Environmental Impact Study

The purpose of this document is to provide terms of reference for the preparation of an Environmental Impact Study, which may be required as part of the submission of an application for Official Plan Amendment, Zoning By-law Amendment/Community Planning Permit, Draft Plan of Subdivision/Condominium, Site Plan, Consent and Minor Variance.

An Environmental Impact Study provides information to understand the proposed development; to demonstrate how it is consistent or conforms to applicable provincial, district and area municipal requirements and the planning rationale for a proposed development.

This document is intended to help the applicant organize and substantiate the application and to assist staff in the review of the proposal.

Depending on the complexity of the application, the information requirements may be addressed in a scoped or a more comprehensive study.

Required by Legislation

The Ontario Planning Act, the Provincial Planning Statement, the District of Muskoka Official Plan and Area Municipal Official Plans.

1 Introduction

The District of Muskoka is committed to protecting its natural heritage and water assets in accordance with the Provincial Planning Statement (PPS) and the District Municipality of Muskoka Official Plan (MOP). One of the key mechanisms to implement this commitment is through the environmental impact study (EIS) process. An EIS is typically required when development, as defined in section C1.5 of the MOP, is proposed within or adjacent to a significant, or potentially significant, natural heritage features. An EIS provides a framework for a proponent to address the District's, and other agency's requirements related to the protection of natural heritage and water assets by:

- providing a site-specific assessment of these assets,
- determining how and the extent to which these assets are expected to be impacted by the proposed development (and/or site alteration),
- and identifying site-appropriate mitigation measures to avoid and mitigate negative impacts, including identification of opportunities for restoration and enhancement.

1.1 The Role of an EIS

As a planning tool, an EIS will assist in avoiding or mitigate negative environmental impacts by informing the design, timing, and execution of a development proposal. Ultimately this is through application of the mitigation hierarchy as outlined above.

As a decision-making tool, an EIS should provide the information required by the District to determine whether the development proposal complies with the applicable plans, policies, and regulations. Ultimately, the EIS assists in informing the decisions made by District staff and District Council with respect to the nature and extent of the proposed development.

1.2 Purpose of This Guideline

The purpose of this guide is to:

- assist proponents in understanding the process involved in the scoping, preparation, submission, and completion of an EIS;
- assist proponents and their consultants in the preparation of acceptable terms of reference and EIS reports by providing an outline of what is expected;
- help consultants address the EIS requirements as described in the MOP by providing technical guidance;
- ensure greater consistency in the scope and quality of EIS submitted; and
- facilitate the review of EIS Terms of reference and EIS reports by District staff and support the relevant objectives of the District, Province, and Federal governments. Although this guide speaks to related policies and legislative requirements from the District, Province, and Federal government that need to be considered through the EIS process, this guide does not replace guidance from these jurisdictions, and it is the proponent’s responsibility to consult with the appropriate agencies and sources directly.

An overview of the planning documents that establish the requirements for an EIS are provided in **Section 2** as well as information on when an EIS is required and who is qualified to prepare an EIS.

Section 3 describes the submission requirements and the process for completing an EIS.

Sections 4 and **5** are intended for environmental consultants and those completing studies and contributing to the preparation of an EIS. These Sections provide specific guidance regarding the expected content of a terms of reference and an EIS. Supplemental technical information is also provided within the various appendices.

2 Planning Context and Triggers for an EIS

The requirements for an EIS are established through the MOP are based on the “no negative impact” test when development or site alterations are proposed within, or adjacent to, natural heritage features or areas.

The basis for having no negative impact on significant natural heritage features and areas comes from the Provincial Planning Statement (PPS). The specific policy triggers at the provincial and municipal levels of government are presented below.

2.1 Provincial context

The Province recognizes that the long-term protection of natural heritage is an integral component to Ontario's prosperity. The PPS provides direction for, among other things, use and management of natural heritage and water resources in Ontario. Under chapter 4 "Wise Use and Management of Resources" section of the PPS, there are policies that have regard to:

- the long-term protection of natural heritage features and areas, as well as water quantity and quality;
- the need for a natural heritage system to be identified;
- the diversity and connectivity of natural heritage systems by maintaining, restoring and, where possible, improving linkages between and among natural heritage features and areas, surface water features and ground water features, and;
- ensuring development is in accordance with provincial and federal requirements related to fish habitat and the habitat of endangered and threatened species.

Notably, Ontario's requirements under the *Endangered Species Act, 2007* (ESA) addresses the habitat of provincially endangered and threatened species. Although an EIS is not required as part of the permitting processes related to the ESA, proponents are required to comply with the procedures and regulations under the Act. This process is often undertaken in conjunction with an EIS and may impact its outcome if such species are confirmed within or adjacent to the study area. Municipalities must ensure that when making planning decisions under the PPS that development and site alteration are only permitted in the habitat of endangered species and threatened species where it is in accordance with provincial and federal requirements.

2.2 Muskoka Official Plan

Section C of the MOP is titled "Ecosystems of Muskoka: Natural Heritage and Water Resources". An objective of this set of policies is that the diversity and connectivity of natural features in Muskoka, and the long-term ecological function and biodiversity of natural heritage systems be maintained, restored, or where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features, and groundwater features.

Natural heritage features and areas that are subject to these policies include provincially significant wetlands, coastal wetlands and other wetlands, the habitat of endangered species and threatened species, provincially significant and regionally significant areas of natural and scientific interest, significant wildlife habitat, fish habitat and Muskoka Heritage Areas and Sites. These natural heritage features and areas are identified in Schedule C1 and C2 of the MOP (except for fish habitat), however it is acknowledged that the mapped inventory may be incomplete or dated. This section of the MOP provides general guidance on development and site alteration on or adjacent to natural heritage features and areas, as well as specific policies for such features and areas.

These policies also have regard to balancing the protection of recreational water quality and shoreline development. More specifically, the Lake System Health framework within the MOP contain general development policies that recognizes that while the overall health of lakes and rivers in Muskoka is particularly good, a precautionary approach to development has been established in Muskoka. The Lake System Health policies provide natural shoreline vegetation targets, specific shoreline setbacks, and standard and enhanced protection policies to ensure that development has no negative impact on recreational water quality.

2.3 When is an EIS required?

An EIS is required in the District of Muskoka when development is proposed within or adjacent to certain natural heritage features or areas, surface water features and groundwater features, or when it may negatively impact their related hydrological or ecological functions. Under the MOP, no development or site alteration is permitted within certain natural heritage features and areas (i.e., significant natural areas). However, as outlined in section C1.3.2 of the MOP, an EIS is still required for proposed development on lands adjacent to such features and areas, as per **Table 1** below.

Table 1. When an EIS is required for significant natural areas

Natural heritage features and areas	**Development involves lands within the natural heritage feature or area**	**Development involves adjacent lands**
Provincially significant wetlands and significant coastal wetlands	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 120m
Other wetlands	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 30m
Provincially significant wildlife habit	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 120m
Provincially significant and regional Areas of Natural and Scientific Interest – Earth Science	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 50m

Provincially significant and regional Areas of Natural and Scientific Interest – Life Science	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 120m
Fish Habitat	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 120m
Fish Habitat on Lake Trout Lakes	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 300m
Muskoka Heritage Areas and Sites	Development is not permitted, see Official Plan for specific requirements	EIS required for development within 120m

According to the MOP, an EIS may be required as part of a development application. As well, municipal projects such as trail, park or municipal infrastructure development may require an EIS, or may follow an Environmental Assessment process that conforms to the MOP as applicable.

It is important to understand that the District has not been comprehensively surveyed for all flora, fauna, or their habitats. Furthermore, natural systems are dynamic and can change over time. As such, when new or updated information becomes available additional natural heritage features and areas may be identified. The natural heritage policies of the MOP will apply to newly identified natural heritage features and areas where these features meet the applicable definitions and criteria contained within the MOP.

2.4 Mitigation

- "Mitigation," as it relates to natural heritage conservation, is defined as a two step process, as follows: 1. avoid, and 2. minimize. In this process, avoiding impacts is always the preferred option, followed by minimizing impacts. Currently, the District does not have a process in place to permit compensation for unavoidable impacts. As such, all impacts must be either avoided or minimized.

2.5 What qualifications are required to prepare an EIS?

An EIS is to be prepared by a qualified professional, or team of professionals, with relevant environmental expertise. An EIS must be authored, or at least reviewed, by a senior ecologist or comparable professional with a minimum of five years of applied experience conducting environmental impact assessments. The associated field program is to be completed by professionals qualified in the disciplines relevant to the components of the report to which they are contributing.

