



Environmental Construction Operations (ECO) Plan Framework

PUBLISHING INFORMATION

TITLE: Environmental Construction Operations (ECO) Plan Framework
Instructions on Preparing ECO Plans for Alberta Transportation, City of Calgary and City of Edmonton Construction Projects

PREPARED BY: Alberta Transportation
The City of Calgary
The City of Edmonton

DOCUMENT HOLDER: The City of Calgary, Environmental and Safety Management
ECO Plan Framework Memorandum of Understanding (EXT 03 – ECO MOU)

VERSION: 2008 Edition

RELEASE DATE: September 2008

ADDITIONAL COPIES: To download a free electronic copy:
Alberta Transportation The City of Calgary The City of Edmonton
www.transportation.alberta.ca www.calgary.ca/em www.edmonton.ca/enviro

To purchase printed copies online:
www.calgary.ca/onlinestore

To purchase printed copies in person:
The City of Calgary
Building Grades Counter, Grid D9, 6th Floor
Calgary Municipal Building
800 Macleod Trail S.E.
Calgary, AB T2P 2M5
Local Calls: 311

Table of Contents

Environmental Construction Operations (ECO) Plan Checklist.....	a
Introduction	i
ECO Plan Process.....	ii
Contractor Roles & Responsibilities	iii
Instructions	iv
Step 1 Project Setting & Site Activities	1
1.1 Project Description.....	1
1.2 Environmental Sensitivities	1
1.3 Site Activities.....	2
Step 2 Project Schedule & Site Drawing.....	3
2.1 Project Schedule	3
2.2 Site Drawing.....	3
Step 3 Potential Environmental Impacts & Controls	7
3.1 Potential Environmental Issues & Impacts	7
3.2 Permits & Authorizations	8
3.3 Mitigation Strategies	9
3.4 Erosion & Sediment Control	10
Step 4 Hazardous Materials & Waste Management.....	13
4.1 Hazardous Materials & Waste Management.....	13
Step 5 ECO Plan Implementation.....	15
5.1 Training & Communication	15
5.2 Monitoring & Reporting	16
5.3 Documentation.....	16
5.4 ECO Plan Update	17
Step 6 Emergency Response Procedures.....	19
6.1 Emergency Response Procedures.....	19

Environmental Construction Operations (ECO) Plan Checklist

Project Name: _____

Site Representative (Name & Company): _____

ECO Plan submitted to (Jurisdiction): _____

Note: All checklist items are expected in the ECO Plan. Explain any deficiencies in the comments section below.
 Ensure that this checklist is signed and submitted with the ECO Plan.

ECO Plan Framework Section	Content Requirements	YES	NO	N/A
STEP 1: Project Setting & Site Activities				
1.1 Project Description	A brief project description is provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2 Environmental Sensitivities	Sensitive or protected features that could be impacted as a result of the Contractor's activities are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3 Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 2: Project Schedule & Site Drawing				
2.1 Project Schedule	A project schedule is provided, including scheduled shut-downs and restricted work periods due to environmental requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2 Site Drawing	A site drawing is provided, indicating the site location; site set-up and layout; erosion and sediment controls (as appropriate for the jurisdiction); and, environmental sensitivities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 3: Potential Environmental Impacts & Controls				
3.1 Potential Environmental Issues & Impacts	The potential environmental issues and impacts that may result from the construction activities are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2 Permits & Authorizations	Project permits and authorizations are listed. As applicable, environmental mitigation measures prescribed by regulatory agencies and included in project permits and authorizations are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3 Mitigation Strategies	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4 Erosion & Sediment Control	Erosion and sediment controls are described or referenced, as appropriate for the jurisdiction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ECO Plan Framework Section	Content Requirements	YES	NO	N/A
STEP 4: Hazardous Materials & Waste Management				
4.1 Hazardous Materials & Waste Management	Hazardous materials that will be used and/or stored on site are listed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed. As appropriate for the jurisdiction, estimated waste quantities and specific handling procedures are also provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 5: ECO Plan Implementation				
5.1 Training & Communication	Training and communication details are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2 Monitoring & Reporting	Monitoring and inspection procedures, including a schedule of monitoring activities and reporting procedures, are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3 Documentation	Information and/or records that will be maintained relating to the implementation and updating of the ECO Plan are described.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4 ECO Plan Update	ECO Plan review and update procedures are provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 6: Emergency Response Procedures				
6.1 Emergency Response Procedures	Potential incidents that may impact the environment are identified, and copies of emergency response procedures to prevent and respond to incidents are provided. A contact list is also provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments (include relevant special provisions and/or conditions for the project):

