

**ENGINEERING CONSULTANT
GUIDELINES FOR HIGHWAY, BRIDGE
AND WATER PROJECTS**

**Government
of Alberta ■**
Transportation

**VOLUME 2 – CONSTRUCTION
CONTRACT ADMINISTRATION 2013**

Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 2, Construction Contract Administration

The purpose of this manual is as follows:

- To outline the Department's expectations for the provision of engineering services for the administration of provincial highway, bridge and water management construction projects where a consultant is hired directly by the Department.
- To ensure uniformity and consistency in the provision of these services to the Department.
- To outline specific responsibilities and authorities of the Consultant when providing these services.

The Department's contractual obligations on provincial highway, bridge and water management construction projects are detailed in the Contract Documents. Many of these obligations are performed by the Consultant retained by the Department to administer the contract on its behalf. This manual outlines the processes to be used by the Consultant which are typically necessary to ensure the Department's contractual obligations and/or other requirements are performed in the necessary manner.

This manual does not provide a complete record of all the processes, responsibilities, and authorities of the Consultant and the Department in managing the delivery of a Department construction contract. Other documents or manuals which must be considered include but are not limited to the following:

1. *Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender*
 - This document provides guidelines for the provision of engineering services for the pre-tender period of provincial highway, bridge or water construction projects.
2. *Project Administration Manual*
 - This document outlines the Department's internal methods of administering engineering contracts and construction contracts as well as selecting, monitoring and evaluating consultants.

3. *Traffic Accommodation in Work Zones Manual*

- This document provides information and minimum standards for the provision of traffic accommodation through work zones on highways and bridges in Alberta.

The authorities, responsibilities and processes contained in all these manuals are based on the Department's policy statements, authority's matrix, Contract Specifications, and contracts for engineering consultant services. Updates or revisions to existing Contract Specifications, the terms of the consulting services contract, policy statements or the authority's matrix may affect these processes, responsibilities and authorities. In the event of any such changes which significantly affect the contents of these manuals, users will be advised accordingly. Please refer to the Department website for a listing of additional Department publications.

This manual is not intended to replace or modify the contents of the Department's construction contracts or engineering consultant contracts. If a conflict or ambiguity exists between this manual and the consulting services contract, the user shall contact the Project Sponsor for clarification.

Any omissions, obvious errors, or recommendations for future updates should be forwarded to the Director, Tender Administration Section, of the Department's Strategic Procurement Branch. For convenience correspondence can be provided through the following email: ECGfeedback@gov.ab.ca

TABLE OF CONTENTS

Section 1	CONTRACT ADMINISTRATION – GENERAL	1-1
1.1	GENERAL CONSTRUCTION CONTRACT POLICY	1-1
1.1.1	General	1-1
1.1.2	Definitions	1-2
1.1.3	Contract Specifications and Standards	1-2
1.1.4	Construction Bulletins	1-3
1.1.5	Department Construction Contracts	1-3
1.1.6	Overview of Consultant’s Responsibilities and Authority When Administering a Construction Contract	1-4
1.1.7	Overview of the Project Sponsor’s Responsibilities	1-6
1.1.8	Communication between the Consultant and the Department	1-6
1.2	CONTRACT DESIGN CHANGE PROPOSALS	1-6
1.3	OCCUPATIONAL HEALTH AND SAFETY	1-7
1.4	TRAFFIC ACCOMMODATION	1-8
1.5	PROJECT JOURNALS	1-9
1.6	PROJECT SURVEY DATA	1-10
1.6.1	Providing Survey and Quantity Information to Contractors	1-10
1.6.2	Preliminary Survey	1-12
1.6.3	Construction Control Points	1-12
1.6.4	Electronic Design Files	1-12
1.7	COMMUNICATIONS WITH THE CONTRACTOR	1-12
1.8	COMMUNICATIONS WITH THE SURETY	1-13
1.9	COMMUNICATIONS WITH MUNICIPALITIES	1-13
1.10	COMMUNICATIONS WITH NEWS MEDIA	1-13
1.11	COMMUNICATIONS WITH PUBLIC	1-13
1.12	UTILITIES AND APPURTENANCES	1-14
1.12.1	General	1-14
1.12.2	Traffic Control Signals and Lighting	1-14
1.12.3	Business and Information Signs	1-14
1.13	GENERAL ENVIRONMENTAL REQUIREMENTS	1-15
1.13.1	General	1-15
1.13.2	Reclamation of Borrow Areas	1-15
1.13.3	Earth Borrow Agreements	1-16
1.13.4	Topsoil Conservation within the Right-Of-Way	1-17
1.13.5	Control of Clubroot in Soil Disturbance Work	1-17
1.13.6	Inspection of Permanent Erosion Control Devices	1-18
Section 2	CONTRACT ADMINISTRATION ON-SITE PROJECT MANAGEMENT	2-20
2.1	GENERAL	2-20
2.2	PROJECT STARTUP	2-20
2.2.1	Pre-commencement Meeting	2-20
2.2.2	Environmental Construction Operations Plan	2-20
2.2.3	Review of Traffic Accommodation Strategy	2-21
2.2.4	Pre-Construction Meeting	2-21
2.2.5	Commencing Work on the Project	2-22
2.2.6	Submittals	2-22
2.3	PROJECT REPORTING REQUIREMENTS	2-22
2.3.1	General	2-22
2.3.2	Progress Meetings	2-23
2.3.3	Monitoring Traffic Accommodation	2-23

TABLE OF CONTENTS

2.3.4	Weekly Construction Reports.....	2-23
2.3.5	Contract Progress Estimates and Final Estimate	2-24
2.3.6	Diesel Fuel Cost Adjustment.....	2-25
2.3.7	Payment for Supply of Anti-Strip Additive	2-25
2.3.8	Contract Log for Progress Estimate.....	2-25
2.3.9	Calculating Modified Tender Price	2-26
2.3.10	Project Expenditure Report for Roads/Bridges	2-26
2.3.11	Monthly Health and Safety Summary.....	2-26
2.3.12	Project Completion Health and Safety Report	2-27
2.3.13	Process for Construction Seasonal Shutdown	2-27
2.4	CONSTRUCTION CONTRACT CHANGES.....	2-27
2.4.1	Extra Work.....	2-27
2.4.2	Supplemental Work	2-29
2.4.3	Unit Price Approvals.....	2-30
2.4.4	Completion Date Extensions.....	2-31
2.5	CONTRACT COST OVERRUNS	2-32
2.5.1	Definitions.....	2-32
2.5.2	Procedure	2-33
2.6	SITE OCCUPANCY	2-34
2.6.1	Overview.....	2-34
2.6.2	Purpose	2-34
2.6.3	Risk Sharing	2-34
2.6.4	Allowing Efficient Use of Contractor's Forces	2-35
2.6.5	Specific Exclusions from Site Occupancy.....	2-36
2.6.6	Conclusion of Site Occupancy	2-36
2.6.7	Payment.....	2-36
2.6.8	Site Occupancy Increases.....	2-36
2.6.9	Site Occupancy for Construction Contract Changes	2-37
2.7	FIRST PARTY CLAIMS	2-37
2.7.1	Overview.....	2-37
2.7.2	Procedure for Claims and Appeals	2-37
2.8	THIRD PARTY CLAIMS.....	2-38
2.9	DAMAGE CLAIMS	2-39
2.9.1	General.....	2-39
2.9.2	Procedure for Damage Claims.....	2-39
2.10	CONSTRUCTION COMPLETION, CONDITIONAL CONSTRUCTION COMPLETION, REPAIRING DEFICIENCIES AND WARRANTY	2-40
2.10.1	Confirming Contract Requirements.....	2-40
2.10.2	Interim Inspections	2-40
2.10.3	Construction Completion Inspection	2-40
2.10.4	Construction Completion Certificate and Commencement of Warranty.....	2-41
2.10.5	Conditional Construction Completion Inspection.....	2-41
2.10.6	Conditional Construction Completion Certificate and Commencement of Warranty	2-42
2.11	RETAINING AND RELEASING HOLDBACK.....	2-42
2.11.1	Retaining Holdback	2-42
2.11.2	Release of Holdback	2-43
2.11.3	Partial Release of Holdback.....	2-43
2.11.4	Final Release of Holdback	2-43
2.12	TERMINATION OF WARRANTY AND FINAL ACCEPTANCE	2-44

TABLE OF CONTENTS

2.12.1	Termination of Warranty Period	2-44
2.12.2	Final Acceptance Certificate	2-44
Section 3	HIGHWAY CONSTRUCTION.....	3-45
3.1	GENERAL	3-45
3.2	AGGREGATE SOURCES	3-45
3.2.1	General Contract Conditions for the Supply of Aggregates.....	3-45
3.2.2	Pit Management for Aggregate Sources Controlled	
	By the Department.....	3-46
3.2.3	Reporting Requirements for Aggregate Sources Controlled	
	By the Department.....	3-48
3.2.4	Pit Management and Reporting Requirements for	
	Aggregate Sources Not Controlled By the Department	3-49
3.2.5	Reporting Requirements for Final Details	3-50
3.3	CONSTRUCTION SURVEY AND MONITORING ACTIVITIES.....	3-50
3.3.1	General	3-50
3.3.2	Baseline Stakes.....	3-50
3.3.3	Grade Work Stakes	3-50
3.3.4	Surfacing Work Stakes.....	3-51
3.3.5	Culvert Stakes	3-51
3.3.6	Interim and Final Cross-Sections	3-51
3.3.7	Detours and Haul Road Monitoring.....	3-51
3.3.8	Ancillary Work Items.....	3-52
3.4	MATERIAL WEIGHING AND ROAD CHECKING.....	3-52
3.4.1	Pre-Hauling Requirements	3-53
3.5	SPECIAL MEASURES IN PROBLEM AREAS.....	3-53
3.6	QUALITY CONTROL AND QUALITY ASSURANCE DURING	
	HIGHWAY CONSTRUCTION	3-53
3.6.1	Quality Control/Quality Assurance	3-53
3.6.2	Timing of Quality Assurance Testing and Sampling	3-54
3.6.3	Quality Assurance (Aggregate Production).....	3-54
3.6.4	Quality Assurance (Highway Construction).....	3-54
3.6.5	Quality Problems	3-55
3.6.6	Quality Assurance (Materials)	3-55
3.6.7	Painted Roadway Lines and Messages	3-55
3.6.8	Quality Assurance (Manufactured Materials).....	3-55
3.6.9	Quality Assurance Appeals	3-56
3.6.10	Materials/Mix Design	3-56
3.6.11	Pavement Segregation Assessment.....	3-57
3.6.12	Pavement Smoothness Assessment	3-57
3.6.13	Quality Assurance Reporting Requirements.....	3-58
3.6.14	Rejected Materials or Products	3-59
Section 4	BRIDGE CONSTRUCTION	4-60
4.1	GENERAL	4-60
4.2	PRE-FABRICATION	4-60
4.3	BRIDGE MATERIAL FABRICATION INSPECTION	4-60
4.3.1	Prestressed/Precast Concrete units include Girders, MSE walls, Concrete Culverts, Deck Panels etc.	4-61
4.3.2	Major Steel Components Fabrication Inspection	4-62

TABLE OF CONTENTS

4.3.3	Miscellaneous Material Fabrication Inspection	4-64
4.4	BRIDGE CONSTRUCTION INSPECTION.....	4-64
4.4.1	General Requirements for Bridge Construction Inspection	
	(As Appropriate)	4-65
4.4.2	Field Welding.....	4-66
4.4.3	Paint Inspection	4-67
4.4.4	Audit Testing.....	4-67
4.4.5	Inspection of Bridge Size Culverts	4-67
Section 5	FINAL DETAILS	5-68
5.1	GENERAL	5-68
5.2	CONTRACTOR REVIEW OF FINAL QUANTITY CALCULATIONS	5-68
5.3	PROCEDURE FOR PREPARING AND SUBMITTING FINAL DETAILS	5-69
5.4	SUBMISSION REQUIREMENTS FOR HIGHWAY AND BRIDGE PROJECTS	5-70
5.4.1	Items to Be Submitted To the Department.....	5-70
5.4.2	Items to Be Retained By the Consultant	5-70
5.5	PROJECT SUMMARY REPORT.....	5-70
5.6	AS-CONSTRUCTED PROJECT INFORMATION.....	5-72
5.6.1	As-Constructed Surfacing Project Information.....	5-72
5.7	RECORD PLANS AND DRAWINGS.....	5-74
5.8	TIMELINES FOR SUBMISSION OF FINAL PROGRESS ESTIMATE	
	AND FINAL DETAILS PACKAGE	5-74
5.8.1	Failure to Comply.....	5-76
Section 6	WATER PROJECTS.....	6-77
6.1	GENERAL	6-77
6.1.1	Exclusions:.....	6-77
6.2	CONTRACT ADMINISTRATION.....	6-78
6.2.1	Construction Drawings	6-78
6.2.2	Contractor Payments.....	6-78
6.2.3	Quality Control and Quality Assurance during Construction.....	6-79
6.2.4	Contract Amendments.....	6-79
6.2.5	Site Occupancy	6-79
6.3	PROJECT COMPLETION AND COMMISSIONING.....	6-79
6.3.1	Substantial Performance of the Work	6-79
6.3.2	Total Performance of the Work	6-80
6.3.3	Warranty Performance of the Work	6-80
6.4	PROJECT RECORDS	6-81
6.4.1	Record Drawings	6-81
6.4.2	Construction Summary Report.....	6-81
6.4.3	Contractor Submittals.....	6-82

APPENDICES

APPENDIX A -	GENERAL CONSTRUCTION ADMINISTRATION FORMS
APPENDIX B -	HIGHWAY CONSTRUCTION ADMINISTRATION FORMS
APPENDIX C -	BRIDGE CONSTRUCTION ADMINISTRATION FORMS
APPENDIX D -	FINAL DETAILS FORMS

SECTION 1 CONTRACT ADMINISTRATION – GENERAL

1.1 GENERAL CONSTRUCTION CONTRACT POLICY

1.1.1 General

This manual is intended to be used by Consultants who have been hired directly by Alberta Transportation for the provision of contract administration services on provincial highway, bridge and water management construction projects. The manual details the processes to be followed by the Consultant in administering the project from the time a construction contract has been executed by the Department and the Contractor, to the end of the contract warranty period.

It is the Department's intent that the Consultant and Department maintain a positive line of communication and flow of information throughout the duration of the project, so that the administration of the Contract can be performed correctly and in an effective manner.

The written portion of this manual is divided into 6 distinct sections:

1. *Contract Administration - General*
2. *Contract Administration – On-Site Project Management*
3. *Highway Construction*
4. *Bridge Construction*
5. *Final Details*
6. *Water Projects*

Users of this manual should note that unless otherwise indicated (see Section 6.1), all requirements detailed in Section 1 and Section 2 of the manual applies to highway, bridge and water projects. Additional detailed requirements, unique to the administration of highway construction are provided in Section 3, bridge construction in Section 4 and water projects in Section 6. Final detail requirements for both highway and bridge projects are provided in Section 5.

Forms referenced in this manual are included in the Appendices. The latest versions of these forms (blanks and samples where applicable) can be found on Alberta Transportation's website.

Due to the evolving nature of Department policy, standards, guidelines and Contract Specifications, portions of this manual may become out of date from time to time. In as much as it is practical to do so, the Department will provide any updates required and/or advise the Consultant of any significant changes which affect the required processes or responsibilities. The Consultant shall subscribe to the Department's one-window update service to receive the notification for such updates.

Process for partnering, lines of communication and issue resolution ladder are outlined in the “Partnering Guidelines Manual for Partnering on Transportation Projects”. One component of the partnering process is described in Construction Bulletin # 7 Process for the Administration of Tri-Party Post Construction Project Reviews.

1.1.2 Definitions

For the purposes of this manual, in addition to the Definitions found in Section 1.1.1 of the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender, and General Specification 1.1 Definitions and Interpretation the following words, when used in this document, shall have the meaning as defined below:

Surety: The contractor’s bonding company providing the performance and material security bonds for the Contract.

Work: All or any part of the work to be performed under the Contract by the Contractor, whether complete or incomplete, as originally set forth or as revised by the Department, and any or all of the equipment, material and labour supplied by or for the Contractor.

In addition to the definition in the General Specification, for clarification, the term Work includes any work incorporated into the contract by Extra Work Order, Unit Price Approval, Contract Scope Change, Contract Extension, or Contract Design Change Proposal.

1.1.3 Contract Specifications and Standards

Department Construction Contracts contain reference to specific editions or elements of one or more of the following manuals:

Standard Specifications for Highway Construction, Standard Specifications for Bridge Construction: These manuals contain general contract requirements and technical specifications for both highway and bridge construction.

General Specifications, Specification Amendments and Supplemental Specifications for Highway and Bridge Construction: This manual is issued in conjunction with the Standard Specifications for Highway and Bridge Construction manuals. It contains various amendments to the specifications required to standardize project specific issues. The supplemental specification section of the manual contains specifications intended for use on a limited or trial basis.

Civil Works Master Specification: CWMS is the standard specification to be used by consulting engineers when developing Contracts for the construction of water projects. The CWMS consists of bidding requirements, conditions of contract, general requirements, and technical specifications.

Bridge Standard Drawings and Highway Standard Plates CB6 Standards:

These manuals contain copies of standard drawings for the location, dimension and material details for miscellaneous standard highway and bridge structure appurtenances.

Traffic Accommodation in Work Zones: This manual contains the roles and responsibilities of the Department, Contractor and Consultant associated with traffic accommodation, factors to be considered when providing traffic accommodation and standard drawings showing minimum temporary signing requirements for typical situations.

1.1.4 Construction Bulletins

The Department strives to ensure that its Contract Specifications and manuals pertaining to highway and bridge construction, detail all items required for the proper delivery of a project. Providing the required information in a clear and concise form helps ensure that all projects can be administered consistently and in accordance with the Department's intent.

If an ambiguity is identified in the standard specifications or manuals, the Department will issue a Construction Bulletin. The Construction Bulletin will clarify the applicable construction specification or contract administration process until the issue is adequately addressed in a new edition of the Department's specifications or manuals. Some Construction Bulletins do not pertain to one individual specification or manual but describe administrative processes for contractors, consultants and department staff to follow.

Construction Bulletins will not be used to change specifications or contractual requirements.

Any questions concerning the Department's Construction Bulletins should be directed to the Department's Technical Standards Branch (TSB). The process for the development and implementation of Construction Bulletins can be found on the Department's website.

1.1.5 Department Construction Contracts

Department construction contract documents are comprised of a schedule of work items and prices, standard specifications, specification amendments, supplemental specifications, special provisions, typical drawings, plans and permits. The specifications, specification amendments and typical drawings are the "standard" for a particular type of work and generally do not change from contract to contract. However, the schedule of work items, special provisions, and the plans address the site specific items or issues on a project and are unique for each contract.

A Department construction contract requires the completion of a specific type and scope of work in accordance with specified requirements and at agreed payment rates. Any work or project not covered by the terms of the contract shall not be undertaken without mutual written consent of the Department and the Contractor. Also, no condition of the Contract can be deleted or modified without mutual written consent of the Department and the Contractor.

1.1.6 Overview of Consultant's Responsibilities and Authority When Administering a Construction Contract

The Consultant is retained by the Department to administer a construction contract between the Department and a Contractor. The Consultant is the single line of communication between the Department and the Contractor concerning issues arising out of the performance and administration of the Contract. It is the Consultant's responsibility to confirm the extent of his authority on contract administration issues with the Department's Project Sponsor prior to the commencement of the project. Any decisions required on contractual issues which fall outside the authority granted to the Consultant by the Project Sponsor, or on which the Project Sponsor has indicated that they wish to be consulted, shall be referred to the Project Sponsor. In providing recommendations to the Project Sponsor, the Consultant must not share internal communications with the Contractor.

The following are examples of typical issues or matters which would normally be referred to the Project Sponsor by the Consultant:

- Issues related to construction schedules
- Contract Design Change Proposals
- Adjustments to unit prices on existing bid items or new unit prices for bid items not included in the contract (unless such unit prices are required for Extra Work less than \$10,000.00)
- Extra Work Orders greater than \$10,000
- Extra Work Orders less than \$10,000 if the Project Sponsor has rescinded consultant's authority
- Contract claims resolution
- Contract Cost Overruns
- Contract Extensions
- Contract Scope Changes
- Changes to the number of Site Occupancy days bid
- Changes to the number of Lane Closure days bid
- Property agreements
- Railway crossing agreements
- Utility crossing agreements
- Progress and Final payment for Construction Contracts
- Extensions to the contract completion date
- Use of Department controlled aggregate sources

- Decisions on handling rejected materials or products.
- Safety and Environmental related issues.
- Interim payments.
- Stakeholder issues.

