributes; • Common vegetation community/landform representation; • Rare vegetation/landform representation; • Endangered, threatened, and rare species; • Vegetation community/landform diversity; • Seasonal wildlife concentrations; • Hydrological features; and, • Condition of natural area.
Significant habitat of endangered and threatened species	Significant habitat for endangered and threatened species, as defined in Section 4.7.4 of the Official Plan. Where this habitat has not been defined by regulation under the <i>Endangered Species Act, 2007</i> or through other approved studies, the EIS should use the process outlined in Section 5 of the Natural Heritage Reference Manual (OMNR, 2010) or its successor to identify and delineate any significant habitat.
Earth Science Areas of Natural and Scientific Interest	<p>The values and functions responsible for recognition of the area as significant, including:</p> <ul style="list-style-type: none"> • Specific features and functions (e.g. fossils, sinkholes, etc.); and, • Associated features, landforms or other characteristics within the ANSI and adjacent area that provide context and meaning for the understanding and interpretation of the ANSI.
Life Science Areas of Natural and Scientific Interest	<p>The values and functions responsible for recognition of the area as significant, including:</p> <ul style="list-style-type: none"> • Specific features and functions (e.g. rare/uncommon communities, ecological processes, etc.); and, • Associated features, landforms or other characteristics within the ANSI and adjacent area that provide context and meaning for the understanding and interpretation of the ANSI.
Significant woodlands	<p>The values and functions responsible for identification of the woodland as significant, under the criteria in the Official Plan:</p> <ul style="list-style-type: none"> • Mature stands of trees 80 years of age or older; and, • Interior habitat more than 100 m inside the edge of a forest patch; and, • An adjacent surface water feature, such as a river, stream, drain, pond or wetland, or an adjacent groundwater feature including springs, seepage areas, or areas of groundwater upwelling. <p>Section 7 of the Natural Heritage Reference Manual (OMNR, 2010) or its successor provides additional information on the protection of significant woodlands.</p>
Significant valleylands	<p>The values and functions of the identified feature, including but not limited to:</p> <ul style="list-style-type: none"> • Surface water functions; • Groundwater functions; • Fisheries protection; • Wildlife habitat;

Natural Heritage System Component	Values and Functions to be addressed in the EIS
	<ul style="list-style-type: none"> • Natural vegetation communities or potential for restoration of natural communities; • Prominent or unique landforms; • Natural landscape connectivity; and, • Recreational functions. <p>Section 8 of the Natural Heritage Reference Manual (OMNR, 2010) or its successor provides additional information on the protection of significant valleylands.</p>
Wetlands found in association with significant woodlands	<p>The values and functions normally associated with wetlands, including but not limited to:</p> <ul style="list-style-type: none"> • Habitat for species at risk; • Provision of wildlife habitat, especially for species dependent upon both wetland and forest habitat during their life cycles (e.g. amphibians, cavity-nesting waterfowl, etc.); and, • Support of uncommon or rare vegetation communities.
<p>Significant wildlife habitat:</p> <ul style="list-style-type: none"> • on escarpments (as defined in Section 2.4.2 of the Official Plan); • within significant woodlands, wetlands or valleylands; or, • as identified through subwatershed studies or site investigations. 	<p>The values and functions normally associated with significant wildlife habitat, as determined using the process outlined in Section 9 of the Natural Heritage Reference Manual (OMNR, 2010) or its successor.</p>
<p>Forest remnants and natural corridors such as floodplains that are identified through planning or environmental studies such as watershed or subwatershed plans, environmental management plans, community design plans, environmental impact statements or tree conservation reports as linkages between the significant features defined above, but may not meet the criteria for significance in their own right.</p>	<p>The value and function of the linkage feature for maintaining the identified values and functions of the features that it connects.</p>

Appendix 6: Preliminary Environmental Data Collection Checklist

Date Completed:	
Property ID (address):	
Applicant or Agent:	
City Staff Representative(s):	

Type of EIS Required (Circle): Scoped UNF-EIS* Detailed

* If UNF-EIS, indicate whether it will approximate a Scoped or Detailed EIS

Detailed Terms of Reference Required for Approval (Circle): Yes No

NOTE: for the following table, check (√) all boxes that apply to this EIS. Cross out (X) boxes that do not apply. Note any specifications regarding field study timing or methods (either in box or as a numbered endnote following the table). Decisions made during pre-consultation may be revisited at any time during the EIS preparation or review process as new information becomes available.