Contractor Principal-in-Charge Signature

Name (please print)

Date

Introduction

In 2008, Alberta Transportation, and The Cities of Calgary and Edmonton developed a common Environmental Construction Operations (ECO) Plan Framework (the Framework) to meet the needs of the three organizations. The creation of a common ECO Plan Framework was driven by:

- a need expressed by contractors and consultants to streamline the process
- the recognition that environmental issues on construction sites are similar, regardless of the jurisdiction in which they occur

The purpose of this Framework is to provide instructions on ECO Plan development common to all three jurisdictions. In addition, the headings within the Framework can be used as headings within the project-specific ECO Plan.

DEFINITION: Environmental Construction Operations (ECO) Plan

An ECO Plan is a Contractor's plan for the identification and mitigation of potential environmental impacts that may occur as a result of its activities.

Contents of an ECO Plan

An ECO Plan consists of written procedures and drawings addressing the environmental mitigation and protection issues relevant to construction activities being performed on a specific project site. An ECO Plan identifies:

- the environmental setting of the project
- the on-site individual responsible for addressing the environmental issues
- potential environmental issues on the project
- mitigation measures to prevent or minimize environmental impacts
- implementation, monitoring, training, communication and review of the ECO Plan
- legislation, guidelines and standards to be met and monitored
- environmental emergency response procedures

ECO Plan Objectives

The objectives of the ECO Plan are to prevent and/or minimize environmental impact(s) and to enhance the environmental value of the air, land and water affected by projects. The development and implementation of the ECO Plan will:

- ensure environmental considerations are part of the decision making process
- ensure compliance with applicable regulatory requirements, bylaws and guidelines
- demonstrate environmental commitment by all parties involved, both in writing and in action, to stakeholders and the public

ECO Plan Process

The development and implementation of an ECO Plan is the Contractor's responsibility. An ECO Plan may be required by Alberta Transportation or its designate, The City of Calgary, or The City of Edmonton in the contract/tender documents. The development of the ECO Plan must follow this Framework. The ECO Plan checklist at the front of this document should be used to ensure all the components of the ECO Plan are included. If any of the information required is not included, the ECO Plan will be considered deficient and will be returned to the Contractor for revision.

Upon receipt of the ECO Plan from the Contractor, the ECO Plan will be reviewed for completeness and:

- If accepted to the mutual satisfaction of the Contractor and the reviewer (i.e., reviewers include The City of Calgary, The City of Edmonton or the consultant for Alberta Transportation projects), the Contractor will be advised in writing by the relevant jurisdiction that the ECO Plan is complete and that the project may proceed.
- If any deficiencies are identified or if the reviewer has any questions related to the ECO Plan, they will follow up with the Contractor. If it is determined that the ECO Plan is not complete, it must be modified and completed to the mutual satisfaction of all parties. All changes to the ECO Plan must be documented and copies of changes to the ECO Plan forwarded to the reviewer and other parties, as applicable. No work may begin until the ECO Plan has been agreed to by all parties.

All ECO Plans must be submitted and reviewed prior to construction.

Contractor Roles & Responsibilities

All Contractors need to be aware of their responsibilities for protecting the environment. The Contractor is responsible, either by its own actions or through its subcontractors, for providing the resources needed to develop and implement the ECO Plan. The Contractor is responsible for ensuring subcontractors understand their roles and responsibilities, and operate in compliance with the ECO Plan.

