parkscanada.gc.ca parcscanada.gc.ca

1433 PUK NP
Trail Bridge Structures Rehabilitation

Parks Canada Agency
Pukaskwa National Park

Contract Documents and Specifications

Prepared For;

Northern Ontario Field Unit
Pukaskwa National Park

Prepared by;

WSP

Parks Canada Parcs Canada

Canada

Discipline	Consultant's Name and Address	Professional Seal Name and Signature
Civil/Structural	WSP Canada Inc. 185 East Street Sault Ste. Marie, Ontario P6B 1C3 Canada Tel: 705-942-2070 Fax: 705-942-3532 Cell: 705-971-2030	 **David Spacek, P.Eng., PMP** Civil/Structural Engineer Email: david.spacek@wspgroup.com

Appendices

C1.0 TITLE SHEET AND INDEX

C1.1 KEY PLAN

C1.2 GENERAL NOTES

C1.3 DETAILS SHEET 1 OF 2

C1.4 DETAILS SHEET 2 OF 2

C1.8 STRUCTURE 17-04

C1.9 STRUCTURE 17-05

C1.10 STRUCTURE 17-06

C1.11 STRUCTURE 17-07 (Provisional Structure)

C1.13 STRUCTURE 17-09 (Provisional Structure)

C1.14 STRUCTURE 17-10 – SHEET 1 OF 2 (REMOVALS)

C1.15 STRUCTURE 17-10 – SHEET 2 OF 2 (NEW CONSTRUCTION)

C1.18 STRUCTURE 17-15

C1.19 STRUCTURE 17-16 (Provisional Structure)

C1.20 STRUCTURE 17-17

C1.21 STRUCTURE 17-18

C1.22 STRUCTURE 17-19 (Provisional Structure)

C1.23 STRUCTURE 17-20 – SHEET 1 OF 2 (REMOVALS)

C1.24 STRUCTURE 17-20 – SHEET 2 OF 2 (NEW CONSTRUCTION)

C1.25 STRUCTURE 17-21 – SHEET 1 OF 3 (REMOVALS)

C1.26 STRUCTURE 17-21 – SHEET 2 OF 3 (NEW CONSTRUCTION)

C1.27 STRUCTURE 17-21 – SHEET 3 OF 3 (NEW CONSTRUCTION)

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Precedence

.2 Related Sections.

.3 Work Covered by Contract Documents.

.4 Contract Method.

.5 Cost Breakdown.

.6 Work sequence.

.7 Contractor Use of Premises.

.8 Public occupancy.

1.2 COMPLMENTARY DOCUMENTS

.1 Refer to Drawings for words and terms.

.2 Drawings, specifications, and schedules are complementary to each other and what is called for by one to be binding as if called for by all. Should any discrepancy appear between documents which leave doubt as to the intent or meaning, abide by Precedence of Documents article below or obtain direction from the Departmental Representative or Delegate.

.3 Install components to physically conserve headroom, to minimize furring spaces, or obstructions.

.4 Locate devices with primary regard for convenience of operation and usage.

.5 Examine all discipline drawings, specifications, and schedules and related Work to ensure that work can be satisfactorily executed. Conflicts or additional work beyond work described to be brought to attention of Departmental Representative or Delegate.

1.3 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises the general construction of pedestrian trail bridge structures, located at Pukaskwa National Park.

1.5 CONTRACT METHOD

.1 Construct work under lump sum contract.

.2 Relations and responsibilities between Contractor and subcontractors and suppliers subcontractors assigned by Parks Canada Agency (PCA) are as defined in Conditions of Contract. Assigned Subcontractors must, in addition:

.1 Furnish to Contractor, bonds covering faithful performance of subcontracted work and payment of obligations thereunder when Contractor is required to furnish such bonds to Departmental Representative.

.2 Purchase and maintain liability insurance to protect Contractor from claims for not less than limits of liability which Contractor is required to provide to Departmental Representative.

1.6 COST BREAKDOWN

.1 Submit prices for each line item for the unit of measure specified.

.2 Use the cost breakdown forms provided.

1.7 WORK SEQUENCE

.1 Construct Work in stages to accommodate public's continued use of premises during construction.

.2 Coordinate Progress Schedule and coordinate with Parks Canada Agency (PCA) Occupancy during construction.

.3 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.

1.8 CONTRACTOR USE OF PREMISES

.1 Contractor has unrestricted use of site until Substantial Performance.

.2 Contractor shall limit use of premises for Work, for storage, and for access, to allow;

.1 Public usage.

.3 Coordinate use of premises under direction of Departmental Representative.

.4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.9 PUBLIC OCCUPANCY

.1 Public will utilize premises during entire construction period for execution of normal operations.

.2 Cooperate with Parks Canada Agency (PCA) in

scheduling operations to minimize conflict and to facilitate Public usage.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative or Delegate to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Where security is reduced by work, provide temporary means to maintain security.

.4 Departmental Representative or Delegate will assign sanitary facilities for use by Contractor's personnel, if any at or around the work sites. Keep facilities clean.

.5 The contractor responsible to arrange their own temporary sanitary facilities at the sites where there are no PCA facilities in existence.

1.3 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

.1 Execute work with least possible interference or disturbance to public and normal use of premises. Arrange with Departmental Representative or Delegate to facilitate execution of work.

1.4 EXISTING SERVICES

.1 Provide access for personnel, pedestrian and vehicular traffic.

.2 Construct barriers in accordance with Section 01 56 00.

1.5 SPECIAL REQUIREMENTS

.1 Submit schedule in accordance with 01 32 16.07 - Construction Progress Schedule - Bar (GANTT) Chart.

.2 Ensure Contractor's personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.3 Keep within limits of work and avenues of ingress and egress.

.4 Deliver materials outside of peak traffic hours 17:00 to 07:00 and 13:00 to 15:00 unless otherwise approved by Departmental Representative or

Delegate.

1.6 SECURITY

.1 Security clearances:
.1 Personnel employed on this project may be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.

1.7 PARK SMOKING ENVIRONMENT

.1 Comply with smoking restrictions. Smoking is not permitted.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Contingency allowance.

1.2 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)
.1 CCDC 2-[1994], Stipulated Price Contract.

.2 Project Supplementary Conditions

1.3 CONTINGENCY ALLOWANCE

.1 Not Applicable

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS

N.A.

1.2 APPOINTMENT AND PAYMENT

.1 Departmental Representative or Delegate will appoint and pay for services of testing laboratory except follows:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Mill tests and certificates of compliance.

.4 Tests specified to be carried out by Contractor under supervision of Departmental Representative or Delegate.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative or Delegate to verify acceptability of corrected work.

Part 2 PRODUCTS

2.1 NOT USED

.1 Not Used.

Part 3 EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work and additional meetings at the call of Departmental Representative or Delegate.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting 4 days in advance of meeting date to Departmental Representative or Delegate.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Produce and distribute copies of minutes within three days after meetings and transmit to Departmental Representative or Delegate, meeting participants and affected parties not in attendance.

.8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative or Delegate, Consultant, Contractor, major Subcontractors, and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda items in addition to the Pre-Construction Start-Up Meeting Checklist to include:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work: in accordance with Section 01 32 16.07.

.3 Schedule of submission of shop drawings, samples, mock-ups, colour chips. Submit submittals in accordance with Section 01 33 00.
.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.
.5 Delivery schedule of specified equipment.
.6 Health and safety in accordance with Section 01 35 29.06.
.7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
.8 Record drawings and specifications in accordance with Sections 01 33 00 and 01 78 00.
.9 Maintenance manuals in accordance with Section 01 78 00.
.10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00.
.11 Monthly progress claims, administrative procedures, photographs, hold backs.
.12 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

.1 During course of Work and 2 weeks prior to project completion, schedule progress meetings monthly at minimum.

.2 Contractor, major Subcontractors involved in Work, and Consultant, Departmental Representative or Delegate are to be in attendance.

.3 Notify parties minimum 5 days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.

.5 Agenda to include the following:
.1 Review, approval of minutes of previous meeting.
.2 Review of Work progress since previous meeting.
.3 Field observations, problems, conflicts.
.4 Problems which impede construction schedule.
.5 Review of off-site fabrication delivery schedules.
.6 Corrective measures and procedures to regain projected schedule.
.7 Revision to construction schedule.
.8 Progress schedule, during succeeding work period.
.9 Review submittal schedules: expedite as required.

.10 Maintenance of quality standards.
.11 Review proposed changes for effect on construction schedule and on completion date.
.12 Other business.

PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 DEFINITIONS

.1 Activity: element of Work performed and to be performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): 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 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. 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.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative or Delegate to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Certificate of Substantial Performance and Certificate of Completion as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Submit to Departmental Representative or Delegate within 5 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

.3 Submit Project Schedule to Departmental Representative or Delegate within 5 working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule.
.1 Certificate of Substantial Performance within 180 working days of Award of Contract date.

1.5 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Departmental Representative or Delegate 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.

1.6 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
.1 Award.
.2 Shop Drawings, Samples.
.3 Permits.
.4 Mobilization.
.5 Structure rehabilitation.

1.7 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on bi-weekly 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.

1.8 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings specified in Section 01 31 19, 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 related delays with their remedial measures will be discussed and negotiated.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative or Delegate submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete and direction from the Departmental Representative or Delegate.

.3 Present shop 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 or Delegate. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated 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 considered rejected.

.6 Notify Departmental Representative or Delegate, 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 co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative or Delegate's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative or Delegate review.

.10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Refer to CCDC 2 GC 3.10.

.2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.3 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario of Canada.

.4 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 co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.5 Allow 5 working days for Departmental Representative or Delegate's review of each submission.

.6 Adjustments made on shop drawings by Departmental Representative or Delegate are not intended to change Contract Amount. If adjustments affect value of Work, state such in writing to Departmental Representative or Delegate prior to proceeding with Work.

