



# **ENVIRONMENTAL IMPACT STUDY**

## **TERMS OF REFERENCE**

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## **1.0 INTRODUCTION**

### **1.1 Background**

The Environmental Impact Study - Terms of Reference (EIS TOR) were approved by the Executive Committee, Resolution No. 2 EC 93, January 22, 1993 and have been revised to reflect CVC's technical advisory role with our local and regional watershed municipalities, our commenting responsibilities under the Planning Act, and our statutory responsibilities under the Conservation Authorities Act (Sec. 20 and 21, and Sec. 28, Ontario Regulation 160/06 as amended). The EIS TOR and supporting Appendices provide a framework for CVC staff to assess development within and adjacent to natural areas to ensure that the new Provincial Policy Statement (March 2005); relevant official plan and secondary plan policies of the watershed municipalities and current CVC policies, guidelines, practices and management study recommendations are addressed.

Development and its associated activities should conserve the existing natural heritage and hazard features, functions and linkages of the local landscape and subwatershed area in a self-sustaining state. Development may also have the opportunity to restore and enhance lands that have been ecologically degraded through past extensive and/or intensive lands uses, e.g. gravel extraction, agriculture, etc.

### **1.2 Intent of the EIS TOR**

The EIS TOR is to be used by staff to ensure a consistent review of development applications, particularly to ensure that:

- We pre-consult and scope the environmental issues and our requirements with those of the local and/or regional municipality and the applicant;
- The applicant is fully aware of CVC's concerns for undertaking a biophysical inventory and analysis; identifying constraints and opportunities; an assessment of impacts; the analysis of mitigation measures; and the identification of monitoring;
- We provide comments and conditions regarding the feasibility and detailed design of the proposal, appropriate to the planning application; and
- We provide approvals in accordance with Ontario Regulation 160/06 as amended, and comments to other regulatory agencies, as requested.

### **1.3 Natural Heritage Features and Hazardous Areas**

The EIS TOR is intended to identify the issues and requirements for the protection and conservation of natural heritage features and functions, and hazardous areas, including, but not limited to:

- Valley Lands;
- Wetlands;
- Environmentally Significant Areas (ESA's);
- Areas of Natural and Scientific Interest (ANSI's);
- Species at Risk and Species of Conservation Concern<sup>1</sup>;
- Woodlands;
- Fisheries and Wildlife habitat;
- Flood and erosion hazards of watercourse and valley lands;
- Flood and erosion hazards of dynamic beaches;
- Groundwater recharge and discharge areas;
- Groundwater quantity and quality related to contribution to baseflow and natural heritage features, and;
- Surface water quantity and quality.

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<sup>1</sup> As per the federal Species at Risk Act and CVC's Species of Conservation Concern.

CVC will provide a copy of the EIS TOR, for information purposes, to both the local and/or regional municipalities, so that they are aware of our review process. In addition, we will provide a copy to an applicant upon receipt of a planning application and/or notification from an applicant regarding their development application.

## **2.0 Development Application Review Process**

### **2.1 Approvals**

The EIS TOR is designed to flexibly respond to the different municipal policy environments and in particular recognize that approved municipal policies and/or requirements may supercede the EIS TOR.

Local and/or regional municipal official plan environmental policies and CVC policies are focused on the long term conservation of natural heritage features and hazard areas, associated with valley lands, watercourses and wetlands and terrestrial features. New development is generally prohibited within these areas, except for flood and erosion works, and passive recreation. Developments will need to be located and designed to be consistent with the goals and objectives expressed by both municipal and CVC policies.

