



Requisition No. EZ011-172342/B

SPECIFICATIONS

For: Highway Maintenance and Repair,
Km 133 to Km 968,

Project No.
R.017174.002

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Summary of Work
Section 00 11 00

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|----|----------------------------|-----|---|
| .1 | <u>Description of Work</u> | .1 | Work under this contract consists of maintaining the Alaska Highway from Km 133 to Km 968 and includes but is not limited to: |
| | | .1 | Blading. |
| | | .2 | Repairing highway surface and slopes. |
| | | .3 | Applying and repairing bituminous surface (BST) and cold mix asphalt; |
| | | .4 | Cleaning and repairing drainage ditches. |
| | | .5 | Cleaning, repairing, replacing and marking culverts. |
| | | .6 | Cleaning and making repairs to bridges. |
| | | .7 | Cleaning and repairing damaged guardrail. |
| | | .8 | Removing snow, sanding and controlling ice. |
| | | .9 | Thawing culverts and special work during breakup. |
| | | .10 | Moving materials from stockpile to road and other locations; |
| | | .11 | Making emergency repairs to washouts and slides. |
| | | .12 | Brush and weed control. |
| | | .13 | Applying pavement markings. |
| | | .14 | Supplying sand/ salt and asphalt mixtures. |
| | | .15 | Removing animals and debris from roadway. |
| | | .16 | Quality Management and Environmental Management System |
| | | .17 | Contractor is responsible for notifying utility companies & BC One Call. |

- .18 Performing other work as directed by Departmental Representative to maintain highway in a safe and effective fashion.
- .19 Traffic Control is per monthly unit prices. All traffic control for unit activities is incidental, and no separate payment will be made.

.2 Dates and Duration

- .1 Period of contract shall be from 00:00 hrs P.S.T., 2018/06/01 to 24:00 hrs P.S.T. 2023/05/31.
- .2 Contractor is advised that this contract may be assigned by Public Works and Government Services Canada (PWGSC) to other agencies.
- .3 An optional extension of the contract for a maximum of two, three (3) year extensions may be considered by PWGSC. The extension of the contract is subject to Section 00 11 01

.3 Winter Equipment

- .1 Provide and operate specified equipment at following locations for payment according to Section 38 21 00:

<u>Vicinity of</u>	<u>Trucks</u>	
Km 162	2	
Km 254	2	+ 1 standby unit
Km 366	2	
Km 455	2	
Km 538	2	
Km 647	2	
Km 698	1	
Km 762	2	+ 1 standby unit
Km 839	2	
Km 922	2	

- .2 Repair or replace equipment that cannot be operated efficiently or kept in good operating condition as per the quality manual provided by the contractor, within 24 hours unless otherwise directed by Departmental Representative.
 - .3 Distribution of equipment as specified in 3.1 may be varied at direction of Departmental Representative.
 - .4 Use equipment & labour in most effective manner to maintain highway to specified standard in Section 38 21 00.
 - .5 Provide four graders to specified standard in Section 38 21 00 for general contract use.
- .4 Contractor Provided Equipment and Personnel
- .1 In addition to equipment specified elsewhere, provide the following equipment for use in contract:
 - .1 Two 55,000-litre, skid mounted, diesel electric asphalt storage tanks at Km 762.5 and km 254.
 - .2 Four electronic sign trailers.
 - .3 Four electronic stop lights.
 - .4 Contractor to maintain and repair equipment at own expense.
 - .2 In addition to winter maintenance personnel necessary to operate equipment at each maintenance camp as specified in Section 3.1 and other staff as necessary, contractor to provide Operations Manager to reside in Fort Nelson and two Site Superintendents. One Superintendent or a short term delegate acceptable to the Departmental Representative to reside at Sikanni maintenance yard and one to reside at Liard maintenance yard from October 1 to April 30 every year. Operations Manager to have five or more years of Highway maintenance experience including oversight and supervision of winter maintenance on a Highway of at least 300 kilometers. Superintendents to have three or more years of Highway maintenance experience, including supervision of winter maintenance. CVs acceptable to

the Departmental Representative for each of these three key personnel shall be provided no later than two months prior to the contract start date.

.3 New or Replacement Personnel

If the Contractor plans to replace key personnel (Operations Manager either or both Site Superintendents), the Contractor must get PWGSC approval prior to allowing the new person to work on, or be chargeable to, the project. The Contractor must provide detailed justification documenting the necessity for the substitution. Resumes and cover letters must be submitted evidencing that the individual(s) proposed as substitution(s) have at a minimum the qualifications and experience as per Section 4.2. PWGSC reserves the right not to make payment for personnel not pre-approved by PWGSC.

.5 Communication

.1 Install new MSAT Dispatch Satellite and new Two-Way Radios in tandem dump trucks, graders, all 2015 or newer pickups,, steam unit, distributor and superintendent's/delegate's residence's and vehicles. No separate payment for supply or operation of radios or phones. Any update or changes to the communication systems after the contract award are subject to approval by the Departmental Representative. No separate payment will be made for any upgrades in communication equipment.

.2 Superintendents or their Operations Manager or delegate to be available by telephone on 24 hour basis seven days per week.

.6 Road Condition Reports

.1 Prepare daily road surface condition report and transmit by fax or e-mail to Public Works & Government Services Canada office in Fort Nelson, prior to 7:30 hours. The report shall include any observed irregularities such as accidents or road hazards with geo-referenced pictures and a description of the observations. The inspector(s) shall be approved by the Departmental Representative.

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- .2 Road surface condition report to include:
- .1 Location of maintenance crews working on traveled portion of highway.
 - .2 Location of areas where safe driving speed must be reduced below posted speed limit.
 - .3 Location of other abnormal or unsafe road conditions.
 - .4 Location of accidents, road kills, debris etc.
 - .5 Contractor assessment of current and upcoming weather conditions and road condition and specific recommendations on necessary work, as per the PWGSC supplied template.
- .3 Contractor is required to take reasonable care to prevent any danger to travelling public at any time of the day by addressing potential hazards to the Departmental Representative immediately and mitigating those hazards in case they are of immediate danger to the public.
- .7 Operations
- .1 Ongoing construction program is underway on Alaska Highway. Others may carry out major contracts during term of this contract.
- .8 Source of BST & Granular Base
- .1 Sources of B.S.T. and Granular Base Aggregate are:
 - .1 Sources of B.S.T. and Granular Base Aggregate are at locations shown on drawings R.017174.002-02 and R017174.002-03.
- .9 Locations of PWGSC Material Supplied for Maintenance
- .1 Following material will be supplied in vicinity of Km 254, 450 (Airport Compound), 647, 763, and 839:
 - .1 Culvert and fluming material.

.2 Highway traffic signs, posts and hardware, not used as part of work zone signing.

.3 Miscellaneous materials and hardware.

.2 Following materials will be supplied in vicinity of Km 450 – Fort Nelson Airport Compound:

.1 Culvert and fluming material.

.2 Highway traffic signs, posts and hardware, not used as part of work zone signing.

.3 Barricades & delineator posts.

.4 Miscellaneous materials and hardware.

.5 Lock blocks.

.6 Concrete barrier.

.10 Materials

.1 Materials not specified but required for maintenance of highway, may be supplied by Departmental Representative, or on instruction by Departmental Representative, procured by Contractor. Materials may include but not limited to:

.1 Corrugated metal pipe culverts.

.2 Perforated pipe and filter cloth.

.3 Such other material as may be required for maintenance.

.2 Maintain principle of competitive bid prices of purchases made under this clause and whenever possible, obtain minimum of three bids.

.3 Materials purchased by Contractor on instruction of Departmental Representative will be paid for in accordance with Section GC 6.4.1 of General Conditions.

.4 Contractor is not required to estimate cost of materials but shall fulfill this item “as required”.

- .5 Departmental Representative must approve all purchases made by Contractor prior to purchase.

- .11 Equipment Rentals
 - .1 Make equipment available for additional work in connection with this Contract. Rental rates will be in accordance with current Government of British Columbia Rental Rates Schedule. 10% Northern Allowance as referred to in the schedule will apply. Rates will be inclusive and fully operated. Hourly rental of equipment will be measured in actual working time and necessary travel time within project limits. Transportation to and from work site to be reimbursed only if equipment is used exclusively for additional work. No separate payment for operator’s room, board and travel.

- .12 Provisional Cost Sum
 - .1 Amount shall be expended in whole or in part only upon receipt of the Departmental Representative’s instructions. Such work is generally to respond to conditions or incidents which could have a short term impact on the operation of the Highway or the health and safety of its users and must be managed as quickly as possible. It may also include low dollar value repairs/other work (less than \$25,000) where the Departmental Representative judges it most cost effective to have the work done by the maintenance contractor under the terms and conditions of this contract.
 - .1 Supplying and placing rip rap.
 - .2 Controlling floods.
 - .3 Treating frost heaves.
 - .4 Replacing culverts.
 - .5 Draining of right-of-way.
 - .6 Controlling erosion.
 - .7 Supplying material necessary for specific work identified under provisional cost sum.

- .8 Urgent repairs to bridges.
- .9 Truck and Trailer/Transportation of supplies/equipment to the work site(s) identified by the Departmental Representative.
- .10 Aggregate, screen decks for Aggregate & Aggregate testing necessary for specific work as identified under provisional cost sum.
- .11 Removal of debris from roadway.
- .12 Removal of built up snow from structures.

- .13 Prime Cost Sum .1 Include in the tender amount the Prime Cost Sum set aside in the Unit Price Table.

Also include the amount set aside for diesel fuel cost adjustment.

Cost adjustment applies to the period between Oct 15th and April 15th (winter months) within the contract term and is applicable only to the motor graders and tandem dump trucks used to perform those activities necessary for snow & ice removal.

Cost adjustment will be determined by comparing contractor's invoice fuel price (\$/liter) on Oct 15th of the first year to the average invoice fuel price between Oct 15th and April 15th of subsequent years. The net difference (+/-) shall be applied to the fuel consumptions for the designated equipment as calculated from equipment performance manuals and timing devices.

Amount shall be expended in whole or in part only upon receipt of the Departmental Representative's instructions.

- .14 Timing Devices .1 Provide and maintain approved seven-day timing devices for equipment paid for on hourly basis for total period of contract. State-Of-The-Art technologies to measure operational hours, locations of equipment and consumption of consumables may be implemented by the contractor after approval by the Departmental Representative.

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- .2 Present device reports to Departmental Representative to support payment claims.
 - .3 No separate payment for supply or operation with timing devices.
 - .15 Departmental Representative's Residence
 - .1 Supply, set up, and maintain new, unused residence for use of Departmental Representative's representative at present locations in maintenance camp at Km 254 (Sikanni Maintenance Yard) and in maintenance camp at Km 762.5 (Liard Maintenance Yard).
 - .2 Residence to be:
 - .1 New house trailer acceptable to Departmental Representative with minimum 15 square metre attached porch at approved location in compliance to CSA Z240MH. Porch to have shelves and work bench.
 - .2 Fully furnished with minimum of three bedrooms, and equipped with new refrigerator, central air conditioning, automatic washer and dryer, small deep freeze, dishwasher, microwave, bedding, including acceptable programming minimum 40" TV, satellite TV dish and receiver, internet, dishes and utensils for cooking and dining suitable for minimum two people, window coverings (blinds or curtains) and bedding for 2 people.
 - .3 Residence to have minimum width of 4.88 m and have minimum 104 m² floor area.
 - .4 Departmental Representative Designated Unit price for Departmental Representative's residence to include payment for supplying, setting up, maintaining and supplying power, water, sewer, TV, satellite TV programming, internet and necessary fuels, maintenance of the residence for the duration of the contract..

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- .5 Provide internet, propane and power for office trailer located at Toad River Maintenance year Km 647.4.
- .6 Provide propane, power, TV dish and receiver, internet and telephone, water and sewer hookups for portable trailer provided by Departmental Representative. Incidental to contract and no separate payment will be made. (portable trailer is expected to be utilized 3-4 months per year at a variety of maintenance yards). Movement of the portable trailer will be paid by the provisional cost sum.
- .16 Applicable Regulations .1 Federal, Provincial, Territorial and Municipal laws and regulations apply to all work under this contract.

END OF SECTION

**Evaluation of Contractor
Section 00 11 01**

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|----|----------------------------|----|--|
| .1 | <u>Referenced sections</u> | .1 | Quality Plan – Appendix. |
| .2 | <u>Execution</u> | .1 | Measurement and Evaluation of Contractor Performance shall be as per the Quality Plan. |

END OF SECTION

**Project Management and
Coordination - Section 01 31 00**

PART 1 - GENERAL

- 1.1 Section Includes
 - .1 Coordination of work with other contractors and work directed by Departmental Representative as requested.
 - .2 Startup and progress meeting schedules, submittals and close-out procedures.

- 1.2 Related Sections
 - .1 Section 01 11 00 – Summary of Work.
 - .2 Section 01 33 00 – Submittal Procedures

- 1.3 Coordination
 - .1 Coordinate progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction work, with progress of work of other contractors under instructions of Departmental Representative.

- 1.4 Maintenance Organization and Start-up
 - .1 Within 15 days after award of contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
 - .2 Senior representatives, Operations Managers, Site Supervisors of the Contractor, PWGSC, field inspectors and supervisors will be in attendance.
 - .3 Establish time and location of meeting and notify parties concerned minimum five days before meeting.
 - .4 Incorporate mutually agreed variations to contract documents into agreement, prior to signing.
 - .5 Agenda to include following:
 - .1 Appointment of official representative of participants in Work.
 - .2 Schedule of work, progress scheduling in accordance with Section 01 32 18 – Maintenance Progress Schedules.

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- .3 Schedule of submission of site/shop drawings, samples in accordance with Section 01 33 00 – Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 – Maintenance Facilities.
 - .5 Delivery schedule of specified equipment in accordance with Section 01 32 18 – Maintenance Progress Schedules.
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements (GC).
 - .7 Departmental Representative furnished materials.
 - .8 Take-over procedures, acceptance, and warranties in accordance with Section 01 77 00 – Closeout Procedures.
 - .9 Monthly progress claims, administrative procedures, photographs, and holdbacks (GC)
 - .10 Insurances and transcript of policies (GC)
 - .6 Comply with Departmental Representative’s allocation of mobilization areas of site; for field offices and sheds, access, traffic, and parking facilities.
 - .7 During maintenance, coordinate use of site and facilities through Departmental Representative’s procedures for intra-project communications: Submittals, reports and records, schedules, coordination of drawings, recommendations, and resolution of ambiguities and conflicts.
 - .8 Comply with instructions of Departmental Representative for use of temporary utilities and maintenance facilities.
 - .9 Coordinate field engineering and layout work with Departmental Representative.

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- 1.5 Project Meetings
- .1 Schedule and administer bi-weekly or more frequent meetings as determined by the Departmental Representative to discuss ongoing maintenance efforts.
 - .2 Contribute agenda items for meetings (Agenda will be provided by PWGSC).
 - .3 PWGSC will record minutes. Include significant proceedings and decisions. Identify action by parties.
- 1.6 On-Site Documents
- .1 Maintain at maintenance camp site, one copy each of the following:
 - .1 Contract drawings (Sikanni, Fort Nelson, Liard only).
 - .2 Complete Contract Specifications (Sikanni, Fort Nelson, Liard only).
 - .3 Other modifications to contract (Sikanni, Fort Nelson, Liard only).
 - .4 Field test reports (Sikanni, Fort Nelson, Liard only).
 - .5 Copy of approved work schedule (Every site).
 - .6 Section 01 35 33 – Health and Safety Plan (Every Site).
 - .7 Labour conditions and wage schedules. (Every Site).
 - .8 Domestic Water and Septic Permits (Every Site).
- 1.7 Schedules
- .1 Submit preliminary maintenance progress schedule in accordance with Sections 01 32 18 – Maintenance Progress Schedules.
 - .2 After review, revise and resubmit schedule to comply with revised project schedule.
 - .3 During progress of work, revise and resubmit as directed by Departmental Representative.
- 1.8 Submittals
- .1 As per section 01 33 00 – Submittal Procedures.
- 1.9 Closeout Procedures
- .1 As per section 01 77 00 – Closeout Procedures.

PART 2 – PRODUCTS

2.1 Not Used .1 Not Used.

PART 3 - EXECUTION

3.1 Not Used .1 Not Used.

END OF SECTION

**Maintenance Progress
 Schedules – Section 01 32 18**

PART 1 - GENERAL

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|-----|-------------------------------|----|--|
| 1.1 | <u>Precedence</u> | .1 | For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual. |
| 1.2 | <u>Measurement Procedures</u> | .1 | Cost of providing Progress Schedules will be considered incidental to the work and no additional payment will be made. |
| 1.3 | <u>Definitions</u> | .1 | Activity: An element of work performed during course of Project. An activity normally has an expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks. |
| | | .2 | Bar Chart (GANTT): A graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system. |
| | | .3 | Baseline: Original approved plan (for Project, work package, or activity), plus or minus approved scope changes. |
| | | .4 | Maintenance Work Week: Monday to Sunday, will provide seven day work week and define schedule calendar working days as part of Bar Chart (GANTT) submission. |
| | | .5 | Duration: Number of work periods (not including holidays or other nonworking periods) required to complete an activity or other Project element. Usually expressed as workdays or workweeks. |
| | | .6 | Master Plan: A summary-level schedule that identifies major activities and key milestones. |

- .7 Milestone: A significant event in Project, usually completion of major deliverable.
 - .8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- 1.4 Requirements
- .1 Ensure Master Plan and Project Schedules are practical and remain within specified contract duration.
 - .2 Master Plan and Project schedules to be provided from April 15 to October 15 (summer activities).
 - .3 Plan to complete work in accordance with prescribed milestones and time frame.
 - .4 Limit activity durations to maximum of approximately 20 working days to allow for progress reporting.
 - .5 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- 1.5 Submittals
- .1 Submit to Departmental Representative within 30 working days of Award of Contract Bar Chart (GANTT) as Master Plan for planning, monitoring and reporting of project progress.
 - .2 Submit Project Schedule to Departmental Representative within 10 working days of receipt of acceptance of Master Plan.
- 1.6 Master Plan
- .1 Structure schedule to allow orderly planning, organizing and execution of work as Bar Chart (GANTT).
 - .2 Departmental Representative will review and return revised schedules within 5 working days.

- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.
- 1.7 Project Schedule .1 Develop detailed Annual Maintenance Schedule as per section 01 33 00.
- 1.8 Project Schedule Reporting .1 Update Project Schedule on monthly basis, reflecting activity changes and completions as well as activities in progress.
.2 Include as part of Project Schedule, narrative report identifying work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
- 1.9 Project Meetings .1 Discuss Project Schedule at regular meetings (bi-weekly or as required) with Departmental Representative from contract award to end of contract date. Identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
.2 Weather and force majeure related delays with their remedial measures will be discussed and negotiated.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not Used

Project # R.017174.002

Highway Maintenance and Repair
Km 133 to Km 968
Alaska Highway, BC
June 1, 2018 – May 31, 2023

PWGSC – Pacific Region

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PART 3 - EXECUTION

3.1 Not Used .1 Not Used

END OF SECTION

Submittal Procedures
Section 01 33 00

PART 1 - GENERAL

- 1.1 Section Includes
 - .1 Site drawings and product data.
 - .2 Certificates and transcripts.
 - .3 Required Contractor Submittals.
 - .1 Pre-mobilization Submittals.
 - .1 Master Plan, Project Schedules.
 - .2 Contractor Chain of Command.
 - .3 Preliminary Work Plan.
 - .4 Quality Control Plan.
 - .5 Traffic Management Plan.
 - .6 Environmental Protection Plan (EPP).
 - .7 Maintenance Camps Plan.
 - .8 Health and Safety Plan.
 - .2 Operational Phase Submittals.
 - .1 Monthly Progress Reports.
 - .2 Quality Control Inspection Reports as required.
 - .3 Annual maintenance schedule and updated monthly schedules.
 - .4 Site/Shop Drawings
 - .5 Progress Photographs as requested.
 - .6 Weekly traffic control reports.
 - .3 Project Completion Submittals (as required).
 - .1 Record Drawings as requested.
 - .2 Quality Control Records.
- 1.2 Precedence
 - .1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections on other Divisions of the Project Manual.
- 1.3 Related Sections
 - .1 Section 01 32 18 – Maintenance Progress Schedules.

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- .2 Section 01 35 33 – Health and Safety.
- .3 Section 01 35 43 – Environmental Protection.
- 1.4 Administrative
- .1 Submit to Departmental Representative, submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by submittal shall not proceed until review is complete.
- .3 Present as-build drawings, product data, samples and mock-ups in SI metric units.
- .4 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent work are coordinated.
- .8 Contractor’s responsibility for errors and omissions in submission is not relieved by Departmental Representative’s review of submittals.
- .9 Contractor’s responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission at supervisors sites.

- .11 Allow 10 days for Departmental Representative’s review of each submission.
- 1.5 Site/Shop Drawings and Product Data
- .1 The term “Site/shop drawings” means drawings, diagrams, illustrations, schedules and other data which are to be provided by contractor to illustrate details of a portion of work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplies and installed.
- .3 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of work, state such in writing to Departmental Representative prior to proceeding with work.
- .4 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.
- .5 After Departmental Representative’s review, distribute copies.
- .6 Submit one electronic copy of site/shop drawings for each requirement requested in specification Sections and as requested by the Departmental Representative..
- .7 Submit one electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where site drawing will not be prepared due to standardized manufacture of product.
- .8 Supplement standard information to provide details applicable to project.
- .9 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of work

may proceed. If site drawings are rejected, noted copy will be returned and resubmission of corrected site drawings, through same procedure indicated above, must be performed before fabrication and installation of work may proceed.

- .10 The review of site/shop drawings by Public Works and Government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves detail design inherent in site drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in site drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of work of all sub-trades.

1.6 Required Contractor Submittals

- .1 General
 - .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on site and during the maintenance phase.
 - .2 Pre-Mobilization Submittals
 - .1 Submittal Schedule and Acceptance
 - .1 Submit the following plans and programs to the Departmental Representatives for review a minimum of 15 days prior to mobilization to the project site. The Contractor shall not begin any site work until the Departmental Representative has authorized acceptance of the submittals in writing. The Contractor shall not construe the Departmental Representative’s authorization of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Authorization of the

programs shall not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of Federal or Provincial regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them:

- .1 Master Plan and Project Schedule, detailing the schedule of the workdays and manpower required to complete each phase of the project (e.g., mobilization, construction sequencing, excavation, backfilling, roadway reconstruction and demobilization).
- .2 Contractor Chain of Command, listing key Contractor personnel, including names and positions, addresses, telephone, cellular telephone and/or pager numbers. The list shall include the names and telephone/cellular telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.
- .3 Work Plan, describing the Contractor's intended methods of work including, but not limited to, the environmental mitigation strategies and projected number of personnel at each site.
- .4 Traffic Management Plan, which shall meet the requirements of Section 01 35 14 – Traffic Regulations
- .4 Environmental Protection Plans (EPP), which shall meet the requirements of Section 01 35 43 – Environmental Protection.
- .5 Maintenance Camp Site Plan, showing the layout of fences, parking areas and buildings, as well as underground services and describing

the facilities for food and waste storage in accordance with Environmental Procedures.

- .6 Occupational Health and Safety Program – The Contractor shall have a Certificate of Recognition (COR) or accepted Safety Plan by PWGSC including a site specific Health and Safety Plan acceptable to the Departmental Representative. The contractor shall implement and maintain the Health and Safety Plan during the work.

- .3 Submittals

- .1 Monthly Progress Reports in accordance with Section 01 32 18 – Maintenance Progress Schedules – Bar Chart (GANTT).
- .2 Quality Control Inspection Reports – The Contractor shall maintain inspection reports as per the requirements of this contract and the corresponding sections
- .3 Site/Shop Drawings – The Contractor shall submit all site drawings required to fabricate and conduct the work a minimum 30 days prior to fabrication.
- .4 Annual maintenance schedule and updated monthly schedules as per Section 01 32 18.
- .5 Progress Photographs for summer activities and work executed under the provisional cost sum and as requested by the Departmental Representative:
Geo-referenced photographs with sufficient resolution, with file names referencing the work and date.
A complete set of files shall be provided at the end of every season to the Departmental Representative on a memory stick or other digital media.
- .6 Submission Frequency: prior to commencement of work and monthly thereafter with progress statement, or as directed by or Departmental Representative.
- .7 Weekly traffic control reports detailing any traffic accidents, near misses, disruption to traffic or observed abnormal traffic patterns.

Health and Safety Plan
Section 01 35 33

PART 1 - GENERAL

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|-----|---------------------------------------|----|---|
| 1.1 | <u>Related Sections</u> | .1 | All Sections. |
| 1.2 | <u>References</u> | .1 | Government of Canada |
| | | .1 | Canada Labour Code, Part II. |
| | | .2 | Canada Occupational Health and Safety Regulation. |
| | | .2 | Province of British Columbia |
| | | .1 | Worksafe B.C. Worker's Compensation Act Part 3, Occupational Health and Safety. |
| | | .2 | Occupational Health and Safety Regulation. |
| 1.3 | <u>Workers' Compensation Coverage</u> | .1 | Comply fully with the Workers' Compensation Act, regulations and orders pursuant thereto, and any amendments up to the completion of the work. |
| | | .2 | Maintain Workers' Compensation Board coverage during term of the contract, until and including the date that the Final Certificate of Completion is issued. |
| 1.4 | <u>Compliance With Regulations</u> | .1 | PWGSC may terminate the contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations. |

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- .2 It is the Contractor’s responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers’ Compensation Act or the Occupational Health and Safety Regulations.

1.5 Submittals

- .1 Submit the following:
 - .1 Copies of reports or directions issued by Federal, Provincial, Territorial Health and Safety inspectors.
 - .2 Copies of incident and accident reports.
 - .3 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .4 Emergency Procedures.
 - .5 One comprehensive Health and Safety Plan for every maintenance/construction camp and for any ‘on-highway’ or ‘off-highway’ activities, executed by the contractor.
- .2 The Departmental Representative will review the Contractor’s Health and Safety Plan and emergency procedures and provide comments to the Contractor within fifteen (15) days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.
- .3 Medical surveillance: where prescribed by legislation, regulation, or safety program, submit certification of medical surveillance for site personnel prior to commencement of work and submit additional certifications for any new site personnel to Departmental Representative.
- .4 Submission of the Health and Safety Plan and any revised version, to the Departmental Representative, is for information and reference purposes only. It shall not:

- .1 Be construed to imply approval of the Departmental Representative.
- .2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.
- .3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 Responsibility

- .1 The Contractor shall be responsible for:
 - .1 Assume responsibility as the Prime Contractor or work under this contract.
 - .2 The safety of persons and property on site.
 - .3 The protection of persons off site and the environment to the extent that they may be affected by the conduct of the work.
 - .4 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan

1.7 General

- .1 Provide safety barricades and lights around work sites as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
 - .1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel and temporary lighting as required.
 - .2 Secure sites at night time as deemed necessary to protect site against entry.

1.8 Regulatory Requirements

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In the event of conflict between any provision of the above authorities, the most stringent provision will apply. Should

a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

- 1.9 Filing of Notice
 - .1 The Contractor is to complete and submit an Advance Notice of Project as required by Worksafe B.C.
 - .2 Provide copies of all notices to the Departmental Representative.

- 1.10 Health and Safety Plan
 - .1 Conduct a site-specific hazard assessment based on review of Contract Documents, required work and project site. Identify any known and potential health risks and safety hazards.
 - .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor’s Safety Policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job-specific safe work procedures.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 Occupational Health and Safety Committee/Representative procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.

- .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
- .3 List hazardous materials to be brought on site as required by the work.
- .4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
- .5 Identify personal protective equipment (PPE) to be used by workers.
- .6 Identify personnel and alternates responsible for site safety and health.
- .7 Identify personnel training requirements and training plan, including site orientation for new workers.
- .3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
- .4 Revise and update Health and Safety Plan as required and resubmit to Departmental Representative.
- .5 The review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract Documents.

- 1.11 Emergency Procedures
 - .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contact (i.e. Names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to work and as per legislated regulation.
 - .3 Local emergency resources.
 - .4 Engineer (site staff).

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- .2 Include the following provisions in the emergency procedures:
 - .1 Notify workers and first aid attendant of the nature and location of the emergency.
 - .2 Evacuate all workers safely.
 - .3 Check and confirm the safe evacuation of all workers.
 - .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative.
 - .3 Provide written rescue/evacuation procedures as required for but not limited to:
 - .1 Work at high angles.
 - .2 Work in confined spaces or where there is a risk of entrapment.
 - .3 Work with hazardous substances.
 - .4 Underground work.
 - .5 Work on, over, under and adjacent to water.
 - .6 Workplaces where there are persons who requires physical assistance to be moved.
 - .4 Revise and update Emergency Procedures as required and re-submit to the Departmental Representative.
- 1.12 Health and Safety Coordinator
- .1 Employ and assign to work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
 - .1 Have minimum 2 years' site-related working experience specific to activities associated with Construction.

- .2 Have working knowledge of Worksafe B.C. and occupational safety and health regulations.
- .3 Be responsible for completing Contractor’s Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor’s Health and Safety Plan.
- .5 Be on site or available during execution of work and report directly to and be under direction of site supervisor.

1.13 Hazardous Products

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.
- .2 Where use of hazardous or toxic waste cannot be avoided:
 - .1 Advise Departmental Representative beforehand of the products intended for use. Submit applicable MSDS and WHMIS documents.
 - .3 Comply with section 02 61 23 – Hazardous Materials.

1.14 Unforeseen Hazards

- .1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of work, immediately stop work and advise Departmental Representative verbally and in writing.

1.15 Posted Documents

- .1 Post legible versions of the following documents on site:
 - .1 Health and Safety Plan.

- .2 Emergency Procedures.
 - .3 Site drawing showing project layout, locations of first-aid station, evacuation route and marshaling station and the emergency transportation provisions.
 - .4 Notice as to where copy of the Worksafe B.C. Regulations are available on the work site for review by employees and workers.
 - .5 Workplace Hazardous Information System (WHMIS) documents.
 - .6 Material Safety Data Sheets (MSDS).
 - .7 List of names of joint Health and Safety Committee members of Health and Safety Representative as applicable.
- .2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of the contract includes construction activities adjacent to occupied areas.
 - .3 Postings and Insert Postings should be approved by Departmental Representative.
- 1.16 Meetings
- .1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.
- 1.17 Correction of Noncompliance
- .1 Immediately address health and safety noncompliance issues identified by authority having jurisdiction or by Departmental Representative.
 - .2 Provide Departmental Representative with written report of action taken to correct noncompliance of health and safety issues identified.
 - .3 Departmental Representative may stop work if noncompliance of health and safety regulations is not corrected. The Contractor will be responsible for any costs arising from such a “stop work order”.