Contractors must refer to the terms and conditions contained in contracts, agreements, permits and authorizations to be fully aware of their responsibilities. In general, Contractors must:

- a) Identify the potential environmental issues and environmental mitigation measures to prevent or minimize environmental impacts.
- b) Identify and acknowledge applicable legislation, bylaws and policies that may be triggered by project activities.
- c) Prepare and update the ECO Plan in accordance with this ECO Plan Framework.
- d) Submit copies of the ECO Plan to the consultant for Alberta Transportation projects or The City Project Manager for municipal projects.
- e) Revise the ECO Plan as required based on reviewer (i.e., The City of Calgary, The City of Edmonton or the consultant for Alberta Transportation projects) comments.
- f) Identify an on-site individual to be the Contractor's work site representative to maintain the environmental controls and address any environmental issues or questions that arise. The Contractor must identify this individual within the ECO Plan (see the ECO Plan Checklist signature line) and at the pre-construction meeting.
- g) Ensure that staff and subcontractors are trained and empowered to identify, address and report potential environmental problems.
- h) Review the ECO Plan requirements at orientation meetings, pre-construction meetings, tailgate meetings, etc.
- i) Implement and maintain environmental mitigation measures in accordance with the ECO Plan.
- j) Take appropriate and timely action to correct and record any deficiencies.
- k) Take action (e.g., shut down work) when it is recognized that an impact to the environment may occur or has occurred.

- l) Ensure that all subcontractors comply with the ECO Plan.
- m) Sufficiently monitor the work site to ensure that the ECO Plan is effective for all conditions, including inclement weather and shut-down periods. All monitoring efforts must be documented.

Instructions

ECO Plans are usable, living documents. This Framework will assist the Contractor with ECO Plan preparation; it may not address all the environmental situations that may arise on an individual project. In order for the environment to be protected, it is critical that all parties be aware of their respective responsibilities concerning environmental protection. This includes complying with regulations, specifications and guidelines, as well as any roles and responsibilities defined under the applicable Environmental Management System.

The following sections describe the six basic components of an ECO Plan.

This document guides project-specific ECO Plan development. Boxes (like this one) are located at the start of each section, and contain specific summaries of what is needed in that section.

Step 1 Project Setting & Site Activities

STEP 1	1.1 Project Description	A <i>brief</i> project description is provided.
	1.2 Environmental Sensitivities	Sensitive or protected features that could be impacted as a result of the Contractor's activities are described.
	1.3 Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.

1.1 Project Description

In this section, provide a brief description of the project and its location.

The project description should be only a few sentences that will allow the reviewer to understand the construction project. It should include at a minimum:

- legal land description
- municipal address (if applicable)
- type of project

1.2 Environmental Sensitivities

In this section, describe site-specific sensitive or protected areas that could be impacted as a result of the Contractor's activities.

This section must demonstrate an understanding of the sensitive or protected areas that could be impacted as a result of the Contractor's activities. Items described must be specific to the project site.

Features that may require environmental protection should be highlighted such as:

- wildlife and wildlife habitat
- waterbodies (e.g., wetlands, streams, creeks)
- vegetation (e.g., trees, rare plants)
- contamination

Features described in this section must be noted and included on the site drawing (see Section 2.2).

1.3 Site Activities

In this section, provide a scope of work and a list of all construction or related activities to be undertaken during the project.

This section will include scope of work, as well as a list of all construction and demolition activities (e.g., earthworks, surfacing, saw cutting, stream crossings). The ECO Plan will describe the Contractor's specific on-site construction activities that could result in environmental impacts.

Step 2 Project Schedule & Site Drawing

STEP 2	2.1 Project Schedule	A project schedule is provided, including scheduled shut-downs and restricted work periods due to environmental requirements.
	2.2 Site Drawing	A site drawing is provided, indicating the site location; site set-up and layout; erosion and sediment controls (as appropriate for the jurisdiction); and, environmental sensitivities.

2.1 Project Schedule

In this section, provide a project schedule that includes scheduled shut-downs and restricted work periods due to environmental requirements.

The ECO Plan will include a general schedule and sequence of construction activities. It will identify any time-sensitive environmental considerations, including scheduled shut-downs and restricted work periods. For example, projects scheduled to occur during the nesting season for migratory birds may have activities or areas to be avoided during that time.

2.2 Site Drawing

In this section, provide a site drawing.

