

Environmental Construction Operations (ECO) Plan Framework Municipal Version

2020 edition

Instructions for Preparing ECO Plans for City of Calgary and City of Edmonton Construction Projects



In partnership with:



TITLE: Environmental Construction Operations (ECO) Plan Framework Municipal Version
Instructions for Preparing ECO Plans for City of Calgary and City of Edmonton Construction Projects

PREPARED BY: The City of Calgary
The City of Edmonton

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Table of Contents

Environmental Construction Operations (ECO) Plan Checklist Municipal Version.....	A	
Contractor Responsibilities	C	
Introduction	i	
ECO Plan Process	i	
Step 1	Description of Site Activities	1
1.1	Site Activities	1
1.2	Sensitivities	1
1.3	Site Drawing(s)	1
1.4	Project Schedule	2
Step 2	Potential Environmental Impacts and Controls	3
2.1	Permits, Approvals, Authorizations & Notifications	3
2.2	Impacts & Mitigations	4
2.3	Erosion and Sediment Control	6
2.4	Municipal Tree Protection	7
Step 3	Hazardous Materials & Waste Management.....	9
3.1	Hazardous Materials	9
3.2	Waste Management	10
Step 4	Environmental Emergency Procedures.....	12
4.1	Environmental Emergency Prevention & Response	12
Step 5	ECO Plan Implementation	13
5.1	Training	13
5.2	Monitoring	13
5.3	Documentation	14
5.4	ECO Plan Update	15

Environmental Construction Operations (ECO) Plan Checklist **Municipal Version**

Project Name: _____

Contractor's On- Site Representative(s) (Name, Company, Email and Phone Number): _____

ECO Plan submitted to (Name and Jurisdiction): _____

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

ECO Plan Framework Step		Content Requirements	YES	NO	N/A
STEP 1: Description of Site and Activities					
1.1	Site Activities	Briefly describe the location and on-site specific construction activities that will occur.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2	Sensitivities	Describe site-specific sensitive features that could be impacted by the Contractor's activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3	Site Drawing(s)	Provide site drawing(s) that detail the site location, set-up and layout; erosion and sediment controls; and, environmental sensitivities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.4	Project Schedule	Provide a project schedule that includes scheduled shut downs and restricted work periods due to environmental requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 2: Potential Environmental Impacts and Controls					
2.1	Permits, Approvals, Authorizations and Notifications	Append copies of all project permits, approvals, authorizations and notifications (and their associated applications, when referenced in the approval) to the ECO Plan, and list their file names, numbers and environmental conditions and/or restrictions in a table like Table 2-1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Impacts and Mitigations	Identify all potential project-specific environmental issues and impacts, including regulatory requirements not contained in 2.1. Describe procedures, controls or best management practices (BMPs) that will be used to prevent or reduce adverse environmental impacts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.3	Erosion & Sediment Control	Provide project-specific, jurisdiction-appropriate erosion and sediment controls.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4	Municipal Tree Protection	Provide project-specific, jurisdiction-appropriate municipal tree protection measures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 3: Hazardous Materials and Waste Management					
3.1	Hazardous Materials	List every hazardous material to be used or stored on site by the Contractor and all sub-contractors, and provide appropriate handling, containment, storage and disposal methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Waste Management	List all anticipated hazardous and non-hazardous waste materials along with proper handling and disposal methods. Provide all additional jurisdiction-specific handling procedures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 4: Environmental Emergency Procedures					
4.1	Environmental Emergency Prevention and Response	Identify potential incidents that may impact the environment, and provide appropriate prevention and response procedures. In addition, provide an environmental emergency response contact list.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP 5: ECO Plan Implementation					
5.1	Training	Detail the procedures that will be used to train staff and sub contractors in their ECO Plan responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.2	Monitoring	Describe monitoring and inspection procedures that suit the nature and scale of the project and meet regulatory and contractual requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.3	Documentation	Describe the environmental information and ECO Plan records that will be kept up-to-date on the project site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.4	ECO Plan Update	Provide ECO Plan review and update procedures. Append a current ECO Plan Revision Summary table (e.g., Table 5-3) to all updated ECO Plans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments (include relevant special provisions and/or conditions for the project, and explain any deficiencies in the ECO Plan):

Contractor Responsibilities

All Contractors must be aware of how environmental policy, regulation and law govern their work. The Contractor is responsible, either by its own actions or through its sub contractors, for providing the resources needed to develop and implement the ECO Plan. The Contractor is responsible for ensuring sub contractors understand their roles and responsibilities and operate in compliance with the ECO Plan.