.7 Make changes in shop drawings as Departmental Representative or Delegate may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative or Delegate in writing of revisions other than those requested.

.8 Accompany submissions with transmittal letter, in duplicate, containing:
- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.9 Submissions shall include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.
.3 Setting or erection details.
.4 Capacities.
.5 Performance characteristics.
.6 Standards.
.7 Operating weight.
.8 Wiring diagrams.
.9 Single line and schematic diagrams.
.10 Relationship to adjacent work.

.10 After Departmental Representative or Delegate's review and approval, distribute copies.

.11 Submit three hard copies and one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative or Delegate may reasonably request.

.12 Submit three hard copies and one electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative or Delegate where shop drawings will not be prepared due to standardized manufacture of product.

.13 Submit three hard copies and one electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative or Delegate.
.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
.2 Testing must have been within 3 years of date of contract award for project.

.14 Submit three hard copies and one electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative or Delegate.
.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
.2 Certificates must be dated after award of project contract complete with project name.

.15 Submit three hard copies and one electronic copy of manufacturer’s instructions for requirements requested in specification Sections and as requested by Departmental Representative or Delegate.
.1 Pre-printed material describing installation of product, system or material, including

special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.16 Submit three hard copies and one electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative or Delegate.

.17 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.18 Submit three hard copies and one electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative or Delegate.

.19 Delete information not applicable to project.

.20 Supplement standard information to provide details applicable to project.

.21 If upon review by Departmental Representative or Delegate, 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 shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.22 The Contractor shall submit Safety & Maintenance Records of any helicopter to be used on the project.

1.3 PHOTOGRAPHIC DOCUMENTATION

.1 Submit electronic and hard copy of colour digital photography in jpg format, standard resolution monthly with progress statement and as directed by Departmental Representative or Delegate.

.2 Project identification: name and number of project and date of exposure indicated.

.3 Number of viewpoints: 4 locations.
.1 Viewpoints and their location as determined by Departmental Representative or Delegate.

.4 Frequency of photographic documentation: weekly or as directed by the Departmental Representative or Delegate.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Safety and Insurance Board Experience Report.

.2 Submit qualification of all sub-contractors identified for this project

.3 Submit transcription of insurance immediately after award of Contract.

.4 Submit professional certificates of the trade persons engaged in the project.

1.5 FEES, PERMITS AND CERTIFICATES

.1 Provide authorities having jurisdiction with information requested.

.2 Pay fees and obtain certificates and permits required.

PART 2 - PRODUCTS

2.1 LIST OF SUBMITTALS

Submittals Indicated in Specification Sections	**Spec Section #**
➢ Shop Drawings (3 hard copies & 1 electronic)	01 33 00
➢ Product Data Sheets (3 hard copies & 1 electronic)	01 33 00
➢ Test Reports (3 hard copies & 1 electronic)(as required)	01 33 00
➢ Test Certificates (as required)	01 33 00
➢ Manufacturer’s Instructions	01 33 00 & 05 50 00
➢ Operations & Maintenance Data	01 33 00
➢ Photography	01 33 00
➢ Qualifications of Subcontractors	01 33 00
➢ Certificates for Trade Persons	01 33 00
➢ Insurance	01 33 00
➢ Helicopter Safety Documentation	01 33 00
➢ Site Specific Health & Safety Plan	01 35 29
➢ WSIB Rating Report	01 35 29
➢ Fall Arrest Plan	01 35 29
➢ Samples for Testing, Inspection Reports, Mill Test Certificates	01 45 00 & 31 00 00.01
➢ Request for Cutting Alterations (as required)	01 73 00
➢ Request for Change in Materials (as required)	01 73 00
➢ Proposed Layout of Construction Site(s)	01 73 13.01
➢ Waste Reduction Plan	01 74 20 & 31 22 13
➢ Proof of Disposal at Licensed Landfill	01 74 20
➢ Summary of Waste Materials Salvaged	01 74 21
➢ Maintenance Manuals & Commissioning Documentation	01 77 00
➢ As Built Drawings (Hard copy & USB)	01 77 00
➢ Shoring and Underpinning Drawings	02 41 16.01
➢ Demolition Drawings	02 41 99
➢ Calculations on Recycling Rates	02 41 99 & 31 22 13

Submittals Indicated in Specification Sections	**Spec Section #**
➢ Erosion and Sediment Control Plan	02 41 99 & 31 22 13
➢ Pre-Demolition Audit	02 42 13
➢ Disassembly Plan	02 42 13
➢ WHMIS MSDS	03 10 00

AND ANY OTHER SUBMITTALS AS SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS AND ON DESIGN DRAWINGS.
NOTE: SOME SUBMITTALS MAY BE INDICATED IN MORE THAN ONE SPECIFICATION SECTION.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMETNS

.1 Section 01 14 00 – Work Restrictions

.2 Section 01 33 00 – Submittal Procedures

.3 Section 01 35 29.06 – Health and Safety Requirements

.4 Section 01 35 43 – Environmental Procedures

.5 Section 01 52 00 – Construction Facilities

.6 Section 01 56 00 – Temporary Barriers and Enclosures

1.2 REFERENCES

.1 .Ministry of Transportation, Ontario (MTO)

.1 Ontario Traffic Manual, Book 7: Temporary Conditions (01).

1.3 PROTECTION OF PUBLIC TRAFFIC

.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.

.2 When working on travelled way:

.1 Place equipment in position to minimize interference and hazard to travelling public.

.2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.

.3 Do not leave equipment on travelled way overnight.

.3 Close lanes of road only after receipt of written approval from Departmental Representative or Delegate.

.1 Before re-routing traffic erect suitable signs and devices to Ontario Traffic Manual, Book 7: Temporary Conditions.

.4 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.

.1 Provide 7 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.

.2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.

.5 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Departmental Representative or Delegate

1.4 INFORMATIONAL AND WARNING DEVICES

.1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

.2 Supply and erect signs, delineators, barricades and miscellaneous warning devices to Ontario Traffic Manual, Book 7: Temporary Conditions.

.3 Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions.

.4 Meet with Departmental Representative or Delegate prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative or Delegate

.5 Continually maintain traffic control devices in use:

.1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Remove or cover signs which do not apply to conditions existing from day to day.

1.5 CONTROL OF PUBLIC TRAFFIC

.1 Provide competent flag personnel, trained in accordance with, and properly equipped to Ontario Traffic Manual, Book 7: Temporary Conditions for situations as follows:

.1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.

.2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.

.3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.

.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 readily available.

.6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

.7 At each end of restricted sections where pilot cars are required.

.8 Delays to public traffic due to contractor's operators: 15 minutes maximum.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 Canadian Standards Association (CSA): Canada
.1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.2 National Building Code 2010 (NBC):
.1 NBC 2010, Division B, Part 8 Safety Measures at Construction and Demolition Sites.

.3 National Fire Code 2010 (NFC):
.1 NFC 2010, Division B, Part 5 Hazardous Processes and Operations, subsection 5.6.1.3 Fire Safety Plan.

.4 Province of Ontario:
.1 Occupational Health and Safety Act Revised Statutes of Ontario 1990, Chapter O.1 as amended, and Regulations for Construction Projects, O. Reg. 213/91 as amended.
.2 O. Reg. 490/09, Designated Substances.
.3 Workplace Safety and Insurance Act, 1997.
.4 Municipal statutes and authorities.

.5 Treasury Board of Canada Secretariat (TBS):
.1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/pol/doc-eng.aspx ?id=17316&section=text.

.6 Fire Commissioner of Canada (FCC):
.1 FC-301 Standard for Construction Operations, June 1982.
.2 FC-302 Standard for Welding and Cutting, June 1982.

Human Resources and Social Development Canada
Labour Program
Fire Protection Engineering Services
4900 Yonge Street 8th Floor
North York, Ontario M2N 6A8

and copies may be obtained from:

Human Resources and Social Development Canada
Labour Program
Fire Protection Engineering Services
Ottawa, Ontario K1A 0J2

1.2 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.
.2 Results of safety and health risk or hazard analysis for site tasks and operations found in work plan.
.3 Measures and controls to be implemented to address identified safety hazards and risks.
.4 Contractor's and Sub-contractors' Safety Communication Plan.
.5 Contingency and Emergency Response Plan addressing standard operating procedures specific to the project site to be implemented during emergency situations. Coordinate plan with existing Parks Canada Agency Emergency Response requirements and procedures provided by Departmental Representative or Delegate or Delegate.

.3 Departmental Representative or Delegate or Delegate will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative or Delegate within 3 days after receipt of comments from Departmental Representative or Delegate.

.4 Departmental Representative or Delegate's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.5 Submit names of personnel and alternates responsible for site safety and health.

.6 Submit records of Contractor's Health and Safety meetings when requested.

.7 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative or Delegate, weekly.

.8 Submit copies of orders, directions or reports issued by health and safety inspectors of the authorities having jurisdiction.

.9 Submit copies of incident and accident reports.

.10 Submit Material Safety Data Sheets (MSDS).

.11 Submit Workplace Safety and Insurance Board (WSIB)-Experience Rating Report.

.12 Bear Spray is required for each person entering the site.

1.3 FILING OF NOTICE

.1 File Notice of Project with Provincial authorities prior to commencement of Work.

1.4 WORK PERMIT

.1 Obtain building permits related to project prior to commencement of Work.

1.5 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with Departmental Representative or Delegate prior to commencement of Work.

1.7 REGULATORY REQUIREMENTS

.1 Comply with the Acts and regulations of the Province of Ontario.

.2 Comply with specified standards and regulations to ensure safe operations at site.

1.8 PROJECT/SITE CONDITIONS

.1 Work at site will involve contact with:
.1 Wildlife: (Mosquitos, blackflies, bears, etc.)