In this section, provide a site drawing of appropriate scale showing:

- location of site
- site set-up and layout
- erosion and sediment controls (as appropriate for the jurisdiction; see page 4)
- environmental sensitivities

Alberta Transportation and The City of Edmonton require erosion and sediment control measures to be included on the site drawings. Erosion and sediment control requirements are discussed in more detail in Section 3.4.

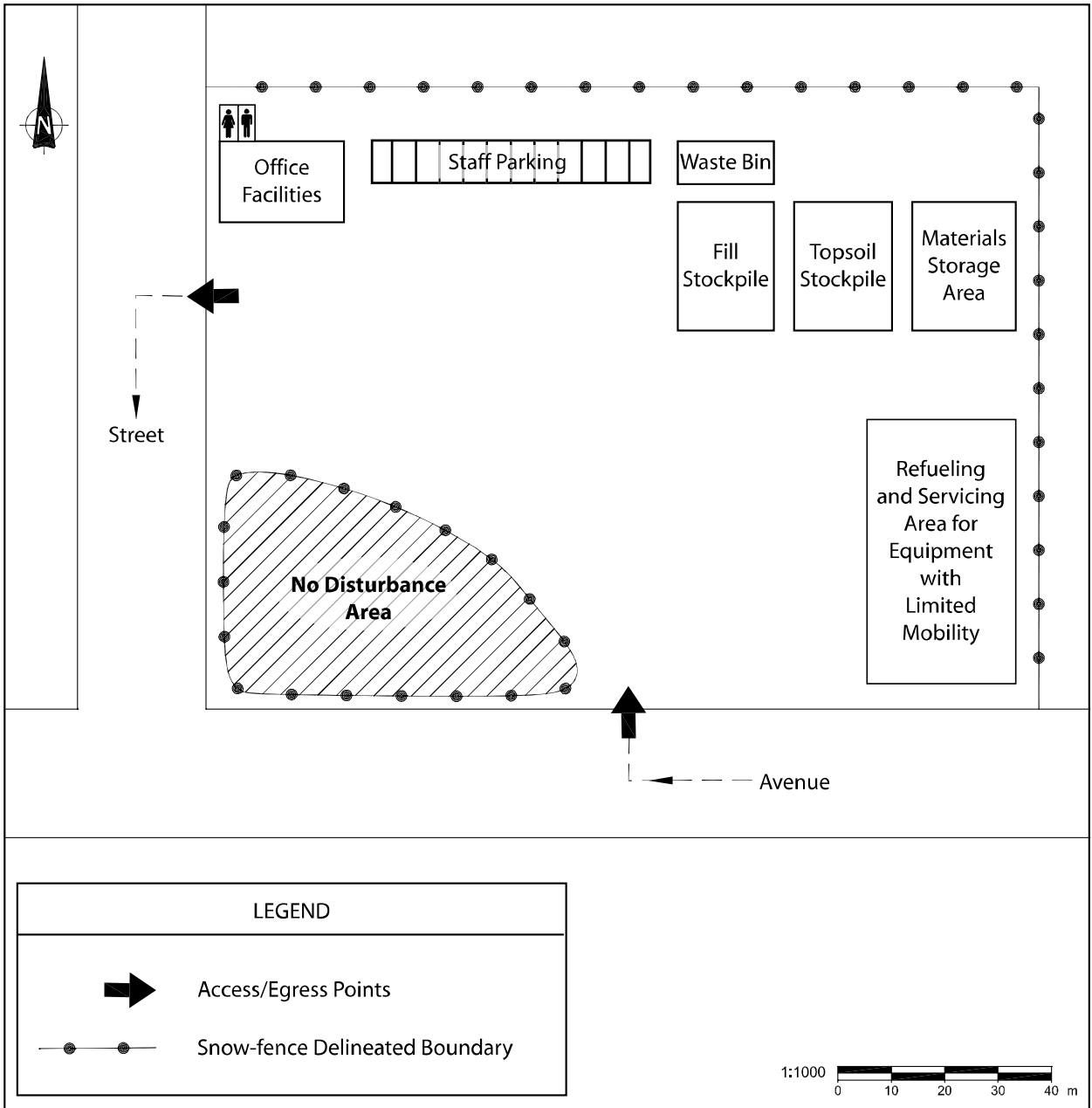
Site drawings may include:

- project boundaries
- traffic routes
- temporary parking
- staging areas
- borrows
- stockpile locations
- refuelling areas
- waste and hazardous materials storage
- offices
- electrical and water supplies
- water sources for dust control
- environmentally sensitive areas
- buffers around sensitive receptors

Annotated photographs can be included in this section. Super-imposing construction site set-up and operational details on aerial photographs of appropriate scale and nature is particularly informative.