For example (but not limited to):

- If the boundary of a wetland, including a provincially significant wetland, requires confirmation, then the assessor must be a wetland evaluator certified by Ministry of Natural Resources (MNR);
- if ecological land classification (ELC) is being completed or refined, then the assessor should have completed ELC training and obtained a certificate from a recognized training program;
- if bird studies are being completed, then the assessor should be a qualified biologist specializing in avian identification in the field;
- if a tree assessment is being completed, then the assessor must be a certified arborist or registered professional forester.
- The main author preparing the EIS must also work in conjunction with other professionals to integrate the information contained in other supporting plans and studies (i.e., hydrogeological studies, stormwater management plans, geotechnical reports, lot grading and drainage plans, etc.) as required.

3 Process for completing an EIS

It is recommended that an EIS be started early in the development application process to identify natural heritage features and areas that need to be protected, and potential development constraints (i.e., areas that may not be appropriate for development) associated with these features and areas, prior to the development of a detailed site plan. There are also specific timing windows associated with different types of surveys which, if missed, can delay the planning process. Therefore, it is highly recommended that a terms of reference for an EIS be submitted to and approved by District staff early in the planning process. A terms of reference for an EIS is to be approved by District staff prior to the commencement or submission of an EIS.

The Terms of reference will: establish the extent of the study area, characterize the general nature and extent of the development proposal, briefly summarize the planning context and known triggers for the EIS (e.g., natural heritage designations), outline the proposed approach and methods for undertaking the study, and outline the components to be addressed through the study analyses. Although it is understood that only preliminary information is usually available at the time of terms of reference development, it is expected that the terms of reference clearly outline the proposed report components, study approach and methodology as described in more detail in **Section 4**.

Appendix A provides an EIS terms of reference Checklist that identifies elements to be addressed. **Section 5** of these guidelines provides more information regarding the District's expectations with respect to background review, field assessments, data analyses, monitoring and reporting in an EIS which may also assist in influencing the level of detail included in the terms of reference.

3.1 Pre-consultation

Where an EIS is required as part of a complete development application, the development of a terms of reference for the EIS is led by the proponent in consultation with District planning staff, and in advance of developing the EIS.

Telephone or e-mail inquiries for natural heritage information may form part of, but do not constitute, pre-consultation for Planning Act applications. Pre-consultation consists of a formal meeting between the proponent and District staff to review and discuss a development concept. District Planning staff will share information regarding natural heritage policies and regulations that need to be considered, available background reports and/or data, and the scope of the EIS.

Pre-consultation helps ensure that potential natural heritage features and areas, and other potential regulatory constraints, are identified early on, and that the full range of potential constraints to development are considered through the EIS (and the broader planning) process.

Specifically, pre-consultation can help to:

- Establish the extent of the study area and the scope of the EIS;
- Identify critical information and analysis required by the District to make informed decisions related to natural heritage features and their ecological and hydrologic functions;
- Identify requirements for related studies (e.g., hydrogeological, geotechnical, stormwater management)
- Ensure that all existing relevant studies and background information are considered;
- Establish realistic timelines for the preparation and review of an EIS; and,
- Avoid unnecessary field work, addendums, and major design changes later in the planning process.

As part of this process, all sources of background information to be considered should be identified, particularly sources and/or data that will require a formal request and take some time to obtain. Some of this information may be found within District documents and databases, or within other documents including environmental studies completed for adjacent properties, provincial/federal databases, local environmental/naturalist groups, and relevant scientific literature.

3.2 Components of the terms of reference

Based on feedback received through the pre-consultation meeting with District planning staff, (and input from qualified professionals as required), the proponent will prepare a terms of reference. The primary purpose of the terms of reference is to establish the scope of the EIS, since the level of study required can vary depending on the type of development proposed, the site conditions, and the nature of the natural heritage features and areas (and/or regulated features) within and/or adjacent to the subject property.

A checklist to assist in developing a complete terms of reference, is provided in **Appendix B**. This checklist is to be submitted to the District along with the terms of reference, as staff will also refer to this checklist when reviewing submitted terms of references for completeness.

More specific guidance related to the various components that should be considered for inclusion into an EIS terms of reference is provided in **Section 4**.

3.3 Review of EIS terms of reference

District Planning Staff will screen the submitted EIS terms of reference for completeness. During the screening, communication between District staff, agencies and the proponent may occur. There may be a need for technical discussions and meetings with the proponent and/or other agencies during review in part to ensure that other variables relating to servicing, transportation, stormwater management, trails, etc. are appropriately integrated into the study design.

3.4 Approval of EIS terms of reference

District Planning Staff will consolidate all comments received from internal departments and provide a written response to the proponent. Based on the comments received, staff will determine whether the terms of reference establish the appropriate scope to address District requirements, or if revisions are required. If there are outstanding comments, the proponent will be asked to revise and resubmit the terms of reference.

Once District staff are satisfied that all comments have been adequately addressed, a letter or email confirming approval of the terms of reference will be provided to the proponent.

Upon the District's approval of the terms of reference, the proponent can complete the required field studies and prepare and submit the EIS in accordance with the Official Plan policies. An approved terms of reference will outline the work program and provide assurance regarding the scope and nature of studies to be completed. Additional information is provided in Section 3.5 below regarding how to address unforeseen findings during field study.

3.5 Process for preparing and submitting an EIS

The amount of time needed to complete field studies will depend on the nature of the natural heritage features and areas within the study area, and the extent of current background information available. An EIS may require a multi-season field program targeting the full range of wildlife groups or ecological functions or may be scoped to focus on one or two seasons of data collection for only some types of plants, wildlife, or ecological functions. Proponents should engage the District and other agencies as applicable (e.g., MNR, MECP, Department of Fisheries and Oceans (DFO)) to identify these requirements early in the development process.

Field studies and the confirmation of feature boundaries must be completed (with appropriate personnel in attendance) according to the approved terms of reference, as described in **Section 3** of these guidelines. More detailed guidance related to undertaking field studies is provided in **Sections 4.4 and 5.4** of these guidelines and the supporting appendices.

On occasion, the need for additional field studies may be identified following finalization of the terms of reference. This could happen for several reasons, such as:

- A significant species or significant natural feature or area not previously known to be found in the area is identified during field work;
- changes to a species status (e.g., becomes listed under the *Endangered Species Act, 2007* or *Species at Risk Act, 2002* while the study is in progress), or;
- changes to a natural heritage feature or area's status while the study is in progress (e.g., completion of a wetland evaluation or re-evaluation).

In such cases, District staff will work with the proponent to minimize potential delays. The proponent should contact District staff to discuss any potential changes to the study scope as soon as the information arises. A revised method or approach should be proposed and agreed to by the proponent, the District and any applicable partner agencies prior to any additional field study taking place.

3.6 EIS Submission Requirements

When preparing the EIS, the structure should mirror the approved terms of reference. All the information gathered needs to be included within the EIS and submitted as a complete document, either in the body of the report or in the appendices.

3.6.1 Report Standards

A checklist for EIS submission is included as part of this guide in Appendix B. As part of this checklist, minimum reporting standards have been included to assist in the preparation of the EIS Report. A copy of the completed checklist is to be provided along with the EIS submission to assist in staff's review for completeness.

3.6.2 Field data collection and "shelf life"

An EIS must be based on data that is current and collected using established protocols and standards. This includes the field data collected by the proponent as it informs the analysis, recommendations and conclusions that are provided within the EIS.

Field data reflects the site conditions at the time of collection. Over time, conditions on site can change due to a variety of reasons (e.g., vegetation growth, disturbances, and shifts in vegetation community composition). This can affect the accuracy and representativeness of the field data. The "shelf life" of field data can vary depending on the type of data, the site, or the surrounding conditions. The District considers field data older than five years to be limited in its accuracy and will generally request that updated field studies be completed in such cases. Older field data can, and should, still be used as sources of background information for the scoping of a terms of reference and preparation of an EIS but will not be accepted as the primary source of data.

3.6.3 Digital information

Through the preparation of an EIS, boundaries of natural heritage features and areas may be refined. To maintain updated Official Plan mapping, spatial data (once finalized through an approved EIS) should be provided to the District as per the GIS submission requirements. Typical digital mapping data that would be submitted include feature boundaries and buffers, Ecological Land Classification polygons and related metadata, as well as point records of significant species observations.

As part of the submission, a digital PDF version of the EIS report should be submitted via PlanHub. Within the digital submission, species lists should be provided in excel spreadsheet format.

3.7 Circulation and review of EIS

In addition to the checklist and terms of reference, the EIS is to be submitted to the District as part of a complete development application. Once the submission has been received, staff will determine the completeness of the EIS based on applicable MOP policies, the EIS checklist, and the approved terms of reference. If there is insufficient content or amount of detail within the EIS, the development application will be deemed incomplete, and District staff will provide preliminary comments on issues that need to be addressed.