PART 2 - PRODUCTS

2.1 Not Used .1 Not used.

PART 3 - EXECUTION

3.1 Not Used .2 Not used.

END OF SECTION

Environmental Protection
Section 01 35 43

PART 1 - GENERAL

- 1.1 Scope of Environmental Protection .1 This section specifies the environmental requirements that the Contractor will adhere to as a minimum. The scope of environmental protection includes the following tasks.

- 1.2 Regulatory Framework .1 The Contractor shall observe all applicable Federal, Provincial and Municipal legislation, regulations, guidelines and codes of practice including but not limited to the following:
 - .1 Canadian Environmental Protection Act
 - .2 Transport of Dangerous Goods Act
 - .3 National Fire Code, 2015
 - .4 Underwriters’ Laboratories of Canada
 - .5 National Building Code, 1995 (with all current amendments)
 - .6 Work Site Hazardous Material Information System Regulations (WHMIS)
- .2 Soil Criteria/Guidelines:
 - .1 CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, 2001.
 - .2 CCME Canada Wide Standards for Petroleum Hydrocarbons in Soil, 2001.
 - .3 BC CSR Generic and Matrix Numerical Soil Standards.
 - .4 BC CSR Leachate Quality Standards.
 - .5 Yukon CSR Generic and Matrix Numerical Soil Standards
- .3 Surface Water and Groundwater Criteria/Guidelines
 - .1 CCME Canadian Water Quality Guidelines for the Protection of Aquatic Life, 2001.
 - .2 BC CSR Generic Numerical Water Standards.

.3 Yukon CSR Generic Numerical Water Standards.

.4 Sediment Criteria:

.1 CCME Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, 2001 (freshwater and marine).

.2 BC Generic Sediment Quality Criteria.

.5 The Contractor shall observe the regulations and standards of other local governing agencies.

.6 In case of conflict or discrepancy, the more stringent requirement shall apply. The Contractor shall meet or exceed requirements of contract documents, specified standards, codes and referenced documents. The Contractor will ensure that all on-site personnel are familiar with the mitigation measures included in the Contractor Health and Safety Plan should a spill on site occur.

1.3 Environmental Management System (EMS)

The Contractor shall deliver an Environmental Management System (EMS) to PWGSC, not less than 14 Business Days for PWGSC approval prior to the Commencement Date of Term or commencement of a change in use at the Property. PWGSC may provide a template EMS, if requested as guidance for the Contractor EMS. The Contractor agrees to implement the Environmental Management System, train staff accordingly and make any reasonable amendments to the Environmental Management System. The Environmental Management System should meet the standards of the day, which may change during the course of the Contract. The Contractor may choose to retain an environmental consultant to prepare an Environmental Management System for them.

The EMS must include practical operational protocols and best management practices, such as but not limited to;

- a) Fuel Storage/tank compliance
- b) Fuel transfer procedures
- c) Spill Response and Reporting
- d) Oil water separator maintenance/inspection/record keeping
- e) Waste oil and used oil filter storage/disposal
- f) Used battery storage/disposal

- g) BST Management
- h) Sumps maintenance
- i) Labelling
- j) MSDS
- k) Staff training records

The Contractor shall take all necessary precautions so as to ensure that the Property and any areas surrounding the Property do not and are not likely to become polluted by any additional pollution by virtue of any action or lack of action by the Contractor and the Contractor agrees to indemnify and save harmless PWGSC for any cost, damage, loss or liability incurred or suffered by PWGSC or Contractor. This indemnity shall survive the expiry or earlier termination of this lease.

The Contractor must not at any time cause or allow any Hazardous Waste to be generated, created, used, stored, treated, transferred, transported or disposed of on the Property except in compliance with all Laws.

The Contractor shall conform to the procedures adopted by PWGSC for the management of risks associated with environmental contaminants, including without limiting the generality of the foregoing, conducting or participating in the conduct of inspections, investigations and audits of environmental matters to confirm compliance with the requirements of this agreement, adopting and following reasonable plans for the proper handling and storage of contaminants, maintaining records of storage and use of contaminants, notifying PWGSC of any changes in storage or handling of contaminants and providing to the PWGSC all reports as required.

Quarterly operational records which shall include disposal receipts, disposal certificates, 3rd party maintenance and inspection records or any other form or proof of documentation to provide proof of compliant operations to the EMS must be provided every 3 months without request to the PWGSC representative. Failure to provide such quarterly report on time and/or adequate documentation to comply with them EMS will result in a Type-1 NCR.

If the Properties are found to be polluted by any additional pollution, it is the responsibility of the Contractor, at its cost, to take immediate action to investigate the extent of the additional pollution and provide a Remedial Action Plan for PWGSC's approval on how to mitigate the pollution to ensure the Properties continue to meet all current regulatory requirements. The Contractor must implement the Remedial Action Plan, at its cost, without delay. The Contractor will provide updates throughout the implementation at the request of PWGSC and submit a final report for PWGSC review and approval.

The Contractor hereby releases PWGSC from and in respect of any cost, expense, damage, loss or liability which may be incurred or suffered by the Contractor, its employees or agents in connection with the:

- (a) need for the Contractor to take any Remedial Action and the taking of Remedial Action as a result of Additional Pollution, or
- (b) the effect of Additional Pollution on the health or the property of any Persons.

PWGSC reserves the right to audit the contractor biannually on random basis to verify compliance to the EMS. Non-compliance to any reporting or documentation requirements described in the EMS or negligence in regards to environmental regulations at the time of audit will result in a Type-1 NCR.

1.4 WHMIS

- .1 The Contractor shall comply with requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and labeling and provision of material safety data sheets (MSDS) acceptable to Labour Canada and Health and Welfare Canada.

- .2 WHMIS is a Canada wide system designed to give employers and workers information about hazardous materials used in the workplace.
- .3 The Contractor shall deliver copies of WHMIS data sheets to PWGSC for each hazardous material prior to bringing hazardous material on site.

1.5 Hazardous Material

- .1 Storage and Handling of Hazardous Materials.
- .2 Transportation of Hazardous Materials.
- .3 Disposal of Hazardous Materials.

1.6 Oil Water Separator

- .1 The Contractor will install an oil water separator to contain water/run-off originating from the shop, the product transfer are and equipment washing activities at the beginning of the contract start date. The water will be directed to an oil water separator designed and installed under the supervision of a suitably qualified professional. The design shall be in compliance to all currently applicable standards and shall be approved prior to installation by the PWGSC representative.
- .2 The Contractor will develop, implement and maintain records for an oil water separator maintenance program, which must be submitted to PWGSC for review and approval. As a minimum the program must incorporate the following:
 - (a) The separator and holding tank should be inspected monthly to determine if an excessive amount of oil or hydrocarbon residue is present at the top of the tank (There should be no more than 100mm in the separator compartment, if there is more residue it will be removed and disposed of appropriately). A record of this monthly inspection shall be kept in the site specific EMS (see section 1.3) and be available for PWGSC review upon request, as per Environment Canada requirements.
 - (b) the water in the holding tank should be sampled semi-annually and submitted for analyses of volatile

petroleum hydrocarbons (VPH), benzene, toluene, ethyl benzene and xylene (BTEX), Extractable petroleum hydrocarbons (EPH), and Poly-Aromatic Hydrocarbons (PAH), volatile organic carbon (VOC), and metals.

- (c) any resulting sludge must be sampled and tested for TCLP, VPH/BTEX, EPH/PAH, VOC and metals. The disposal of the sludge must be conducted appropriately in accordance with the laboratory analytical results and applicable regulations.

1.7 Handling and Transportation of Dangerous Goods

- .1 The Contractor will observe and enforce all Acts, Regulations and Guidelines required by the regulatory agencies of the Federal, Territorial and potentially provincial governments including but not limited to Environment Canada, Department of Environment and Transport Canada Transportation of Dangerous goods Act and Regulations. In the case of conflict, the more stringent requirements will apply. The Contractor will maintain complete records, including Bills of Lading, Manifests and descriptions of any actions undertaken under the handling and transportation of dangerous goods.

1.8 Compliance of Aboveground/Underground Storage Tanks

- .1 Technical Guidelines for Aboveground Storage Tank Systems Containing Petroleum Products -Aboveground Technical Guidelines (CEPA SOR/2008-184).
- .2 The Contractor will be responsible to design and implement Product Transfer Areas as per Section 15 of the Storage Tank Regulations within the first year of its contract. The Contractor will submit the proposed design for approval by PWGSC prior to implementation.
- .3 The Contractor shall ensure that the Oil Burning Equipment complies with CAN/CSA B-139-09 (2009 version)-Installation Code for Oil Burning Equipment.
- .4 The Aboveground Technical Guidelines incorporate the CCME Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products. Subject to the

modifications set out in the Aboveground Technical Guidelines, the Code of Practice is adopted as the guidelines to be used by Federal Departments. Adequately equipped Spill Kits must be clearly visible and on hand in proximity to the fuel storage system/product transfer area.

- .5 Non-application of some Sections of the Codes Practice is defined.
 - .1 The wording “shall” shall be replaced by “should”.
 - .2 “Authority having jurisdiction” is defined for each clause it appears in.
 - .3 Allowance is made for equivalent and alternative to materials, systems and procedures not already specified.
 - .4 Review and certification of the design by a Professional Engineer is recommended.
 - .5 Product transfer requirements are specified.
 - .6 A table for upgrading existing tank systems is set out.

1.9 Emergency Spill Response

- .1 The Contractor shall prepare an Emergency Spill Response Plan that must be submitted to PWGSC for review of adequacy. The Emergency Spill Response Plan must be clearly visible and on hand in proximity to the fuel storage tank/product transfer area. The Contractor shall be responsible for the implementation and supervision of this plan and its application to the Contractor’s personnel and its subcontractors. The plan shall require that a designated Health and Safety representative (Site Health and Safety Officer (SHSO) is present on-site while personnel are working in association with hazardous materials, fueling and other environmentally sensitive operations. This Health and Safety representative must have received training equivalent to OSHA 40-hour Hazardous Waste Operation and Emergency Response Training Course.

PWGSC must be notified immediately upon the occurrence of a spill and the required details of the spill must be recorded within the EMS.

1.10 Clean up

- .1 The work is to be conducted on the Alaska Highway and designated Maintenance Camps and the highest standards of site cleanliness and control must be maintained on and off the Alaska Highway. The Contractor will provide proper and adequate receptacles for refuse and rubbish of all kinds and will attend to the removal of the same from the Property at regular intervals. The Contractor must include in its tender price all costs relating to removal of all surplus materials, debris and equipment on completion and cleaning up the site to PWGSC's satisfaction.

1.11 Relevant Standards

- .1 The Contractor shall be responsible for ensuring that all of its materials and workmanship are in compliance with relevant standards, codes, regulations and generally in accordance with good practice. The Contractor shall obtain and maintain during the Term all licenses, designations, permits and approvals necessary for the operation of its activities at the Property. Proof of good standing with the local Worker's Compensation Board (WCB) is required.

END OF SECTION

Maintenance Facilities
Section 01 52 00

PART 1 - GENERAL

- 1.1 Installation and Removal .1 Provide maintenance facilities in order to execute work expeditiously.
- .2 Remove from site all such work after use.
- .3 New shop at Wonowon and Steamboat. Concrete slab and foundation will be provided by PWGSC with sump and plumbing to edge of concrete slab. Contractor required to build suitable structure within footprint of concrete slab.
- Diagram to be provided by Departmental Representative including location of oil/water separator.
- Oil/Water separator for Fireside, Toad, Muncho, Wonowon and Steamboat shall be provided by contractor. No separate payment will be made.
- Oil/water separators at other sites where no oil/water separators are present are to be provided by contractor at maintenance facilities where and when requested by the Departmental Representative. Payment will be provided by the provisional cost sum. Three (3) price quotes shall be provided for each location which shall include all services including materials/equipment.
- Install or upgrade to current standards product transfer areas (e.g. fuel tank sites) at Fireside, Toad River and Muncho Lake Maintenance camp, similar to the sites at other camps, acceptable to Departmental Representative.
- 1.2 Scaffolding .1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs as necessary to carry out work.

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| 1.3 | <u>Measurement Procedures</u> | .1 | No separate payment under Maintenance Facilities. |
| 1.4 | <u>Hoisting</u> | .1 | Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with subcontractors for use thereof. |
| | | .2 | Hoists and cranes shall be operated by qualified operator. Contractor must provide yearly inspection certificates for equipment and certifications for operators. Non-compliance will result in a Type-1 NCR. |
| 1.5 | <u>Site Storage/Loading</u> | .1 | Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products. |
| | | .2 | Do not load or permit to load any part of work with a weight or force that will endanger the work. |
| 1.6 | <u>Equipment, Tool and Materials Storage</u> | .1 | Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials. |
| | | .2 | Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities. |
| 1.7 | <u>Sanitary Facilities</u> | .1 | Provide sanitary facilities for work force in accordance with governing regulations and ordinances. |
| | | .2 | Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition. |
| 1.8 | <u>Signage</u> | .1 | Provide and erect, within two weeks of signing contract, a project identification site sign in a location designated by Departmental Representative. Each instance of non- |

compliance with part 1.8 of this Section will result in a Type-2 NCR.

Supply, installation, maintenance, removal and all other incidental costs associated with the project identification site sign are included in the Maintenance Camp monthly payment item in the Unit Price Table.

- .2 Provide project identification site sign comprising foundation, framing, and one 1200 x 2400 mm signboard as detailed and as described below.

Framework and battens: SPF, pressure treated minimum 89 x 89 mm.

- .3 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA 0121.

- .1 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CGSB 1-GP-189.

- .2 Fasteners: hot-dip galvanized steel nails and carriage bolts.

- .3 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay supplied by Contractor.

- .4 Direct requests for approval to erect a Consultant/Contractor signboard to Departmental Representative. For consideration, general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording shall be in both official languages.

- .5 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN3-Z321.

- .6 Maintain approved signs and notices in good condition for duration of project, and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.9 Requirements of Regulatory Agencies

- .1 Camp and service area locations are subject to approval of Departmental Representative and are to be established and

operated in accordance with local regulations governing operations of field camps. Staff housing shall be constructed in compliance to CSA Z240MH.

- .2 Prior to installation of camp and services, submit plan of layout to Departmental Representative for approval.
- .3 Apply to authority having jurisdiction for authorization for use of water and disposal of domestic sewage wastes. Obtain authorization prior to establishing camp.
- .4 Comply with Environmental Protection 01 35 43.

1.10. Measurement for Payment

- .1 Unit price for camp costs will be per month.
- .2 Unit price amount includes all costs for all camps in this Contract.
- .3 3 months of Unit Price shall be held back at the end of the Contract until the Contractor has fully Demobilized from all camps in this Contract.

1.11 Mobilization

- .1 Perform a Pre-Mobilization Inspection of each camp with the Departmental Representative 12 weeks prior to mobilization and notify Departmental Representative in writing of any conditions that are unacceptable. Departmental Representative shall assess unacceptable conditions and if considered appropriate, request that these conditions are addressed by the incumbent Contractor prior to mobilization.
- .2 Mobilize equipment, camp, personnel and material. Establish temporary buildings, shops, offices and facilities. Obtain necessary license and approvals.
- .3 Should the Contractor require space to construct new structures / infrastructure, the Departmental Representative shall assign a portion of the site and access shall be granted

for this purpose for a period of 8 weeks prior to the start of the Contract.

- 1.12 Maintenance .1 Maintain camps in neat and tidy condition, satisfactory to Departmental Representative.

- 1.13 Demobilization .1 By the end of the Contract term, the Contractor shall either:
 - a) Negotiate take-over of the existing structures / infrastructure with the contractor who has been awarded the subsequent Contract, and this subsequent contractor is to assume all liabilities related to the structures/infrastructure and assigned property by PWGSC; or
 - b) Allow for access by the subsequent contractor to construct facilities on a portion of the site as directed by the Departmental Representative for a period of 8 weeks prior to the end of the Contract.
- .2 At the end of the Contract term, the Contractor shall remove all structures/infrastructure not being assigned to the subsequent contractor and reinstate the site to a condition equal or better to that which the Contractor took on at the start of the Contract.
- .3 Refer to 2.1.3 of this Section for details of a Demobilization holdback.

END OF SECTION

Basic Product Requirements
Section 01 61 00

PART 1 - GENERAL

- 1.1 Section Includes
 - .1 Product quality, availability, storage, handling, protection, and transportation.
 - .2 Manufacturer’s instructions.
 - .3 Quality of work, coordination and fastenings.
 - .4 Existing facilities.

- 1.2 Reference Standards
 - .1 Within text of each specification section, reference may be made to reference standards; conform to these reference standards, in whole or in part as specifically requested in specifications.
 - .2 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
 - .3 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non conformance.
 - .4 Conform to latest date of issue of referenced standards in effect on date of submission of tenders, except where specific date or issue is specifically noted.

- 1.3 Quality
 - .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
 - .2 Defective products, whenever identified prior to completion of work, will be rejected, regardless of previous inspections. Inspection does not relieve

responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

- .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

1.4 Availability

- .1 Immediately after signing contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of work.
- .2 In the event of failure to notify Departmental Representative at commencement of work and should it subsequently appear that work may be delayed for such reason, PWGSC Site Representative reserves right to substitute more readily available products of similar character, at no increase in contract price or contract time.

1.5 Storage, Handling and Protection

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instruction when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in work.

- .3 Store products subject to damage from weather in weatherproof enclosures.
 - .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
 - .5 Touch up damaged factory finished surfaces to Departmental Representative satisfaction. Use touch up materials to match original. Do not paint over nameplates.
- 1.6 Transportation
- .1 Pay costs of transportation of products required in performance of work.
 - .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.
- 1.7 Manufacturer's Instructions
- .1 Unless otherwise indicated in specification, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
 - .2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
 - .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re installation at no increase in contract price or contract time.
- 1.8 Quality of Work
- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify

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- Departmental Representative if required work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in his or her required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
 - .3 Decisions as to standard or fitness of quality of work in case of dispute rest solely with Departmental Representative whose decision is final.
- 1.9 Concealment
- .1 The Departmental Representative will inspect all work prior to any concrete pours. The Contractor shall notify the Departmental Representative 24 hours before any pour for inspection.
- 1.10 Remedial Work
- .1 Perform remedial work required to repair or replace parts or portions of work identified as defective or unacceptable. Coordinate adjacent affected work as required.
 - .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of work.
- 1.11 Fastenings
- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
 - .2 Prevent electrolytic action between dissimilar metals and materials.
 - .3 Use non corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested.
 - .4 Concrete fastenings which cause spalling or cracking are not acceptable.

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| 1.12 | <u>Protection of Work in Progress</u> | .1 | Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative. |
| | | | |
| 1.13 | <u>Existing Utilities</u> | .1 | When breaking into or connecting to existing services or utilities, execute work at times directed by local governing authorities, with minimum of disturbance to work and/or building occupants and pedestrian and vehicular traffic. |
| | | .2 | Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service. |

PART 2 - PRODUCTS

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| 2.1 | <u>Not Used</u> | .1 | Not used. |
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PART 3 - EXECUTION

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|-----|-----------------|----|-----------|
| 3.1 | <u>Not Used</u> | .1 | Not used. |
|-----|-----------------|----|-----------|

END OF SECTION

Closeout Procedures
Section 01 77 00

PART 1 - GENERAL

- 1.1 Section Includes .1 Administrative procedures preceding preliminary and final inspections of work where applicable.

- 1.2 Inspection and Declaration .1 Contractor's Inspection: Contractor and all subcontractors shall conduct an inspection of work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: Departmental Representative and Contractor will perform inspection of work to identify obvious defects or deficiencies. Contractor shall correct work accordingly.
- .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
 - .4 Operation of systems have been demonstrated to Owner's personnel.
 - .5 Work is complete and ready for Final Inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of work by Owner, Departmental Representative and Contractor. If work is deemed incomplete by Owner and Departmental Representative, complete outstanding items and request re-inspection.

1.3 Measurement for Payment

.1 No separate payment for Closeout Procedures.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 - EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

Hazardous Materials
Section 02 61 23

PART 1 – GENERAL

- 1.1 Related Sections
 - .1 Section 01 33 00 – Submittal Procedures.
 - .2 Section 01 35 43 – Environmental Protection.

- 1.2 References
 - .1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92637.
 - .2 National Fire Code of Canada 1995.
 - .3 Transportation of Dangerous Goods Act (TDG Act) 1992, (T19.01).
 - .4 Transportation of Dangerous Goods Regulations (TDGR), (SOR/8577, SOR/85585, SOR/85609, SOR/86526).

- 1.3 Definitions
 - .1 Dangerous Goods: Product, substance, or organism that specifically listed or meets the hazard criteria established in Transportation of Dangerous Goods Regulations.
 - .2 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .3 Hazardous Waste: Any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
 - .4 Workplace Hazardous Materials Information System (WHMIS): A Canada wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, information on hazardous materials is to be provided on container labels, material safety data sheets (MSDS), and

worker education programs. WHMIS is put into effect by a combination of federal and provincial laws.

1.4 Submittals

- .1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
- .3 Submit hazardous materials management plan to Departmental Representative that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.5 Storage and Handling

- .1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labeling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.
- .5 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers that are in good condition.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.

- .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
 - .6 Store hazardous materials and wastes in a secure storage area with controlled access.
 - .7 Maintain a clear egress from storage area.
 - .8 Store hazardous materials and wastes in a manner and location that shall prevent them from spilling into the environment.
 - .9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.
 - .10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .6 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .7 Report spills or accidents immediately to Departmental Representative and Environmental Safety Officer. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.6 Transportation

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:

- .1 Coordinate transportation and disposal with Departmental Representative.
- .2 Ensure compliance with applicable provincial laws and regulations for generators of hazardous waste.
- .3 Use only a licensed carrier authorized by provincial authorities to accept subject material.
- .4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.
- .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
- .6 Ensure that only trained personnel handle, offer for transport, or transport dangerous goods.
- .7 Provide a photocopy of all shipping documents and waste manifests to Departmental Representative.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
- .9 Report any discharge, emission, or escape of hazardous materials immediately to the Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

PART 2 - PRODUCTS

2.1 Materials

- .1 Only bring on site the quantity of hazardous materials required to perform work.
- .2 Maintain MSDSs in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 - EXECUTION

- 3.1 Disposal
- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
 - .2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.
 - .3 Send hazardous wastes only to authorized hazardous waste disposal treatment facilities.
 - .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
 - .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
 - .6 Dispose of hazardous wastes in a timely fashion in accordance with applicable provincial regulations.

END OF SECTION

Unscheduled Labour
Section 01 21 00

PART 1 – GENERAL

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|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for efficient labour performed which is not included in measurement for payment of other sections in this contract and for labour performed as part of Provisional Cost Sum. |
| 1.2 | <u>Related Work</u> | .1 | Traffic regulations Section 01 35 14. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Unscheduled labour to be measured for payment in number of hours or fractions thereof that labourers are actually working. Unit price to include all costs of providing labourers, including hiring costs, compensation, benefits, supervision, accommodation and hand tools. |
| | | .2 | Maximum actual time traveled will be paid from one of the following camps: Sikanni camp, Km 254; Fort Nelson Km 446; Toad River Km 647; Liard Camp, Km 762.5; or Fireside Camp, Km 839 to worksite and return, whichever is nearer. |

PART 2 – PRODUCTS

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| 1. | Not used |
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PART 3 - EXECUTION

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|-----|-------------------------------|----|---|
| 3.1 | <u>Identification of Work</u> | .1 | Departmental Representative will identify work to be performed when not specified in other sections (such as operation of specified equipment) and will determine a schedule of completion depending on the severity and urgency of work to be executed. Work may include but is not limited to: removal of roadkill, removal of vehicular debris. Non compliance to the schedule will result in a Type-1 NCR for health and safety related works and Type-2 NCR for all other works. |
| 3.2 | <u>Equipment</u> | .1 | Provide hand tools as required. Hand tools should include but not limited to power saws, power augers, power brush cutters, axes, shovels, snow rakes, wrenches, pulaski's, etc. No payment for supplying hand tools. |
| 3.3 | <u>Operation</u> | .1 | Set up traffic control in accordance with 01 35 14 before commencing work. |
| | | .2 | Perform work as specified or directed by Departmental Representative. |
| | | .3 | Remove traffic control after completion of work. |

END OF SECTION

Traffic Regulations
Section 01 35 14

PART 1 - GENERAL

- 1.1 Description
 - .1 This section specifies requirements for traffic control on work site.
 - .2 Each instance of non-compliance under this Section will result in a Type-1 NCR unless stated otherwise within this Section.
- 1.2 Reference Standard
 - .1 Do traffic regulations in accordance with Traffic Control Manual for Work on Roadways, distributed by Province of British Columbia, Ministry of Transportation and Highways. Ensure that current copy of manual is available on site at all times.
 - .2 Nothing in this section limits the Contractor’s responsibility to safely accommodate traffic through unique or varied construction situations.
- 1.3 Requirements of Regulatory Agencies
 - .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out work or haul materials or equipment.
- 1.4 Measurement of Payment
 - .1 Traffic Control will be paid lump sum per month. This also includes traffic control for non-work items. No other payment for traffic control will be made.
 - .2 Traffic control for emergency services (R.C.M.P, etc.) will be included in monthly sum (225 crew/vehicle hours approximately per year, crew consists of 2 Traffic Control persons & vehicles).
 - .3 Traffic control is only required until and up to the time that R.C.M.P release the scene to a recovery contractor. Once released traffic control becomes recovery contractor’s responsibility.

PART 2 - PRODUCTS

- 2.1 Information and Warning Devices .1 Supply new signs, delineators, barricades, traffic cones and miscellaneous warning devices as specified in Traffic Control Manual for Work on Roadways. Non-compliance will result in a Type-1 NCR.
- .2 Supply all new signs except those shown on plan R 017 174.002-11 as supplied by others.
- 2.2 Traffic Markers .1 Have minimum of 100 Type D traffic markers and all necessary traffic signs on site and in place before interfering with traffic.

PART 3 – EXECUTION

- 3.1 Protection of Public Traffic .1 When working on traveling way:
- .1 Place equipment in position to present minimum of interference and hazard to traveling public.
- .2 Keep equipment units as close together as working conditions will permit and preferably on same side.
- .3 Do not leave equipment on traveled way overnight.
- .2 Do not close any lanes of road or highway without approval of Departmental Representative. Before rerouting traffic, erect suitable signs and devices in accordance with instructions contained in Traffic Control Manual for Work on Roadways.
- .3 Roadway Width
- .1 Provide minimum 7 m wide roadway exclusively for traffic in two-way sections through work and on detours. Widen roadway as necessary in curves to provide room for transport trucks to meet safely.

- .2 Provide minimum 5 m wide roadway exclusively for traffic in one-way sections through work and on detours.
 - .4 Provide well graded detours or temporary roads to facilitate passage of traffic around restricted construction area. Provide and maintain signs and maintain roadway.
 - .5 Provide and maintain reasonable road access and egress to property fronting along or in vicinity of work under contract unless other reasonable means of road access exist.
- 3.2 Information and Warning Devices
 - .1 Erect and maintain sign and other devices required to indicate construction activities and other temporary and unusual conditions resulting from project work which may require road user response as specified in Traffic Control Manual for Work on Roadways.
 - .2 Continually maintain traffic devices in use by:
 - .1 Checking signs 24 hours daily for legibility, damage, suitability, and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to existing conditions.
- 3.3 Traffic Control Persons
 - .1 Provide traffic control persons who have been instructed in, and have demonstrated adequate knowledge of WCB Regulations, and the relevant procedures from the Traffic Control manual.
 - .2 Employers of traffic control persons must train and instruct those workers in a course acceptable to the board which covers:
 - .1 Environmental factors such as heat, cold and sun.
 - .2 Personal protective clothing and safety equipment
 - .3 Communication with traveling public.
 - .4 Working around heavy equipment.

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- .5 Setting up traffic control devices at a work site.
 - .6 Applicable requirements of the Transportation of Dangerous Goods Act, 1992 (Canada) and the regulations made under it.
 - .7 Proper positioning of traffic control persons.
 - .8 Proper hand signals.
- .3 Provide traffic control persons in the following situations:
- .1 At each end of restricted sections where pilot vehicles are required. Traffic Lights will be allowed at night with a pilot vehicle, providing no work is being carried out with equipment. No separate payment for Traffic Control Lights.
 - .2 Where traffic is required to pass working vehicles or equipment which may block all or part of roadway.
 - .3 Where construction equipment is crossing roadway.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not available.
 - .6 In situations where complete protection for personnel, working equipment and public traffic is not provided by other traffic control devices.
- 3.4 Pilot Vehicles
- .1 Provide separate pilot vehicles where it is necessary to institute one-way traffic (except for short distances in good visibility), where driving lanes are not well defined or where access through the work would be otherwise dangerous. Equip pilot vehicles with orange flashing lights and signs clearly designating vehicle as a pilot vehicle.
 - .2 Do not delay traffic more than necessary and in no case longer than 15 minutes except with prior approval.

3.5 Approval

- .1 Do not change traffic control operation without Departmental Representatives approval.