Feature	Data Required	Background Information	Field Study (EIS or other)	Optimal Inventory Period	Detailed Field Study Specifications
Location of subject lands in relation to components of the natural heritage system	√	NHS mapping, other information from City or MNR staff	Confirm, map and describe all NHS components	Dependent on natural feature or function identified	
Inventory of existing man-made structures	Include on map	Survey or aerial photo		N/A	
Soil types by texture/grain size and drainage characteristics		Soils mapping, borehole data or other previous study			ELC methodology; may require hydraulic conductivity to assess infiltration
Overburden and bedrock geology		Borehole data	Borehole (usually other study)		
Locations and usage of any existing wells		MOE well records	Water sampling or pumping test (usually other study)		
Areas of high water table		Borehole data	Borehole (usually other study)		

Feature	Data Required	Background Information	Field Study (EIS or other)	Optimal Inventory Period	Detailed Field Study Specifications
Areas of groundwater recharge and discharge		Subwatershed study/ Source Water Protection mapping			
Drainage patterns, basin boundaries and watercourses	Include intermittent/ ephemeral features	Subwatershed study mapping			
Fish and fish habitat		Previous studies, CA or MNR mapping		Late April to October (subject to CA's direction)	Use Eastern Ontario Conservation Authorities methodology
Fish species at risk (specify):	√	MNR; NHIC; previous field studies	Search areas of suitable habitat	Will vary depending on species	
Benthic invertebrates		Previous studies		Spring or fall	Use Ontario Stream Assessment Protocol; Ontario Benthos Biomonitoring Network Protocol
Existing erosion sites		Previous studies			
Areas of shallow soil		Previous studies / borehole data			
Description of vegetation communities	√	Acceptable if completed within previous 5 years		Mid-May to mid-September	Use ELC methodology, classified to "vegetation type" level
Assessment of vegetation condition: successional state, disturbance, extent of invasive species	√			May to September	
Vascular plant species	√	NESS or UNAEES; previous field studies		Spring ephemerals: early to mid-May; Woodland sedges: mid-May to early	Detailed three-season botanical inventory

Feature	Data Required	Background Information	Field Study (EIS or other)	Optimal Inventory Period	Detailed Field Study Specifications
				July; Forbs: June to mid-Sept.	
Plant species at risk (specify):	√	MNR; NHIC; NESS or UNAEES; previous field studies	Search areas of suitable habitat	Will vary depending on species; during growing season	
Bird species	√	Ontario Breeding Bird Atlas; previous field studies		Raptor nests: April; Other breeding birds: twice between May 24 to July 10; Migrants and over-wintering birds: will vary	Follow Ontario Breeding Bird Atlas protocol
Amphibian species	√	Ontario Herpetofaunal Atlas; previous field studies		Salamanders: May to June; Frogs/toads: early spring to mid-summer	Marsh Monitoring Program protocol (Frogs/toads)
Reptile species	√	Ontario Herpetofaunal Atlas; previous field studies		April through September (species dependent)	Active searching
Mammal species	√	Atlas of the Mammals of Ontario; previous field studies		Species dependent	Sightings, tracks or other evidence
Insect species		Ontario Odonata Atlas		Odonates and lepidopterans: June and July	
Wildlife species at risk (specify):	√	MNR; NHIC; atlas records or previous field studies	Search areas of suitable habitat	Will vary depending on species	

City staff will make a copy of this form, once completed, and provide it to the applicant or agent for their files. City staff will retain the original form.

Appendix 7: Terrestrial Data Collection and Reporting Standards

The EIS report must include a fieldwork summary table including date and time of all site visits, personnel involved (names and qualifications), weather conditions (where relevant, include air temperature, cloud cover, Beaufort wind speed, and precipitation) and purpose of each visit.