CVC will review developments in accordance with Ontario Regulation 160/06, as amended, for permits for alteration to watercourses, construction in the floodplain or fill placement in a regulated area. In addition, CVC may be asked to provide comments and/or conditions of approval to the local and/or regional municipality, and public agencies (that will issue regulatory approvals), including but not limited to:

- Municipal – local and/or regional official plan and secondary plan amendments and/or zoning bylaw amendments; site plan approval; building permits; fill and/or topsoil removal permits; and woodlot and/or tree bylaws.
- Ministry of Environment (MOE) – Ontario Water Resources Act for Permit To Take Water (PTTW) and Certificate of Approval.
- Credit Valley Conservation - Ontario Regulation 146/90 as amended for permits for alteration to watercourses, construction in the floodplain or fill placement in a regulated area.
- Department of Fisheries and Oceans – Fisheries Act authorization for the harmful alteration, disruption or destruction of fish habitat, including the Canadian Environmental Assessment Act and Navigable Waters Act.
- Ministry of Natural Resources – Lakes and Rivers Improvement Act approval for watercourse alterations.
- Niagara Escarpment Commission – Development permit.

An EIS is a mechanism for assessing impacts to determine the suitability of a development proposal, and submission of an EIS does not guarantee approval of a development. CVC will provide comments, conditions of approval and/or regulatory permits at appropriate points in the development application review process.

### **2.2 Pre-Consultation**

Pre-consultation is an opportunity for the applicant, local and/or regional municipality and CVC to discuss the development proposal and the issues and concerns for protection of the natural heritage and hazards lands of the subject site. CVC encourages pre-consultation prior to the submission of the development application to the municipality or submission of the Regulatory permit application. The intent of pre-consultation is to:

- review current legislative and policy requirements, and discuss existing information, data and recommendations provided in other studies, including subwatershed studies, future source protection plans, the Credit River Fisheries Management Plan, etc. that may be relevant to the subject lands and the development proposal;
- co-ordinate and integrate the EIS TOR with the local and/or regional municipal environmental report requirements, eg. Environmental Impact Analysis, or a site specific terms of reference prepared by the applicant;
- scope the EIS TOR based on the significance and sensitivity of the natural heritage features, hazards and associated functions of the subject site and adjacent lands, and the scale of the proposal;
- identify future site visit dates to be conducted by the applicant/consultants and agencies to field review and/or stake the natural feature boundaries (eg. top of bank, wetlands, etc.); potential locations for watercourse crossings; geotechnical hazards, etc.

As determined through the scoping process, a revised EIS TOR may be provided to the applicant. At any point during preparation of the report/s, further meetings can be held at the request of the applicant to ensure the completeness of the draft report/s.

Pre-consultation information to be provided by CVC and/or the municipality should include:

- Natural heritage feature and hazardous area mapping;
- Policies, study recommendations, etc.

We would encourage the applicant to bring the following information, if available:

- The proposed development application;
- Preliminary site plan and routing plan;
- Existing background information.

### **2.3 Review Framework**

Depending on the scale of the proposal, an EIS may need to be prepared in two phases. Phase 1 should be prepared to the satisfaction of the local and/or regional municipality and CVC, before the proponent proceeds with fulfilling the requirements of Phase 2.

#### **Phase 1**

1. Overview of the natural features of concern; the development application; and municipal and agency legislation and policy requirements and servicing issues which are relevant to the proposal and/or the subject lands.
2. Detailed description of the natural environment and the development proposal, including a biophysical inventory and analysis, to prepare a Constraints and Opportunities Plan.
3. The draft Constraints and Opportunities Plan will be used to prepare and/or revise a draft Concept Plan.

#### **Phase 2 (if necessary)**

4. Assessment of the potential impacts of the proposed development on the natural environment, including the physical, biological and social resources.
5. Analysis of the available mitigation measures and their effectiveness to eliminate or reduce the potential impacts of development on natural area features and functions.
6. Provision of a Monitoring Plan, as required, for pre-construction, construction-operation and post-construction periods.

7. Provision of a Summary Table (as provided in Appendix A), an Executive Summary and Appendices, as appropriate.

### **3.0 PHASE 1 - REPORT PREPARATION**

#### **3.1 Development Proposal**

1. Describe the proposed development and required development applications.
2. Provide a preliminary site plan of the subject property and proposed development.
3. Outline the current land use designation and zoning.
4. Briefly describe the historical and present land uses of the subject property, including, but not limited to:
  - grading/filling activities;
  - easements or restrictions;
  - what is generally permitted on the property under the existing planning regime.

