FORWARD

Alberta Infrastructure and Transportation has responsibility for the Province’s extensive transportation network and water management infrastructure, including, but not limited to, highways, bridges, culverts, tunnels, ferries, dams, reservoirs and canals. The Department’s goal is to provide safe, efficient and sustainable transportation and water management infrastructure through effective planning, design, construction, rehabilitation, operation, maintenance and decommissioning.

Alberta Infrastructure and Transportation is committed to meeting this goal in a manner that minimizes impacts on the environment, including the land, water and air, and human health. It has enhanced its ability to meet this commitment by developing the Environmental Construction Operations Plan (ECO Plan) for its transportation and water management infrastructure projects and activities.

The ECO Plan framework is provided as a tool to facilitate effective environmental management planning. This framework is a guide only and may not address all the necessary environmental requirements. As a Service Provider to Alberta Infrastructure and Transportation, it is important that you realize your environmental obligations. Please ensure you are meeting your roles and responsibilities under the Alberta Transportation Environmental Management System (EMS) and that you are familiar with the relevant regulations and Department specifications before beginning work.
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1 INTRODUCTION

An Environmental Construction Operation Plan (ECO Plan) is prepared by the Contractor and consists of written procedures and drawings that address the environmental protection issues relevant to the site specific activity being performed. An ECO Plan identifies:

- The environmental issues;
- Environmental protection and mitigation measures to be implemented;
- Who is responsible to address the environmental issues; and
- What standards are to be met and monitored.

The goal of the ECO Plan is to prevent, or minimize, environmental impacts and to enhance the environmental values of the air, land and water affected by projects where possible. The development and implementation of the ECO Plans will:

- Ensure environmental considerations are part of decision making processes;
- Ensure compliance with regulatory requirements governing our transportation and water infrastructure activities; and
- Demonstrate to the stakeholders and public that there is an environmental commitment by all parties involved, both in writing and in action.

On construction, maintenance and rehabilitation contracts, the Contractor must submit the ECO Plan to the Consultant prior to commencement of the work and in sufficient time to allow the Consultant to evaluate the suitability of the proposed strategy. The Consultant will then review the ECO Plan and address any concerns with the Contractor. The timelines for the submission and review of the ECO Plan are outlined in the Standard Specifications for Highway Construction.

The ECO Plan is to be flexible and responsive to situations encountered as work proceeds. Within the framework, the Contractor will have the ability to adjust the ECO Plan based on site conditions. The reasons or circumstances necessitating changes made to the ECO Plan must be documented in writing. It is critical that all parties are in agreement on the procedures, signing configurations and devices to be used for the protection of the environment prior to commencement of the work.
2 PRIMARY RESPONSIBILITIES

In order for the environment to be protected, it is critical that all parties to Alberta Infrastructure and Transportation’s contracts, agreements, permits and authorizations, be aware of their respective responsibilities concerning environmental protection. This includes meeting compliance with regulations, department specifications and guidelines, and defined roles and responsibilities under the Environmental Management System (EMS).

A completed ECO Plan document contains site specific information that provides direction and guidance for environmental protection and is enforceable. Alberta Infrastructure and Transportation requires both the Contractor’s ‘Principle-In-Charge’ and work zone representative sign completed ECO Plans indicating that they acknowledge that the ECO Plan contains site specific detail regarding environmental protection and accept responsibility to ensure these procedures are implemented as stated.

The primary responsibilities of the Contractor, Consultant, and the Department for Environmental Construction Operations are as follows:

2.1 CONTRACTOR

The following are the primary responsibilities of the Contractor;

- Develop an ECO Plan, based on the Contractor’s own site information and with reference to the Consultant’s Environmental Risk Assessment.
- The relevant conditions contained within approvals/authorizations shall be specifically addressed within the ECO Plan.
- Submit the ECO Plan to the Consultant prior to the pre-construction meeting. In the absence of a Consultant, the Contractor will submit the ECO Plan to the relevant Alberta Infrastructure and Transportation manager for review.
- Finalized ECO Plans shall be signed by the Contractor’s “Principle-In-Charge” as well as the Contractor’s work site representative before the commencement of work.
- Identify an individual to be the Contractor’s work site representative at the work zone to maintain the environmental protection devices and address any environmental protection issues that arise. The Contractor must identify this individual to the Consultant at the pre-construction meeting.
• Ensure that staff and Subcontractors are trained and empowered to identify, address and report potential environmental problems.