END OF SECTION

Spot Sealing
Section 31 01 11.03

PART 1 - GENERAL

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|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for application of asphalt emulsions with distributor spray bar and subsequent application of aggregate wearing surface by tailgate type spreader. |
| | | .2 | Each instance of non-compliance with this section will result in a Type-2 NCR unless stated otherwise. |
| 1.2 | <u>Related Work</u> | .1 | Traffic Regulations – Section 01 35 14. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Emulsified Asphalt |
| | | .1 | A price per Tonne shall be paid under Asphalt Supply & Delivery (Item 26 in Unit Price Table) for supply, delivery and transfer of emulsified asphalt into Contractor supplied diesel electric storage tanks. Price shall be based on the lowest of 3 competitive quotes. Quotes shall be valid for the duration of the current summer maintenance season. New quotes shall be required for subsequent seasons. |
| | | .2 | All asphalt material to be weighed on scales approved by Weights and Measures Inspection Services, Measurement Canada. Proof of such approval to be provided to Departmental Representative upon request. Printed weigh slips showing tare weight and loaded weight for each delivery are to be provided to the Departmental Representative. |

- .3 Contractor shall sample emulsion in accordance with 32 12 35 – 2.1.1.5 and 2.1.1.6.
- .2 BST Aggregate
 - .1 Hauling and spreading of BST Aggregate will be incidental to the Work and no separate payment will be made.
 - .2 Any excess BST aggregate material, including recycled BST aggregate material gathered with the Power Sweeper, shall be returned to the closest material source. This shall be incidental to work under this section.
- .3 Bituminous Surface Treatment Application (BST) spot sealing
 - .1 Measurement will be tonne of emulsion acceptably applied. Unit price to include cost of hauling, weighing, handling, storing, heating and applying asphalt material as well as drying, treating, hauling and spreading aggregates, traffic accommodation, watering, sweeping, rolling, dust control and associated work.
 - .2 No payment for spot sealed areas that fail prior to September 30th of each year.
 - .3 Spot sealing shall start by June 1st of each year unless approved by Departmental Representative.
- 1.4 Layout of Work
 - .1 Departmental Representative will indicate areas of work.
 - .2 Contractor may lay out any additional work required. Contractor will notify Departmental Representative in writing about possible additional work and shall not proceed with this work unless authorized by the Departmental Representative.
 - .3 No separate payment for layout of work.

PART 2 - PRODUCTS

2.1 Materials

.1 Emulsified Asphalt

- .1 Asphalt material to be supplied by Contractor to Grade HF 150S emulsified asphalt as specified below, with anti-stripping agent added at manufacturers suggested rate.

GRADE/CLASS	HF – 150S	
PROPERTY	Min.	Max.
Residue by Distillation, % by mass.	62	-
Oil Portion of Distillate, % by volume	1.0	4
Viscosity (SF) at 50°C, s	30	150
Sieve Test, Retained on 1000 µm sieve, % by mass	-	0.10
Demulsibility, 50 ml, 5.55 gL CaCl ₂ , % by mass	60	-
<u>Tests on Residue</u> Penetration at 25°C 100g and 5 s	150	250
Float Test at 60°C, s	1200	-

- .2 Emulsion products received and stored that show signs of separation or that are not homogenous shall be removed and disposed of at the Contractor's expense and no payment will be made for those materials.

- .3 If the supplier elects to incorporate nontraditional material components such as, but not limited to, crude oil, waste products and industrial or manufacturing by-products in the High Float emulsified asphalt, the Departmental Representative must be advised in writing before any material is supplied. The Departmental Representative reserves the right to refuse asphalt material with any unaccepted nontraditional material components.
- .4 The supplier must submit to the Departmental Representative, prior to supplying any material, Material Safety Data Sheets for the finished product and all component products.
- .2 Aggregate
 - .1 BST aggregate to be supplied by Departmental Representative at designated locations shown on Drawing R.017174.002-02 and -03. Contractor shall haul from the nearest material source. If Aggregate is not available at this location, Contractor shall haul from the next available source with no claim for additional transport costs.
 - .2 Contractor may provide their own BST aggregate source provided the material meets the requirements of 32 11 23 BST Aggregate and is approved by the Departmental Representative. No payment will be made for Contractor supplied BST Aggregate.

PART 3 - EXECUTION

- 3.1 Identification of Work
 - .1 Departmental Representative will identify areas to be treated on monthly basis.

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- .2 80 percent of areas identified by the Departmental Representative by May 15, shall be completed by July 31 of each year.
 - .3 Additional areas identified by the Departmental Representative throughout the season shall be completed by a date negotiated between the Departmental Representative and the Contractor.

3.2 Equipment

- .1 Distributor, power broom and self-propelled rubber tired roller to following specifications.
 - .1 Pressure Distributor 2007 or newer:
 - .1 2018 or newer minimum 4,500 litre capacity distributor to be designed, equipped, maintained, and operated so that asphalt material at even temperature may be applied uniformly on variable widths of surface up to 3.9 m at readily determined and controlled rates from 0.3 to 5.5 litre/m². Unit to be capable of heating and circulation emulsified asphalt from and to storage tanks.
 - .2 Capable of distributing asphalt material in a uniform spray without atomization at rate specified and at temperature required.
 - .3 Equipped with a 5th wheel driven tachometer clearly visible to driver. Odometer must accurately measure distance traveled when spraying asphalt material. Forward speed of distributor synchronized with tachometer allowing application of asphalt material at specified rate. Recorded daily records to be submitted to Departmental Representative.
 - .4 Pump equipped with meter registering 5 litre units or less per minute passing through nozzles and readily visible to operator.

- .5 Equipped with easily read, accurate and sensitive device, which registers temperature of liquid in reservoir.
- .6 Equipped with 3.9 metre minimum length spray bar capable of vertical adjustment and of instant full opening and positive cut-off complete with rotary adjustable spray nozzles, designed to ensure uniform fan-shaped delivery overlapping to produce uniformly sprayed surface.
- .7 Equipped with hand operated minimum 9 metre hose with spray nozzle unit to connect to material circulating manifold.
- .8 Ensure that no cleaning/rinsing of spray bar system is done in pits or maintenance yard and any cleaning/rinsing is executed in compliance with the environmental standards.
- .9 Provided for exclusive use on this contract and may not be removed without consent from Departmental Representative.
- .2 Power Broom in accordance with 38 41 00 - Broom Highway – 3.2.
- .3 Self-Propelled Roller:
 - .1 Self-propelled pneumatic tired roller weighing no less than 10,000 kg equipped with:
 - .1 Minimum seven wheels, staggered back and front, and tires inflated to 415 kPa.
 - .2 Water ballast sprinkler system and cocoa mats.
- .4 Dump trucks equipped with new tailgate spreaders with air cylinder controlled gates.
- .5 Loader in accordance with 32 94 11.01 – Dozer/Excavator – 3.2.

.6 Water truck in accordance with 38 41 00 – Broom Highway – 3.2.2.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Broom surface to be sealed to remove dirt and loose material.
- .3 Heat liquid asphalt to 60°C.
- .4 Apply asphalt material evenly with asphalt distributor over identified area at rate of between 1.4 litres/m² and 2.3 litres/m² as directed by Departmental Representative.
- .5 Spread BST aggregate over asphalt material with new tailgate spreader so that asphalt does not track. Application rate shall be determined by the Departmental Representative.
- .6 Compact entire area with minimum of six passes with rubber-tired roller.
- .7 Control dust at all times to ensure safe driving condition acceptable to Departmental Representative.
- .8 Dampen and broom to remove loose aggregate from complete roadway and over foreslope within 48 hours as directed by Departmental Representative and as often as required to ensure all aggregate is removed.
- .9 Emulsion and aggregate shall be applied only when shade air temperature is at least 10 °C. No application shall take place when weather is misty or raining.
- .10 Remove traffic control at completion of work.

END OF SECTION

Crack Sealing – Spray Patch (B)
Section 32 01 18.02PART 1 - GENERAL

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|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | The work consists of repairing transverse and longitudinal cracks by cleaning the defect of all rock, dirt, sand or other objectionable material, applying asphalt binder as a tack material, filling with a mixture of asphalt binder and crushed aggregate and compacting the mix. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 - Traffic Regulations. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Measurement will be in liters based on the amount of asphalt binder applied during the spray patch – crack sealing works. Payment will be made at the unit price bid per liter for “Crack Repair – Spray Patch”. This payment will be full compensation for cleaning the cracks/pothole; disposing of the debris; tacking; providing the crushed aggregate and asphalt binder; producing, hauling, placing and compacting the mix; traffic accommodation and signing; and all labour, materials, equipment, tools and incidentals necessary to complete the work. |
| | | .2 | Supply of aggregate will be incidental to the work and no separate payment will be made. |

PART 2 – PRODUCTS

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|-----|------------------|----|--|
| 2.1 | <u>Materials</u> | .1 | Aggregate shall be supplied in accordance with Specification 3.2, Aggregate Production and Stockpiling and Specification 5.2, Supply of Aggregate. |
|-----|------------------|----|--|

<u>Metric Sieve Size μm</u>	<u>% Passing</u>
9.5	100
4.75	0-30
0.600	0-10
0.075	0-3

- .2 Binders shall be CRS-2 rapid setting cationic asphalt emulsion to the following specification:

Property	Specification		Typical Result
	Min.	Max.	
Viscosity, Saybolt Furol seconds, @ 50°C	100	400	230
Settlement 5 days, %	-	5	1
Residue by Distillation % by Mass	67	-	71
Demulsibility, % 35 ml, Dioctyl Sodium Sulfosuccinate	40	-	94
Oil Portion of Distillate % by volume of emulsion	-	3	trace
Sieve Test %by Mass	-	0.1	0.03
Particle Charge	POSITIVE		

Tests On Residue			
Penetration @ 25°C 100 g , 5 seconds	100	250	145
Ductility @ 25°C 5 cm/min	60	-	100+
Solubility in Trichloroethylene % by Mass	97.5	-	99.95

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify which cracks are to be patched. Generally, cracks less than 5mm width will not require repair. Potholes or other surface defects that are contiguous with cracks are considered to be 'crack related' and are to be repaired by spray patching.
- 3.2 Equipment .1 The Contractor shall supply all equipment necessary to complete the work. The equipment required includes but is not limited to the following:
- a) A Compressor for high pressure air with a minimum rated capacity of 5.2 cubic metres per minute (185 CFM) capable of blowing the crack/pothole clean of all dirt, sand, rock, or other objectionable material.
 - b) A self-propelled machine capable of spraying the asphalt into the crack/pothole, and then combing crushed aggregate and asphalt and asphalt and spraying the mixture into the crack/pothole.
 - c) Appropriate compaction equipment.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Ambient temperature shall be recorded at the start of the work and during the work in 180 minute intervals.
- .3 Work shall not be performed when the atmospheric temperature at the work site is below 10°C.
- .4 All objectionable material shall be removed from the open crack/pothole and surrounding area by blowing with high pressure air streams or other means acceptable to the Departmental Representative.
- .5 Cleaned cracks shall be sprayed with the emulsified asphalt, and then sprayed with the combined asphalt and crushed aggregate mixture.
- .6 Some over-spraying of the crack/pothole will be required to ensure a smooth transition between the repaired crack/pothole and the adjacent undisturbed pavement surface.
- .7 The repaired area shall be compacted to ensure adequate embedment of the asphalt aggregate mixture into and over the crack/pothole.
- .8 All loose aggregate and debris shall be swept or removed from the pavement surface and disposed of to the satisfaction of the Departmental Representative. Generally, the debris may be swept evenly over the side slopes however, in some cases as determined by the Departmental Representative, the Contractor shall pickup, haul and dispose of it in an approved site.
- .9 Patched areas shall be recorded with full kilometer chainage and date when patching was completed.
- .10 Remove traffic control at completion of work.
- .11 All patching must be completed prior to September 15 of each year. In case the work is not completed on time a Type 1 NCR will be issued.

3.4 Quality Control

- .1 All patched areas of the year shall be warranted against defect for 12 months after installation/execution.
- .2 Failed patched shall be repaired/replaced by the contractor at no cost prior to September 30 of each year. Failure to do so will result in a Type 1 NCR.

END OF SECTION

Crack Sealing – Route and Seal (A)
Section 32 01 18.03

PART 1 – GENERAL

- 1.1 Description .1 This work consists of restoring the asphalt concrete pavement surface to a less permeable condition. The work includes routing when necessary, cleaning and filling the crack with sealant, and dusting.
- 1.2 Related Work .1 Section 01 35 14 - Traffic Regulations
- 1.3 Measurement for Payment .1 Payment for Crack Sealing will be at the contract unit price bid per linear metre. Contractor must provide daily records of sealant applied on a per kilometer basis. The unit price shall be full compensation for all labour, equipment and material supplied as required to route, clean and seal the pavement cracks, as specified.
.2 Contractor must provide bill of lading for sealant delivered to site.

PART 2 - PRODUCTS

- 2.1 Materials .1 Asphaltic Specifications
 - .1 The rubberized and elasticized asphalt sealant products shall meet the following requirements

ASTM Test	DESCRIPTION
D 1190	Specification for concrete joint sealer, hot poured elastic type.

.2 The Contractor shall use a Rubberized Asphalt.

.2 Dust Cover Specifications

.1 Pavements that are sealed with rubberized or elasticized sealant shall receive a dust coating with a material such as Portland Cement, talc, lime or the equivalent material approved by the Departmental Representative.

PART 3 - EXECUTION

3.1 Equipment

.1 Router Specifications

.1 Vertical Router

.2 Capable of routing asphaltic pavements to a depth of 25 mm and a width of 16 mm.

.3 Minimum production of 200 metres per hour, even when following meandering cracks without unnecessary pavement cutting.

.2 Cleaner Specifications

.1 Hot compressed air fed propane fired device.

.2 Capable of cleaning, heating and drying routed cracks with not less than 1.7 m³/min. of compressed air at 690 kPa.

.3 Shall have valving/hoses and fittings for the mixture of liquid propane gas and compressed air.

.4 Hot air exhaust shall not exceed 315°C

.3 Melter Specifications

.1 Melting kettle shall be of the double boiler type supplying indirect heating so as to slowly heat the asphaltic material with heat transfer oil.

- .2 Shall have built in calibrated thermometers for both transfer oil and the sealing compound.
- .3 Heating of sealant shall be efficient and thermostatically controlled so as not to exceed the manufacturer's maximum safe heating temperature and shall be such as to maintain a constant temperature once the sealant is heated.
- .4 Melter shall be capable of constantly agitating the asphaltic material as it is being heated and shall have a pump circulating the sealant from the bottom to the top of the kettle.
- .5 Melter must comply with Gas Safety Act Regulations and Codes and any other applicable acts and regulations.

.4 Filler Tool Specifications

- .1 Crack filler devices and strike off tools must be such that successful forming of the bead of sealant over the prepared crack is as specified in this specification.

3.2 Operation

- .1 Crack sealing shall only be performed when the pavement surfaces are dry, and the crack and road base are dry or nearly dry (no visible moisture), and the temperature is steady at 10°C or rising, no rain is forecast within the next 24 hours, and air temperature will not fall below 5°C within the next 24 hours. . A weather report and weather forecast for the area where the crack sealing is executed must be submitted 24 hrs prior to the work start to the Departmental Representative.
- .2 Only cracks in asphalt concrete pavement greater than 6 mm in width shall be sealed.

-
- .3 Cracks up to 16 mm in width shall be widened by using a router to form a sealant reservoir 16 mm in width and from 19 to 25 mm in depth. All routing shall be performed keeping the crack centerline within ± 8 mm of the center of the rout and shall be cleaned with a hot compressed air lance. Material removed from the cracks shall be disposed of as approved by the Departmental Representative.
 - .4 The routing speed shall be such that the pavement is carefully cut, not broken or torn out, and the sides of the rout are smooth and uniform. The surface of the pavement and the routed crack shall be cleaned of all dust and routing debris.
 - .5 Routing should not be carried out on pavements that are of such an age that the pavement fractures or spalls occur along the edge of the freshly routed crack. Normally pavement fractures or spalls should not occur unless pavements are in excess of 10 years old. The decision to forgo routing shall be made by the Departmental Representative.
 - .6 The crack shall be filled with sealant from the bottom to the surface level in such a manner that the sealant does not bridge entrapped air pockets. Material shall be placed to overfill the crack. It will then be struck off to leave a uniform amount of sealant directly over the crack, with the edges of the spread evenly feathered to overlap on the pavement surface from a minimum of 25 mm to a maximum of 40 mm on each side of the crack. The sealant overband shall not be so thick that it can be removed during snow plowing or produce a noticeable bump when traversed by traffic. The maximum allowable height of overband shall not exceed 2mm above the pavement surface. In case the dimensions are not maintained, rework is required by the contractor at no cost to the owner and a Type 2 NCR.
 - .7 Any damage done to the sealant by stones or any other deleterious material being embedded in the sealing compound shall be repaired by the Contractor at own expense.

- .8 Remove traffic control at completion of work, at such time as the sealant has properly set up (after de-tack materials has been sprayed on sealant as agreed by the Departmental Representative) and will not be damaged or pulled out by the passage of traffic.

END OF SECTION

Thawing Culverts
Section 32 11 00

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for thawing culverts.

- 1.2 Related Work .1 Traffic Regulations – Section 01 35 14.

- 1.3 Measurement for Payment .1 Each culvert thawed to be measured as one unit culvert. Unit price to include all work in this section.
.2 Twenty-four hour timing device installed in each unit.

PART 2 – PRODUCTS

- 2.1 Not Used .1 Not used.

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify culverts to be thawed.
.2 Culverts will be thawed within 24 hours of identification, to restore drainage. Non-compliance will result in a Type-1 NCR.

- 3.2 Equipment .1 Provide two (2) enclosed self-propelled steam generator units at camp locations directed by the Departmental Representative.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Introduce steam into inlet and/or outlet end of culvert and melt ice to restore drainage.
- .3 Establish collector trenches and bell holes at inlet end of culvert and drainage trenches at outlet end of culvert for at least 10 metres, to improve drainage.
- .4 Clean ice buildup from culvert flumes as encountered. No separate payment for this work.
- .5 Remove traffic control at completion of work.

END OF SECTION

**Full Depth Reclamation
Section 32 11 34**

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for pulverizing, blending, shaping and compacting Bituminous Surface Treatment (BST) and base course material.
.2 Each instance of non-compliance with this Section will result in a Type-2 NCR unless stated otherwise.

- 1.2 Related Work .1 Section 01 35 14 – Traffic Regulations

- 1.3 Measurement for Payment .1 Full depth reclamation will be measured and paid in square meters (m²) of roadway pulverized, blended, shaped and compacted to specifications and accepted by Departmental Representative.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not used.

PART 3 - EXECUTION

- 3.1 Full Depth Reclamation .1 Provide equipment to the following specifications:
 - .1 Shall be capable of pulverizing existing BST surfaces. The BST may vary in thickness from 12.5mm to 50mm.
 - .2 Shall be capable of effectively pulverizing, crushing, mixing and blending the varying BST surfaces with

existing base course materials up to a total depth of 150mm.

.2 Gradation

- .1 The pulverized end product produced shall meet the following minimum gradation:
100 percent passing 50mm sieve.

.3 Reclaiming Procedure

- .1 The existing BST and Base Course material shall be pulverized to a maximum depth of 150mm unless directed otherwise by Departmental Representative.
- .2 Reclaim not more than 5 km of roadway prior to initiating BST. At no time shall reclaimed surface without BST exceed 5 km. Non-compliance will result in a Type-1 NCR.
- .3 After the material has been pulverized and blended, it shall be shaped, graded and compacted to the lines, grades and depths as shown on Drawings No. R.017174.002-02 to R.017174.002-07. Layout and construct edges parallel to centerline and true to designated design or site-specific geometrics approved by Departmental Representative.

3.2 Compaction Equipment

- .1 Compaction equipment must be capable of obtaining required densities in materials on Project. Equipment that does not achieve specified densities must be replaced or supplemented.

3.3 Water Distributors

- .1 Apply water with equipment capable of uniform distribution and in a manner acceptable to Departmental Representative.

3.4 Compacting

- .1 Compact reclaimed material to a density of not less than 100 percent of maximum dry density in accordance with ASTM D698 (AASHTO T99).
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
- .3 Apply water as necessary during compacting to obtain specified density. If reclaimed material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.
- .4 Contractor shall be responsible for quality control on compaction of pulverized material before application of BST. BST shall not be applied until specified density has been achieved to the satisfaction of the Departmental Representative. Acceptance of compaction by the Departmental Representative does not in any way alleviate the responsibility of the Contractor for the performance of the BST and set out under 32 12 35 – Bituminous Surface Treatment.
- .5 For patching areas, compact areas making six (6) passes with compaction equipment, calculate the dry density, make two (2) additional passes and recalculate. If the dry density does not exceed the previous value by more than 0.3030 t/m³ then the compaction will be considered satisfactory. If the average exceeds the dry density then compact until these conditions are met.

3.5 Finish Tolerances

- .1 Finish compacted surface to within +/- 25mm of established grade and cross section.
- .2 Correct surface irregularities greater than +/- 30mm by loosening and adding or removing material until surface is within specified tolerance. The surface of the reclaimed base shall be finished as per section 3.1.3.3 of this specification and smooth longitudinal profile as determined by the Departmental Representative.

3.6 Maintenance

- .1 Maintain finished road bed in condition conforming to this section until BST is applied. No separate payment will be made for maintenance or dust control. Non-compliance may result in a Type-1 NCR.

END OF SECTION

Asphalt Mix
Section 32 12 16.6

PART 1 – GENERAL

- | | | | |
|-----|--------------------------------|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for producing asphalt mixture to stockpiles. |
| 1.2 | <u>Measurement for Payment</u> | .1 | Cost of supply and delivery of asphalt cutback delivered to site and incorporated into work, to be included in unit price for this item. |
| | | .2 | Asphalt mixture to be measured in cubic meters of material acceptably produced and stockpiled, including the haul of aggregate. Contractor shall provide stockpile quantities certified by a professional engineering firm. |
| 1.3 | <u>Work Schedule</u> | .1 | Complete asphalt mix piles by August 20. Non-compliance will result in a Type-2 NCR. Yearly stockpile quantities will be communicated to the contractor by the Departmental Representative on or before June 1 of each consecutive year. |

PART 2 - PRODUCTS2.1 Materials .1 Asphaltic material:

ASPHALT GRADE REQUIREMENTS	MC – 250	
	Min	Max
<u>Test on Liquid Asphalt</u>		
Flash Point (C.O.C), °C	65	-
Kinematic Viscosity at 60 °C, mm ² /s	250	500
Distillation Test Distillate		
% of total to 360°C		
to 225°C	-	10
to 260°C	15	55
to 316°C	60	87
Residue from Distillation, 360 °C, %	67	-
<u>Test on Residue</u>		
Penetration, 25°C, dmm	120	250
Solubility in TCE, %	99.5	-
Ductility, 25°C, cm	100	-

*If the ductility at 25°C is less than 100, the material will be acceptable if its ductility at 15°C is more than 100.

.2 Aggregate to be 16mm Medium Mix to the following gradation:

Sieve Size (mm)	% Passing by Mass
16.0	100
12.5	90 – 100
9.50	73 – 90
4.75	50 – 75
2.36	35 – 57
1.18	26 – 45
0.600	18 – 34
0.300	10 – 26
0.150	6 – 17
0.075	3 - 7

- 2.2 Delivery of Asphaltic Material 1. Furnish copies of freight and waybills and certification from supplier that material meets requirements of this section for asphaltic material, as shipments are received. Departmental Representative may check weights and quality as material is received.

- 2.3 Mix Design .1 Contractor will provide ratio of asphalt to aggregate mix design prepared by a professional engineering firm prior to commencing work. Provide test results (one per 50 m³) by a professional engineering firm that sample meets mix design. No payment for mix designs or testing.

- 2.4 Asphalt Stockpile Sites .1 Stockpile quantities of asphalt mixture shall be stored at the following locations with quantities determined by the Departmental Representative.

KM	DESCRIPTION
Km 254.0	Sikanni Chief Maintenance Camp
Km 366.0	Prophet River
Km 445.0	Fort Nelson Gravel Pit
Km 538.0	Steamboat Maintenance Camp
Km 647.4	Toad River Maintenance Camp
Km 698.1	Muncho
Km 762.5	Liard River
Km 839.0	Fireside Maintenance Camp
Km 922.0	Iron Creek

- .2 Prepare and maintain existing mats for the material..
- .3 Stockpile quantities shall be within 3% of specified quantities at each location. If stockpile volume is less than 97% of required quantity, Contractor shall provide additional material to meet this requirement. Any excess material greater than 103% of required quantity will not be considered for payment.
- .4 Contractor may elect to mix entire quantity at one site and transport mix to other site at his own cost.

2.5 Haul Aggregate for Asphalt Mixture

- .1 Aggregates for asphalt mixture must be hauled from aggregate stockpile sites to Asphalt Mixture stockpile locations. Haul distances are as follows:

AGGREGATE STOCKPILE	ASPHALT MIX LOCATIONS	APPROXIMATE HAUL DISTANCE
Km 262.0	Km 254.0	15.0
Km 366.0	Km 366.0	0.5
Km 509.0	Km 445.0	66.0
Km 554.0	Km 538.0	19.0
Km 637.3	Km 647.4	10.5
Km 712.4	Km 698.1	12.0
Km 751 & 762.5	Km 762.5	11.5 & 0.1
Km 751 & 838.5	Km 839.0	88.0 & 0.8
Km 922.3	Km 922.0	1.0

- .2 If Aggregate is not available at this location, Contractor shall haul from the next available source with no claim for additional transport costs.

PART 3 – EXECUTION

3.1 Equipment

- .1 Sufficient storage tanks for asphaltic material.
- .2 Asphaltic mixing plant capable of accurately proportioning asphaltic material and aggregates in specified amounts and mixing to achieve uniform coating of aggregate within job-mix tolerances and loading directly into bin, hopper, hauling equipment or stockpile.
- .3 Loader or other equipment capable of feeding aggregates into asphalt mixing plant.
- .4 Sufficient haul vehicles to haul finished asphalt mixture to stockpile sites.

-
- .5 Hopper and conveyors system or other system capable of stockpiling finished asphalt mixture in such a manner that no contamination and no compaction other than by weight or material itself will result.
 - .6 Mixer shall be a twin shaft plug mill or a drum mixer.
- 3.2 Mixing
- .1 Measure asphaltic material and aggregates separately and accurately to specified proportions, combine, and mix thoroughly to produce a uniform mixture.
 - .2 Maintain mixing temperature in compliance to the mix design specifications and provide temperature log (Typically 60-100 degrees Celsius).
 - .3 The aggregate immediately before entering a pug mill shall contain not more than 1.0% moisture by weight. No separate payment shall be made for drying.
 - .4 Ensure that surface of dried aggregates is free of carbon and unburned fuel oil.
 - .5 For drum mixers, the mix shall contain no more than 2.0% and not less than 1.0% moisture by weight at discharge.
- 3.3 Transportation
- .1 Transport mixture from mixing site to stockpile site in tight vehicles with metal bottoms clean of all foreign materials. Inside surface of unit used for hauling finished asphalt mixture to be lightly lubricated with thin oil or soap solution before loading. Excess lubrication will not be permitted.
- 3.4 Regulations Governing Work
- .1 Comply with requirements of Acts, Regulations and Bylaws in force concerning work and use of roadways over which materials or equipment are hauled.

END OF SECTION

Deep Patching
Section 32 12 16.7PART 1 - GENERAL

- | | | | |
|-----|--------------------------------|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for deep patching, removing failed surface, base course and sub grade and backfilling with similar compacted thickness of base course. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 - Traffic Regulations. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Deep patching to be measured in m ³ of excavated material. Unit price includes all work and equipment described in this section including material transport and landscaping. |

PART 2 - PRODUCTS

- | | | | |
|-----|------------------|----|---|
| 2.1 | <u>Materials</u> | .1 | Backfill aggregate to be granular base supplied by Departmental Representative at designated locations. |
| | | .2 | Filter fabric and perforated pipe, flaked calcium supplied by Departmental Representative at designated locations. Transport of filter fabric and perforated pipe and flaked calcium will be incidental and no separate payment will be made. |
| | | .3 | Provide Departmental Representative a schedule of deep patching three days prior to commencing work. |

PART 3 - EXECUTION

- | | | | |
|-----|-------------------------------|----|---|
| 3.1 | <u>Identification of Work</u> | .1 | Departmental Representative will identify exact areas to be deep patched. |
|-----|-------------------------------|----|---|

- .2 Perform deep patching within one week after areas are identified.
In case the work is not executed within this timeframe a Type-1 NCR will be issued to the contractor.
- .3 Provide Departmental Representative with a schedule of deep patching three days prior to commencing work. Deep patch areas must be covered within 72 hours after completion of the deep patch and acceptance of the Departmental Representative.

3.2 Equipment

- .1 Loader.
- .2 Back hoe/Excavator.
- .3 Self-propelled vibratory steel roller/hoe pack.
- .4 Dump trucks.
- .5 Motor grader.
- .6 Water truck.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Remove surface material, base course and sub grade to firm foundation, to satisfaction of the Departmental Representative. Dispose of unsuitable material at designated disposal area within five Kilometers and landscape to satisfaction of Departmental Representative.
- .3 Install filter fabric, flaked calcium and perforated pipe as directed by Departmental Representative. Installation and transport of filter fabric, flaked calcium and perforated pipe will be incidental to work and no separate payment will be made.
- .4 Transportation and pickup of materials will be incidental to work and no separate payment will be made.
- .5 Backfill to top of road with granular base to maintain smooth even surface with Bituminous Surface Treatment or base course material, compacting in 200mm lifts to

satisfaction of Departmental Representative to prevent settlement.

- .6 Remove traffic control at completion of work.
- .7 Bituminous Surface Treatment will be applied on patched areas according to Section 32 01 11.03.

3.4 Warranty

- .1 The contractor warrants the executed work for 1 week after completion. Deformations of the road surface would indicate settlement, which will require re-work of the deep patch at no cost to the owner. Re-inspection by the Departmental Representative is required for approval of work and payment. Re-work shall be executed within 48 hrs after notification. Failure to comply will result in a Type-1 NCR.

END OF SECTION

Hand Placed Asphalt Premix
Section 32 12 16.8

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for patching potholes by hand, using premix.

- 1.2 Related Work .1 Section 01 35 14 - Traffic Regulation.

- 1.3 Measurement for Payment .1 Hand placed asphalt premix to be measured in m³ of premix material, measured in stockpile that is acceptably placed to this specification. Contractor shall provide stockpile quantities certified by professional engineering firm at the end of each year. No payment for surveys.

PART 2 - PRODUCTS

- 2.1 Materials .1 Premix material to be supplied by Contractor at designated locations as per Section 32 12 16.6 – Asphalt Mix.

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify potholes to be patched.
.2 Repair identified potholes within twenty four hours of and/or identification/notification. Non-compliance will result in a Type 1 NCR.

- 3.2 Equipment
 - .1 Dump truck in accordance with 32 94 11.05.
 - .2 Loader in accordance with 32 94 11.04.
 - .3 Four (4) Mechanical Compactors.
 - .4 Tiger Torch.
 - .5 Two (2) Asphalt hot patchers mounted on trailer.