.2 The project is located in a National Park of Canada, therefore standards for Environmental Protection and for visual aesthetics of final Product shall be of a quality standard. Contract limits shall be strictly adhered to and contractor is to take special care to minimize damage and disruption and protect existing features and national park eco-System. The Departmental Representative or Delegate or designate is to be notified immediately if any natural and cultural resources are located during construction.

1.9 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Departmental Representative or Delegate may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns either accepting or requesting improvements.

.3 Relief from or substitution for any portion or provision of minimum Health and Safety standards specified herein or reviewed site-specific Health and Safety Plan shall be submitted to Departmental Representative or Delegate in writing.

.4 Use appropriate fall arrest where required. The Contractor shall submit specific Fall Arrest Plans for Structures 17-04, and 17-05. These plans shall be sealed by a Professional Engineer Registered in the Province of Ontario.

1.10 COMPLIANCE REQUIREMENTS

.1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990 Chapter 0.1, as amended.

1.11 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 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.

.3 Where applicable the Contractor shall be designated "Constructor", as defined by Occupational Health and Safety Act for the Province of Ontario.

1.12 UNFORSEEN 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 or Delegate verbally and in writing.

.2 Follow procedures in place for Employees Right to Refuse Work as specified in the Occupational Health and Safety Act for the Province of Ontario.

1.13 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

- .1 Have working knowledge of occupational safety and health regulations.
- .2 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.
- .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

.2 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.14 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province of Ontario, and in consultation with Departmental Representative or Delegate.

- .1 Contractor's Safety Policy.
- .2 Constructor's Name.
- .3 Notice of Project.
- .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable).
- .5 Ministry of Labour Orders and reports.
- .6 Occupational Health and Safety Act and Regulations for Construction Projects for Province of Ontario.
- .7 Address and phone number of nearest Ministry of Labour office.
- .8 Material Safety Data Sheets.
- .9 Written Emergency Response Plan.
- .10 Site Specific Safety Plan.
- .11 Valid certificate of first aider on duty.
- .12 WSIB "In Case of Injury At Work" poster.
- .13 Location of toilet and cleanup facilities.

1.15 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative or Delegate.

.2 Provide Departmental Representative or Delegate with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Departmental Representative or Delegate may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

.2 Assign responsibility and obligation to Health and Safety Coordinator or Competent Supervisor to stop or start Work when, at Health and Safety Coordinator's or Competent Supervisor's discretion, it is necessary or advisable for reasons of health or safety. Departmental Representative or Delegate may also stop Work for health and safety considerations.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section N.A.

1.2 DEFINITIONS

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.3 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)
- .1 CCDC 2-2008, Stipulated Price Contract.

.2 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.
- .2 EPA General Construction Permit (GCP) 2012.

.3 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.4 Appendix C – Environmental Basic Impact Analysis (BIA).

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for pressure treated wood and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit 2 copies of WHMIS MSDS.

.3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative or Delegate.

.4 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.

.5 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.6 Include in Environmental Protection Plan:
- .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
- .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
- .3 Names and qualifications of persons responsible for training site personnel.
- .4 Descriptions of environmental protection personnel training program.
- .5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations and EPA 832/R-92-005, Chapter 3.
- .6 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.
  - .1 Plans to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
  - .1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.
- .9 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
- .12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage

and handling of these materials.

.13 Waste Water Management Plan identifying methods and procedures for management and or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

.15 Pesticide treatment plan to be included and updated, as required.

1.5 FIRES

.1 Fires and burning of rubbish on site are not permitted.

1.6 DRAINAGE

.1 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.7 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site as indicated.

.2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.

.1 Avoid unnecessary traffic, dumping and storage of materials over root zones.

.3 Minimize stripping of topsoil and vegetation.

.4 Restrict tree removal to areas required for new construction.

1.8 WORK ADJACENT TO WATERWAYS

.1 Conduct all work within 30 meters of a waterway to the Fisheries Act. Submit a work plan for all applicable work.

.2 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material without
Departmental Representative or Delegate’s approval.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 Design and construct temporary crossings to minimize erosion to waterways.

.5 Do not skid logs or construction materials across waterways.

.6 Avoid indicated spawning beds when constructing

temporary crossings of waterways.

.7 Do not blast under water or within 100 m or 350 ft of indicated spawning beds.

1.9 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.10 WILDLIFE HABITAT PROTECTION

.1 The road reconstruction project within the park may impact the movement and resting of caribous. The measures that should be taken in the event a caribou is spotted or seen during the course of this project, are as follows:

- .1 Halt operations immediately in the vicinity that pose risk to the wildlife.
- .2 Notify the Departmental Representative or Delegate and the park Environmental Officer for further direction.
- .3 Obtain written approval from the Departmental Representative or Delegate, prior to proceeding with planned work.
- .4 The Contractor shall avoid and mitigate impact to Species at Risk protected under the Species at Risk Act. Report any Species at Risk to PCA Staff immediately.

1.11 HISTORICAL/ ARCHAEOLOGICAL CONTROL

.1 Provide historical, archaeological, cultural resources, biological resources, and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on project site: and identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.

.2 The Pukaskwa National Park area has a rich history including a strong First Nations presence. The possibility of uncovering archaeological objects during project implementation, while minor due to the work focused on existing developed areas, does exist. Archaeological resources are valued for their potential contribution to the understanding and presentation of local First Nation history. The measures that should be taken in the event archaeological resources are discovered during construction, are as follows:

1. Halt operations in the vicinity that pose a risk to the object(s).
2. Immediately notify the Departmental Representative or Delegate.
3. Work with the Departmental Representative or Delegate to develop a plan to address the object, before proceeding with the work.
4. Obtain written approval from the Departmental Representative or Delegate, prior to proceeding with planned work.

.3 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative or Delegate.

1.12 NOTIFICATION

.1 Departmental Representative or Delegate will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Departmental Representative or Delegate of proposed corrective action and take such action for approval by Departmental Representative or Delegate.
.1 Take action only after receipt of written approval by Departmental Representative or Delegate.

.3 Departmental Representative or Delegate will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

PART 2 – PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.5 Waste Management: separate waste materials for reuse and recycling.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) 2010, National Fire Code of Canada (NFC) 2010 and Ontario Building Code (OBC) 2012, including all amendments up to bid closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:
- .1 Contract documents.
- .2 Specified standards, codes and referenced documents.

.3 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.4 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Stop work immediately and notify Departmental Representative or Delegate if materials which may contain designated substances or PCB's, other than those identified in Sections 01 11 01, 01 35 29, 02 61 00 are discovered in course of work.

1.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

1.4 NATIONAL PARKS ACT

.1 For projects located within boundaries of the National Park, perform Work in accordance with National Parks Act.

1.5 RELICS AND ANTIQUITIES

.1 Relics and antiquities, and items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tables, and similar objects found on site shall remain the property of Parks Canada. Protect such articles and request directives from Departmental Representative or Delegate.

.2 Should historic objects be uncovered during excavating, stop work immediately and notify the Departmental Representative or Delegate. Do not resume work until directed to by the Departmental Representative or Delegate.

.3 Archaeology staff from Parks Canada will monitor the project work and may require temporary stop of work to carry out site investigations.

1.6 TAXES

.1 Pay applicable Federal, Provincial and Municipal taxes.

1.7 EXAMINATION

.1 Examine existing conditions and determine conditions affecting work.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 – GENERAL

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

1.2 RELATED SECTIONS

.1 Section 01 21 00 - Allowances.

.2 Section 01 91 00 - Commissioning - General Requirements.

1.3 INSPECTION

.1 Departmental Representative or Delegate will engage, as required, independent inspection/testing agencies for purpose of quality assurance only, that is, verify contractor's quality control process for construction materials, workmanship, environmental protection, waste disposal, etc. Contractor is responsible for quality control. Employment of inspection/testing agencies does not relax responsibility to perform work in accordance with contract documents.

.2 Allow Departmental Representative or Delegate access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.3 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative or Delegate instructions, or law of Place of Work.

.4 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.5 Departmental Representative or Delegate may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative or Delegate shall pay cost of examination and replacement.

.4 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative or Delegate for purpose of inspecting and/or testing portions of Work, above and beyond those required of the Contractor. Cost of such services will be borne by Departmental Representative or Delegate.

.2 Allocated costs: to Section 01 11 01 01 21 00.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative or Delegate at no cost to Departmental Representative or Delegate. Pay costs for retesting and re-inspection.

1.5 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.6 PROCEDURES

.1 Notify appropriate agency and Departmental Representative or Delegate in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.7 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative or Delegate as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Departmental Representative or Delegate it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative or Delegate may deduct from Contract Amount difference in value between Work performed and that called for by Contract Documents, amount of which shall be determined by Departmental Representative or Delegate.

1.8 REPORTS

.1 Submit 4 copies of inspection and test reports to Departmental Representative or Delegate.

.2 Provide copies to Subcontractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.

1.9 TESTS AND MIX DESIGNS

.1 Furnish test results and as may be requested.

.2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work shall be appraised by Departmental Representative or Delegate and may be authorized as recoverable.

1.10 MILL TESTS

.1 Submit mill test certificates as requested required of specification Sections.

PART 2 – PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 – EXECUTION

3.1 NOT USED

.1 Not Used

END OF SECTION

PART 1 – GENERAL

1.1 SECTION INCLUDES

.1 Temporary utilities.

1.2 RELATED SECTIONS

.1 Section 01 52 00 - Construction Facilities.

.2 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 REFERENCES

.1 Canadian Green Building Council (CaGBC)

.2 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 833-R-06-004, May 2007, Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

1.5 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.6 TEMPORARY POWER AND LIGHT

.1 Departmental Representative or Delegate will provide and pay for temporary power to the site office trailer(s) to a maximum supply of 120 volts 15 amps.

.2 Temporary power for work at each project site location is the responsibility of Contractor.