• Implement environmental protection measures in accordance with the ECO Plan.

• Take appropriate and timely action to correct any deficiencies.

• Take action (i.e. shut down work) where it is recognized that an impact to the environmental may occur.

• Ensure that all Subcontractors comply with the ECO Plan.

• All requests for changes to authorizations and approvals in the Department’s name shall be forwarded to the Consultant for submission to the appropriate agency.

• Attend any meetings initiated by the Consultant to address any concerns regarding the performance of the ECO Plan.

• Sufficiently monitor the work zone to ensure that the ECO Plan is effective for all conditions, including inclement weather conditions and during periods of construction and shut down. All monitoring efforts are to be documented and provided to the Consultant.

• The ECO Plan is an environmental protection plan. The Contractor shall ensure that no OH&S statements are included.

• Ensure that environmental incidents are reported as stated in Chapter 9: Spill Release Response Procedures of the EMS.

2.2 CONSULTANT

The following are the primary responsibilities of the Consultant.

• Identify in the special provisions of a contract, any anticipated unique situations that will require special environmental protection measures. Ensure the Contractor addresses these situations in the ECO Plan.

• As appropriate, identify bid items within the tender document.

• Review the Contractor’s ECO Plan prior to commencement of the work to ensure completeness. Ensure that the Contractor addresses all environmental impacts identified in the Environmental Risk Assessment, approvals, and authorizations. A signed copy of this review is to be placed in the project file.

• Provide a copy of the Contractor’s ECO Plan to the Project Sponsor.
• Liaise with the Contractor to address any concerns with the proposed ECO Plan.

• Provide a copy of the ECO Plan to the applicable regulatory authorities as required.

• Develop an adequate inspection/monitoring program, as appropriate to the activities being performed, to ensure the Contractor implements and maintains the ECO Plan. These efforts are to be documented and placed in the project file.

• Advise the Contractor of any deficiencies in the Contractor’s environmental protection measures and ensure that the Contractor takes appropriate and timely corrective action. These actions are to be documented and placed in the project file.

• Order the Contractor to suspend work in cases of recognized non-compliance with the ECO Plan or where the Contractor fails to undertake appropriate and timely measures to protect the environment or fails to correct recurring deficiencies. Immediately notify the Project Sponsor in cases where such orders are issued.

• Ensure that environmental incidents are reported as stated in Chapter 9: Spill Release Response Procedures of the EMS.

• Ensure the Contractor does not begin work if the ECO Plan is not signed, is incomplete, or has not been reviewed prior to the pre-construction meeting.

2.3 PROJECT SPONSOR

The Department Project Sponsor will perform the following functions:

• Provide comments to the Consultant concerning the Contractor’s proposed ECO Plan.

• Periodically visit the work zone. During such visits, advise the Consultant of any deficiencies noted in the ECO Plan or its implementation and ensure that the Consultant takes appropriate and timely corrective action. These actions are to be documented and placed in the project file.

• Order the Contractor to suspend work in cases of recognized non-compliance with the ECO Plan or where the Contractor fails to take appropriate and timely measures to protect the environment. Typically, the Department would only take on this responsibility during a periodic visit where the Consultant cannot be contacted to issue the order to suspend work.
• Ensure that environmental protection is given a high priority on Department projects. Environmental protection must be encouraged on all job sites.

• Ensure that environmental incidents are reported as stated in Chapter 9: Spill Release Response Procedures of the EMS.

• Ensure all relevant documentation is maintained in the project file.

2.3.1 ENVIRONMENTAL SECTION

The Department’s Environmental Section will perform the following functions:

• Ensure the ECO Plan framework allows for consistent application of environmental protection from project to project.

• Update the ECO Plan framework as required.