#### **3.2 Natural Features of Concern**

1. List and describe the natural areas onsite, including any natural area designations as defined by CVC, the region/county or local municipality, Ministry of Natural Resources, Niagara Escarpment Commission, etc.
2. Provide an aerial photograph of the area, and a general location map that identifies the subject property and proposed development, and natural areas, both onsite and on the adjacent lands (within 500 m of the subject property).

#### **3.3 Municipal and Agency Requirements**

1. Outline relevant federal, provincial, municipal and agency legislation and policies related to the natural area/s and designations that will be applied to this development and may include those contained within the:
  - a) Federal Acts: Fisheries Act, Species at Risk Act (i.e., implementation of Recovery Plans) and Migratory Birds Act;
  - b) Provincial Acts/Plans passed under provincial legislation: Endangered Species Act, Niagara Escarpment Plan, Oak Ridges Moraine Conservation Plan, Greenbelt Plan, Source Water Protection, Places to Grow, etc.
  - c) Provincial Policy Statement, March 2005 and Reference Manuals;
  - d) Upper and lower tier official plan and secondary plan;
  - e) Municipal Woodlot and/or Tree Removal Bylaws, and Topsoil/Fill Permits.
  - f) CVC Policies and Regulation (eg. Watercourse and Valley Land Protection Policies);
  - g) Subwatershed studies and tributary level studies (eg. Environmental Implementation Report, Environmental Management Plan, etc.);
  - h) Credit River Fisheries Management Plan (eg. Timing guidelines).
2. Briefly describe relevant municipal and agency issues that must be addressed by this development (i.e. to achieve lot layout, grading, servicing, etc.) that may negatively impact the natural features and functions of a site, including:

- municipal or private sanitary and water services;
- road construction and widening;
- site remediation re: contaminated soils;
- stormwater management;
- barriers, eg. noise walls, fences, berms, and curbs;
- lighting of parks and trails, streetscape and parking areas;
- dedication of parkland;
- open space and institutional blocks, eg. usage, noise; and
- open space trails, including vehicular access.

### 3.4 Biophysical Inventory

Undertake a complete biophysical inventory and mapping of the following natural area resources at a scale of 1:5000 (or other scale as agreed by CVC staff). Where feasible, mapping should be done on GIS (Arcview Shapefile or ArcExplorer). Field staking of the natural heritage features is to be carried out with local and/or regional municipal staff and CVC, as appropriate.

#### 1. Earth Resources<sup>2</sup>

- landforms
- soils
- geology
- topography
- erosion sites

#### 2. Water Resources<sup>3</sup>

- floodplain
- hydrogeology
  - recharge/discharge zones, including seeps
  - groundwater quality and quantity
  - groundwater elevations and flow directions
  - seasonal groundwater elevation variations
  - connection between groundwater and surface water at site, and the adjacent natural feature
- hydrology
  - surface water quality and quantity
  - surface drainage features, including swales
- riparian wetlands

#### 3. Vegetation Resources<sup>4</sup>

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<sup>2</sup> Generally a literature and map review; however, other studies accurately defining features (eg. staking the top and/or toe of the valley slope) and hazard lands (eg. geotechnical review of slope stability) may be required.

<sup>3</sup> Generally a literature and map review; however, other studies accurately defining features and hazards (eg. floodplain analysis, geomorphic review of watercourse erosion and meander belt width analysis, etc.) may be required. Any proposals affecting groundwater and/or surface water may be required to prepare a water budget and/or water quality assessment. CVC's *Water Taking Proposal* and *Water Quality Assessment* outlines the background information to be collected.