- 3.3 Operation
 - .1 Set up traffic control before commencing work.
 - .2 Log patching location with date and chainage and provide log to Departmental Representative.
 - .3 Remove loose, broken material and water from pothole.
 - .4 Bituminous mix shall be spread on a dry surface.
 - .5 The bituminous mix shall not be spread when the prepared surface is frozen and/or when the atmospheric temperature is less than two degrees Celsius, or as directed by the Department Representative.
 - .6 Haul and place premix material in pothole.
 - .7 Compact premix material with compactor to obtain smooth, flush surface acceptable to Departmental Representative.
Material must be placed at the specified compaction temperature defined in the mix design and compacted to the compaction requirement of the mix design. No payment will be made for material that is not compacted with a mechanical compactor.
 - .8 Compacting premix material with hauling or traffic control units is not permitted.
 - .9 Remove traffic control at completion of work.

- 3.4 Warranty
 - .1 Contractor warrants pothole and Hand Placed Asphalt repaired sections for 2 weeks after completion of work.

- .2 Repair/rework of patches/potholes within the 2 week warranty period are to be executed at no cost to the owner. The warranty period of the re-worked section will remain constant (no extension for re-worked sections).

END OF SECTION

Painted Pavement Markings
Section 32 17 23

PART 1 – GENERAL

- 1.1 Description
 - .1 This section specifies requirements for painting pavement marking in two stages.
 - .2 Pavement marking to be in accordance with Uniform Traffic Devices for Canada.

- 1.2 Related Work
 - .1 Traffic Regulations Section 01 35 14.

- 1.3 Measurement for Payment
 - .1 Pavement markings to be measured in kilometres of highway painted and approved by Departmental Representative.
 - .2 No separate payment for pre-marking, eradication, layout, or interim centerline marking. If upgrades to the highway occur during the course of the contract & new lines/ layout are required, payment for pre-marking, eradication, layout, or interim centerline marking will be incidental to the contract and no separate payment will be made.
 - .3 Provide daily work log reports certifying lineal metres of line painted, width of line, and quantity of paint used.

- 1.4 Work Schedule
 - .1 Stage One: Paint pavement markings each year between Km 133 and Km 968 by July 31th.
 - .1 Total Kms to be painted are approximately 835 per year.
 - .2 Stage Two: Between September 15 and September 30 each year paint pavement markings on areas where Stage one lines have been lost.
 - .1 Total Kms to be painted are approximately 485 per year.

PART 2 – PRODUCTS

2.1 Materials

- .1 Paint:
 - .1 Shall be compliant to BC MOTI list of recognized products (December 2016 or newest edition).
 - .2 Color: Shall be compliant to BC MOTI list of recognized colors (December 2016 or newest edition).
- .2 Thinner:
 - .1 As per manufacturer’s recommendations by formulation selected.
- .3 Glass Beads:
 - .1 Overlay Type: Shall be compliant to BC MOTI list of recognized products (December 2016 edition).

2.2 Storage of Materials

- .1 Material may be delivered to and stored at Public Works and Government Services Canada compound in Sikanni, Km 254, Fort Nelson Pit, Km 445.3, Toad River, Km 647 and Fireside, Km 839.

PART 3 - EXECUTION

3.1 Equipment

- .1 Provide all equipment including but not limited to painting truck, pilot trucks and ancillary equipment to load and transport materials.
- .2 Painting truck to apply paint and beads as specified.
- .3 Eradicator to remove lines if required as directed by Departmental Representative incidental to work, no separate payment will be made.

3.2 Layout & Location of Work

- .1 Layout work as follows:

- .1 Contractor shall be responsible for all pre-marking required to properly apply markings.
 - .2 Contractor shall determine and certify the location for passing barriers within limits of this contract. In addition, Contractor shall check and certify all existing markings and make adjustments if necessary.
 - .3 Departmental Representative to determine number of lines to be painted.
 - .4 Minimum sight distances will be 425 m. Layout shall be according to the Uniform Traffic Control Devices for Canada Manual.
- .2 Paint pavement markings as follows:
- .1 White pavement edge markings, broken yellow directional dividing line, solid yellow no passing zones and white directional arrows/message identification markings where applicable on pavement.
 - .2 Truck climbing lanes and/or acceleration/deceleration lanes are in the following approximate locations:

Km 152	Upper Halfway
Km 158	Secure Energy
Km 174	109 Road
Km 190	Spectra Energy
Km 192	Gundy Road
Km 207	132 Road
Km 251 – Km 258	Sikanni
Km 446 – Km 447	Weigh Scales.
Km 450 – Km 451	Muskwa Hill to Klahanni

Km 483 – Km 483.5 Liard Highway Junction.

Km 750 – Km 753 Washout Creek

Km 845.5 – Km 848.5 Fireside area

.3 Paint fog lines at the following locations:

Km 133 – Km 452

Km 456 – Km 968

.4 Paint all message identification markings from Km 133 to Km 968.

3.3 Dimensions of Lines

.1 Width of lines to be 110 mm.

.2 Dashed lines to be 3.0 m long with 5.0 m gaps where there are no existing lines.

.3 Non-compliance to the line dimensions will result in remedial work and Type – 2 NCR.

3.4 Condition of Surfaces

.1 Contractor is to insure that pavement surface is free from surface water, frost, ice, dust, oil, grease and other foreign materials as required before painting.

3.5 Application

.1 Rolling traffic control to prevent tracking and damage of freshly painted lines shall be provided by the contractor in accordance to the paint manufacturers requirements and agreed upon by the Departmental Representative. Non-compliance will result in Type -1 NCR for non compliance to traffic control regulations and Type 2 NCR for poor workmanship.

.2 Apply paint only when air temperature is above 10° C and no rain is forecast for 6 hours. A weather report and forecast is to be provided to the Departmental Representative at minimum 12 hours prior to execution of the works.

-
- .3 Apply paint evenly at a wet film thickness of 400 micrometres, or 45 litre/Km of solid 110mm line.
 - .4 Do not thin paint unless approved by Departmental Representative.
 - .5 Symbols and letters to conform to Uniform Traffic Control Devices for Canada.
 - .6 Paint lines to be uniform color and density with sharp edges.
 - .7 Thoroughly clean distributor tank before refilling with paint of different color.
 - .10 Apply glass beads at rate of 700-grams/ litre of paint.
 - .11 Remove traffic control as per compliance to section 3.5.1

3.6 Tolerances

- .1 Paint markings to be within plus or minus 12 mm of indicated dimensions.
 - .1 Paint thickness to be within plus or minus 10% of specified thickness or volume.
 - .2 Application of glass beads to be within 25 grams/litre of paint.
 - .3 Repaint or correct, as directed, markings that do not meet these tolerances.

3.7 Protection of Completed Work

- .1 Protect pavement markings until dry.

END OF SECTION

Dozer-Excavator
Section 32 94 11.01

PART 1 – GENERAL

- 1.1 Description .1 This section specifies requirements for miscellaneous summer use of dozer/excavator.

- 1.2 Related Work .1 Traffic Regulations Section 01 35 14.

- 1.3 Measurement for Payment .1 Payment for Dozer/Excavator to be measured in hours of dozer/excavator working time. Travel time to worksite and return to nearest maintenance camp after completion of work at that site shall be measured in hours dozer/excavator traveled or hours of transport by truck & trailer, whichever would cost less.
 - .2 Hourly rate includes all operator costs, room and board and service costs.
 - .3 Truck and trailer to be paid under provisional cost sum..
 - .4 Operator travel time will be incidental to the work and no separate payment will be made.
 - .5 Twenty-four hour timing device must be submitted for all hourly work completed. State-Of-The-Art technologies to measure operational hours, locations of equipment and consumption of consumables may be implemented by the contractor after approval by the Departmental Representative.

PART 2 – PRODUCTS

- 2.1 Not Used .1 Not used.

PART 3 – EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify projects requiring Dozer/Excavator and state schedule for completion.

- 3.2 Equipment .1 Dozer minimum 105 FWHP, maximum 150 FWHP.
 - .1 Winch.
 - .2 Six way blade.
 - .3 Wide street pads (30 inch minimum)
 - .4 Twenty-four hour timing device.
 - .5 Two (2) - 2015 or newer model in good operating condition.
 - .6 Winch (1) Dozer, Ripper(1) Dozer
- .2 Excavator minimum 19.05 – 20.41 tonne heavy duty hydraulic.
 - .1 Frost bucket.
 - .2 Thumb bucket.
 - .3 Wide street pads – (30 inch minimum)
 - .4 Hoe Pack.
 - .5 Chuck Blade.
 - .6 Twist-a-wrist bucket.
 - .7 Cleanup bucket.
 - .8 Mulching/Brushing head
 - .9 Twenty-four hour timing device.
 - .10 Two (2) - 2015 or newer model in good operating condition.

- .3 Mini Excavator (4.8 – 6.0 tonnes)
 - .1 Thumb Bucket
 - .2 Twist-A-Wrist Bucket
 - .3 Clean up Bucket
 - .4 Mulcher Attachment
 - .5 Frost Bucket
 - .6 Front Blade
 - .7 Rubber Tracked
 - .8 Twenty-four hour timing device.
 - .9 Minimum of one (1) 2015 or newer model in good operating condition.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Perform work as directed.
- .3 Remove traffic control at completion of work.

3.4 Quality Control

- .1 Provide monthly inspection and maintenance records for review by the Departmental Representative as per the QMP provided by the contractor.

END OF SECTION

Self-Propelled Steel Roller
Section 32 94 11.02

PART 1 – GENERAL

- | | | | |
|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for miscellaneous Summer use of self-propelled vibratory steel roller, except when roller is included in unit price of other sections. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 - Traffic Regulations |
| 1.3 | <u>Measurement for Payment</u> | .1 | Payment for roller to be measured in hours of roller working time. Travel time to worksite and return to nearest maintenance camp after completion of work at that site shall be measured in hours roller traveled or hours of transport by truck & trailer, whichever would cost less. |
| | | .2 | Hourly rate includes all operator costs, room and board and service costs. |
| | | .3 | Truck and trailer time to be paid under provisional cost sum. |
| | | .4 | Operator travel time will be incidental to the work and no separate payment will be made. |

PART 2 - PRODUCTS

- | | | | |
|-----|-----------------|----|----------|
| 2.1 | <u>Not Used</u> | .1 | Not used |
|-----|-----------------|----|----------|

PART 3 – EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify projects requiring roller and state schedule for completion.
- 3.2 Equipment .1 Self-propelled Steel Roller. Minimum weight of 9.07-10.80 tonnes.
.2 Two (2) 2015 model or newer in good operating condition.
- 3.3 Operation .1 Set up traffic control before commencing work.
.2 Perform work as directed.
.3 Remove traffic control at completion of work.
- 3.4 Quality Control .1 Provide monthly inspection and maintenance records for review by the Departmental Representative as per the QMP provided by the contractor.

END OF SECTION

Brush and Weed Control
Section 32 94 11.03

PART 1 – GENERAL

1.1	<u>Description</u>	.1	This section specifies requirements for this cutting of grass, brush, trees, and other vegetation within existing right-of-way limits.
1.2	<u>Related Work</u>	.1	Traffic regulations Section 01 35 14.
1.3	<u>Measurement for Payment</u>	.1	Right of way mowing will be measured in actual kilometers, total width of right of way treeline-to-treeline cut to satisfaction of Departmental Representative. Shoulder mowing will be measured in kilometers both sides of the road cut to the satisfaction of the Departmental Representative. Unit price includes all work described in this section.
		.2	No payment will be made for a Kilometre, until it is mowed in its entirety.
		.3	Complete each year's work by October 1 st except areas which require freeze up which shall be completed by Dec 1 st . Non-compliance will result in a Type-1 NCR.
		.4	Payment for trees removed outside of mowing area at the direction of the Departmental Representative, will be made using labor rates under the Unscheduled Labour (Section 01 21 00).

PART 2 – PRODUCTS

2.1	<u>Not Used</u>	.1	Not used.
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PART 3 - EXECUTION

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|-----|-------------------------------|----|--|
| 3.1 | <u>Identification of Work</u> | .1 | Departmental Representative will locate and mark areas to be brushed or mowed. |
| | | .2 | A work instruction will be provided on or before April 30th of each year. |
| 3.2 | <u>Equipment</u> | .1 | Provide all equipment and hand tools required to cut vegetation from right of way, including but not limited to areas around bridges, guide rail, signs and culverts. |
| | | .2 | Rubber tire machine with mowing head attachment, and track excavator with mulching head attachment. |
| 3.3 | <u>Operation</u> | .1 | Set up traffic control before commencing work. |
| | | .2 | When right of way mowing, cut off all grass, brush, trees up to 100 mm in diameter and other vegetation from edge of pavement or BST to existing tree line right or left of centerline, to a height of no more than 100 mm off ground level. Trees fallen into ROW are to be cut up as per .3 and removed from ROW . Non-compliance will result in a Type-1 NCR. |
| | | .3 | All vegetation shall be cut into pieces no larger than 150 mm in any dimension. |
| | | .4 | When shoulder mowing, cut grass and weeds to a height of less than 100 mm seven metres from edge of BST or pavement left and right of centerline. |
| | | .5 | Repair any ruts greater than 100 mm deep or other damage to right-of-way resulting from the work performed. |

- .6 Wet areas that will result in substantial cutting shall require vegetation to be hand cut and mulched or burned.
- .7 Remove vegetation and debris from roadway.
- .8 Remove traffic control at completion of work.

END OF SECTION

Loader

Section 32 94 11.04

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for miscellaneous summer and winter use of loader, except when loader is included in unit price of other section.

- 1.2 Related Work .1 Traffic Regulations - Section 01 35 14, Snow Removal and Ice Control 38 21 00

- 1.3 Measurement for Payment .1 Payment for loader to be measured in hours of loader working time. Travel time to worksite and return to nearest maintenance camp after completion of work at that site shall be measured in hours loader traveled or hours of transport by truck and trailer, whichever would cost less.
 - .2 Twenty-four hour timing device logs must be submitted for all hourly work completed. State-Of-The-Art technologies to measure operational hours, locations of equipment and consumption of consumables may be implemented by the contractor after approval by the Departmental Representative.
 - .3 Hourly rate includes all operator costs, room and board and service costs.
 - .4 Truck and trailer to be paid under provisional cost sum.
 - .5 Operator travel time will be incidental to the work and no separate payment will be made.

PART 2 - PRODUCTS

2.1 Not Used .1 Not used.

PART 3 - EXECUTION

3.1 Identification of Work .1 Departmental Representative will identify projects requiring loader and agree on schedule for completion.
If not completed as per the agreed schedule a Type-2 NCR will be issued.

3.2 Equipment .1 Loader as described in Section 38 21 00 – Snow Removal and Ice Control.

3.3 Operation .1 Set up traffic control before commencing work.
.2 Perform work as directed.
.3 Remove traffic control at completion of work.

END OF SECTION

Tandem Dump Truck
Section 32 94 11.05

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for miscellaneous summer use of tandem dump truck except when tandem dump truck is included in unit price of other sections.

- 1.2 Related Work .1 Section 01 35 14 - Traffic Regulations and Section 38 21 00 Snow Removal and Ice Control.

- 1.3 Measurement for Payment .1 Payment for tandem dump truck to be measured in hours of truck working time. Travel time to worksite and return to nearest maintenance camp after completion of work at that site shall be measured in hours tandem dump truck traveled or hours of transport by truck and trailer, whichever would cost less.
 - .2 Hourly rate includes all operator costs, room and board and service costs.
 - .3 Truck and trailer to be paid under provisional cost sum.
 - .4 Operator travel time will be incidental to the work and no separate payment will be made.
 - .5 Twenty-four hour timing device logs must be submitted for all hourly work completed. State-Of-The-Art technologies to measure operational hours, locations of equipment and consumption of consumables may be implemented by the contractor after approval by the Departmental Representative.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not used

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify projects requiring tandem dump truck and agree on schedule for completion.
If not completed as per the agreed schedule a Type-2 NCR will be issued.
- 3.2 Equipment .1 Tandem Dump Truck Specification:
.1 G.V.W. minimum 20,000 kg.
.2 Engine minimum 15 liter, 475 HP
.3 Rear axle minimum 21,000 kg.
.4 Wheel base minimum 4900 mm.
.5 Tires minimum 10.00 x 24.5 mm.
.6 Box: minimum 7.5 cubic meter capacity dump box with:
.1 Heavy duty hoist capable of completing dump cycle in one minute.
.2 Air trip double acting tailgate with spreader chains.
.3 Vibrator unit.
.4 Pintle hitch.
.7 Tank: minimum four (4) 11,000 liter capacity complete with cab operated spray bar and 100 mm pump.
.8 2018 model or newer in good operating condition.
.9 Winter attachment equipment described in specification 38 21 00 section 3.2.
- 3.3 Operation .1 Set up traffic control before commencing work.
.2 Perform work as directed.
.3 Remove traffic control at completion of work.

END OF SECTION

Motor Grader
Section 32 94 11.06

PART 1 - GENERAL

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|-----|--------------------------------|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for miscellaneous summer and winter use of motor grader, except when motor grader is included in unit price of other sections. |
| 1.2 | <u>Related Work</u> | .1 | Traffic Regulations – Section 01 35 14, Snow Removal and Ice Control 38 21 00 |
| 1.3 | <u>Measurement for Payment</u> | .1 | Payment for motor grader to be measured in hours of grader working time. Travel time to worksite and return to nearest maintenance camp after completion of work at that site shall be measured in hours motor grader travelled or hours of transport by truck and trailer, whichever would cost less. |
| | | .2 | Hourly rate includes all operator costs, room and board and service costs. |
| | | .3 | Truck and trailer to be paid under provisional cost sum. |
| | | .4 | Operator travel time will be incidental to the work and no separate payment will be made. |
| | | .5 | Twenty-four hour timing device logs must be submitted for all hourly work completed. State-Of-The-Art technologies to measure operational hours, locations of equipment and consumption of consumables may be implemented by the contractor after approval by the Departmental Representative. |

PART 2 - PRODUCTS

2.1 Not Used .1 Not used

PART 3 - EXECUTION

3.1 Identification of Work .1 Departmental Representative will identify projects requiring motor grader and agree on schedule for completion.
If not completed as per the agreed schedule a Type-2 NCR will be issued.

3.2 Equipment .1 Motor grader as described in Section 38 21 00 with the addition of carbide insert cutting edge
.2 Four (4) 2018 or newer Graders to be equipped with 2018 or newer, fifteen six (6) tubeless wheeled, 1 tonne, 2.4 m wide by 2.4 m long hydraulically operated compacting attachment. Installed by April 30th of each year. Non-compliance will result in a Type-2 NCR.
.3 Winter attachments to be as per paragraph 3.2 of Section 38 21 00.

3.3 Operation .1 Set up traffic control before commencing work.
.2 Perform work as directed.
.3 Remove traffic control at completion of work.

END OF SECTION

Litter Clean-Up
Section 32 94 11.07

PART 1 – GENERAL

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|-----|--|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for supply, installation, emptying of garbage bins, clean-up of litter around litter sites, and removal of litter from right of way. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 - Traffic Regulations. |
| 1.3 | <u>Measurement for Payment and Pick up of Litter</u> | .1 | Supply, installation and emptying bins, including disposal costs, debris pick up and clean up around sites shall be per month. |
| | | .2 | Full width litter pick up will be measured in kilometers of right of way cleaned. |

PART 2 - PRODUCTS

- | | | | |
|-----|------------------|----|--|
| 2.1 | <u>Materials</u> | .1 | Provide new, hide a bag bear proof stand alone containers with concrete bases, extending 12 inches past all four corners of container. |
| | | .2 | Plastic bags for containers. |
| | | .3 | Transfer dumpster specified in operation 3.3.4 of this section. |

PART 3 – EXECUTION

- | | | | |
|-----|-------------------------------|----|---|
| 3.1 | <u>Identification of Work</u> | .1 | Departmental Representative will identify right of way to be cleaned each spring. |
|-----|-------------------------------|----|---|

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- .2 Supply and install minimum of 2 new containers at each pullout located at Km 184, Km 234, Km 251, Km 258, Km 282, Km 293, Km 319, Km 355, Km 358, Km 366, Km 374, Km 380, Km 394, Km 419, Km 509, Km 525, Km 536(both sides), Km 546, Km 576, Km 585, Km 589, Km 596, Km 601, Km 615, Km 641, Km 648, Km 658.7, Km 680, Km 687, Km 712, Km 720.5, Km 728 (both sides), Km 751, Km 792.5, Km 814.4, Km 831.7, Km 848.4, (both sides of hwy) Km 920.3, Km 964.11.
 - .3 Empty containers as often as necessary, Summer and Winter to prevent containers from becoming full. Non-compliance will result in a Type-2 NCR.
 - .4 Pick up litter within 50 metres of edge of all litter sites between Km 184 to Km 968 each time containers are emptied. Non-compliance will result in a Type-2 NCR.
 - .5 Pick up large debris from right of way & road surface as it is encountered. All related cost is incidental and no separate payment will be made. Non-compliance will result in a Type-2 NCR.
 - .6 Brush around bins when required. All equipment, vehicles, and man power is incidental and no separate payment will be made. Non-compliance will result in a Type-2 NCR.
 - .7 Containers to be maintained in good appearance and good condition, mechanically functional acceptable by Departmental Representative, or replaced if directed by Departmental Representative.
- 3.2 Equipment
- .1 Two (2) 2015 or newer self-propelled Garbage Trucks, side loading in good operating condition.
 - .2 Three (3) Transfer dumpsters – located at Sikanni Km 254, Toad River Km 647, and Liard Km 762. Transfer dumpster transportation to nearest dump facility. All other related costs are incidental to unit price and no separate payment will be made.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Remove plastic bags from containers, place in truck and install new bags.
- .3 Pick up litter around sites and place in bags or directly in truck.
- .4 Transfer garbage to dumpster at Km 254 Sikanni Camp, Km 647.4 Toad River Camp, Km 762.5 Liard River Camp or garbage dump.
 - .1 Garbage dumps are located in Wonowon, Fort St. John, B.C. and Fort Nelson, B.C.
- .5 Clean litter from right of way each spring.
- .6 Transfer right of way litter to dumpster or to garbage dumps as listed.
 - .1 Garbage dump for right of way cleanup from Km 133 to Km 254, is Fort St. John, B.C. and/or Wonowon Transfer Station.
 - .2 Garbage dump for right of way cleanup from Km 254 to Km 589, is Fort Nelson, B.C.
 - .3 Garbage dump for right of way cleanup from Km 589 to Km 968, is Fort Nelson, B.C..
- .7 Disposal of hazardous waste in accordance with Environmental Regulations.
- .8 Contractor will pay all garbage disposal fees associated with this work.
- .9 Remove traffic control at completion of work.

3.4 Quality Control

- .1 Provide monthly inspection and maintenance records for the garbage trucks for review by the Departmental Representative as per the QMP provided by the contractor.

END OF SECTION

Guide Rail
Section 32 94 11.08PART 1 – GENERAL

- 1.1 Description .1 This section specifies requirements for guide rail removal, installation and repair.
- 1.2 Related Work .1 Traffic regulations Section 01 35 14.
- 1.3 Measurement for Payment .1 Installation of concrete barrier/steel guide rail will be measured by each metre satisfactorily installed. Barriers/steel guide rails shall be installed as per Volume 1 – section 12, Supplement to CHBDC S6-14, BCMOTI Bridge Standards and Procedures Manual.
- .2 Removal of concrete barrier/steel guide rail will be measured by each metre of guide rail removed.
- .3 Installation / removal of posts will be measured by each post.
- .4 Payment for transportation of material to and from job site will be incidental to the work and no separate payment will be made.
- .5 All labour shall be included in unit price.

PART 2 – PRODUCTS

- 2.1 Materials .1 All material to be supplied by Departmental Representative.

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify and layout guide rail to be removed installed or repaired.

- .2 Work to be initiated within 24 hours of instruction by Departmental Representative and completed within the timeframe identified by the Departmental Representative. Non-compliance will result in a Type-1 NCR.

3.2 Equipment

- .1 Auger Truck, Compactor, excavator, grader and small hand tools.
- .2 Truck for transport.
- .3 Acceptable equipment for loading, hauling installation and clean up.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Install as per instructions of Departmental Representative
- .3 Road Maintenance and Damage.
 - .1 Any damage to such surfaces which, in the opinion of the Departmental Representative, could have been avoided by the employment of commonly accepted work standards and procedures shall be repaired and regarded as directed by the Departmental Representative, at the Contractor's expense.
 - .2 The Contractor shall be responsible for the repair of damage caused by his operations to highway side slopes, fill slopes, ditch bottoms and back slopes. Such repair shall include filling of holes, removal of debris, regarding and contouring, clean-out of ditches and reseeded, and any other work as directed by the Departmental Representative required to leave the work site in an acceptable condition.
- .4 Removal of traffic control at completion of work.

END OF SECTION

Auger Truck- Labour Assistant
Section 32 94 11.09

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for efficient and skilled labour performed which is not included in measurement for payment of other sections in this contract and for labour performed as part of Provisional Cost Sum.

- 1.2 Related Work .1 Traffic Regulations – Section 01 35 14.

- 1.3 Measurement for Payment .1 Auger truck to be measured for payment in number of hours or fractions thereof that auger truck is actually working. Unit price to include all cost of providing operator and assistants, auger truck, including hiring costs, compensation, benefits, supervision, accommodation and hand tools.
 - .2 Equipment to have approved seven (7) day timing devices mounted to record actual operating time.
 - .3 Sign repairs to be completed by designated employees within 6 weeks as per the specification provided by the Departmental Representative or as needed for immediate repairs. Non-compliance will result in a Type-1 NCR.
 - .4 Maximum actual time traveled will be paid from Sikanni Camp, Km 254, Fort Nelson Km 446, Toad River Km 647, Liard Camp Km 762 or Fireside Camp Km 839, to worksite and return, whichever is nearest.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not used.

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify work to be performed when not specified in other sections.
- 3.2 Equipment .1 Provide auger truck 2015 or newer and or hand tools as required, including, but not limited to, power saws, drills, power augers, generator, grinder, power brush cutters, axes, shovels, asphalt/concrete saw cutters, etc. No payment for supplying hand tools.
- .2 Auger truck complete with 2015 or newer 200mm auger and 7 metre reach. Auger motor and auger bit must be capable of drilling through rock.
- 3.3 Operation .1 Set up traffic control before commencing work.
- .2 Perform work as specified or directed by Departmental Representative.
- .3 Remove traffic control after completion of work.

END OF SECTION

**Snow Removal and
Ice Control –
Section 32 21 00**

PART 1 – GENERAL

- 1.1 Description
 - .1 This section specifies requirements for removal of snow and ice from highway surface, application of salt or sand/salt mixture and removal of glaciation from roadway surface and adjacent ditches and for road monitoring from October 15 to April 15.
 - .2 Each instance of non-compliance to this section will result in a Type-1 NCR.

- 1.2 Definitions
 - .1 Safe driving conditions:
Safe driving conditions are road conditions where vehicles equipped with winter tires or other adequate equipment and maintaining a reasonable standard of care as well as the posted speed or a speed suitable for conditions, will be able to stay in control of the vehicle.

- 1.3 Related Work
 - .1 Section 01 35 14 - Traffic Regulations.

- 1.4 Measurement for Payment
 - .1 Snow removal, ice control and removal of glaciation ice to be measured in hours of equipment operation based on the tiered unit prices in the Unit Price Table. Cumulative annual hours shall be calculated for each winter season (typically October 15 to April 15). Any effort occurred after April 15 will be paid under the winter maintenance rates. No inspection trips will be paid.
 - .2 Unit prices by hour of equipment and for daily road monitoring to be all-inclusive to supply and operate equipment.
 - .3 A daily road monitoring rate will be paid from October 15 to April 15 inclusive.

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- .4 Daily road monitoring will include daily inspection trips by Tandem Dump trucks departing from each camp as per 1.3.10. Daily road monitoring rate will not apply when no trip is made by a truck at the specified start time and zone, unless the Departmental Representative has specifically agreed to a change in the time and zone.
 - .5 Inspection trip duration is a nominal two hours for each truck. If adverse conditions are observed, trucks will start snow and ice removal immediately and contact operations center or camp supervisor to seek approval from Departmental Representatives to deploy adequate resources to fulfill the contractual requirements. Hourly rate will commence once the two hour inspection trip is complete.
 - .6 The expected practice will be for two Tandem Dump trucks to depart from each maintenance camp at the time specified for the inspection trip. However, during transitional seasons (October 15 to October 30 and April 1 to 15 of each year of this contract), when the weather is mild (previous 24 hour temperature and current 24 hour temperature forecast above zero degree centigrade), when the road in the relevant zone was clear of snow and ice for the previous 24 hours, AND when directed by the Departmental Representative, the contractor may use other equipment such as pickup trucks to conduct the daily inspection trips. This practice will be reviewed annually and may be revised if the Contractor can demonstrate, to the satisfaction of the Departmental Representative that because of technological updates, changing climatic conditions, or other factors, safe driving conditions can be maintained on the Highway through other practices.
 - .7 Plow, sand and apply calcium chloride as per this specification during inspection trip.
 - .8 Hours spent by loaders loading trucks with sand, salt or sand salt shall be incidental to truck operation.
 - .9 Daily inspection trip start times and zone for each truck when travelling in both directions as per the general practice shall be as follows:

Camp	Time	Zone
Wonowon	5:00 am	Km 133 – Km 162
		Km 162 – Km 210
Sikanni	5:00 am	Km 210 – Km 258
		Km 258 – Km 319
Prophet	5:00 am	Km 319 – Km 366
		Km 366 – Km 408
Fort Nelson	5:00 am	Km 408 – Km 452
		Km 458 – Km 501
Steamboat	5:00 am	Km 501 – Km 538
		Km 538 – Km 589
Toad River	5:00 am	Km 589 - Km 647
		Km 647 – Km 678
Muncho	5:00 am	Km 678 – Km 717
Liard	5:00 am	Km 717 – Km 762
		Km 762 – Km 792
Fireside	5:00 am	Km 792 – Km 839
		Km 839 – Km 881
Iron Creek	5:00 am	Km 881 – Km 922
		Km 922 – Km 968

- .10 Regardless of scheduled inspection times, contractor is required to monitor road conditions and do snow and ice removal 24 hours per day, seven days a week, 365 days a year in order to maintain safe driving conditions.
- .11 No separate payment for two (2) standby trucks. One (1) at Sikanni Maintenance Yard Km 254 and one (1) at Liard Maintenance Km 762.