• Conduct periodic audits to ensure ECO Plans are properly developed and implemented.

2.4 ECO PLAN REVIEW PROCESS

2.4.1 General

ECO Plans are prepared by the Contractor and submitted to the Consultant prior to commencement of the work and in sufficient time to allow the Consultant to evaluate the completeness of the proposed plan. The Contractor should submit the ECO Plan as soon as possible but no later than the deadlines stated in the Department’s specifications. The Consultant will then review the ECO Plan and address any concerns with the Contractor by the deadlines stated in the Department’s specifications.

2.4.2 Process Review

a) Upon receipt of the ECO plan from the Contractor, the Consultant will review it for completeness and:

i if accepted to the mutual satisfaction of the Contractor and the Consultant, the Consultant will advise the Contractor and send a copy to the Project Sponsor.
if the Department identifies any deficiencies or have any questions related to the ECO Plan, they will advise the Consultant accordingly who in turn will follow-up with the Contractor.

iii if initial agreement cannot be reached, the Consultant will forward a copy of the ECO Plan, with the Consultant’s comments, to the Project Sponsor. The Consultant will inform the Contractor that ECO Plan concerns have been forwarded to the Project Sponsor. The Project Sponsor will review the ECO Plan and advise the Consultant accordingly. The Project Sponsor, in the course of the review, may request input from the Environmental Section or other Department Staff.

b) If it is determined that the ECO Plan is not complete, it will be modified and completed to the mutual satisfaction of all parties. All changes to the ECO Plan must be documented and copies of the change to the ECO Plan forwarded to the Consultant, Project Sponsor and, if instructed, to the appropriate approval agencies. No work can begin until the ECO Plan has been agreed to by all parties.

2.5 ECO Plan Application

The application of ECO Plans is at the discretion of the Department and is included within the contract documents. When a Consultant performs work that does not coincide with the Contractor's activities, the Consultant is responsible for the preparation of ECO Plans that cover the Consultant’s activities. The responsibilities under section 2.1 of this framework will apply to the Consultant when preparing ECO Plans.

ECO Plans are required for the following activities:

- Construction and demolition
- Rehabilitation and Maintenance
- Earthwork
- Surfacing

2.5.1 Planned Winter Shutdowns

In the case of a planned winter shutdown, the Contractor will address the environmental protection measures for the shutdown period in the ECO Plan.

During the planned winter shutdown, the Contractor is responsible to provide all necessary and acceptable measures to protect the
environment and is responsible for the maintenance of the environmental protection measures.

### 2.5.2 Unplanned Winter Shutdowns

In the case of unplanned winter shutdowns, The Contractor will revise the ECO Plan to include the environmental protection measures that will be required for the shutdown period.

During the unplanned winter shutdown, the Contractor is responsible to provide all necessary and acceptable measures to protect the environment and is responsible for the maintenance of the environmental protection measures.

### 2.6 Gravel Crushing Operations

Gravel crushing operations are often the first activity to occur on a project. All gravel crushing operations must have an ECOPlan completed and reviewed prior to start up.
3 ECO PLAN FRAMEWORK

The purpose of the ECO Plan Framework is to provide assistance to Contractors in developing an acceptable ECO Plan for the duration of the project. It is the Contractor’s responsibility to prepare and determine the measures included in an ECO Plan. This document is to be used with the Contract Special Provisions and other guidelines that are available to assist the Contractor with specific environmental protection procedures and measures.

The ECO Plan Framework describes the components and information that are included in an ECO Plan and the steps that a Contractor will typically follow to develop and implement an ECO Plan.

An ECO Plan details the Contractor’s plan for satisfying the environmental requirements specific to the project. The plan must:

- Identify and address the environmental requirements and potential impacts.
- Provide site specific drawings as they relate to the work being performed.
- Provide emergency response procedures to minimize potential impacts of emergency situations on the environment.
- Describe how monitoring and reporting will be conducted to satisfy contractual and regulatory requirements.
- Describe how the ECO Plan will be implemented by establishing a plan for training, communication, documentation, and ECO Plan adjustments.