Contractors must refer to the terms and conditions contained in applicable contractual and regulatory documents to be fully aware of their responsibilities. In general, Contractors must:

- a) Identify the potential environmental issues and develop mitigation measures to prevent or minimize environmental impacts.
- b) Identify and acknowledge permits, approvals, authorizations, notifications, guidelines, standards, policies and programs applicable to the project.
- c) Prepare and update the ECO Plan in accordance with the latest version of the ECO Plan Framework.
- d) Submit copies of the ECO Plan and all other required documentation to 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) comments.
- f) Identify an on site individual to be the Contractor's On-Site Representative to maintain environmental controls and address any environmental issues or questions that arise. The Contractor must identify this individual within the ECO Plan (see page A of the ECO Plan Checklist) and at the pre-construction meeting.
- g) Train staff and sub contractors to identify, address and report potential environmental problems.
- h) Review the ECO Plan requirements at orientation meetings, the pre-construction meeting, tailgate meetings etc.
- i) Implement and maintain environmental mitigation measures in accordance with the ECO Plan.
- j) Correct and record deficiencies in a timely and appropriate manner.
- k) Take corrective action (e.g., shut down work) upon recognition that an impact to the environment may occur or has occurred.
- l) Ensure that all sub contractors comply with the ECO Plan.
- m) Monitor the work site to ensure that the ECO Plan is effective for all conditions, including inclement weather and shut-down periods. Document all monitoring efforts.

This ECO Plan is complete to the best of our abilities. The undersigned acknowledges and accepts the responsibilities detailed herein.

Contractor Principal-in-Charge Signature

Name (please print)

Date

Introduction

The Environmental Construction Operations (ECO) Plan Framework Municipal Version guides the development of ECO Plans for The City of Calgary and The City of Edmonton. ECO Plans ensure the following:

- The project is compliant with applicable regulations, bylaws and guidelines
- Environmental considerations are integrated into project decision-making

ECO Plan Process

The Contractor must prepare and implement an ECO Plan in accordance with the current edition of the manual entitled “Environmental Construction Operations (ECO) Plan Framework – Municipal Version.” The ECO Plan must be site specific and address all environmental regulations, conditions and sensitivities.

The ECO Plan checklist (pages A-C) must be completed and included with the ECO Plan. The ECO Plan Checklist must identify the Contractor’s On-Site Representative and be signed by the Contractor Principal-in-Charge as part of the ECO Plan submission.

No work may begin until the Contractor has an accepted ECO Plan. Contractors must submit their ECO Plans to the appropriate jurisdiction at least 14 days prior to the scheduled start of construction. The reviewer will evaluate the ECO Plan and one of the following will result:

1. Acceptance – If the ECO Plan is accepted to the mutual satisfaction of the Contractor and the reviewer (The City of Calgary or The City of Edmonton), the Contractor will be advised that the ECO Plan is complete.
2. Follow-up or Revision – The reviewer will follow up with the Contractor if deficiencies are identified or questions are raised. Incomplete ECO Plans will be returned to the Contractor for revision. ECO Plans must be completed to the mutual satisfaction of all parties. Changes to accepted ECO Plans must be documented (see Table 5-3) and copies of the updated ECO Plan forwarded to the reviewer and other parties, as applicable.

This Framework provides instructions for developing ECO Plans for The City of Calgary and The City of Edmonton. All ECO Plans must follow this Framework and adopt the headings and structure provided.