**NOTE: CVC has compiled an *Inventory, Assessment/Analysis and Monitoring Protocols Manual*, outlining our requirements related to collecting, analyzing and presenting data. Specific information and/or protocols (*as identified in italics*) will be appended to the EIS TOR as identified through the scoping exercise.**

- Onsite vegetation resources
  - Determine and map all vegetation communities, including dominant species in accordance with the protocols as set out in the ELC manual and/or CVC's *Standards for Applications of Ecological Land Classification for Southern Ontario*.
    - Map all rare or uncommon vegetation communities regardless of size as described in CVC's *Vegetation Assessment Tool*; *Southern Ontario Vegetation Community List and Rarity Rank*; and *Rare Vegetation Communities of the Credit River Watershed*, including those that can only be mapped as a line feature, eg. cliffs, seeps and bluffs and/or point features eg. caves, vernal pools, etc.
    - Describe the location and distribution of all rare or uncommon species based upon "*Vascular Plant Flora of the Region of Peel and the Credit River Watershed (Kaiser, 2001 and amendments)*"<sup>5</sup>. We may request detailed mapping of the species occurrence at a later date.
  - Identify and map all wetlands in Site Districts 7-4, 6-1 and 6-7 regardless of size, as described in CVC's *Wetland Evaluations in the Credit River Watershed as per OMNR, Aurora District*. For those wetlands that have not been previously assessed, undertake a wetland evaluation as per the *Ontario Wetland Evaluation System (Southern Ontario Edition)*. CVC's *Field Survey Form for Ontario Wetland Evaluation System Data Collection Form* can be used for OWES data collection.
  - Provide an assessment of the vegetation communities by calculating the Coefficient of Conservatism and Wetness Indices by using the Floristic Quality Assessment System (Oldham, Bakowsky and Sutherland, 1995) as summarized in CVC's *Vegetation Assessment Tools*; or other protocol as discussed with CVC.
- Offsite vegetation resources adjacent to the subject property
  - Visually verify the adjacent properties vegetation resources as identified by CVC's ELC Community Series mapping, including dominant species;
  - Describe the location and distribution of any rare, uncommon or species of concern based on the Natural Heritage Information Centre (NHIC) and the "*Vascular Plant Flora of the Region of Peel & the Credit River Watershed. (2001)*".

#### 4. Wildlife Resources<sup>6</sup>

- Undertake an inventory of all wildlife species for each ELC Ecosite or Vegetation Type that were found onsite. Ensure that evidence and faunal codes and abundances are recorded on the ELC wildlife data card<sup>7</sup>. Species lists/ELC wildlife data cards should be summarized in a tabular format as per CVC's *Sample Presentation Format for Wildlife Data*, that relates species to associated onsite vegetation communities and/or specific wildlife habitat (eg. vernal pool, hibernacula, snags, fallen logs, etc.) and identify critical habitat needs (i.e reproduction, foraging, overwintering and movement/migration).
- Undertake a breeding bird survey in accordance with the *Forest Bird Monitoring Program, 2002 (CWS)* or the *Marsh Monitoring Program (CWS and Bird Studies Canada)*. That is, two surveys must be conducted at least 10 days apart between late May and July 5<sup>th</sup>. The surveys

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<sup>4</sup> Literature review should include NHIC database re: rare species, etc. If development is proposed within and/or adjacent to certain natural features/areas, field work may be required to address vegetation survey protocols.

<sup>5</sup> To obtain this document, contact CVC's Natural Heritage Ecologists, 905-670-1615.

<sup>6</sup> Literature review should include Atlases, NHIC database re: Species at Risk, etc. If development is proposed within and/or adjacent to certain natural features/areas, field work may be required to address wildlife survey protocols.

<sup>7</sup> The evidence and faunal codes can be found on CVC's *Wildlife Behaviour and Evidence Codes* and CVC's *4-Letter Species Codes for Amphibian, Bird, Mammal and Reptile Species of the Credit River Watershed*

must be conducted in either the early morning and/or early evening depending on habitat and potential species present, as per the protocols.