The General Contractor is required to submit one ECO Plan for the project that includes Sub Contractor activities. The ECO Plan may be broken into phases corresponding to the Sub Contractor activities. ECO Plans provided by Sub Contractors for their activities must be included in the project ECO Plan. The General Contractor is responsible for the coordination of ECO Plans with subsequent General Contractors.

3.1 PREPARING AN ECO PLAN

To prepare an ECO Plan, a Contractor would conduct the following steps:

1. Identify the environmental aspects and potential environmental impacts of the project. To identify environmental aspects and potential environmental impacts of the project, the Contractor would review:
   a. Environmental impacts of site activities (Sections 3.3 – 3.6).
   b. The Consultant’s Environmental Risk Assessment;
   c. The Contract and Special Provisions;
d. Regulatory permits, licenses and approvals (supplied by the Consultant); environmental legislation; and Department specifications and guidelines.

2. Describe procedures to address the environmental aspects and potential environmental impacts relating to:
   a. Site activities of specific project stages (Section 3.3)
   b. Construction site management (Section 3.4)
   c. Construction materials management (Section 3.5)
   d. Waste management (Section 3.6)

3. Describe emergency response procedures for all potential environmental site emergencies (Section 3.7).

4. Describe procedures for monitoring and reporting information to satisfy environmental legislation and contractual requirements (Section 3.8).

5. Describe how the ECO Plan will be implemented, reviewed and adjusted as appropriate (Section 3.9).
   a. Define roles and responsibilities.
   b. Provide a plan for staff training and communication of the ECO Plan.
   c. Indicate what documentation is to be kept.
   d. Provide audits to demonstrate implementation.
   e. Review ECO Plan performance regularly and after incidents.
   f. Adjust ECO Plan as appropriate for late issued environmental permits, environmental protection and continual improvement.

6. Coordinate, as appropriate, with the ECO Plans developed by other Contractors on the project.

3.2 SITE ACTIVITIES

A Contractor’s ECO Plan must address the environmental aspects and impacts associated with each of the site activities that the Contractor is involved in. This information will then become the basis of the project-specific ECO Plan, and will determine the potential environmental impacts, monitoring requirements and emergency response plans that are relevant to the project. As appropriate, the Contractor shall coordinate the ECO Plan with other Contractors on the project.

The three main categories of site activities for construction and rehabilitation are:

- Works within and adjacent to water,
• Earthwork and
• Surfacing/aggregate production.

A description of each site activity and the potential environmental aspects and impacts that need to be addressed in the ECO Plan are discussed in sections 3.3.1 to 3.3.3.

3.2.1 Works within and adjacent to Water

Working in water can have an impact on fisheries, fish habitat, water quality, and stream flow characteristics. Typical environmental impacts associated with this work include:

• Water quality degradation
• Loss of riparian habitat
• Fisheries
  • Fish loss
  • Capture and release of stranded fish
• Fish habitat degradation / destruction
  • Food
  • Cover
  • Spawning
  • Migration
• Wildlife habitat and endangered species
• Changes to channel characteristics and stream velocities

3.2.1.1 Instream Activities

Activities that may impact watercourses include:

  o Dam and weir construction, maintenance, rehabilitation and demolition
  o Bridge construction, maintenance, rehabilitation and demolition
  o Culvert installation and rehabilitation including:
    o Low water crossings
    o Liners
    o Bridge culverts
The Contractor will create an adaptive ECO Plan that reflects the situation and includes:

- **Regulatory conditions** - Describe the integration of permit requirements into the Contractor’s construction and rehabilitation activity schedule relating to:
  - Type (Class) of Stream (A, B, C, or D) (supplied by Consultant)
  - Sequence of instream activities
  - Timing windows
    - Start date
    - End date
  - Channel restriction
  - Blasting
  - Berm material quality and type
  - Water release quality
  - Other regulatory requirements

- **Describe procedures for instream sediment control**:  
  - Cofferdams, berms and silt ponds
  - Instream silt barriers
  - Sensitive area isolation
  - Sediment collection and water release

- **Describe procedures for bank erosion control**:  
  - Groynes and spurs
  - Riprap armoring
  - Gabions
  - Bank protection
  - Bio-engineering
3.2.1.2 Channel Realignment

The ECO Plan must describe procedures for channel construction and rehabilitation, diverting flow and reclaiming the existing channel. Include measures designed to satisfy the contract and regulatory conditions.