The significance of species and vegetation communities observed or reported should be verified using the following sources of status information:

- SARA Public Registry (http://www.sararegistry.gc.ca/default_e.cfm);
- Ontario Regulation 230/08 Species at Risk in Ontario (SARO) List (http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_080230_e.htm);
- The Natural Heritage Information Centre (<http://www.mnr.gov.on.ca/en/Business/NHIC/>) has lists of vegetation communities, plant and wildlife species with their status in Ontario; and,
- Vascular Plants of the City of Ottawa, with Identification of Significant Species (Brunton, 2005; Appendix A of the Urban Natural Areas Environmental Evaluation Study).

Ecological Land Classification

Community descriptions for Detailed EIS reports must follow the nomenclature outlined in the Ecological Land Classification for Southern Ontario (Lee et al., 1998) to Vegetation Community Type.

The description of vegetation communities required in a Detailed EIS will include:

- A written description of each ELC vegetation type identified, outlining the dominant plant species within the overstorey, shrub layer, and ground flora of **each** ELC vegetation type;
- The location and “element ranking” of each provincially significant ELC vegetation type identified (see NHIC website); and,
- A summary of disturbances in each ELC vegetation type, including the descriptions of intensity and extent included in the ELC methodology.

The need for a comprehensive evaluation of the site, using the full ELC methodology, will be determined during pre-consultation. Under this comprehensive protocol, the survey of vegetation community types should be undertaken over three seasons (spring to fall), although exceptions may be determined during pre-consultation.

Vascular Plant Inventory

Although the need for detailed vascular plant inventories will be established during pre-consultation, in general, a list of all vascular plants observed during the field investigations on the site should be compiled. Because some species may be identifiable only for a short period, the timing of surveys for specific vascular plants (i.e., species at risk known or suspected to occur in the area) may be specified at the pre-consultation stage. If previous site-specific inventories have been undertaken (e.g., UNA or NESS studies, etc.) this information should be incorporated into the vascular plant list, with notations indicating which species were directly

observed and which were reported but not seen. The sources of all such background species reports should be clearly identified.

The vascular plant inventory required in a Detailed EIS will include:

- An appendix list of vascular plant species observed or reported on the site, including scientific and common names, with an indication of the relative abundance of each species on the property (e.g., common, uncommon, rare);
- The status, as of the date of the report, of all species at risk under provincial and federal legislation;
- The regional status of each vascular plant species, as assigned by Brunton (2005); and,
- Specific locations of each species of conservation concern (e.g., national, provincial, or regional, see below), mapped with their ELC vegetation communities (subject to restrictions on publication when required by MNR for the protection of species at risk).

Species of national conservation concern are those designated as nationally at-risk, and are listed on the federal SARA registry website. Provincial species that should be identified include all species at risk (see SARO list) as well as those of element ranks S1-S3, tracked by the NHIC. Species of regional conservation concern are those identified as regionally significant (RS) by Brunton (2005). Where practical, approximate population sizes of all provincially tracked species should also be recorded and submitted to City staff and to the Natural Heritage Information Centre in Peterborough.

Faunal Inventories

Incidental observations of wildlife and habitat features such as nests, hollow trees or other potential den sites should always be included in an EIS (Scoped or Detailed). Specific field surveys for various taxonomic groups (i.e., birds, amphibians, reptiles, mammals or insects) may also be required. Standard survey methodologies for these groups are described below. While timing windows are specified in some cases, they should be considered as guidelines given that optimal survey conditions may actually occur outside these specific windows in some years (e.g., where spring weather arrives earlier or later than usual).

Breeding Bird Surveys

A list of breeding birds for the City of Ottawa has been generated using data from the Ontario Breeding Bird Atlas (1987 and 2005), Natural Heritage Information Centre, Species at Risk Act Public Registry and Species at Risk in Ontario range mapping. This list, along with current species status, observed population trends and known habitat preferences, is available at: http://www.ottawa.ca/en/env_water/tlg/plantsanimals/birds/index.htm.

Surveys of breeding birds should follow the Ontario Breeding Bird Atlas protocol (OBBA, 2001), including both point counts and incidental observations. The following are general guidelines:

- Point counts should be undertaken for five-minute intervals;

- Representative locations in different habitats around the site should be selected for point count surveys¹;
- Point count locations should be 300 m apart to prevent duplicate counts; however, smaller intervals (minimum 100 m) may be required to cover the range of habitats on smaller sites;
- Incidental site observations should also be recorded;
- The highest breeding status observed should be reported for each bird species recorded from the site (see Appendix 7.1 for the list of codes); and,
- At least two site visits must be completed at least 15 days apart, between May 24 and July 10, with all initial visits completed by the third week in June.