- Undertake a spring frog survey in accordance with the *Marsh Monitoring Protocol (CWS and Bird Studies Canada)* or *North American Amphibian Monitoring Program (USGS)*. This survey is to be undertaken once a month for three (3) months starting in early spring.
- Describe the location and distribution of any rare or uncommon species based on CVC's *Species at Risk in the Credit River Watershed*. CVC's *Rare Wildlife Species Reporting Form* should be completed for these species, or any species that are considered to be uncommon or unusual to the watershed and/or site.
- Identify and map all potentially significant wildlife habitat, both onsite and adjacent lands as described in CVC's *Significant Wildlife Habitat Determination*.

#### 5. Fisheries Resources

- Determine and map the location and distribution of fish habitat and species, particularly spawning and other critical habitats, eg. refuge pools, and benthic organisms as per the *OMNR's Stream Assessment Protocol for Southern Ontario, Version 4.1, 2000*.
- Define watercourse flow characteristics with particular emphasis on identifying permanent and seasonal fisheries habitat use.
  - If no fish habitat is found onsite, identify contributing functions, eg. flow and sediment regime, water quality, vegetation as food source, etc.
  - Identify channel characteristics, eg. width, depth, substrate, meander and valley confinement.
  - Identify riparian characteristics.
- Headwater drainage features, eg. poorly defined first order streams, swales, etc. should be reviewed using the *Evaluation, Classification and Management of Headwater Drainage Features, Interim Guidelines, March 2007*.

### 3.5 Biophysical Analysis

1. Prepare a survey of all field staked natural heritage features and map other relevant natural features, as appropriate.
2. Discuss the inter-relationship of the documented biophysical resources. In particular, identify:
  - a. Significant and sensitive features and functions of the subject property;
  - b. Relationship of this property to the natural area features and functions on the adjacent lands;
  - c. Relationship of this property to the entire natural area;
  - d. Relationship of natural area features and functions to the subwatershed and the Credit River Watershed.
3. Identify any ecological and/or water targets recommended for the subwatershed and municipality.
4. Identify the representativeness and rarity of the natural features and functions by ELC vegetation type using CVC's *Southern Ontario Vegetation Community List and Rarity Ranks*, *Bakowsky*, and CVC's *Rare Vegetation Communities of the Credit River Watershed*, at the watershed scale.
5. List and describe other natural and cultural features onsite (eg. corridors, linkages, hedgerows, swales, meadow-feeding areas, etc.) that may contribute to functions of the designated natural area's features and functions, both onsite and related to adjacent lands.

6. List and describe site characteristics of the subject property (eg. rolling topography, high water table, buffering vegetation, etc.) that may pose constraints to the development with respect to typical construction and/or grading.

### 3.6 Development Proposal

1. List and describe activities associated with the proposed development, during construction and post-development, that may have an impact on natural area features and functions, including, but not limited to:
  - a) sanitary and water servicing - municipal, communal or individual;
  - b) servicing - disruption of groundwater flow system, watercourse crossings, etc.;
  - c) stormwater management - location of facilities and outfalls, thermal effects, water quality, etc.;
  - d) housing density – opportunities for lot level controls, private infiltration facilities, etc.;
  - e) road construction or widening – need for bridges, culverts, cut and fill, etc.;
  - f) active parkland (ball fields) and institutional blocks, eg. schools – lighting, noise, access to natural features, etc.
  - g) recreational uses – need for or opportunities for trails within natural features, lighting of trails, noise, etc.;
  - h) urban barriers, including noise walls, berms, fencing, curbs – i.e. these could pose barriers to the movement of small mammals, amphibians or reptiles, particularly between habitat types
  - i) lighting of parks and trails, streetscape and parking areas;
  - j) site remediation – removal or replacement of contaminated soils;
  - k) grading/filling - lot development, housing type, fencing, etc.;
  - l) sediment control, including interim sediment basins.
2. Provide a preliminary concept plan and preliminary grading assessment to illustrate the works associated with the proposed development. A preliminary grading assessment should include: road layouts and potential elevations, building envelopes, stormwater management facilities, pedestrian trails, and rear lot/block lines, to determine if additional setbacks are required from the limit of development to facilitate adjacent lot and/or service grading.