1.9 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone fax data hook up, lines, and equipment necessary for own use and use of Departmental Representative or Delegate.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction sediment and erosion control drawings sediment and erosion control plan, specific to site, that

complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Construction aids.

.2 Office and sheds.

.3 Parking.

.4 Project identification.

.5 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)
- .1 CCDC 2-2008, Stipulated Price Contract.

.2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.189-2000, Exterior Alkyd Primer for Wood.
- .2 CAN/CGSB-1.59-97, Alkyd Exterior Gloss Enamel.

.3 Canadian Standards Association (CSA International)
- .1 CSA A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA 0121-08, Douglas Fir Plywood.
- .3 CSA Z797-09, Code of practice for Access Scaffold.
- .4 CAN/CSA-Z321-96(R2006), Signs and Symbols for the Occupational Environment, withdrawn but still available from CSA, CCOHS and Techstreet.

.4 U.S. Environmental Protection Agency (EPA)/ Office of Water
- .1 EPA 833-R-06-004, May 2007, Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

1.4 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be graveled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.5 SITE STORAGE/LOADING

.1 Refer to CCDC 2, GC 3.12.

.2 Confine work and operations of employees to areas defined by Contract Documents. Do not unreasonably encumber premises with products.

.3 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.6 CONSTRUCTION PARKING

.1 Parking will be permitted on site.

.2 Provide and maintain adequate access to project site.

.3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

1.7 SECURITY

.1 Pay for responsible security personnel to guard site and contents of site after working hours and during holidays (if deemed necessary).

1.8 OFFICES

.1 Provide office heated to 22°C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.

.2 Provide a clearly marked and fully stocked first-aid case in a readily available location.

.3 Subcontractors may provide their own offices as necessary. Direct location of these offices.

1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE

.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.

1.10 SANITARY FACILITIES

.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.

1.11 CONSTRUCTION SIGNAGE

.1 Provide and erect, within three(3) weeks of signing Contract, a project sign in a location designated by Departmental Representative or Delegate.

.2 Construction sign 1.2 x 2.4 m (minimum), of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.

.3 Indicate on sign, name of Parks Canada Agency (PCA), Consultant and Contractor and Subcontractor, of a design style established by Departmental Representative or Delegate as detailed herein.

.4 No other signs or advertisements, other than warning signs, are permitted on site.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 As applicable, provide access as necessary to maintain pedestrian and vehicular traffic and park function.

.2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative or Delegate.

.3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

.4 Protect travelling public from damage to person and property.

.5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.7 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.8 Dust control: adequate to ensure safe operation at all times.

1.13 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, sediment and erosion control drawings, sediment and erosion control plan, specific to site, that complies with EPA 833-R-06-004 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

PART 1 – GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

.2 Environmental Controls.

.3 Traffic Controls.

.4 Fire Routes.

1.2 RELATED SECTIONS

.1 Section 01 51 00 - Temporary Utilities.

.2 Section 01 52 00 - Construction Facilities.

1.3 REFERENCES

.1 Canadian General Standards Board (CGSB):
- .1 CAN/CGSB-1.189-2000, Exterior Alkyd Primer for Wood.
- .2 CAN/CGSB-1.59-97, Alkyd Exterior Gloss Enamel.

.2 Canadian Standards Association (CSA):
- .1 CSA-O121-08, Douglas Fir Plywood.

1.4 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.9 PROTECTION OF BUILDING FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Confirm with Departmental Representative or Delegate locations and installation schedule 3 days

prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

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 RELATED SECTIONS

.1 Section 01 45 00 - Quality Control.

1.3 REFERENCES

.1 Within text of specifications, reference may be made to reference standards.

.2 Conform to these standards, in whole or in part as specifically requested in specifications.

.3 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative or Delegate reserves right to have such products or systems tested to prove or disprove conformance.

.4 The cost for such testing will be born by Departmental Representative or Delegate in event of conformance with Contract Documents or by Contractor in event of non-conformance.

.5 Conform to latest date of issue of referenced standards in effect on date of submission of Bids, except where specific date or issue is specifically noted.

.6 OPSS Ontario Provincial Standard Specifications and OPSD Ontario Provincial Standard Drawings quoted in these specifications are available online at http://www.raqsa.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage.

1.4 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 or Delegate based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.5 AVAILABILITY

.1 Immediately upon 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 or Delegate 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 event of failure to notify Departmental Representative or Delegate at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative or Delegate reserves right to substitute more readily available products of similar character, at no increase in Contract Amount or Contract Time.

1.6 METRIC SIZED MATERIALS

.1 SI metric units of measurement are used exclusively on the drawings and in the specifications for this project.

.2 The Contractor is required to provide metric products in the sizes called for in the Contract Documents except where a valid claim can be made that a particular product is not available on the Canadian market.

.3 Claims for exemptions from use of metric sized products shall be in writing and fully substantiated with supportive documentation. Promptly submit application to Departmental Representative or Delegate for consideration and ruling. Non-metric sized products may not be used unless Contractor's application has been approved in writing by the Departmental Representative or Delegate.

.4 Difficulties caused by the Contractor's lack of planning and effort to obtain modular metric sized products which are available on the Canadian market

will not be considered sufficient reasons for claiming that they cannot be provided.

.5 Claims for additional costs due to provision of specified modular metric sized products will not be considered.

1.7 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions 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 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative or Delegate.

.9 Touch-up damaged factory finished surfaces to Departmental Representative or Delegate's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.8 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.9 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, 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 or Delegate in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative or Delegate may establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative or Delegate to require removal and re-installation at no increase in Contract Amount or Contract Time.

1.10 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 Departmental Representative or Delegate if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative or Delegate reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative or Delegate, whose decision is final.

1.11 CO-ORDINATION

.1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

1.12 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 in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No.316 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal (unless otherwise noted). Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

.1 Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Departmental Representative or Delegate.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Field engineering survey services to measure and stake site.

.2 Recording of subsurface conditions found.

1.2 REFERENCES

.1 Parks Canada Agency (PCA)'s identification of existing survey control points and property limits.

1.3 EXISTING SERVICES

.1 N.A.

1.4 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified drawings showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

1.5 SUBMITTALS

.1 On request of Departmental Representative or Delegate, submit documentation to verify accuracy of field engineering work.

1.6 SUBSURFACE CONDITIONS

.1 Promptly notify The Departmental Representative or Delegate in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should The Departmental Representative or Delegate determine that conditions do differ materially; instructions will be issued for changes in Work as provided in Changes and Change Orders.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 – GENERAL

1.1 SECTION INCLUDES

.1 Organization and mobilization of the Contractor's forces.

.2 Transporting construction plant and equipment to the jobsite and setting up of same.

.3 Transporting various tools, materials, equipment and personnel to the jobsite.

.4 Erection of temporary buildings and facilities as required for field offices, staging area, storage, and construction operations.

1.2 RELATED SECTIONS

.1 Section 01 51 00 – Temporary Utilities.

.2 Section 01 52 00 – Construction Facilities.

.3 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 MEASUREMENT AND PAYMENT

.1 Measurement: The work of this Section will not be measured separately for payment.

.2 Payment: Mobilization will be paid for at the Contract Lump Sum Price, under "Mobilization and Demobilization" item and will include accumulating tools, apparatus, equipment, materials, and personnel, and performing final removal and demobilization. The Contract Lump Sum Price will be paid as follows:

- .1 45 percent of the Contract Lump Sum Price within 30 days of the effective date of the Notice to Proceed.
- .2 45 percent of the Contract Lump Sum Price within 60 days of the effective date of the Notice to Proceed.
- .3 10 percent of the Contract Lump Sum Price after the Departmental Representative or Delegate (DR/D), had determined that the Contractor has left the work site in a clean condition after the completion of all phases of work.

1.4 DESCRIPTION

.1 Mobilization shall include mobilization of all construction equipment, materials, supplies, appurtenances, facilities, and the like, staffed and ready for commencing and prosecuting the Work; and the subsequent demobilization and removal from the jobsite of said equipment, appurtenances, facilities, and the like upon completion of the work.

.2 Mobilization shall also include assembly and delivery to the jobsite of plant, equipment, tools, materials and supplies necessary for the prosecution of work which are not intended to be incorporated in

the Work; the clearing of and preparation of the Contractor's work area; the complete assembly, in working order of equipment necessary to perform the required work; personnel services preparatory to commencing the actual work; and all other preparatory work required to permit commencement of the actual work on construction items for which payment is provided in the Contract.

1.5 SUBMITTALS

.1 Refer to Section 01 33 00 – Submittal Procedures, for submittal requirements and procedures.

.2 Submit a plan of the proposed layout of the construction site, including fences, roads, parking, buildings, staging and storage areas, within seven (7) days after the effective date of the Notice to Proceed.

1.6 DELIVERY

.1 Delivery to the jobsite of construction tools, equipment, temporary buildings, materials and supplies shall be accomplished in conformance with local governing ordinances and regulations.

1.7 TOOLS AND SUPPLIES

.1 Provide construction tools, equipment, materials, and supplies of the types and quantities necessary to facilitate the timely execution of the Work.

.2 Provide personnel, products, construction materials, equipment, tools and supplies at the jobsite at the time they are scheduled to be installed or utilized.

1.8 DEMOBILIZATION

.1 Upon completion of the Work, remove construction tools, apparatus, equipment mobile units and buildings, unused materials and supplies, plant, and personnel from the Jobsite.

.2 Restore all areas utilized for mobilization to their original, natural state or when called for in the Contract Documents, complete such areas indicated.

END OF SECTION

PART 1 - GENERAL

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00.

.2 Submit written request in advance of cutting or alteration which affects:
- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of Parks Canada Agency (PCA) or separate contractor.

.3 Include in request:
- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Parks Canada Agency (PCA) or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00.