Surveys should be completed during appropriate weather conditions, and should start around **half an hour before sunrise** and **end by midday**. Surveyors must be able to identify most eastern Ontario birds by song.

During pre-consultation, it may be determined that an additional site visit will be required in April, in order to survey for breeding owls, raptors, or other early nesting species.

The EIS should include:

- An assessment of the relative abundance and breeding status (confirmed, probable, or possible) of each bird species found on the site; and,
- Mapped locations of all breeding bird point counts.

Amphibian Surveys

A list of amphibians for the City of Ottawa has been generated using data from the Ontario Herpetofaunal Summary Atlas (Oldham and Weller, 2000), the Reptiles and Amphibians of Ontario (Ontario Nature, 2010), the Natural Heritage Information Centre, Species at Risk Act Public Registry and Species at Risk in Ontario range mapping. This list, along with current species status, is available at:

http://www.ottawa.ca/en/env_water/tlg/plantsanimals/herps/index.htm.

The requirement to complete amphibian surveys will be dependent on the presence of suitable habitat at the site. The species list in the EIS report should include an indication of their relative abundance (including call codes for surveys of breeding frogs and toads). Locations of suitable or confirmed amphibian breeding habitat should be mapped.

Salamanders

The optimal time to survey for salamander presence is on rainy spring nights after the ground is fully thawed (May-June). As a minimum, opportunistic surveys should be undertaken by lifting dead wood and rocks in wooded areas.

¹ Point counts and nocturnal surveys should include “cultural” habitats such as meadows and thickets, and not focus exclusively on woodlands and/or wetlands. This is to identify open-country birds that may be of conservation significance (e.g., bobolink, short-eared owl, common nighthawk, etc.).

Woodland pools (permanent or ephemeral) may be critical for the breeding stages of many amphibians. These areas may be considered significant wildlife habitat (see Appendix 9). Where vernal pools are present, more detailed site assessment may be required. For example, vernal pools may be searched for amphibian egg masses or larvae to confirm salamander presence.

Frogs and Toads

Surveys for frogs and toads (anurans) should generally follow the Marsh Monitoring Program protocol (Bird Studies Canada, 2003). In general, a minimum of three surveys should be conducted at least 15 days apart, with the first between April 15-30, the second between May 15-30, and the third between June 15-30, depending on night time air temperature (see below). Surveys are started a half-hour after sunset. Observers should also record all other fauna observed at the site. Surveyors must be able to identify all anurans in the Ottawa area by sound. Web-based information at www.frogwatch.ca may be helpful. Tape playback may be used to confirm presence.

	Early breeders	Middle breeders	Late breeders
Target species	Wood Frog Chorus Frog Spring Peeper	Northern Leopard Frog Pickerel Frog Mink Frog American Toad Grey Treefrog	Green Frog Bullfrog
Times	Mid-April to Mid-May	Mid-May to Mid-June	Mid-June to late July
Night time air temperature	Above 5°C	Above 10°C	Above 17°C

Population abundances should be recorded using the following codes. Both call codes and abundance estimates should be recorded (e.g., Code 2, 5 individuals).

Code 1: only a few frogs present, calls do not overlap

Code 2: more frogs calling; calls start to overlap

Code 3: full chorus; calls strongly overlapping; number of individuals impossible to estimate.

Incidental observations of individuals found on the site during other times should also be included. However, these observations should be clearly distinguished from those of breeding individuals in the report.

Reptile Surveys

A list of reptiles for the City of Ottawa has been generated using data from the Ontario Herpetofaunal Summary Atlas (Oldham and Weller, 2000), the Reptiles and Amphibians of Ontario (Ontario Nature, 2010), the Natural Heritage Information Centre, Species at Risk Act Public Registry and Species at Risk in Ontario range mapping. This list, along with current species status, is available at:

http://www.ottawa.ca/en/env_water/tlg/plantsanimals/herps/index.htm.

Visual surveys for reptiles should occur at each site. Observations may consist of individual reptiles or other signs (e.g., shed skins, turtle shells, nests, hatched eggshells, etc.).