NOTE: CVC does not support any grading (filling and/or cutting) necessary to facilitate development (i.e. lot and road) within the natural heritage features and/or hazardous areas (eg. limit of development) established through the comprehensive Constraints and Opportunities Plan. Slopes created through development grading, adjacent to the valley and/or watercourse corridor, will be considered a setback to the corridor, and should be dedicated with the corridor lands to the municipality.

3. Provide a schedule of individual phases (and timing) of the proposed development that may have an impact on the natural area or provision of mitigation measures.

### 3.7 Constraints and Opportunities

Provide a draft Constraints and Opportunities Plan based on the significance and sensitivity of natural area features and functions and other natural and cultural features, which were determined through the Biophysical Inventory and Analysis.

**NOTE: Based upon the completion of Sec. 4.1, Assessment of Impacts and Sec. 4.2, Analysis of Mitigation Measures, and review of these sections by the local/regional municipality and CVC, this plan may need to be revised.**

## 4.0 PHASE 2 - REPORT PREPARTION

### 4.1 Assessment of Impacts

1. Provide an assessment of potential impacts of the proposed development on the natural area's features and functions, both onsite and related to the adjacent lands. The assessment should consider cumulative, and short and long-term impacts, and the potential for further demand or stress on natural features and functions, by the development proposal. Features and functions of concern may include, but are not limited to:
  - a) Impacts to Physical Resources
    - i. Topography – alteration to grade, filling, retaining walls,
    - ii. Pre-development floodplain encroachments/alterations,
    - iii. Watercourse or surface drainage feature alterations,
    - iv. Surface water hydrology/drainage pattern alterations,
    - v. Groundwater regime quantity and quality changes,
    - vi. Recharge/discharge area quantity and quality changes,
    - vii. Sediment and Erosion Sensitive Areas - grading on steep slopes, adjacent to drainage features, etc.
  - b) Impacts to Biological Resources
    - i. Vegetation, including riparian wetlands, buffering vegetation, etc. – loss of, encroachment, modification, etc.
    - ii. Wildlife Habitat – core and breeding, critical and recovery, migration and foraging, and supporting mitigative habitats, eg. buffers for light, noise, disturbance, etc.
    - iii. Fisheries – physical fish habitat, including critical habitat, eg. refuge pools, upwellings, and benthic organisms, etc.
    - iv. Corridors, linkages and connectivity – loss, encroachment, modification, barriers, etc.
    - v. Other natural or culturally modified features including swales, hedgerows, thickets, meadows, etc.
  - c) Impacts to Social Resources
    - i. Activities that occur within or adjacent to the natural features, eg. trapping, harvesting, etc.
    - ii. Recreational amenities – both existing and future trails, access points, etc.
2. Provide an explanation of methods used to determine effects on the environment.

### 4.2 Analysis of Mitigation Measures

1. List and describe available mitigative measures and their effectiveness to eliminate or reduce potential negative impacts of the proposed development on natural area features and functions, or those that could restore or improve natural area features and functions, including, but not limited to:
  - a. Modifying the proposal;
  - b. Dedication of land;
  - c. Buffers and setbacks;
  - d. Timing restrictions, including temporary construction setbacks, eg. fisheries timing guidelines as defined in Appendix B;

- e. Stormwater management;
  - f. Infiltration measures;
  - g. Habitat improvements eg. new turtle nesting habitat, snake hibernacula, nest boxes, etc.;
  - h. Additional plantings;
  - i. Removal of non-native, invasive species;
  - j. Salvaging plant material
  - k. Sediment control;
  - l. Directional or low level lighting, noise barriers, etc.
2. Define the need for:
- a. buffers that are necessary to protect natural area features and functions, both onsite and on adjacent lands from impacts of the proposed development; and
  - b. setbacks that are necessary to meet municipal standards and/or requirements.