3.7.1 Peer review

The District may determine that an independent peer review of an EIS is required in some circumstances, such as when technical expertise cannot be provided by District staff. The need for a peer review may be triggered by several situations, including:

- recommending non-industry standard avoidance or protection measures are recommended (e.g., reduced, or variable width buffers), the inclusion of recommendations that are inconsistent with existing policies;
- development or site alteration is proposed within identified sensitive features or associated protective measures;
- impacts to features have been identified but are unmitigated through the report;
- the scope of site assessment efforts is in question (e.g., insufficient studies undertaken to address features on or adjacent to the site; or
- the studies fail to include consideration of impacts identified through other studies (e.g., EIS, Functional Servicing, Hydrogeology, etc.).

Where the need for a peer review is identified, the District will arrange for the services of a third-party peer reviewer. Additionally, where a proponent has elected to not complete a pre-consultation or establish a terms of reference, a peer review will be required. The cost of a peer review is accounted for through the existing Additional Costs Reimbursement Agreement (ACRA) account.

3.8 Finalizing the EIS

District Planning staff will consider the feedback and input from other District departments (i.e., staff from related departments including but not limited to Engineering and Public Works, Housing, Environment and Watershed Programs, etc.) when making a decision regarding whether to recommend support for an application based on the EIS. The response will include technical comments, explain whether a resubmission is required to address any outstanding concerns, and outline the procedure to move forward.

In some cases, an EIS addendum will be adequate to address any outstanding comments and issues. In other cases, a revised EIS may be required. In either case, a cover letter explaining the purpose of the resubmission and including a comments-response matrix is helpful to facilitate the review process. A revised EIS or an EIS addendum should be clearly dated. Revised submissions or addenda will be submitted via PlanHub.

Once all outstanding comments are addressed, District Planning staff will provide the proponents with a letter or email confirming that the EIS is acceptable to the District including the date/version of the final submission. This correspondence may also include conditions of approval recommended by Planning staff that are to be considered by Council when the application proceeds for decision. This information will be included in the report for the application when it proceeds to Council.

4 Components of an EIS Terms of Reference

The following sections outline the components that are to be considered and included in developing a terms of reference for an EIS that is to be submitted to the District of Muskoka.

4.1 Introduction

The introduction of a terms of reference is intended to provide an overview of the proposal (recognizing that it may be subject to changes/refinement as the process moves forward), the subject property and the site context. This should include:

- A description of subject property: the subject property refers to the parcel(s) of land owned by the proponent on which development (and/or site alteration) is being proposed. This should also include all natural features and areas, land covers, existing hard surfaces, or buildings on the subject property;
- A description of the type and scale of the development proposal/concept (including whether any servicing, infrastructure upgrades or stormwater facilities are anticipated), recognizing that it may be subject to change;

- A description of the historical and present uses of the subject property including any grading/filling activities, brownfield contamination, etc.;
- A description of the study area and the subject property's relationship to the surrounding landscape. The study area typically includes the subject property as well as other lands that need to be considered in relation to natural heritage features and areas, and/or their functions, and;
- Map(s) of the development location, subject property, adjacent lands and study area, an orthographic map with known natural heritage features/areas overlaid is also recommended. As established through the Official Plan adjacent lands are 120 m from natural heritage feature boundaries.

4.2 Planning Context

The planning context may be included as a standalone section, or a subsection of the introduction of a terms of reference and should include:

- Current land uses designation and zoning for the subject property and for the adjacent lands;
- the required development applications/proposal;
- map(s) of the development location and extent of the area to be studied including Zoning/Land Use;
- environmental legislative, regulatory and policy requirements that may affect the development proposal.

4.3 Background Review

At the terms of reference stage, known relevant sources of information including existing studies, plans, databases, and other sources should be identified. This information may also be included in the Characterization of the Natural Environment section.

Relevant background sources may include, but are not limited to:

- Current and historical air photos;
- watershed or subwatershed studies;
- secondary plans, master plans and supporting studies;
- EIS information from adjacent lands;
- natural heritage databases;
- data on file with the District, MNR, MECP, and/or DFO for the study area.

4.4 Characterizing the Natural Environment: Methodology and Data Collection

For the EIS terms of reference, the characterization will generally be based on a preliminary review of available background information, any observations made during preliminary site visits, and information gathered through pre-consultations with other relevant agencies and the District. Based on the available information, the terms of reference will identify the need for field studies to fully characterize the natural heritage features and areas on the subject property, and their ecological functions.

Field study protocols/methods must be identified in the terms of reference to allow for a comprehensive review and discussion at the study design stage.

Proponents must ensure that the recommended survey protocols are: (a) suitable for the type of natural heritage features and areas on site, and (b) are designed to provide the information needed to determine whether a feature is significant (or not) according to the MOP. Details regarding the field program should also include:

- Proposed timing of work (i.e., season, time of day, weather dependencies);
- proposed level of field effort (i.e., number of visits, field hours, number of searchers);
- map(s) showing proposed locations for species-specific surveys (e.g., amphibian surveys);
- technology being used (i.e., GPS, broadband bat detectors, etc.) to support field assessments;
- spatial extent and level of effort for supporting field studies (i.e., piezometer locations, etc.).

The terms of reference should also identify and describe the approach and methods to be used to assess the natural environment within the study area as it may relate to the subsections below.

4.4.1 Geology and Soils

The EIS terms of reference should provide a general description of the geology and soils within the study area. This should include a general description of the physiographic region and recognition, where appropriate.

4.4.2 Hydrology and hydrogeology

The EIS terms of reference and the EIS should identify any known surface water and groundwater features in the study area, and whether additional site-specific hydrogeological, hydrologic, and/or fluvial geomorphological work is required to supplement existing background information. Such studies may be incorporated into the EIS but are more typically provided as standalone studies whose findings need to be integrated into the EIS, as appropriate.

The use of data loggers to provide continuous/ complete data collection is encouraged to be incorporated into study designs at the terms of reference stage. This type of data gathered through an EIS process can also serve as baseline information for future monitoring studies.

4.4.3 Aquatic and Fish Habitat

The terms of reference should identify any known aquatic and/or fish habitat and confirm if aquatic and/or fish habitat and/or benthic invertebrate assessments are being undertaken by qualified individuals as part of the EIS. Details should also be provided as to the protocols to be used for any proposed assessments, including the anticipated timing and frequency of surveys. Surface water features that may not directly support fish use but may contribute indirectly to downstream fish habitat must also be considered.

The terms of reference will largely be based on a preliminary review of available data from the MNR and DFO as well as review of DFO's species at risk mapping and the natural heritage information centre (NHIC) database to determine whether the fish habitat may be suitable for species listed under the provincial endangered species act and/or the federal Species At Risk Act. Additional background may also be available through background studies (e.g., subwatershed studies, fisheries management plans, etc.).

The need for additional fish surveys or inventories should be determined based on available information and site conditions including factors such as the proximity of development or grading, nature of the proposed works and the sensitivity of the fish habitat.

4.4.4 Terrestrial Vegetation (including wetlands)

The EIS terms of reference should consider the coarse-level ELC included in the ecological land classification developed through the District's natural capital inventory as a preliminary vegetation classification and will normally need to identify field studies to refine and update these data. The EIS terms of reference should also identify if any additional plant identification work and if a tree inventory (and any associated tree preservation and/or compensation plans) are required. A detailed summary of the field studies proposed should be included in the EIS terms of reference.

If wetland features are present on the subject property, feature boundaries will need to be confirmed in the field following the methods outlined in the Ontario Wetland Evaluation System (OWES). If required, the EIS terms of reference should indicate if a wetland evaluation is required for the site.

4.4.5 Wildlife and Wildlife Habitat (including species at risk)

As part of the EIS terms of reference, preliminary wildlife information based on background reviews and pre-consultations should be summarized and used as a basis, in conjunction with knowledge of the general habitat types known to be on the subject property and in the broader study area, for determining what, if any, wildlife studies are required as part of the EIS. The District's Candidate Significant Wildlife Habitat mapping is to be used as a screening tool in developing the terms of reference and should be referenced to rationalize the proposed wildlife field program.

The surveys required for a particular subject property need to be identified in the EIS terms of reference and include the anticipated timing and scope of these surveys, along with a map identifying locations of species-specific surveys if applicable. On occasion, it may occur that a survey is identified as being required part way through the completion of field work due to an unexpected observation. **Appendix F** provides guidance related to the collection and reporting of wildlife data records, as well as a summary of current and potentially applicable techniques and protocols for undertaking wildlife surveys for key groups currently in use in southern Ontario.

4.4.6 Species at Risk (SAR)

When preparing a, EIS terms of reference, the proponents should perform a SAR screening exercise by consulting the NHIC and contacting the MECP to inquire about any SAR records in the study area. Additional information can be requested from the District Planning Department.