The Consultant is responsible for supplying all personnel, materials and equipment necessary to provide the services outlined in this document and the Consulting Services Contract. The Consultant is also responsible for the services provided by any sub-consultant he employs. The Consultant shall ensure that any of their personnel who are involved in making decisions concerning the Contract are entirely familiar with the terms of the Contract. Also, the Consultant shall ensure that any of their staff, including any sub-consultants, who have knowledge of the Contractor's contract bid prices, keep this information confidential.

The Consultant is responsible for monitoring, inspecting and testing the work performed by the Contractor to confirm compliance with the terms of the Contract.

The Specifications allow the Consultant and the Consultant's Representative the authority to suspend the Work, in whole or in part, for such a period as they may deem necessary, due to conditions that they consider unfavourable for the prosecution of the Work or due to the failure of the Contractor to comply with any provision of the Contract.

The Consultant has the authority to reject defective work and to prohibit any work method or procedure which will result in a finished product which will fail to meet the standards required under the Contract. The Consultant also has the authority to order the Contractor to suspend the Work where, in their opinion, the Contractor fails to adequately provide for the safety of the public, for re-occurring safety issues or when the Contractor fails to comply with orders issued by the Consultant regarding traffic accommodation operations, for violating permit conditions and for failure to safeguard the environment.

It is essential that the Consultant maintain accurate and complete records of all activities and significant issues arising from the performance of the Contract.

It is the Department's expectation that the Consultant administer the Contract with a view to bringing the project to completion, on time, within budget, and in accordance with the terms of the Contract. Further, the Department encourages the Consultant to monitor the performance of the project design throughout the course of construction and consider and recommend any changes which may facilitate or assist in achieving these objectives. Any significant changes to the project design must be referred to the Project Sponsor for approval prior to implementation.

The Consultant cannot change the terms and conditions of the Contract Documents. Any changes to the contract require written agreement by both the Department and the Contractor.

The Consultant is fully responsible for accurate and timely reporting of progress expenditures and forecast expenditures. Discrepancies and misrepresentations in individual projects can have significant provincial impact on the Department's ability to make maximum use of its allocated funding. The Department's expectation is that the Consultant follows the Expenditure Reporting process. Throughout the project and fiscal year, the Department will monitor this report for its accuracy and timeliness and is a measurable item in the Consultant Performance Evaluation.

The Consultant is totally responsible to ensure they fulfill their obligations in accordance with all applicable provincial and federal legislation and regulations.

The processes and procedures to be followed by the Consultant are outlined in this document and the Consulting Services Contract.

1.1.7 Overview of the Project Sponsor's Responsibilities

The Project Sponsor is responsible to ensure that the Consultant fulfills their obligations in accordance with this document and the Consulting Services Contract. The Project Sponsor will also address any issues or matters related to the Contract which do not fall within the limits of the authority delegated to the Consultant.

1.1.8 Communication between the Consultant and the Department

It is the Department's intent that communications necessary between the Department and the Consultant concerning any issues arising from the Contract or the Consulting Services Contract be handled using a "one window" approach between the Consultant and the Project Sponsor. However, the Department recognizes that to administer the Contract effectively, it may be necessary for the Consultant to communicate directly with other persons in the Department who are involved in the project. When this occurs, it is the Consultant's responsibility to immediately advise the Project Sponsor of any significant issues arising from these communications.

1.2 CONTRACT DESIGN CHANGE PROPOSALS

The General Specifications allow the Contractor (after a tender has been awarded), the option of submitting a Contract Design Change Proposal for an alternative design or change to the Department's design or any component thereof provided cost savings can be achieved without compromising the integrity and quality of the project. These proposals will be accepted or rejected by the Department at its sole discretion.

The Department's expectations of the Consultant and Contractor concerning Contract Design Change Proposals are outlined in the General Specifications. Additional guidelines are provided in Construction Bulletin #15 "Alberta Transportation Guidelines for Administration of Contract Design Change Proposals"

Typically, a preliminary technical review will be conducted by the Department to ensure it meets the Department's requirements. Generally, if a contract design change is successful at the preliminary technical review stage, the Department will ask the Consultant to provide the following:

- Ramifications of changes on the original design.
- Checking of the engineering integrity of the proposed change without assuming engineering responsibility of the proposal.
- Inclusion of new drawings in the project documentation.

In the development or preparation of the proposal, the Contractor shall not employ the Department's Consultant who is providing engineering services on the Contract.

In the event that a Contract Design Change Proposal is submitted and the Department asks the Consultant to participate in the assessment of the proposal and subsequent engineering work, a change of scope to the original Consulting Services Contract will be made if required.

The Consultant should also be aware that the Department may elect to hire a separate consultant to assist with the review of a Contract Design Change Proposal.

1.3 OCCUPATIONAL HEALTH AND SAFETY

It is the Department's policy that the responsibility for ensuring compliance with the Occupational Health and Safety Act should reside with the person(s) performing the Work. Therefore, the Department through its Contracts and Agreements assigns the designation of Prime Contractor (as defined under the Occupational Health and Safety Act) to both the Contractor and Consultant for their respective activities and worksites.

Specific responsibilities of individual Prime Contractors concerning issues arising from joint worksites are detailed in the Standard Specifications and the Contract.

It is the Department's expectation that the Consultant is familiar with the Occupational Health and Safety Act and Regulations and that the Consultant and any sub-consultants comply with the Act and Regulations in the performance of their duties.

It is also the Department's expectation that the Consultant take appropriate action in situations where they are aware that the Contractor is not complying with the Occupational Health and Safety Act and Regulations. In situations of recognized imminent danger, this would involve ordering suspension of the Work and immediately notifying the Project Sponsor.

Some general administrative responsibilities of the Consultant are:

- On complex projects or projects which involve the use of specialized work methods or equipment, require the Contractor to provide operational occupational safety policies and plans specific to the work (i.e. safe work procedures for site specific hazards).
- Prior to the commencement of construction activities, complete the Notification of Construction Operations and the Order Fixing Maximum Speed and forward these forms to the Project Sponsor or distribute as directed by the Project Sponsor.
- Provide the Project Sponsor with copies of any written correspondence on safety issues/concerns pertaining to the Contractor's activities.
- Notify the Contractor's site representative in writing of any health and safety violations related to the Contractor's activities which the Consultant is made aware of or observes.
- Provide the Project Sponsor with copies of any orders issued to the Contractor by Alberta Human Services.
- Provide to the Project Sponsor, within 72 hours, copies of any worksite injury or accident report (Section 18 - Occupational Health and Safety Act) involving employees of the Consultant, Contractor or their subcontractors. The Consultant will be responsible for obtaining and forwarding reports provided by the Contractor.
- Immediately notify Project Sponsor of any accidents involving a fatality, serious personal injury or 3rd party damages in the excess of \$2,000.00.
- Attend the Contractor's project safety meetings whenever possible.
- Provide the Project Sponsor with a copy of the Monthly Health and Safety Summary Reports (these reports are completed by the Contractor).
- Provide the Project Sponsor with a copy of the Project Completion Health and Safety Review Report. This form is completed jointly by the Consultant and the Contractor within 2 days of the completion of the project.

1.4 TRAFFIC ACCOMMODATION

The Consultant is responsible for providing suitable traffic accommodation for their activities and for coordinating the positioning of their traffic control devices with the Contractor when necessary.

The Consultant is also responsible for monitoring the traffic accommodation measures used by the Contractor to confirm compliance with the Contract and the Traffic Accommodation in Work Zones manual and that traffic is being safely and effectively accommodated through or around the work zone. Details of all the Consultant's responsibilities associated with traffic accommodation are contained in the Traffic Accommodation in Work Zones manual.

1.5 PROJECT JOURNALS

Project Journals are of utmost importance in dealing with claims, Extra Work and safety incidents. Separate journals shall be kept for each contract and only information pertaining to that contract is recorded. It is essential that the Consultant maintain the Project Journal on a daily basis.

On combined highway/bridge or bridge/water projects, a separate journal shall be kept for each Bridge File.

Project Journals shall contain the following identifying information in the front pages:

- Contract number, Bridge file number(s) (if applicable), project description, Consulting firm name and consulting services contract number
- Name and address of the person maintaining the journal
- Index

Entries in the Project Journal shall be made by the Consultant's on-site manager or, in their absence, the person acting on their behalf. Once the project has been completed, a copy of the Project Journal shall be submitted with the Final Details to the Project Sponsor. Construction photos should also be included to back up Project Journal records. The photographs must be clearly identified by date, type of activity and location.

Daily entries shall include but are not necessarily limited to:

- Weather
- Location of Contractor's work area and description of work underway
- Verbal instructions issued to the Contractor
- Information pertaining to the relocation of utilities and note of any delay to the Contractor
- Equipment and manpower hours where hourly rate is the payment method
- A record of visits from the Project Sponsor and other officials and any resulting instructions or decisions
- Changes from original plans and/or design quantities and an explanation of the reasons
- Irregularities on any item during the stages of construction
- Explanations of incompleteness of field records
- Explanations of defects and when they were rectified (provide photos)
- General progress of the work and an account of out of the ordinary difficulties encountered by the Contractor (provide photos)
- Special notations of items pertaining to Extra Work
- Contractor's claims, intent to claim, complaints, disputes, etc. (photos if applicable)
- Any significant event as it happens
- Discussions or dealings with property owners and the public
- Discussions or dealings with officials of municipalities

- Record of events that could affect the Contractor's production
- Record of all accidents within the contract limits and a record of conditions at the time of the accident (photos required), including description of all pertinent signing in place at the time
- Discussions with Contractor regarding work schedules and quality of work
- Assessment of the Contractor's working day
- Traffic accommodation, detours, construction signs, flag person (photos or video log required)
- Full description of construction photos or videos taken
- Information pertaining to work safety, tail gate meetings etc.
- Record of environmental issues.
- Partnering issues.

It is recommended that the Consultant require the surveyors, materials inspectors, and any other key project staff to maintain separate journals detailing any significant issues occurring during construction.

At any time during the project, if requested by the Project Sponsor, the Consultant shall provide a copy of journal entries for specific dates.

Additional field books are to be used to record ancillary bid items (culverts, rip rap, sign removal and installation, etc.) as work progresses. The layout for each bid item should be consistent with that reported as part of the final details (Appendix D).

1.6 PROJECT SURVEY DATA

The Consultant shall save all the original raw data files (data collection files), conversion files (unedited, edited and history files), and .XNG files and all T-Files.

The Consultant shall create backup copies of these files and store the data in a safe, off-site location. Copies of all the data shall be submitted to Project Sponsor with the Final Details.

1.6.1 Providing Survey and Quantity Information to Contractors

1.6.1.1 Quantity Records, Contract Progress Estimates and Final Details

If requested by the Contractor, the Consultant shall make contract quantity records and Final Details available to the Contractor for examination. Under no circumstances shall Consultants provide original records to the Contractor. Project Journals, internal memoranda and reports, materials quality assurance test data work sheets, or correspondence with other parties shall not be provided.

Quantity information requested by sub-contractors may be provided upon approval from the Contractor. However, the unit prices in the Contract are confidential and under no circumstances shall they be released to the sub-contractors or any other party.

Copies of monthly Progress Estimates including the Final Estimate shall be forwarded to the Contractor by the Consultant.

1.6.1.2 Survey Information

If requested by the Contractor on grading construction projects, the Consultant shall provide electronic data files prior to the pre-construction meeting with the following:

- Edited surfaces of the original ground data
- Control points file of all primary points established in the field
- Edited final design surface with all the significant points
- A list of modifications of normal widths for intersections, climbing lanes, turning lanes, etc.

It is intended that the Contractor may use the original ground data and design information for interim construction layout and they report any discrepancies to the Consultant.

If requested, the Consultant shall also provide the Contractor with electronic data files prior to finalizing the Final Progress Estimate with the following:

- Edited re-measure surface
- Edited stripping and undercut surfaces
- Final earthwork volume report.

In all cases, the volumes calculated by the Consultant shall be deemed to be the final quantities. It is the Contractor's responsibility to investigate any discrepancies between quantities calculated by the two parties.

When the Contractor is using GPS machine control equipment the Consultant shall, when possible, provide electronic survey and design data in order to facilitate GPS Machine Control Construction (GPS MCC).

It is recognized that not all types of grading construction (e.g. grade widening, intersection treatments) is conducive to using GPS MCC and there will be instances where the electric survey and design data is not available in a suitable format for all portions of the project. The intent is to have consultants enter into the preliminary survey and design phases with the goal to have good quality electronic design data which could be provided to the Contractor in support of GPS MCC.

1.6.2 Preliminary Survey

Original ground coordinates shall consist of cross section pick up at a maximum interval of 20 m stations with break line information and additional pick-up collected at any ground irregularities (i.e. hills or valleys).

1.6.3 Construction Control Points

Construction control points shall be selected to surround the project and encompass the construction limits (i.e. both sides of highway along the entire length) including borrow sources. Control point data is to be provided to the Contractor in P, N, E, Z, D file format with the intent that the same control points will be used during construction by both the Consultant and Contractor.

Contract plans shall include coordinate list for control points. If additional control points or other design related information is required by the Contractor, it will be the Contractor's responsibility to obtain, however this does not preclude the Consultant in offering assistance depending upon the level of effort required and whether there is a benefit to the Department in so providing.

1.6.4 Electronic Design Files

Electronic design files shall meet the following requirements:

- Electronic survey data to be provided as top of subgrade.
- Designs should be presented as complete and continuous surface.
- The preferred file format is .xml however other formats (i.e. .tin) are acceptable if compatible with GPS MCC.
- For linear work (i.e. roadways or canals) the data should be presented in road files or template format.
- For nonlinear work (ponds, etc.) the design is best presented as Digital Terrain Model (DTM) with a line work file defining all critical elements.

1.7 COMMUNICATIONS WITH THE CONTRACTOR

The Standard Specifications outline the various methods to be used for communicating issues of importance between the Contractor and the Department. The Consultant will generally be issuing or receiving such communications on the Department's behalf and therefore must be totally familiar with the specified requirements.

The Consultant should communicate any instructions, orders, approvals or decisions on any significant issues directly to the Contractor's superintendent. All such instructions, orders, approvals, or decisions shall be documented in the Consultant's Project Journal. Verbal communications/instructions with the Contractor on significant issues shall always be confirmed in writing and a copy provided to the Project Sponsor.

1.8 COMMUNICATIONS WITH THE SURETY

The Consultant shall complete the project status reports and return these reports directly to the Surety. The forms for these reports shall be provided to the Consultant by the Project Sponsor. Any other communication with the Surety shall be via the Department's Strategic Procurement Branch only. The Contractor will receive copies of any such correspondence with the Surety. The Consultant shall direct any other issues concerning the Surety to the Project Sponsor.

1.9 COMMUNICATIONS WITH MUNICIPALITIES

Prior to the commencement of the work, the Consultant shall advise local authorities of impending construction activities in their areas, including the nature of the construction activities, the name of the Contractor, scheduled startup date and any other issue which may impact the local authority. The Consultant shall confirm that the Contractor has obtained approval from the local authority for use of haul roads and detour routes. The Consultant shall notify the Project Sponsor immediately following such discussions with local authorities.

When work takes place on service roads or access roads which are under the jurisdiction of the local authority, the Consultant shall inform the Project Sponsor when work on these roads has been completed. The Consultant shall also carry out a field inspection on the completed roads with the appropriate representative of the respective municipality. Any deficiencies noted are to be discussed with the Project Sponsor.

Once the Construction Completion Certificate has been issued to the Contractor, the Consultant shall provide the local authority with written confirmation of project completion.

1.10 COMMUNICATIONS WITH NEWS MEDIA

The Consultant may be required to provide technical and construction progress information to the news media. In these cases, the News Media form is to be completed and faxed or emailed to the Project Sponsor. Information regarding future planning of roadways and bridges or contentious issues will be provided by the Project Sponsor. Depending on the nature of the project and traffic characteristics, a News Release or Travelers' Advisory advising motorists of pending construction activities, delays, detours, etc., may be required. The issuance of a News Release or Travelers' Advisory shall be coordinated with the Project Sponsor.

1.11 COMMUNICATIONS WITH PUBLIC

The Consultant may be required to provide general project information or to address specific concerns to members of the general public. In these cases, the Consultant shall record the summary of discussions in the Project Journal. The Project Sponsor and the Consultant shall keep each other apprised of any Information regarding any contentious issues.

Public communication is expected to be handled in a professional manner. Depending on the nature of the communication, a synopsis documenting the communication may be required.

1.12 UTILITIES AND APPURTENANCES

1.12.1 General

The Consultant shall be familiar with the utility and appurtenance requirements in the current version of Engineering Consultant Guidelines for Highway, Bridge and Water Projects – Volume 1, Design and Tender, and the Alberta Transportation Utility Guidance Manual.

As specified in Section 8.7 of Volume 1, once the successful Contractor's schedule is provided to the Consultant he shall provide this schedule to all Utility Companies affected by the work and advise the Utility Companies that the Contractor will now be liaising with them. At this stage, a letter should be sent by the Consultant to the Contractor with a copy to the Utility Company indicating that the Contractor is responsible for all utility coordination henceforth. For further information on Utility coordination please refer to Section 2.2.4 Pre-Construction Meeting.

If new utilities are discovered during construction, the Consultant shall notify the Project Sponsor and advise them of the impacts to the project. The Consultant shall liaise with the Contractor and Utility Company concerning any required design or utility adjustments.

1.12.2 Traffic Control Signals and Lighting

The Consultant shall confirm that all material and equipment installed is certified to Canadian National Standards by an Alberta Standard listed laboratory accredited by the Standards Council of Canada. All construction shall meet Part 1 and 2 of the Canadian Electrical Code.

The consultant shall ensure that the traffic control signals and highway lighting are constructed in accordance with the Contract.

Additional information can be found in the Alberta Transportation Highway Lighting Guide, associated design bulletins and recommended practices.

1.12.3 Business and Information Signs

If signs are encountered during construction that are not listed in the Contract, the consultant should contact the Project Sponsor for guidance. Additional information on signs can be found in the Alberta Transportation Highway Guide and Information Sign manual, the Transportation Association of Canada – Manual of Uniform Traffic Control Devices of Canada and appropriate design bulletins and recommended practices.

1.13 GENERAL ENVIRONMENTAL REQUIREMENTS

1.13.1 General

The Consultant shall be familiar with all environmental requirements as outlined in the Department's Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender manual and ensure that all applicable permits, approvals, licenses and certificates are in place prior to commencement of construction.

Regulatory requirements that are the Contractor's responsibility shall be integrated into the Contract. The Consultant shall ensure that these requirements are met by the Contractor. No post-construction requirements will be undertaken by the Consultant unless specifically directed to do so by the Project Sponsor.

1.13.2 Reclamation of Borrow Areas

The Consultant will be familiar with all borrow requirements as outlined in the Department's Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender Manual. Areas outside the right-of-way which are used in obtaining borrow excavation for earthwork construction must have a pre-disturbance assessment completed and be reclaimed to an "equivalent land capability" as required by Provincial Legislation.

The standards the Department will use to measure the reclamation efforts are detailed in the following documents:

- Alberta Transportation Pre-Disturbance Assessment Guidelines for Borrow Excavations (December 2013).
- Alberta Transportation Post-Disturbance Assessment Guidelines for Borrow Excavations (December 2013).

These documents detail the testing and survey requirements to be performed on the affected areas both prior to the Contractor disturbing the area and subsequent to his reclamation efforts. The documents also detail the reclamation criteria that the Contractor must achieve in order for the affected area to be considered acceptable.

For borrow areas that are supplied by the Department, the pre and post assessments and evaluation will be performed by the Consultant. For borrow areas that are supplied by the Contractor, the pre and post assessments shall be performed by the Contractor and provided to the Consultant for evaluation. All pre and post assessments 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 has considerable experience in soil and vegetation impact assessment and diagnosis. Alberta Transportation requires all reclamation activities (i.e. plans/reports) be signed by a professional that is a member, in good standing, of one of the professional regulatory organizations identified below.

All sign-offs must include the professional's signature, and either:

- a) Registration/membership number, or
- b) Stamp/seal.

These sign-off requirements apply to the following reclamation activities:

- Pre-disturbance assessment of borrow excavations, and
- Post-disturbance assessment of borrow excavations.

Alberta Transportation recognizes the following professional regulatory organizations whose scopes of practice include land reclamation activities:

- Alberta Institute of Agrologists (AIA);
- Alberta Society of Professional Biologists (ASPB);
- Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA); and
- Association of Science and Engineering Technology Professional in Alberta (ASET).