See the sample site drawing on the following page.

Sample Site Drawing



Step 3 Potential Environmental Impacts & Controls

STEP 3	3.1 Potential Environmental Issues & Impacts	The potential environmental issues and impacts that may result from the construction activities are described.
	3.2 Permits & Authorizations	Project permits and authorizations are listed. As applicable, environmental mitigation measures prescribed by regulatory agencies and included in project permits and authorizations are described.
	3.3 Mitigation Strategies	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided.
	3.4 Erosion & Sediment Control	Erosion and sediment controls are described or referenced, as appropriate for the jurisdiction.

3.1 Potential Environmental Issues & Impacts

In this section, describe the potential environmental issues and impacts that may result from the construction activities.

An environmental impact is any change to the environment (positive or negative) resulting from the construction activities. For the purposes of the ECO Plan, negative impacts are the primary concern.

The Contractor should focus on the environmental impacts over which they have reasonable control. These potential issues and impacts resulting from the Contractor's activities will form the basis of the project-specific ECO Plan.

The review process for potential issues and impacts should consider normal operating conditions; shut-down and start-up conditions; and, any reasonably foreseeable emergency or abnormal situations. Further, ensure the review considers:

- potential releases of emissions to air (e.g., dust)
- potential releases to surface water and groundwater

- potential releases to land (e.g., spills)
- noise and light issues
- site waste management

The review may be conducted and presented in a number of formats, including tables or text. Table 3-2 provides an example of how this can be captured. The ECO Plan must clearly demonstrate that the Contractor has identified how its work could and may affect the environment. Environmental controls to prevent or minimize these impacts will be required as shown in Table 3-2.

3.2 Permits & Authorizations

In this section, list required project permits and authorizations. As applicable, include environmental mitigation measures prescribed by regulatory agencies and detailed in project permits and authorizations.

The Contractor must understand the current environmental legislation, permit conditions and authorizations applicable to the project and ensure that their staff and subcontractors are familiar with these requirements. Regulators may make site visits and inspections prior to, during and following construction.

Examples of potential authorizations, permits and approvals are provided in Table 3-1. Many of the approvals will have been provided in the tender package. Any additional approvals that will be required to do the work must be identified. Attach any existing permit conditions that are relevant to your project, and list mitigation measures that will be used to address the conditions (see Table 3-1).

Table 3-1 Example: Environmental Authorizations, Permits and Approvals

Agency	Authorization, Permit or Approval Number	Conditions of Authorization, Permit or Approval	Mitigations
Fisheries and Oceans Canada	Authorization under the <i>Fisheries Act</i>	Restricted Activity Periods for in-stream construction	No in-stream activity will occur between September 1 and October 30
Alberta Environment	Approval or License under the <i>Water Act</i>	Turbidity curtains must be used when filling in wetlands	Turbidity curtain will be placed in wetland prior to adding fill

Table 3-1 Example: Environmental Authorizations, Permits and Approvals (cont'd)

Agency	Authorization, Permit or Approval Number	Conditions of Authorization, Permit or Approval	Mitigations
The City of Calgary	Tree Protection Bylaw 23M2002	Authorizations from The City of Calgary Urban Forestry required to remove any City trees	Approval to remove City tree appended

3.3 Mitigation Strategies

In this section, describe procedures, controls or best management practices (BMPs) that will be used to prevent or reduce adverse impacts on the environment.

Taking into account the construction activities and potential impacts discussed in Sections 1.3 and 3.1, describe procedures, controls or best management practices (BMPs) that will be used to prevent or reduce adverse impacts on the environment.