Proponents should also be aware that because the Province of Ontario has not been surveyed comprehensively for the presence of SAR, the absence of a record is not an appropriate indicator for the absence of a SAR from a geographic area. Range maps for species should be considered when considering what SAR may be present in a study area. Based on the results of a screening, field work may be required to determine the presence of SAR.

The EIS terms of reference should include:

- any information provided by MECP or other sources regarding the potential for SAR in the study area and recommended field study methods to verify for the presence of this or these species, and
- a statement about how sensitive information regarding the presence/location of Endangered and Threatened Species will be shared with the District (i.e., so that sensitive locational information is not released to the public).

4.4.7 Natural hazards

Natural hazard lands often overlap with natural heritage features and areas identified for protection, although the rationale for and approaches used to identify their limits are different. These lands also typically require development setbacks, which are different from buffers to natural heritage features and areas in that their primary purpose is to minimize the risk of hazards for people and their property related to the protected area (e.g., flooding, erosion, wildland fire, karst topography), rather than help protect the protected area from the anticipated impacts associated with the development and the people who will be living in it.

The EIS terms of reference should identify if there are known natural hazards on the subject property and in the broader study area based on background information available on the District's Muskoka GeoHub and various schedules and appendices of the MOP

Proposed development within or adjacent to a natural hazard land may result in the need for additional technical studies such as refined flood mapping or modeling, geotechnical reports, fluvial/hydro geomorphological studies, and/or floodproofing recommendations. Specific policies regarding natural hazards are included in Section I2 of the MOP.

4.4.8 Connectivity and Ecological Linkages

The EIS terms of reference should identify any existing ecological linkages, as identified in the MOP or applicable studies. The EIS terms of reference should also recommend, if deemed necessary, any special field work to assess the wildlife use of existing or potential ecological linkages.

4.4.9 Evaluation of Significance

The EIS terms of reference should identify that the evaluation of significance section of the EIS will:

- assess the various natural heritage features and areas against the appropriate policies and guidelines of the MOP to determine significance;
- assess the various natural heritage features and areas against the appropriate policies and guidelines related to natural hazards; and
- assess the appropriateness of proposed buffers and / or setbacks.

4.5 Opportunities and Constraints

The EIS terms of reference should identify that a section including a discussion and analysis regarding opportunities and constraints will be included within the EIS.

4.6 Evaluation of Alternative Options/Measures

The EIS terms of reference should identify that a section including information pertaining to the evaluation of alternative options and measures will be included in the EIS. A discussion regarding avoidance and mitigation measures should also be included in this section.

4.7 Impact assessment

The EIS terms of reference should state the intent of this section, identify the types of potential impacts to be considered and describe briefly how they will be assessed. The types of impacts that should be identified include:

- direct impacts
- indirect impacts
- induced impacts, and
- cumulative impacts.

Site-based and feature-based water balances to demonstrate no negative impact to the natural heritage features and areas, and their functions, if required, should be identified as being needed in the EIS terms of reference. Potential to cause changes to catchment areas, drainage/infiltration patterns, hydroperiod, flow regimes and other, should be considered when determining if a water balance is necessary to inform an impact assessment. Often these impacts are addressed through a stormwater management plan; however, these impacts should be addressed at a minimum through the EIS.

4.8 Recommendations and conclusion

The EIS terms of reference should indicate that recommendations, compliance with applicable policies, and related concluding statements are to be provided within the EIS.

5 Components of an EIS

This section provides guidance related to the expected format, content and supporting field work to be completed as part of an EIS. For some topics, this guidance is supplemented by appendices that describe recommended methodologies and/or preferred options for undertaking field studies for certain types of field work.

The format of the EIS is expected to mirror the structure of the terms of reference and the sections below, which are also included in **Appendix B** (the EIS Submission checklist). The expected format of the report itself and associated maps is also provided in **Appendix B**. The required sections, for which additional guidance is provided below.

Notably, not all the sub-components described under **Section 5.4** is required for every EIS, but the remaining sections outlined below (5.1 - 5.10) identifies all the components that need to be considered. Ultimately, the approved EIS terms of reference (see **Section 4** of these guidelines) will dictate the scope of the final EIS report.

5.1 Introduction

The introduction section of the EIS is intended to provide an overview of the development proposal, the subject property, and the site context. Like the EIS terms of reference, the following should be described within the introduction:

- Subject property: A description of the subject property. This generally includes an overview of vegetation cover and known natural heritage features and areas, hard surfaces, or any existing buildings/structures. In addition, historical context should be provided with particular focus on any past filling or grading activities, changes in vegetation cover and/or site contamination.
- Development proposal: In describing the development proposal, the proponent should detail the type and scale of proposed development along with details such as the proposed density and land uses. Related improvements to servicing, infrastructure, and stormwater facilities (including infiltration galleries) expected to be required, as well as design features such as trails and/or public amenities being proposed should also be outlined.
- Site context and study area: A brief description of the subject property in relation to the surrounding landscape with respect to vegetation cover and known natural heritage features and areas in the adjacent lands, land uses and any existing buildings or associated infrastructure.

Maps and/or other supporting visuals need to be included showing both the subject property and the broader study area. A current aerial photograph must be included in the introductory map showing information such as roads, lot lines, easements, existing buildings, drainage features, existing foot trails and known natural heritage features and areas including watercourses. Maps should be scaled to include the surrounding lands.

5.2 Planning Context

The planning context for the development proposal must be established either within the Introduction (for simpler EIS), or in a standalone section following the Introduction (for more complex EIS). The planning context section must:

- Identify the current land use designations and zoning for the subject property and study area;
- identify the Planning Act applications required for the proposed development (e.g., Official Plan amendment, plan of subdivision);
- include maps of existing and proposed zoning and land uses, and;
- identify environmental legislation, regulations and policies that are applicable to the proposed development, including specific clauses that are relevant to the proposal.

The purpose of this section is to establish the planning framework, and particularly the environmental planning context, within which the EIS will be screened for compliance in the environmental policy analysis section at the end of the EIS. In the District of Muskoka documents to be considered include the most recently approved versions of the following documents, including but not limited to:

- District of Muskoka Official Plan
- Province of Ontario's Provincial Planning Statement
- Province of Ontario's Natural Heritage Reference Manual
- MNRF Significant Wildlife Habitat Technical Guideline and Ecoregion 5E Criteria Schedules
- Federal and Provincial Species at Risk legislation, where applicable.
- Fish and Wildlife Conservation Act
- Federal Fisheries Act
- Migratory Birds Convention Act

5.3 Background Review

The Background Review section may be included within the characterization of the natural environment section (below) or may be a standalone section. Its primary purpose is to identify all the relevant sources of background information for various aspects of the natural environment (i.e., geology, soils, hydrology, hydrogeology, aquatic and fish habitat, terrestrial vegetation, including wetlands, wildlife, and wildlife habitat).

Relevant background sources may include, but are not limited to:

- Current and historical air photos;
- EIS from adjacent lands;
- natural heritage and wildlife databases;
- data on file with the District, MECP, MNR and / or DFO for the study area.

Depending on the nature of the study area and the proposed development, it is also possible that additional technical studies will be required in addition to the EIS. Additional technical studies will be identified in the pre-consultation and terms of reference stage and are typically required when development is proposed within or adjacent to natural heritage features and areas and/or natural hazard lands and may include geotechnical studies, hydrogeologic and hydrologic studies. The key findings from such studies will need to be integrated into the EIS, particularly as they relate to the natural environment. The background review should incorporate relevant information from other related studies.

In addition, professionals with expertise in other disciplines (e.g., surface water, hydrogeology, etc.) may be required to conduct analyses specifically related to mitigating anticipated impacts on the natural environment related to the proposed development. For example, a proposed development that may impact a significant wetland will require a pre-construction and post-construction feature-based water balance by a professional engineer or professional hydrogeologist.

5.4 Characterizing the Natural Environment (including field studies)

The purpose of the characterization section is to (a) describe the methods used to undertake the field studies, and (b) accurately identify and describe all known or candidate natural heritage features and areas on the subject property and, to the extent possible, within the broader study area. This characterization should be based on a synthesis of information/data collected through the background review and field assessments. The field assessment protocols/methods should also be included in the EIS. Significant feature boundaries must be confirmed in the field.

5.4.1 Geology and Soils

Based on the EIS terms of reference and background review, a description of the surficial and bedrock geology and soils within the study area should be included within the EIS. This description should include information on the physiographic region and recognize, as applicable. Findings from any other related studies (i.e., geotechnical) should also be referred to/included.

5.4.2 Hydrology and Hydrogeology

The EIS should characterize known surface water and groundwater features in the study area. Although the EIS will not necessarily need to incorporate all findings from a site-specific hydrologic or hydrogeologic study, it at a minimum should include a review or summary of the available hydrologic and hydrogeologic information based on existing background information and outline any key site-specific findings based on investigations.