If the Consultant determines that a borrow area does not meet the agreed upon land-use, the project cannot be accepted. In such cases, the Consultant shall immediately review the results of the pre and post assessment and provide a recommendation to the Project Sponsor. These borrow reclamation requirements do not negate the Consultant's responsibility to monitor the work at all borrow areas, as the work is in progress, and address any instances of obvious non-compliance.

1.13.3 Earth Borrow Agreements

Alberta Transportation signs "Earth Borrow Agreements" with landowners who are willing to provide access to their lands for construction projects as earth borrow sources. The agreements apply to both dug-out and landscape borrow sources, and may include temporary access roads for the haul of borrow across private land.

As part of the project design and/or the right-of-way acquisition process, the Property Agent or the Consultant will negotiate an Earth Borrow Agreement with the Landowner. Following the execution of the earth borrow agreement by the Region, the Project Sponsor or Regional Director will issue a letter of acceptance to the landowner, advising them that the Consultant will contact them prior to construction.

Upon completion of the borrow pit work, the area will be surveyed and the payment will be processed based on the total acreage utilized. As part of this process the "*Earth Borrow Letter of Understanding*" located in Appendix A is to be used by the Consultant as a tool to engage the respective landowner and to ensure mutual understanding of the proposed earth borrow development prior to the start of work.

Prior to excavation, the Consultant's Project Representative and the Landowner shall meet to discuss the details of the proposed earth borrow and its reclamation requirements. This should include such items as exact location and size of the borrow pit, landscaping requirements, drainage patterns, payments, etc. The Consultant's Project Representative and the landowner shall complete Stage I of the "*Earth Borrow Letter of Understanding*" to confirm their mutual understanding of the borrow source development and management during construction.

Upon completion of the excavation and borrow reclamation work, both parties shall complete the remaining Stage II of the original *Earth Borrow Letter of Understanding* signifying that the borrow pit was developed and reclaimed in a manner consistent with the original vision.

The Consultant shall be aware of and be proactive in dealing with typical areas of disagreements including, but not limited to, the following:

- Conditions stipulated in the original agreement not adhered to
- Disturbed borrow areas far exceeded
- Design of borrows not done, nor discussed with the landowner
- Drainage patterns altered
- Top soil admixing
- Lack of communication during construction, etc.

1.13.4 Topsoil Conservation within the Right-Of-Way

The Consultant will be familiar with all requirements as outlined in the Department's Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1, Design and Tender Manual. The Contractor is responsible for the proper salvage and redistribution of topsoil. The Consultant shall monitor the Contractor's construction activities to confirm that the topsoil is properly conserved. If admixing of the topsoil is occurring, the Consultant shall take immediate action to ensure that the Contractor rectifies the problem. However, the Consultant shall not direct the Contractor's equipment or activities. The Consultant shall maintain ongoing communications with Alberta Environment and Sustainable Resource Development's local Reclamation Inspector for the duration of the project.

The Consultant shall also ensure that all on-site field staff responsible for monitoring the work are aware of these requirements prior to commencement of the Contractor's topsoil conservation activities.

1.13.5 Control of Clubroot in Soil Disturbance Work

Clubroot, caused by *Plasmodiophora brassicae*, is a serious disease of cruciferous crops (i.e. mustards, canola, etc.) which can result in reduced to severe yield losses. Clubroot was declared a pest under Alberta's Agricultural Pests Act in April 2007. The Minister of Alberta Agriculture and Food is responsible for this Act.

However, enforcement is the responsibility of the Agricultural Service Board located in each municipality. Agricultural Fieldmen are delegated the responsibility for enforcing pest control measures in their municipality.

The most desirable approach to managing clubroot in Alberta is through a proactive program designed to prevent the spread of this pathogen including the use of good sanitation practices to restrict the movement of potentially contaminated soil. This applies to all parties (consultants and contractors) undertaking any soil disturbance activities both within and outside of the right-of-way.

Alberta Transportation has developed the following protocol in order to protect all stakeholders from the potential of clubroot infestations when performing soil disturbance work.

The Consultant shall:

1. Review the Best Management Practices outlined in the Alberta Clubroot Management Plan which is available on the Department's website.
2. Contact the local Agricultural Fieldman to determine if the project limits are impacted by clubroot infestations and what specific control measures are to be followed. This is to be completed prior to undertaking any soil disturbance activity such as preliminary soil survey, hydro-vac, topsoil survey, etc.
3. Ensure that any control measures specified by the Agricultural Fieldmen are incorporated into the Environmental Risk Assessment and addressed in the Contractor's ECO Plan documents.
4. Insert appropriate special provisions, where required, to outline the Contractor's responsibility under the Agricultural Pests Act. The current special provision is SpE022 Clubroot.
5. Monitor the Contractor's activities to ensure that best management practices and ECO Plan requirements are being followed. As a minimum this would require that all equipment, either entering or leaving the site, is to be cleaned by removing soil lumps and sweeping off any loose soil. Cleaning of the equipment is also required when moving between fields.

1.13.6 Inspection of Permanent Erosion Control Devices

During the construction phase of a project, performance records of all permanent erosion and sediment control devices are to be maintained by the consultant as described in Section 9.10 of the department's *Design Guidelines for Erosion and Sediment Control*.

To ensure the maintenance of these erosion control devices continues following construction completion, the following shall apply:

(i) It is the consultant's responsibility to indicate suitable maintenance procedures for all erosion control devices remaining in place following completion of the project.

If the erosion control device is included in the department's *Design Guidelines for Erosion and Sediment Control*, reference and appropriate site specific adjustments can be made to the applicable sections in that manual. If the device is not included in the manual, the consultant shall design appropriate maintenance procedures for that device.

(ii) The consultant shall provide this information to the department's Project Sponsor prior to the construction completion inspection. The information shall be provided in the form of a written report detailing the location of each device, the maintenance procedures required (methods, type of equipment, frequency, etc.), and shall include copies of all completed "Inspection and Maintenance Forms" as provided in Appendix D of the department's *Design Guidelines for Erosion and Sediment Control*. The consultant shall also include a copy of the report in the project Final Details.

(iii) The consultant shall also conduct an inspection of the sites with the Department's Operations Manager (usually represented by the Maintenance Contract Inspector) to ensure the written document detailing the location and maintenance requirements for the devices is complete. Contacting the Operations Manager may be done through the Project Sponsor.

SECTION 2 CONTRACT ADMINISTRATION ON-SITE PROJECT MANAGEMENT

2.1 GENERAL

This section provides the Consultant with an overview of the Department's requirements for contract administration and on-site project management.

Once the project commences, the Consultant shall monitor the performance of the Work to confirm that the Contractor is in compliance with the terms of the Contract. Instances of non-compliance by the Contractor must be addressed by the Consultant immediately and in a manner which will rectify the situation.

Verbal communications/instructions with the Contractor on significant issues shall always be confirmed in writing. The Consultant shall provide the Project Sponsor with copies of all written communication with the Contractor.

2.2 PROJECT STARTUP

2.2.1 Pre-commencement Meeting

Prior to the pre-construction meeting, the Project Sponsor may require the Consultant to attend a pre-commencement meeting to discuss expectations, levels of authority and any specific issues or concerns regarding the impending project. The pre-commencement meeting may be held several days prior to the pre-construction meeting or immediately prior to the pre-construction meeting as determined by the Project Sponsor.

2.2.2 Environmental Construction Operations Plan

The Contractor is required to prepare an Environmental Construction Operations Plan (ECO Plan) prior to commencement of work on the project. The ECO Plan consists of plans and written procedures that address the environmental protection issues relevant to the specific activity being performed. Detailed information to assist contractors in developing the ECO Plan is included in the Department's "ECO Plan Framework" located on the Department's website.

The Consultant is responsible to review the Contractor's ECO Plan to confirm compliance with the "Framework" and the conditions of approval for construction. The Contractor must submit the ECO Plan, to the Consultant, at least 14-calendar days prior to the pre-construction meeting. The Consultant shall review the ECO Plan for completeness and communicate any concerns to the Contractor at least 7-calendar days prior to the pre-construction meeting.

The Consultant shall be familiar with all environmental conditions throughout the proposed construction area and shall confirm that the Contractor thoroughly addresses all aspects where environmental impacts will occur.

The Consultant will advise the Contractor, in writing, that the ECO Plan is complete prior to the commencement of Work. The finalization of the ECO Plan to the mutual satisfaction of the Consultant and the Contractor does not constitute an approval or assurance from the Consultant or the Department that the details in the ECO Plan are sufficient to ensure compliance with applicable legislation, regulation or condition of approval.

As specified in General Specification 1.2, the Consultant may suspend work in cases where, in their opinion, the Contractor fails to adhere to the finalized ECO Plan; the Consultant shall liaise with Project Sponsor who may make other arrangements to have the Work completed, and deduct the cost thereof from any money owing to the Contractor. The Contractor is responsible to adjust the ECO Plan, as necessary, based on site conditions and changing field construction conditions throughout the duration of the project.

2.2.3 Review of Traffic Accommodation Strategy

The Contractor is required to complete a Traffic Accommodation Strategy (TAS) prior to commencement of work on the project. The TAS details the traffic control procedures and temporary construction signing to be used on the project. Items to be included in the "Strategy" and the responsibilities of the Contractor and the Consultant concerning traffic accommodation on the project are detailed in the Department's Traffic Accommodation in Work Zones manual. Time-lines for the submission and review of the TAS are detailed in the Department's Standard Specifications.

Upon receipt of the TAS from the Contractor, the Consultant shall review it and send a copy, with their comments, to the Project Sponsor.

If either the Consultant or Project Sponsor is not satisfied with the TAS, the Consultant shall request the Contractor to address any questions or deficiencies.

Once the TAS is acceptable to all parties, the Consultant shall forward a finalized copy to the Project Sponsor.

2.2.4 Pre-Construction Meeting

The Consultant shall arrange a pre-construction meeting with the Project Sponsor, Contractor and other Department staff as requested by the Project Sponsor. The Consultant shall notify the Contractor that a representative from each of his subcontractors (if any) should also attend. The Consultant shall also confirm the need for attendance by the local municipality, regulatory agencies and utility companies with the Project Sponsor. The Consultant shall prepare and confirm the agenda for the meeting with the Project Sponsor.

Typical agenda items are included in Appendix A and address topics such as roles and responsibilities, Contract administration procedures, Construction scheduling, Safety/OH&S, Environmental requirements, Utility coordination and other project specific items that may require discussion.

Minutes of the meeting shall be recorded by the Consultant and distributed to all attendees. The Consultant shall also complete the preconstruction meeting attendees and emergency contacts form included in Appendix A and distribute with the meeting minutes.

For projects using a Department controlled aggregate source a pre-crush meeting shall be coordinated between the Contractor, Consultant, Aggregates Coordinator and Project Sponsor as outlined in Section 3.2.2 Pit Management for Aggregates Sources Controlled by the Department and as outlined in the contract special provisions for Supply of Aggregate.

On complex projects or projects with a large utility component, the Consultant should hold a separate meeting involving the Contractor and the utility company representatives to review all aspects of utility adjustment scheduling and coordination. When necessary, meetings should also be supplemented by an on-site meeting to further define roles and responsibilities involved in the utility adjustments.

2.2.5 Commencing Work on the Project

Work is not to commence on a project until the Contract has been signed by both the Contractor and the Department, and the pre-construction meeting has been held.

Prior to the commencement of highway/bridge work, the Consultant shall complete a Notification of Construction Operations and an Order Fixing Maximum Speed Limit and forward these completed forms to the Project Sponsor or distribute as directed by the Project Sponsor.

2.2.6 Submittals

The Consultant shall receive and review submittals from the Contractor as specified in the Contract. The Consultant shall ensure that the submittals meet the Contract requirements.

2.3 PROJECT REPORTING REQUIREMENTS

2.3.1 General

To keep the Department informed of the status of the project, the Consultant shall submit standard reports to the Project Sponsor in a timely manner. The appendices contain the sample forms and summary sheets along with the required reporting time lines. In addition, the Project Sponsor may require the submission of reports that are not included in the appendices.

2.3.2 Progress Meetings

It is the Department's expectation that the Consultant initiates and organizes any meetings necessary between the Department, Consultant, Contractor and other stakeholders in the project to discuss the status of the project or to address specific issues as they arise. The Consultant shall notify the Project Sponsor of all Contract related meetings. The Consultant shall prepare minutes of the meetings and distribute to all attendees and the Project Sponsor.

2.3.3 Monitoring Traffic Accommodation

The Consultant shall, on an on-going basis, monitor the Contractor's activities in regards to compliance with the Traffic Accommodation Strategy (TAS) and ensure that the TAS remains effective for the current operating conditions.

Department staff, including the Regional Safety Officer, may undertake periodic inspections. Any traffic accommodation deficiencies observed will be described on a Worksite Inspection Report which will be given to the Consultant's Project Manager with a copy to the Consultant's Corporate Support. The Project Manager shall provide the Contractor's site representative with formal notification of the deficiencies (either by letter or a copy of the Worksite Inspection Report) along with a copy to the Contractor's Corporate Support. The Consultant shall follow up with the Regional Safety Official (or applicable Department official) after corrective measures have been undertaken.

A bonus/penalty payment is assessed to the Contractor based upon the number of written orders to suspend work or written warnings as issued by the Consultant as outlined in Specification 7.1 Traffic Accommodation and Temporary Signing.

2.3.4 Weekly Construction Reports

The Consultant shall complete a Weekly Construction Report for each project. The Weekly Construction Report covers the period from Sunday to the following Saturday (inclusive) and shall be submitted to the Project Sponsor each Monday. Weekly reports shall be submitted regardless of whether or not work was performed during the previous week. On combined highway and bridge projects, a separate Weekly Construction Report is to be submitted for the highway portion of the project and each bridge file.

The Consultant shall complete both forms A.06 and A.07 for each Highway project and form A.07 for Bridge and Water projects. Where beneficial, Consultants shall include annotated weekly progress photos with the reports. (A.07a Photo Template)

The progress on major work shall be shown including weekly quantities and totals to date.

Equipment hours to be recorded shall be obtained from the Contractor and the number of Site Occupancy days assessed must be signed off by the Contractor.

Copies of all Quality Assurance testing results shall be submitted with the Weekly Construction Report.

All weekly Construction Reports shall report on the Contractor's compliance with environmental requirements. Examples of items to be noted are:

- What physical or procedural measures are in place to address the conditions on the permits and approvals and are the measures functioning as intended?
- Have incidents of non-compliance with permits/regulations occurred? If so, what action was taken to correct the situation?
- Do actual topsoil depths on borrow areas and in the ROW vary significantly from the design?
- Is the topsoil within the ROW being properly salvaged? (i.e. no admixing)
- Are there sufficient areas within the ROW to accommodate interim stockpiling of topsoil?
- What types of equipment are being used to salvage topsoil?

2.3.5 Contract Progress Estimates and Final Estimate

A Progress Estimate is a monthly estimate of the work done on a project. A Final Estimate is the last Contract Progress Estimate for the Contract and contains the total actual quantities of work performed to project completion. The Final Estimate shall have "final" written beside the estimate number.

The Contract Progress Estimate form will be provided to the Consultant by the Project Sponsor. This form will contain an estimated cost breakdown for the Contract, by project, job number, bid item, estimated quantity and unit price. The applicable Task/Activity Codes will also be indicated.

The Consultant shall complete the Contract Progress Estimate and Final Estimate forms by:

- Updating each bid item quantity as outlined in this document. Payment is made only for completed and accepted work done to date. All quantities must be supported by approved methods of measurement in the field. The units of measurement for each bid item are outlined in the Contract Documents;
- Applying the unit bid prices of the Contract, multiplying and totaling the amounts;
- Deducting assessed amounts of damages for delay, site occupancy and lane closure from payments due on the Contract as they occur.
- Entering the amount previously paid and subtracting that amount from the total to arrive at the current month's amount.

The Consultant shall review the payment quantities for each item with the Contractor prior to finalizing the Estimate.

The Consultant shall sign the Progress or Final Estimates certifying that goods and services as measured were received, or completed, that work complies with the terms of the Contract, and that the total value of work completed does not exceed the funds allotted to the project. Timelines for submission of Final Estimates are provided in section 5.8.

The “cut-off” for the Progress Estimate is the 25th of each month. The Consultant shall provide the original Progress Estimate to the Project Sponsor by the last working day of the month and shall forward a copy to the Contractor. When applicable, the Progress Estimate will include any orders for Extra Work and Contract Cost Overrun approvals as backup information.

2.3.6 Diesel Fuel Cost Adjustment

For any eligible project that the Contractor participates in the Department’s diesel fuel cost adjustment process, the Consultants shall calculate the adjustment in accordance with the Diesel Fuel Cost Adjustment section of the Specifications (Section 1.2 of the General Specifications or Section 00805 of the Civil Works Master Specification, as applicable) and make adjustments to the Monthly Progress Estimates due to the Contractor.

The Consultant needs to refer to the contract in order to confirm whether or not the Contractor elected to participate in this cost adjustment and refer to the Department’s web-site to obtain the applicable Monthly Price Index. Note that if a cost adjustment is to be applied the Monthly Price Index and Base Price Index values are based upon diesel prices expressed in pennies per liter, thus the calculated Price Increase or Price Reduction value needs to be converted to dollars. A form for calculating the cost adjustment is located in Appendix A.

Consultants should be aware for any Work completed after the specified or adjusted Contract completion date, the diesel fuel cost adjustments do not apply to such work.

2.3.7 Payment for Supply of Anti-Strip Additive

Current contracts with paving work include new requirements for moisture susceptibility testing as part of the mix design process. Payment for the supply of a liquid anti-strip additive, when required, will be calculated by the Consultant based upon measurement and payment conditions contained in the contract. A form for calculating this payment is located in Appendix A. If the Contractor elects to use lime as an additive the Consultant shall contact the Project Sponsor for direction on payment.

2.3.8 Contract Log for Progress Estimate

The Consultant shall submit the Contract Log for Progress Estimate each month along with the Progress Estimate. It is used for project costs tracking and determines the Modified Tender Price and Modified Contract Payment Total for the Contract. These items are further used in monitoring costs in the Monthly Expenditure Report and for Contract Cost Overrun Approvals, if required.

The second part of the Contract Log determines the Contract Payment to date. The Modified Contract Payment Total is the Total Value of Contract Payment (as determined in the Progress Estimate) adjusted for any bonuses or penalties.

2.3.9 Calculating Modified Tender Price

The Modified Tender Price is calculated by subtracting the “site occupancy” and “lane closure” bid items and where applicable the “supply of aggregate” bid item from the Contract Tender Price. If any Contract Overrun Approvals exist, they shall be added to the Modified Tender Price to determine the Total Approved Funding for Contract. If there are no Contract Overrun Approvals, then the Modified Tender Price equals the Total Approved Funding for Contract amount.

The deduction of the “supply of aggregate” bid item depends on whether the aggregate is supplied from the Contractor’s source or a source controlled by the Department. If aggregate is supplied from the Contractor’s source and the source is not on crown land, no deduction is made from the contract tender price; where the source is on crown land the bid quantity times the rate specified in Specification 5.2 Supply of Aggregate is deducted from the contract tender price. If aggregate is supplied from a source controlled by the Department, the extended bid price is deducted from the contract tender price. On some projects, the Contractor may supply aggregate from both his source and a source controlled by the Department. In these cases, the Consultant shall make a partial deduction for “supply of aggregate” based on the quantity of material obtained from the source controlled by the Department.

2.3.10 Project Expenditure Report for Roads/Bridges

The Project Expenditure Report is generated by the Department with some of the initial information populated; the form is then forwarded to the Consultant at the start of the project. This form MUST be submitted to the Project Sponsor by the first business day of each month for all engineering, construction, and/or add-on work including ROW, utilities or other agreements relating to the project. When the Consultant is estimating costs on this report such as “Fiscal Costs” and “Carry Over”, it is important that the estimate reflects what the Consultant believes will be the actual costs, and not inflated values. The costs estimated must not include any contingencies for unsubstantiated items. This estimate is used for Department budget control purposes and further adjustments to the project costs can be made in the event of any unforeseen changes in the work. The Project Expenditure Report form is included in Appendix A.

2.3.11 Monthly Health and Safety Summary

The Contractor completes a monthly health and safety summary report at the end of each month.

The Consultant shall obtain the completed report from the Contractor and submit it to the Project Sponsor by the tenth day of the following month.

2.3.12 Project Completion Health and Safety Report

This report shall be completed jointly by the Consultant and the Contractor within 2 days of the project completion. The Consultant shall forward the completed report to the Project Sponsor.

2.3.13 Process for Construction Seasonal Shutdown

The process and the roles and responsibilities for dealing with maintenance and other operational requirements on seasonal carry-over projects are described in Construction Bulletin #10 “Process for Construction Seasonal/Winter Shutdown on Carry-over Projects”.