Step 1

Description of Site Activities

1.1 Site Activities

Briefly describe the location and general construction activities that will occur as a result of the Contractor's activities, including any permanent and temporary structures. It is particularly important for the Contractor to describe specific on-site construction activities that could result in the environmental impacts (e.g. working in a watercourse or wetland).

1.2 Sensitivities

Describe site-specific sensitive or protected features that could be impacted by the Contractor's activities. This description must include source references, be specific to the site and highlight wildlife and wildlife habitat, waterbodies, vegetation, archaeological, paleontological and/or other historical resources, parks, protected areas and other designated lands, site contamination and underground infrastructure.

Proponents should review the contract documents, and all applicable environmental information and reports which may include, but is not limited to, Biophysical Impact Assessments, Historical Resources Impact Assessment, Phase I or II Environmental Site Assessments, Risk Management Plans, and Hazardous Building Material Reports.

1.3 Site Drawing(s)

Provide one or more site drawing(s) that contain standard map features (e.g. north arrow, scale, legend) and are at an appropriate scale to accurately show the location of the project components and activities relative to existing features. Annotated photographs can be included in this section. Table 1-1 summarizes some additional details that may be relevant to include on the site drawing(s).

Table 1-1 Example: Potential Details to include on the Site Drawing(s)

Site Location	Site Set-up and Layout	Erosion and Sediment Controls	Environmental Sensitivities
<ul style="list-style-type: none"> Site location (e.g. municipal address; legal land description) Project boundaries Municipal boundaries, historic sites, protected areas (e.g. parks), federal land Linear and other transportation components (e.g. railways, roads) 	<ul style="list-style-type: none"> Staging areas/laydown Office and parking Access/egress Borrow areas Stockpile locations Refuelling areas Spill kits Hazardous materials storage Hazardous waste storage Waste and recycling areas 	<ul style="list-style-type: none"> Project-specific erosion and sediment controls as appropriate for the jurisdiction (see Step 2.3 and Table 2-3 for more details) including both temporary and permanent measures. Storm water infrastructure 	<ul style="list-style-type: none"> Environmentally sensitive areas (e.g. wildlife habitat; waterbodies such as wetlands, and watercourses; vegetation such as tree stands and rare plants) Buffers around sensitive areas Monitoring wells Known Contamination

1.4 Project Schedule

The ECO Plan will include a project schedule that presents the sequence and timing of construction activities. It will identify any time-sensitive environmental considerations including scheduled shut-downs and restricted work periods. For example, Restricted Activity Periods (RAP) may restrict the activities of the Contractor unless additional mitigation is completed (e.g. conducting bird surveys prior to clearing within the RAP).

Step 2

Potential Environmental Impacts and Controls

2.1 Permits, Approvals, Authorizations & Notifications

The Contractor must provide instruction to their staff and sub-contractors how environmental conditions and/or restrictions prescribed in permit conditions, approvals, authorizations and their contract govern their work.

List the name and permit number of all required project permits, approvals, authorizations and notifications in this section. Compile all of the environmental conditions and restrictions prescribed by all regulatory agencies pertaining to the Contractor, in a summary table (e.g. Table 2-1). Tender packages may outline the regulatory requirements of which the Contractor must address.

Retain copies of projects permits, approvals, authorizations and notifications (as well as the permit applications when relevant) on site during all activities. These documents, upon request, will be provided to the regulators during site visits and inspections.

Table 2-1 Example: Project Permits, Approvals, Authorizations and Notifications

Legislation	Environmental Conditions That Apply to the Contractor's Activities
Fisheries and Oceans Canada Authorization	No in-stream work will occur between May 1 and July 15
	Operate machinery on land in a manner that minimizes disturbance to the bed and banks of the watercourse
	A fish rescue shall be undertaken in the isolated area and shall be released unharmed to an area containing sufficient flow and cover outside of the construction area
	Other stated environmental conditions
Alberta Environment and Parks Water Act Approval (Approval No: 1234567-00)	The Contractor shall not release sediment into any wetland or watercourse
	Develop a temporary erosion and sediment control plan prior to construction
	Other stated environmental conditions