5.4.3 Aquatic and Fish Habitat

For proposed waterfront development, the EIS should characterize the aquatic and fish habitat on the subject property and relying primarily on background information in the broader study area, include confirming the thermal regime of any known or potential fish habitat. Fish habitat assessments, if required, should be conducted on surface water features that may directly support fish use, as well as those that contribute indirectly to downstream fish habitat. The scope of fisheries assessment should be established in the EIS terms of reference.

This fish habitat assessment should include information about the surface water feature(s) and the contributing vegetation, such as:

- flow description (source of flow, seasonality, permanent or intermittent, low flow conditions);
- channel characterization (i.e., width, depth, morphology, substrate, bank stability);
- riparian habitat description (e.g., naturalized, or anthropogenic, species composition);
- in-stream vegetation and other cover elements (e.g., woody debris, undercut banks, boulders);
- aquatic connections and barriers to aquatic connectivity (e.g., upstream, and downstream culverts, fish passages, drainage features, dams, etc.); and
- fish community/species, including aquatic SAR, where applicable.

Typically, permits are required from MNRF prior to undertaking fish community surveys (i.e., scientific collector's permits). It is the proponent's responsibility to obtain any required permits prior to undertaking fisheries field studies, if required.

5.4.4 Terrestrial Vegetation (including wetlands)

5.4.4.1 Vegetation Communities: Ecological Land Classification (ELC)

As part of the District's Integrated Watershed Management Initiative, vegetation across the District was classified to community level using the ELC (Lee et. Al, 1998). This classification should be refined to ecosite or vegetation type and updated, as required, through field assessments as part of the preparation of the EIS.

More detailed ELC assessments will assist in the assessments of significant wetlands, habitat of endangered and threatened species, significant wildlife habitat, and other wetlands. The scope of proposed terrestrial studies, including ELC, should be established in the EIS TOR.

The results and details of these assessments must be provided in the EIS (e.g., a description of the dominant species and vegetative structure of each ELC ecosite or vegetation type) and illustrated in a map. Any ELC vegetation types that are considered provincially significant by NHIC should also be noted.

5.4.4.2 Wetlands

With respect to wetlands, the Provincially Significant Wetlands (PSW) mapping in the MOP has been adopted from available MNR data. In some cases, the wetland mapping has been updated (e.g., as the result of a wetland evaluation, or more site-specific studies being completed subsequently), but in some areas it has not. To obtain the most current PSW boundaries for the study area, the proponent should access the digital wetland layer available through Land Information Ontario (LIO) and include a review of the wetland mapping available through the District's Muskoka GeoHub.

The results and details of these assessments must be provided in the EIS (e.g., description of the wetland communities, a summary of the results of any wetland evaluations or assessments) and illustrated on a map.

5.4.4.3 Plants (botanical assessments)

As part of an EIS, plant surveys are typically completed in conjunction with the ELC assessments, recording the relative abundance of each species and documenting the locations (with a GPS unit) of significant species and/or plant populations. Surveys should be timed, to the greatest extent possible, to visit the site during the time(s) of year when the target plants are easiest to identify. This varies depending on the species group and habitat type.

The EIS should include details about the methods used to complete the plant surveys, including the survey dates and scope of surveys undertaken, including any adjustments to the study scope established in the EIS terms of reference.

The plant or botanical assessments should be used to generate a list of all identified plants with details on the species' status at the global, federal, provincial, and local levels and whether it was observed as part of the current field studies or reported by a previous study. Significant species should also be linked to the ELC polygon in which they were found in a table and on a map. The results of the botanical assessments are to be summarized in an annotated checklist included in the EIS as a table within the report or as an appendix.

For Butternut, which is a federally and provincially endangered tree that occurs in the District of Muskoka, the Province has established a specific process for assessment of these trees in cases where they may be impacted by development. It is the proponent's responsibility to ensure that should such species be identified on the subject property, the appropriate assessments are undertaken by qualified individuals (i.e., Certified Butternut Heath Assessor) and permits (if required) are obtained from MOECP.

5.4.5 Wildlife and Wildlife Habitat

As part of an EIS, wildlife assessments are typically required to determine presence or absence of provincially endangered and/or threatened species and their habitat, as well as significant wildlife habitat. In the District of Muskoka, proponents must also determine presence or absence of habitat for significant species which are not captured by either of the other categories listed above.

As part of the EIS, wildlife surveys should be completed (as per the approved terms of reference), and results should be summarized in both text and tabular format. Typically, tables or lists highlighting significant species records are included in the EIS (with applicable current species statuses at the global, federal, provincial, and local levels), and a complete table of all species identified on the subject property and broader study area (either through field studies and/or background review) is included in the report appendices. Methods used, including a summary of survey dates and protocols used, should also be included in this section of the EIS.

While mapping of the confirmed locations of significant species and/or habitats is desirable for transparency and to facilitate decision-making, there needs to be consideration for the Province's data sensitivity policies which prohibit making the locations of certain SAR public. The EIS should also respect these considerations.

Significant Wildlife Habitat is broken into five categories based on MNR's significant wildlife habitat technical guide as follows:

1. Seasonal concentration areas;
2. Rare vegetation communities;
3. Specialized habitats for wildlife;
4. Wildlife movement corridors (including ecological linkages); and
5. Habitats for species of conservation concern.

The EIS should discuss the types of significant wildlife habitat according to these categories and should also consider the local or regional context (where applicable).

In many instances to support the identification of significant wildlife habitat, habitats will need to be classified using ELC to a vegetation type. Additionally, Candidate Significant Wildlife Habitat mapping is available through the District's Muskoka GeoHub.

Although the MNR provides technical guidance related to significant wildlife habitat and identifies some types of significant wildlife habitat (e.g., winter concentration areas) the confirmation or designation of significant wildlife habitat is ultimately under the jurisdiction of the local municipal planning authority. It is, however, the proponent's responsibility to through the EIS process to identify and evaluate for any areas of significant wildlife habitat either (a) identified by MNR, or (b) that qualify as candidate significant wildlife habitat based on the available technical guidance.

Where a known (as identified by MNRF or previously through studies for the District) or candidate significant wildlife habitat is identified, this analysis should then inform the identification of opportunities and constraints, as described below. Permits are required from MECP or MNR for some types of specialized field work that may impact certain SAR (e.g., amphibian trapping) or species listed under the fish and wildlife conservation act, 1997. It is the proponent's responsibility to secure any required permits with MECP or MNR directly.

5.4.6 Natural Hazards

The EIS analysis needs to address any applicable MOP policies as they relate to Natural Hazards, including floodplain areas. Known natural hazard lands are identified in various schedules and appendices of the MOP. Where this results in the need for field work and/or studies, the EIS will incorporate the information and illustrated on a map where appropriate.

5.4.7 Connectivity and Ecological linkages

Although an EIS is a site-specific study, it is important that local and regional scale connectivity (ecological linkages) and landscape functions are considered through the EIS process to ensure maintenance of larger landscape level connections and processes.

Based on the results of the wildlife habitat assessments, the EIS should recognize existing ecological linkages and corridors, and their associated functions, and, if appropriate, recommend additional ecological linkage areas that would support the connectivity within the broader landscape. The EIS may also recommend modifications to the location, and refinements to the width of identified ecological linkages based on the findings of feature specific assessments. Ecological linkages and connections should be confirmed through the EIS building from the assessments of all the other natural features and areas, and their ecological functions, have been completed. Key considerations should include the scale at which the linkage is intended to function, the nature of adjacent land use(s), and the significance, sensitivity, and ecological requirements of the species whose movements the linkage is intended to support.

Mitigation measures should be considered within the EIS to minimize the impacts to wildlife, property damage and human-wildlife conflict, and be implemented through the proposed development (where applicable).

5.5 Evaluation of Significance

The evaluation of significance is the step whereby all identified natural heritage features and areas, and associated ecological functions (in the study area, and particularly on the subject property) are assessed against the applicable policies to confirm whether they are considered significant in the District of Muskoka.

The EIS must include a discussion of each natural heritage feature and area on the subject property and adjacent lands and how its significance was determined. In all cases, the most current applicable policies and guidelines should be applied.

Depending on the number of features and/or areas under consideration, a summary table may be useful.

5.6 Opportunities and constraints

The purpose of the opportunities and constraints analysis is to:

- Identify all the constraints to potential development related to natural heritage features and areas identified for protection, as well as natural hazards, including their respective buffers and setbacks; and
- identify opportunities for development on the subject property that work within the limitations of the site-specific constraints.