2.4 CONSTRUCTION CONTRACT CHANGES

The Department uses the following types of Contract Changes: Extra Work, Supplemental Work (Contract Scope Change, Contract Extension), Unit Price Approval and Completion Date Extensions.

Extra Work includes work not specified in the Contract or of a class not included in the Contract but required to achieve the intent or scope of the Contract. Whereas, Supplemental Work includes work which is outside the scope or intent of the Contract. As work outside the scope or intent of the Contract requires a higher level of approval than Extra Work in most instances Consultants shall ensure the request for approval is identified correctly.

Extra Work shall be added to the Contract in accordance with Section 2.4.1 “Extra Work”. Supplemental Work shall be added to the contract using either a formal Contract Scope Change or a Contract Extension as specified in Section 2.4.2.

When construction contract changes are being negotiated with the Contractor and additional time (site occupancy, lane closure, completion date extension) is required by the Contractor, the Consultant needs to provide justification for such additional time as part of the contract change request. .

The Consultant’s review of, and responses to, construction contract changes shall be done in a timely manner.

2.4.1 Extra Work**2.4.1.1 General**

Extra Work includes work not specified in the Contract or of a class not included in the Contract but required to achieve the intent or scope of the Contract.

It is the responsibility of the Consultant to ensure that the proposed method of payment for Extra Work is the most economical for the Department and that any proposed unit prices are reasonable for the work involved.

Authorized extra work will be paid for by the Department at the unit prices in the Contract. If, in the opinion of the Consultant, there is no applicable Contract unit price, then all labour, equipment and materials must be approved by the Consultant prior to any extra work being done, and it will be paid for as detailed in the Specifications (Section 1.2.25 Extra Work of the General specifications or section 00725 (clause 8) of the Civil Works Master Specification, as applicable) or at the new unit prices agreed to by both the Department and the Contractor.

When Extra Work is necessary, the Consultant shall prepare an “Order for Extra Work” which details the scope of the work and itemizes all quantities and costs, including extra work items to be paid at existing unit prices or lump sum prices. The Consultant shall undertake any required negotiations with the Contractor to establish a suitable schedule for the completion of the work and a proposed method of payment, including any required unit prices. Typically, Extra Work shall be processed using the appropriate Order for Extra Work form (Appendix A). In instances where the Extra Work requires substantial documentation (additional special provisions, drawings etc.) to outline the scope of work and/or measurement for payment the Consultant may be required to prepare a draft Contract Scope Change Document as outlined in section 2.4.2.1. The Extra Work shall not commence until the Extra Work Order or Contract Scope Change Document is signed by the Contractor and the appropriate approving authority.

The Consultant may approve and issue a written Order for Extra Work under the following conditions:

- Authority to approve Extra Work has been provided by the Project Sponsor.
- The Extra Work is required to fulfill the scope of the Contract.
- The value of the Extra Work does not exceed \$10,000 per occurrence and the cumulative total value of all individual Orders for Extra Work issued by the Consultant does not exceed 5% of the Modified Tender Amount.
- A copy of the Order for Extra Work is provided to the Project Sponsor by the Consultant within 24 hours. (Original order for extra work to be submitted with the applicable progress estimate)
- The completion of the Extra Work will not result in increased payment to the Consultant.
- Additional site occupancy or time extension is not required.

The Consultant’s authority to approve Extra Work also includes authority to approve any unit prices or lump sum prices required within the Extra Work.

The authority of the Consultant to approve Orders for Extra Work may be rescinded by the Project Sponsor at his discretion.

Orders for Extra Work which do not fall under the approving authority of the Consultant shall be submitted to the Project Sponsor for consideration.

2.4.1.2 Equipment Rental Rates

The current “Alberta Roadbuilders and Heavy Construction Association Equipment Rental Rates Guide and Membership Roster” forms part of all contracts and contains the specified rates to be used for payment of equipment used directly in the Extra Work operation if payment is based on hourly rates.

In the case of hourly rate Extra Work, on Contracts which carry over from one year to the next, the Department's policy is to utilize the Guide current for the period in which the work was performed unless the rate in the current Guide has decreased.

Where equipment not listed in the Guide is to be employed, the Consultant shall provide the Project Sponsor with documentation justifying the need for the new rental rate, the written rental rate quotes by the Contractor, and the Consultant's recommendation regarding the Contractor's equipment rental rate quotations. The Project Sponsor will obtain the required approvals.

2.4.2 Supplemental Work

Supplemental Work includes work which is outside the scope or intent of the Contract.

Payment for supplemental work shall be administered in accordance with this section and the Specifications (Section 1.2.25 Extra Work of the General Specifications or section 00725 (clause 8) of the Civil Works Master Specification, as applicable).

Approvals of Contract Scope Changes or Contract Extensions do not authorize spending of additional funds. Spending of additional funds can only be authorized through a Contract Overrun Approval.

2.4.2.1 Contract Scope Change

Contract Scope Changes are typically initiated by the Department and cover situations where the scope of the Contract is being changed.

Changes which involve additional work outside the Contract limits are referred to as Contract Extensions.

Upon receipt of approval from the Project Sponsor to proceed with the change, the Consultant shall forward a draft Contract Scope Change document to the Contractor, outlining the scope of the proposed Contract Scope Change and requesting the Contractor's quotation for the proposed change.

The Consultant's Contract Scope Change document shall address applicable drawings, special provisions, unit price schedule, Site Occupancy/Lane Closure and Completion Date as applicable.

Upon receipt of the Contractor's quotation, the Consultant shall carry out a detailed analysis of the Contractor's quotation and submit a written recommendation to the Project Sponsor. Depending upon the quotation received, the Consultant may be required to negotiate with the Contractor on behalf of the Department.

If the Contractor's quotation is accepted by the Department, the Consultant shall finalize the formal Contract Scope Change document and submit an electronic version of this document to the Project Sponsor for the Department's review and finalization.

The formal Contract Scope Change document must be signed by both the Department and the Contractor prior to the commencement of any associated work.

2.4.2.2 Contract Extensions

Contract Extensions cover situations where a change in scope involves additional work outside the Contract limits. Contract Extensions are normally initiated by the Department with the Department arranging for the Consultant to carry out preliminary engineering; detailed design, preparation of construction drawings, special provisions, schedule of quantities and cost estimates.

The same process used for Contract Scope Changes shall be followed for Contract Extensions.

2.4.3 Unit Price Approvals

Adjustments to unit prices for existing bid items or new unit prices for bid items not included in the Contract require prior approval of the Department, with the exception that the Consultant may approve such unit prices that are required within the Extra Work, to the extent allowed in the Extra Work Section.

When new unit prices for bid items not included in the Contract are required, the Consultant shall forward a letter to the Contractor requesting unit price quotations for the specific work. The Consultant's letter shall provide a general description of the proposed work and appropriate references to material requirements, sampling and testing requirements, construction methodologies and basis of measurement and payment.

Upon receipt of the Contractor's written quotations, the Consultant shall review and ensure the Contractor's quotations are reasonable. If the quotations appear unreasonable, the Consultant shall review the quotations with the Contractor and attempt to negotiate adjustments where appropriate. The Consultant shall obtain a revised quotation from the Contractor that contains the new or adjusted unit price(s).

The Consultant shall forward a letter to the Project Sponsor, outlining their analysis of the quotations and their recommendation of acceptance or rejection, along with a copy of the Contractor's submission. If the unit price quotations are significantly higher than recent tendered unit prices, the Consultant shall provide his rationale if recommending acceptance. Alternatively, the work may be carried out based on hourly rates.

If quantity variation situations outlined in the Specifications (Section 1.2 of the General Specification or section 00725 (clause 8) of the Civil Works Master Specification, as applicable) occur, adjustments to unit prices for existing bid items may be considered. The Contractor must submit a written request for adjustment of unit price(s) to the Consultant with backup documentation showing that he has incurred additional or unrecovered costs as a result of quantity variation(s). The Consultant shall carry out a detailed analysis of the Contractor's submission and submit his written recommendation, along with a copy of the Contractor's submission, to the Project Sponsor.

The Consultant shall document the approved unit price approval including the new or adjusted unit price(s) along with the description and payment terms of the associated work on the Unit Price Approval form (Appendix A). This document shall then be signed by the Contractor and approved by the Department

2.4.4 Completion Date Extensions

The Consultant does not have the authority to adjust Contract completion dates. The Project Sponsor will arrange for approval by the appropriate authority.

If the Contractor feels an adjustment to the completion date is warranted, they must submit a written request to the Consultant. The Contractor's submission must contain justification that an impact to his schedule, preventing completion of the project by the date(s) specified in the Contract, is reason for adjustment of the completion date. To be considered, the Contractor's request for adjustment to the completion date must be submitted in accordance with, and meet the conditions outlined in the Specifications (Section 1.2 of the General Specifications or section 00725 (clause 6) of the Civil Works Master Specification, as applicable).

Where the request cites increased quantities of work, it must substantiate that the carrying out of such additional quantity of work impacted the Contractor's overall schedule. Off-setting quantity decreases on other items of work need to be taken into consideration.

The Consultant shall review the Contractor's submission and provide the Project Sponsor with a detailed recommendation concerning an adjustment to the Contract completion date. Upon receiving direction from the Project Sponsor, the consultant shall advise the Contractor accordingly.

Failure to complete the project by the specified completion date is addressed by the use of Damages for Delay as detailed in the Specifications (Section 1.2 of the General Specification or section 00725 (clause 6) and 00810 of the Civil Works Master Specification, as applicable).

Consultants shall deduct assessed amounts of damages for delay from payments due on the Contract as they occur. Damages for Delay deductions shall not be reserved for processing on the final progress payment.

2.5 CONTRACT COST OVERRUNS

This procedure applies to all contracts which are tendered on a lump sum or unit price measurable basis, and shall be followed by the Consultant in the administration of the Contract. The essence of the process is the early identification of potential cost overruns, the evaluation of alternatives to an overrun, and the timely submission of proposals to the relevant approval authority.

2.5.1 Definitions

Modified Tender Price - Contract Tender Price less extended bid price for site occupancy and/or lane closure and less extended bid price for supply of aggregate (where applicable).

Significant Bid Item - Any bid item with an extended value greater than 20% of the Modified Tender Price.

Anticipated Contract Cost Overrun - Issued during the actual prosecution of the work to authorize anticipated expenditures in excess of the Modified Tender Price. This additional amount authorized may not be exceeded without prior approval of an additional Contract Cost Overrun.

Final Contract Payment - Total amount payable to the Contractor.

Modified Contract Payment Total - Total Value of Contract Payment net all unit price adjustments, diesel fuel cost adjustment, site occupancy and lane closure bonus/penalty, damages for delay, and any other bonus or penalty assessments as shown in the Contract Log.

2.5.2 Procedure

Management and control of all potential contract cost overrun situations is the responsibility of the Consultant. It is expected the Consultant anticipate Contract Cost Overruns prior to the associated work being undertaken and advise the Project Sponsor accordingly.

Contract Cost Overruns are determined based on Modified Tender Price and the anticipated Modified Contract Payment Total. These items are derived from the Contract Log for Progress Estimate form (Appendix A). A request for an Anticipated Contract Cost Overrun Approval shall be made when the project has a potential to overrun.

Contract cost overruns of up to 5% of the Modified Tender Price or \$5,000 (whichever is greater) can be approved by the Consultant.

The authority of the Consultant to approve Overruns may be rescinded by the Project Sponsor at his discretion.

All other contract cost overruns are referred to the Project Sponsor.

Under no circumstances shall work be carried out that would exceed the Modified Tender Price by more than 5% without a written Anticipated Contract Cost Overrun Approval, nor shall a Significant Bid Item be exceeded by more than 20% without written authorization from the Project Sponsor.

All overrun applications shall contain full details of the circumstances leading to the anticipated overrun, an evaluation of all alternatives considered feasible to prevent the overrun, a recommended course of action, a detailed overrun cost estimate, together with the submission of the “Approval of Anticipated Construction Contract Cost Overruns and Increases to Significant Bid Items” form (Appendix A).

All applications shall be submitted in sufficient time to allow adequate evaluation of alternatives and the allocation of additional funding, without causing delay to the Contractor.

On completion of the Work, and checking of Final Details on all construction projects for which a Contract Cost Overrun Approval in excess of the greater of \$100,000 or 10% of the Modified Tender Price has been issued, a Final Construction Contract Cost Overrun summary must be prepared and submitted with the Final Details package outlining the following:

- Modified Tender Price
- Total Overrun (value of all Contract Cost Overrun Approvals)
- Modified Contract Payment Total
- Total Approved Funding for Contract

- % Increase (Difference between Modified Contract Payment Total and Modified Tender Price, expressed as a percentage of Modified Tender Price)

2.6 SITE OCCUPANCY

2.6.1 Overview

This section details the purpose of Site Occupancy, its payment structure and provides guidance on significant issues which typically arise when administering the specification.

This section captures the Department's intent for Site Occupancy and is intended to be used by the Consultant to administer the specification in a fair and consistent manner. When situations arise that require interpretation of the specification, the Consultant shall consult the Project Sponsor.

2.6.2 Purpose

Site Occupancy is a contracting strategy used by the Department to help ensure that it receives the lowest evaluated project cost (combination of price to construct plus the number of work days to complete). The Contractor estimates the number of calendar days that he requires to complete the work and includes this amount in his tender price (i.e. number of days multiplied by a predetermined daily rate). The daily rate is established by the Department and varies depending on the type of project.

A Site Occupancy payment is made to Contractors who complete the work in less calendar days than the number bid. A payment deduction is assessed against Contractors who exceed the number of calendar days bid.

Site Occupancy is not intended to ensure compliance with the specified contract completion date. Failure to complete the project by the specified completion date is addressed by the use of Damages for Delay.

Site Occupancy is intended to encourage Contractors to complete the project in the fewest number of days.

Consultants shall deduct assessed amounts of Site Occupancy from payments due on the Contract as they occur. Site Occupancy penalty deductions shall not be reserved for processing on the final progress payment.

2.6.3 Risk Sharing

The risks associated with Site Occupancy are shared between the Department and the Contractor. The Contractor assumes the risk of his productivity while on the site. The Department assumes the risk of delays or uncertainties caused by items which are considered beyond the control of the Contractor, such as inclement weather.

For example, the Contractor is not required to estimate (in his bid) the number of “rain days” which will occur during the course of the project. Therefore, calendar days are not assessed when the Contractor is “rained out” or, when he is solely attempting to restore previously constructed work to a condition similar to that which existed when the rain commenced.

After a rain day, it is the Consultant's responsibility to determine the point in time when the Contractor is progressing with new work.

2.6.4 Allowing Efficient Use of Contractor's Forces

2.6.4.1 Performing Minor Work during Downtime

There may be times during the course of the project when the Contractor has essentially “shut down” the work but wishes to proceed with some minor work such as trimming, rip-rapping culverts or fencing using only a small portion of his workforce. This could be during periods of inclement weather, during breaks between work phases, during scheduled time off or, on a “carry-over” project prior to recommencement of the project in the spring.

Normally, Site Occupancy would not be charged in these situations. However, when making this decision, the Consultant must consider the scope of actual work being performed in relation to the scope of the overall project and the project schedule.

2.6.4.2 Scheduling of Different Phases of the Work

Site Occupancy is not charged during “down time” resulting from different phases of the work being completed at different times, generally by different subcontractors or work crews. “Phases” of the work are typically major items such as paving and base course work.

Generally, the overall project schedule, including schedules for the various phases of the work is established prior to commencement of the project. It is recognized that this schedule is subject to change. However, in the event changes occur in the project schedule, Site Occupancy is intended to apply to the days the Contractor is actually working on the project, not to the days or period of time indicated on the project schedule. In the event changes to the project schedule proposed by the Contractor are not acceptable to the Consultant or Department, the Consultant should advise the Project Sponsor of any concerns with the proposed schedule.

It is the Contractor's responsibility to advise the Consultant of proposed changes to the project schedule in a timely manner and in sufficient time for the Consultant to discuss the proposed changes and address any issues arising from the proposed changes with the Project Sponsor.

2.6.5 Specific Exclusions from Site Occupancy

The specification excludes specific types of work from Site Occupancy. Site Occupancy is not charged if the Contractor is working solely on these items.

2.6.6 Conclusion of Site Occupancy

The assessment of calendar days will cease once in the opinion of the Consultant, the project is ready for the Construction Completion Inspection.

It must be noted that allowing minor work to be completed without assessing calendar days as detailed previously, does not apply at the “end of the project”. For example, if the Contractor has completed all base and paving work but culvert riprap and fencing has not been completed, Site Occupancy will still apply.

Site Occupancy does not apply in situations where the Contractor is working solely on correcting deficiencies in the work identified through the Construction Completion inspection or when the Contractor is completing repairs of pavement segregation only.

2.6.7 Payment

The total number of calendar days assessed for the Contract are compared to the number of calendar days indicated in the unit price schedule. The difference between these numbers is inserted in progress payments as indicated in the following paragraphs and multiplied by the specified daily rate to provide the site occupancy payment/assessment.

In the case where the final number of calendar days assessed is less than the number of days indicated in the unit price schedule, or as adjusted, the difference between these two numbers is inserted as a positive quantity in the next progress estimate issued upon completion of the Work.

In the case where the number of calendar days assessed first happens to exceed the number of calendar days indicated in the unit price schedule, or as adjusted, the difference between these two numbers is inserted as a negative quantity in the next progress estimate issued. Subsequent progress estimates must reflect the increasing difference (as a negative number) between the number of calendar days assessed to date and the number of calendar days indicated in the unit price schedule, or as adjusted.

Any site occupancy bonuses shall be paid on the next progress estimate after the Construction Completion Certificate has been issued.

2.6.8 Site Occupancy Increases

Increasing the number of calendar days bid by the Contractor for Site Occupancy may be considered in a number of cases. These are outlined in the specification.

The Consultant shall review any requests for additional calendar days and provide a recommendation to the Project Sponsor.

2.6.9 Site Occupancy for Construction Contract Changes

On projects where the Department negotiates a change in the scope of the work with the Contractor or when Extra Work is necessary, the impact on Site Occupancy shall be negotiated with the Contractor as part of the Construction Contract Change.

Impacts are dealt with by way of the Department increasing the number of site occupancy days bid. Not assessing site occupancy days for this work is not an acceptable practice.

2.7 FIRST PARTY CLAIMS

2.7.1 Overview

The procedure for administering claims submitted by a Contractor to the Department makes use of both a claims resolution process and a supplemental dispute resolution process which is contained in the document entitled “Dispute Resolution Process for Government of Alberta Construction Contracts”. This procedure is outlined in the Specifications (Section 1.2 of the General Specifications or section 00725 and 00810 of the Civil Works Master Specification, as applicable) and is intended to guide the Contractor through the various levels of appeal available under the terms and conditions of the Contract.

The Consultant is a key component in the Department’s defense and avoidance of claims. In filling this role, the Consultant must observe good project management practice which includes fair judgment when dealing with disputes. The Consultant’s detailed project documentation through project journals, accurate quantity measurements and the accurate recording of quantities and quality are a basic component upon which responses to claims are based. A basic rule to assist in the prevention of claims is that Consultant’s key representatives must have a thorough and detailed knowledge of the Contract.

It is important that the Consultant does not give any assistance, advice or gratuitous information to the Contractor to help formulate the basis of a claim. The Contractor must not have access to Project Journals or Departmental correspondence. Information relating to Progress Estimates and quality assurance test results may be provided.

2.7.2 Procedure for Claims and Appeals

Upon receiving a first party claim or Notice of Claim, the Consultant shall immediately provide a copy of the Contractor’s letter of claim to the Project Sponsor and the Director, Tender Administration of the Department’s Strategic Procurement Branch, and then follow-up with a written acknowledgement to the Contractor.

Before providing written acknowledgement of the Contractor's claim, the Consultant must first determine if the Contractor has met the seven (7) day notification timeline. If the Contractor's submission appears not to have met this timeline, then the Consultant's acknowledgement should state that the claim fails to do so, and request the Contractor to substantiate his right to proceed with his claim. The Consultant must first consult with the Project Sponsor before acknowledging a claim.

The Consultant is the first level identified in the claims resolution process and is required to analyze the claim and respond to the Contractor in writing. The Consultant's analysis shall include investigating the basis for the claim, meeting with Contractor where necessary, producing a summary of facts, figures, test results, pictures, relevant project journal entries, videos (if available) and detailing a recommended course of action. This analysis shall include the Project Sponsor who will assist the Consultant with the review of the claim and the development of the response to the Contractor. When corresponding with the Department on the claim, the Consultant must not copy the Contractor on any of the correspondence.