Visual surveys are best accomplished in a suitable season and weather conditions. Visual surveys for turtles should include looking for basking individuals on logs and rocks in spring or early fall. Similarly, many snakes bask in early spring, and seek cover later in the summer. Visual surveys for snakes are best completed on warm days in spring (mid-April to mid-June). Opportunistic searches for snakes under suitable cover such as logs, boards and other debris should also be undertaken.

All native species of turtle in Ontario, with the sole exception of the painted turtle, are now considered to be at risk. Where a reptile species at risk has been previously reported at or near the site, and there is concern that the proposed development may negatively impact its habitat, more intensive search methods may be necessary. Where this is the case, advice should be sought from the Ministry of Natural Resources in Kemptville. Permits may be required for trapping surveys or other intrusive methods.

Mammal Surveys

A list of mammals for the City of Ottawa has been generated using data from the Atlas of the Mammals of Ontario (Dobbyn, 1994), the Natural Heritage Information Centre, Species at Risk Act Public Registry and Species at Risk in Ontario range mapping. This list, along with current species status, is available at:

http://www.ottawa.ca/en/env_water/tlg/plantsanimals/mammals/index.htm.

Incidental mammal observations (i.e., sightings, tracks, scats, dens and other signs) should be made during each field visit. Because species have very different habits, there is no standard protocol for field observations. Tracking is usually best during winter (in fresh snow) or early spring (in soft ground) and may coincide with other fauna surveys. Observations of habitat types should be combined with local species occurrence data, where available, to determine which species are likely to be present. The Significant Wildlife Technical Guide (MNR, 2000) provides a useful summary of information on the habitat preferences and habits of Ontario mammals (see Appendix G, Table G-4 of that document, available at:

http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@fw/documents/document/mnr_e001287.pdf).

Insect Surveys

Lists of butterflies and odonates for the City of Ottawa have been generated using data from the Butterflies of Canada (Layberry, 1998) and Layberry (2006), the Ontario Odonata Atlas (NHIC, 2005), the Natural Heritage Information Centre, Species at Risk Act Public Registry and Species at Risk in Ontario range mapping. These lists, along with current species status, are available at: http://www.ottawa.ca/en/env_water/tlg/plantsanimals/butterflies/index.htm and http://www.ottawa.ca/en/env_water/tlg/plantsanimals/odonates/index.htm.

Inventory of insects is optional for most EIS reports. However, if insect species at risk have been previously documented for a site, the need for a specialised survey may be identified at the pre-consultation stage.

Appendix 7.1: Breeding Bird Codes from Breeding Bird Atlas of Ontario

OBSERVED		CONFIRMED	
X	Species observed in its breeding season (no breeding evidence)	NB	Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
POSSIBLE		DD	Distraction display or injury feigning
H	Species observed in its breeding season in suitable nesting habitat	NU	Used nest or egg shells found (occupied or laid within the period of the survey)
S	Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season	FY	Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
PROBABLE		AE	Adult leaving or entering nest sites in circumstances indicating occupied nest
P	Pair observed in suitable nesting habitat in nesting season	FS	Adult carrying fecal sac
T	Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season. Use discretion when using this code.	CF	Adult carrying food for young
D	Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation	NE	Nest containing eggs
V	Visiting probable nest site	NY	Nest with young seen or heard
A	Agitated behaviour or anxiety calls of an adult		
B	Brood Patch on adult female or cloacal protuberance on adult male		
N	Nest-building or excavation of nest hole, except by a wren or a woodpecker		

Appendix 8: Characteristics of Significant Woodlands

Section 2.4.2 of the Official Plan defines significant woodlands in the rural area as woodlands that combine all three features listed below in a contiguous, forested area:

- Mature stands of trees 80 years of age or older; and,
- Interior forest habitat located more than 100 m inside the edge of a forest patch; and,
- Woodland adjacent to a surface water feature such as a river, stream, drain, pond, or wetland, or any groundwater feature including springs, seepage areas, or areas of groundwater upwelling.