An opportunities and constraints analysis should be completed prior to, or at least in conjunction with, the refinement/finalizing of the (draft) development concept plan and included within the EIS terms of reference. This allows for the exploration of design options that, to the greatest extent possible, avoid negative environmental impacts and to identify opportunities to mitigate unavoidable impacts as well as restore or enhance any existing conditions. A comprehensive exploration of opportunities for mitigation is best done with consideration for the proposed concept plan, and exploration of alternatives, as described in the impact assessment section below.

Constraints will include all the natural heritage features and areas identified as significant and/or for protection through the evaluation of significance analysis (described in the section above), plus any applicable buffers, as well any natural hazard features and their associated setbacks as applicable. Key considerations, where applicable, should include:

- Significant natural areas and any associated minimum and/or established buffers, including ecological linkages;
- Natural areas to be protected (if any) and any associated established buffers, and / or natural areas proposed for removal;
- Areas of steep slope;
- setbacks from shorelines and watercourses;
- natural hazards and any associated setbacks; and
- fish habitat types (i.e., cold, cool, or warm water) and associated buffers, if applicable.

The MOP identifies minimum setbacks for some natural heritage features, and leaves buffer determination entirely to the discretion of the site-specific environmental study for other features. The opportunities and constraints analysis are where final buffers should be established and rationalized.

All buffers should incorporate the minimum best management practices (where applicable) and determine an appropriate buffer to protect the natural heritage feature and area from anticipated site-specific impacts associated with the proposed development. Key considerations related to buffer determination should include natural heritage feature/area sensitivities to development, site-specific biophysical factors (e.g., soils, drainage patterns, slopes, etc.), and proposed adjacent land uses.

The EIS should include a map delineating the constraints and opportunities at the site-specific scale, including natural heritage feature and area boundaries, as well as their associated buffers, natural hazard boundaries, and their associated setbacks. This should allow for the identification of a consolidated constraint line, which is to be used to establish the development limit.

5.7 Impact assessment

Impact assessment is a formal process used to predict the environmental consequences (positive or negative) of a plan or project prior to its implementation to inform decision making. The primary purpose of the impact assessment section is to list and describe all potential and/or anticipated impacts to the protected natural heritage features and areas, and their ecological functions, in the study area related to the proposed development, and consider mitigation options. Generally, a table or matrix is helpful for summarizing each natural heritage feature and area being considered:

- the significant characteristics and functions of that feature/area,
- the anticipated impacts to that feature/function (if any), and
- the mitigation options to avoid or minimize these impacts.

As noted in the introduction, avoidance is always the preferred option, followed by minimizing impacts. Compensation for the removal of natural heritage features is not possible currently.

5.8.1 EIS Considerations when Assessing Impacts

In the EIS, the impact assessment section should start by including a detailed description of the proposed development as it relates to elements of the development that may impact the natural heritage features and areas identified for protection, and/or their ecological functions. These elements generally include:

- The number and types of buildings and the location and size of associated parking areas, with specific mention of basements and/or underground parking being proposed in areas where there is a shallow groundwater table;
- grading – i.e., anticipated fill (amount, depth, and ultimate slope of the fill), include a grading/fill map/drawing for fill placement;
- stormwater management (e.g., including the number, size, and type of proposed facilities and/or measures, including low impact development measures);
- servicing, particularly servicing to be located within or adjacent to natural heritage features and/or areas identified for protection;
- trails and/or trail connections; and
- post-development use of the lands (e.g., increased use by people and pets);
- lighting and noise.

5.8.2 Considering Impacts to Natural Heritage Features and Areas

In general, the impact assessment should consider potential impacts of the proposed development to the significant natural heritage features and areas on the subject property as well as within the broader study area, and their ecological functions, including linkages/connections between them and to hydrologic and hydrogeologic resources in the study area. The impact assessment section of an EIS must identify all stressors, threats, and other potential impacts of a development proposal on the natural features and areas in the study area, and particularly on the subject property, as well as their ecological functions. Discipline-specific guidance related to impact assessment is provided below.

- Geology and soils: Specific attention should be paid to sites characterized by shallow soils over bedrock, karst, significant landform, and/or steep slopes, and potential impacts to those features.
- Hydrology and hydrogeology: The impact analysis on hydrology and hydrogeology will need to be integrated between the stormwater report, geotechnical report, hydrogeological report, and the EIS. This integration is to address the following as applicable:
    - impacts to existing groundwater users, including:
    - identification of existing users (map should be provided of locations)
    - MECP water well records (WWR) and their designated uses within the study area
    - (map should be provided of the study area with all WWRs identified);
    - identification of existing groundwater uses within the study area (site). This can be ascertained via the “designated use” within the MECP water well database;
    - potential for interference with other existing water users.
- impacts to surface water and natural functions of the ecosystem, including but not limited to:
    - an analysis of anticipated changes to site infiltration, surface water features, and/or surface water drainage and/or groundwater inputs to other natural heritage features or areas in the study area. For example, any alterations to watercourses such as channel realignments, dredging or culvert works must be identified.
    - results of site-based and feature-based water balances (if required)
    - reductions or increases to stream baseflow;
    - effects on aquatic habitats;
    - effects on terrestrial resources (natural heritage features);
    - stability of geotechnically sensitive soils such as clays or peats

- If a water balance was completed, the EIS should identify any anticipated changes to groundwater infiltration and/or recharge, and any expected impacts to natural heritage features. The analysis should also take into consideration the changes in water quantity and quality, as well as the associated effects on natural heritage features and functions on the subject property and surrounding lands.

- Aquatic and fish habitats: Potential impacts to any type of fish habitat (i.e., direct, or indirect) need to be considered though the EIS. Particular attention should be given to cold or cool water fish habitat, and any aquatic SAR in the area. Changes in fluvial geomorphology such as increase in baseflow, runoff, increase in peak flows, erosion and downcutting of streams are examples that may be considered. Potential impacts to aquatic habitat that are not considered fish habitat should also be considered.
- Terrestrial vegetation: Potential impacts to the natural heritage features and areas should be identified in the EIS. Potential impacts to vegetation communities and significant plant species should be discussed separately.
- Wildlife and wildlife habitat: potential impacts to wildlife should be described relative to the type of wildlife or wildlife habitat (i.e., birds, amphibians, reptiles, mammals, etc.). Categories of wildlife habitat types that align with those in the significant wildlife habitat table should be used where appropriate, and similar groups may also be used for habitats for significant species.
- Natural hazards: Any potential impacts to natural hazard lands related to the proposed development should be identified, along with mitigation options that are supported by input and/or other reports completed by the appropriate technical expert(s). For example, references to findings of geotechnical studies, hydrogeological studies, flood modelling, erosion analysis, etc. may be appropriate.
- Ecological linkages and connectivity: maintaining and enhancing connectivity within and among the larger landscape can be challenging. Any potential impacts to ecological linkages are to be identified and options to mitigate those impacts must be discussed.

Impact assessment should include consideration of direct impacts, indirect impacts, induced impacts, and cumulative impacts, as described below.

Impact assessments should consider the magnitude, frequency, timing, and duration of potential impacts relative to the sensitivity of natural heritage features and areas, in the following contexts.

5.8.3 Direct Impacts

Direct impacts are generally defined as those that are directly related to the proposed development plan. These include impacts usually associated with the layout of the proposed development as well as the construction activities associated with implementation of the proposed development. Options for mitigating these impacts may include exploring alternative layouts and managing construction practices.

The full range of potential impact types should be described and quantified (to the extent feasible) in relation to the potentially affected natural heritage features and areas (and their associated buffers) and /or natural hazards (and their associated setbacks).

5.8.4 Indirect Impacts

Indirect impacts may be caused by altered uses and activities on the subject property after construction has been completed. For example, changes in site conditions may influence drainage patterns which, over time, may negatively impact a natural heritage feature and area previously relying on those water inputs to sustain itself. Options for mitigating encroachment may include ensuring there is some type of barrier between the rear lot lines and adjacent natural features (e.g., a buffer). Mitigating impacts to hydrological functions may include re-directing adequate quantities of clean runoff to that feature to maintain existing water balances.

5.8.5 Induced Impacts

Induced environmental impacts are a type of indirect impact that are generally the consequence of changes in human behaviours in response to the new development. In particular, the creation of informal trails and the introduction of domesticated animals may both cause disturbances to wildlife and natural heritage features and areas.

5.8.6 Cumulative Impacts

Cumulative environmental impacts are the result of incremental impacts of multiple or successive developments. For example, cumulative impacts may occur due to incremental loss of a specific habitat type resulting in the lack of needed habitat variability for ecological functions to persist. An example is when upland meadow habitat (foraging habitat) is adjacent to wetland habitat (breeding habitat) and is incrementally proposed for development resulting in the loss of foraging habitat function. An evaluation of the cumulative impacts of the proposed development must be included in the impact assessment portion of the EIS.