3.2.1.3 Channel Realignment Procedures

Describe procedures for channel realignment, including but not limited to:

- Scheduling
- Timing restrictions (fisheries and wildlife)
- Establishment of buffer areas
- Relocation of wetlands
- In stream sediment control
- Salvage of existing vegetation and reestablishment of vegetation in the new channel (riparian vegetation)
- Clearing, grubbing and timber salvage and disposal
- Soil salvage
  - Removal, storage and replacement of A-horizon material
  - Removal, storage and replacement of B-horizon material
  - Wind erosion
- Temporary erosion control measures
- Fisheries habitat structures
- Drawings

3.2.1.4 Diverting Flow

Describe procedures for diverting flow to the new channel including but not limited to:

- Bank protection
- Fish relocation
- Timing
- Water flow, depth and velocity
- Pumping activities
- Inland filtering
3.2.1.5 Reclaiming the existing channel

Describe procedures for reclaiming the existing channel with respect to the following

- Grading
- Soil replacement
- Revegetation
- Erosion control

3.2.2 Earthwork

Earthwork activities have an impact on the environment. The ECO Plan must contain a description and drawings detailing the measures that the Contractor will implement to mitigate the impacts of earthwork on the environment. The following impacts are to be considered:

- Clearing, grubbing, timber salvage and disposal
- Soil salvage
  - Removal, storage and replacement of A-horizon material.
  - Removal, storage and replacement of B-horizon material.
  - Wind erosion
  - Impacts from using a chemical dust abatement program
- Erosion
  Consider slopes, soil conditions, climatic conditions, timing and duration. If feasible, temporary control structures should be placed where permanent structures are planned.
  - Runoff control structures
  - Sediment control structures
- Noise and other nuisance factors
  - Hours of operation
  - Use of vehicle backup alarm devices
  - Lighting
- Dust control
  - Watering
  - Chemical applications
  - Other measures
o Borrow and borrow reclamation.
  o If the borrow is specified as “Contractor supply”, pre and post assessments of the borrow pit will be the Contractor’s responsibility.
  o Alberta Infrastructure and Transportation guidelines for establishing and reclaiming borrows are to be followed.

3.2.2.1 Surfacing / Aggregate Production

Surfacing and aggregate production activities may cause disturbances and releases that impact terrestrial and aquatic environments. The ECO Plan must describe procedures to mitigate any impacts of resurfacing or aggregate production on the environment. The following impacts are to be considered:

  o Location of pits, borrows, plant sites, stockpiles, access roads, staging areas, storage areas and maintenance areas. (as per Section 3.4)
    o Minimize disturbances
    o Set appropriate buffer zones
      ▪ Watercourses
      ▪ Valley breaks
      ▪ Adjacent properties
    o Surface drainage
    o Erosion control
    o Sediment control
    o Clearing, grubbing, salvage and disposal
  o Soil salvage.
    o Removal, storage and replacement of A-horizon material.
    o Removal, storage and replacement of B-horizon material.
    o Wind erosion
  o Materials that are utilized, transported and stored on site that are potential sources of soil and water contamination, heavy metal contamination and air pollution. (as per Section 3.5)
    o Soil cement
    o Asphalt cement
    o Diesel and solvents
    o Oils and lubricants
Impacts of aggregate production.
  - Surface disturbances and land capability
  - Gravel washing
    - Water usage (groundwater and surface water allocations)
    - Water quality (settling ponds releases)
  - Noise, dust and hours of operation
  - Use of municipal roads

Air quality.
  - Asphalt plant emissions must meet regulatory guidelines and approval requirements for temporary asphalt plants and permanent asphalt plants
  - Dust abatement programs should be identified
    - Watering or chemical applications on roads
    - Frequency and hours of truck operation.

