SECTION 4 - ENVIRONMENTAL CONSIDERATIONS

4.1 GENERAL

The Consultant shall comply with all current environmental legislation. Compliance with legislation includes but is not limited to, obtaining all the applicable permits, approvals, authorizations and monitoring of the project to ensure compliance with environmental conditions of construction.

The Consultant shall ensure that all Acts, Regulations, Environmental Protection Guidelines, Codes of Practice, and any other documents that pertain to environmental matters are complied with during the planning, preliminary engineering, design and construction of the project. Consultants shall become familiar with these documents and keep up-to-date with them. Consultants shall ensure that the responsibilities outlined in the ECO Plan Framework document are followed. Contractor’s compliance with his ECO Plan should be documented on each weekly report for the project. Consultants shall familiarize themselves with regulatory requirements and timing needed to process applications and shall submit all appropriate applications accordingly.

Close contact with the appropriate field staff of the regulatory agency is strongly recommended to Consultants during all stages of the project.

The Consultant shall arrange for any Historic Resources Overview or Historic Resources Impact Assessment (HRIA) that may be required.

4.2 INTERGOVERNMENTAL CO-OPERATION

4.2.1 FEDERAL GOVERNMENT

Federal Departments have the mandate for ensuring that projects, in which the Federal Government has a decision making responsibility (fiduciary duty), are appropriately handled. Contact with appropriate Federal Government Departments (Fisheries & Oceans Canada, Environment Canada) shall be initiated as soon as the project is awarded and shall be maintained to ensure that all environmental requirements (e.g. authorizations, decisions, advisory letters) are addressed. Specific attention is required for all watercourses, wetlands and migratory bird habitat.
4.2.2 PROVINCIAL INTERDEPARTMENTAL REFERRALS

Provincial Departments have the mandate for regulating surface disturbances on private and Provincial Crown Land and all water throughout the Province.
In order to coordinate a provincial response for highway and bridge construction projects, an interdepartmental referral system has been implemented. All referrals shall be directed to:

Roads and Reclamation Unit
Land Use Management Branch
Land Administration Division
Alberta Sustainable Resource Development
3rd Floor S. Petroleum Plaza
9915 - 108 St., Edmonton
Tel. No. (780) 415-4643 Fax No. (780) 427-1185

It is MANDATORY that the referral occurs through all stages of a project. Contact shall be initiated as soon as a project is awarded to the Consultant and shall be continued up to the completion of the project. Close contact with the field staff of the regulatory agency is required during all stages of a project.

There are differing information requirements imposed by the regulatory agencies for the various stages of a project. The full details of the requirements should be confirmed through the Roads and Reclamation Unit. Examples of information requirements are included in Appendix “C”.

All plans submitted during the referral process must contain sufficient information for the regulatory agencies to make informed decisions. Regulatory agencies include Alberta Environment, Alberta Sustainable Resource Development, and Alberta Community Development.

4.3 ENVIRONMENTAL COMPLIANCE

The Consultant shall ensure that all applications, for which they are responsible, are prepared and submitted to the appropriate regulatory agency responsible for approving the application. The information collection required in support of these applications shall be commenced well in advance of the application preparation and submission date.

It should be noted that it may take a considerable period of time before any permit, approval or authorization for environmentally sensitive areas is issued. The Consultant shall ensure that applications are submitted well in advance of the proposed tender date.
Copies of all permits, approvals, authorizations, etc. are to be included as part of the tender package or referenced in the Special Provisions of the Contract Tender (See Section 4.4 below).

### 4.3.1 ENFORCEMENT

Regulatory agencies have the authority through Acts and Regulations to proceed with enforcement actions. All legislation that protects the environment, including the Alberta Historic Resources Act provides for enforcement action against individuals and corporations that fail to adhere to conditions of construction.

### 4.4 SPECIAL PROVISIONS

Copies of all Environmental Approvals, Permits, Authorizations and other associated documents shall be included in the Plans Section of the tender document. Where the environmental documents indicate specialized work to be performed by the Contractor, the Special Provisions shall describe the work required, and shall describe the method of payment. Where the environmental documents indicate conditions that are beyond the scope of the Contractor's Work, the excluded conditions shall be clearly indicated in the Special Provisions.