Mature stands have been identified based on the 1978 Forest Resource Inventory (FRI) mapping used in the Natural Environment System Strategy (RMOC, 1997). Stands that were identified in the FRI mapping as being 50 years of age or more would now be considered mature stands of 80 years of age or more, provided that they are still present on the landscape. Maturity of a stand may also be determined using historical air photo analysis, local knowledge or field observations. Even aged stands, including plantations, will be considered mature if the canopy trees are over 80 years of age. Uneven aged stands will be considered mature if they have been present on the landscape for over 80 years, and are not otherwise demonstrated through site investigation and evaluation by a Registered Professional Forester to lack the typical characteristics of mature forest.

Interior forest habitat has been identified through the use of GIS analysis. No minimum area of interior habitat was specified in the analysis. Non-forest communities as defined under the ELC system are not included in the significant woodland, and therefore do not contribute to interior habitat measurements for this purpose.

Adjacency to surface water or groundwater features has also been identified through GIS analysis. Features within 5 m of the edge of a forested area qualify as adjacent. When considering adjacency in the field, the assessor should determine whether or not the forest canopy extends over the water feature; this is to ensure that mature forested areas with broad canopies are not excluded simply because the trunks of the trees are over 5 m away from the water.

Wetlands associated with significant woodlands are identified as part of the City's natural heritage system in Section 2.4.2 of the Official Plan. These wetlands may not in themselves be significant wetlands under the Ontario Wetland Evaluation System, but they contribute to the significance of the woodland and support critical hydrological and wildlife habitat functions. The wetland may be part of the significant woodland (i.e., forested swamp) or adjacent to it (e.g., thicket swamp, marsh, fen or bog).

The forested area is considered **contiguous** if its canopy appears unbroken on an aerial photograph. Breaks in the canopy caused by trails or watercourses must completely traverse the patch to divide it, and must be at least 20 m wide in accordance with provincial guidance in the Natural Heritage Reference Manual (2010). Breaks in the canopy caused by maintained public roads will be considered to divide the patch, regardless of the width of the road. It is quite possible that a contiguous forested area will occupy parts of several properties, and that some or all of the characteristics contributing to its significance will not be found on the subject property. Characteristics which are believed to be present from available background information, but which cannot be confirmed or refuted through field observations due to lack of access, should be assumed to be present.

The Official Plan also allows for the use of additional criteria for defining significant features (such as significant woodlands) in watershed or subwatershed planning, reflecting unique characteristics of an area or the relative abundance or scarcity of such features in the subject area. If the subject woodland occurs within a watershed or subwatershed plan area, any such additional criteria identified by that plan will apply.

Where significant woodlands are identified or confirmed as a result of field studies, their boundaries should be mapped clearly. All contiguous forest communities, as defined by ELC, should be included as part of the significant woodland. As with other significant features, the EIS must clearly demonstrate no negative impact on the significant woodland and its ecological functions.

Appendix 9: Characteristics of Significant Wildlife Habitat

Section 2.4.2 of the Official Plan, which defines Ottawa's natural heritage system, includes significant wildlife habitat as follows:

“Significant wildlife habitat found on escarpments with slopes exceeding 75% and heights greater than 3 m; or within significant woodlands, wetlands, and valleylands; or that may be identified through subwatershed studies or site investigation;”

Much of Ottawa's significant wildlife habitat (e.g., seasonal concentration areas for wildlife, rare vegetation communities or specialised wildlife habitat, habitat for species of special concern or other species of conservation concern, and animal movement corridors) is found within other major components of the natural heritage system, such as Significant Wetlands, Natural Environment Areas, Rural Natural Features, significant woodlands, significant valleylands and linkage features such as floodplains. Exceptions to this include the large expanses of migratory waterfowl staging habitat found in Ottawa's agricultural lands, and various escarpments not necessarily associated with designated areas like the Carp Hills and South March Highlands. Thus, for the most part, an EIS will not be triggered solely by the presence of significant wildlife habitat; however, the potential for significant wildlife habitat to be present in association with other features of the natural heritage system should always be considered when preparing an EIS.