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Fit several parts together, to integrate with other Work.

.3 Uncover Work to install ill-timed Work.

.4 Remove and replace defective and non-conforming Work.

.5 Remove samples of installed Work for testing (if required).

.6 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse, recycling composting and anaerobic digestion in accordance with Section 01 74 20.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Progressive cleaning.

.2 Final cleaning.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Parks Canada Agency (PCA) or other Contractors.

.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative or Delegate. Do not burn waste materials on site.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide on-site containers for collection of waste materials and debris.

.5 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 20 01 74 21.

.6 Remove waste material and debris from site and deposit in waste container at end of each working day.

.7 Dispose of waste materials and debris off site.

.8 Clean interior areas prior to start of finish work, and maintain areas free of dust and other contaminants during finishing operations.

.9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review, remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris other than that caused by Parks Canada Agency (PCA) or other Contractors.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative or Delegate. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Sweep and wash clean paved areas.

.8 Clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 CONSTRUCTION & DEMOLITION WASTE

.1 Submit a waste reduction workplan indicating the materials and quantities of material that will be recycled and diverted from landfill.
- .1 Indicate how material being removed from the site will be reused, recycled, composted or anaerobically digested using Section 02 42 93, Deconstruction and Waste Products Workplan Summary.

.2 Submit proof that all waste is being disposed of at a licensed land fill site or waste transfer site. A copy of the disposal/waste transfer site's license and a letter verifying that said landfill site will accept the waste must be supplied to Departmental Representative or Delegate prior to removal of waste from the demolition site.

1.2 WASTE PROCESSING SITES

.1 Province of: Ontario.
- .1 Ministry of Environment and Energy, 135 St. Clair Avenue West, Toronto, ON, M4V 1P5.
- .2 Telephone: 800-565-4923 or 416-323-4321.
- .3 Fax: 416-323-4682.

.2 Recycling Council of Ontario: 215 Spadina Avenue, #225, Toronto, ON, M5T 2C7.
- .1 Telephone: 416-657-2797.
- .2 Fax: 416-960-8053.
- .3 Email: rco@rco.on.ca.
- .4 Internet: http://www.rco.on.ca/.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 – EXECUTION

3.1 CANADIAN GOVERNMENTAL DEPARTMENTS -- CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Government Chief Responsibility for the Environment.

Ontario
Ministry of Environment and Energy
135 St Clair Avenue West
Toronto, ON M4V 1P5
Canada
Telephone: 416-323-4321
Facsimile: 416-323-4682
Enquiries:
Environment (416) 734-4494

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Text, schedules and procedures for systematic Waste Management Program for construction, deconstruction, demolition, and renovation projects, including:
- .1 Diversion of Materials.

1.2 DEFINITIONS

.1 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.

.2 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.3 Recycling: Process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.4 Salvage: Removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.5 Separate Condition: Refers to waste sorted into individual types.

1.3 DOCUMENTS

.1 Maintain at job site, one copy of following documents:
- .1 Recycling Plan

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 11 00 and 01 33 00.

.2 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
- .1 Failure to submit could result in hold back of final payment.
- .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled, co-mingled and separated off-site or disposed of.
- .3 For each material reused, sold or recycled from project; include amount in tonnes quantities by number, type and size of items and the destination.
- .4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.5 QUALITY ASSURANCE - SITE VISIT

.1 N/A

1.6 WASTE PROCESSING SITES

.1 Province of: Ontario.
- .1 Name: Ontario Ministry of Environment, St. Clair Avenue West, Toronto, ON, M4V 1PS.
- .2 Telephone: 800-565-4923 or 416-323-4321.
- .3 Fax: 416-323-4682.

.2 Recycling Council of Ontario: 51 Wolseley Street, 2nd Floor, Toronto, ON, M5T 1A4.
- .1 Telephone: 416-657-2797.
- .2 Fax: 416-960-8053
- .3 Email: rco@rco.on.ca.

.4 Internet: http://www.rco.on.ca/.

1.7 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative or Delegate.

.2 Unless specified otherwise, materials for removal do not become Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Separate and store materials produced during dismantling of structures in designated areas.

.7 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
- .1 On-site source separation is recommended.
- .2 Remove co-mingled materials to off-site processing facility for separation.
- .3 Provide waybills for separated materials.

1.8 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner, into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:
- .1 Number and size of bins.

.2 Waste type of each bin.
.3 Total tonnage generated.
.4 Tonnage reused or recycled.
.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.9 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

1.10 SCHEDULING

.1 Coordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 – PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 – EXECUTION

3.1 APPLICATION

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION

PART 1 – GENERAL

1.1 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 or Delegate in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
- .2 Request Departmental Representative or Delegate's Inspection.

.2 Departmental Representative or Delegate's Inspection: Departmental Representative or Delegate, Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to 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 Work is complete and ready for final inspection.

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

1.2 CLEANING

.1 In accordance with Section 01 74 11.

.2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 20.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 As-built, samples, and specifications.

.2 Product data, materials and finishes, and related information.

1.2 RELATED SECTIONS

.1 N.A.

1.3 SUBMISSION

.1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.2 Copy will be returned after final inspection, with Departmental Representative or Delegate's comments.

.3 Revise content of documents as required prior to final submittal.

.4 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative or Delegate, four final copies of maintenance manuals and commissioning documentation in English.

.5 If requested, furnish evidence as to type, source and quality of products provided.

.6 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.7 Pay costs of transportation.

1.4 AS-BUILTS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative or Delegate one record copy of:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Amendments and addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative or Delegate.

.6 Turn one set, paper copy and electronic copy, of AS-BUILT drawings and specifications over to Departmental Representative or Delegate on completion of work. Submit files on USB compatible with PWGSC encryption requirements or through email or alternate electronic file sharing service such as ftp, as directed by Departmental Representative or Delegate.

.7 If project is completed without significant deviations from Contract drawings and specifications submit to Departmental Representative or Delegate one set of drawings and specifications marked "AS-BUILT".

1.5 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative or Delegate.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
- .1 Field changes of dimension and detail.
- .2 Changes made by change orders.
- .3 Details not on original Contract Drawings.
- .4 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Amendments and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.

1.6 WARRANTIES AND BONDS

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Parks Canada Agency (PCA)'s permission; leave date of beginning of time of warranty until the Date of Certificate of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 An abridged version of Section 02 41 16, methods and procedures for demolition of structures.

1.2 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME)
- .1 PN 1326-July 2005, Environmental Code of Practice for aboveground and underground tank systems containing petroleum products and allied petroleum products.

.2 Canadian Standards Association (CSA International)
- .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.3 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.4 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Shop Drawings:
- .1 Provide shop drawings and product data in accordance with Section 01 33 00.
- .2 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.3 Before proceeding with demolition, submit for review by Departmental Representative or Delegate shoring and underpinning drawings prepared by qualified professional engineer registered or licensed in the Province of Ontario in Canada showing proposed method.

.4 Prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 20 and indicate:
- .1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.
- .2 Name and address of haulers, waste facilities, and waste receiving organizations.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:
- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

1.5 SITE CONDITIONS

.1 Review designated substance report and take precautions to protect environment.

.2 Should material resembling a designated substance, listed as hazardous be encountered, stop work, take preventative measures, and notify Departmental Representative or Delegate immediately.

.1 Do not proceed until written instructions have been received from Departmental Representative or Delegate.

.3 Notify Departmental Representative or Delegate before disrupting pedestrian access or services.

PART 2 - PRODUCTS

2.1 EQUIPMENT

.1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

.2 Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Do Work in accordance with Section 01 35 29.06.

.2 Protection:

.1 Prevent movement, settlement, or damage to adjacent structures to remain in place. Provide bracing and shoring required.

.2 Keep noise, dust, and inconvenience to public to minimum.

.3 Provide temporary dust screens, covers, railings, supports and other protection as required.

3.2 DEMOLITION, SALVAGE AND DISPOSAL

.1 Remove parts of existing structures to permit new construction. Sort materials into appropriate piles for reuse and recycling.

.2 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.3 Remove items to be reused, store as directed by Departmental Representative or Delegate, and re-install under appropriate section of specification.

.4 Dispose of removed materials, to appropriate recycling facilities except where specified otherwise, in accordance with authority having jurisdiction.

3.4 STOCKPILING

.1 Label stockpiles, indicating material type and quantity.

.2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.3 Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.

.4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.5 REMOVAL FROM SITE

.1 Transport material designated for alternate disposal by approved haulers listed in waste reduction workplan and in accordance with applicable regulations. Do not deviate from haulers/facilities listed in waste reduction workplan without prior written authorization from Departmental Representative or Delegate.

3.6 CLEANING AND RESTORATION

.1 Keep site clean and organized throughout demolition procedure.

.2 Upon completion of project, reinstate areas walkways, affected by Work to condition which existed prior to beginning of Work or to match condition of adjacent, undisturbed areas.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

.1 Section 02 41 16.01

1.2 REFERENCES

.1 CSA International
- .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.2 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

.3 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.4 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 and 01 74 20.

.2 Submit demolition drawings:
- .1 Submit for review and approval by Departmental Representative or Delegate shoring and underpinning drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario Canada, showing proposed method.

- .2 Construction Waste Management:
  - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.
  - .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 75% of construction wastes were recycled or salvaged.

- .3 Erosion and Sedimentation Control: submit erosion and sedimentation control plan in accordance with EPA 832/R92-005 authorities having jurisdiction and Section 01 35 43

1.4 SITE CONDITIONS

.1 If material resembling a designated substance, listed as hazardous, be encountered, stop work, take preventative measures, and notify Departmental Representative or Delegate immediately.
  .1 Proceed only after receipt of written instructions have been received from Departmental Representative or Delegate.

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not used.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Inspect site with Departmental Representative or Delegate and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Immediately notify the Departmental Representative or Delegate should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PROTECTION

.1 Prevent movement, settlement, or damage to adjacent structures, to remain in place. Provide bracing and shoring if required.