5.9 Evaluation of Alternative Options

This step involves consideration of the different mitigation options in relation to the identified potential cumulative impacts.

- For example, a road is needed within the proposed development to connect the community to a main arterial; however, the proposed road alignment runs through an ecological linkage intended, among other things, to provide a pathway for amphibian migration in the spring and fall. Options that could be considered include: (a) moving the road so that it does not intersect with the linkage at all, (b) shifting the alignment of the road so that it runs parallel to the linkage, or (c) incorporating specialized amphibian movement culverts into the road.

The alternatives considered should:

- be restricted to what is feasible;
- seek to avoid impacts first, then minimize; and

- be undertaken as an iterative process with the planners and other experts on the team to try and achieve a recommended plan that best achieves protection/maintenance of identified natural heritage features and still fulfills the various planning, design and servicing requirements associated with the proposed development.

The consideration of alternative options may be combined with the following section that identifies and describes recommended mitigation measures.

5.10 Recommended Mitigation Measures

As stated in the introductions, “mitigation,” as it relates to natural heritage conservation, is defined as a two step process as follows: (1) avoid, and (2) minimize. In this process, avoiding impacts is always the preferred option, followed by minimizing impacts. The EIS should identify a suite of recommended mitigation measures that:

- address all the potential impacts identified to protected natural heritage features and areas, and their functions, as part of the impact assessment;
- are appropriate for the site based on the characterization of the natural environment;
- are compliant with the applicable environmental legislation; policies, and guidelines; and
- are based on known best practices and/or established technologies.

The approximate timing, duration and location of the recommended mitigation measures should be provided in the EIS and should tie back to the impact analysis section to provide a complete picture of what can be mitigated and what cannot.

Mitigation measures in response to direct and indirect impacts that should be considered include, but are not limited to, the following construction practices:

- Sediment and erosion controls, including adequate measures around wetlands and watercourses;
- minimizing risk through phasing of the development;
- location of fill piles, construction access, machinery storage and temporary access routes outside of natural heritage features and areas, and their buffers;
- temporary dewatering during grading and construction;
- installation and maintenance of tree protection fencing and signage, if applicable;
- ensuring timing windows for in-water works and/or vegetation removal respect requirements associated with provincial or federal legislation;
- integration of measures to try and get pre-construction infiltration to approximate post-construction infiltration (e.g., low impact development measures);
- implementation of appropriate buffers
- installation of wildlife culverts or passages, where appropriate.

Mitigation should also include consideration of enhancement, naturalization, and restoration opportunities to improve natural heritage features and areas, and their ecological functions. Considerations should include the identification of natural heritage features and areas suitable for enhancement, including buffers (e.g., invasive species removal and replacement with appropriate native plants).

5.11 Environmental Policy Analysis

The purpose of the environmental policy analysis section is to ensure that the EIS, including recommended mitigation and monitoring measures, complies with all the applicable environmental policies and legislation, as identified in the planning context section. These policies and legislation include, but are not limited to:

- District of Muskoka Official Plan;
- Provincial Planning Statement;
- Endangered Species Act, 2007;
- Fish and Wildlife Conservation Act;
- Migratory Birds Convention Act;
- Federal Fisheries Act;
- Species at Risk Act; and
- other applicable legislation.

5.12 Recommendations and Conclusion

When preparing recommendation and conclusions, this section must:

- summarize all the recommendations presented in the EIS for ease of implementation, with references to earlier sections and/or appendices where details are provided, as appropriate, in a text or table format;
- provide a general statement as to whether the EIS complies with applicable policies and legislation; and
- include a list of items that are to be completed during the preparation of the environmental implementation report or at a detailed design stage or implemented during/following construction.

Additional Terms

To be identified by the District and/or Area Municipality where proposed development is located.

Study Submission Instructions

To be identified by the District and/or Area Municipality where proposed development is located.

What other resources are there?

Ministry of Natural Resources – Natural Heritage Reference Manual
Ministry of Natural Resources – Significant Wildlife Habitat Guide
Ontario Professional Planners Institute (OPPI) – Hire an RPP
Ontario Planning Act, R.S.O. 1990

[Provincial Planning Statement 2024 (PPS)]
[Muskoka Official Plan (MOP)]

Applicable Area Municipal Official Plans:
Town of Huntsville Official Plan
Town of Bracebridge Official Plan
Town of Gravenhurst Official Plan
Township of Lake of Bays Official Plan
Township of Muskoka Lakes Official Plan
Township of Georgian Bay Official Plan

About these Terms of Reference

The need and scope for this study will be decided by the District and/or Area Municipality during initial pre-consultation process with input from partner agencies. This pre-consultation process may include:

- Determination if this study is applicable
- Confirmation of criteria within these Terms of Reference that are appropriate for your development project
- Identification of specific technical components that need to be addressed
- Identification of detailed standards to be met

Notes:

If the proposed development is revised, the study/report shall reflect the revisions by an updated report or letter from the author indicating the changes and whether or not the recommendations and conclusions are the same (Note: this is subject to the extent of the revisions).

A peer review may be required. The cost of the peer review will be borne by the applicant.

If the submitted study is incomplete, is authored by an unqualified individual or does not contain adequate analysis, the applications will be considered incomplete and returned to the applicant.

Appendix A: EIS Terms of Reference Submission Checklist

Reporting Standards

- ☐ Along with other development application requirements as outlined in the subdivision/condominium application checklist, the EIS and associated reports are to be submitted digitally through the PlanHub portal.
- ☐ Digital reports are to be formatted on 8½ by 11 pages.
- ☐ A title page that includes: the name of the applicant, address of the subject property, lists the principal author of the report, the consulting firm, and the date the report was completed.
- ☐ Please ensure that the contact information for the applicant and main report author name are also provided within the report.
- ☐ Where hardcopies are provided, they are to be printed double-sided.
- ☐ Where hardcopies are provided all maps are to be full colour and on 11x17 minimum.

Content

The following is a checklist of all the potential sections that may need to be addressed as part of an EIS. However, depending on the scope and scale of the proposed development and/or site alteration, as well as the nature and extent of natural heritage features and areas to be considered, not all elements will necessarily be required. Components not included in the terms of reference, with a rationale for their exclusion, should be marked as "N/A."

Introduction

- ☐ Description of subject property (natural features and areas, land cover, existing hard surfaces, or buildings)
- ☐ Description of the type and scale of the development proposal (including any required servicing, infrastructure upgrades or stormwater facilities, existing or proposed trails)
- ☐ Describe the historical and present uses of the subject property:
- ☐ grading/filling activities
- ☐ brownfield contamination
- ☐ Description of the site context / study area and the subject property's relationship to the surrounding landscape
- ☐ Include map(s) of the development location, subject property, and study area
- ☐ Orthographic map with known natural heritage features / areas overlaid

Planning Context

- ☐ Current land uses designation and zoning for the subject property and for the adjacent lands
- ☐ Identify the type of required development applications
- ☐ Include map(s) of the development location and extent of the area to be studied including current zoning/land use
- ☐ Identify environmental legislative, regulatory and policy requirements that may affect the development proposal, including clauses relevant to the proposal

Background Review

- ☐ Identify relevant information from existing studies, plans, databases, and other sources to be analyzed as part of the EIS

NOTE: Natural heritage records are generally considered in need of field verification after a period of five years

Characterizing the Natural Environment: Approach and Methodology

- ☐ Detailed study methods for studying natural heritage features and areas, wildlife habitat and species at risk (including time of year, level of searcher effort, etc.)
- ☐ Identify and describe the approach and methods to be used to assess the natural environment of the subject property and the adjacent lands for:
- ☐ Geology and soils
- ☐ Hydrology and hydrogeology
- ☐ Aquatic and fish habitat
- ☐ Terrestrial vegetation (including wetlands)
- ☐ Vegetation communities (ecological land classification)
- ☐ Plants
- ☐ Wildlife
- ☐ Natural hazards
- ☐ Connectivity and ecological linkages
- ☐ Identify whether there are potential natural heritage features and areas that do not need to be assessed, and provide a rationale for their exclusion
- ☐ Include completed “screening for known or candidate wildlife habitat,” or similar screening table for significant wildlife habitat

☐ Include map(s) showing proposed locations for field studies (i.e., points, plots, transects)

Data Analysis: Approach and Methodology

☐ Evaluation of significance and natural hazards – identify that the following is in scope and any known analysis that will need to be included

☐ Assess the various natural heritage features and areas against the appropriate policies and guidelines to determine significance:

☐ Assess the various natural heritage features and areas against the appropriate policies and guidelines related to natural hazards:

☐ Assessment of appropriate buffers and / or setbacks;

☐ Natural heritage and natural hazard opportunities and constraints – identify that it is in scope

☐ Environmental policy analysis (confirmation of policies and legislation to be addressed)

☐ Impact assessment – identify that the scope includes

☐ Direct impacts

☐ Indirect impacts

☐ Induced impacts

☐ Cumulative impacts

☐ Evaluation of alternative options / measures – establish key analysis points to be addressed in the EIS

☐ Recommended mitigation measures

Recommendations and Conclusion

☐ Recommendations concluding statement (confirm they are to be provided in the EIS)

Appendix B: EIS Submission Checklist

Reporting standard

- ☐ Formatted on 8½ by 11 pages, double-sided.
- ☐ A title page that includes: the name of the applicant, address of the subject property, lists the principal author of the report, the consulting firm, and the date the report was completed.
- ☐ Please ensure that the contact information for the applicant and main report author name are also provided within the report.
- ☐ Maps are to be full colour and on 11”x17” paper minimum

Content

The following is a checklist of all the potential sections that may need to be addressed as part of an EIS. This checklist should be used in the context of the approved EIS terms of reference.