Mitigation measures must be developed based on the Contractor’s own site information, with reference to the consultant’s Risk Assessment (for Alberta Transportation projects), and any relevant conditions contained within approvals. Include mitigation measures contained in the contract, including Standard General Conditions or Standard Specifications as applicable. Examples of potential environmental impacts and mitigation measures are provided in Table 3-2.

Table 3-2 Example: Potential Environmental Impacts and Mitigation Measures

Construction Activity	Potential Environmental Impact(s)	Environmental Mitigation Measure(s)
In-stream activity	Harmful alteration, disruption or destruction of fish habitat	Follow all conditions provided by Fisheries and Oceans Canada, Environment Canada and Transport Canada
Off-site disposal of excess soil or material	Improper disposal of contaminated soil	Ensure material is disposed of at an approved area or facility in accordance with applicable legislation, regulations and guidelines

Table 3-2 Example: Potential Environmental Impacts and Mitigation Measures (cont'd)

Construction Activity	Potential Environmental Impact(s)	Environmental Mitigation Measure(s)
Earthworks	Erosion and compaction of soils Sedimentation of runoff and receiving waterbody Loss of vegetation	Do not strip slopes during periods of rain Implement erosion and sediment control measures outlined in the Erosion and Sediment Control Drawing Stockpile topsoil separately to prevent its loss Minimize area to be stripped, retain vegetation where possible
Site dewatering	Erosion of soils Sedimentation of runoff and receiving waterbody Loss of fish	Obtain all applicable permits Prevent silt-laden water from entering the stormwater system by dewatering into silt pond or stable vegetation to allow sediments to settle or filter out Remove and dispose of accumulated silt and sediments Fish salvage Ensure all water entering the stormwater system meets relevant criteria
Refuelling and servicing of equipment	Hydrocarbon spills	Ensure spill kits are on all vehicles and workers are trained in their use Designate refuelling areas appropriate distances from waterbodies

3.4 Erosion & Sediment Control

In this section, describe or reference project-specific erosion and sediment controls, as appropriate for the jurisdiction.

Alberta Transportation, and The Cities of Calgary and Edmonton require Erosion and Sediment Control Reports and Drawings on construction projects; however, each jurisdiction has its own specific requirements for Erosion and Sediment Control Reports (see Table 3-3).

Erosion and sedimentation are significant environmental concerns on construction projects. The Contractor must ensure erosion and sediment control measures are in

place and maintained during the term of the contract, and must inspect, change, upgrade or remove these measures regularly and as required.

Table 3-3 Erosion and Sediment Control Requirements by Jurisdiction

Alberta Transportation and The City of Edmonton Requirements
<p>In the ECO Plan, descriptions and drawings of erosion and sediment control are required. Items that should be in the ECO Plan include but are not limited to:</p> <ul style="list-style-type: none"> • Text and corresponding drawing demonstrating the use of appropriate methods, materials and locations of erosion and sediment control near waterbodies (include erosion and sediment control measures on the site drawing (Section 2.2)). • Documentation that shall be utilized by appointed staff for the monitoring of sediment and erosion control for the project site. The Contractor must ensure erosion and sediment control devices are in place and maintained during the term of the contract. <p>For Alberta Transportation projects refer to the Design Guidelines for Erosion and Sediment Control for Highways manual (available at www.transportation.alberta.ca). For City of Edmonton projects, refer to The City of Edmonton Erosion and Sediment Control Guidelines (available at www.edmonton.ca) for specific guidance.</p>
The City of Calgary Requirements
<p>Do not submit an Erosion and Sediment Control Drawing and Report with the ECO Plan.</p> <p>Indicate in the ECO Plan whether there was an Erosion and Sediment Control Drawing and Report submitted to The City of Calgary Water Resources for the project.</p> <p>If no Erosion and Sediment Control Drawing and Report was required, list good housekeeping practices that will be followed to prevent and minimize erosion and sedimentation. Refer to The City of Calgary Guidelines for Erosion and Sediment Control (available at www.calgary.ca) for guidance, if applicable.</p> <p>The ECO Plan does not replace an Erosion and Sediment Control Drawing and Report.</p>

Step 4 Hazardous Materials & Waste Management

STEP 4	4.1 Hazardous Materials & Waste Management	<p>Hazardous materials that will be used and/or stored on site are listed.</p> <p>Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed. As appropriate for the jurisdiction, estimated waste quantities and specific handling procedures are also provided.</p>
--------	--	--

4.1 Hazardous Materials & Waste Management

In this section, provide a list of the hazardous materials that will be used and/or stored on site.