Notification under the Code of Practice for Watercourse Crossings	During a restricted activity period, when fish are spawning or migrating, an isolation method that blocks the entire width of a water body must not be in place for longer than 3 consecutive days, unless upstream and downstream fish migration is accommodated
	Other stated environmental conditions
City of Calgary Street Use Permit (SU-20-9854)	When storing material, the permit holder shall comply with all applicable legislation and use recognized practices that minimize erosion and prevent the movement of sediment offsite into watercourses or storm infrastructure and shall ensure an impermeable barrier is placed beneath stockpiles placed in gravel lanes.
	Other stated environmental conditions

2.2 Impacts and Mitigations

The Contractor must ensure that all project-related regulatory requirements and environmental impacts that are not contained within project approvals (Section 2.1) or the Care of Water section (2.2.1) are complied with and mitigated. The Contractor and all sub-contractors must understand how to comply with all applicable regulatory requirements and identify, mitigate and monitor project related impacts.

The Contractor must identify specific regulatory requirements (other than permits, approvals, authorizations and notifications) and project impacts over which they have reasonable control. Identify project related impacts and mitigation measures that the Contractor must implement to remain compliant in Table 2-2.

Contractors should refer to Contractor Environmental Responsibilities Package, Standard General Conditions, Special Conditions and Standard Specifications identified in the tender.

Table 2-2 Example: Project Regulatory Requirements (other than permits, approvals, authorizations and notifications)

Legislation / Impact	Regulatory Requirement / Impact	Contractor's Mitigation
Migratory Birds Convention Act and its regulations	Avoid engaging in potentially destructive or disruptive activities during the Restricted Activity Period in order to reduce the risk of affecting migratory birds, their nests or eggs.	If vegetation removal is required during the Restricted Activity Period, the Contractor will have pre clearing surveys conducted by a qualified professional biologist to confirm that birds are not impacted by vegetation clearing and wetland disturbance activities. If active bird nests are found, a buffer will be established and no work shall be completed in that area until further surveys clear the area.
	etc	
Dust Management	The Contractor shall manage dust during the construction period to reduce the impacts to neighbouring communities.	Throughout construction, haul roads will be regularly watered during dry conditions. Tackifiers and interim cover crops will be applied to soil stockpiles.
	etc.	
City of Calgary Community Standards Bylaw 5M2004	A Person shall not engage in any activity that is likely to allow smoke, dust or other airborne matter to escape the Premises without taking reasonable precautions to ensure that the smoke, dust or other airborne matter does not escape the Premises.	Equipment blowing black smoke will not be allowed on site. Dust suppression will be implemented on site by watering haul roads and covering stockpiles.
	etc.	
City of Calgary SGC 20.7 Fueling Operations and Spill Prevention	(4) Fueling or maintenance of construction equipment must not take place within 30m of water bodies, or near storm water infrastructure or environmentally sensitive areas unless a written standard operating procedure is developed and implemented by the Contractor ... and has been approved by The City prior to implementation	Fueling area is designated on the site drawing and has been confirmed to be 65m from the nearest catch basin. Orientation for workers will include fueling area requirements.

2.2.1 Care of Water

Care of water plans are required for projects in or near waterbodies and should include:

- turbidity monitoring plans and fish rescue plans developed by the environmental consultant for the project,
- decontamination protocol, spill contingency plan and dewatering plan for in-stream work that the contractor will follow,
- Sedimentation and Erosion Control plans for compliance with Water Act. Note – While these plans are a separate requirement from Erosion and Sediment Control Plans indicated in Step 2.3 which mitigate impacts to municipal storm water infrastructure, all requirements (i.e. City of Calgary, provincial and federal) can be addressed in one ESC Plan.

2.3 Erosion and Sediment Control

The Cities of Calgary and Edmonton require Erosion and Sediment Control Plans, including drawings on construction projects; however, each jurisdiction has its own specific requirements (see Table 2-3).

The Contractor must implement, inspect and maintain appropriate and site specific erosion and sediment control measures for the contract term. If project shut-downs are expected the Contractor must explain how they plan to monitor/maintain ESC during that period. The erosion and sediment control plan shall form a part of the ECO Plan.