.2 Keep noise, dust, and inconvenience to occupants to minimum.

.3 Protect building systems, services and equipment.

.4 Provide temporary dust screens, covers, railings, supports and other protection as required.

3.3 PREPARATION

.1 Temporary Erosion and Sedimentation Control:
  .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust according to: requirements of authorities having jurisdiction sediment and erosion control drawings sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
  .2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.
  .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 11 01 & 01 74 11.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.4 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 Definitions:

.1 Alternate Disposal: reuse and recycling of materials by designated facility, user or receiving organization which has valid Certificate of Approval to operate. Alternative to landfill disposal.

.2 Deconstruction: systematic dismantling of structure in a manner that achieves safe removal/disposal of hazardous materials and maximum salvage/recycling of materials.

.1 Ultimate objective is to recover potentially valuable resources while diverting from landfill what has traditionally been significant portion of waste system.

.3 Demolition: rapid destruction of structure with or without prior removal of hazardous materials.

.4 Disassembly: physical detachment of materials from structure: prying, pulling, cutting, or unscrewing.

.5 Hauler: company (possessing appropriate and valid Certificate of Approval) contracted to transport waste, reusable or recyclable materials off site to designated facility, user or receiving organization.

.6 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, including but not limited to: corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health, well-being or environment if handled improperly.

.7 Processing: tasks which are subsequent to disassembly and may include: moving materials, de-nailing, cleaning, separating and stacking.

.8 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.

.9 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.10 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form.

.1 Recycling does not include burning, incinerating, or thermally destroying waste.

.11 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  .1 Salvaging reusable materials from remodelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  .2 Returning reusable items including pallets or unused products to vendors.
.12 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
.13 Source Separation: acts of keeping different types of waste materials separate, beginning from first time they became waste.
.14 Used Building Material Receipt: receipt issued at end destination for materials designated for alternate disposal.
.15 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying (by volume or weight) amounts of materials and wastes generated during deconstruction. Indicates quantities of reuse, recycling and landfill.
.16 Waste Management Coordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.
.17 Waste Reduction Workplan (WRW): written report which outlines actions to be taken to reduce, reuse and recycle materials during course of deconstruction. Actions based on finding of the Waste Audit (WA).
.18 Weigh Bill: receipt received from recycling facility indicating weight and content of each load/bin of material.

.2 Reference Standards:

.1 CSA International

.1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.

.2 Federal Legislation

.1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

.2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 Motor Vehicle Safety Act 1993, c. 16 (MVSA).

.3 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.4 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Scheduling:

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion. In event of unforeseen delay notify Departmental Representative or Delegate or Delegate in writing.

1.3 PERFORMANCE REQUIREMENTS

N.A.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Keep copies of submittals on file for minimum of five years after completion of project.

.3 WMC is responsible for fulfillment of reporting requirements.

.4 Prior to start of Work on site, submit detailed WA indicating descriptions of and anticipated quantities of materials to be reused, recycled and landfilled in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.5 Prior to start of Work on site, submit pre-demolition audit and deconstruction/disassembly plan.

.6 Based on findings of WA submit WRW indicating schedule of selective demolition, material descriptions and quantities to be salvaged, number and location of bins, anticipated frequency of tippage, and names and addresses of haulers facilities receiving organizations in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Submit copies of certificates: weigh bills, bills of lading, used building material receipts from authorized disposal sites and reuse and recycling facilities for material removed from site, to Departmental Representative or Delegate upon request.

1.5 QUALITY ASSURANCE

.1 .Qualifications: provide adequate workforce training through meetings and demonstrations. Have someone on site with deconstruction

experience throughout project for consultation and supervision purposes.

.2 Regulatory Requirements:
.1 Ensure Work is performed in compliance with applicable Provincial/Territorial regulations.

.3 Site Meetings: conduct project meetings every week.
.1 Arrange for site visit with Departmental Representative or Delegate to examine existing site conditions adjacent to demolition work, prior to start of Work.
.2 Ensure key personnel attend.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

1.7 ENVIRONMENTAL REQUIREMENTS

.1 Do Work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Ensure deconstruction work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air noise pollution.

.3 Fires and burning of waste or materials is not permitted on site.

.4 Do not bury waste or materials on site unless approved in writing by Departmental Representative or Delegate.

.5 Do not dispose of waste or volatile materials into watercourses, storm or sanitary sewers.
.1 Ensure proper disposal procedures in accordance with applicable Provincial/Territorial regulations.

.6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties in accordance with authorities having jurisdiction.

.7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction as directed by Departmental Representative or Delegate.

.8 Protect trees, plants and foliage on site and adjacent properties where indicated.

.9 Prevent extraneous materials from contaminating air beyond deconstruction area, by providing temporary enclosures during Work.

.10 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on temporary roads.

.11 Employ reasonable means necessary to protect salvaged materials from vandalism, theft, adverse weather, or inadvertent damage by heavy machinery.

.12 Organize site and workers in manner which promotes efficient flow of materials through disassembly, processing, stockpiling, and removal.

1.8 SITE CONDITIONS

.1 Existing Conditions
.1 Structures to be demolished to be based on their condition on date that bid is accepted

.4 Storage and Protection:
.1 Prevent movement, settlement or damage of adjacent structures. Provide bracing/shoring underpinning as required. Repair damage caused by deconstruction as directed by Departmental Representative or Delegate.
.4 Support affected structures and, if safety of structure being deconstructed adjacent structures appears to be endangered, take preventative measures. Cease operations and immediately notify Departmental Representative or Delegate.

.5 Prevent debris from blocking surface drainage system.

Part 2

2.1 EQUIPMENT

.1 Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.

.2 Where possible use water efficient wetting equipment/trucks/attachments when minimizing dust.

.3 Demonstrate that tools are being used in manner which allows for salvage of materials in best condition possible.

Part 3 EXECUTION

3.1 SITE VERIFICATION OF CONDITIONS

.1 Investigate site and structures to determine dismantling, processing and storage logistics required prior to beginning of Work.

3.2 PREPARATION

.1 Obtain necessary permits and approvals.

.1 Provide copies to Departmental Representative or Delegate prior to start of Work on site.

3.3 REMOVAL OF HAZARDOUS WASTES

.1 N.A.

3.4 DISASSEMBLY

.1 Materials removed are property of Contractor.

.2 Throughout course of deconstruction pay close attention to connections and material assemblies. Employ workmanship procedures which minimize damage to materials and equipment.

.3 Ensure workers and subcontractors are trained to carry out work in accordance with appropriate deconstruction techniques.

.4 Project supervisor with previous deconstruction experience must be present on site throughout project.

.5 Deconstruct in accordance with CSA S350 other applicable safety standards.

.6 Workers must utilize adequate fall protection certified harness and belay systems where Departmental Representative or Delegate DCC Representative Consultant considers it necessary.

.7 Maintain structural integrity of structure.

.8 Source separate for recycling materials that cannot be salvaged for reuse including wood, metal.

.9 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

.10 Where existing materials are to be re-used in Work, use special care in removal, handling, storage and re-installation to assure proper function in completed work.

3.5 PROCESSING

.1 Keep processing area clean and free of excess debris.

3.6 STOCKPILING

.1 Label stockpiles, indicating material type and quantity.

.2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.3 Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.

.4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.7 REMOVAL FROM SITE

.1 Dispose of materials not designated for alternate disposal in accordance with applicable regulations. Disposal facilities must be approved of and listed in waste reduction workplan. Do not deviate from disposal facilities listed in waste reduction workplan without prior written authorization from Departmental Representative or Delegate.

3.8 CLEANING AND RESTORATION

.1 Keep site clean and organized throughout deconstruction.

.2 Upon completion of project, remove debris, trim surfaces and leave work site clean.

.3 Upon completion of project, reinstate areas affected by Work to condition which existed prior to beginning of Work.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS

.1 N.A.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

- .1 CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-O86S1-05, Supplement No. 1 to CAN/CSA-O86-01, Engineering Design in Wood.
- .3 CSA O121-M1978(R2003), Douglas Fir Plywood.
- .4 CSA O151-04, Canadian Softwood Plywood.
- .5 CSA O153-M1980(R2003), Poplar Plywood.
- .6 CAN/CSA-O325.0-92(R2003), Construction Sheathing.
- .7 CSA O437 Series-93(R2006), Standards for OSB and Waferboard.
- .8 CSA S269.1-1975(R2003), Falsework for Construction Purposes.
- .9 CAN/CSA-S269.3-M92(R2003), Concrete Formwork, National Standard of Canada

.2 Underwriters' Laboratories of Canada (ULC)

- .1 CAN/ULC-S701-05, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

.3 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit shop drawings for formwork and falsework.

- .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Ontario, Canada.

.3 Submit WHMIS MSDS - Material Safety Data Sheets.

.4 Co-ordinate submittal requirements and provide submittals.

.5 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts.

Comply with CSA S269.1, for falsework drawings.
Comply with CAN/CSA-S269.3 for formwork drawings.

.6 Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.

.7 Indicate sequence of erection and removal of formwork/falsework as directed by the Departmental Representative or Delegate.

.8 When slip forms, or flying forms are used, submit details of equipment and procedures for review by the Departmental Representative or Delegate.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Store and manage hazardous.

.2 Waste Management and Disposal:

.1 Separate waste materials for reuse & recycling in accordance with Section 01 47 21 - Construction/Demolition Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic in designated containers.

.3 Divert wood materials from landfill to a reuse facility as approved by the Departmental Representative or Delegate.

.4 Divert plastic materials from landfill to a recycling facility as approved by Departmental Representative or Delegate.

.5 Divert unused form release material from landfill to an official hazardous material collections site as approved by the Departmental Representative or Delegate.