The extent of the analysis will depend on the type and nature of the claim submitted. However, it must always include the Contract Documents and when possible the responses should contain reference to specific contract clauses.

It is the Department's intent that the analysis of the claim commence as soon as possible following the submission of the claim by the Contractor. Should the nature and complexity of the claim make it impractical to complete the analysis within a two (2) week period, the Consultant must notify the Contractor in writing that the analysis is ongoing and that a formal response is forthcoming.

It is imperative that the Consultant discuss with the Contractor the measures needed to confirm the basis of the claim and the quantification of the costs while the work is ongoing.

This should be done regardless of whether the Consultant or the Department views the claim as valid or not.

The Contract Documents permit the Contractor to appeal the Consultant's response to the next level in the claims resolution process. Members of the Consultant's staff may be required to provide information to assist subsequent review levels with their assessment of the claim. In addition, should the claim fail to be resolved and be referred to the Dispute Resolution Process, the Consultant may be requested to participate in Mediation and/or Arbitration proceedings.

2.8 THIRD PARTY CLAIMS

A third party claim is a claim against the Contractor or a sub-contractor by sub-contractors, suppliers, labourers, or others working on or providing material or services on the Contract.

Third party claims must be submitted in writing. Verbal statements are not sufficient. The Consultant must immediately date stamp and forward any submission to the Project Sponsor. Due to the time limitations under the Public Works Act, the Consultant must submit third party claims to the Department the same working day they are received.

Although the Public Works Act has a 90 day limit for highway construction and a 45 day limit for water management projects for filing claims, there is no time limit specified in the Contract itself. Therefore, under no circumstances should a claimant be advised not to file a claim once the 45 or 90 day period has expired.

Claims filed beyond the 45 or 90 day limit shall not be rejected by the Consultant. These claims shall also be date stamped and forwarded to the Project Sponsor.

2.9 DAMAGE CLAIMS

2.9.1 General

A damage claim (insurance claim) is a claim for injury, loss or damage arising in connection with the work. The most common damage claim is for cracked or broken windshields on chip seal coat projects.

It is the Department's intent that all claimants fully understand the claims resolution process. To assist the claimant in this regard, the department has produced an information pamphlet titled "Alberta Transportation Procedures for Damage Claims". This pamphlet outlines the process referred to in the General Specifications which allows for an independent review where the claim value falls below a specified financial limit.

Under the terms of the General Specifications, the Contractor is required to review any damage claims received and respond to the claimant in writing with a copy to the Project Sponsor.

2.9.2 Procedure for Damage Claims

The Consultant must immediately inform the Project Sponsor of any damage claims received.

The Consultant will forward the claim letter to the Contractor, requesting that the Contractor deal with the claim in accordance with the General Specifications. The claimant will be advised by letter that the claim has been forwarded to the Contractor. A copy of the pamphlet is enclosed with the letter. The Contractor is required by the specifications to review any damage claims received and respond to the claimant in writing with a copy to the Project Sponsor.

For cases where the claim value is within the specified financial limit and the claimant disagrees with the Contractor's response, the Consultant will assemble all the written information regarding this matter from both the claimant and the Contractor into a file and forward it to the Project Sponsor so that a complete file is being forwarded to the adjuster for review. The claimant is not to be provided with the Contractor's insurer's name. The claimant has the legal right to obtain the insurer's name from the Contractor but not from the Department.

2.10 CONSTRUCTION COMPLETION, CONDITIONAL CONSTRUCTION COMPLETION, REPAIRING DEFICIENCIES AND WARRANTY

2.10.1 Confirming Contract Requirements

It is critical that both the Consultant and the Contractor are aware of all contract requirements which may impact the issuance of the Construction Completion Certificate.

The Consultant shall confirm contract requirements with the Project Sponsor prior to commencement of the Work and at regular intervals throughout the project as the need arises. This will allow the Consultant to communicate any significant issues to the Contractor as the Work progresses, providing him with the opportunity to address them in an effective manner.

2.10.2 Interim Inspections

Throughout the course of the Work, the Project Sponsor and Consultant will conduct joint inspections to confirm that all Work is being completed to the required standards. The Consultant will alert the Contractor of any items, which require attention while the Work is in progress. The Contractor may participate in the interim inspection(s) to ensure that expectations are fully understood and nothing unexpected is identified during the Construction Completion Inspection. A representative from the local municipality should also be invited to participate in the interim inspections if there is a significant impact to the municipality's infrastructure network or local issues are identified.

2.10.3 Construction Completion Inspection

The Construction Completion Inspection is initiated by the Contractor. This inspection should only be requested when both the Consultant and the Contractor are in agreement that any significant items have been addressed and the Project appears to be complete. During the Construction Completion Inspection, deficiencies in the Work which were not initially picked up by the Contractor and Consultant may be identified.

The location and nature of any such deficiencies identified during the Construction Completion Inspection shall be recorded by the Consultant and provided to the Contractor in writing with a copy to the Project Sponsor. The deficiency list must also include time-lines for the completion of the repairs.

In the event that defects in the Work are identified subsequent to the Construction Completion Inspection, such defects shall be considered a warranty item and will not require immediate repair. Any such defects will not impact the issuance of the Construction Completion Certificate. However, they must be documented by the Consultant and repaired by the Contractor prior to the expiration of the warranty period.

2.10.4 Construction Completion Certificate and Commencement of Warranty

The Construction Completion Certificate is issued once the Consultant confirms that all work, including any deficiencies identified during the Construction Completion Inspection has been satisfactorily completed. The date of the acceptance of the work and the date on which the contract warranty period commences, is the last date the deficiencies are satisfactorily repaired. If there were no deficiencies identified during the Construction Completion Inspection, the date of the acceptance of the work and date on which the contract warranty period commences is the date the project was ready for the Construction Completion Inspection.

Standard letters to be used by the Consultant for Construction Completion Certificates are included in Appendix A.

2.10.5 Conditional Construction Completion Inspection

The Conditional Construction Completion Inspection and Certificate are intended for use on projects when:

- Any deficiency or minor cleanup cannot be totally completed as a result of winter shutdown. All work associated with bid items and extra work must be acceptably completed in accordance with the Contract so that all associated quantities can be measured for final payment. Deficiencies are minor corrections or adjustments to completed work, or
- On Contracts containing paving work, when Construction extends past August 31 and the only deficiencies remaining are paving related deficiencies. All work, including any deficiencies not related to paving, must be completed. In this situation, the Contractor is given the option of carrying out the repair of the paving related deficiencies in the spring.

In these situations the Conditional Construction Completion Inspection, the identification of deficiencies and the establishing of time-lines for the repair of deficiencies shall be administered as described in the previous subsection entitled “Construction Completion Inspection”.

2.10.6 Conditional Construction Completion Certificate and Commencement of Warranty

The Conditional Construction Completion Certificate is issued following the inspection and contains a deficiency list and time-lines for completion of the repairs.

The issuance of a Conditional Construction Completion Certificate allows a reduction in holdback to be considered.

For projects on which a Conditional Construction Completion Certificate is issued, the contract warranty period is administered as follows:

2.10.6.1 Deficiencies Repaired within the Established Time-lines

If the Contractor completes the repair of deficiencies within the established time-lines, the warranty period commences on the date that the project was ready for the Conditional Construction Completion Inspection.

2.10.6.2 Deficiencies Not Repaired within the Established Time-lines

If the Contractor fails to complete the repair of deficiencies within the established time-lines, the warranty period commences on the date the deficiencies are satisfactorily repaired. Failure to complete repairs within the established time-lines may result in the Project Sponsor having the repairs completed by other forces and recovering those costs from the Contractor.

Any deficiencies that may have arisen since the time of the conditional construction completion inspection should be incorporated into the deficiency list.

2.11 RETAINING AND RELEASING HOLDBACK**2.11.1 Retaining Holdback**

As an alternative to cash holdback and subject to Department approval, the Contractor may provide an Irrevocable Letter of Credit or a Release of Holdback Bond in the amount specified in General Specification 1.2. Section 00614 (Letter of Credit In Lieu of Holdback) of the Civil Works Master Specification outlines requirements for Water projects.

Prior to completing a Progress Estimate, the Consultant shall confirm with the Project Sponsor whether the Contractor has provided an Irrevocable Letter of Credit or a Release of Holdback Bond for the Contract. If an Irrevocable Letter of Credit or a release of Holdback Bond has not been provided, the Consultant shall identify Holdback on each Progress Estimate, including the Final Estimate, in the amount detailed in Specifications (Section 1.2 of the General Specifications or section 00630 of the Civil Works Master Specification, as applicable)

If, during the course of the Contract, the Contractor provides the Consultant with an Irrevocable Letter of Credit or a Release of Holdback Bond, it shall be immediately forwarded to the Project Sponsor.

2.11.2 Release of Holdback

Upon receipt of the Consultant's final Progress Estimate, and review by the Project Sponsor, the Department may process either a partial release or full release of holdback in accordance with the Specifications (Section 1.2.26.6 of the General Specifications or section 00630 of the Civil Works Master Specification, as applicable)

2.11.3 Partial Release of Holdback**When a Conditional Construction Completion Certificate Has Been Issued**

In situations where a Conditional Construction Completion Certificate has been issued, the Department may initiate a reduction in the amount of the holdback, Irrevocable Letter of Credit, or Release of Holdback Bond. The Department will retain a sufficient amount to cover the cost of correcting the deficiencies.

In these situations, the Consultant shall calculate the amount it would cost the Department to hire a separate Contractor to complete the deficiencies/repairs and advise the Project Sponsor. Typically, the amount retained would be two times this calculated amount.

When a Conditional Construction Completion Certificate Has Not Been Issued

In cases where a Conditional Construction Completion Certificate has not been issued any reduction in the holdback must be initiated by the Contractor. Such requests shall be in writing to the Consultant and must be accompanied by the written sanction of the Surety.

Any such reduction in holdback may be considered when the Contractor has diligently prosecuted the Work but weather conditions force winter shutdown. In these situations the remaining Work must be less than 2% of the Contract amount.

The Consultant shall review the request with the Project Sponsor taking into account the reasons the Work is not completed, any unforeseen problems and the status of the Final Details.

The Department will assess the request for a reduction in holdback and may release the appropriate amount.

2.11.4 Final Release of Holdback

The Department will make the final release of Holdback once the Final Details have been checked, a Construction Completion Certificate has been issued and necessary clearances have been received.

2.12 TERMINATION OF WARRANTY AND FINAL ACCEPTANCE**2.12.1 Termination of Warranty Period**

The Project Sponsor may retain the Consultant to perform a warranty inspection and to monitor any warranty work performed by the Contractor. The provision of these services will generally be covered by a separate Consulting Services Contract between the Consultant and the Department. The timing of the warranty inspection shall be determined by the Project Sponsor.

The Consultant is to inform the Contractor the timing of the warranty inspection in order to have an opportunity to also attend.

In the event defects in the work have been identified subsequent to the Construction Completion Inspection and/or through the warranty inspection, the Consultant shall immediately notify the Contractor in writing of the nature and location of the defective work and request a schedule from the Contractor detailing the timing and the nature of the corrective work. The Consultant shall provide copies of all correspondence to the Project Sponsor.

Prior to and during the performance of the corrective work, the Consultant shall liaise with the Project Sponsor to ensure that the timing of the corrective work and the final product is satisfactory to the Department.

Once the corrective work has been satisfactorily completed, the Consultant shall notify the Project Sponsor in writing that a Final Acceptance Certificate may be issued to the Contractor.

The Contractor's contractual obligations to complete warranty work are guaranteed by the contract performance bond. Any communication necessary between the Department and the Surety concerning the Contractor's warranty obligations shall be initiated by the Department.

2.12.2 Final Acceptance Certificate

A Final Acceptance Certificate is issued either at the expiration of the warranty period specified in the Contract or when any defects in the work occurring during the warranty period have been satisfactorily corrected, whichever occurs last. The Final Acceptance Certificate will be issued by the Department.

SECTION 3 HIGHWAY CONSTRUCTION

3.1 GENERAL

This section of the document outlines responsibilities and authority of the consultant which is more specific to the administration of highway contracts. The construction of bridges are combined with highway construction projects in many instances. This section applies to both highway projects and combined highway/bridge construction projects. The Consultant shall not consider this section in isolation but rather as an integral part of the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 2 – Construction Contract Administration.

The majority of forms referenced in this section are part of Appendix B however some general administration forms are part of Appendix A.

3.2 AGGREGATE SOURCES

3.2.1 General Contract Conditions for the Supply of Aggregates

The general contract conditions regarding the supply of aggregate material and use of aggregate sources are described in Section 9 Supply of Aggregate Sources of Volume 1 of the Engineering Consultants Guidelines for Highway, Bridge and Water Projects. Aggregate sources are broadly defined as being either “Aggregate Sources Controlled by the Department” or “Aggregate Sources Not Controlled by the Department”.

Blend Sand Aggregate: Generally, the Contractor is allowed to access sand sources controlled by the Department for supplying the blend sand portion of the aggregate. However, the use of sand sources controlled by the Department requires prior approval of the Project Sponsor.

The consultant’s responsibilities for monitoring and reporting shall include these sand sources.

The contract payment conditions for the supply of aggregate vary significantly for each category. These payment conditions are also dependent upon the “legal status” of the source (Department owned or controlled source, crown source or private source). Therefore, the Consultant must be totally familiar with both the specifications for the supply of aggregate and the legal status of the source being used by the Contractor.

3.2.2 Pit Management for Aggregate Sources Controlled By the Department

Pre-Construction Activities

When the Contract allows the use of an aggregate source controlled by the Department, the contract special provisions will contain specific requirements for pit operations in the aggregate source. Seven days prior to the Contractor commencing work in the pit, the Consultant shall arrange an on-site meeting with the Contractor, all subcontractors involved in the pit operations, the Project Sponsor and the Department's Aggregate Coordinator. The following representatives shall also be asked to attend:

- Alberta Environment and Sustainable Resource Development (Land Use Officer) when the pit is on crown, non-patented land (i.e. untitled).
- Alberta Environment and Sustainable Resource Development (Reclamation Approvals Coordinator) when the pit is on patented land.

At the meeting the Consultant shall confirm the scope and scheduling of the Contractor's activities within the pit and review the contract requirements, environmental approvals and the Contractor's ECO plan. The Contractor shall confirm that all requirements have or will be communicated to the equipment operators prior to the commencement of the Work. The Consultant is to review the Contractor's written proposal detailing aggregate processing procedures.

Following the meeting the Project Sponsor/Aggregates Coordinator will confirm with the Consultant the level of monitoring and inspection required on the project.

Construction Activities

It is expected for the Consultant to make multiple site visits to monitor the pit activities during each phase of the Work for compliance with the Contract and environmental approval conditions. These inspections will often take place well in advance of any roadway construction activities however, where possible, site visits shall be coordinated with construction related inspections.

No deviations from the pit operating conditions are to be allowed without the prior approval of the Project Sponsor. Environmental damage, waste of aggregate and non-sequential pit development shall not be permitted. The Consultant shall immediately address any issues of non-compliance. The following summary outlines the Consultant's responsibilities for on-site pit management:

- Monitor the topsoil, subsoil, overburden removal and crushing components of the Work. These activities may take place well in advance of construction on the roadway.
- Prior to any activity occurring in the pit, contact all necessary land administrators and advise of the scope and scheduling of the activities.

- At the pre-construction meeting, discuss pit activities with the Contractor and confirm that all requirements have or will be communicated to the equipment operators prior to commencement of the Work.
- Ensure that any request to change the approved pit activities are referred to the Project Sponsor for prior approval.
- Inspect and monitor the Contractor's activities at the pit for compliance with the contract requirements and environmental regulations during each stage of construction. Activities to be inspected and monitored include:
 - Clearing and disposal of brush or salvage of timber.
 - Salvage of topsoil, subsoil and overburden.
 - Contouring topsoil, subsoil and overburden stockpiles to facilitate seeding and weed control.
 - Mining of full depth of aggregate, providing test holes in pit floor.
 - Crushing and stockpiling (contract requirements for size of rock to be crushed).
 - Plant set up.
 - Leveling of reject surplus natural fines and removal of reject ACP/ASBC.
 - Disposal of grey and black water and final site clean-up.
 - Protection of livestock.
 - Sloping of active pit to conform to contract requirements.
 - Pit reclamation.
 - Sufficient erosion control measures are in place to prevent siltation off site.
 - Surface drainage does not adversely affect adjacent lands.
 - Stripped buffer zones are maintained during mining.
 - Impermeable layers are established for rinsing of truck boxes and the servicing and fuelling of equipment.
 - Removal of all generated waste products.
 - All pit signs have been erected.

The frequency schedule for these inspection activities are summarized in the table titled Construction Inspection Activities for Department Controlled Pits contained in Appendix A.

Post Construction Activities

Upon completion of pit operations, the Consultant shall arrange for a final joint inspection for acceptance of the pit by the Department. The local representative from Alberta Environment and Sustainable Resource Development shall also be invited to the final inspection.

The Consultant shall advise the Project Sponsor of any deficiencies remaining at the conclusion of the project and recommend the appropriate amount of holdback to be retained.

3.2.3 Reporting Requirements for Aggregate Sources Controlled By the Department

For aggregate sources which are controlled by the Department, some or all of the following reports and plans shall also be completed. The approved Department forms must be used. Forms referenced in this section are part of Appendix A. If a source controlled by the Department is not used on the project, the Consultant is to inform the Regional Aggregate Coordinator as soon as mining commences in the Contractor's source.

Aggregate Removal Report: Required for all Department aggregate sources including blend sand sources. Survey measurement is required for all over-crush piles. Submit within four weeks following the completion of pit operations or seasonal shut down.

Aggregate Testing Plan and Pit Plan: Normally the pit plans will be updated by the Consultant, unless otherwise directed by the Project Sponsor. When the Department elects to update the plans, the Consultant is required to provide updated survey measurement of the over-crush piles to the Aggregate Coordinator who will consolidate that information onto the plans.

If required by the Project Sponsor to update the pit plans, the Consultant shall dig random test holes on the bottom of the excavated areas to determine if the deposit has been fully mined. Test hole logs shall be shown on the plan (This work may be done during mining using equipment the Contractor has on site). The pit shall be surveyed (GPS or Total Station) and the plan updated in Microstation (DGN) format as described in the Department's "CB4 - Drafting Guidelines" manual. The plans shall show the following:

- Edge of clearing
- Stripped areas
- Top and bottom of excavated pit face
- Slopes of disturbed faces
- Depth of exposed gravel face
- Water bodies
- New test hole data in pit floor
- Adjusted areas of remaining gravel
- Removal of any information previously shown on the plan which was made redundant by the current pit activities
- Summary of remaining stockpiles
- Stockpile locations, type and quantity

The plans shall be submitted as a hard copy and electronic format as described in the Department's CB4 Drafting Guidelines manual. Only a sketch copy is required at seasonal shutdown, however, the complete survey may be requested at any time if the tendering of another project is anticipated.

Aggregate Source Quality Report: Required when the Contractor uses an aggregate source controlled by the Department. Submit within four (4) weeks following the completion of the project.

Aggregate Royalty Payment: Required when the Contractor uses an aggregate source controlled by the Department and this source is a private pit. Submit within four (4) weeks of seasonal shutdown or completion of pit operations.

Generally, royalty payments made by the Department to landowners are based on the total quantity of useable aggregate removed from the sources (material incorporated into the Work plus useable material remaining in stockpile in the pit).

Material which is rejected during the crushing or mixing process is normally not measured for royalty payments.

The Consultant shall confirm the terms of the royalty agreement between the Department and the landowner with the Project Sponsor, prior to calculating the quantity for royalty payments.

Aggregate Stockpile Construction Report: Required when aggregate is placed in stockpile on site for future use or removal from the pit. Submit within four weeks following the completion of stockpiling.

All reports and plans shall be submitted to the Project Sponsor within four (4) weeks of the conclusion of the pit activities. For projects which carry-over into the following construction season, interim sketch plans and reports must be submitted by December 31 of the current year. However, a complete pit survey may be requested at any time if the tendering of a separate project is anticipated.

If a source controlled by the Department is not used on the project, the Consultant shall inform the Department's Aggregate Coordinator.

In Specification 3.2 Aggregate Production and Stockpiling there are provisions to provide the Contractor with payment for surplus crushed aggregate remaining in a source controlled by the Department. In such cases the Consultant shall determine the quantity remaining in stockpile and calculate the amount of payment. A form for calculating this payment is located in Appendix A.

3.2.4 Pit Management and Reporting Requirements for Aggregate Sources Not Controlled By the Department

Pit management activities within sources not controlled by the Department are the responsibility of the Contractor and no work is required by the Consultant.