PART 2 – PRODUCTS

2.1 Materials

- .1 Salt and sand/salt mixture to be supplied by Contractor at locations described in Section 39 11 00 and 39 21 00.

PART 3 – EXECUTION

3.1 Identification of Work

- .1 The contractor is required to monitor local weather conditions and to proactively begin with the application of de-icing agents subject to notification and approval by the Departmental Representative.
- .2 Provide a 24 hour weather forecast based on the most recent information available which is to include expected temperature, snowfall warnings or ice warnings for the each section of the Highway along the complete length under this contract. Weather reports shall be provided on a daily basis in a format suitable to the Departmental Representative between 6pm to 8pm by email and/or text during the winter maintenance period.
- .3 As weather and road conditions require and as approved by the Departmental Representative, notify and deploy resources in advance, which are sufficient to respond to anticipated snowfall. At a minimum, the 24 hour recommended resource deployment recommendations should be provided to the Departmental Representative as per the requirements of Section 38 21 00. Resources should be deployed to key geographic areas (e.g.: mountain passes, higher elevations, known frequent snowfall and/or blowing snow areas) prior to the occurrence of the anticipated snowfall to ensure that snow and slush removal will commence early in severely impacted areas.

- .4 Contractor should make best efforts to begin snow removal when snow build-up reaches 20 mm and before snow becomes packed on the road surface.
- .5 Snow removal/ice control can be requested by Departmental Representative at any time.
- .6 Continue snow removal to ensure that driving lanes remain open to traffic and in safe condition as determined by Departmental Representative.
- .7 Apply salt and/or sand/salt mixture as required to maintain road in safe condition as determined by the Departmental Representative.
- .8 Remove glaciation ice with ice blades and/or scarifier from surface within four hours of notification.
- .9 During extended periods of extreme cold, remedy unsafe conditions such as, but not limited to, ice on the Travelled Lanes and those conditions arising from melt and refreeze situations.

3.2 Equipment

- .1 Use tandem dump trucks, motor graders and loaders described by this section.
- .2 General Specification:
 - .1 Unless otherwise specified, all equipment and components to be manufacturer's standard or standard options as supplied for unit.
 - .2 All equipment to operate in ambient temperatures from -45 °C to + 40 °C.
 - .3 Equipment to have approved seven-day timing device mounted to record actual operating time. An approved device shall provide verifiable and clear indications of operating times as acceptable to the Departmental Representative. Information on operating times shall be provided to the Departmental Representative as specified or as request.
 - .4 All equipment to be equipped with amber color warning lights clearly visible from front and back when equipment is working. All rear of plow truck sanding units shall be equipped with rear light bar as per drawing R.017174.002.008.

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- .5 All equipment shall comply with regulations contained in B.C. Motor Vehicles Act and within Worksafe B.C. Compensation Act.
 - .6 All equipment specified under section 3.2 shall be ready for operation on or before October 15 of each year. Non-compliance will result in a Type 2 NCR.
 - .3 Motor Grader Specifications:
 - .1 Four (4) 2018 manufacture or newer.
 - .2 Self-propelled tandem type.
 - .3 Engine minimum 250 FWHP.
 - .4 Equipped with standard mouldboard minimum 4270 mm x 635 mm x 25 mm with power tilt and side shift.
 - .5 Equipped with carbide ice blades with maximum 25 mm gap between teeth. (Winter)
 - .6 Equipped with adequate lights for normal highway operation, extendable side wing, scarifier and power angle front blade.
 - .4 Tandem Dump Truck Specifications:
 - .1 Twenty one (21) 2018 Manufacture or newer.
 - .2 G.V.W. minimum 20,000 kg.
 - .3 Engine minimum 15 litres, 475 HP
 - .4 Rear axle minimum 21,000 kg.
 - .5 Wheel base minimum 4900 mm.
 - .6 Tires minimum 10.00 x 22.5
 - .7 Box: minimum 7.5 cubic metre capacity dump box with:
 - .1 Heavy duty hoist capable of completing dump cycle in one minute.
 - .2 Air trip double acting tailgate with spreader chains.
 - .3 Vibrator unit.

-
- .8 Equipped with new hydraulic powered cab controlled slide-in spreader units, with minimum capacity of 7.5 m³ and capable of spreading 19 mm aggregate with enclosed center rear discharge, complete with minimum four removable 75 mm x 75 mm screens.
 - .9 Equipped with new light weight one-way plow designed with full curve discharge increasing in depth from nose to discharge end with minimum 3.3 metre cutting edge. Plow to be hydraulically operated from cab and capable of plowing at highway speeds to 50 Km/hr.
 - .11 Twenty-one (21) units equipped with new hydraulically cab operated underbody grader blade of minimum 3660 mm x 406 mm x 25 mm mould board dimensions. Complete with two rotating and two reversing cylinder and two lift cylinders (six-way).
 - .12 All twenty one (21) trucks to be equipped with new minimum 3 metre rear mounted steel wing with:
 - 1 Hydraulically adjustable telescopic push arm.
 - .2 Valve for retractable push arm to release when wing hits solid objects.
 - .3 Float in valve to allow wing to follow road contours.
 - .4 Flashing amber light on end of wing.
 - .5 Front End Loader:
 - .1 2018 manufacture or newer.
 - .2 Engine minimum 142 FWHP.
 - .3 Drive: four wheel drive.
 - .4 Quick attach buckets minimum 2.5 cubic metre capacity, provide 10 sets of forks and front blades, two (2) sweeper units in contract for specified use by Departmental Representative.
 - .5 Operating weight 12868 kgs.
 - .6 One per maintenance yard.

3.3 Operation

- .1 Remove snow from driving lanes using trucks and one-way snowplows traveling between 30 Km/hr and 50 Km/hr.
- .2 When driving lanes are clear, apply salt or sand/salt mixture to return road to safe driving condition as determined by the Departmental Representative, giving priority to steep grades, sharp curves, intersections, bridges and bridge approaches.
- .3 Apply salt and/or sand-salt mixture to remaining sections and return all sections to safe driving condition as determined by the Departmental Representative as quickly as conditions and weather permit.
- .4 Use motor grader with wing attachment or trucks to remove snow off road and shoulders as directed by Departmental Representative.
- .5 Use graders and loader attachments (blades) to supplement trucks and one-way plows as directed by the Departmental Representative.
- .6 Use graders to wing foreslope when snow depth reaches 200 mm and weather permits or as directed by Departmental Representative.
- .7 Use underbody blade to remove packed snow or ice when directed by Departmental Representative.
- .8 Stop snowplows occasionally when required to allow traffic to pass.
- .9 Reduce speeds when plowing past highway signs.
- .10 Cost of repairing damage to highway signs caused by contractor's equipment shall be borne by contractor.
- .11 Shut off sanders when meeting or passing traffic.
- .12 Remove snow from property access as and when directed.
- .13 Erect traffic control before removing glaciation ice.
- .14 When glaciation ice threatens traffic movement, remove by blading accumulated ice from surface and also provide V ditch adjacent to shoulder to direct run-off to culvert.
- .15 Remove traffic control at completion of work.

END OF SECTION

Cleaning Bridges
Section 38 31 00

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for bridge cleaning.
.2 Each instance of non-compliance with this section will result in a Type-2 NCR.

- 1.2 Related Work .1 Traffic Regulation – Section 01 35 14.

- 1.3 Measurement for Payment .1 Payment will be made per bridge acceptably cleaned per year.
.2 Payment for the steel guardrails and the concrete barrier in 3.2.5 of this document will be one additional unit per year.

PART 2 - PRODUCTS

- 2.1 Not Used .1 Not used.

PART 3 - EXECUTION

- 3.1 Identification of Work .1 This work to be completed by May 28st of each year to comply with environmental and fish habitat regulations.

- 3.2 Operation .1 Set up traffic control before commencing work.
.2 Remove dirt and debris from all parts of all bridges, then washing, including decks, sidewalks, curbs, gutters, railings, truss members, to a minimum three metres above the

deck surface, including the bottom chord, all drainage structures, including scuppers, drain troughs, drain pipes and flume approaches, connected to bridge approach guide rails and sidewalks. All guide rail connected to bridge is included in this section. Also clean the bearings, backwall, breastwall, wingwalls, and abutment seat, pier caps, pier bearings, and concrete slope protection.

- .3 Ensure compliance with bridge cleaning procedures as defined in Memorandum of Understanding with Department of Fisheries and Oceans available from Departmental Representative.
- .4 Remove traffic control at completion of work.
- .5 Km 201-202 concrete barriers and Summit metal guiderail is included in this section requires washing rail from Km 600 to Km 615.

END OF SECTION

**Broom Highway
Section 38 41 00**

PART 1 - GENERAL

- | | | | |
|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for sweeping (brooming) highway except when brooming highway is included in unit price of other sections. |
| 1.2 | <u>Related Work</u> | .1 | Traffic Regulation – Section 01 35 14. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Brooming highway to be measured in kilometers of highway satisfactorily swept. Unit price includes all operator and equipment costs for work described in this section. |

PART 2 - PRODUCTS

- | | | | |
|-----|-----------------|----|-----------|
| 2.1 | <u>Not Used</u> | .1 | Not used. |
|-----|-----------------|----|-----------|

PART 3 - EXECUTION

- | | | | |
|-----|-------------------------------|----|--|
| 3.1 | <u>Identification of Work</u> | .1 | Departmental Representative will identify highway sections to be broomed and state schedule for completion. |
| 3.2 | <u>Equipment</u> | .1 | Two (2) 2015 or newer, self-propelled broom unit with front blade and water tank. One (1) of which, shall have a conveyor on front for loading truck while sweeping. |

- .2 Two (2) 2018 or newer, water trucks with front sweepers for dust control.
- .3 Airport Sweeper (Runway Sweeper) - pull behind, self driven.

3.3 Operation

- .1 Set up traffic control before commencing work.
- .2 Dampen surface ahead of brooming to maintain good visibility, acceptable to the Departmental Representative.
- .3 Broom complete road surface to remove all dirt, sand and other debris completely off road surface over fore slope. If broom can't completely remove dirt, sand and other debris over fore slope, supplement with grader. No separate payment for grader if required. Non-compliance will result in a Type-2 NCR.
- .4 Remove traffic control at completion of work.

END OF SECTION

Material Transport
Section 38 51 00

PART 1 - GENERAL

- | | | | |
|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for loading and hauling and placing materials when not included in unit price payment in other sections. |
| 1.2 | <u>Related Work</u> | .1 | Traffic Regulation – Section 01 35 14.
Loader - 32 94 11.04
Tandem Dump Truck - 32 94 11.05
Grader - 32 94 11.06
Excavator - 32 94 11.01 |
| 1.3 | <u>Measurement for Payment</u> | .1 | Material transport will be measured in m ³ kilometer of material loaded, transported and off loaded based on the distance travelled and related to the unit price in the unit price table. Volume of material hauled will be determined by mutual agreement between Departmental Representative and Contractor of average measured amount of material per box type. Haul distance to be measured by Departmental Representative. |

PART 2 - PRODUCTS

- | | | | |
|-----|-----------------|----|-----------|
| 2.1 | <u>Not Used</u> | .1 | Not used. |
|-----|-----------------|----|-----------|

PART 3 - EXECUTION

- 3.1 Identification of Work .1 Departmental Representative will identify material to be loaded and transported as well as the area in which material is to be placed.
- 3.2 Equipment .1 Loader, gradall, excavator or grader.
.2 Dump truck with rock protection boxes as required.
- 3.3 Operation .1 Set up traffic control before commencing work.
.2 Load trucks.
.3 Haul to designated location and unload or tailgate spread material as directed by Departmental Representative.
.4 Remove traffic control at completion of work.

END OF SECTION

**Calcium Chloride and
Alternatives
Section 38 61 00**

PART 1 - GENERAL

- 1.1 Description .1 This section specifies requirements for supplying liquid calcium chloride and storage tanks.

- 1.2 Related Work .1 Traffic Regulations section 01 35 14.

- 1.3 Delivery and Storage .1 Provide Departmental Representative with name of product, name of manufacturer, net weight.

- 1.4 Measurement for Payment .1 Calcium chloride to be measured in litres of calcium chloride applied. Supply of storage tank is incidental to this item.

PART 2 – PRODUCTS

- .1 Alternative products may be used if approved by the Departmental Representative. Alternative products require implementation of a test program. Payment of alternative products and the test program will be by the provisional cost sum.

- 2.1 Aqueous Calcium Chloride .1 To CAN/CGSB 15.1, Type L, Class 1 or 2, 35% concentration by weight of anhydrous product.

- .2 Provide steel storage tank with secondary containment at each camp.

- .3 Provide electric pump, mounted to transfer liquid to trucks.

PART 3 - EXECUTION

3.1 Applications

- .1 Spray calcium chloride on the plow truck sand/salt discharge as directed by Departmental Representative.

END OF SECTION

Cleaning and Reshaping Ditches
Section 38 71 00

PART 1 - GENERAL

- | | | | |
|-----|--------------------------------|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for cleaning and reshaping side or off take ditches to restore original flow line and grade. Major ditch excavation of over 1.0 meter deep is not included in this specification except Sikanni Hill/Steamboat where excavation will be 2.0 meters deep. Ditch reshaping to be in compliance with drawing R017174.002-09 |
| | | .2 | Ditch bottom widths may vary from 1.0 meters to 4.0 meters. |
| | | .3 | Non-compliance will result in a Type-1 NCR, as determined by the Departmental Representative. |
| 1.2 | <u>Related Work</u> | .1 | Traffic Regulation – Section 01 35 14. |
| 1.3 | <u>Measurement for Payment</u> | .1 | Cleaning and reshaping ditches to be measured in lineal meters of ditch cleaned and reshaped. Unit price includes all work described in this section except haul. |
| | | .2 | Hauling of material will be paid under Section 32 12 16.6 – Material Transport. |

PART 2 - PRODUCTS

- | | | | |
|-----|-----------------|----|-----------|
| 2.1 | <u>Not Used</u> | .1 | Not used. |
|-----|-----------------|----|-----------|

PART 3 - EXECUTION

- 3.1 Identification of Work
- .1 Departmental Representative will identify ditches to be cleaned.
 - .2 Except in cases of emergency, restore drainage flow within 48 hours.
- 3.2 Equipment
- .1 One (1) 2015 Rubber tire backhoe loaders, (minimum 90 FWMP) , one (1) 2015 or newer tired excavator (minimum 70 FWMP) with thumb to execute work as required. Alternative equipment only to be used upon approval of Departmental Representative.
 - .2 Motor grader, loader, backhoe, or dozer when required to landscape.
- 3.3 Operation
- .1 Set up traffic control before commencing work unless equipment working off highway.
 - .2 Remove ditching debris and dispose of material and landscape as directed by Departmental Representative.
 - .3 Remove traffic control at completion of work.

END OF SECTION

Sand Salt Mixtures
Section 39 11 00PART 1 – GENERAL

- | | | | |
|-----|--------------------------------|----|--|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for producing Sand-Salt Mixture to stockpiles. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 - Traffic Regulations |
| 1.3 | <u>Measurement for Payment</u> | .1 | Supply of salt to be included in unit price for sand/salt mix. |
| | | .1 | Furnish copies of freight and waybills for salt as shipments are received. Departmental Representative may check weights as materials are received, forward copies of waybills to Fort Nelson – PWGSC office for inspection. |
| | | .2 | Sand-Salt mixture to be measured in cubic meters of material acceptably produced and stockpiled. Contractor shall provide stockpile quantities certified by a professional engineering firm. |
| 1.4 | <u>Work Schedule</u> | .1 | Complete sand-salt mix piles by September 15 th of each year. Non-compliance will result in a Type-1 NCR. |

PART 2 - PRODUCTS

- | | | | |
|-----|------------------|----|---|
| 2.1 | <u>Materials</u> | .1 | Salt: Bulk highway coarse salt, to conform to the following specifications: |
|-----|------------------|----|---|

.1 Chemical Analysis

	Units	Min	Max
Total Chloride	%	95	100
Sodium Chloride	%	95	-
Calcium, water soluble	%	0.01	0.20
Magnesium, water soluble	%	0.005	0.05
Potassium Chloride	%	0.50	3.00
Potassium, water soluble	%	0.15	1.50
Sulfate, water soluble	%	0.10	0.50
Water insolubles	%	0.50	1.50
Moisture	%	-	1.00

.2 Screen Analysis

Screen Size (mm)	% Passing by Weight	
	Min	Max
12.00	100	-
9.00	95	100
5.00	60	85
2.00	30	60
0.900	10	30
0.400	0	10
0.071	0	3

-
- 2.2 Materials Supplied by Departmental Representative .1 Departmental Representative will supply crushed aggregates.
- 2.3 Preparation of Materials .1 Remove lumps from bulk highway salt.
- .2 The moisture content of the aggregates shall not be more than 5% for mixing. The Contractor shall employ mechanical drying to satisfy this moisture criteria.
- .3 No separate payment will be made for drying if required.
- .4 Prior to mixing, all aggregate must be screened to 100% passing 38 mm.
- .5 Mix sand salt at Km 162, 254, 366, 445, 536, 647.4, 698.1, 762.5, 839.2, and 922.
- .6 No separate payment for screening aggregate.
- 2.4 Sand-Salt Stockpile Sites .1 Mix and Stockpile quantities of sand-salt mixture in the beginning of the winter season to achieve the allowable quantities at the following locations:

KM	DESCRIPTION	QUANTITY
Km 162.0	Wonowon Maintenance Camp	4000 m ³
Km 254.0	Sikanni Chief Maintenance Camp	4500 m ³
Km 366.3	Prophet River	3500 m ³
Km 445.3	South of Fort Nelson	4000 m ³
Km 538.0	Steamboat Maintenance Camp	4000 m ³
Km 647.4	Toad Maintenance Camp	4000 m ³
Km 698.1	Muncho	4000 m ³
Km 762.5	Liard	4000 m ³
Km 839.2	Fireside Maintenance Camp	4000 m ³
Km 922.0	Iron Creek	4000 m ³

- .2 Departmental Representative will supply stockpile base.
- .3 Stockpile quantities shall be within 3% of specified quantities at each location. If stockpile volume is less than 97% of required quantity, contractor shall provide additional material to meet this requirement. Any excess material greater than 103% of required quantity will not be considered for payment. Non-compliance will result in a Type-2 NCR.

2.5 Haul Aggregate For Sand-Salt Mixture

- .1 Aggregates for Sand-Salt Mixture must be hauled from aggregate stockpile sites to Sand-Salt Mixture stockpile locations. Haul distances are as follows:

CURRENT AGGREGATE STOCKPILE	SAND-SALT LOCATIONS	APPROXIMATE HAUL DISTANCE
Km 258.0	Km 162.0	112.0
Km 262.0	Km 162.0	105.0
Km 258.0	Km 254.0	24.0
Km 366.3	Km 254.0	113.0
Km 366.3	Km 366.3	.05
Km 366.3	Km 445.3	79.0
Km 554.0	Km 538.0	19.0
Km 637.3	Km 647.4	10.5
Km 712.4	Km 698.1	14.5
Km 762.5	Km 762.5	0.1
Km 834.0	Km 839.0	6.0
Km 922.3	Km 922.0	1.0

NOTE: Km 258 - Man & Beast Pit 15 Km to stockpile from Alaska Highway.

.2 No Separate payment for haul. If stockpile is depleted it's the contractors obligation to retrieve material from other stockpiles at no cost.

PART 3 – EXECUTION

3.1 Equipment

- .1 Hoppers, conveyors and screening or other system capable of accurately proportioning and thoroughly mixing salt and sanding aggregate to design mix and loading into bin, hopper or hauling equipment.
- .2 Loader or other equipment capable of feeding salt and sanding aggregates into appropriate hoppers.
- .3 Hopper and conveyor system or other system capable of stockpiling mixture in minimum 10.0 metre high piles or storage sheds with 6.1 metre high opening.

3.2 Operation

- .1 Mixing
 - .1 Combine material uniformly in proportions to which they are to be mixed. Mix thoroughly.
- .2 Stockpiling
 - .1 Construct stockpiles to a minimum of 10 m in height.
 - .2 Using belt stacker, convey mix into storage sheds provided at time of mixing.
 - .3 Place salt for mixing on 75 mm thick sand pad. Incorporate Sand pad into mix.
 - .4 Any damage to storage sheds will be repaired by Contractor and no separate payment will be issued.
- .3 Mix Design
 - .1 Mix ratio of salt to aggregate is 5% by weight.
 - .2 Ratio is .090 t salt, 1 m³ of sand

- .4 Standard Test Procedures
 - .1 All reference tests in these specifications refer to revisions current at time of tendering.

END OF SECTION

**Highway De-Icing Salt
Section 39 21 00**

PART 1 – GENERAL

- 1.1 Description .1 This section specifies requirements for supply and delivery of highway de-icing salt, discharged by conveyor into sheds at camp locations.
- 1.2 Measurement for Payment .1 Contractor responsible for purchase and delivery of salt. Contractor to obtain competitive bids for supply and delivery and forward copies to Departmental Representative.
- .2 Contractor to receive payment for supply and delivery of salt at cost invoiced by supplier and according to following specifications.

PART 2 - PRODUCTS

- 2.1 Materials .1 All material to be weighed in a single operation on scales approved by Weights and Measures Inspection Services, Industry Canada. Proof of such approval to be provided to Departmental Representative upon request. Weigh slips to show printed tare weight and loaded weight for each delivery.
- .2 Salt: Bulk highway coarse salt, to conform to the following specifications:

.1 Chemical Analysis

	Units	Min	Max
Total Chloride	%	95	100
Sodium Chloride	%	95	-
Calcium, water soluble	%	0.01	0.20
Magnesium, water soluble	%	0.005	0.05
Potassium Chloride	%	0.50	3.00
Potassium, water soluble	%	0.15	1.50
Sulfate, water soluble	%	0.10	0.50
Water insolubles	%	0.50	1.50
Moisture	%	-	1.00

.2 Screen Analysis

Screen Size (mm)	% Passing by Weight	
	Min	Max
12.00	100	-
9.00	95	100
5.00	60	85
2.00	30	60
0.900	10	30
0.400	0	10
0.071	0	3

.3 Provide certified chemical analysis of material.

- .4 Material not meeting specification will be removed at supplier's expense.
- .5 No payment for material not meeting specification.

2.2 Materials Supplied by
Departmental
Representative

- .1 Departmental Representative will supply salt storage sheds at following locations:
Km 162, Km 254, Km 366, Km 445.3, Km 536, Km 647.4, Km 698, Km 762.5, Km 839, and Km 922.
- .2 Any damage to storage sheds will be repaired by contractor and no separate payment will be issued.

END OF SECTION

Aggregates General
Section 31 05 17

PART 1 - GENERAL

- | | | | |
|-----|--------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for crushing and stockpiling of aggregates. This specification is included as a reference only and shall be used at the sole discretion of the Owner. |
| 1.2 | <u>Related Sections</u> | .1 | Section 32 11 23 - B.S.T. Aggregate |
| 1.3 | <u>Measurement for payment</u> | .1 | Payment shall be made under the Provisional Cost Sum. Unit price shall be based on the lowest of 3 competitive quotes provided by the Contractor. Quotes shall be valid for the duration of the current summer maintenance season. New quotes shall be required for subsequent seasons. |
| | | .2 | Unit price shall include clearing and grubbing, stripping, washing and processing of excavated aggregate, all quality control testing, control of surface water, dressing of side slopes and all other work as specified in this specification. |
| | | .3 | Cost for final quantity measurement shall be m ³ and include the cost of survey of original ground prior to placing material in stockpile and final survey of completed stockpile. The volume measured for payment will not include the 300mm of material required for base of stockpile. No payment will be made for surplus material over and above the quantities specified by the Owner at the time of quote or as adjusted during the work. |
| | | .4 | The cost for surveying will include all wages, accommodations, transportation, and all other associated costs. Cost for quality control testing should be Lump Sum and include all wages, accommodations, transportation, lab trailer, testing equipment, and all other associated costs. |

-
- 1.4 References
- .1 ASTM D4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
 - .2 ASTM C117-95, Standard Test Method for Materials Finer than 75mm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .3 ASTM C136-01, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .4 CAN/CGSB-8.2-M88, Sieves Testing, Woven Wire, Metric.
 - .5 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 - .6 ASTM C131-01, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
- 1.5 Testing Procedures
- .1 All references to CSA, ASTM, AASHTO and other contained in this specification are the latest published editions or revisions to the quoted standard.
- 1.6 Quality Control
- .1 Contractor shall be responsible for quality control on all materials produced.
 - .2 A Certified Engineering Technician from a CCIL certified testing laboratory testing firm, equipped for aggregate testing, shall be on site at all times during aggregate production.
 - .3 A program for aggregate testing and test results shall be developed on site with Departmental Representative.
 - .4 In addition to the testing done by the contractor the Departmental Representative may take aggregate samples at random and have them tested by an outside testing firm.
- 1.7 Aggregate Testing by Lot System
- .1 The rate of sampling shall be based on Lots. The maximum Lot size shall be one shift production. The Departmental Representative may reduce the Lot size to a half shift if in his

opinion it is warranted to ensure compliance with the specification.

- .2 The Lot shall be divided into four approximately equal sub-lots and one sample shall be selected and tested on a random basis from each sub-lot.
- .3 In the event that operational conditions cause work to be interrupted before the Lot has been completed, the Departmental Representative may determine the acceptability of the incomplete Lot on the basis of the test results available.

1.8 Sampling Procedures

- .1 The technician will perform all necessary sampling and testing for acceptance purposes. Sampling will be carried out at the source during production.
- .2 Obtain samples by stopping the production discharge belt, sectioning the belt and removing all material from the sectioned area or obtained from a sampling device provided by the Contractor. Obtain samples from the production stockpile by combining sub-samples from at least four locations.

1.9 Testing

- .1 Perform gradation testing according to ASTM C117 and ASTM C136.
- .2 Samples for belt testing and stockpile testing will not be mixed in considering the acceptance of any Lot.

1.10 Acceptance Criteria

- .1 A lot of aggregate will be deemed to meet specification requirements for gradation if the mean of four test results from the Lot fall within gradation limits specified in the contract and the range of the test results is no greater when considering any one sieve designation than the numerical difference between the maximum allowable percent for that sieve designation as shown in the contract.

- .2 In the event the Departmental Representative decides that acceptance will be determined on the basis of an incomplete Lot, the incomplete Lot will be deemed to meet specification in the same manner as outlined above, except that the number of test results available in the incomplete Lot will be used rather than the four tests.
- .3 In the event that a Lot does not meet specification, the Lot will be removed from the stockpile as directed by the Departmental Representative. No payment will be made for the material not meeting the specification of the Lot system.
- .4 Leveling of the material of each Lot into the stockpile shall not commence until the lot has been accepted.
- .5 In cases where Lots are being rejected, the Departmental Representative may require indeterminate stockpiling, in which case costs for the indeterminate stockpiling are included in test procedures.

1.11 Pit Supervisor

- .1 The Contractor, when operating in a pit or quarry, will comply with all provisions of the Mines Act and the Health Safety and Reclamation Code for Mines in British Columbia. Non-compliance will result in a Type-1 NCR.

PART 2 - PRODUCTS

2.1 Materials

- .1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.
- .2 Flat and elongated particles of coarse aggregate: to ASTM D4791-99.
 - .1 Greatest dimension to exceed five times least dimension.
- .3 Fine aggregates satisfying requirements of applicable section to be one or blend of following:

- .1 Natural sand.
- .2 Manufactured sand.
- .3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
- .4 Coarse aggregates satisfying requirements of applicable section to be one or blend of following:
 - .1 Crushed rock.
 - .2 Gravel composed of naturally formed particles of stone.
 - .3 Light weight aggregate, including slag and expanded shale.

PART – 3 EXECUTION

3.1 Topsoil Stripping

- .1 Commence topsoil stripping of areas directed by Departmental Representative after area has been cleared and grubbed and debris has been removed from site.
- .2 Strip topsoil to depths directed by Departmental Representative.
- .3 Stockpile topsoil in locations directed by Departmental Representative.

3.2 Aggregate Source

- .1 Prepare, excavate, and finish pit as directed by Departmental Representative.
- .2 Prior to excavating materials for aggregate production, clear and grub area to be worked, and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as directed by Departmental Representative.
- .3 Where clearing is required, leave screen of trees between cleared area and roadways as directed by Departmental Representative.

-
- .4 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.
 - .5 When excavation is completed dress sides of excavation to nominal 3:1 slope, and provide drains or ditches as required to prevent surface standing water.
 - .6 Trim off and dress slopes of waste material piles and leave site in neat condition.
- 3.3 Processing
- .1 Process aggregate uniformly using methods that prevent contamination, segregation, and degradation.
 - .2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particular shapes, as specified. Use methods and equipment as approved by Departmental Representative.
 - .3 Wash aggregates, if required to meet specifications. Use only equipment approved by Departmental Representative.
 - .4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogenous aggregate.
- 3.4 Handling
- .1 Avoid segregation, contamination and degradation of aggregate during handling and transporting.
- 3.5 Stockpiling
- .1 Stockpile aggregates in locations directed by Departmental Representative. Do not stockpile on completed pavement surfaces.
 - .2 Stockpile aggregates in sufficient quantities to meet project schedules.
 - .3 Stockpile sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.

-
- .4 Except where stockpiled on acceptably stabilized areas, (determination by Departmental Representative), provide a crushed gravel base not less than 300mm in depth to prevent contamination of aggregate. Do not incorporate compacted base of pile into work unless approved in writing by a Departmental Representative. Non-compliance of this requirement will result in a Type-2 NCR.
 - .5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
 - .6 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative.
 - .7 Stockpile aggregates in uniform layers 1m thick.
 - .8 Uniformly spot-dump aggregates delivered to stockpile as specified.
 - .9 Do not use piles or spill material over edges of piles.
 - .10 Do not use conveying stackers.
 - .11 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile. Non compliance will result in a Type-2 NCR.

3.6 Cleaning

- .1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- .2 Leave any unused aggregates in neat compact stockpile in locations or haul back to stockpile removed from pits as directed by Departmental Representative.
- .3 For temporary or permanent abandonment of aggregate source, restore source to conditions directed by Departmental Representative.

END OF SECTION

B.S.T. Aggregate
Section 32 11 23

PART 1 - GENERAL

- 1.1 Description .1 The section specifies requirements for producing crushed gravel as B.S.T. Aggregate, if required and directed by the Departmental Representative.