As well, list anticipated hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods.

As appropriate for the jurisdiction, estimated quantities of waste and specific handling procedures must also be included.

During the project, various hazardous materials will be used and waste materials will be generated that have the potential to impact the environment. Hazardous materials include oil, fuel, paints, etc. to be used and/or stored on site during construction. Hazardous materials must be stored safe distances from waterbodies or storm sewers. Waste materials include:

- waste generated as part of the contract deliverable (e.g., demolition waste)
- waste generated from Contactor's activities, such as oil filters, oils, garbage (e.g., plastic, cardboard), paints, solvents, spill clean-up materials, sewage, etc.

The ECO Plan must identify the hazardous and waste materials. The site drawing (Section 2.2) must identify where the hazardous and waste materials will be stored. The ECO Plan must also describe the procedures for the proper handling, containment, storage, transportation and disposal of the materials. Waste disposal

receipts, waste manifests, bills of lading, etc. should be retained. The procedures must comply with applicable regulatory handling, transportation and disposal requirements.

When working for The City of Calgary and The City of Edmonton, the estimated quantities of hazardous and non-hazardous waste, as well as specific handling procedures must be documented and included in the ECO Plan. The Contractor must consider whether the waste materials can be recycled. Table 4-1 provides an example of how to summarize this component of project waste management when working for The City of Calgary and The City of Edmonton.

Table 4-1 Example: Project Waste Materials, Estimated Quantities, and Handling and Disposal Procedures

Material to be Handled	Estimated Quantity of Waste	Handling Procedure	Reuse/Recycling/Disposal Method
Non-hazardous			
Concrete	X tonnes	Break up and put in concrete bin	Recycle <i>(provide Recycling Company name)</i>
Concrete washout area	X tonnes	Ensure all washout is in one location; excavate washout area	Recycle <i>(provide Recycling Company name)</i>
Wood	X tonnes	Stack next to supply of new form boards for reuse; recycle clean unusable forms in wood recycling bin	Scraps used for formwork, remaining recycled <i>(provide Recycling Company name)</i>
Asphalt	X tonnes	Truck directly to vendor as asphalt is stripped/removed	Recycle <i>(provide Recycling Company name)</i>
Cardboard	X tonnes	Cardboard bin	Recycle <i>(provide Recycling Company name)</i>
Metal (piping)	X tonnes	Metal bin	Recycle <i>(provide Recycling Company name)</i>
Clean fill	X tonnes	Stockpiled separately	Reused at private site
Hazardous			
Epoxy	X liters	Stockpiled separately	Container returned to distributor

Step 5 ECO Plan Implementation

STEP 5	5.1 Training & Communication	Training and communication details are provided.
	5.2 Monitoring & Reporting	Monitoring and inspection procedures, including a schedule of monitoring activities and reporting procedures, are provided.
	5.3 Documentation	Information and/or records that will be maintained relating to the implementation and updating of the ECO Plan are described.
	5.4 ECO Plan Update	ECO Plan review and update procedures are provided.

5.1 Training & Communication

In this section, provide training and awareness procedures that will be used to inform all staff and subcontractors of their ECO Plan responsibilities and of the potential environmental impacts associated with their activities on the construction site.

The Contractor is responsible for training staff on environmental regulations and project-specific requirements prior to work commencing. All personnel on a construction site have the potential to create an impact on the environment. Therefore, effective communication and environmental awareness training are essential to ensure all staff, including subcontractors, are aware of their environmental obligations.