### 4.5 CONSERVATION AND RECLAMATION OF TOPSOIL AND SUBSOIL

The Environmental Protection and Enhancement Act requires an operator to conserve and reclaim specified land, and unless exempted by the regulations, to obtain a Reclamation Certificate. Environmental Protection Guidelines (Information Letters) that address Roadways, Pits, Borrow Excavation, Disposal of Excess Soil Materials from Roadways, and Conservation and Reclamation Guidelines for Alberta have been developed by Alberta Environment. These documents are available from Alberta Environment through their website or through the Information Centre. Alberta Transportation has developed “Guidelines for Borrow Reclamation” to provide field level experiences for proper reclamation to be achieved.

The Consultant shall maintain close contact with the appropriate Reclamation Inspector for the duration of the project.


4.5.1 RIGHT-OF-WAY

During the project design stage the following procedures shall be followed on Alberta Transportation projects that contain a grading component.

The Consultant shall employ a soil specialist to perform a complete assessment of the topsoil within the highway right-of-way. The assessment must identify differences in the topsoil depths on the existing side slopes, ditches, and back slopes and any additional widening of the right-of-way. The topsoil assessment locations shall be shown on mosaic plans with the following information for each location:

- presence and depth of any organic layers on the soil surface (leaf litter (LFH) in well drained areas or peat (O) in poorly drained areas)
- topsoil horizon identification (Ap, Ah, Ahe, Ae)
- topsoil horizon depth
- colour of topsoil and underlying subsoil (usually a B horizon)
- any areas with potential topsoil handling problems, such as areas where colour change between topsoil and subsoil cannot be used as an accurate guide to topsoil stripping, poorly drained areas, and areas of saline or Solonetzic subsoil.

Soils shall be described according to the terminology outlined in the “Canadian System of Soil Classification”.

The Consultant shall design the project such that all topsoil (Horizon A) in the right-of-way is salvaged and redistributed or stockpiled within the right-of-way. All subsoil (Horizon B) (if suitable) in the right-of-way shall be used in the construction of embankments. Prior to undertaking the project design and drafting the contract special provisions, the Consultant shall liaise with the Department’s Project Sponsor and the local Reclamation Inspector for Alberta Environment to confirm actual requirements.

If the quantity of topsoil is such that additional areas are required for either interim or permanent stockpiling, the Consultant shall make the necessary arrangements to purchase additional areas as part of the highway right of way. Other alternative Alberta Transportation owned sites (gravel pits) that are in the vicinity of the project and could accommodate the excess topsoil, may be considered. In these cases, the Consultant shall consult with the Project Sponsor to determine the availability of such sites and provide a cost estimate for hauling the topsoil material. The Consultant shall incorporate the soil survey data into the tender documents. Topsoil quantities shall be calculated and a plan developed for the interim stockpiling of topsoil during construction.
4.5.2 BORROW EXCAVATIONS

The Consultant must obtain permission from the appropriate Provincial Government agency before entering on, testing or operating a borrow excavation on Crown land.

Conservation of topsoil and subsoil material from a borrow excavation is mandatory. The haul road utilized to access the borrow excavation is considered an integral part of the borrow and must have the topsoil and subsoil treated in the same manner as the borrow.

4.5.2.1 Department Supply of Borrow

The Consultant shall prepare a pre-disturbance assessment of the proposed borrow as detailed in the “Pre-disturbance Assessments Procedures for Borrow Excavations for Road Construction”.

The Consultant shall prepare a post-disturbance assessment report for the area disturbed by operation of the borrow excavation as detailed in the “Post-Disturbance Reclamation Criteria and Assessment Procedures for Borrow Excavations for Roadway Construction”.

4.5.2.2 Contractor Supply of Borrow

The Consultant shall ensure that pre-disturbance and post-disturbance assessments are completed by the Contractor for borrow that is supplied by the Contractor and ensure that reclamation criteria are met before accepting the borrow as complete.

4.5.2.3 Soil Specialist

On the advisement of Alberta Environment, the Pre-assessment and post-assessment of borrow sites shall be conducted by a soil specialist.

A soil specialist is an individual who is proficient in soil classification, land management and soil conservation practices and should have considerable experience in soil and vegetation impact assessment and problem diagnosis. It is recommended that the soil specialist be a graduate of a diploma or degree program in Applied Soil Science related to soil management and conservation. Membership in the Alberta Institute of Agrologists would be a definite asset.