Part 2 PRODUCTS

2.1 MATERIALS

.1 Formwork materials:

.1 For concrete without special architectural features, use wood and wood product formwork materials to CSA O121.

.2 For concrete with special architectural features, use formwork materials to CAN/CSA A23.1.

.2 Concrete piers forms: round, internally treated with release material.

.3 Form ties:

.1 For concrete not designated 'Architectural', use removable or snap off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25mm dia. in concrete surface.

.4 Panel materials:

.1 Form grade plywood: to CSA O121

.2 Medium dense plywood: to CSA O151

.3 Hardboard: to CAN/CGSB-11.3, untempered, 3mm thick

.5 Form release agent: non-toxic.

.6 Falsework materials: to CSA S269.1.

.7 Sealant: to Section 07 92 00 - Joint Sealants.

.8 Shear mats: wax coated board, honeycombed, 40mm cell, 55 kPa compressive strength, 300mm deep.

.9 Polyethylene: 0.25mm (10 mil) thick.

Part 3 EXECUTION

3.1 FABRICATION AND ERECTION

.1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

.2 Obtain Departmental Representative or Delegate’s approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Fabricate and erect falsework in accordance with CSA S269.1.

.5 Refer to architectural drawings for concrete members requiring architectural exposed finishes.

.6 Do not place shores and mud sills on frozen ground.

.7 Provide site drainage to prevent washout of soil supporting mud sills and shores.

.8 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.

.9 Align form joints and make watertight.

.1 Keep form joints to minimum.

.10 Locate horizontal form joints for exposed columns 2400 mm above finished floor elevation.

.11 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise.

.12 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.13 Construct forms for architectural concrete, and place ties as directed.

.1 Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

.14 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.

.1 Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.15 Line forms for following surfaces:

.1 Outer face of outside, girders, beams, and vertical edge of bridge sidewalk slab.

.2 Soffit of girders and underside of bridge decks if exposed.

.3 Exposed faces of abutments, wingwalls, piers and pylons: do not stagger joints of form lining material and align joints to obtain uniform pattern.

.4 Secure lining taut to formwork to prevent folds.

.5 Pull down lining over edges of formwork panels.

.6 Ensure lining is new and not reused material.

.7 Ensure lining is dry and free of oil when concrete is poured.

.8 Application of form release agents on formwork surface is prohibited where drainage lining is used.

.9 If concrete surfaces require cleaning after form removal, use only pressurized water stream so as not to alter concrete's smooth finish.

.10 Cost of textile lining is included in price of concrete for corresponding portion of Work.

.16 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

.17 When slip forming/flying forms are used, submit details as indicated in PART 1 - SUBMITTALS.

.18 Pressure Treated Wood shall not be used for formwork.

3.2 REMOVAL AND/ RESHORING

.1 Leave formwork in place for following minimum periods of time after placing concrete.
.1 21 days for footings and abutments.

.2 Remove formwork when concrete has reached 70% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.

.3 Provide necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.

.4 Space reshoring in each principal direction at not more than 3000 mm apart.

.5 Re-use formwork and falsework subject to requirements of CSA-A23.1/A23.2.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED REQUIREMENTS

.1 N.A.

1.2 PRICE AND PAYMENT PROCEDURES

.1 Payment for Cast-in-Place Concrete shall be on a lump sum basis.

1.3 REFERENCES

.1 Abbreviations and Acronyms:

- .1 Portland Cement: hydraulic cement, blended hydraulic cement (XXb - b denotes blended) and Portland-limestone cement.
  - .1 Type GU, GUb and GUL - General use cement.
  - .2 Type MS and MSb - Moderate sulphate-resistant cement.
  - .3 Type MH, MHb and MHL - Moderate heat of hydration cement.
  - .4 Type HE, HEb and HEL - High early-strength cement.
  - .5 Type LH, LHb and LHL - Low heat of hydration cement.
  - .6 Type HS and HSb - High sulphate-resistant cement.
- .2 Fly ash:
  - .1 Type F - with CaO content less than 15%.
  - .2 Type CI - with CaO content ranging from 15 to 20%.
  - .3 Type CH - with CaO greater than 20%.
- .3 GGBFS - Ground, granulated blast-furnace slag.

.2 Reference Standards:

- .1 ASTM International
  - .1 ASTM C260/C260M-10a, Standard Specification for Air-Entraining Admixtures for Concrete.
  - .2 ASTM C309-07, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
  - .3 ASTM C494/C494M-10a, Standard Specification for Chemical Admixtures for Concrete.
  - .4 ASTM C1017/C1017M-07, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
  - .5 ASTM D412-06ae2, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

.6 ASTM D624-00(2007), Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.

.7 ASTM D1751-04(2008), Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

.8 ASTM D1752-04a (2008), Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-37.2-M88, Emulsified Asphalt, Mineral Colloid-Type, Unfilled, for Dampproofing and Waterproofing and for Roof Coatings.

.2 CAN/CGSB-51.34-M86 (R1988), Vapour Barrier, Polyethylene Sheet for Use in Building Construction.

.3 CSA International

.1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA A283-06, Qualification Code for Concrete Testing Laboratories.

.3 CSA A3000-08, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3 Appendix C – Environmental Basic Impact Analysis (BIA).

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Pre-installation Meetings: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart, convene pre-installation meeting one week prior to beginning concrete works.

.1 Ensure key personnel, the Departmental Representative or Delegate/Consultant speciality contractor - finishing, forming, and concrete producer, attend.

.1 Verify project requirements.

1.5 ACTION AND INFORMATION SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide testing results for review by the Departmental Representative or Delegate and do not proceed without written approval when deviations from mix design or parameters are found.

.3 Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.

.4 Provide two copies of WHMIS MSDS in accordance with Section 01 35 29.00 - Health and Safety Requirements 01 35 43 - Environmental Procedures.

1.6 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.

.2 Provide the Departmental Representative or Delegate, minimum 2 weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.

.1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.

.3 Quality Control Plan: provide written report to the Departmental Representative or Delegate verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.

Part 2 PRODUCTS

2.1 DESIGN CRITERIA

.1 Refer to Drawings.

2.2 PERFORMANCE CRITERIA

.1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by the Departmental Representative or Delegate and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

2.3 MATERIALS

.1 Portland cement to CAN/CSA A5.

.2 Supplementary cementing materials: to CAN/CSA A23.5.

.3 Cementitious hydraulic slag: to CAN/CSA A363.

.4 Water: to CAN/CSA A23.1.

.5 Aggregates: to CAN/CSA A23.1. Coarse aggregates to be normal density, except as otherwise specified.

.6 Air entraining admixture: to ASTM C260.

.7 Chemical admixtures: to ASTM C494. DCC Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.8 Superplasticizing admixtures: to CSA-A266.5, CSA-A266.6

.9 Concrete retarders: to ASTM C494 water based, low VOC, solvent free. Do not allow moisture of any kind to come in contact with the retarder film.

.10 Grout: Portland Cement based non-shrink, non-metallic composition, meeting following requirements:

.1 Not exhibit bleeding or segregation at pumpable consistency.

.2 Compressive Strength: 25 MPa at 1 day.

.3 Bond Strength (ASTM C882) 13 MPa @ 28 days.

.4 Positive expansion confirmed by ASTM C827.

.5 Not produce a vapour barrier.

.11 Non-premixed dry pack grout: composition of non-metallic aggregate Portland cement with sufficient water for the mixture to retain its shape when made into a ball by hand and capable of developing compressive strength of 35 MPa at 28 days.

.12 Cure and sealing compound: to CSA-A23.1 and ASTM C309, Type 1.

.1 Acceptable product:

.1 CPD CIPADECK Cure and Seal 20 (Water Based);

.2 Sika FLORSEAL 25 (Water Based);

.3 WR Meadows VOCOMP 20 (Water Based);

.4 or, approved alternate.

.13 Pre-molded joint fillers:

.1 Bituminous impregnated fiber board: to ASTM 1751.

.14 Polyethylene film: 10 mil thickness to CAN/CGSB 51.34 under slabs on grade.

2.4 MIXES

.1 Refer to Drawings for concrete mix design requirements

Part 3 EXECUTION

3.1 PREPARATION

.1 Obtain the Departmental Representative or Delegate's written approval before placing concrete.

.1 Provide 24 hours minimum notice prior to placing of concrete.

.2 During concreting operations:

.1 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.

.3 Ensure reinforcement and inserts are not disturbed during concrete placement.

.4 Prior to placing of concrete obtain the Departmental Representative or Delegate’s approval of proposed method for protection of concrete during placing and curing in adverse weather.

.5 Protect previous Work from staining.

.6 Clean and remove stains prior to application for concrete finishes.

.7 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature, and test samples taken.

.8 In locations where new concrete is dowelled to existing work, drill holes in existing concrete.

.1 Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout or epoxy grout to anchor and hold dowels in positions as indicated.

.9 Do not place load upon new concrete until authorized by the Departmental Representative or Delegate.

3.2 INSTALLATION / APPLICATION

.1 Do cast-in-place concrete work to CSA A23.1/A23.2.

.2 Anchor bolts:

.1 Set anchor bolts to templates in co-ordination with appropriate trade prior to placing concrete.

.2 Grout anchor bolts in preformed holes or holes drilled after concrete has set only after receipt of written approval from the Departmental Representative or Delegate.

.3 Formed holes: 100 mm minimum diameter.

.4 Drilled holes: to manufacturers' recommendations 25 mm minimum diameter larger than bolts used.

.5 Protect anchor bolt holes from water accumulations, snow and ice build-ups.

.6 Set bolts and fill holes with shrinkage compensating grout or epoxy grout.

.7 Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.

.3 Drainage holes and weep holes:

.1 Form weep holes and drainage holes in accordance with Section 03 10 00 - Concrete Forming and Accessories. If wood forms are used, remove them after concrete has set.

.2 Install weep hole tubes and drains as indicated.