- 1.2 Related Work Specified Elsewhere .1 Aggregates General – Section 31 05 17

- 1.3 Measurement for Payment
 - .1 B.S.T. Aggregate will be measured in m³ of material in stockpile and accepted by Departmental Representative.
 - .2 Payment for B.S.T. Aggregate will include all costs for pit access, clearing, stripping, surveying, pit development, processing, testing, loading, and hauling and placing material in stockpile.

Payment will be made under Provisional Cost Sum. Price shall be based on the lowest of 3 competitive quotes. Quotes shall be valid for the duration of the current summer maintenance season. New quotes shall be required for subsequent seasons.
 - .3 Final quantity measurement shall be m³ and include the cost of survey of original ground prior to placing material in stockpile and final survey of completed stockpile. The volume measured for payment will not include the 300mm of material required for base of stockpile. No payment will be made for surplus material over and above the specified annual quantity as determined by the Departmental Representative. The cost for surveying will include all wages, accommodations, transportation, and all other associated costs.
 - .4 Compliance testing reports from a CCIL certified laboratory must be provided to the Departmental Representative for every stockpile location. Non-compliance will result in a Type – 2 NCR.

PART 2 - PRODUCTS

2.1 Materials

- .1 B.S.T. Aggregate: to Section 31 05 17 Aggregates General and following requirements:
 - .1 The required quantity of each type of B.S.T. Aggregate will be determined by the Departmental Representative.
 Gradation to be within following limits when tested to ASTM C136 and ASTM C117 (AASHTO T11 and T27) and having
 - .2 smooth curve without sharp breaks when plotted on semi-log grading chart.

20.0mm Max Size 8-P-2m Sieve Designation	% Passing by Mass
20,000	100
12,500	63-89
5,000	36-56
2,500	18-38
1,250	12-30
315	4-18
80	0-5

12.5 mm Max Size 8-P-2m Sieve Designation	% Passing by Mass
12,500	100
10,000	82-100
5,000	42-72
2,500	27-52
1,250	19-37
315	9-23
80	0-5

-
- .3 Los Angeles Abrasion ASTM D423 (AASHTO T89) Gradation "B", Maximum % Loss by Mass: 25
 - .4 Moisture Content: 2%-5%
 - .5 Crushed Fragments: 60% of fragments retained on 5,000 um sieve to have at least one freshly fractured face.
 - .6 Flat and elongated particles with length thickness ratio greater than 5:1. Maximum % By Mass: 8.
 - .7 Plasticity Index: ASTM D424 (AASHTO T90) Maximum -4.

PART 3 - EXECUTION

- 3.1 Stockpiling
 - .1 Stockpile B.S.T. Aggregate to Section 31 05 17 - Aggregates General.

END OF SECTION

B.S.T.

Section 32 12 35

PART 1 - GENERAL

- | | | | |
|-----|-------------------------------|----|---|
| 1.1 | <u>Description</u> | .1 | This section specifies requirements for single applications of emulsified asphalt followed by application of aggregate to roadway surface. This represents unit price table section 33(a) and 33(b). |
| | | .2 | Each instance of non-compliance with this section will result in a Type 2 NCR unless stated otherwise. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 14 – Traffic Regulations. |
| | | .2 | Section 32 11 34 – Full Depth Reclamation. |
| | | .3 | Section 32 11 23 – BST Aggregate. |
| 1.3 | <u>Seal Coat Design</u> | .1 | The Contractor shall provide a professionally prepared graded seal coat design, from which asphalt emulsion application rate, the asphalt emulsion compatibility with the aggregate, spraying temperature, and the aggregate spread rate shall be determined. The Contractor shall inform the Departmental Representative of the intended emulsion application rate and aggregate spread rate three days prior to start of work and at any time subsequent changes are made to these rates. |
| 1.4 | <u>Layout of Work</u> | .1 | Departmental Representative will indicate areas of work. |
| | | .2 | Contractor will confirm areas of work on ground to satisfaction of Departmental Representative. |
| | | .3 | No separate payment for layout of work. |
| 1.5 | <u>Measurement of Payment</u> | .1 | Bituminous Surface Treatment Application (BST) |

-
- .1 Measurement will be by plan quantity of the horizontal area in m² for each application of surface treatment applied. Unit price to include cost of supplying, hauling, weighing, handling, storing, heating and applying asphalt material as well as drying, treating, hauling and spreading aggregates, traffic accommodation, watering, sweeping, rolling, and associated work.
 - .2 No separate payment will be made for repairing, replacing or disposing of failed surface treatment as determined by paragraph 1.6 of this Section. Aggregate and/or asphaltic patching material (cold-mix) required for repairing or replacing surface treatment to be provided by the Contractor at their own cost.
- .2 Emulsified Asphalt
- .1 Supply and delivery of emulsified asphalt acceptably incorporated into the work will be incidental to the Work and no separate payment will be made.
 - .2 All asphalt material to be weighed on scales approved by Weights and Measures Inspection Services, Measurement Canada. Proof of such approval to be provided to Departmental Representative upon request. Printed weigh slips showing tare weight and loaded weight for each delivery are to be provided to the Departmental Representative.
- .3 BST Aggregate
- .1 Hauling and spreading of BST Aggregate will be incidental to the Work and no separate payment will be made.
 - .2 Any excess BST aggregate material, including recycled BST aggregate material gathered with the Power Sweeper, shall be returned to the closest

material source. This shall be incidental to work under this section.

.3 If Aggregate is not available at this location, Contractor shall haul from the next available source with no claim for additional transport costs.

.4 Unused Aggregate Return to Stockpile

.1 Material transport to return unused material to stockpiles shall be incidental to the Work under this section.

1.6 Product Acceptance

.1 The completed BST shall be free of surface defects as described in paragraph 1.6.2.1 and may be rated by the Departmental Representative for satisfactory performance at any time within one year of completion.

.2 Performance rating will be in accordance with the criteria described in the following tables:

1.6.2.1 Surface Defect Parameters Table

SURFACE DEFECT PARAMETERS		
SURFACE DEFECTS	SEVERITY	RATING PARAMETERS
LOSS OF COVER AGGREGATE (RAVELLING)	Very good	No noticeable aggregate loss
	Good	A few pock marks, less than 5 per 0.09 m ²
	Fair	Frequent pock marks closely spaced, more than 6 per 0.09 m ²
	Poor	Extensive pock marks or few surface disintegrations surface defects
	Very poor	Disintegrations with potholes
POTHoles	Very good	Few minor potholes, only involves BST
	Good	Few deep potholes, involves granular base
	Fair	Intermittent potholes
	Poor	Frequent potholes
	Very poor	Extensive or potholes throughout
FLUSHING/BLEEDING	Very good	No/very faint noticeable colour change in wheel path
	Good	Few sections with asphalt on surface
	Fair	Intermittent sections with asphalt on surface
	Poor	Frequent sections with asphalt on surface, has wet look or asphalt on surface throughout
	Very poor	Wet look with tire noise like a wet pavement
TOTAL FAILURE	Any	Any condition where the asphalt material fails or disintegrates under traffic and aggregate is picked up or “kicked off” by traffic

1.6.2.2 Density of Surface Defects Table

DENSITY OF SURFACE DEFECTS			
UNITS	RAVELLING (% LENGTH)	POTHoles (NUMBERS)	FLUSHING/BLEEDING (% LENGTH)
Few	<5%	<5	<5%
Intermittent	>5%<20%	>5<15	>5%<20%
Frequent	>20%<50%	>15<30	>20%<50%
Extensive	>50%<80%	>30<50	>50%<80%
Throughout	>80%	>50	>80%

Note: ** Based on percent of surface area affected per 0.5 lane km length of BST application.

- .3 The Departmental Representative will notify the Contractor in writing of the requirement for repairs/replacement of failed BST.
- .4 Repair/replacement of failed surface treatments shall be completed within 30 days of notification by the Departmental Representative.

When failed surface condition is a safety concern, repair/replacement of failed surface treatments shall be completed within 7 days of notification by the Departmental Representative. Non-compliance will result in a Type 1 NCR.

Any materials used in repair/replacement surface treatments shall be consistent with those originally specified in the contract or otherwise approved by the Departmental Representative.

Reasonable costs associated with additional Departmental Representative time required to re-mark failed areas that have not been completed within the timeframes above, shall be deducted from Contractor’s payment in accordance with GC5.2.

1.6.4.1 Surface Treatment Repair/Replacement Criteria Table

SURFACE TREATMENT REPAIR/REPLACEMENT CRITERIA		
SURFACE DEFECT	SEVERITY	REPAIR/REPLACEMENT METHOD
LOSS OF COVER AGGREGATE (RAVELLING)	Very Good/Good	None
	Fair/Poor/Very Poor	Reseal of affected area ***
POTHOLES	Very Good/Good	All potholes to be filled with asphaltic patching material and reseal
	Fair/Poor/Very Poor	Patch potholes and reseal affected area ***
FLUSHING/BLEEDING	Very Good/Good	None
	Fair	Application of Sand Blotter
	Poor/Very Poor	Reseal of affected area. Removal of initial surface treatment at Contractor's option
TOTAL FAILURE	Any	Remove and dispose of failed surface treatment in its entirety and apply new surface treatment.

Note: *** Reseal shall consist of a new BST single application. Area of the reseal repair/replacement shall not be less than one application width x 10 metres in length. If there is less than 10 metres between two sections in the application pass designated for repair/replacement, the repair/replacement shall be continuous. If density of surface defects is extensive or throughout, reseal entire section.

PART 2 - PRODUCTS

2.1 Materials

.1 Emulsified Asphalt

- .1 Asphalt material to be supplied by Contractor. Asphalt material to meet BC-MOT-Section 952 Grade HF250S emulsified asphalt, with anti-stripping agent added at manufacturers suggested rate.
- .2 Emulsion products received and stored that show signs of separation or that are not homogenous shall be removed and disposed of at the Contractor's expense and no payment will be made for those materials.

- .3 If the supplier elects to incorporate nontraditional material components such as, but not limited to, crude oil, waste products and industrial or manufacturing by-products in the High Float emulsified asphalt, the Departmental Representative must approve any additive in writing before any material is supplied. The Departmental Representative reserves the right to refuse asphalt material with any unaccepted nontraditional material components.
 - .4 The supplier must submit to the Departmental Representative, prior to supplying any material, Material Safety Data Sheets (MSDS) for the finished product and all component products.
 - .5 Contractor shall sample emulsion. These samples shall be obtained, handled and stored in accordance with ASTM procedure D140 "Standard Practice for Sampling Bituminous Surface Material" and also with manufacturers recommendations.
 - .6 Provide test results, certified by a professional Engineer, from an independent laboratory, on each load of asphalt material sampled from middle 1/3 of load. Sampling results shall be provided to the Departmental Representative by the Contractor, and shall consist of two samples, one to be tested and one to be retained for one year as a witness sample for subsequent testing if required.
- .2 Aggregate
- .1 BST aggregate to be supplied by Departmental Representative at designated locations shown on Drawing R.017174.002-02 and -03. Contractor shall haul from the nearest material source. If Aggregate is not available at this location, Contractor shall haul from the next available source at no additional cost.
 - .2 Aggregate shall be taken directly from stockpiles as noted in 2.1.2.1 above to the application site. The Contractor may source an alternative gravel site at

their own cost subject to written approval by the Departmental Representative.

- 2.2 Application Rates
 - .1 Apply asphaltic material as per design (paragraph 1.3.1) but at minimum rate of 1.4 litres/m² on overlay and minimum 2.3 litres/m² on granular base.
 - .2 Apply aggregate as per design rate (paragraph 1.3.1) to ensure coverage and minimize wastage. No changes to application rate are permitted without prior written approval of Departmental Representative.

PART 3 - EXECUTION

- 3.1 Equipment
 - .1 Pressure Distributor in accordance with Spot Sealing 32 01 11.03 – 3.2.1.1
 - .2 Mechanical Aggregate Spreader
 - .1 A self-propelled unit of approved design supported by at least four wheels equipped with pneumatic tires on two axles. Aggregate spreader to be equipped with positive controls in order that required amount of material will be deposited uniformly over full width of asphalt material.
 - .3 Rollers in accordance with 32 01 11.03 – 3.2.3
 - .4 Power Broom in accordance with 38 41 00 Broom Highway – 3.2.
 - .1 Use of Power Broom unit with conveyor shall be at the discretion of the Departmental Representative.
 - .2 Collected materials shall be returned to stockpiles if deemed re-usable by Departmental Representative.
- 3.2 Preparation
 - .1 Granular base shall have been prepared based on 32 11 34 Full Depth Reclamation. Immediately before asphalt emulsion

is applied, broom or otherwise clean as necessary to remove foreign material.

3.3 Application

- .1 Schedule work to approval of Departmental Representative.
- .2 All work to be completed by September 30 of each year.
- .3 Apply asphalt material using approved pressure distributor at rate specified in the Seal Coat Design. Apply aggregate at rate specified in Seal Coat Design following application of asphalt material. Application rates shall not be changed without prior written approval of the Departmental Representative and all changes shall be recorded in the Contractor’s daily report.
- .4 All asphalt material to be covered with aggregate. Roll surface, a minimum of six passes after applying aggregate.
- .5 Where directed by the Departmental Representative, apply second application of asphalt material and aggregate minimum 72 hours after initial application. Broom surface prior to commencing second application. Payment shall be made as per paragraph 1.5 of this Section.
- .6 Emulsion and aggregate shall be applied only when shade air temperature is at least 10 °C. No application shall take place when weather is misty or raining.

3.4 Workmanship

- .1 Layout and construct edges parallel to centerline and true to designated road width design as shown on Drawing No. R017174.002.-04 to R017174.002-07 or site-specific geometrics approved by Departmental Representative.
- .2 Construct longitudinal and transverse joints so as to prevent surface irregularities which would impede moisture runoff or affect vehicle ride or steering.
- .3 Construct BST to prevent surface corrugations or rutting greater than 12mm or which affect vehicle ride.
- .4 Construct required repair/replacement patches to prevent surface irregularities which would impede moisture runoff or affect vehicle ride or steering.

- .5 Begin sweeping no sooner than 72 hours after application of BST and as often as necessary after 72 hours to remove all loose material from entire road surface over fore slope, unless directed otherwise by the Departmental Representative.
- .6 On patching areas sweep no sooner than 48 hours after application of B.S.T. and sweep until all loose material is removed.

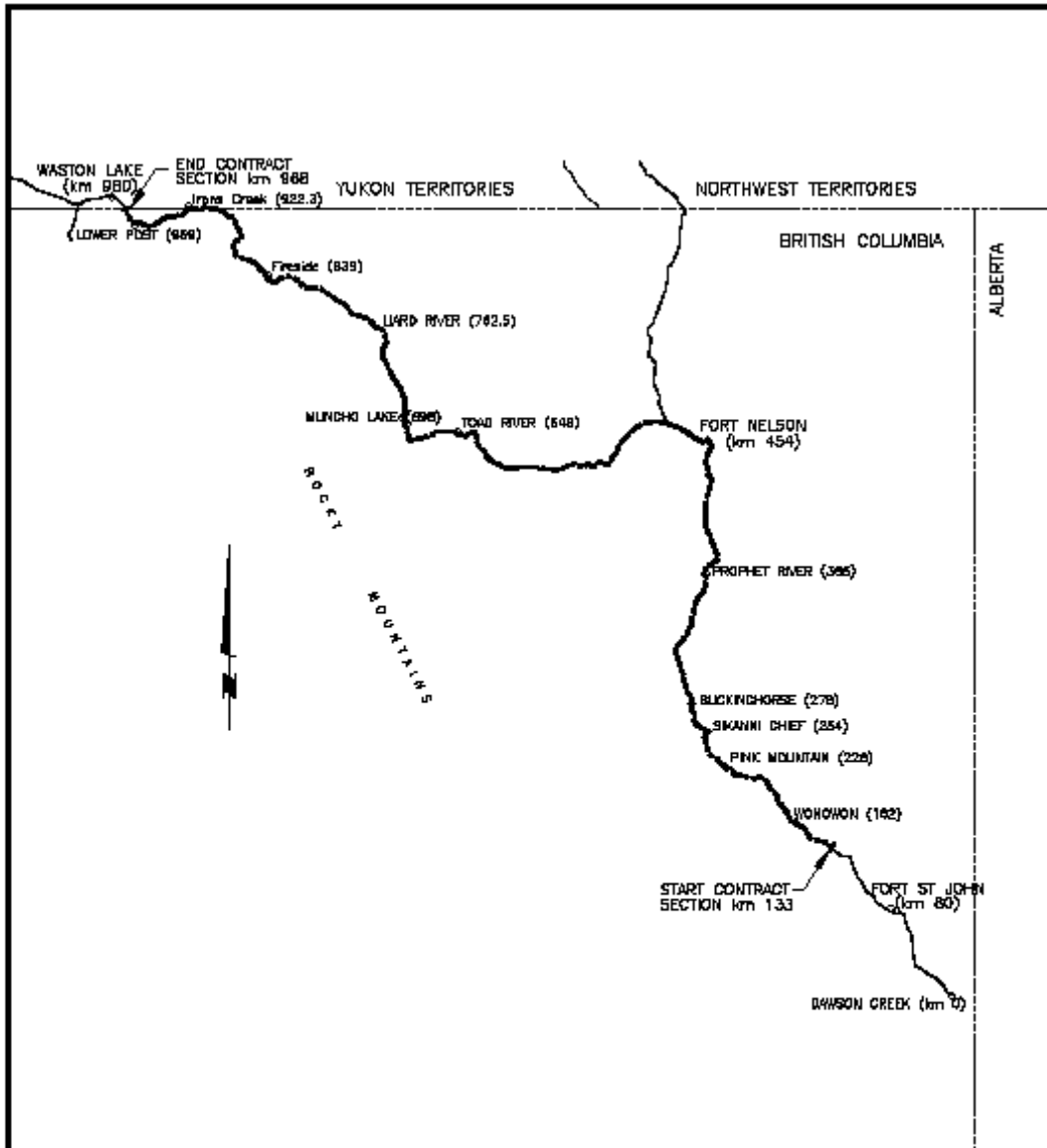
3.5 Traffic Control

- .1 Direct traffic through project using warning signs, electric stop lights, flag persons and pilot car in accordance with Section 01 35 14 – Traffic Regulations.
- .2 Pilot traffic continually until first sweeping, through applied BST sections greater than 1 km in length.
- .3 Keep traffic off freshly sprayed asphalt.
- .4 If necessary to route traffic over new treatment, restrict speed to 10 km/h or less, until rolling is completed and asphalt has taken initial set.
- .5 Install “no centerline” signs until centerline paint markings are completed.
- .6 Top water completed BST surface to control dust.

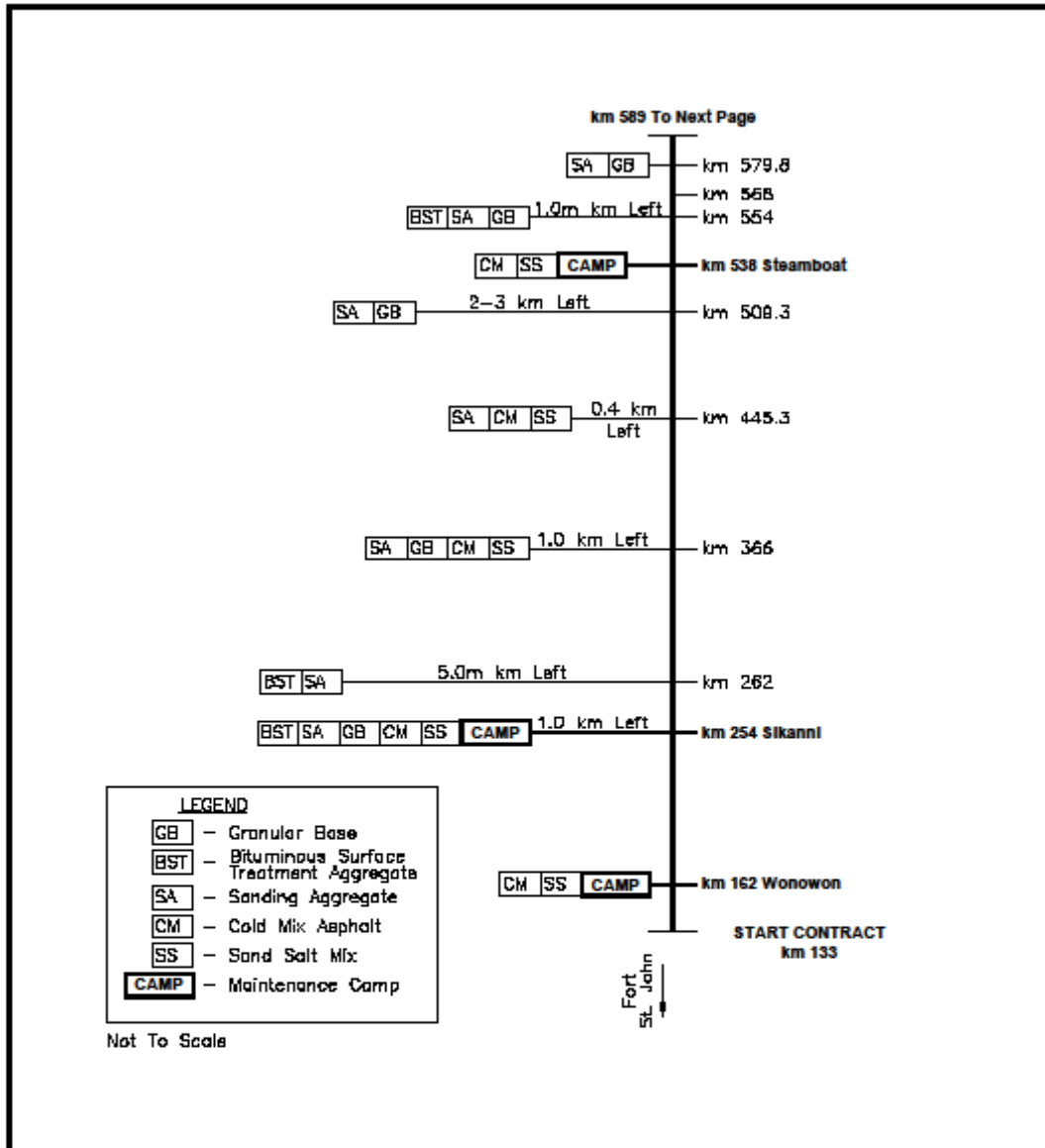
3.6 Claims for Vehicle Damage

- .1 Without in any way limiting his obligations of liabilities herein, during construction and up until final acceptance by the Departmental Representative. Contractor shall be fully responsible for all claim damages caused by flying aggregate and shall address, respond to and deal with each claim submitted.

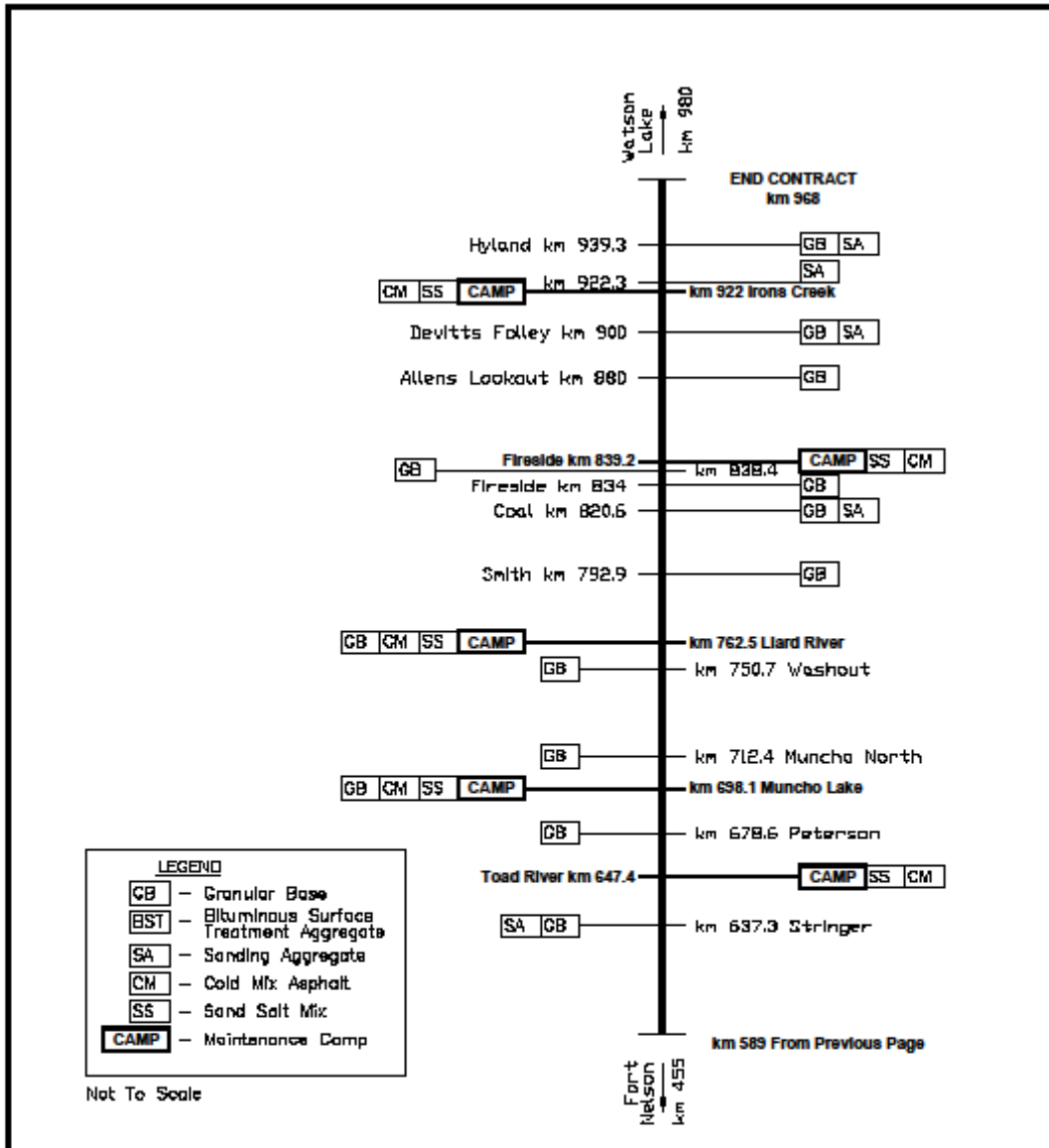
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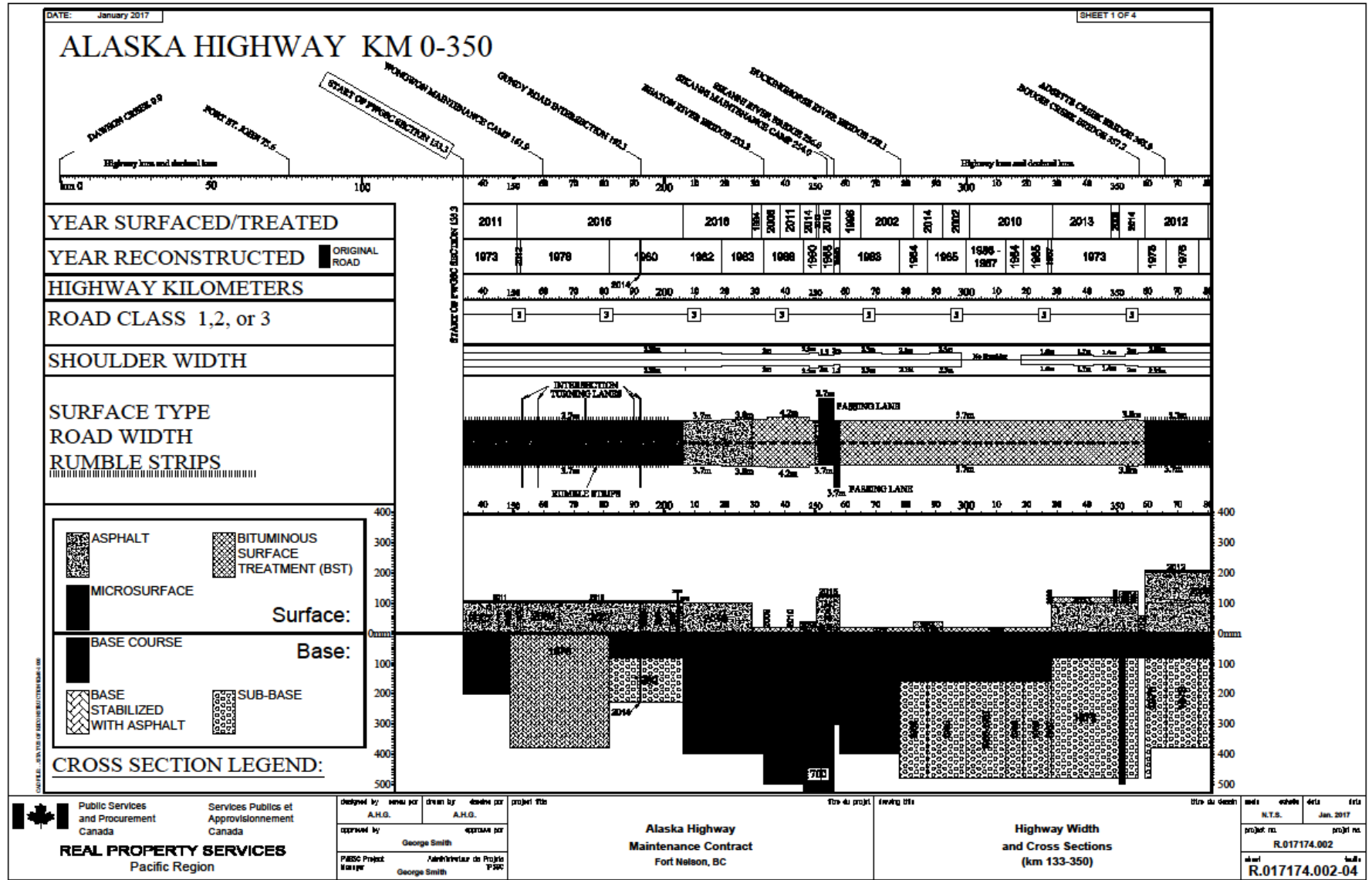
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	<p>Approval by: [Signature]</p>	<p>Approved by: [Signature]</p>	<p>Project no.: R.017174.002</p>
<p>Project Manager: George Smith</p>	<p>Administrateur de Projets: [Signature]</p>	<p>Project no.: R.017174.002</p>	<p>Date: [Blank]</p>