Wastes Generated on Site. (as per Section 3.6)
  - Identify types and potential impacts of wastes generated
  - Address the containment, transportation and disposal of wastes

3.3 Construction Site Management

Many projects require the establishment of a construction site for project management, staging of staff and equipment, and materials storage and handling. The ECO Plan must identify the potential environmental impacts relating to the setup and management of the construction site and describe the measures that the Contractor will implement to mitigate the impacts.

The Contractor, when locating a site, should choose the best location and prepare the site for its intended use. Considerations should include:

- Minimization of surface disturbance
- Existing land use and land capability.
- Buffer requirements
  - Watercourses
  - Valley breaks
  - Adjacent properties and rights-of-way
  - Proximity to neighbors
- Surface drainage characteristics
- Erosion and sedimentation control

Describe in the ECO Plan the methods to be used to set up and operate the construction site. Show on the ECO Plan drawings of the locations and details of the construction site. The ECO Plan must address or provide procedures for the following items:

- The establishment and operation of camps
  - Water supply
  - Sewage collection, storage and disposal
  - Domestic garbage collection, transportation and disposal

- Locations, boundaries, areas, alignments and limits for:
  - Equipment and equipment maintenance and storage areas. Describe any containment measures that will be established (i.e. berms, liners, ponds).
  - Offices and facilities locations
  - Staging and storage areas
  - Temporary parking

- Access control, security and notices

- Clearing, grubbing and disposal

Show areas to be cleared and storage areas on the ECO Plan drawing. Describe the methods planned for clearing, grubbing and disposal.

- Soil salvage.
  - Removal, storage and replacement of A-horizon material.
  - Removal, storage and replacement of B-horizon material.
  - Wind erosion

- Site drainage and erosion control
  - Site drainage enhancements
  - Erosion control measures
  - Sediment control measures

- Dust control measures

- Construction site reclamation

- Noise and nuisance control measures
  - Hours of operation
  - Vehicle backup alarm devices
3.4 MATERIALS MANAGEMENT

During the duration of a project, various materials are utilized for construction, rehabilitation and maintenance of equipment. The ECO Plan must identify those materials and their potential impacts. In order to meet contract requirements, WHMIS and Transportation and Dangerous Goods responsibilities, the ECO Plan must provide procedures to address the proper transportation, storage, containment and handling of materials. Materials may be construction materials used for resurfacing, preparation or other purposes or materials needed for the maintenance of equipment. The following materials could be present on site:

- Construction or Rehabilitation Materials
  - Asphalt cement and tack oils
  - Portland cement
  - Curing compounds / form oil
  - Paint, thinners and solvents
  - Sterilants
  - Fertilizers
  - Other
- Equipment Maintenance
  - Fuel
  - Lubricants and hydraulic oils
  - Antifreeze
  - Batteries
  - Refrigerant
  - Other

3.5 WASTE MANAGEMENT

During the duration of the project, various wastes may be generated on site that may have the potential to impact the environment. The ECO Plan must identify the waste materials generated and the potential impacts of the wastes on the environment. The ECO Plan must describe procedures for the proper handling, containment, storage, transportation, and disposal of waste materials.

First, identify all waste materials that will be generated during the project and evaluate the potential impact of the waste materials on the environment. Then, identify in the ECO Plan and drawing how and where the waste materials will be
stored and transported. As appropriate to the waste generated, provide handling procedures (containment and transportation) and details on site preparation. Show on the ECO Plan drawings designated waste storage areas and measures taken to prepare the area (e.g. berms, liners, ponds, containers).

When establishing handling and disposal procedures the Contractor must consider if the waste materials can be recycled and, if it is hazardous or non-hazardous waste. Where possible, the Contractor shall endeavor to recycle waste materials. As appropriate, procedures must comply with applicable regulatory handing, transportation and disposal requirements.