Although the MNR has some seasonal concentration areas mapped (e.g., migratory waterfowl staging areas, deer yards, fish spawning and nursery sites), most significant wildlife habitat cannot be confirmed and mapped remotely, and must be identified during a field visit. The presence, characteristics and extent of any areas of significant wildlife habitat must be described and mapped as part of the EIS. To identify significant wildlife habitat, consultants should follow the provincial guidance provided in the Significant Wildlife Habitat Technical Guidelines (OMNR, 2000), the Natural Heritage Reference Manual (OMNR, 2010) and the MNR's schedule of significant wildlife habitat criteria for Ecoregion 6E (available at <http://www.ontario.ca/document/significant-wildlife-habitat-ecoregional-criteria-schedules-ecoregion-6e>) or their successors.

Examples of features considered to be significant wildlife habitat include:

- Habitats of seasonal concentrations of animals (e.g., colonial bird nesting sites such as heronries and gull colonies, winter feeding and roosting areas for raptors, migratory bird staging and stop-over areas, bat or reptile hibernacula, amphibian breeding areas in woods or wetlands, etc.);
- Rare vegetation communities (e.g., alvars, old growth forests, sand barrens, cliff and talus slopes);
- Animal movement corridors;
- Specialised wildlife habitat (e.g., nesting sites for waterfowl or raptors, turtle nesting or overwintering habitat, seeps and springs); and,
- Significant habitat for species of conservation concern (e.g., provincial species of special concern listed under ESA, 2007; species listed under SARA which are not also listed as endangered or threatened under ESA, 2007; species which are ranked by the Natural Heritage Information Centre as S1-S3 in Ontario).

Within the City of Ottawa, escarpments have been identified as significant wildlife habitat because they frequently support rare vegetation communities (i.e., cliff and talus slopes) and may provide habitats for seasonal concentrations of animals (i.e., hibernacula).

Appendix 10: Standard Mitigation Measures for the City of Ottawa

The following mitigation measures will be required in any EIS that addresses potential impacts on the natural heritage features and ecological functions specified. The recommendations should be tailored to suit the individual project, but their intent and minimum level of protection must be maintained.

Natural Heritage Feature/Ecological Function	Potential Impact	Mitigation
Breeding birds (particularly those protected under provincial or federal legislation, i.e., game birds, raptors and migratory birds).	<p>Loss of nests, eggs and/or young due to tree cutting or other clearing of vegetation.</p> <p>NOTE: the nests and eggs of many species are protected under federal and/or provincial legislation (i.e., <i>Migratory Birds Convention Act</i>, <i>Fish and Wildlife Conservation Act</i>)</p>	<ul style="list-style-type: none"> No clearing of vegetation between April 15 and August 15, unless a qualified biologist has determined that no nesting is occurring within 5 days prior to the clearing. A pre-clearing survey for active stick nests and cavity nests must also be conducted between April 1 and April 15, in order to identify and protect early-nesting owls and raptors. <p>NOTE: these dates are based upon breeding bird nesting data for eastern Ontario, provided by Environment Canada.</p> <p>For more information on avoiding incidental take of migratory birds, refer to Environment Canada's web site at http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=C51C415F-1</p>
Butternut (federally and provincially endangered species)	Damage or loss due to tree cutting or site alteration activities (e.g., excavation, filling, grading).	<ul style="list-style-type: none"> No tree cutting, clearing or site alteration allowed on sites where butternut may be present, unless a thorough search has confirmed that no butternut are located in or adjacent to the proposed work area. A qualified Butternut Health Assessor will assess any butternut identified in or adjacent to the proposed work area, using MNR methodology to determine whether or not they are "retainable," i.e., sufficiently healthy to be protected under the ESA, 2007. Retainable butternut will not be harmed or removed without authorisation from the MNR. City of Ottawa permits for the removal of trees in the urban area do not apply to butternut in the absence of the required authorisation from MNR. Significant habitat for butternut is generally defined as a minimum 25 m radius around the trunk of each retainable butternut for which no authorisation is obtained. No negative impacts are permitted within or