Table 2-3: Erosion and Sediment Control Requirements by Jurisdiction

City of Edmonton
City of Edmonton projects refer to the latest version of the Alberta Transportation Erosion and Sediment Control Manual
The City of Calgary Requirements
City of Calgary projects with earth-moving activities on a site larger than or equal to 0.4ha require an Erosion and Sediment Control Plan (ESCP) Approval issued by Water Resources. The ESCP is to be created, signed, and stamped by a professional designer with experience in the design and implementation of erosion and sediment control who holds a valid designation as either a Certified Professional in Erosion and Sediment Control (CPESC), Professional Engineer (P.Eng.), Professional Licensee (P.L.(Eng.)) or Professional Agrologist (P.Ag.).
Sites with total disturbed areas less than 0.4ha, and where there are no site characteristics that indicate greater than normal ESC concerns do not require any formal ESC Approval, but must still adhere to the current edition of The City of Calgary Standard Specifications Erosion and Sediment Control (available at www.calgary.ca).
In the ECO Plan, indicate whether an Erosion and Sediment Control Report and/or Drawing was developed for the project. Include a complete citation for all Reports and Drawings submitted (i.e. Author, Full Title, Publication Date, Date submitted to The City of Calgary, the Business Unit [and contact person] that the Report and/or Drawing was submitted to, and the mode used to transmit the documents [e.g., email, fax, registered mail]).
For more information on submission requirements, refer to the current editions of the Standard Specifications Erosion and Sediment Control and The City of Calgary Guidelines for Erosion and Sediment Control (available at www.calgary.ca/esc). For further information regarding the application process, refer to the current edition of the Instruction Manual for Erosion and Sediment Control Plan Applications (available at www.calgary.ca/esc) or contact The City of Calgary Water Resources — Stormwater Pollution Prevention by phone at 3-1-1 (local Calgary calls only) or (403) 268-CITY (for callers outside Calgary).
The ECO Plan does not replace an Erosion and Sediment Control Report and/or Drawing(s).

2.4 Municipal Tree Protection

Construction activity near or crossing City property can damage City-owned trees. The vast majority of a tree's roots are found within one meter of the soil surface. Unless City trees are protected, typical construction activities by heavy equipment near trees results in compacted soil and broken branches, and excavating in the root zone will cause decline in health, death or tree failure.

The Cities of Calgary and Edmonton both have municipal tree protection standards for construction projects; Table 2-4 summarizes their specific requirements.

Tree Protection Plans detail the degree and method of construction as well as the impact to City trees and their protection. Tree Protection Plans are required for any development involving the following: excavation, storage of construction materials, or access routes for people and/or equipment within a certain distance of a City-owned tree. The Contractor must develop Tree Protection Plans, when required, for their projects, and ensure that tree protection measures are in place and maintained during the length of the project.

Please note that Tree Protection Plans are intended to protect only the trees themselves; trees with specific wildlife values (e.g., nesting or fledging birds, riparian habitat) may have additional regulatory requirements that apply to the project.

Table 2-4: Tree Protection Requirements by Municipal Jurisdiction

City of Edmonton Requirements
<p>Prior to the start of construction, City of Edmonton urban foresters must be notified of any construction work planned within five meters of a City-owned tree or within 10 meters of a natural area. City of Edmonton tree protection is mandated by the Corporate Tree Management Policy C456A and the Community Standards Bylaw 14600.</p> <p>In the ECO Plan, include a copy of the Tree Protection Plan or a Tree Preservation Plan developed for the project and summarize the required tree protection measures. The location of all City trees and associated tree protection measures should be included on the ECO Plan site drawing (Step 1.3).</p> <p>The City of Edmonton urban foresters will work with you to develop tree protection solutions and to reduce potential damage costs to your project. For more information or to inquire about tree ownership, call 3-1-1 (in Edmonton) or (780) 442-5311 (outside Edmonton), or email citytrees@edmonton.ca. Details on the protection/preservation plan can be found on The City of Edmonton's website.</p>

Table 2-4: Tree Protection Requirements by Jurisdiction (cont'd)

