Phase I Ecological Network Report
Terms of Reference

INTRODUCTION

In 2007, the City of Edmonton created a new *Natural Area Systems* Policy (C-531) and a strategic plan, *Natural Connections*. Together, these two documents emphasize a new direction for the planning, protection and conservation of Edmonton's natural areas: an *ecological network approach.* This approach involves the identification and conservation of connected ecological networks, rather than the consideration of natural sites in isolation. This new approach requires a new form of ecological assessment, taking the City beyond the *Natural Site Assessments* that were used previously. This document outlines the methodology for that new assessment, and a new product we have termed a *Phase I Ecological Network Report (ENR).*

The primary objective of the *Phase I Ecological Network Report* is to:

- identify and assess the structure, function and integrity of the ecological network existing within the plan area,
- consider the ecological network within the broader landscape, including ecological linkages to natural systems outside the plan area,
- identify key components of the ecological network that the City should secure,
- ensure that development is tailored to the ecological network, and
- outline a set of recommendations that will help the City to develop an Area Structure Plan (ASP) that maximizes the protection of the identified ecological network, including the identification of mitigation measures and management issues.

TIMING & INTEGRATION WITH CITY OF EDMONTON PLANNING PROCESS

The *Phase I Ecological Network Report (ENR)* will inform the development of the Area Structure Plan, and must be completed prior to finalization of the ASP. In addition, we have aligned the ENR with the new ASP guidelines by requiring some of the same information for both documents, so that those ENR sections/figures can be easily transferred to the ASP. In addition, the recommendations for protection and management of the ecological network that are developed as part of the ENR should feed into the Ecological Design Report that will be developed in conjunction with more detailed development design. The goal is ***early, integrated*** planning for the protection of the ecological network so that development is tailored to the ecological network, not the opposite.

METHODOLOGY

The following methods should be used in preparing the ENR:

1. Review of existing information

Existing legislation, plans, and studies should be reviewed as a means of understanding the legislative restrictions, land-use history, and ecological landscape of the plan area. Rather than including a list of these documents at the outset of the ENR, this information should be included where it is relevant throughout the body of the document.

2. Aerial photography review and interpretation

All available aerial photography for the plan area (and beyond, as appropriate) should be reviewed and included in the ENR. Interpretation of this photography will serve as the primary means of identifying the ecological network, as much of the land is privately held and may be inaccessible to the consultant for further investigation.

3. Field investigations as appropriate and feasible

Where possible, aerial photograph interpretation should be supplemented with limited ground-truthing – for example, to determine the viability of an identified ecological linkage. In addition, the inclusion of the location and size of culverts in the *Existing Ecological Network* will require some field investigation.

4. An assessment of ecological integrity

The ecological integrity of key natural features (see more detailed requirements in the next section) should be rated using a set of parameters (e.g. size, location with respect to other natural areas/linkages, shape (edge to area ratio), protection status and vegetative characteristics (e.g. # abundant native plant species, # vegetative strata, etc.)). This assessment should result in the identification of priority sites and linkages for retention and restoration. The parameters known to have a strong influence on ecological integrity should be scored higher based on broader range of potential values. The ecological network nomenclature and framework outlined in *Natural Connections* should be applied. The Plan is available at the Office of Biodiversity' website, at http://www.edmonton.ca/environmental/natural_areas/strategy-biodiversity-protection.aspx).

5. Integrating ENR with other infrastructure networks

The consultant should obtain information about the proposed location and nature of transportation, drainage and utility networks, and address this information in the ENR (details below). The consultant should work with other Project Team representatives to ensure that this other information is taken into consideration in developing the *Recommended Ecological Network.*

PRODUCTS

The ENR should generate the following key elements.

ECOLOGICAL NETWORK OVERVIEW

A. Landscape Context and Proposed Development Activity

Discuss the location of the plan area, adjacent land uses, existing development, major transportation and utility corridors, etc. Discuss generally the development activity proposed for the plan area.

FIGURE: *Ownership and Protection Status*
Show City ownership of natural features, provincial claim of permanent and naturally occurring water bodies (including streams, wetlands and lakes), and existing protection status of natural features, as applicable.