3.2.5 Reporting Requirements for Final Details

The Consultant shall detail the legal land description and the quantity and ownership of aggregate removed for each aggregate source used for the project. This information shall be documented regardless of whether or not a source controlled by the Department was used and shall be included in the Project Summary Report, which forms part of the Final Details.

3.3 CONSTRUCTION SURVEY AND MONITORING ACTIVITIES

3.3.1 General

The Contract Documents identify general responsibilities of the Consultant and the Contractor concerning construction survey and staking. In general, projects without bid items requiring measurement by survey are to use Specification Amendment AMC_S53.1 Construction Staking and Survey—Majority by Contractor.

Projects with bid items requiring survey measurement are to use Specification Amendment AMC_S53.2 Construction Staking and Survey - Majority by Consultant. Regardless of which amendment is specified, the Consultant shall provide the necessary resources to ensure compliance to Specification Amendment AMC_S116 Tolerance for Surface Finish.

On base/paving projects where a small amount of excavation measurement is required, Specification Amendment AMC_S53.1 may still be used if the excavation work is either paid as lump sum or a special provision is provided outlining that the excavation will be measured by the Consultant while the remaining survey is to be completed by the Contractor. On these projects the Consultant shall confirm with the Project Sponsor which amendment is to be used and whether a special provision is required.

This sub-section details survey and monitoring requirements for typical situations only.

3.3.2 Baseline Stakes

On projects requiring baseline layout by the Consultant, a complete baseline survey shall be provided at 20 m intervals for grading and base course construction and at 30 m intervals for asphalt concrete pavement overlays. Baseline stakes shall include offsets and metric station numbers or kilometer chainages that correspond to the highway control section. On grading construction, at least one baseline shall note elevations above or below the shoulder grade.

3.3.3 Grade Work Stakes

On projects where measurement of excavation quantities is required, the Consultant shall supply initial work stakes and final grades for ditch cuts and on the road top at 20 m intervals. Work stakes shall indicate back-slope and/or side-slope cut and fills left and right of centerline.

Bridge fills shall be staked by the Consultant in accordance with the Department's standard drawings.

Once the Consultant completes the initial staking, the Contractor assumes responsibility for any interim survey required to complete and prepare the road for final grade stakes. The Consultant shall provide a maximum of two (2) sets of final grade stakes.

For grading work where the Contractor is using GPS machine control equipment, work stakes may not be required however baseline and final grade stakes are required. However, the Consultant shall provide sufficient survey resources within their proposed budget to provide full survey duties including work stakes.

3.3.4 Surfacing Work Stakes

On base, base/paving, paving/side-sloping, paving/minor intersectional treatment projects which do not contain a significant grading component requiring measurement of excavation quantities, the Contractor is responsible for survey layout and construction staking. The Consultant shall provide the beginning and the end of project points and curve information to the Contractor.

For surfacing projects where the existing barrier lines are to be covered, the Contractor is responsible for recording the beginning and end points of the no passing zones and re-establishing these barriers lines at the same locations, unless otherwise directed by the Consultant. The Consultant shall check that the existing barrier lines are at the proper locations as per Design Bulletin 7, Guidelines for Establishment of No Passing Zones, and inform the Contractor if any changes are required.

3.3.5 Culvert Stakes

Culvert locations shall be staked by the Consultant noting the location of culvert ends, elevations, sizes, lengths, etc.

3.3.6 Interim and Final Cross-Sections

On projects where measurement of excavation quantities is required, the Consultant shall obtain interim cross-sections (where necessary) and final cross-sections at all stations. These cross-sections shall be used to generate volumes for payment of excavation bid items. Alternatively, the Consultant may use GPS survey for the creation of Digital Terrain Models (DTM) to calculate excavation quantities.

3.3.7 Detours and Haul Road Monitoring

The Consultant shall monitor, on a regular basis, the condition of detours and haul roads in regards to hazards presented to the travelling public or excessive damage occurring to the roadway as outlined in Specifications 4.5 Hauling and 7.1 Traffic Accommodation and Temporary Signing. The Contractor is required to initially condition, maintain and restore roads used for hauling to the satisfaction of the applicable jurisdiction.

3.3.8 Ancillary Work Items

Specific installation and construction procedures for various ancillary work items (culverts, fencing, guardrail, curb and gutter, crack pre-treatment, etc.) are described in the applicable Specifications and/or Special Provisions. The Consultant shall tailor his inspection and testing program as per these Specifications and/or Special Provisions.

3.4 MATERIAL WEIGHING AND ROAD CHECKING

For projects requiring weigh scale measurements, the Consultant shall provide a scale person(s) and road checkers. All asphalt concrete and granular base course materials loaded by the Contractor shall be measured for payment by the Consultant's scale person.

As per specification requirements, the Contractor completes a weigh scale accuracy inspection in the presence of the Consultant prior to the start of weigh scale operations. The Consultant shall ensure that documentation is present from Measurement Canada indicating that the scale has been certified and that he receives a completed Scale Accuracy Inspection form (Appendix A) from the Contractor. The Consultant shall forward a copy of the completed Scale Accuracy Inspection to the Project Sponsor. The Contractor is responsible for providing Measurement Canada with certain information contained on this form. For paving work, the Contractor is responsible for checking and calibrating the asphalt mixing plant and providing the Consultant with a Certificate of Calibration (Appendix A) prior to the start of mix production.

The scale person shall ensure that all tare and final weight measurements are properly completed and that all wheels of the truck and accompanying trailers are completely on the scale during any weight determinations or tare-out procedures. Net weight measurements shall be recorded by the scale person on a scale sheet and on the truckers' haul cards (examples provided in Appendix A).

Throughout the project the Consultant shall undertake random inspections of the weigh scale using known weights (provided by the Contractor) and shall also check that sealing devices are intact. The Consultant may also check the accuracy of a weigh scale by checking loaded trucks at a Mobile Inspection Station. In cases where a Mobile Inspection Station (VIS or MIS) is nearby, loaded haul trucks may be randomly selected and weighed at the inspection scale.

The road checker shall record the delivery of truck haul materials in a checker's field book (example provided in Appendix A). For safety reasons, the checker shall remain off the roadway and obtain the haul information from the trucker via a CB radio (provided by the Contractor). The checker shall do on-going tonnage checks to ensure that the materials are being applied at the proper rates.

The Consultant shall reconcile all loads recorded on the scale haul sheet with those listed in the checker's field book. Loads which cannot be reconciled or are used outside the terms of the Contract shall not to be paid for.

3.4.1 Pre-Hauling Requirements

Further information on weigh scale inspection procedures is provided in the Manual for Inspection and Testing of Portable Weigh Scales which is accessible from the Alberta Transportation web-site.

Prior to the start of hauling to the roadway the Contractor is to provide the Consultant with a list of haul trucks including the maximum allowable gross vehicle weight, tare weight and other information as outlined in the specifications. The project manager is also to review the Contractor's loading procedures and the respective responsibilities/duties with the scale-person(s) and road checker(s).

3.5 SPECIAL MEASURES IN PROBLEM AREAS

In unforeseen problem areas, special measures may be deemed necessary during construction, such as:

- Horizontal Drains
- Wick Drains
- Geotextile Filter Fabrics
- Pre-Loading
- Gravel Drains
- Lightweight Fill Material
- Staged fill construction
- Pit run gravel strengthening of subgrade
- Additional undercut or subgrade excavation
- Permanent erosion control measures
- Muskeg removal
- Instrumentation

The case for using such special measures shall be clearly identified by the Consultant and approval obtained from the Project Sponsor prior to proceeding with the Work.

3.6 QUALITY CONTROL AND QUALITY ASSURANCE DURING HIGHWAY CONSTRUCTION

3.6.1 Quality Control/Quality Assurance

Quality Control (QC) is the responsibility of the Contractor and is carried out by the Contractor's staff or by consultants retained by the Contractor.

Basic minimum QC requirements or recommendations are outlined in the Contract Specifications. Quality Assurance (QA) testing conducted to confirm acceptance of materials and construction is carried out by the Consultant.

3.6.2 Timing of Quality Assurance Testing and Sampling

Sampling of field constructed materials for QA testing shall be conducted as soon as possible following the Contractor's completion of the Work, as allowed for in the Contract Specifications. Testing and reporting of the results to the Contractor shall be completed within 48 hours of the sampling. The timeliness of the testing and reporting results to the Contractor is important to assure the Department and the Contractor that the quality of construction is acceptable while the Work progresses.

Time lines for conducting segregation inspections and smoothness testing are outlined in Specification 3.50 ACP - EPS.

3.6.3 Quality Assurance (Aggregate Production)

Prior to the start of aggregate production the Consultant shall review the Contractor's written proposal for aggregate processing in accordance with Specification 3.2, Aggregate Production & Stockpiling. During crushing operations the Consultant shall review the Contractor's QC test data for specification compliance as outlined in Specification 3.2.

Shortly after the start of crushing operations the Consultant shall inspect the crushed coarse aggregate for the presence of detrimental matter. If the Consultant believes the aggregate quality is marginal, then the Consultant shall sample and test the crushed coarse aggregate as outlined in Specification 3.2.

3.6.4 Quality Assurance (Highway Construction)

Consultants performing materials testing functions for QA must be pre-qualified by the Department for the applicable category of work. A list of pre-qualified Consultants and the pre-qualification requirements are included on the Department's website.

The minimum QA requirements for various types of typical projects are summarized in Appendix B. These tables specify the minimum QA testing to be conducted and the test methods to be followed. Alberta Transportation Test methods (ATT), as outlined in the Contract Specifications, shall be followed for construction QA unless otherwise specified.

The QA requirements on chip seals, graded seals, slurry seals and micro-surfacing projects are specified in the applicable specification and are based on a review of the Contractor's QC tests and visual inspection of the work. The Consultant administering a seal coat project shall determine the suitability of the Work as stipulated in the appropriate specification. This shall include the review of Contractor's design rates, design assumptions and field adjustments to rates, equipment calibration, and QC results for specification compliance. QC requirements for sieve analysis on chip seal projects are applicable to material produced after washing.

3.6.5 Quality Problems

In the event that quality problems are suspected, the Consultant shall discuss such concerns with the Project Sponsor to decide on the course of action required. Where agreed to, the Consultant shall conduct additional testing based on the testing requirements detailed in the Contract Specifications.

3.6.6 Quality Assurance (Materials)

The Contractor is responsible to perform the sampling for QA testing of certain materials such as asphalt products, paints, glass beads, etc., at the frequencies outlined in the applicable specifications. The Consultant shall supply the Contractor with all the necessary containers of proper size and type as called for in the applicable test procedures. Emulsion shall be shipped to the designated testing firm within three (3) days of sampling. All other asphalt products shall be shipped to the designated testing firm within 7 days of sampling. Sample labels shall be put on the containers for all asphalt products with the following information: Contract No., Highway, from & to limits, Consultant, Project Manager, Contractor, Asphalt Supplier, Refinery Location, Asphalt Type & Grade, Batch No., Truck No., Bill of Lading No., Date Sampled and Sampled by name and additive rate of liquid anti-strip agent if indicated on the bill of lading.

The Consultant shall also ensure that the required number of samples are obtained, properly identified and forwarded to the Department's designated testing firm in a timely manner.

The shipping address and contact information for the Department's designated testing firms are listed on the Department's website.

3.6.7 Painted Roadway Lines and Messages

The Contractor's requirements, to be monitored by the Consultant, for line painting are outlined in Specifications 5.20 Supply of Line Painting Materials, 7.2 Painted Roadway Lines and 7.3 Painted Pavement Messages. The Contractor is required to provide the Consultant a Quality Control Inspection Program prior to the start of line painting. The Contractor is responsible for providing quality assurance samples of the paint and glass bead materials to the Consultant. The Consultant shall ensure that the samples are properly labeled and then forward them to the Department's designated Quality Assurance testing firm as outlined in the Best Practice Guidelines for Sampling of Traffic Paint.

3.6.8 Quality Assurance (Manufactured Materials)

The Consultant shall inspect materials supplied by the Contractor and obtain any quality control certification required by the Contract Specifications from the Contractor.

3.6.9 Quality Assurance Appeals

Quality Assurance Appeals, if required, shall be conducted by “Appeal Consultants” that are pre-selected each year by the Department. The Project Sponsor will have the list of pre-selected Appeal Consultants.

The Consultant is responsible for evaluating the justification of appeal requests and for coordinating the sampling and shipping of the appeal cores as outlined in ATT-68 Appeal Testing. For shipping of appeal test cores, the Consultant shall provide shipping boxes of rigid construction with interior protective padding. The Consultant completes and ships with the cores (or aggregate samples) an Appeal Initialization Form (Appendix B) indicating the type of appeal along with contact information for the Consultant and Project Sponsor. No contractor or other project specific information is to be included. For an asphalt content appeal, samples of the asphalt cement and each aggregate fraction are to be obtained and shipped in order that an asphalt extraction correction factor may be determined by the Appeal Consultant.

The Appeal Consultant forwards the test results (Appeal Testing form in Appendix B) to the Consultant who then completes the appeal form and a revised Lot Report (ACP or GBC as applicable) and forwards copies to the Project Sponsor. In accordance with the specifications, the Consultant determines whether the Department or Contractor is responsible for payment of the appeal sampling and testing costs and advises the Project Sponsor. Regardless of who is responsible for sampling and testing costs, the Project Sponsor arranges to provide payment to the Appeal Consultant. If the Contractor is responsible for the sampling and testing costs, the Project Sponsor will invoice the Contractor separately at the standard rates listed in the specifications.

The Consultant is also responsible for calculating new price adjustments, as required and immediately advising the Project Sponsor of the invoicing requirements.

Appeals for aggregate quality testing (L.A. Abrasion and Detrimental Matter Content), as outlined in Specification 3.2 Aggregate Production and Stockpiling, are also handled through this process.

Appeals for pavement smoothness and segregation are less frequent and are coordinated with the Surface Engineering and Aggregate Section through the Project Sponsor.

3.6.10 Materials/Mix Design

All materials testing and mix designs shall be conducted in accordance with the Contract Documents. Alberta Transportation Test (ATT) and Transportation Laboratory Testing Manual (TLT) procedures shall be used for materials design unless otherwise specified.

Cement Stabilized Base Course (CSBC) designs performed by the Consultant shall be provided to the Department.

Asphalt Concrete Pavement (ACP), Asphalt Stabilized Base Course (ASBC) and Portland Cement Concrete Pavement (PCCP) mix designs are the responsibility of the Contractor and, for ACP designs, shall be performed by testing firms which are pre-qualified by the Department for such work.

Mix designs prepared by the Contractor shall be reviewed and verified by the Consultant prior to any mix production. The Consultant shall not be affiliated with the Contractor's "mix design" or "quality control" consultant. The Consultant shall identify any concerns with the design when such designs are submitted and shall deal directly with any problems identified. Laboratory validation testing is not normally required, but shall be used in situations as determined by the Consultant and with prior approval of the Project Sponsor. The Consultant shall notify the Contractor of the status of his mix design submission in accordance with the Contract Specifications.

For all approved mix designs or any changes in the approved Job Mix Formula, the Consultant shall complete the applicable Asphalt Mix Design and Job Mix Formula Summary Sheet included in Appendix B. Copies of the completed summary sheets shall be provided to the Project Sponsor who will review and then forward a copy by fax or email (preferred) to TSB (780-422-2846, trans.constructqa@gov.ab.ca).

3.6.11 Pavement Segregation Assessment

The Consultant shall assess pavement segregation and obvious defects in accordance with the Contract Specifications and the corresponding edition of the Department's Paving Guidelines and Segregation Rating manual.

Contained within the Paving Guidelines and Segregation Rating manual are example photos of various segregation severities. A Segregation Summary Report (Appendix B) with calculated payment adjustments shall be completed immediately following construction and submitted with the Final Details.

3.6.12 Pavement Smoothness Assessment

The Consultant shall provide smoothness measurements of all top lift ACP using an approved profilograph in accordance with the Contract Specifications. Qualified flag people shall be used for traffic control. The Consultant shall identify any areas requiring repair and determine the applicable payment adjustments.

The Department is currently transitioning to the use of high speed inertial profilers and International Roughness Index (IRI) criteria. That testing is to be provided by the Contractor in the presence of the Consultant. The Consultant is to review the submitted smoothness reports in regards to using the proper assessment criteria (i.e. Multi-lift paving versus single lift). Verification testing as outlined in the specifications will be completed by the Consultant as directed by the Project Sponsor.

Pavements not subject to smoothness testing shall be checked by the Consultant for surface evenness using a three (3) m long straightedge as outlined in the specifications.

3.6.13 Quality Assurance Reporting Requirements

3.6.13.1 All Projects

Quality Assurance test results shall be reported to the Project Sponsor on a weekly basis. The Project Sponsor reviews and forwards certain report forms to Technical Standards Branch (TSB) as outlined in the following section. The Consultant shall use the most recent edition of report forms as indicated in the test procedures listed in Appendix B. Report forms developed by the Consultant will be acceptable only if all the required information is reported in the same layout as the Department form.

Quality Assurance test results shall be provided to the Contractor within the time period detailed in the Contract Specifications. The Consultant shall ensure that the Contractor signs and dates the test reports indicating his receipt of the test results.

3.6.13.2 Report Submissions to Technical Standards Branch

In addition to the above listed requirements the Project Sponsor shall submit the following report forms and summary sheets to TSB (780-422-2846, trans.constructqa@gov.ab.ca (preferred)).

Report Form	Frequency of Submission
Asphalt Mix Design and Job Mix Formula Summary Sheet (Superpave also)	Each approved mix design or change in Job Mix Formula
In-Place Recycling (Cold In-Place & Full Depth Reclamation) Mix Designs	Submit full mix design.
Lot Paving Report (ACP, Superpave & HIR)	Weekly
Final Details ACP EPS Projects	Within the time period required for submission of Final Details
Appeal Initialization & Appeal Testing forms	All appeals of any work type

For smoothness testing using inertial profilers and IRI criteria the reporting requirements for the Contractor to follow are listed within the contract documents or construction specifications. The Consultant is to review those reports and forward via e-mail to the Project Sponsor who then reviews and forwards a copy to TSB.

Those reports and data include:

- Electronic profile data in .erd or .ppf format.
- ProVal summary reports in .pdf format for Ride Quality and Smoothness Assurance.
- Spreadsheet reports (.xls format) with price adjustments for Ride Quality and Areas of Localized Roughness.

All test and report forms, ATT & TLT test procedures and QA testing requirements are available on the Department website.

3.6.14 Rejected Materials or Products

The general methods of repair or remedy for materials which are determined to be in reject based upon QA testing are listed in the standard specifications. In reject situations the Consultant, after consultation with the Project Sponsor decides whether the method of repair proposed by the Contractor is acceptable. The Consultant shall provide the Project Sponsor with all pertinent information regarding the nature of the reject situation, risk to Department of the reject situation, limits of rejected roadway, status of appeal testing, recommendations regarding repair/remedy and any additional relevant information.

SECTION 4 BRIDGE CONSTRUCTION

4.1 GENERAL

This section of the document outlines responsibilities and authority of the consultant which is more specific to the administration of bridge contracts and bridge material fabrication inspection. The construction of bridges, which include bridge size culverts, are combined with highway construction projects in many instances. This section applies to both “stand alone” bridge projects and combined bridge/highway construction projects. The Consultant shall not consider this section in isolation but rather as an integral part of the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 2 – Construction Contract Administration.

The majority of forms referenced in this section are part of Appendix C; however some general administration forms are part of Appendix A.

Qualification and/or certification requirements for Consultants involved with bridge work, including construction and fabrication inspections, are detailed in the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1 - Design and Tender.

4.2 PRE-FABRICATION

The Consultant shall obtain documentation to demonstrate that fabrication plants are certified in the appropriate category as per the Standard Specifications for Bridge Construction. The requirements also include review of shop drawings, stressing calculations, mill certificates, jack calibration, concrete mix designs, welding procedures, fabrication schemes, etc. Reviewed copies of these requirements shall be forwarded with recommendations to the Project Sponsor prior to the pre-fabrication meeting.

The Consultant shall not permit fabrication to commence until the review process is complete and the submissions are accepted by the Project Sponsor.

NOTE: As applicable, the review and acceptance of shop drawings, fabrication drawings, erection drawings, stressing calculations, etc. shall be in accordance with the applicable clauses pertaining to shop drawings in the current version of the “Standard Specifications for Bridge Construction”.

4.3 BRIDGE MATERIAL FABRICATION INSPECTION

The Consultant shall perform quality assurance checks, inspections, testing and review of fabricated materials in accordance with Department standards and specifications.