The City of Calgary Requirements
<p>City of Calgary projects require an approved Tree Protection Plan and a Tree Protection Plan Approval Letter from Urban Forestry when construction or construction-related activities are to occur within six meters of a City tree. Public trees are any trees located on land owned, controlled or maintained by the City of Calgary. These include trees growing in parks, natural areas, boulevards and road right-of-ways. The protection of public trees is mandated by municipal bylaws, including the Tree Protection Bylaw 23M2002 and the Street Bylaw 20M88.</p> <p>In the ECO Plan, indicate whether a Tree Protection Plan is required for the project and summarize the required tree protection measures. Develop a Tree Protection Plan following the most recent edition of the City of Calgary's Tree Protection Plans for Capital Projects Guide. Please submit a copy of all Tree Protection Plan(s) and Approval Letter(s) required by the project and the ECO Plan together to The City of Calgary Project Manager. The City of Calgary Environmental & Safety Management will review the ECO Plan, and The City of Calgary Parks — Urban Forestry will review the Tree Protection Plan(s) and provide an Approval Letter, which will become part of the ECO Plan.</p> <p>Note that the location of all City trees and associated tree protection measures should be included on the ECO Plan site drawing (Step 1.3).</p> <p>For more information on Tree Protection Plans or to inquire about tree ownership, contact The City of Calgary Parks — Urban Forestry using 3-1-1 (phone, online or mobile app), (403) 268-CITY (for callers outside Calgary) or email tree.protection@calgary.ca.</p> <p>The ECO Plan does not replace a Tree Protection Plan.</p>

Step 3

Hazardous Materials and Waste Management

3.1 Hazardous Materials

In Table 3-1, the Contractor must identify and describe in their ECO Plan material-specific handling, storage, containment and disposal procedures; these procedures must comply with all regulatory requirements (e.g. setback distance from a waterbody). The Contractor must keep all hazardous waste disposal receipts and manifests. All waste storage locations must be shown on the site drawing (Step 1.3).

Table 3-1 Example: Hazardous Materials and Associated Handling Procedures

Hazardous Material	Handling Procedure	Storage Location	Containment	Disposal
Diesel	<p>On-site fuelling will follow best management practices.</p> <p>Ensure a spill kit is in close proximity when handling fuel.</p>	Refuelling station (see Site Drawing, Step 2.3)	<p>Double-walled fuel tank located on impervious tray with capacity to hold 110% of stored liquid volume.</p> <p>Concrete barriers, fire extinguisher and no smoking sign erected.</p>	<p>Empty storage container will be re-filled.</p> <p>If fuel is no-longer needed it will be transported off site for use elsewhere.</p>
Lubricating Oil	Contractor will provide secondary containment with capacity to hold 110% of stored liquid volume when lubricating oil is used.	Storage locker in laydown area (see Site Drawing, Step 2.3)	<p>Fire-proof containment locker.</p> <p>All lubricating oil packaging clearly labelled with Contractor's name.</p>	Used lubricating oils will be stored and removed from site, to an appropriate eco station, on a regular basis (e.g. weekly)

3.2 Waste Management

In Table 3.2 the Contractor must identify every hazardous and non-hazardous waste product to be produced by the project, and specify its appropriate handling and disposal procedure in the ECO Plan. These procedures must comply with applicable regulatory requirements. The Contractor must keep all hazardous and non hazardous waste disposal receipts and manifests. All waste storage locations must be shown on the site drawing (Step 1.3).

Contractors shall reuse or recycle their hazardous and non hazardous waste materials when possible. The Cities of Calgary and Edmonton have specific additional landfill diversion and recycling requirements (see Table 3.2).