Introduction

- ☐ Description of subject property (natural features and areas, land cover, existing hard surfaces, or buildings)
- ☐ Description of the type and scale of the development proposal (including any required servicing, infrastructure upgrades or stormwater facilities, existing or proposed trails)
- ☐ Describe the historical and present uses of the subject property including grading/filling activities and brownfield contamination
- ☐ Description of the site context / study area and the subject property’s relationship to the surrounding landscape
- ☐ Include map(s) of the development location, subject property, and study area
- ☐ Orthographic map with known natural heritage features / areas overlaid

Planning Context

- ☐ Current land uses designation and zoning for the subject property and for the adjacent lands
- ☐ Identify the type of required development applications
- ☐ Include map(s) of the development location and extent of the area to be studied including current zoning/land use and what is proposed
- ☐ Identify environmental legislative, regulatory and policy requirements that may affect the development proposal, including clauses relevant to the proposal

Background Review

- ☐ Identify relevant information from existing studies, plans, databases, and other sources to be analyzed as part of the EIS
- ☐ Identify and incorporate important information from additional technical studies such as: geotechnical, hydrogeologic and hydrologic studies

Characterizing the Natural Environment

- ☐ Describe the detailed study methods for studying natural heritage features and areas, wildlife habitat and species at risk (including time of year, level of searcher effort, etc.) as well as for delineating feature boundaries.
- ☐ Identify and describe all known or candidate natural heritage features and areas within the study area and specify their boundaries.
- ☐ Characterize the existing conditions of the following natural heritage components based on a synthesis of information/data collected through the background review and field assessments:
- ☐ geology and soils
- ☐ hydrology and hydrogeology
- ☐ aquatic and fish habitat
- ☐ terrestrial vegetation (including wetlands)
- ☐ vegetation communities (ecological land classification)
- ☐ plants
- ☐ wildlife
- ☐ natural hazards
- ☐ connectivity and ecological linkages
- ☐ Include map(s) showing locations for field studies (i.e., points, plots, transects), natural heritage features and areas (including their limits), etc.
- ☐ Include completed “screening for known or candidate wildlife habitat,” (see **Appendix C**) as well as “screening for habitat for significant species.”

Data Analysis:

Evaluation of Significance and Natural Hazards

- ☐ Assess the various natural heritage features and areas against the appropriate policies and guidelines to determine significance.

- [ ] Assess the various natural heritage features and areas against the appropriate policies and guidelines related to natural hazards.
- [ ] Include an assessment of appropriate buffers and / or setbacks.
- [ ] Include a map showing all natural heritage features and area boundaries and buffers/ buffer limits.

Opportunities and Constraints

- [ ] Discuss and depict natural heritage and natural hazard opportunities and constraints
- [ ] Identify all the constraints to potential development related to natural heritage features and areas identified for protection, as well as natural hazards, including their respective buffers and setbacks
- [ ] identify opportunities for development on the subject property that are located outside of the identified constraints to potential development and associated protective measures
- [ ] identify opportunities for restoration, enhancement, and/or stewardship opportunities
- [ ] Depict constraints and opportunities in a single figure

Impact Analysis

- [ ] Detailed description of the proposed development as it relates to potential impacts to the natural heritage features and areas identified for protection, and/or their ecological functions. Consider elements such as: built form, grading, stormwater management, servicing, trails, and post-development use of the land.
- [ ] Include a water balance (or appended/cross reference to a supporting study) with a supporting impact analysis in the EIS when addressing hydrological impacts.
- [ ] Include an impact assessment that considers both short-term and long-term impacts, including:
    - Direct impacts
    - Indirect impacts
    - Induced impacts
    - Cumulative impacts
- [ ] It is recommended to use a table format to summarize the impact analysis section.

Evaluating Alternative Options

- ☐ The evaluation of alternative options / measures describes how impacts can be mitigated through use of best management practices, and innovative measures.
- ☐ Where trails or roads are part of the development, identify and describe the opportunities for alternative trail alignments and approaches
- ☐ Summarize preferred alternative(s) for the proposal

Recommended Mitigation Measures

- ☐ Complete accounting of all recommendations
- ☐ Depict constraints, mitigation measures, and proposed development on a single figure

Environmental Policy Analysis

- ☐ Include an environmental policy analysis confirming how the proposal meets (or does not meet) the applicable policies and legislation as described in the planning context section (see above).

Recommendations and Conclusion

- ☐ Summary of recommendations
- ☐ Concluding statement confirming proposal is consistent with applicable policy and legislation

Appendices and Attachments

- ☐ EIS terms of reference and District approval thereof
- ☐ Site photos
- ☐ Species lists, as applicable
- ☐ Additional technical studies, as applicable

Appendix C: significant wildlife habitat screening table

The following table has been developed based on the categories provided in the MNR's significant wildlife habitat technical guide (2000) with consideration for the MNR's SWH ecoregion 5E criterion schedule (2015), and the District of Muskoka's biophysical context. These categories should be revised or refined based on subsequent updates to these guidance sources.

Table 9.1. SWH screening table - seasonal concentration areas

Significant wildlife habitat type	**Known or candidate SWH present within or adjacent to the subject property?**	**Rationale** **(habitat presence or absence)**	**Field studies required?**
Waterfowl Stopover and Staging Areas (Terrestrial)			
Waterfowl Stopover and Staging Areas (Aquatic)			
Shorebird Migratory Stopover Area			
Raptor Wintering Area			
Bat Hibernacula			
Bat Maternity Colonies			
Bat Migratory Stopover Area			
Turtle Wintering Area			
Snake Hibernacula			
Colonially – Nesting Bird Breeding Habitat (Bank and Cliff)			
Colonially – Nesting Bird Breeding Habitat (Tree/Shrub)			

Colonially – Nesting Bird Breeding Habitat (Ground)			
Deer Yarding Areas			

Table 9.2. SWH screening table - rare vegetation communities or specialized habitat for wildlife

Significant wildlife habitat type	**Known or candidate SWH present within or adjacent to the subject property?**	**Rationale** **(habitat presence or absence)**	**Field studies required?**
Beach/Beach Ridge/Bar/Sand Dunes			
Shallow Atlantic Coastal Marsh			
Cliffs and Talus Slopes			
Rock Barren			
Sand Barren			
Alvar			
Old Growth Forest			
Bog			
Tallgrass Prairie			
Savannah			
Rare Forest Type – Red Spruce			
Rare Forest Type – White Oak			

Table 9.3. SWH screening table – specialized habitats for wildlife

Significant wildlife habitat type	Known or candidate SWH present within or adjacent to the subject property?	Rationale (habitat presence or absence)	Field studies required?
Waterfowl Nesting Area			
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat			
Woodland Raptor Nesting Habitat			
Turtle and Lizard Nesting Areas			
Seeps and Springs			
Aquatic Feeding Habitat			
Mineral Lick			
Denning Sites for Mink, Ott, Martin, Fisher, and Eastern Wolf			
Amphibian Breeding Habitat - Woodland			
Amphibian Breeding Habitat – Wetlands			
Mast Producing Areas			

Table 9.4. SWH screening table - habitats for species of conservation concern

Significant wildlife habitat type	Known or candidate SWH present within or adjacent to the subject property?	Rationale (habitat presence or absence)	Field studies required?
Marsh Bird Breeding Habitat			
Open Country Bird Breeding Habitat			
Shrub / Early Successional Breeding Bird Habitat			
Special Concern and Rare Wildlife Species			

Table 9.5. SWH screening table – wildlife movement corridors

Significant wildlife habitat type	Known or candidate SWH present within or adjacent to the subject property?	Rationale (habitat presence or absence)	Field studies required?
Amphibian Movement Corridors			
Cervid Movement Corridors			
Furbearer Movement Corridors			