There are three major areas in bridge materials fabrication inspection:

- Prestressed/precast concrete girders/units
- Major steel components
- Miscellaneous material

The Consultant is responsible for the following:

- Analyze, report, and provide recommendations on all design changes to the Project Sponsor prior to implementation.
- Arrange a pre-plant-inspection meeting with the Project Sponsor to outline plant inspection and quality assurance requirements. Coordinate and attend a pre-fabrication meeting with the Contractor, the fabricator and the Project Sponsor.
- Perform quality assurance throughout the course of fabrication in accordance with the Department's Fabrication Inspection Manual and applicable forms.
- Perform checks and inspection on miscellaneous materials including culverts in accordance with Department procedures and specifications. Inspection Reports for CSP, SPCSP, WSP, precast concrete pipes, box culverts and deck panels shall be submitted to the Project Sponsor.
- Review SPCSP fabrication drawings and supply copies of all these reviewed drawings to the Project Sponsor. Appropriate bridge file number(s) shall be shown on these drawings.
- Consult and provide recommendations to the Project Sponsor for any problems that occur during the course of fabrication.
- Complete an inspection in the plant to confirm the suitability of fabricated materials before transportation to site.
- Submit weekly inspection reports for all material fabrication and a final report for prestressed precast concrete girders/units and major steel components.

All inspection forms, reports and records of inspection shall be submitted to the Project Sponsor within seven (7) days of inspection or testing.

4.3.1 Prestressed/Precast Concrete units include Girders, MSE walls, Concrete Culverts, Deck Panels etc.

4.3.1.1 Requirements of Fabrication Inspection

- Arrange, coordinate and attend the pre-fabrication meetings with the Project Sponsor, the Contractor and the fabricator.
- Take minutes of the meeting for distribution.
- Check material mill reports and certificates.
- Check form set up for integrity and accuracy of dimensions.
- Review stressing procedures and operations. (if applicable)

- Check miscellaneous material and reinforcing steel for accuracy of fabrication and details of placement.
- Witness concrete testing (percentage air, unit weight, slump, temperature) by the fabricator.
- Check for proper rebar cover.
- Inspect concrete pours and application of heat/steam in the form.
- Direct from which batch to take the release cylinders.
- Examine 28 day test cylinders and final test results.
- Inspect the stripped unit for tolerances as well as finishing, application of sealer and curing.
- Take camber readings on selected units.
- Submit weekly inspection reports.
- Perform final inspection of each unit.
- Submit a final inspection report once the fabrication phase of the project is completed.
- Any issues or questions arising in the shop that the inspector is not able to answer shall be referred to the Project Sponsor.
- Items which require major repairs shall be reviewed and recommendations provided to the Project Sponsor for consideration and acceptance, prior to commencement of the repairs.

4.3.1.2 Fabrication Inspection Report Content

- Summary of fabrication (synopsis)
- Pre-fabrication meeting minutes and correspondence
- Fabrication schedules
- Daily reports
- Material mill reports and certificates including but not limited to Stressing Strand, Reinforcing Steel, Weld Wire Fabric, etc.
- Stress-strain curves
- Concrete mix designs
- Accepted stressing calculations
- Daily stressing sheets
- Curing temperatures and humidity
- Camber records
- Accepted repair procedures (if any)
- Construction data sheets
- Weekly summaries of inspection hours
- Photographs

4.3.2 Major Steel Components Fabrication Inspection

Major steel components include steel girders, sign structures and ferries.

4.3.2.1 Requirements of Fabrication Inspection

- Arrange, coordinate and attend the pre-fabrication meetings with the Project Sponsor, the Contractor and the fabricator.
- Coordinate all other inspections, including Non-Destructive Testing (NDT) as required. Assume responsibility for the work of the individuals performing such inspections/testing as well as the second shift visual inspector, if one is required.
- Check material mill reports and certificates as well as plant's certification and welder's qualification.
- Perform hardness testing of flange plates.
- Review welding procedures.
- Check to ensure welding is performed in accordance with accepted procedures.
- Certify and accept radiographic film interpretation.
- Perform daily fabrication inspection, check dimensions and visually inspect all welds.
- Perform minor amount of NDT such as dye penetrant.
- Witness set up for each stage prior to commencing next stage of fabrication.
- Check and test stud welding.
- Submit weekly inspection reports. This shall include radiographic films and all non-destructive inspection/testing reports interpreted by NDT technicians.
- Perform fabrication inspection of each girder section.
- Submit a final inspection report once the fabrication phase of the project is completed.
- Any issues or questions arising in the shop that the inspector is not able to answer shall be referred to the Project Sponsor.
- Items which require major repairs shall be reviewed and recommendations provided to the Project Sponsor for consideration and acceptance, prior to the commencement of the repairs.

4.3.2.2 Fabrication Inspection Report Content

- Summary of fabrication
- Pre-fabrication meeting minutes
- Weekly reports
- Production schedules, progress charts, inspection checklist
- Accepted repair procedures (if any)
- Mill certificates
- Plate cutting diagrams with heat numbers
- Weld procedures and Charpy Impact test on weld metal (if any)
- Welders tickets
- Hardness test records
- Radiography test reports
- Ultrasonic test reports
- MPI test reports

- Dye penetrant test records (if any)
- Heat treatment records (if any)
- Camber records
- Weekly summaries of inspection hours (Notes and visual)
- Photographs

4.3.3 Miscellaneous Material Fabrication Inspection

Miscellaneous material includes strengthening/replacement members, deck joints, bearings, bridgerail, miscellaneous iron and culverts.

4.3.3.1 Requirements of Fabrication Inspection

- Arrange, coordinate and attend the pre-fabrication meetings with the Project Sponsor, the Contractor and the fabricator.
- Check material mill reports and certificates, as well as plant's certification and welder's qualification when required.
- Check to ensure welding is being performed in accordance with accepted procedures.
- Certify and accept radiographic film interpretation.
- Check critical points in fabrication such as jig set-up.
- Check dimensions, coating thickness and integrity and visually inspect all welds.
- Perform final inspection of the assembly when required.
- Submit weekly inspection reports with radiographic films and summary of inspection hours.
- Photographs of problem areas shall also be submitted with the report.
- Any issues or questions arising in the shop that the inspector is not able to answer shall be referred to the Project Sponsor.
- Items which require major repairs shall be reviewed and recommendations provided to the Project Sponsor for consideration and acceptance, prior to commencement of the repairs.

4.4 BRIDGE CONSTRUCTION INSPECTION

Bridge Construction inspection shall include inspection of all bridge components including bridge size culverts and bridge rehabilitation work.

The Consultant shall inspect the Contractor's work to confirm compliance with the Contract.

The Consultant shall analyze report and provide recommendations to the Project Sponsor on any design changes which occur during the construction phase of the project. Any design changes require prior approval of the Project Sponsor.

4.4.1 General Requirements for Bridge Construction Inspection (As Appropriate)

- Coordinate and conduct the milestone meetings and schedule as appropriate for significant phases of construction such as foundation construction, girder erection, and deck forming, casting and curing.
- Review TAS and ECO Plan.
- Perform inspections to ensure the work is in compliance with Department standards, specifications and conditions of the Contract.
- Administer traffic control on the project in accordance with the Contract and current edition of the Department's Traffic Accommodation in Work Zones manual.
- Audit environmental works to ensure compliance with the conditions of the Contract.
- Inspect excavations and accept foundation material.
- Confirm suitability of the Contractor's pile driving/drilling equipment.
- Log and record all pile data for driven and drilled piles and ensure conformance with the specified pile tip elevation and bearing requirements. Complete the Pile Data form for all driven piles. Monitor the PDA testing, Crosshole Sonic Logging, Load Cell and CAP/WAP analysis.
- Review formwork, shoring and scaffold designs.
- Inspect removal of existing ACP from bridge deck.
- Inspect formwork for integrity, dimensions and elevations prior to casting all concrete.
- Inspect reinforcement for accuracy of fabrication and placement.
- Check to ensure deck joints are set to the correct elevation, gap setting and location.
- Review and accept all concrete and ACP mix designs.
- Review and accept all proposed backfill materials including clay seal material.
- Survey the existing deck concrete to establish gradelines for overlay concrete, curb/median and ACP approach.
- Locate all areas of delaminated or unsound deck and curb concrete and inspect repair procedures.
- Inspect all concrete pours to ensure proper quality assurance, placing, finishing, and curing procedures.
- Inspect sealer application.
- Confirm that all materials used conform to the Department's Products List and contract requirements.
- Monitor all quality control for polymer overlay work ensuring conformance to contract requirements.
- Review and accept all stressing calculations/details and inspect all work related to stressing or strengthening of girders. Inspect grouting procedures for post tension ducts.
- Review and accept girder erection proposal.
- Review welding procedures.
- Review material testing results.
- Review bridge demolition plan and procedures.

- Coordinate with stakeholders.
- Conduct survey of substructure elements including checking of girder layouts. Monitor girder erection to ensure conformance to Contractor's girder erection proposal. Check all structural bolts for specified tension.
- Check to ensure correct orientation of girder bearings.
- Check elevations and locations of erected girders. Utilizing camber diagram, determine corrections for setting of deck formwork.
- Check contractor's elevations of support rails for deck finishing machine and monitor "dry run".
- Inspect and accept alignment and elevations of bridgerail and/or guardrail.
- Ensure proper techniques and construction requirements are implemented when grouting bridgerail baseplates and bearings.
- Ensure the waterproofing membrane and ACP wearing surface are supplied and installed in compliance with the specifications.
- Conduct other inspections as may be required to ensure acceptable construction practices.
- Prepare and submit monthly contract progress payments.
- Maintain neat and accurate notes for all survey audits.
- Record all site activities and discussions in project journals and prepare Daily Construction Reports.
- Document all approved changes to the contract, and prepare as-constructed drawings and the final bridge construction report form.
- Resolve daily construction problems related to contract interpretation, specification conformance or any claims for extra work.
- Document, report and prepare correspondence as requested for construction claim resolution.
- Submit Monthly Health and Safety Summaries and the Project Completion Health and Safety Review.
- Conduct Bridge Inspection & Maintenance System (BIM) inspection using certified inspectors for the newly constructed structure. Complete Structure Coding Sheets. These forms shall be forwarded to the Project Sponsor for furtherance to the Regional Bridge Manager as soon as possible.
- Arrange and conduct the final inspection with the Project Sponsor.

4.4.2 Field Welding

When field welding is specified, it shall be done by a CWB certified welder and by using CWB and Department approved welding procedures.

Field welding shall be inspected and supervised by a qualified welding inspector. The qualification requirements for welding inspectors shall be as per Appendix J2 "Major Steel Components" of the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 1 - Design and Tender. Non-destructive testing is required in addition to visual inspection.

Unless otherwise determined by the Consultant and the Project Sponsor, the following are examples of non-structural field welding:

- Type 1 deck joint splices
- Culvert struts
- Stitch welding of steel daps/corbels
- Field welding of the end bulkhead on culvert liner

4.4.3 Paint Inspection

- Ensure the Contractor's paint system is in compliance with the Department's requirements
- Ensure that the Contractor has obtained all the necessary permits and approvals
- Review details of the proposed containment structure and scaffolding
- Monitor abrasive blasting spoil recovery and disposal
- Accept surface preparation and check anchor pattern prior to the application of paint
- Inspect paint application to ensure conformance to all contract requirements
- Ensure temporary attachments are not injurious to the structure
- Accept cleaning of structure to ensure it is free of chlorides and other contaminants
- Inspect penetrant and caulking application
- Check for quality as well as runs and sags

4.4.4 Audit Testing

The Consultant may arrange, on an as required basis, to carry out independent audit testing to ensure that the Contractor is complying with all requirements regarding the supply of materials.

4.4.5 Inspection of Bridge Size Culverts

Critical phases of bridge size metal culvert installations require inspections to ensure design and specification compliance. The Consultant shall inspect the culvert backfill and perform barrel measurements. This information shall be summarized on the Culvert Barrel Measurements form. This form along with a completed Culvert Installation Inspection Record form shall be submitted to the Project Sponsor at the end of the project.

SECTION 5 FINAL DETAILS

5.1 GENERAL

Final detail requirements for both highway and bridge projects are provided in the following Section.

Final Details are a complete compilation of all details of the Work performed on a Department contract. Final Details serve as a means of verification of all quantities submitted for payment after completion and acceptance of work on the project.

The Consultant should not wait until the Contract is complete to commence work on the Final Details. As soon as each bid item or portion of work is completed, the Consultant should prepare the Final Details for those particular items or portions of work and provide to the Contractor for review as outlined in this document.

The Consultant shall compile Final Details in accordance with this Section and forward the complete package to the Project Sponsor within the time frames detailed herein. The Consultant shall retain and submit certain information for Final Details as outlined in this Section.

All final quantities must be supported by approved measurements in the field. A CD containing all digital information must be submitted to the Department.

The majority of Final Detail forms are part of Appendix D.

5.2 CONTRACTOR REVIEW OF FINAL QUANTITY CALCULATIONS

The Contractor shall be given the opportunity to review the Consultant's final quantity calculations as they are finalized, and before the Consultant submits the Final Detail package to the Department. The Contractor's review of the final details is not intended as a negotiation; rather, the Contractor's review shall be limited to facts and measured quantities in support of the final quantities.

As quantities are finalized, the Consultant shall provide the Contractor with copies of the Bid Item Summary sheets for their review. Once all bid item quantities are finalized, and within the specified timelines, the Consultant shall provide the Contractor with a copy of the Details of Final Estimate - Bid Item Grand Summary.

The Contractor is expected to identify obvious errors with regard to the final quantity calculations before the final payment is made. The Consultant will remain solely responsible for both calculating and verifying all final quantities. In the event of disagreement between the Contractor and the Consultant, the Consultant's measured quantity will be used by the Department to produce the "Final Progress Estimate".

Unresolved disagreements between the Contractor and Consultant on final quantity calculations are not a reason for holding up the final detail package past submission deadlines. Payment will be based upon the Consultant's measurements and final calculations.

If, during the specified timelines for submission of the final progress estimate or the final details package to the Department, there is disagreement between the Contractor and Consultant over the final quantity calculations, the Consultant shall advise the Contractor that he has the option to file a claim under the Claims and Dispute Resolution process as outlined in Standard Specification 1.2 General for any unresolved items.

5.3 PROCEDURE FOR PREPARING AND SUBMITTING FINAL DETAILS

When a portion of the work or bid item is complete, the Consultant shall verify that all measurements are recorded, check all calculations and compile all quantities into the Grand Summary Sheet. The units for each item listed in the Grand Summary should carry the same decimal places as were used in the method of measurement and detailed calculations for that item.

The Consultant signs all applicable Final Details certifying that:

- Goods and services were received or work was completed in accordance with the terms of the Contract
- Quantities and calculations are correct
- Policy and procedures outlined in this document and other applicable Department documents were applied to the administration of the Contract

Another experienced Engineer or Technologist employed by the Consultant or from another consulting firm undertakes an independent check of the Final Details to verify the following:

- Methods of measurement are those outlined in the Contract Documents
- Final Details have been compiled as outlined in this document for each bid item
- Quantities are correct
- Necessary approvals have been obtained and payments are in accordance with the terms of the contract
- All measurements have been recorded and support the details.

The Checking Final Details - Checklist is signed, dated and attached to the Final Details (sample included in Appendix D).

The Grand Summary is certified correct and stamped with Consultant's corporate seal or an Engineer's stamp. The correct number of copies of the Final Details is prepared and the Consultant submits the checked Final Details to the Project Sponsor.

5.4 SUBMISSION REQUIREMENTS FOR HIGHWAY AND BRIDGE PROJECTS

Requirements for Highway Projects and Bridge Projects are outlined below.

5.4.1 Items to Be Submitted To the Department

At project completion, the Consultant shall be responsible for providing a separate Final Details package for the Highway portion of work and for each bridge structure. (Bridge File)

Final cost information for bridge structures and bridge size culverts shall be documented separately from the highway cost information. This includes other structures such as sign structures that have been assigned a unique bridge file number. Although the work may all be paid under a single account or contract, the costs incurred for bridge related work must be clearly documented for use in future analysis.

A list of items that shall be submitted to the Department is included in Appendix D –Form D.01 – Summary of Final Details to be submitted to the Department.

Items shall be submitted in electronic format (PDF or as otherwise indicated) and/or hardcopy format as indicated in form D.01. Each type of electronic document is to be submitted in a separate file with file names that clearly identify the contents.

5.4.2 Items to Be Retained By the Consultant

A list of items that shall be retained by the Consultant is included in Appendix D –Form D.02 – Summary of Final Details to be retained by the Consultant.

Items shall be retained by the Consultant for ten (10) years after which time the Consultant shall submit them to the Region for action.

Although the Consultant is expected to store many items related to the project, it does not eliminate the Consultant's obligation to submit these forms to the Project Sponsor if requested.

5.5 PROJECT SUMMARY REPORT

The Project Summary Report provides the written record of the project, forms part of the history of the roadway, and is an important project information source. The report must contain sufficient detail so that an independent reviewer either now or in the future can gain a clear understanding of the project. The Project Summary Report must be typewritten, separately bound and submitted along with the Final Details.

The Highway or Bridge Project Summary Report shall contain but not be limited to:

- Project title, Bridge File number and Contract number
- Scope of work, project description and site plan
- Project schedule and key dates
- Comments on Contractor(s) and sub-contractor(s) performance, quality of work, cooperativeness
- Work progress, problems and solutions
- A summary of bonus and penalty assessments for site occupancy/lane closure days, damages for delay, traffic accommodation and temporary signing
- Innovative and unique aspects of the work
- Comments on safety, traffic accommodation and utility relocation (not to include TAS)
- Design and actual contract quantities and costs, and any cost overruns, contract extensions or extra work. Reasons for any significant variations in quantities and costs
- Final project costs including all contract costs based on Modified Tender Price, bonuses and penalties (copy of the final contract log), utility, right-of-way, and initial and final engineering costs. Reasons for any Scope Changes and engineering costs shown as a percentage of contract cost.
- Environmental issues (not to include ECO Plan). Comments to include:
 - A summary of how all relevant Conditions of Approval were addressed during the work;
 - A report of any non-compliance situation(s) that may have occurred; and
 - A list of the Special Provisions specific to the environmental field and how they were handled to completion.
- Information which may influence the performance of future maintenance requirements (i.e. Reference to Permanent Erosion Control Devices report as per section 1.13.6.)
- Photographs of key activities with date and descriptive text captioned.
- Suggested specification changes on any problems encountered with current specifications
- Commentary on materials testing results. (Grading, GBC, Bridge Fabrication)
- Construction completion certificate
- Project Completion Health and Safety Review Report

In addition to the above:

The Project Summary Report for highway projects shall contain:

- Width and thickness charts
- Commentary and summary of ACP testing results.
- Any discussions or issues relating to pavement quality or obvious defects

The Project Summary Report for bridge projects (each bridge file) shall contain:

- Completed “Final Bridge Construction Report” (C.02)
- Material Fabrication Final Inspection Reports

5.6 AS-CONSTRUCTED PROJECT INFORMATION

5.6.1 As-Constructed Surfacing Project Information

The Record drawings showing as-constructed project information describing the material types, widths and thicknesses are referred to as Details of Widths and Thicknesses.

This information needs to be entered, within a timely manner, into the Department’s Pavement Management System (PMS) database. The following information is included as part of the final details but also needs to be submitted by the Consultant to the Project Sponsor within 4 weeks of project completion, or seasonal shutdown, but in no case later than December 1st. The Project Sponsor reviews and forwards a copy to the Technical Standards Branch. This submission is independent of any contractual requirements for issuing a Construction Completion Certificate (i.e. submit this project information once the actual work is completed despite any outstanding deficiencies or minor outstanding work).

An as-constructed diagram with Details of Widths and Thicknesses (example in Appendix D) is to contain the following information.

All Projects:

A complete description of the project, including the following:

- Highway and control section number with project kilometer limits (e.g. Hwy. 61:02, From Jct. Hwy. 4 (km 0.00) to Wrentham (km 25.06)).

Note: Use Department control section numbering and kilometer datum system.

- Type of Work (i.e. final pavement, overlay, first stage paving, granular base, cement stabilized base, double-sealed granular base, seal coat, or combinations thereof)
- Dates of start and finish of construction or date of seasonal shutdown.
- Contractor's name
- Consultant's contact person and phone number
- Contract number

Additional information based upon the type of work is as follows:

Grading Only:

Cross section diagram or table indicating kilometer limits, width of finished subgrade, as-constructed side-slope, Class of Designation 4 surfacing aggregate used (where applicable), type of chemical additive (i.e. lime – where applicable) and predominate type of soil (Unified Soil Classification as referenced in Specification 2.3 Grading). A separate cross-section or table entry is required for each change in finished width.