Table 3-2 Example: Waste Material Handling and Disposal Procedures

Waste Material	Handling Procedure	Reuse, Recycling and/or Disposal Method
Non-Hazardous Waste Materials		
Concrete	Break up and put in concrete bin	Recycle (provide Recycling Company name and location)
Wood	Stack reusable boards next to supply of new form boards for reuse; recycle clean unusable forms in wood recycling bin	Scraps used for formwork, remaining recycled (provide Recycling Company name and location)
Road Asphalt	Truck directly to vendor as asphalt is stripped/removed	Recycle (provide Recycling Company name and location)
Drywall	Truck directly to vendor as drywall is removed	Recycle (provide Recycling Company name and location)
Paper & Cardboard	Bundle (if needed) and put in covered paper and cardboard recycling bins	Minimize on-site paper use; when needed, print double-sided and black & white (if possible); then Recycle (provide Recycling Company names & locations)
Clear Plastic Film	Bundle and put in covered plastic bin	Recycle (provide Recycling Company name and location)
Hazardous Waste Materials		
Epoxy	Stockpiled separately	Container returned to distributor
Concrete washout	All washout contained in a designated lined area or in a self contained concrete washout system	Recycle (provide Recycling Company name)

Table 3-3: Waste Management Requirements by Municipal Jurisdiction

City of Edmonton Requirements
<p>When working for The City of Edmonton, hazardous waste handling procedures must be included in the ECO Plan. Hazardous waste manifest or recycle dockets must be completed and appropriate copies maintained on site or by the generator when disposing hazardous waste or hazardous recyclables.</p> <p>The Contractor must identify all waste streams and disposal methods (i.e. diverted from the landfill, recycled or land-filled). Contractors shall document / recycle / divert materials as per their contractual agreement. Table 3-2 provides an example of how to summarize the project’s waste management.</p>
The City of Calgary Requirements
<p>When working for The City of Calgary, the Contractor must identify how waste will be reduced and diverted from the landfill or recycled. At a minimum, the Contractor will recycle cardboard, paper, recyclable wood, drywall, asphalt (both road asphalt and asphalt shingles), concrete, brick and masonry block, scrap metals and clear plastic film (polyethylene) or provide written justification for not diverting any of these waste streams. Table 3-2 provides an example of how to summarize this component of project waste management.</p> <p>The City of Calgary tracks quantities of re-used, recycled and landfilled waste associated with capital construction projects. The City of Calgary contractors should use form TS 5377 (Construction Waste Diversion and Disposal Report; Internet Explorer required) to summarize their waste disposal and diversion activities. Contractors are also required to retain and submit copies of all waste disposal and diversion records (e.g. bills of lading, waybills, weigh slips, waste manifests, tipping receipts, waste disposal receipts) for materials disposed and those recycled or reused. Completed Form TS 5377 together with all associated waste disposal and diversion receipts must be submitted within two weeks of disposal or diversion to the following email: ECOPlan.waste@calgary.ca.</p>

Step 4

Environmental Emergency Procedures

4.1 Environmental Emergency Prevention & Response

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

The Contractor will develop a Spill Response and Disposal Plan as a part of their ECO Plan. At a minimum, each ECO Plan must include contamination discovery and release reporting emergency response procedures. As a City of Edmonton or City of Calgary Contractor, you have specific responsibilities associated with the reporting, prevention, control and clean up of spills or releases that you may cause or discover. The immediate reporting of environmental releases and spills is a requirement of provincial and federal environmental legislation.

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 and scour events of land (e.g. water, wind) and watercourses (e.g. bank erosion, flooding, berms and coffer dam failures).

The ECO Plan must provide emergency procedures to prevent and respond to potential incidents that may impact the environment. The emergency response procedures must include:

- Training provisions to make Contractor staff and sub contractors aware of their responsibilities during emergency situations
- A list of hazardous materials available on site including their location
- Initial response to an emergency, describing the steps to be taken to address a situation
- Immediate reporting of environmental incidents to appropriate authorities
- Post-emergency review, proper disposal, follow-up and improvement of procedures as needed.

The Contractor is responsible to ensure that each emergency response procedure reflects current, regulatory requirements and any jurisdiction specific conditions.

The ECO Plan must include a current emergency contact list and describe where it will be posted on site; this list must include names and contact details for key personnel and applicable regulatory agencies.

Step 5

ECO Plan Implementation

5.1 Training

The Contractor must describe how they will train staff including sub-contractors to comply with the projects ECO Plan.