Individuals with considerable demonstrated field experience with soil conservation and road building practices, but no formal post-secondary education related to soil management and conservation, may carry out the pre and post assessments under the supervision of a soil specialist.
4.6 CONTAMINATED SITES

If, during the course of any investigations or work the Consultant believes or has a reason to believe that any property may be contaminated by hydrocarbons or any other hazardous substance, the Consultant must immediately report the contamination to Alberta Environment, the Department’s Property Manager, the Project Sponsor and the Environmental Section of Civil Projects Branch. Further direction will be given to the Consultant at that time.

4.7 HISTORICAL RESOURCES

The Consultant must arrange for a Historical Resources Overview (HRO) and, if directed, a Historic Resources Impact Assessment (HRIA) on any proposed disturbances (e.g. aggregate sources, ROW corridor, or borrow areas) unless advised otherwise. Referral to Alberta Community Development, Heritage Resource Management Branch is included as part of Section 4.2.2. Deviation from the plans submitted under Section 4.2.2 will require a direct submission to Alberta Community Development for permission to undertake construction.

4.8 ENVIRONMENTAL RISK ASSESSMENT

The consultant shall complete a project environmental risk assessment as part of the detailed design work for all projects. These assessments shall identify any permanent and temporary measures required to protect the environment. Assessments shall be discussed with the Project Sponsor and incorporated into the contract bid items and special provisions if necessary. This is a minimum review and is expected to be brief.

Generic items may include but are not limited to:

- A list of permits/Authorizations that have been issued and conditions/restrictions imposed by each.
- Mitigation plans for each plan.
- A description of how borrow excavations are to be handled.
- A plan for erosion control during and after construction, including a schedule for winterizing sites if necessary, and for monitoring success of erosion control measures.
- A watercourse protection plan if required.
- A description of how the Horizon A and B layers are to be handled, including details of temporary and permanent stockpile locations. If surplus soil is anticipated, a description of how it will be handled.
4.9 WEED PREVENTION

A weed survey should be completed along the right-of-way and for all borrow excavations prior to the commencement of activities to establish a bench mark for post-activity assessment. The land owner or land manager should be advised of the presence of restricted, noxious and nuisance weeds that are listed in the Weed Regulation. The location of restricted and noxious weeds should be clearly delineated, appropriate control measures put in place to destroy all restricted weeds, control noxious weeds and prevent the scattering of nuisance weeds.

The Weed Act also states that the movement of a machine or vehicle is prohibited if the movement is likely to cause the spread of a restricted, noxious or nuisance weed. Equipment, materials and vehicles exposed to weeds should be cleaned prior to leaving an infested site.

4.10 REPORTING REQUIREMENTS

Copies of all correspondence and the original of all permits, Approvals, Authorizations, etc. must be submitted to the Project Sponsor or Co-Sponsor (as appropriate) with a copy to the Manager, Transportation Projects, Environmental Section, Civil Projects Branch. These documents will be reviewed and, where appropriate, the Department will assist the Consultant in any negotiations with the regulatory agency. The Consultant shall keep copies of all permits, Approvals and Authorizations for their records.

Copies of Pre-Disturbance and Post Disturbance Assessments prepared for borrow excavations are to be submitted to the Project Sponsor or delegate. The timing of submission is to be as follows: Pre-Disturbance Assessment to be submitted within one month of undertaking the assessment. The Post Disturbance Assessment is to be submitted within one (1) month of the completion of the reclamation of the borrow excavation. Additional follow-up Post Disturbance Assessments may be required subject to the conditions detected during the initial post-disturbance assessment.
Current References for Section 4:


Canada Fisheries Act, Government of Canada.

Canadian System of Soil Classification, 1987, Agriculture Canada.

Canada Transportation Act, Government of Canada.


Navigable Waters Protection Act, Government of Canada.


Forest and Prairie Protection Act, 1994, Province of Alberta.


Guide to Reclaiming Borrow Excavations Used for Road Construction May 2002

Historical Resources Act, 1997, Province of Alberta.

Pre-disturbance Assessment Procedures for Borrow Excavations for Road Construction May 2002

Post Disturbance Reclamation Criteria and Assessment Procedures for Borrow Excavations for Road Construction May 2002


Soil Conservation Act, 1988, Province of Alberta.

Water Act, 1999, Province of Alberta.

Weed Act, Province of Alberta.

Wildlife Act, Province of Alberta.

Borrow Excavations C & R/IL/00-3, 2000, Alberta Environment.


Environmental Self-Assessment of Rail Infrastructure Projects, Draft July 2001, Canadian Transportation Agency.


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