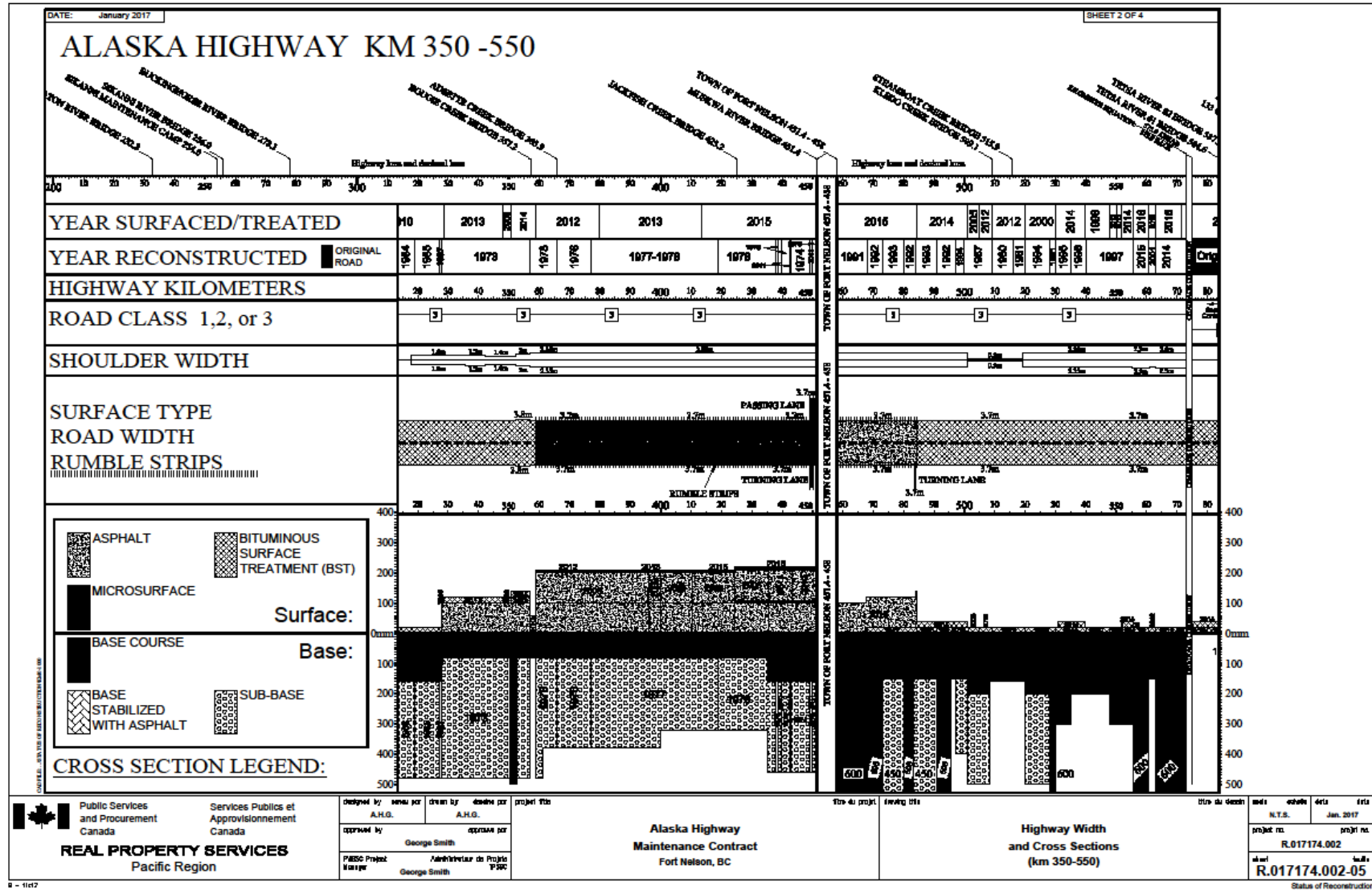


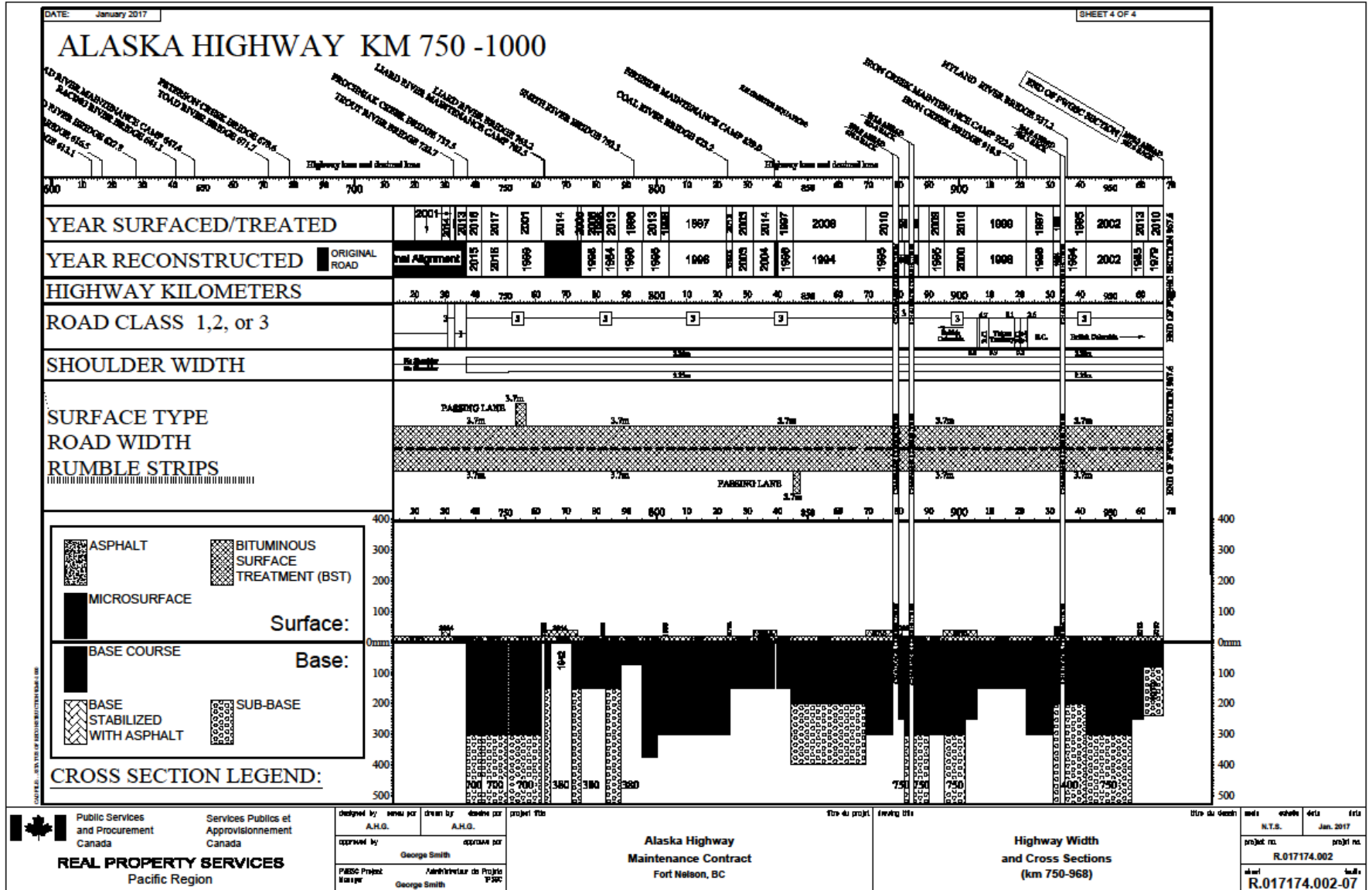
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Public Works and Government Services Canada	Travaux publics et Services gouvernementaux Canada	Analyzed by AHG	Checked by AHG
		Approved by REAL PROPERTY SERVICES Pacific Region	Approved per TFSBC
Date AUGUST 2018		Project No. R.017174.002	Date AUGUST 2018
PWGSC Project Manager George Smith		Author/Modifier de Projets TFSBC	Date N/A

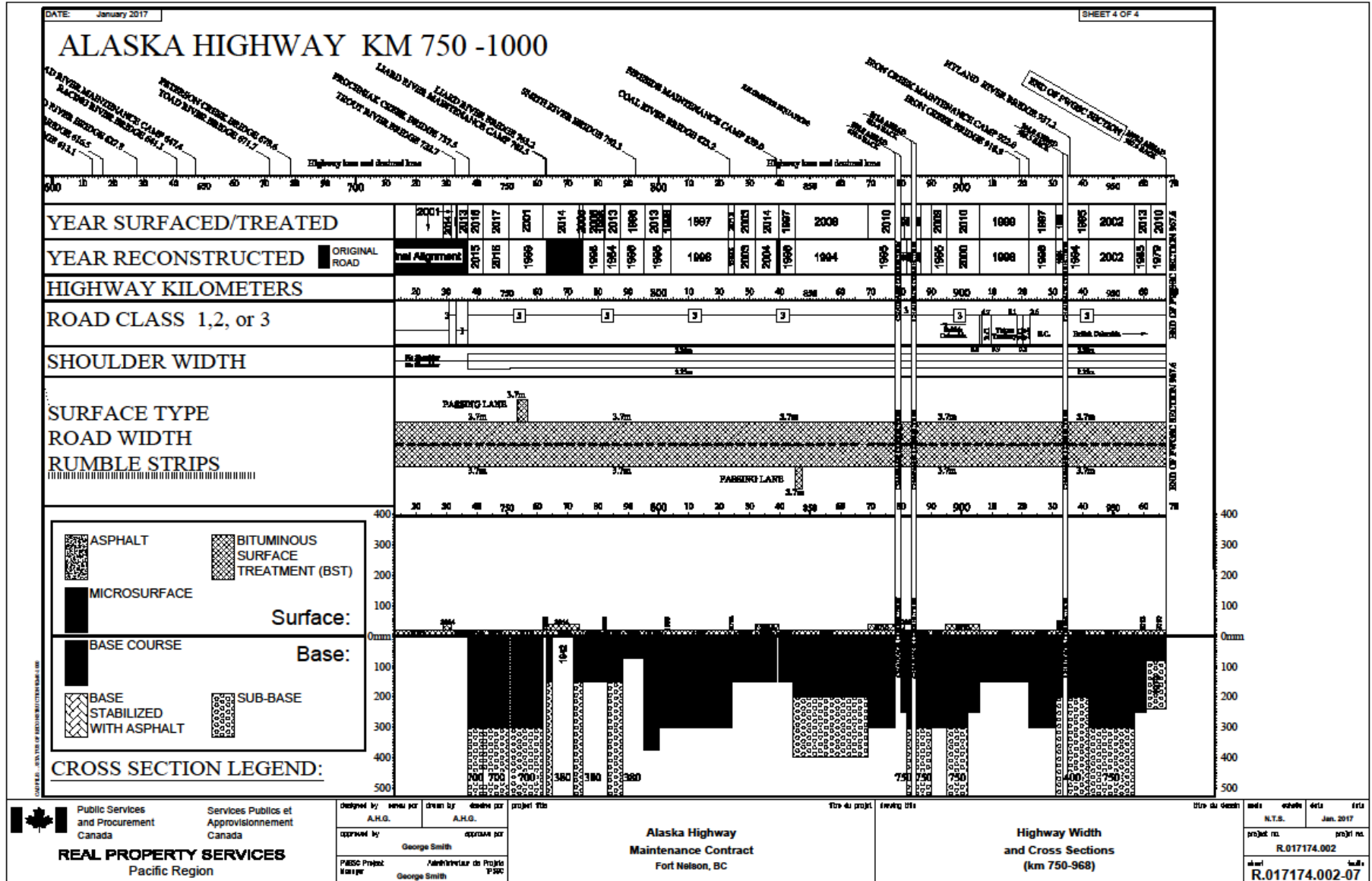


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<p>Public Works and Government Services Canada</p> <p>Travaux publics et Services gouvernementaux Canada</p> <p>REAL PROPERTY SERVICES Pacific Region</p>		<p>designed by</p> <p>AHG</p>	<p>drawn by</p> <p>AHG</p>
<p>scale</p> <p>N.T.S.</p>		<p>date</p> <p>AUGUST 2018</p>	<p>project no.</p> <p>R.017174.002</p>
<p>approval by</p> <p>Project Manager</p> <p>George Smith</p>		<p>approved by</p> <p>Administrateur de Projets</p> <p>TPSC</p>	<p>sheet</p> <p>182</p>









BST IN PROGRESS.

DEEP PATCHING OR GRINDING IN PROGRESS.

Notes:

- As right-of-way is reduced, use Type A Flashing Yellow Lights on all sign locations in advance warning zone. Add Red Light to Backlight TDPs (TCP).
- As required throughout the work zone. Repeat signs such as R-4C-23, D-4, D-4B, D-4C, D-4D, T-20B, T-20C etc.
- Becky Bart repeat C-21 sign showing decreasing distance.
- The pilot car operator and TCMs should be in multi-carrier.
- Leave travel signs every 20m and no more.
- Do not use headlights signs away 20m.
- R-4 Max 100 or Max 80 m, repeat units, install repeat 20m.

LEGEND

	TUBULAR MARKER (TYPE D)
	CONE (TYPE A, B or C)
	SIGN
	TRAFFIC CONTROL PERSON (TCP)
	TRUCK, BULLETER OR OTHER VEHICLE
	FLASHING YELLOW LIGHT
	WORK AREA
	PORTABLE LINE CONTROL SIGNAL
	BARRICADE WITH T-POSTS
	BARRICADE WITH BARRICADE (B)
	HIGH LEVEL WARNING DEVICE (H.W.D.)

Examples for Emergency and Other Direction Signs
 Placards may be used in an emergency situation. Placards should be used in an emergency situation. Placards should be used in an emergency situation. Placards should be used in an emergency situation.

TABLE A
 Positioning of devices on conventional roadways for various speed limits.
 (For positioning of devices on rural freeways, see Table C in Chapter 3.)

Regulatory speed limit	50 km/h	60 km/h	70 km/h	80 km/h	90-100 km/h
1. Taper length for lane closure	35 (110)	55 (165)	75 (225)	90 (270)	110 (330)
2. Taper length for shoulder work or where TCPs used (Min. 3 cones)	5	5	10	12	16
3. Maximum distance between cones or signs or markers (m)	15	15	30	30	30
4. Minimum length of advance warning signs	30	60	80	120	150
5. Advance distance construction signs	40	60	80	100	150

SIGNS TO BE PLACED AFTER CONSTRUCTION

Notes:

- Signs to be placed on both sides of road if patch process continues.
- Head warning to have signs with wipers.
- Signs every 20m and on corners.

TABLE A Notes:
 Dimensions shown are in metres and are minimums except for 2'.

Cones and tubular markers are generally used in daylight but if used at night must be reflectorized. Barricades, flexible drums or temporary delineator posts are generally used during hours of darkness and must be reflectorized.

Dimensions 1b* apply to downstream tapers, shoulder tapers, and two-way traffic tapers on travelled lanes where traffic is controlled by TCPs, portable lane control signals or temporary traffic signals.

Dimensions 4* represent the minimum advance placement distances for initial signs as well as distances between subsequent signs in multi-sign series.

Public Services and Procurement Canada
 Services Publics et Approvisionnement Canada

REAL PROPERTY SERVICES
 Pacific Region

designed by: **George Smith**
 A.H.G.

approved by: **George Smith**
 A.H.G.

Project Manager: **George Smith**
 Administrateur de Projets: **George Smith**

Project Title: **Alaska Highway Maintenance**

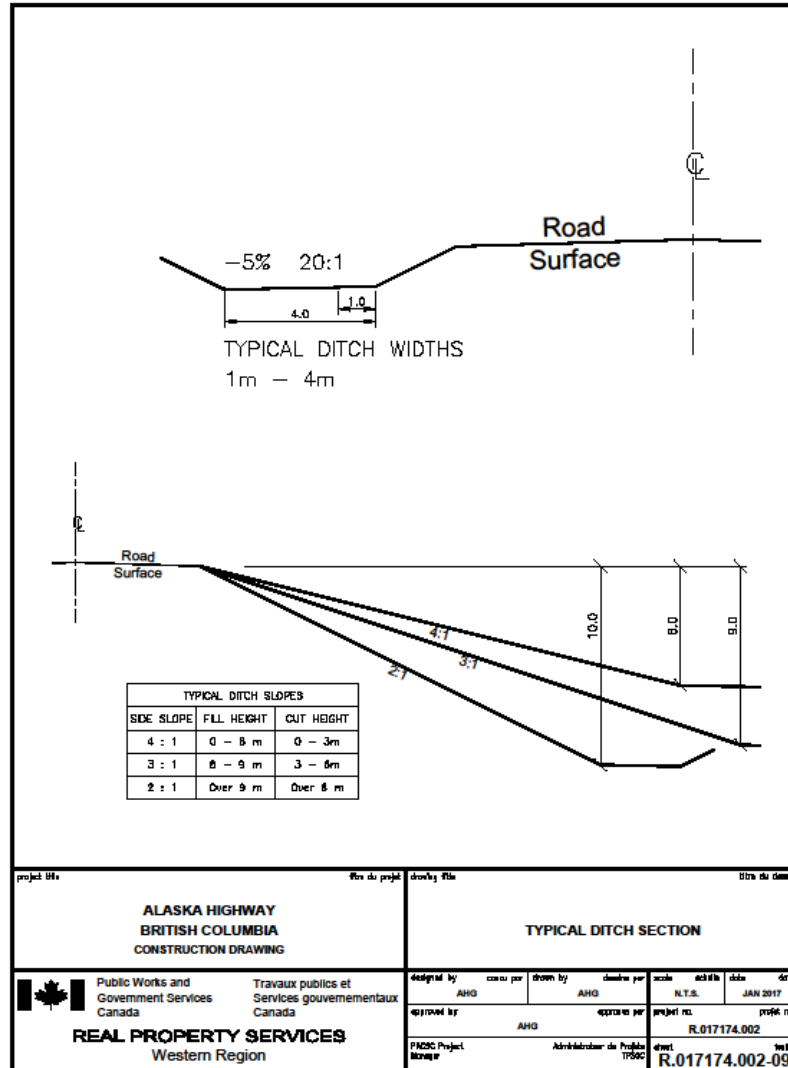
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Use of device: **Traffic Control Standard for BST**

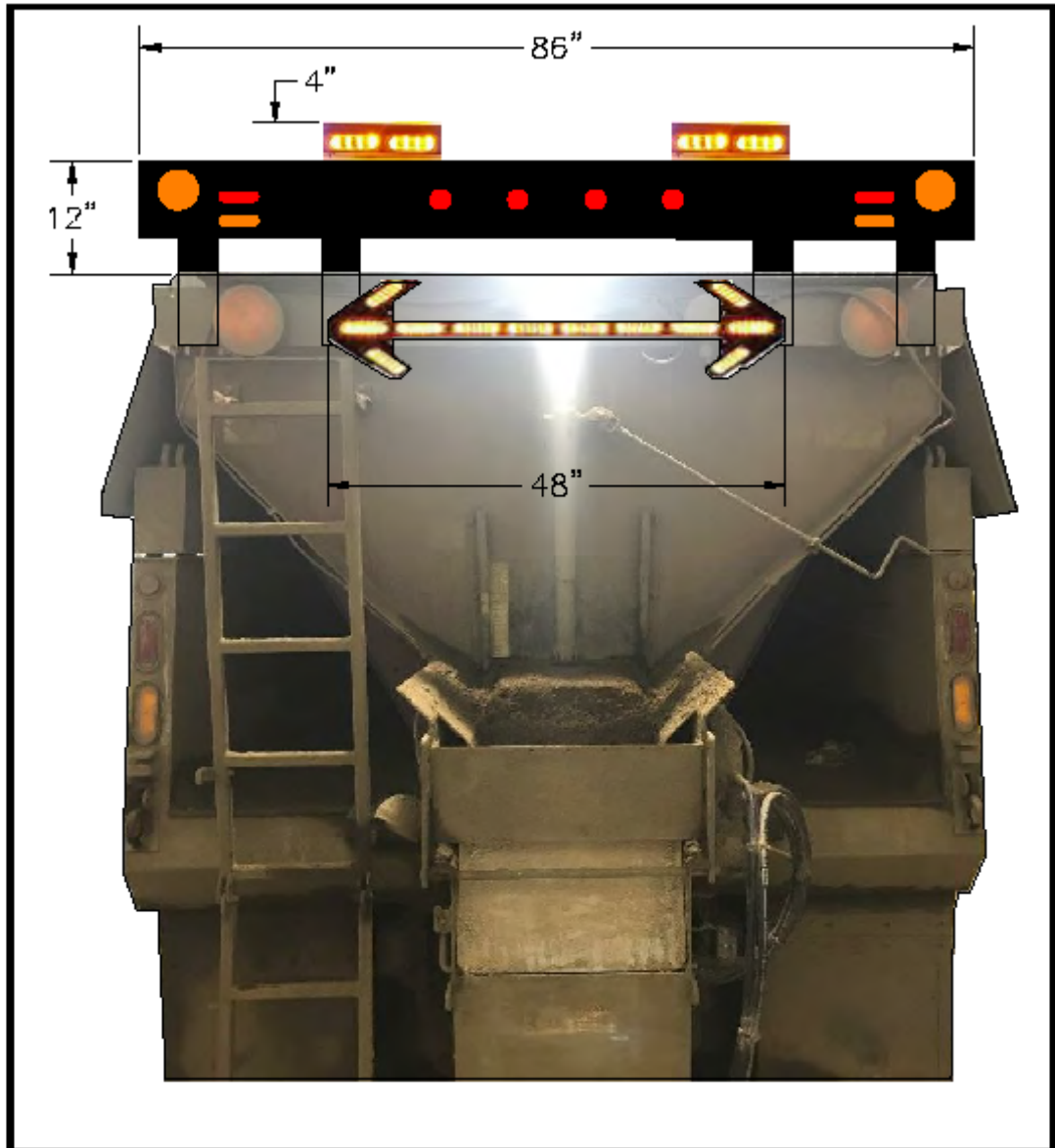
date: **Jan. 2017**

project no.: **R.017174.002**

drawn: **R.017174.002-08**



project file ALASKA HIGHWAY BRITISH COLUMBIA CONSTRUCTION DRAWING		titre du projet TYPICAL DITCH SECTION		drawing file titre du dessin	
Public Works and Government Services Canada REAL PROPERTY SERVICES Western Region		Travaux publics et Services gouvernementaux Canada		designed by AHG	checked by AHG
approved by AHG		approuvé par AHG		scale N.T.S.	date JAN 2017
PWGSC Project Numéro		Administrateur de Projets TPSCC		project no. R.017174.002	dessin No 09 R.017174.002-09



project title Alaska Highway Maintenance Public Services and Procurement Canada Fort Nelson, BC		drawing title Typical Light Bar Setup Maintenance Contract	
Public Services and Procurement Canada REAL PROPERTY SERVICES Pacific Region	Services Publics et Approvisionnement Canada	designed by A.H.G.	drawn by A.H.G.
		approved by George Smith	project no. N.T.S.
		PWSCC Project Manager George Smith	date Jan. 2017

Alaska Highway Maintenance Contract 2018 – 2023 (plus possible extensions) Quality Plan and Contractor Performance Evaluation Manual

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Project # R.017174.002

Highway Maintenance and Repair
Km 133 to Km 968
Alaska Highway, BC
June 1, 2018 – May 31, 2023

PWGSC – Pacific Region

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Appendix B – KPI Dates with Weighing Factors

Appendix C – CPERF Form

1. Definitions

Acceptance Test Results means the test results that are used for the final assessment of compliance with the specification for the material. Depending on the specification for the material, the final assessment of compliance is based on one of the following: quality control, quality assurance or independent laboratory test results.

Deficient Materials means, for the purpose of this Quality Plan, materials which have an attribute, property or characteristic that does not meet the requirements of the Contract Documents.

Deficient Workmanship means, for the purpose of this special provision, the final product does not meet the requirements of the Contract Documents due to the Contractor’s activities including but not limited to snow and ice removal, pothole repair, or any other workmanship which has not been completed in satisfactory manner to the Department Representative.

Quality Control (QC) means a system or series of activities carried out by the Contractor to ensure that the final product and materials supplied to the Owner meet the specified requirements.

Departmental Representative means any person assigned and authorized by PWGSC to execute inspections and/or initiate Non-Conformance Reports on or on behalf of PWGSC.

2. Non-Conformances and Opportunities for Improvement

Non-Conformances

A non-conformance occurs when the Contractor does not conform to a quality performance requirement or there is an occurrence of deficient material or deficient workmanship. The Contractor shall address each non-conformance as follows:

- Immediately identify and notify the Departmental Representative of the non-conformance prior to the Departmental Representative bringing it to the Contractor’s attention;
- Implement preventative measures prior to continuing with the associated activity and shall not proceed with any subsequent activity that would prevent or impede corrective action;
- Non-conformances which could have an immediate impact on health and safety shall be immediately resolved by the contractor or its representatives or any authorized party independently from any formal notification to the Department Representative.
- Within 3 business days or immediately in case of a condition which affects health and safety, unless otherwise mutually agreed in writing, submit a Non-Conformance Report (NCR) to the Departmental Representative containing the following:
 - the cause and extent of the identified non-conformance;
 - a proposal for corrective action or mitigating action, within the timeframe specified in Table 2 of this document, for the Departmental Representative’s written approval;
- Carry out corrective action or mitigating action in accordance with the approved proposal.

The PWGSC Departmental Representative may also issue NCRs if the Departmental Representative determines that the Contractor is not conforming to a quality performance requirement or there is an occurrence of deficient material or deficient workmanship, and the Contractor is not identifying these non-conformances. NCRs issued by PWGSC will be tracked using the Non-Conformance Log (see **Appendix A**).

Notification of the Status of the Non-Conformance

Within three business days of receiving a Non-Conformance Report, the Departmental Representative will notify the Contractor in writing that the non-conformance is:

1. A Type 1 or Type 2 deviation including the reason for the deviation,
2. Not a deviation, or
3. Under review with the PWGSC.

The determination of a non-conformance without deviation does not relieve the Contractor from responsibility under any applicable warranty on the work.

Determination of the Classification of a Non-Conformance

The Departmental Representative will notify the Contractor in writing immediately after a non-conformance is determined to be a “deviation”. The Departmental Representative will classify the deviations as “Type 1” (major) or “Type 2” (minor). The classification of the deviation may be subject to PWGSC review, at PWGSC’s discretion, before or after the Contractor is informed of the classification. The Departmental Representative will inform the Contractor of the classification of the deviation, or change in the classification resulting from a PWGSC review, in a timely manner. The classification of all deviations will be determined not later than 30 calendar days after the date of certification of Completion of the Work.

A “deviation” will be assessed as a “Type 1” deviation if it negatively impacts, or increases PWGSC’s risk of negatively impacting, one or more of the following:

1. The short or long term performance of the product, or
2. The safety of workers and / or the public, or
3. PWGSC’s ability to assess the quality of the materials or workmanship as a result of, but not limited to, inadequate documentation, and/or completeness of the records or reports, or
4. PWGSC’s ability to administer the acceptance of materials in accordance with the Contract Documents as a result of, but not limited to, missing or deficient quality assurance or referee samples.

or a “deviation” will be assessed as a “Type 1” deviation for:

1. the third occurrence and each subsequent occurrence of the same or similar “Type 2” deviation within eighteen months, or

2. providing an incorrect certification by an Engineer, British Columbia Land Surveyor, manufacturer, supplier or a person authorised by the Contractor.

All other “deviations” will be assessed as “Type 2” deviations.

Correction of NCRs

The Departmental Representative shall assign a Deadline for Correction based on the Correction Period shown in Table 2 or based on the Departmental Representative’s discretion if the deviation is not included in this table. The Contractor shall complete the required correction before the assigned deadline. Failure to correct the deviation within the allowed Correction Period shall result in points being deducted from the Contractor’s Annual NCR Score in accordance with the table below. Continued failure to correct the deviation shall result in further point deductions in accordance with the table below.

Table 1: Point Deductions for Failure to Correct Deviations within Correction Period

Deviation Type	Point Deduction for Failure to Correct within:			
	First Correction Period	Second Correction Period	Third Correction Period	Fourth Correction Period
Type 1	-2	-3	-4	-5
Type 2	-1	-1.5	-2	-2.5

No deductions shall be made for deviations which are corrected within the Correction Period stated, nor will deductions be made for non-conformances or deviations which are the result of force majeure, that is circumstances such as natural disasters which are beyond the Contractor’s control.