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 (but are not limited to) those listed in Table 5-1.

Table 5-1 Potential Topics for ECO Plan Training and Awareness Sessions

ECO Plan Training and Awareness — Potential Topics
ECO Plan Content & On-site Location
ECO Plan Team Roles & Responsibilities
Locations of Environmental Restrictions (e.g. wetlands, rare plants, bird nests, riparian areas)
Requirements of Project Permits, Approvals, Authorizations & Notifications
Potential Environmental Impacts, Mitigation Measures & Best Management Practices
Erosion & Sediment Control
Hazardous Materials & Waste Management
Monitoring & Reporting Procedures
Environmental Emergency Response Procedures (including locations of spill kits, contact information, etc.)

5.2 Monitoring

The Contractor will develop methods to monitor and inspect compliance with their ECO Plan.

The monitoring and inspection procedures must satisfy regulatory and contractual requirements, and also be appropriate for the nature and scale of the project and must consider the site characteristics, work activities and potential site specific environmental risks.

The Contractor is responsible for understanding and complying with reporting requirements and ensuring that all of the environmental controls are working.

The Contractor must include the following project specific information in this section:

- Locations and items to be inspected
- Monitoring frequency
- Monitoring during scheduled shut downs
- Reporting requirements related to permits, approvals, authorizations and notifications

Deficiencies identified during monitoring activities must be immediately addressed.

5.3 Documentation

A copy of the most up-to-date ECO Plan and related documents (e.g. permits and regulatory documentation) must be retained at the construction site and available for inspection at all times. These documents must be kept current and be available to all personnel. Table 5-2 provides a non-comprehensive list of the types of documents that should be maintained as up-to-date copies on the project site.

Table 5-2 Example Types of Documentation to be Retained on the Project Site

Example — Documentation to be Retained on the Project Site
Current ECO Plan
Current Erosion and Sediment Control Report and/or Drawing(s)
Regulatory Permits, Approvals, Authorizations and/or Notifications, as well as their applications when relevant (often the application forms part of the approval)
Record of Environmental Incidents (e.g. spill and release records)
Hazardous Materials Inventory
Hazardous Waste Materials Inventory
Completed Environmental Monitoring Records
Site Orientation, Training Records Tailgate Meeting and Project Progress Minutes
Fuelling Logs
Relevant Memos Relating to Environmental Matters

5.4 ECO Plan Update

Provide ECO Plan update procedures in this section and include a circulation list for updated ECO Plans.

ECO Plans must be updated when the project, its site conditions and/or its activities change in a way not anticipated in the original document. For example, in the case of an unplanned winter shut-down, the ECO Plan must be revised to include the procedures and environmental protection measures required for the shut-down period. At a minimum the ECO Plan must also be reviewed for multi-year projects in advance of freeze-up in the fall and melt in the spring.

The Contractor is responsible for notifying (as appropriate) The City of Calgary and/or The City of Edmonton of the changes once the ECO Plan is updated and prior to implementation. Modifications to the ECO Plan must provide an equal or better level of avoidance or mitigation. The Contractor shall communicate the changes to employees and relevant sub-contractors, and provide the necessary training before implementing the changes.

All subsequent changes must be documented once the initial version of the ECO Plan is approved (include a revision summary table such as Table 5-3). Clearly summarize what the changes are and where they are located in the document, referencing applicable sections, pages, drawings and/or table numbers. This revision summary table should be located at the front of the revised ECO Plan (just after the cover page). Forward the revised ECO Plan to the reviewer (i.e. The City of Calgary, The City of Edmonton) and other applicable parties.

Table 5-3 Example: ECO Plan Revision Summary Table

Date	ECO Plan Section	Specific Document Reference (Page #, Drawing # or Table #)	Description of Change
25 Jun. 2020	2.2	Page 4	Modify erosion and sediment control plan to further protect an environmental sensitive feature. See the updated site drawing.
	1.2	Site Drawing	Add Spill Kit location updated Site Drawing.
28 Aug. 2020	Table 3-2	Page 32	Updated to include solvent that is now required for the bridge work.