For seasonal shutdown indicate the date of shutdown and percentage of final grade completed.

Projects Involving Base or Pavement Construction:

Information is to include all material types, widths of constructed surface and thicknesses of all surfacing materials as follows:

- The finished surface width reported to the nearest 0.1 m.
- The constructed base course layer thickness reported to the nearest 10 mm and type of base course material (i.e. GBC Des 2-25, ASBC Des 2-16, etc.).
- The constructed thickness of sub-base or granular fill (i.e. pit run, Des 6-80, etc.), if used.
- On paving projects the constructed nominal thickness of each mix type reported to the nearest 10 mm (indicate asphalt grade used, ACP mix type or Portland Cement Concrete Pavement).
- As constructed thickness of cold milled or in-place recycled materials reported to the nearest 10 mm. (CIR for Cold In-Place Recycling, FDR for Full Depth Reclamation, HIR for Hot In-Place Recycling).
- Include all passing lanes, climbing lanes and interchange ramps.
- For seasonal shutdown indicate the date of shutdown and the percentage of work completed for each type of work (i.e. grading, base, paving). This information is to be provided in diagram format as shown on the sample Details of Widths and Thicknesses diagram found in Appendix D.

Seal Coat or Other Surface Treatments:

Diagram or table indicating the project limits, widths of treatment and type of treatment (chip seal, graded aggregate seal, micro-surfacing, etc.)

TSB Contact Information for Widths and Thicknesses:

Surface Engineering & Aggregates Section

Attention: Road Surface Data Coordinator

Fax: 780-422-2846, or

Email (preferred method): trans.constructqa@gov.ab.ca (pdf format)

5.7 RECORD PLANS AND DRAWINGS

The last revision on the revision block will be “Record Drawing”. The Consultant shall update the original Design Drawings (P-Drawings) to reflect changes which have occurred during construction. The initials of the individual who approved the Record Drawing revisions shall be placed in the revision block. The revision triangle with the number shall be placed by the item(s) that were revised.

The Record Drawings shall bear stamps and original signatures of the Field Review Engineering and Permit to Practice.

The Record Drawings shall be authenticated by the Field Review Engineer indicating that the construction substantially complies with the Design (P-Drawings) and all appropriate Contract Plans and Specifications.

The Consultant shall submit drawings that are properly trimmed on 3 mil polyester matte film, CAD files of all Record Drawings (C-Drawings) in MicroStation format and pdf to the Project Sponsor who then reviews and forwards to TSB. All CAD files must conform to the current version of “Engineering Drafting Guidelines for Highway and Bridge Projects”.

TSB Contact Information for Record Drawing Information:

2nd Floor, Twin Atria

4999 - 98 Avenue

Edmonton, AB, T6B 2X3

Attention: Planning Standards Technologist and/or Bridge Standards Technologist

5.8 TIMELINES FOR SUBMISSION OF FINAL PROGRESS ESTIMATE AND FINAL DETAILS PACKAGE

The following table outlines maximum timelines for the Project Sponsor to have receipt of the checked Final Details.

The submission timelines shall commence on the date of acceptance of the work as noted on the Construction Completion Certificate or the Conditional Construction Completion Certificate.

Type of Work	Guideline for submission of Bid Item Grand Summary to the Contractor	Timeline for submission of Final Progress Estimate and Final Details Package to the Department
<ul style="list-style-type: none"> • Small roadway and/or bridge projects where measurement of earthwork is not required, • Surfacing and base/paving projects, • Minor grading or side-sloping projects, where measurement of earthwork is not required, • Combination surfacing/bridge and/or minor grading/bridge projects where measurement of earthwork is not required, • Multiple and major bridge projects. 	4-Weeks from the date of acceptance of the work	6-Weeks from the date of acceptance of the work
<ul style="list-style-type: none"> • Major grading projects, where measurement of earthwork quantities is required, • Combination projects involving major grading (where measurement of earthwork quantities is required), base course, and asphalt concrete pavement 	7-Weeks from the date of acceptance of the work	10-weeks from the date of acceptance of the work
<ul style="list-style-type: none"> • Complex projects with a combination of major grading, base course, asphalt concrete pavement, and bridge structure(s). 	9-Weeks from the date of acceptance of the work	12-Weeks from the date of acceptance of the work

The Contractor shall be given reasonable opportunity to review the bid item summaries and the bid item grand summary within the above specified timelines.

Extensions to the timelines for submitting either the Final progress Estimate or the Final Details Package will not be granted based on the failure of the Contractor to provide timely review.

If the Contractor fails to review or provide comments within a timely manner, the Consultant shall advise the Contractor and shall submit his final details to the Department in accordance with his submission deadline.

Re-measure is not to be considered as part of Final Details preparation. Final details must be done as work on a bid item or on a kilometer is completed.

If for any reason the Consultant is unable to meet the required time lines, he must immediately notify the Project Sponsor.

5.8.1 Failure to Comply

If the Consultant fails to submit the Final Progress Estimate and Final Details Package to the Department within the specified timeframe, the Consultant's performance evaluation for the category of "Deliverable, Cost and Time" will be reduced by one full point.

Thereafter, the Project Sponsor may assess additional deductions to the Consultant's performance evaluation, for the category of "Deliverable, Cost and Time", should the consultant continue to be late in submitting the Final Progress estimate or the Final Details package.

SECTION 6 WATER PROJECTS

6.1 GENERAL

This section of the document outlines responsibilities and authority of the consultant which is more specific to the administration of water project contracts. The Consultant shall not consider this section in isolation but rather as an integral part of the Engineering Consultant Guidelines for Highway, Bridge and Water Projects - Volume 2 - Construction Contract Administration.

The responsibility and authority of all consultants retained by the Department are provided in Section 1 and 2. This Section outlines the differences (including additions, exclusions, and changes) that are specific to the construction contract administration of water projects primarily owned and operated by Alberta Environment and Sustainable Resource Development (the Owner). These projects may include:

- dams, spillways, diversion weirs,
- lake stabilization structures,
- canals,
- erosion control works,
- flood control structures and dykes,
- pump houses,
- communication, controls, and electrical works
- water pipelines, and
- reservoirs.

Public roadways and bridge structures (including bridge-sized culverts) on public roadways that are combined or integrated into a water project would be constructed to the requirements of Section 1 through Section 5.

For various phases of water projects, the Consultant may need to communicate with other staff members of the Department or with the Owner's representative. Unless otherwise instructed, all communications must go through the Project Sponsor.

6.1.1 Exclusions:

Sections of this guideline that do not apply to Section 6 - Water Projects are outlined in Table 1.

Section 1	Section 2	Section 3	Section 4	Section 5
1.2 Contract Design Change Proposals	2.2.5 Commencing Work on the Project	all sections	all sections	all sections
1.4 Traffic Accommodation	last paragraph of 2.3.3			
1.6.1.2 Survey Information	2.10.4 Construction Completion Certificate and Commencement of Warranty			
1.12.2 Traffic Control Signals and Lighting	2.10.5 Conditional Construction Completion Inspection			
1.12.3 Business and Information Signs	2.10.6 Conditional Construction Completion Certificate and Commencement of Warranty			
	2.11.3 Partial Release of Holdback			
	2.12.2 Final Acceptance Certificate			

Table 1 – Exclusions

6.2 CONTRACT ADMINISTRATION

6.2.1 Construction Drawings

The Consultant shall follow the Engineering Drawing Guidelines for Water Projects for the preparation of Construction Drawings. The construction drawings are marked Issued for Construction and shall be authenticated by the Consultant.

The Consultant shall provide the following:

- four full sized and two 11"x17" paper sets to the Contractor; and
- one polyester film, one 11"x17" paper set and one CD/DVD with PDF and AutoCAD format files to the Project Sponsor.

6.2.2 Contractor Payments

The Consultant shall receive and verify Progress Claims from the Contractor. The Consultant may estimate the amount of work for the verification of a Progress Claim.

The Contractor's progress payment requests for water projects are due to the Consultant as specified in the Contract.

6.2.3 Quality Control and Quality Assurance during Construction

The Consultant shall ensure all Quality Control and Quality Assurance requirements are met in accordance with the Contract.

6.2.4 Contract Amendments

For the purpose of Section 6, terms defined in Section 2.5.1.1 are redefined.

- Modified Tender Prices do not apply to Section 6; any references to a Modified Tender Price will be replaced with Contract Tender Price.
- Significant Bid Item - Any bid item with an extended value greater than 15% of the Contract Tender Price.

Specified Allowances are used for Work that is identified within the Contract but has an unknown value at the time of Tender. The Consultant shall receive written quotes from the Contractor for Specified Allowances and verify that they are reasonable. Specified Allowances are to be prepared as Cost Plus Work or based upon written quotes from third parties. The Consultant may approve the quotation for this work as per Section 2.4.1 Extra Work and Section 2.5 Contract Cost Overruns. Contract Changes to a Specified Allowance shall be issued to the Contractor with the approval of the Project Sponsor.

The Contract provides for changes to the Schedule of Prices for Quantity Variation. The Consultant shall obtain approval for these changes in accordance with Section 2.4.3 Unit Price Approvals and 2.5 Contract Cost Overruns prior to finalizing the negotiations. Contract Changes to the Schedule of Prices for Quantity Variation shall be issued to the Contractor with the approval of the Project Sponsor.

6.2.5 Site Occupancy

Site Occupancy is not used for water projects unless specified by the Contract.

6.3 PROJECT COMPLETION AND COMMISSIONING

The Consultant shall undertake the following in accordance with the Contract.

6.3.1 Substantial Performance of the Work

Substantial Performance is achieved when the prerequisites to Substantial Performance of the Work required by the Contract are fulfilled. Finishing components such as cleanup, seeding, demobilization etc. may still be required.

Upon written notification from the Contractor the Consultant shall arrange an inspection of the Work, inspect the Work and record any unsatisfactory or incomplete Work. The Consultant shall invite the Contractor, the Project Sponsor and the Owner to such an inspection.

If the pre-requisites for Substantial Performance are fulfilled, the Consultant shall prepare and provide a Certificate of Substantial Performance to the Department advising that the Work is substantially performed and ready to operate. The Project Sponsor will authorize the Certificate of Substantial Performance.

If the pre-requisites for Substantial Performance are not fulfilled, the Consultant shall notify the Contractor, in writing, of any outstanding Work.

6.3.2 Total Performance of the Work

Total Performance is achieved when the prerequisites to Total Performance of the Work required by the Contract are fulfilled and the entire Work, except those items arising from the warranty provisions of the Contract, has been performed to the requirements of the Contract.

Upon written notification from the Contractor the Consultant shall arrange an inspection of the Work, inspect the Work and ensure the pre-requisites for Total Performance are fulfilled. The Consultant shall invite the Contractor, the Project Sponsor and the Owner to such an inspection.

If the pre-requisites for Total Performance are fulfilled, the Consultant shall prepare and provide a Certificate of Total Performance to the Department. The Project Sponsor will authorize the Certificate of Total Performance.

If the pre-requisites for Total Performance are not fulfilled, the Consultant shall prepare a report outlining the deficiencies and advise the Contractor.

6.3.3 Warranty Performance of the Work

Two (2) weeks prior to the expiration of the warranty period, the Consultant shall inspect the Work. The Consultant shall invite the Contractor, the Project Sponsor and the Owner to such an inspection.

If the requirements for Warranty Performance of the Work are met, the Consultant shall prepare and provide the Certificate of Warranty Performance of the Work to the Department. The Project Sponsor will authorize the Certificate of Warranty Performance of the Work.

If the requirements for Warranty Performance of the Work are not met, the Consultant shall advise the Contractor of items that must be corrected prior to the issuance of the Certificate of Warranty Performance of the Work.

The Work of the Contract shall only be considered as completed when a Certificate of Warranty Performance of the Work has been signed by the Project Sponsor and delivered to the Contractor.

6.4 PROJECT RECORDS

6.4.1 Record Drawings

The Consultant shall follow the Engineering Drawing Guidelines for Water Projects for the preparation and submittal of Authenticated Record Drawings. Authenticated Record Drawings are required even if no changes were made to the drawings that were Issued for Construction.

The Consultant shall provide the following Record Drawings to the Department:

- one original printed on polyester film,
- three CDs/DVDs containing: an authenticated PDF file, and AutoCAD format files.

6.4.2 Construction Summary Report

The Consultant shall prepare a Construction Summary Report that is an accurate summary record of construction as outlined below.

- A description of the project including: location, history, design parameters, contract administration, engineering and any other relevant information.
- A statement from the Consultant certifying that the Work was completed in accordance with each Contract.
- Scope of work for each Contract.
- Suggested specification changes or any problems encountered with current specifications
- List of suppliers, contractors, and subcontractors.
- Work progress, methods, and weather data.
- A summary of test results.
- Unanticipated problems and how they were managed, including change orders.
- Final quantities and construction costs.
- Copies of 11 inch x 17 inch Record Drawings sufficient to provide a clear project overview.
- Summary of site safety plan and ECO plan.
- Annotated photographs.
- Extended warranties and certificates

- Land owner agreements and releases.
- Training summary.
- Material disposal letters.
- Detailed Operations, Maintenance & Surveillance information relevant to the scope of the project. The information should be in the form of narrative descriptions or references to new or updated supporting documents including, but not limited to the following:
 - System capabilities including minimum and maximum operating levels, stage/storage curves, flood operating levels, discharge rating curves, operating limits or constraints.
 - Operating procedures including licenses, permits, authorizations and other regulatory requirements.
 - Routine maintenance procedures including product information and maintenance requirements, spare parts and maintenance materials, extended warranties and certificates submitted by the Contractor.
 - Predictive maintenance procedures including instrumentation information and operating procedures, instrumentation monitoring schedules, target instrumentation levels, procedures in the event that target levels are reached.
 - Event-driven maintenance procedures.

Unless otherwise specified by the Agreement, the Consultant shall prepare and submit five paper copies and five CD/DVD copies of the Construction Summary Report to the Department.

6.4.3 Contractor Submittals

The Consultant shall submit to the Project Sponsor any project record documents, operation and maintenance data, spare parts and maintenance materials, submitted by the Contractor.

APPENDIX A

General Construction Administration Forms

The latest versions of these forms can be found on Alberta Transportation's website: <https://www.transportation.alberta.ca/919.htm>

**SUMMARY TABLE – APPENDIX A
GENERAL CONSTRUCTION ADMINISTRATION FORMS**

Form No.	Form Name
A.01	Order Fixing Maximum Speed Limit
A.02	Notification of Highway and Bridge Construction Operations
A.03	Order for Extra Work
A.04	Contract Cost Overrun Approval
A.05	Contract Progress Estimate
A.05a	Contract Log for Progress Payment
A.06	Weekly Construction Report (Grading, Base Course, Surfacing & Seal Coat)
A.07	Site Occupancy and Lane Closure Weekly
A.07a	Photo Template
A.08	Weekly Engineering Hours Report
A.09	Typical Preconstruction Meeting Agenda
A.10	Preconstruction Meeting Attendees & Emergency Contacts
A.11	Monthly Health & Safety Summary
A.12	Post Construction Tri-Party Meeting Agenda
A.13	Project Expenditure Report Roads-Bridges
A.14	Project Completed-Shut Down Report
A.15	Project Completion Health & Safety Review
A.16	Conditional Construction Completion Certificate (CCCC Template)
A.17	Construction Completion Certificate (CCC Template)
A.18	Certificate of Calibration
A.19	Scale Accuracy Inspection
A.20	Scale Sheet (Sample Only)

A.21	Daily Truck Haul Card (Sample Only)
A.22	Field Checker's Notes (Sample Only)
A.23	Diesel Fuel Cost Adjustment
A.24	Earth Borrow Letter of Understanding
A.25	Payment Anti-Strip Additive
	Aggregates Folder
A.AGG1	Aggregates Royalty Payment
A.AGG2	Aggregates Stockpile Construction Report
A.AGG3	Aggregates Removal Report – Pit and Stockpile Sites
A.AGG4	Aggregate Source Quality Report
A.AGG5	Aggregates Construction Inspection Activities Department Controlled Pits
A.AGG6	Payment for Surplus Crushed Aggregate
	Damage Claims Folder
A.c01	Procedures for Damage Claims
A.c02	Damage Claim Letter A
A.c03	Damage Claim Letter B
A.c04	Damage Claim Letter C
	Safety Folder
A.s01	Safety TAS OH&S Review
A.s02	Traffic Accommodation Strategy Component Checklist
A.s03	Accident-Motor Vehicle Traffic Collisions in Work Zones
A.s04	Utility Accident Report
A.s05	Accident Notification (Involving 3 rd Party &-or Contractor's Equipment)

APPENDIX B

Highway Construction Administration Forms

The latest versions of these forms can be found on Alberta Transportation's website: <https://www.transportation.alberta.ca/919.htm>

**SUMMARY TABLE - APPENDIX B
HIGHWAY CONSTRUCTION ADMINISTRATION FORMS
(TESTING REQUIREMENTS AND REPORTING FORMS)**

Form No.	Form Name	Designation
B.01	Minimum QA Testing Requirements - ACP - Managed QA	MQA/12 (2 Pages)
B.02	Minimum QA Testing Requirements - ACP - Superpave	SMQA/12 (2 Pages)
B.03	Minimum QA Testing Requirements - ACP – Hot In-Place Recycle	HIRQA/12 (2 Pages)
B.04	Minimum QA Testing Requirements – Cold In-Place Recycling	1 CIRQA/12
B.05	Minimum QA Testing - Subgrade Prep & Grading	SUBGQA/12
B.06	Minimum QA Testing Requirements – Granular Base Course and Full Depth Reclamation	GBCQA/12
B.07	Asphalt Mix Design and Job Mix Formula Summary Sheet	ACPJMF/12
B.08	Superpave Mix Design and Job Mix Formula Summary Sheet	SUPJMF/12
B.09	Lot Paving Report	MAT 6-78/12
B.10	Superpave Lot Paving Report	MAT 6-78S/12
B.11	Hot In-Place Lot Paving Report	MAT 6-78H/12
B.12	Daily Compaction Report - Grading and Subgrade Projects	MAT 6-1/12
B.13	Daily Report - Granular Base Course (Used also for FDR Compaction)	MAT 6-60/12
B.14	Daily Compaction Report - Cold In-Place Recycling	CIR1/12
B.15	Appeal Initialization Form	MAT 6-92A/11
B.16	Appeal Testing	MAT 6-92/11
B.17	Segregation Worksheet	MAT 6 – 95/12
B.18	Segregation Summary Report	MAT 6 – 95s/12
B.19	Profilograph Index Report	MAT 6-73/12
<p>QA Testing and Reporting Requirements for Cutback Asphalt Mixes, Emulsified Asphalt Mixes and Cement Stabilized Base Course are inactive and not included here. If needed, contact Technical Standards Branch.</p>		

APPENDIX C

Bridge Construction Administration Forms

The latest versions of these forms can be found on Alberta Transportation's website: <https://www.transportation.alberta.ca/919.htm>

**SUMMARY TABLE – APPENDIX C
BRIDGE CONSTRUCTION ADMINISTRATION FORMS**

Form No.	Form Name
C.01	Pile Data
C.02	Final Bridge Construction Report
C.03	Bridge Construction Completion
C.04	Bridge Warranty Inspection
C.05	SL_SLW Girder Inspection Report
C.06	SLC Girder Inspection Report
C.07	NU Girder Inspection Report
C.08	CSP Inspection Report
C.09	SPCSP Inspection Report
C.10	Culvert Installation Inspection Record
C.11	Culvert Barrel Measurements
C.12	Concrete Test Results

APPENDIX D

Final Details Forms

The latest versions of these forms can be found on Alberta Transportation's website: <https://www.transportation.alberta.ca/919.htm>

**SUMMARY TABLE – APPENDIX D
FINAL DETAILS FORMS**

Form No.	Form Name
D.01	Summary Final Details to Department
D.02	Summary Final Details Retained by Consultant
D.03	Checking Final Details - Summary
D.04	Checking Final Details - Grading
D.05	Checking Final Details - Surfacing
D.06	Details of Final Estimate - GRAND SUMMARY
D.07	Summary of Subgrade Construction
D.08	Details of Widths and Thicknesses
D.09	Details of Mob - Site Occ - Agg Supply
D.10	Summary of Borrow Pits
D.11	Bid Item Details - Miscellaneous
D.12	Bid Item Details - Length Based
D.13	Bid Item Details - Area Based
D.14	Bid Item Details - Volume Based
D.15	Bid Item Details - Gravel Surf-ACP-Base with Haul
D.16	Summary of Extra Work Orders
D.17	Final Details - ACP - EPS Projects
D.18	Final Details IRI – ACP- EPS Projects