Natural Heritage Feature/Ecological Function	Potential Impact	Mitigation
		<p>adjacent to significant habitat for an endangered species under the provisions of the Planning Act and Provincial Policy Statement. Any encroachment within the 25 m setback must be supported by a prior written assessment by a qualified individual (a Registered Professional Forester or Professional Arborist) justifying the designation of a reduced area of significant habitat.</p> <ul style="list-style-type: none"> • Ensure that all protective measures identified in the approved Tree Conservation Report (included as part of the EIS) are in place prior to any vegetation removal or site alteration activities. Recommendations shall include limits on specific activities that could result in negative impacts to the retained butternut tree(s) and the approved significant habitat for the tree(s).
Natural features (all)	Degradation resulting from increased recreational usage, illicit dumping and encroachment by residential landowners into natural areas and setbacks or buffers following development.	<p>NOTE: these will vary depending upon the context (urban vs. rural) and the ownership of the natural feature (public vs. private). Recommendations regarding appropriate setback and buffer widths and compatible recreational uses are key products of the EIS.</p> <ul style="list-style-type: none"> • Determine the appropriate setback distance between the proposed project and the natural feature, and preserve or establish a suitable buffer zone of natural vegetation within the setback. • Subdivisions should be designed to minimise the number of lots backing onto natural features. • Public paths should be located outside or along the edges of natural features to the extent possible. • Provide Owner Awareness Package to all new residents, to encourage responsible stewardship of the natural feature. Potential topics could include: <ul style="list-style-type: none"> ○ Why the natural feature is valued and protected. ○ What lives there. ○ How to be a good neighbour. ○ Important legal information (e.g., by-laws regulating pets, property drainage, tree cutting, discharge to sewers, use of natural areas, etc.).

Natural Heritage Feature/Ecological Function	Potential Impact	Mitigation
Natural features (all)	Loss of native biodiversity due to increased presence of non-native invasive species after development.	<ul style="list-style-type: none"> • Use only locally appropriate native species for landscaping adjacent to natural features or buffer zones. • Re-establish native vegetation along new or disturbed edges of natural features by seeding or transplanting locally appropriate native species. • Provide new homeowners with lists of locally appropriate native species for use in landscaping, along with information on the negative impacts of non-native invasive species such as Norway maple, Amur maple, periwinkle and other commonly cultivated species.
Species at Risk	Degradation or loss of habitat for species at risk not addressed as part of the EIS (due to subsequent changes in species status or other information).	<ul style="list-style-type: none"> • Federal and provincial lists of species at risk are periodically updated to reflect changes in species status. Occurrence data for these species is also subject to change. Therefore, the most current SAR information available must be reviewed in comparison with the EIS findings immediately prior to the commencement of on-site activities to confirm that all known SAR have been adequately addressed in the EIS.
Trees and woodlands	Accidental damage or loss of trees as a result of site alteration or construction activities.	<p>Ensure that all protective measures identified in the approved Tree Conservation Report (included as part of the EIS) are in place prior to any vegetation removal or site alteration activities. Recommendations shall include limits on specific activities within the identified auxiliary root zone and primary root zone, as well as the following mandatory protection of the critical root zone:</p> <ul style="list-style-type: none"> • Erect a fence at the outer limit of the critical root zone (CRZ) of trees to be retained, which is defined as the distance around the tree at a radius 10 times the diameter of the tree (at breast height); • Do not place any material or equipment within the CRZ of the tree; • Do not attach any signs, notices or posters to any tree; • Do not raise or lower the existing grade within the CRZ without approval; • Tunnel or bore when digging within the CRZ of a tree; • Do not damage the root system, trunk or

Natural Heritage Feature/Ecological Function	Potential Impact	Mitigation
		branches of any tree; <ul style="list-style-type: none"> • Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.
Wildlife (all)	Displacement, injury or death of wildlife as a result of vegetation clearing and other activities associated with site alteration or development.	The EIS will be expected to identify any applicable sensitive times of the year for the site, and recommend appropriate mitigation measures to avoid or reduce impacts to wildlife, using the City's Protocol for Wildlife Protection during Construction.
Wildlife (all)	Ongoing conflicts between wildlife and humans or domestic pets following development of new homes in or adjacent to natural areas.	<ul style="list-style-type: none"> • Provide Owner Awareness Package to all new residents, including information on avoiding and resolving human-wildlife conflicts, with references for more information (see Section 4 of the Protocol for Wildlife Protection during Construction for a list of resources). • Include information on potential consequences of allowing pets to roam unattended, such as: <ul style="list-style-type: none"> ○ Impacts of pets on wildlife ○ Impacts of wildlife on pets ○ Legal restrictions on uncontrolled pets (municipal and provincial).