ECO Plans must be included as a topic in site orientations, pre-construction meetings and regular site meetings. Minutes of these meetings must be retained and available upon request. Topics for training and awareness sessions may include:

- ECO Plan content and on-site location
- potential environmental impacts of work activities
- roles and responsibilities related to the ECO Plan

- locations of environmentally sensitive areas
- environmental response procedures, including locations of spill kits, contact information, etc.
- a description of how ECO Plan updates will be communicated on site
- bulletin board and memorandum circulation

5.2 Monitoring & Reporting

In this section, provide monitoring and inspection procedures that are appropriate to the nature and scale of the project, and that satisfy regulatory and contractual requirements.

The Contractor will develop appropriate monitoring procedures consistent with the contract terms and conditions, site characteristics, work activities and potential environmental risks associated with the work to be performed. It is the Contractor's responsibility to understand and comply with the reporting requirements, and to ensure all of the environmental controls are working.

In this section, include the following project-specific information:

- locations and parameters to be inspected and schedule (where, what and when)
- monitoring frequency
- monitoring during scheduled shut-downs
- monitoring after completion of project (e.g., landscaping, restoration)
- regulatory reporting requirements (e.g., reportable release guidelines; frequency of reports and to whom reports will be submitted)

Deficiencies identified during monitoring activities must be addressed immediately.

5.3 Documentation

In this section, describe the environmental information and/or records that will be maintained relating to the implementation and updating of the ECO Plan.

A master hard copy of documentation relating to the ECO Plan and environmental activities on the project site must be retained at the construction site, be fully updated, and available to all personnel and for inspection at all times. The following is not a comprehensive list but is intended to provide an example of the type of information that should be retained on site in hard copy for the project:

- ECO Plan (including previously amended versions)
- regulatory permits or approvals
- construction schedules
- record of environmental incidents (e.g., spill and release records)
- hazardous and waste materials inventory
- monitoring documents
- waste manifests
- inspection forms
- equipment inspection and maintenance records
- site orientation and tailgate meeting minutes
- fuelling logs
- relevant memos relating to environmental matters

5.4 ECO Plan Update

In this section, provide information on how the ECO Plan will be reviewed and updated, and to whom ECO Plan changes will be communicated.

The ECO Plan must be designed to change according to site conditions with a goal of continuous improvement throughout the life of the project. For example, in the case of unplanned winter shut-downs, the Contractor must revise the ECO Plan to include the environmental protection measures required for the shut-down period.

Once the ECO Plan is updated, the Contractor is responsible for notifying the changes (as appropriate) to Alberta Transportation, The City of Calgary and/or The City of Edmonton prior to implementation. The Contractor shall communicate the changes to employees and relevant subcontractors, and provide the necessary training before implementing the changes. Modifications to the ECO Plan must provide an equal or

better level of avoidance or mitigation. All changes to the ECO Plan must be documented.

Step 6 Emergency Response Procedures

STEP 6	6.1 Emergency Response Procedures	Potential incidents that may impact the environment are identified, and copies of emergency response procedures to prevent and respond to incidents are provided. A contact list is also provided.
---------------	--	--

6.1 Emergency Response Procedures

In this section, identify potential incidents that may impact the environment, and provide copies of emergency response procedures to prevent and respond to potential incidents. As well, provide a contact list.

The ECO Plan must identify potential incidents that may impact the environment. These incidents could be the result of natural causes, accidents, human error or improper work practices.

Examples of potential incidents include:

- contaminant spills and releases to land, water and air from fuels, oils, lubricants and chemicals
- discovery of historic contamination
- erosion events of land (e.g., water, wind), watercourses (e.g., bank erosion, flooding), berms and coffer dams

The ECO Plan must describe the emergency procedures to prevent and respond to potential incidents. The emergency response procedures must include:

- initial response to an emergency, including procedures, use of spill kits, etc.
- the availability of a current list of key personnel and phone numbers for reporting spills, problems, etc.
- immediate reporting of environmental incidents to proper authorities

- appropriate training provisions to make Contractor staff and subcontractors aware of their responsibilities during emergency situations
- post-emergency review, follow-up and improvement of procedures as needed

Ensure that the emergency response plan reflects requirements of the jurisdiction. For example, a chemical spill response within the city of Calgary would involve the Calgary Fire Department Hazardous Materials Response Team; within the city of Edmonton, it would involve Fire Rescue Services Hazardous Materials Team.