Example 1:

- Type 1 deviation is assessed with a correction period of 1 week.
- Contractor corrects deviation after 12 days (1 week + 5 days)
- Contractor has 2 points deducted for failure to correct within the First Correction Period

Example 2:

- Type 2 deviation is assessed with correction period of 1 week
- Contractor corrects deviation after 22 days (3 weeks + 1 day)
- Contractor has 4.5 points deducted as the deviation was not corrected within the First, Second or Third Correction Period

NCR Types and Timelines

Alaska Highway Maintenance Contract

Section	Section Reference	NCR	Lead time	NCR TYPE
Deep Patching	32 12 16.7	Type 1 NCR	48hrs	T1-48
Asphalt Mix	32 12 16.6	Type 2 NCR	2 weeks	T2-2W
Hand placed pre mix	32 12 16.8	Type 1 NCR	24 hrs	T1-24
Crack Sealing	32 01 18.02	Type 1 NCR	2 weeks	T1-2W
	rework	Type 1 NCR	1 week	T1-1W
Route Sealing	32 01 18.03	Type 2- NCR	2 weeks	T2-2W
	rework	Type 2- NCR	1 week	T2-1W
Maintenance Facilities	01 52 00	Type 1 NCR	2 weeks	T1-2W
	cranes	Type 1 NCR	1 week	T1-1W
Traffic Regulations	01 35 14	Type 1 NCR	1 hour	T1-01
	2.1.1 products	Type 1 NCR	2 weeks	T1-2W
Ditches	38 71 00	Type 1 NCR	24 hrs	T1-24
Thawing Culverts	32 11 00	Type 1 NCR	48 hrs	T1-48
Full Depth Reclamation	32 11 34	Type 2 NCR	1 week	T2-1W
	5km rule	Type 1 NCR	48 hrs	T1-48
	dust control	Type 1 NCR	24 hrs	T1-24
Spot sealing	32 01 11.03	Type 2 NCR	1 week	T2-1W
BST	32 12 35	Type 2 NCR	1 week	T2-1W
	Product Acceptance	Type 1 NCR	48 hrs	T1-48

Aggregates General	31 05 17	Type 1 NCR	48 hrs	T1-48
Broom Highway	38 41 00	Type 2 NCR	1 week	T2-1W
Cleaning Bridges	38 31 00	Type 2 NCR	36 hrs	T2-36
Sand Salt	39 11 00	Type 1 NCR	1 week	T1-1W
	Stockpile Qty	Type 2 NCR	1 week	T2-1W
Snow removal	38 21 00	Type 1 NCR	4 Hrs	T1-04
	Front Blade	Type 2 NCR	1 Week	T2-1W
Painted Pavement Markings	32 17 23	Type 2 NCR	1 week	T2-1W
	Application	Type 1 NCR	Traffic Specs	T1-01
Auger Truck	32 94 11.09	Type 1 NCR	48 hrs	T1-48
Brush and Weed Control	32 94 11.03	Type 1 NCR	1 week	T1-1W
	Operation	Type 2 NCR	1 week	T2-1W
Loader	32.94.11.04	Type 2 NCR	48 hrs	T2-48
Tandem Dump Truck	32.94.11.05	Type-2 NCR	48 Hrs	T2-48
Motor Grader	32.94.11.06	Type-2 NCR	48 Hrs	T2-48
Unscheduled Labor	01 21 00	Type-1 NCR	12 Hrs	T1-12
		Type-2 NCR	1 week	T2-1W

Table 2 - NCR Types and Timelines

Opportunities for Improvement

Opportunities for Improvement (OFIs) shall be issued where the PWGSC Departmental Representative identifies an imminent risk of failure to a procedure which would result in a non-conformance.

PWGSC may issue OFIs as a result of field reviews or scheduled audits.

3. Contractor Performance Evaluation Program

An overview of PWGSC’s Contractor Evaluation Process is shown in Figure 1. Activities include calculation of an Annual Performance Indicator (API) Score which involves annual tracking and scoring for Key Performance Indicators, Non-Conformance Reports and a Contractor Performance Evaluation Report Form (CPEPF) completed by the PWGSC Regional Manager, as well as the calculation of an Overall Performance Indicator (OPI) Score which is used to determine if the Contractor is eligible for up to two contract extensions of 36 months each.

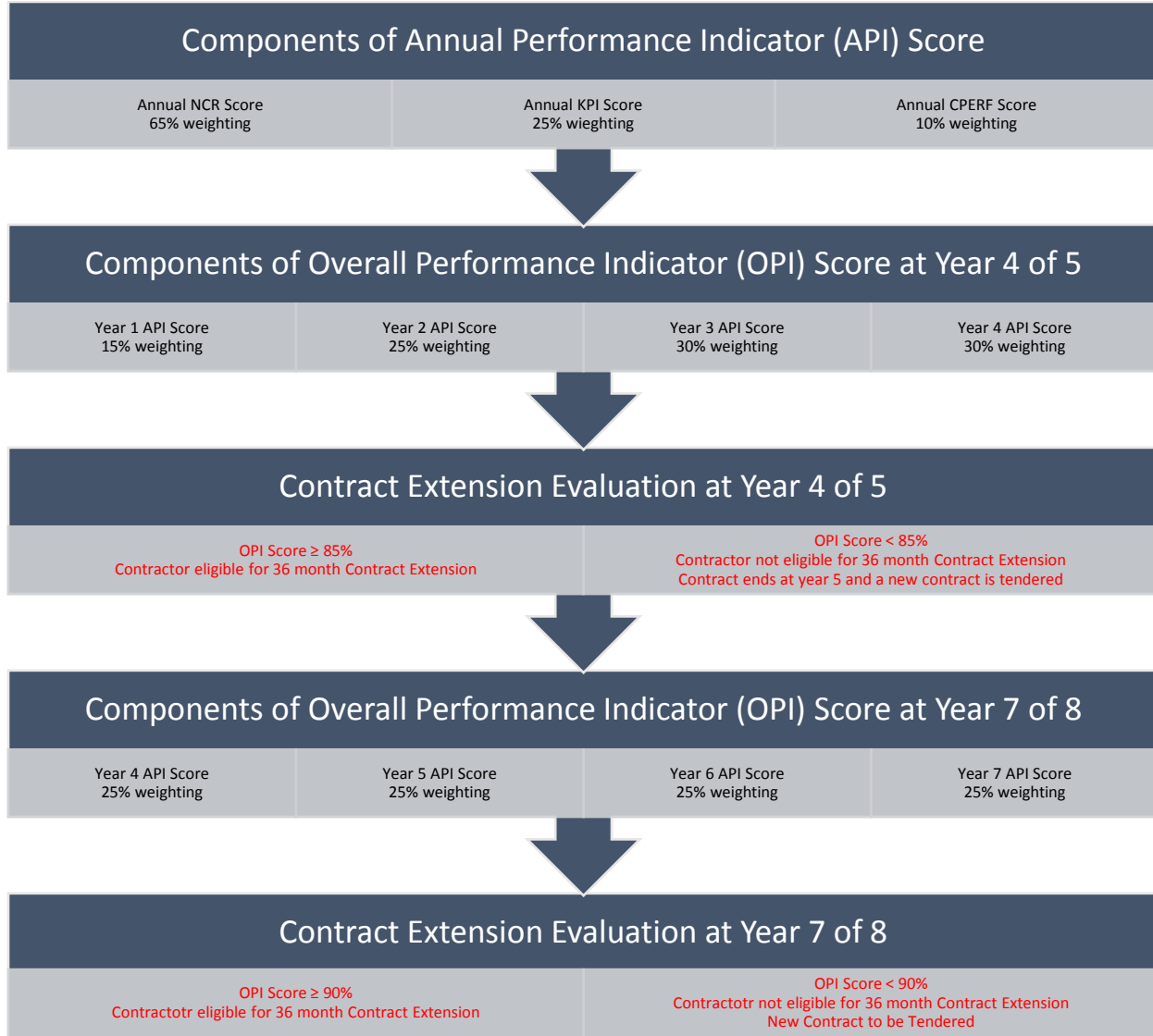


Figure 1: Overview of Contractor Evaluation Process

.1 Components of the Annual Performance Indicator (API) Score

The Contractor’s performance is assessed annually on the anniversary date of the contract, through the API Score. There are three components to the API:

1. The Annual NCR Score (65% weighting)
2. The Annual KPI Score (25% weighting)
3. The Annual CPERF Score (10% weighting)

Weightings will be formally reviewed after the first API is calculated. Where appropriate, adjustments to weightings may be made through mutual agreement of PWGSC and the Contractor.

.2 Annual NCR Score

The Annual NCR Score shall be calculated as follows:

$$\text{Annual NCR Score} = 100 - x$$

Where x = Total NCR Points Deducted (see Table 1 above)

A Continuous Improvement Supplement of 5% is applied in years when the Contractor's Annual NCR Score increases from the previous year, unless a "Type 1" deviance is issued due to the third or subsequent occurrence of the same or similar "Type 2" deviation within eighteen months. This supplement will not be applied in the first year of the Contract.

.3 Annual KPI Score

The Annual KPI Score is a weighted total based on how many target dates the Contractor achieves throughout the year. See **Appendix B** for a summary of the target dates and weightings used to calculate the Annual KPI Score.

A 100% Achievement Supplement of 15% is applied in years when the Contractor achieves a weighted sub-total of 100%, resulting in an Annual KPI Score of 115%.

A Continuous Improvement Supplement of 5% is applied in years when the Contractor achieves a weighted sub-total score greater than the weighted sub-total score from the previous year. This supplement is not applied if the 100% Achievement Supplement is applied and will not be applied in the first year of the Contract.

.4 Annual CPERF Score

The Annual CPERF Score is based on the CPERF which is filled out by the PWGSC Operations Manager based on overall experience with the Contractor over the previous year. A sample CPERF can be found in **Appendix C**

4. Components of the Overall Performance Indicator (OPI) Score

Original 5 Year Contract Term

The Contractor's overall performance is assessed at year 4 of the 5 year contract term, through a weighted total of API Scores from the previous 4 years:

- Year 1 API Score (15% weighting)
- Year 2 API Score (25% weighting)
- Year 3 API Score (30% weighting)
- Year 4 API Score (30% weighting)

Extended 8 Year Contract Term (5 Year Original Term + 3 Year Extension)

If the Contract is extended to an 8 year term, a second OPI Score is calculated at year 7 of the 8 year contract term, through a weighted total of API Scores from the previous 4 years:

- Year 4 API Score (25% weighting)
- Year 5 API Score (25% weighting)
- Year 6 API Score (25% weighting)
- Year 7 API Score (25% weighting)

5. Contract Extension Evaluations

There shall be a maximum of two contract extension evaluations performed. The first evaluation shall be performed on the 4th anniversary of the contract. Assuming a contract extension is granted, a second evaluation shall be performed on the 7th anniversary of the contract. No further contract extensions shall be available. The maximum contract length is 11 years.

.1 Year 4 Contract Extension Evaluation

A Contractor who achieves an OPI Score equal to or greater than 85% is eligible for a 36 month contract extension (to increase the total contract term to 8 years). A Contractor who achieves an OPI Score of less than 85% is not eligible for a contract extension and the contract shall be re-tendered.

.2 Year 7 Contract Extension Evaluation

A Contractor who achieves an OPI Score equal to or greater than 90% is eligible for a second 36 month contract extension (to increase the total contract length to 11 years). A Contractor who achieves an OPI Score of less than 90% is not eligible for a second contract extension and the contract shall be re-tendered.

6. Annual Release of Holdback Funds

The Contractor shall be eligible for release of holdback funds (see GC5 “Terms of Payment”) at the end of each year of the contract term subject to the following conditions:

1. Contractor achieves an API Score \geq 85%; and
2. Contractor delivers the documentation described in paragraph 4) b) of GC5.5

If the Contractor fails to meet the above conditions, the holdback amount for that year shall be paid in accordance with GC5.5 “Substantial Performance of the Work”, e.g. the holdback for that year shall be paid at the time of “Substantial Performance” at the end of the contract term.

Appendix A – Non Conformance Log

SAMPLE:

NCR TRACKER						Start Clock Sync	Current Date	Current Time			
Alaska Highway Maintenance						Current Date and Time	27-Mar	13:18:51			
FILL THIS INFORMATION											
						Penalty Points	Penalty Points	Penalty Points	Penalty Points	Penalty Points	Point Deduction Sum
						1st Deadline for Resolution	2nd Deadline for Resolution	3rd Deadline for Resolution	4th Deadline for Resolution		
NCR ID	Status	Issue Date	Issue Time	Type (1 or 2)	Deadline to Resolve	Date (MM/DD/YYYY)	Date (MM/DD/YYYY)	Date (MM/DD/YYYY)	Date (MM/DD/YYYY)		
	-	27/03/2017	9:23	Type-1	T1-00D-01H	3/27/17 10:23	3/27/17 11:23	3/27/17 12:23	3/27/17 13:23		0
						#VALUE!	#VALUE!	#VALUE!	#VALUE!		0
						#VALUE!	#VALUE!	#VALUE!	#VALUE!		0
						#VALUE!	#VALUE!	#VALUE!	#VALUE!		0
						#VALUE!	#VALUE!	#VALUE!	#VALUE!		0

Point Reduction Guidelines				
Point Deduction for Failure to Correct within:				
Deviation Type	First Correction Period	Second Correction Period	Third Correction Period	Fourth Correction Period
Type 1	-2	-3	-4	-5
Type 2	-1	-1.5	-2	-2.5

Appendix B - KPI Target Dates with Weighing Factors

Annual KPI Score					
Section	Paragraph	Description	Target Date	Weighting	
32 01 11.03	Spot Sealing	1.3.3	Start spot sealing	01-Jun	7.5%
		3.1.2	80% Spot Sealing complete	31-Jul	7.5%
32 01 18.02	Crack Sealing - Spray Patching (B)	3.3.11	100% Patching	15-Sep	7.5%
		3.4.2	Replace failed patches	30-Sep	7.5%
32 17 23	Pavement Markings	1.4.1	First round of painting complete	15-Jul	5.0%
		1.4.2	Second round complete	30-Sep	5.0%
32 94 11.03	Brush & Weed Control	1.3.3	Complete Work (except freeze-up areas)	01-Oct	5.0%
		1.3.3	Complete Freeze-up areas	01-Dec	5.0%
32 94 11.06	Motor Grader	3.2.2	Compacting attachment - summer	30-Apr	5.0%
32 94 11.09	Auger Truck - Labour Assistant	1.3.3	Sign repairs	15-Aug	5.0%
38 21 00	Snow Clearing & Ice Removal	3.2	Winter attachments for equipment	15-Oct	20.0%
38 31 00	Bridge Cleaning	3.1.1	100% complete	28-May	5.0%
39 11 00	Sand Salt Mix	1.1.4	100% of req volume mixed	15-Sep	15.0%
				Weighted Sub-Total	100.0%
				Continuous Improvement Supplement ¹	5.0%
				100% Achievement Supplement ²	15.0%
				Annual KPI Score	(Up to) 115.0%
¹ Continuous Improvement Supplement is only applied if the weighted sub-total for the current year is greater than the weighted sub-total from the previous year. This supplement is not applied if the 100% Achievement Supplement is applied and will not be applied in the first year of the Contract. i.e. Year 1 sub-total = 80%, Year 2 sub-total = 85%, Year 3 sub-total = 80%, Year 4 sub-total = 95%; Contractor receives 5% Continuous Improvement Supplement in years 2 and 4 only.					
² 100% Achievement Supplement is only applied if the weighted sub-total is equal to 100%. Annual KPI Score will be 115%.					

Project # R.017174.002

Highway Maintenance and Repair
Km 133 to Km 968
Alaska Highway, BC
June 1, 2018 – May 31, 2023

PWGSC – Pacific Region

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Appendix C- CPERF Form



SELECT - CONTRACTOR PERFORMANCE EVALUATION REPORT FORM (CPEFR)
SELECT - FORMULAIRE DU RAPPORT D'ÉVALUATION DU RENDEMENT DE L'ENTREPRENEUR (FRERE)

Contract Number - N° du contrat	Project Number - N° du projet	Client Reference Number - N° de référence du client
---------------------------------	-------------------------------	---

Description of work - Description des travaux

Contractor's Business Name - Nom de l'entreprise	Contractor's Superintendent - Surintendant de l'entrepreneur
--	--

Contractor's Business Address - Adresse de l'entreprise

Project Manager - Gestionnaire de projet	Contract Information - Information sur le contrat	
Name - Nom	Contract Award Amount Montant du marché adjugé	Contract Award Date Date de l'adjudication du marché
Telephone No. - N° de téléphone () - []	Final Amount - Montant Final	Contract Completion Date Date d'achèvement du contrat
Fax No. - N° de télécopieur () - []		
Cell No. - N° de cellulaire () - []	No. of Change Orders Nombre d'ordres de changement	Final Certificate Date Date du certificat final
E-Mail Address - Adresse électronique		

QUALITY OF WORKMANSHIP - QUALITÉ DES TRAVAUX EXÉCUTÉS	Category - Catégorie	Scale Échelle	Points Pointage
<p>This is the rating of the quality of the workmanship. At final completion the quality of the materials and equipment incorporated in the work must meet the requirements set out in the plans and specifications.</p> <p>Il s'agit de l'évaluation de la qualité des travaux exécutés. À l'achèvement des travaux, la qualité des matériaux et de l'équipement doit satisfaire les exigences établies dans les plans et devis.</p>	Unacceptable - Inacceptable	0 - 5	<input style="width: 80px; height: 20px;" type="text"/>
	Not Satisfactory - Non satisfaisant	6 - 10	
	Satisfactory - Satisfaisant	11 - 16	
	Superior - Supérieur	17 - 20	

TIME - DÉLAI D'EXÉCUTION	Category - Catégorie	Scale Échelle	Points Pointage
<p>This is the rating of the timeliness of completion considering the actual completion date compared with the original (or amended) contract completion date and allowing for conditions beyond the control of the contractor.</p> <p>Il s'agit de l'évaluation du délai d'exécution des travaux en prenant en considération la date actuelle d'achèvement des travaux par rapport à la date originale (ou modifiée) et en tenant compte des conditions indépendantes de la volonté de l'entrepreneur.</p>	Unacceptable - Inacceptable	0 - 5	<input style="width: 80px; height: 20px;" type="text"/>
	Late - En retard	6 - 10	
	On time - À temps	11 - 16	
	Ahead of Schedule - En avance sur le calendrier	17 - 20	

PROJECT MANAGEMENT- GESTION DU PROJET	Category - Catégorie	Scale Échelle	Points Pointage
<p>This is the rating of how the project as described in the drawings and specifications was managed including co-ordination, quality control, effective schedule development and implementation.</p> <p>Voici l'évaluation de la façon dont le projet décrit dans les documents contractuels a été géré, y compris la coordination, le contrôle de la qualité, l'élaboration d'un calendrier efficace et la mise en oeuvre.</p>	Unacceptable - Inacceptable	0 - 5	<input style="width: 80px; height: 20px;" type="text"/> <input type="checkbox"/> N/A <input type="checkbox"/> S/O
	Not Satisfactory - Non satisfaisant	6 - 10	
	Satisfactory - Satisfaisant	11 - 16	
	Superior - Supérieur Criteria not applicable Critère non applicable	17 - 20	

CONTRACT MANAGEMENT- GESTION DU CONTRAT	Category - Catégorie	Scale Échelle	Points Pointage
<p>This is the rating of how the contract was administered in accordance with the provisions expressed in the "front end" portion of the documents.</p> <p>Voici l'évaluation de la façon dont le contrat a été administré conformément aux dispositions comprises dans la partie «prioritaire» des documents.</p>	Unacceptable - Inacceptable	0 - 5	<input style="width: 80px; height: 20px;" type="text"/> <input type="checkbox"/> N/A <input type="checkbox"/> S/O
	Not Satisfactory - Non satisfaisant	6 - 10	
	Satisfactory - Satisfaisant	11 - 16	
	Superior - Supérieur Criteria not applicable Critère non applicable	17 - 20	

HEALTH AND SAFETY - SANTÉ ET SÉCURITÉ	Category - Catégorie	Scale Échelle	Points Pointage
<p>This is the rating of the effectiveness of how the occupational health and safety provisions (whether identified in the contract or those of provincial/territorial legislation or those otherwise applicable) were managed and administered.</p> <p>Voici l'évaluation de l'efficacité avec laquelle les dispositions relatives à la santé et à la sécurité au travail (dans le contrat, dans les règlements provinciaux ou territoriaux ou dans tout autre document) ont été gérées et administrées.</p>	Unacceptable - Inacceptable	0 - 5	<input style="width: 80px; height: 20px;" type="text"/>
	Not Satisfactory - Non satisfaisant	6 - 10	
	Satisfactory - Satisfaisant	11 - 16	
	Superior - Supérieur	17 - 20	

Total points Total du pointage	0 /
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Comments - Commentaires

PWGSC TPSGC	Name - Nom	Title - Titre	Signature	Date
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IMPORTANT: REMOVE THIS PAGE AND COMPLETE SEPARATELY
IMPORTANT : ENLEVER LA PRÉSENTE PAGE ET REMPLIR SÉPARÉMENT

Protected "B" when completed
Protégé « B » lorsque rempli

INSTRUCTIONS AND ADDITIONAL INFORMATION (SELECT - Contractor Performance Evaluation Report)
INSTRUCTIONS ET RENSEIGNEMENTS SUPPLÉMENTAIRES (SELECT - Rapport d'évaluation du rendement de l'entrepreneur)

QUALITY OF WORKMANSHIP - QUALITÉ DES TRAVAUX EXÉCUTÉS

The Project Manager is to consider how the workmanship compares with:

- The norms in the area in which the work was carried out
- The contractor's compliance with any quality provisions outlined in the drawings and specification
- The quality of workmanship provided by other contractors on similar projects in the same or similar facility(ies)

Le gestionnaire de projet doit évaluer la qualité de l'exécution en fonction de ce qui suit :

- le respect des normes s'appliquant aux travaux réalisés
- la conformité de l'entrepreneur aux exigences de qualité comprises dans les dessins et dans les devis
- la qualité de l'exécution des travaux accomplis par d'autres entrepreneurs dans le cadre de projets similaires réalisés dans la même installation ou dans des installation semblables

TIME - DÉLAI D'EXÉCUTION

For the purpose of evaluating the contractor's time performance, consideration must be given to conditions beyond the contractor's control including PWGSC / Consultant / Client Performance.

Consider conditions beyond the contractor's control, e.g.,

- availability of, and access to, the site
- changes in soil or site conditions
- weather extremes
- strikes
- material / equipment supply problems originating from manufacturers/suppliers
- quality of plans and specifications
- major change(s) in scope
- cumulative effect of changes
- was PWGSC able to meet its obligations?
 - timely decisions, clarifications, approvals
- delays caused by other contractors in the same facility

Afin d'évaluer le rendement de l'entrepreneur en matière de délai d'exécution, on doit prendre en considération les conditions indépendantes de la volonté de l'entrepreneur, y compris le rendement de TPSGC, de l'expert-conseil et du client.

Prendre en considération les conditions indépendantes de la volonté de l'entrepreneur, par exemple :

- disponibilité du chantier et accès au chantier
- modifications des conditions du sol ou du chantier
- température
- grèves
- problèmes d'approvisionnement en matériel et en équipement provenant des manufacturiers/fournisseurs
- qualité des devis
- modifications importantes à l'étendue des travaux
- effets cumulatifs des modifications
- TPSGC a-t-il été capable de remplir ses obligations?
 - décisions, clarifications, approbations, paiements en temps opportun
- les retards occasionnés par d'autres entrepreneurs travaillant dans la même installation

The Project Manager's estimate of a reasonable maximum time allowance resulting from conditions beyond the contractor's control is
L'estimation, par le gestionnaire du projet, du temps maximum alloué pour les conditions indépendantes de la volonté de l'entrepreneur est



The period of delay attributable to the contractor is
La période de retard attribuable à l'entrepreneur est



Did the contractor make an effective effort - Est-ce que l'entrepreneur s'est efforcé

- to meet the schedule
- de respecter l'échéancier des travaux



Yes
Oui

No
Non

- to clean up deficiencies in a reasonable time
- de corriger les vices dans un délai raisonnable



Yes
Oui

No
Non

Have you recommended assessments and damages for late completion under the terms of the contract?

Avez-vous recommandé des dédommagements pour retard d'exécution aux termes du marché?



Yes
Oui

No
Non

PROJECT MANAGEMENT - GESTION DU PROJET

The extent to which the contractor takes charge of and effectively manages the work has a direct effect on the inputs required of PWGSC.

Consideration should be given to: Did the contractor

- employ a knowledgeable superintendent
- required additional input from PWGSC staff above that which is normal for a project of similar size and nature
- promptly commence the work
- provide realistic schedules and up dates in accordance with the terms of the contract
- provide a comprehensive work plan and adhere to its milestones
- order material promptly and in such a way as to expedite the progress of the work

La mesure dans laquelle l'entrepreneur assume efficacement la gestion des travaux a une incidence directe sur les services qu'on attend de TPSGC.

Il faut examiner si l'entrepreneur a :

- fait appel aux services d'un surintendant expérimenté
- demandé au personnel de TPSGC une plus grande contribution que ce qui est normal pour un projet de cette importance et de cette nature
- commencé les travaux dans les plus brefs délais
- fourni un calendrier réaliste et des mises à jour conformément aux modalités du contrat
- présenté un plan de travail complet et a respecté les échéances
- commandé le matériel rapidement et de façon à accélérer l'avancement des travaux

PROJECT MANAGEMENT (cond) - GESTION DU PROJET (suite)

- provide shop drawings promptly and were they of sufficient detail
- effectively manage and complete all Division 1 work site activities
- promptly provide reasonable quotations for changes to the original scope of work
- cooperate when issued directions by the project manager
- interpret the contract documents accurately
- establish effective quality control procedures
- effectively coordinate and manage the work of its subcontractors
- promptly correct defective work as the project progressed
- promptly clean-up all deficiencies and incomplete work after issuance of the Interim Certificate of Completion
- satisfactorily clean the work site periodically and at the completion of the project
- fourni rapidement des dessins d'atelier comprenant suffisamment de détails
- géré et achevé efficacement toutes les activités sur le chantier de la Division 1
- proposé rapidement des prix raisonnables pour les modifications à l'énoncé des travaux initial
- accepté les directives du gestionnaire de projet
- interprété les documents contractuels avec exactitude
- mis en place des procédures de contrôle de la qualité efficaces
- coordonné et géré efficacement les travaux confiés à des sous-traitants
- corrigé promptement le travail défectueux en cours de projet
- corrigé rapidement les travaux non acceptables et terminé les travaux
- incomplets après réception du certificat provisoire d'achèvement
- nettoyé de façon satisfaisante le chantier de façon périodique ainsi qu'à la fin du projet

CONTRACT MANAGEMENT - GESTION DU CONTRAT

The effectiveness of the contractor to administer the contract in accordance with the provisions expressed in the "front end" portion of the contract documents.

Consideration should be given to: Did the contractor

- in the time frame specified, provide its contract security and Insurance Certificate fully executed where applicable
- promptly provide its correct business address and PBN
- submit progress claims in the correct format, accurately representing the work successfully completed and material delivered to the site but not yet installed for each payment period
- submit a notarized Statutory Declaration correctly completed with each progress claim
- submit an updated Scheduled if so specified
- pay subcontractors and suppliers in a timely fashion in accordance with the terms and conditions of its subcontracts
- promptly appoint a competent superintendent
- notify the project manager of all its subcontracting activities
- apply for, obtain and pay for all necessary permits, licenses and certificates
- cooperate with other contractors sent onto the site of the work
- remove a superintendent or unsuitable worker when requested by the project manager to do so
- effectively protect the work and the contract documents provided by PWGSC
- comply with all warranty provisions up to the date of the CPERF
- effectively manage the site during a suspension or termination of the work to mitigate any additional costs to PWGSC
- deal promptly with any claims from creditors
- maintain complete records of the project
- provide information promptly when requested to do so
- expedite and co-operate in the settlement of all disputes

Efficacité avec laquelle l'entrepreneur a administré le contrat conformément aux dispositions contenues dans la partie «prioritaire» des documents contractuels.

Il faut examiner si l'entrepreneur a :

- fourni, dans le délai prescrit, une garantie contractuelle et un certificat d'assurance dûment signés, le cas échéant
- fourni promptement son adresse commerciale exacte et son numéro d'entreprise - approvisionnement (NEA)
- présenté des réclamations périodiques dans le bon format, en décrivant avec précision les travaux exécutés et le matériel livré sur le chantier mais non encore installé, pour chaque période de paiement
- présenté une déclaration solennelle notariée correctement remplie avec chaque réclamation périodique
- fourni un calendrier à jour, sur demande
- payé rapidement les sous-traitants et les fournisseurs conformément aux conditions des contrats de sous-traitance
- désigné dans les plus brefs délais un surintendant qualifié
- tenu au courant le gestionnaire de projet de toutes les activités de sous-traitance
- demandé, obtenu et payé tous les permis, licences et certificats nécessaires
- collaboré avec les autres entrepreneurs envoyés sur le lieu des travaux
- remplacé un surintendant ou un travailleur inapte à la demande du gestionnaire de projet
- protégé efficacement les travaux et les documents relativement aux travaux et au contrat fournis par TPSGC
- respecté toutes les dispositions de garantie jusqu'à la date du Formulaire Rapport d'évaluation du rendement de l'entrepreneur (FRERE)
- géré efficacement le chantier pendant une suspension des travaux ou lors de leur achèvement, afin de limiter tout coût supplémentaire pour TPSGC
- traité dans les plus brefs délais les demandes de paiement des créanciers
- tenu des dossiers complets sur le projet
- fourni promptement les renseignements demandés
- accélère et coopère dans le règlement des différends

HEALTH AND SAFETY - SANTÉ ET SÉCURITÉ

The effectiveness to which the contractor managed and administered the occupational health and safety provisions as stipulated in the contract documents and those required by provincial/territorial legislation or those that would otherwise be applicable to the site of the work.

Consideration should be given to: Did the contractor

- provide PWGSC with a copy of its health and safety program prior to commencement of the work
- provide PWGSC with a copy of its site specific hazardous assessment prior to commencement of the work
- apply for and obtain the provincial/territorial Notice of Project prior to commencement of the work
- apply for and obtain the Building Permit prior to commencement of the work
- provide a competent superintendent who
 - is qualified in health and safety matters because of her / his knowledge, training and experience
 - is familiar with the O,H&S Act and its Regulations that apply to the site of the work
 - remedies any potential or actual danger of health and safety to those employed at the work site
- respond in a timely manner to any non-compliance safety issues noted by PWGSC or a representative of the authority having jurisdiction
- implement its safety program in a proactive manner

Efficacité avec laquelle l'entrepreneur a géré et administré les dispositions relatives à la santé et à la sécurité au travail telles que stipulées dans les documents contractuels et dans les règlements provinciaux et territoriaux ou ceux s'appliquant normalement au lieu des travaux.

Il faut examiner si l'entrepreneur a :

- fourni à TPSGC une copie de son programme en matière de santé et de sécurité avant le début des travaux
- fourni à TPSGC une copie de son évaluation des dangers pouvant survenir sur les lieux avant le début des travaux
- demandé et obtenu l'avis de projet provincial ou territorial avant le début des travaux
- demandé et obtenu le permis de construction avant le début des travaux
- engagé un surintendant qui :
 - est qualifié en matière de santé et de sécurité de par ses connaissances, sa formation et son expérience
 - connaît bien les dispositions de la Loi sur la santé et la sécurité au travail et de son règlement qui s'appliquent sur le lieu des travaux
 - remédie à tout danger possible ou réel en matière de santé et de sécurité pouvant toucher toutes les personnes travaillant sur le lieu des travaux
- traité rapidement tous les problèmes de non-conformité à la sécurité relevés par TPSGC ou par un représentant de l'autorité qui a juridiction
- mis en oeuvre son programme de sécurité de façon proactive