B. Ecological Structure

Key Natural Features
Discuss the existing ecological network, including drainage courses, treestands, wetlands, agricultural areas, rights-of-way, etc. Discuss the condition of the area as a whole, including habitat & wildlife (list sensitive species if this information is available), surface water, topography/soil, landscape matrix, etc.

FIGURE: *Existing Ecological Network*
Show the following features:

- All natural areas 1 ha and larger (including, but not limited to, the Environmentally Sensitive and Significant Natural Areas identified in the *Inventory of Environmentally Sensitive and Significant Natural Areas* (Geowest 1993). The natural areas identified in the *Inventory* should be labeled with the appropriate codes).
- Wetlands – specify which meet Sustainable Resource Development (SRD) Environmental Reserve criteria (see Attachment 1: *SRD Standard Recommendations to Municipal Subdivision Referrals*). This will involve air photo interpretation.
- Crown-owned water bodies – include as an attachment a letter from SRD stating which permanent and naturally occurring water bodies they have chosen to claim. It is the consultant's responsibility to work with AB SRD and supply all information they require to make their determination.
- Natural lakes, creeks, streams and associated riparian areas – this includes ephemeral drainage courses
- Culverts – location and size
- Rights-of-way – pipelines, powerlines, railways, etc. Please include the widths of the ROWs identified.

FIGURE: *Historical and Current Drainage Patterns*
Show historical and current drainage patterns and identify where approvals to alter watercourse geometry have and have not been obtained for altered watercourses. The rationale for the inclusion of this information is to address the perceived illegal ditching in the area.

FIGURE: *Flood Plain Boundaries*
Show flood plain boundaries (1:25 year, 1:100 year). If these boundaries have not been calculated, use aerial photography and estimate the flood event for the wettest year.

C. Ecological Function

Ecological Network Components
Discuss what role site features play in the context of the natural system: core area, habitat patch, stepping stone, corridor, buffer, barrier (land/water). This framework is outlined in *Natural Connections*, in the Ecological Network section.

Connectivity
Discuss the degree of connectivity of the existing ecological network, including both functional and structural connectivity, in relation to the species guilds present or likely to be present in the area. Give consideration to wildlife movement, seed dispersal, genetic exchange, migration, drainage, nutrient flow, etc. (what *processes* does/could the network support?). Also give consideration to scale, including connectivity of the network to areas outside the plan area.

RECOMMENDATIONS

The following recommendations will inform the development of the Area Structure Plan.

FIGURE: *Recommended Ecological Network*
Show the *Recommended Ecological Network*, based on the assessment the ecological integrity assessment, future or planned land uses in the area and other infrastructure systems. This figure should show key elements to: Retain (existing, protected), Attempt to Retain (including priority ranking), Restore (where efforts would be most effective), Linkages to Retain, SWMFs, Creeks, Ephemeral Drainage Courses, Buffers, etc. This work must be completed in collaboration with other disciplines from the Project Team, and must consider the City's methods for conservation (Environmental/Municipal Reserve, purchase, Crown land, the Edmonton and Area Land Trust, etc.).

Recommended Ecological Network
Provide rationale for inclusion/exclusion of key features in the *Recommended Ecological Network.*

FIGURE: *Network Overlay*
Show proposed transportation, drainage and utility networks overlaid on the *Recommended Ecological Network.*

Network Overlay
Discuss potential conflicts between the Recommended Ecological Network and include in the following section recommendations about how to overcome/mitigate them (e.g. wildlife passages, road realignment, etc.).

Management Recommendations
Provide management recommendations for the *Recommended Ecological Network.* Note: these will feed into the Ecological Design Report later in the planning process.

Mitigation Measures
Provide mitigation measures for proposed development activity.

APPENDICES
Please include as appendices:

- Historical aerial photography representation of the plan area at 5-year intervals, or less if warranted.
- A letter from AB Sustainable Resources Development identifying which permanent and naturally occurring creeks, wetlands and other water bodies they have chosen to claim.
- Any other material the consultant deems appropriate and relevant.

SUBMISSION FORMAT

The Ecological Network Report - Phase I products should be submitted to the City of Edmonton in both hardcopy and digital format. Please provide four (4) hardcopies of the report, as well as a PDF version.

CONTACT INFORMATION

If you require further clarification of the Ecological Network Report - Phase I criteria, please contact:

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