A buffer is a “*zone specifically designed to provide a measure of protection to a natural feature, or a transition between an area of built form and a natural area’s features and functions. The buffer should be planted or allowed to naturalize to achieve additional natural area, including habitat. Buffers are most effective when placed in municipal ownership for long-term protection and management of vegetation and its associated functions.*”<sup>8</sup>.

A setback is “*a prescribed separation distance between a built form and a physical or natural constraint, e.g. a 7.5 metre useable rear yard (between the house and the vegetated buffer) to permit accessory buildings and structures.*”<sup>9</sup>

Built form includes all required structures, services and activities, including grading associated with the proposed land use, such as: access roads, primary and accessory buildings, servicing, septic systems, retaining walls, etc.

As identified in Section 3.6, Development Proposal, Point #2 (Page 11), CVC will not support any grading to facilitate development within the natural heritage features and/or hazardous areas. “Other” slopes created through development grading would be considered a setback between the natural heritage and/or hazardous area and the rear lot line, and should be dedicated to the municipality along the natural heritage and/or hazardous areas.

3. List and describe those impacts that can be eliminated or reduced by mitigating measures.
4. List and describe timing guidelines (i.e restrictions) for wildlife as per Appendix K, with respect to construction activities that will effect/define the construction schedule.
5. List and describe any proposed compensation for those impacts that cannot be mitigated, eg. for the harmful alteration, disruption or destruction of fish habitat.
6. Describe any proposed remediation for areas that are temporarily disturbed during construction.
7. Describe any proposed rehabilitation or restoration for existing disturbed areas (eg. due to past land use impacts).

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<sup>8</sup> Ecological Review of Halton Hills Village Homes and Silver Creek Estates Development Proposal, Gartner Lee, GLL 99-348, September 1999, pg. 8.

<sup>9</sup> Ibid, pg. 8

## 5.0 MONITORING

Depending on the significance and sensitivity of the natural heritage features and functions of the site and adjacent lands, and the scale of the development proposal, monitoring may be required in the pre-construction, construction/operation and post construction periods. Details of the monitoring program will be specific to the proposal and will be determined through review of the EIS and supporting studies submitted for the site plan and detailed design. The Monitoring Program will need to be reviewed and approved by the local and/or regional municipality and CVC. The purpose of the monitoring plan will be to measure effects over time and may be required where:

- The short, medium and long term impacts of the proposal are difficult to predict on the natural area features and functions;
- The proposed mitigation technology is relatively untested or not proven in Ontario;
- There may be long term operations associated with the development, eg. stormwater management, water taking, Integrated Pest Management, etc., that may require future and/or ongoing refinement to the mitigation strategy.

Monitoring will enable the applicant and planning agencies to:

- Test assumptions where the predicted net effects (after mitigation) are assumed to be negligible, i.e. a simplified monitoring plan where mitigation is achieved through avoidance of negative impacts;
- Measure effects where the predicted net effects (after mitigation) are expected to minimize but not eliminate environmental effects;
- Identify provisions in the development agreement for long term operations if environmental effects are found to exceed predicted effects or targets, or if there are identifiable negative effects; and to define changes to site management measures, etc., if necessary; and
- document local examples of best management practices for developments with respect to specific natural area features and/or functions

## 6.0 SUMMARY

### 6.1 Executive Summary

Provide a summary at the front of the report that includes:

- a description of the subject property and the proposed development;
- the biophysical inventory and analysis;
- the impacts of the development on natural area features and functions, both onsite and on adjacent lands;
- the impacts of the development on other natural and cultural features, both onsite and on adjacent lands;
- proposed mitigation and monitoring measures;
- how the proposed development will address existing environmental policies for protection of the natural area;
- whether the development will effect a potential future environmental designation of the site's natural features, eg. regeneration of a cultural feature to ESA, EPA, Core Greenland, etc. or provision of interior or core habitat;
- a list of revisions to the proposed development to ensure that potential impacts have been eliminated, mitigated or compensated;
- identification of the chief author of the report; and
- whether this report has been edited, by whom and for what purpose.