A list of the waste materials generated on site includes, but is not limited to the following waste materials:

- **Construction or Rehabilitation Wastes**
  - Woody debris
  - Concrete, metal and rebar
  - Asphalt
  - Soil cement
  - Unsuitable materials (e.g. saturated berm material)
  - Garbage (plastic, boxes etc.)
  - Containers, drums and barrels
  - Treated wood

- **Waste Oils and Fluids**
  - Oil and filters
  - Lubricants
  - Antifreeze
  - Hydraulic oils

- **Waste Chemicals**
  - Paints / solvents
  - Batteries / acid
  - Sterilants
  - Other

- **Pond and sediment trap clean out**
  - Liquid
  - Solids

- **Spill cleanup materials**
3.6 Emergency Response Procedures

The ECO Plan must identify potential incidents that, through natural causes, accidents, human error or improper work practices, impact the environment. The ECO Plan must describe the emergency procedures that will be implemented to address the potential incidents. Potential incidents may include:

- Contaminant spills and releases (land, water and air)
  - Fuels
  - Oils and lubricants
  - Chemicals
- Erosion events
  - Land (water and wind)
  - Watercourses (bank erosion, flooding)
  - Berm and coffer dam erosion

The emergency response procedures must include:

- initial response to an emergency;
- providing and maintaining a list of key contacts and phone numbers for reporting spills, problems, etc;
- prevention and mitigation of any impact that may result from an emergency;
- that environmental incidents must be reported immediately to the proper authorities and a copy of the incident report submitted to the Consultant within 72 hours of the occurrence; and
- that appropriate training provisions have been undertaken to make Contractor staff and sub-contractors aware of their responsibilities during emergency situations.

3.7 Monitoring and Reporting

The ECO Plan must describe the monitoring and reporting that is conducted though the duration of the project to satisfy contractual and regulatory
requirements. The Contractor will develop an appropriate monitoring program that is 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.

Monitoring and reporting requirements may include:

- Water flow, levels and velocity
- Water quality
  - Turbidity
  - Suspended solids
- Channel erosion
- Fish passage
- Fish captured and released
- Soil erosion
- Effectiveness of sediment ponds and other structures
- Reclamation

Deficiencies identified during monitoring activities must be addressed immediately.

3.8 ECO PLAN IMPLEMENTATION

Implementation is critical to the success of the ECO Plan. It is important to have corporate support and for the staff to have ownership of the ECO Plan. The Contractor is responsible for implementation of the ECO Plan for the duration of the project. This section of the ECO Plan describes the Contractor’s plan for the implementation of the ECO Plan through the duration of the project.

3.8.1 Training and awareness

Describe procedures to ensure that managers, staff and subcontractors are aware of the ECO Plan and are trained, updated and responsible for the procedures contained in the ECO Plan and any changes to the ECO Plan. A training and awareness plan may include:

- Training and awareness sessions
- Tailgate meetings
- A description of meeting frequency
• A log of trained and updated staff
• A bulletin board and memorandum circulation
• Encourage employee to submit ideas and suggestions

Employees at all levels whose work may have an impact on the environment will be appropriately trained to perform their duties in an environmentally responsible manner. The Contractor is responsible for training its staff about environmental regulations and project specific requirements prior to beginning work.

3.8.2 Documentation

Describe the information that will be kept to document the significant events relating to the implementation and adjustment of the ECO Plan. A binder or file with all relevant information should be retained at the construction site. The following are some of the events that must be documented:

• Accidents, spills and releases and the procedures followed in those events
• Reviews, improvements and adjustments to the ECO Plan
• Training
• Materials inventory
• Waste Inventory
• Equipment inspections and maintenance
• Monitoring and maintenance of erosion and sediment controls

3.8.3 Communication

Describe the communication that will be conducted through the duration of the project relating to the ECO Plan. Although each project may differ, communication with managers, staff, other Contractors and Subcontractors, the Consultant, Alberta Infrastructure and Transportation and regulatory agencies may include:

• Daily, weekly or monthly meetings.
• Daily, weekly or monthly reports.

3.8.4 ECO Plan Adjustments / Continual Improvement

The ECO Plan is a document that is designed to change based on site conditions. The goal is for continual improvement of the ECO Plan by adjusting the plan as experience is gained. Describe the procedures to
ensure that the ECO Plan is reviewed and adjusted with a goal of continual improvement of the ECO Plan throughout the duration of the project.