## **6.2 Summary Table**

Provide a summary of Sections 4.1, 4.2 and 5.0 in table format as provided in Appendix A: Summary Table - Predicted Impacts, Mitigation, Monitoring and Residual Effects.

## **6.3 Appendices**

Provide appendices, as appropriate to the work undertaken, and the members of the study team, including:

1. Reference literature cited.
2. Provide all background data including individually completed ELC field data cards for each vegetation community surveyed, Field Survey Form, etc..
3. Provide a list of people contacted during the study or referenced in this report.
4. Provide curriculum vitae of study team members.

**For further information or clarification please contact the CVC Planner/Ecologist.**

CVC Environmental Impact Study

Appendix A: Summary Table – Predicted Impacts, Mitigation, Monitoring and Residual Effects

| Proposed Development Description   | Location of Activity | Potential Impacts on Natural Features   | Potential Impacts on Natural Functions   | Recommended Mitigation  | Recommended Monitoring  | Residual Effects   |
|--|----------------------|---|--|---|---|--|
| <p><i>Vegetation Removal</i></p> <ul style="list-style-type: none"> <li>• <i>Within Natural Feature</i></li> <li>• <i>Buffers</i></li> <li>• <i>Other Natural Feature, eg. Hedgerows</i></li> </ul>  |                      | <p><i>Removal of regeneration along west side of upland forest</i></p> <p><i>Removal of hedgerow and small upland area</i></p> <p><i>Removal of wildflower meadow</i></p> | <p><i>Exposure of edge to windthrow, sunscald</i></p> <p><i>Loss of habitat, corridor and linkage functions</i></p> <p><i>Loss of feeding habitat for birds, butterflies</i></p> | <p><i>Buffer planting beyond and within rear of property</i></p> <p><i>Landowner guide to encourage backyard habitat creation</i></p> | <p><i>Two year monitoring of vegetation success – replace dead/dying material</i></p> | <p><i>Minor potential for windthrow and/or sunscald until buffering planting matures</i></p> |
| <p><i>Watercourse and drainage features.</i></p> <ul style="list-style-type: none"> <li>• <i>Alterations, diversions, etc.</i></li> <li>• <i>Crossings</i></li> <li>• <i>Water taking</i></li> <li>• <i>Elimination of swales</i></li> </ul> |                      |   |  |   |   |  |
| <p><i>Groundwater</i></p> <ul style="list-style-type: none"> <li>• <i>Impacts to Infiltration, eg. quantity or quality</i></li> <li>• <i>Recharge/Discharge areas</i></li> <li>• <i>Water taking</i></li> </ul>                              |                      |   |  |   |   |  |
|  |                      |   |  |   |   |  |

CVC Environmental Impact Study

Appendix A: Summary Table – Predicted Impacts, Mitigation, Monitoring and Residual Effects

| Proposed Development Description   | Location of Activity | Potential Impacts on Natural Features | Potential Impacts on Natural Functions | Recommended Mitigation | Recommended Monitoring | Residual Effects |
|--|----------------------|---------------------------------------|--|------------------------|------------------------|------------------|
| <i>Site Grading</i> <ul style="list-style-type: none"> <li>• <i>Filling</i></li> <li>• <i>Cutting</i></li> <li>• <i>Retaining Walls</i></li> </ul>   |                      |                                       |  |                        |                        |                  |
| <b>Building Construction</b> <ul style="list-style-type: none"> <li>• <i>Residences and Accessory structures</i></li> <li>• <i>Noise Barriers</i></li> <li>• <i>Patios, decks, swimming pools, etc.</i></li> </ul> |                      |                                       |  |                        |                        |                  |
| <i>Post Construction Use</i> <ul style="list-style-type: none"> <li>• <i>Human</i></li> <li>• <i>Pets</i></li> <li>• <i>Stormwater</i></li> <li>• <i>Recreation, eg. trails</i></li> </ul>                         |                      |                                       |  |                        |                        |                  |