.4 Finishing and curing:

.1 Finish concrete to CSA A23.1/A23.2.

.2 Use procedures as reviewed by the Departmental Representative or Delegate or those noted in CSA A23.1/A23.2 to remove excess bleed water. Ensure surface is not damaged.

.3 Use curing compounds compatible with applied finish on concrete surfaces. SPEC NOTE: Applies to conductive and static disseminating surface treatment and conductive and static disseminating monolithic or bonded topping.

.4 Rub exposed sharp edges of concrete with carborundum to produce 3 mm minimum radius edges unless otherwise indicated.

3.3 CURING

.1 Section 7.4 of CSA A23.1.

.2 Concrete surfaces to be cured at a minimum temperature of 10°C for the entire curing period.

.3 Curing regime shall conform to Table 20 of CSA A23.1 and shall depend upon class of exposure.

.4 Upon final finishing of concrete, and once concrete has hardened sufficiently to prevent surface damage, curing shall commence. Curing of concrete surfaces for curing Types 1 and 2 in Table 20 of CSA A23.1 shall be achieved using one or more of following methods:

.1 Curing compound as per section 2.1.11. Apply curing compound per manufacturer’s recommendations.

.2 Waterproofing paper or plastic film;

.3 Forms in contact with concrete surface;

.5 Additional curing requirements are required for concrete containing a high volume of supplementary cementing materials, such as fly ash, as per CSA A23.1 Section 8.8.

3.4 FIELD QUALITY CONTROL

.1 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by the Departmental Representative or Delegate for review to CSA A23.1/A23.2.

.2 Ensure testing laboratory is certified to CSA A283.

.3 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing laboratory and the Departmental Representative or Delegate.

.4 The Departmental Representative or Delegate will pay for costs of tests as specified in Section 01 29 83 - Payment Procedures for Testing Laboratory Services.

.5 The Departmental Representative or Delegate will take additional test cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete which they represent.

.6 Non-Destructive Methods for Testing Concrete: to CSA A23.1/A23.2.

.7 Inspection or testing by Departmental Representative or Delegate will not augment or replace Contractor quality control nor relieve Contractor of his contractual responsibility.

3.5 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 ASTM International
- .1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- .2 ASTM A123/A123M-12, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
- .3 ASTM A269-10, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- .4 ASTM A307-12, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.

.2 Appendix C – Environmental Basic Impact Analysis (BIA).

.3 CSA International
- .1 CSA G40.20-04(R2009)/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CSA S16-14, Design of Steel Structures.
- .3 CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
- .4 CSA W59-M03(R2008), Welded Steel Construction (Metal Arc Welding) Metric.

.4 Environmental Choice Program
- .1 CCD-047-98(R2005), Architectural Surface Coatings.
- .2 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.

.5 Green Seal Environmental Standards (GS)
- .1 GS-11-2008, 2nd Edition, Paints and Coatings.

.6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).

.7 The Master Painters Institute (MPI)
- .1 Architectural Painting Specification Manual - current edition.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for sections, plates, and bolts and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two copies of WHMIS MSDS.

.1 For finishes, coatings, primers, and paints applied on site: indicate VOC concentration in g/L.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.3 QUALITY ASSURANCE

.1 Test Reports: submit certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certifications: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground, indoors, or in dry locations and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan related to Work of this Section.

PART 2 – PRODUCTS

2.1 MATERIALS

.1 Steel sections and plates: to CSA G40.20/ G40.21, Grade 300W

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A307.

.5 Grout: non-shrink, non-metallic, 15 MPa at 24 hours.

2.2 FABRICATION

.1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

.2 Use self-tapping shake-proof flat or round headed screws on items requiring assembly by screws or as indicated.

.3 Where possible, fit and shop assemble work, ready for erection.

.4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m2, Coating Grade 85, to ASTM A123/A123M.

.2 Zinc primer: zinc rich, ready mix to MPI-[INT] [EXT] 5.2C [in accordance with chemical component limits and restrictions requirements and VOC limits of CCD-047a.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:
- .1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.
- .2 Concrete, mortar and masonry.
- .3 Wood.

2.5 SHOP PAINTING

.1 Primer: VOC limit 250 g/L maximum

.2 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

.3 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.4 Clean surfaces to be field welded; do not paint.

PART 3 – EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for metal fabrications installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative or Delegate.
- .2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative or Delegate.

3.2 ERECTION

.1 Do welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Departmental Representative or Delegate such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Supply components for work by other trades in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CSA S16.

.7 Deliver items over for casting into concrete and building into masonry together with setting templates to appropriate location and construction personnel.

.8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.
- .1 Primer: maximum VOC limit 250 g/L.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by metal fabrications installation.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 American Wood-Preservers' Association (AWPA)
- .1 AWPA M2-11, Standard for Inspection of Treated Wood Products.
- .2 AWPA M4-08, Standard for the Care of Preservative-Treated Wood Products.

.2 Canadian Standards Association (CSA International)
- .1 CSA O80 Series-08-O80S2-05, Wood Preservation.
- .2 CSA O80.20-1.1-08, This Standard applies to the fire-retardant treatment of lumber by pressure processes...
- .3 CSA O80.27-1.1-08, This Standard covers the fire-retardant treatment of Douglas Fir, hardwood, softwood, and Poplar plywood by pressure processes.
- .4 CSA O80.201-08, This Standard covers hydrocarbon solvents for preparing solutions of preservatives.
- .5 CSA O322-02, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.

.3 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
- .1 SCAQMD Rule 1113-04, Architectural Coatings.

.4 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.5 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 SUBMITTALS

.1 Submit Submittal submissions: in accordance with Section 01 33 00.

.2 Sustainable Submittals:

- .1 Co-ordinate submittal requirements and provide.

.3 Quality assurance submittals:

- .1 Submit certificates in accordance with Section 01 33 00.
- .2 For products treated with preservative fire-retardant by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
  - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.

.2 Moisture content after drying following treatment with water-borne preservative fire-retardant.

.3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.3 QUALITY ASSURANCE

.1 Plant inspection of products treated with preservative and fire-retardant by pressure impregnation will be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Each piece of lumber and plywood for preserved wood foundations to be identified by CSA O322 certified stamp.

.3 Departmental Representative or Delegate will pay for costs of tests as specified in Section 01 29 83.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Waste Management and Disposal:

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

Part 2 PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

N.A.

2.2 MATERIALS

.1 Preservative: to CSA-O80 Series.

.2 Pressure Treatment of Wood shall be Ammoniacal Copper Quaternary (ACQ).

Part 3 EXECUTION

3.1 APPLICATION FIELD TREATMENT

.1 Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Remove chemical deposits on treated wood to receive applied finish.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 American National Standards Institute / National Particleboard Association (ANSI/NPA)
- .1 ANSI/NPA A208.1-[2009], Particleboard.

.2 ASTM International
- .1 ASTM A123-12/A123M-12, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.
- .3 ASTM C578-11be1, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- .4 ASTM C1289-11a, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- .5 ASTM C1396/C1396M-11, Standard Specification for Gypsum Board.
- .6 ASTM D1761-[06], Standard Test Methods for Mechanical Fasteners in Wood.
- .7 ASTM D5055-11a, Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists.
- .8 ASTM D5456-11a, Standard Specification for Evaluation of Structural Composite Lumber Products.

.3 American Wood Protection Association (AWPA):
- .1 AWPA P5-10, Standard for Waterborne Preservatives.
- .2 AWPA P8-11, Standard for Oil-Borne Preservatives.

.4 Canadian General Standards Board (CGSB)
- .1 CGSB 19-GP-5M(1984), Sealing Compound, One Component, Acrylic Base, Solvent Curing (Incorporating Amendment No. 1).
- .2 CAN/CGSB-11.3-M87, Hardboard.
- .3 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .4 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction and amendment.
- .5 CAN/CGSB-71.26-M88, Adhesive for Field-Gluing Plywood to Lumber Framing for Floor Systems.

.5 CSA International
- .1 CAN/CSA-A123.2-03(R2008), Asphalt Coated Roofing Sheets.
- .2 CAN/CSA-A247-M86(R1996), Insulating Fiberboard.
- .3 CSA B111-1974(R2003), Wire Nails, Spikes

and Staples.
.4 CSA O80 Series-08, Wood Preservation, Includes Update No. 1 (2008).
.5 CAN/CSA-O86-09 Consolidation, Engineering Design in Wood.
.6 CSA O112 Series-M1977(R2006), CSA Standards for Wood Adhesives.
.7 CSA O121-08, Douglas Fir Plywood.
.8 CAN/CSA-O122-06(R2011), Structural Glued-Laminated Timber.
.9 CSA O141-05(R2009), Softwood Lumber.
.10 CSA O151-09, Canadian Softwood Plywood.
.11 CSA O153-M1980(R2008), Poplar Plywood.
.12 CSA O325-07, Construction Sheathing.
.13 CSA O437 Series-93(R2011), Standards on OSB and Waferboard.
.14 CAN/CSA-Z809-08, Sustainable Forest Management.

.6 Forest Stewardship Council (FSC)
.1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.
.2 FSC-STD-20-002-2004, Structure and Content of Forest Stewardship Standards V2-1
.3 FSC Accredited Certified Bodies.

.7 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber December 1, 2010.

.8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
.1 SCAQMD Rule 1113-A2007, Architectural Coatings.
.2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.9 Sustainable Forestry Initiative (SFI).

.10 The Truss Plate Institute of Canada
.1 Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses 2007.

.11 Underwriters' Laboratories of Canada (ULC)
.1 CAN/ULC-S706-09, Standard for Wood Fibre Insulating Boards for Buildings.
.13 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.14 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 11 00 and 01 33 00.

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for wood products and accessories and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

1.3 QUALITY ASSURANCE

.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 11 00 and 01 61 00 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
.1 Store materials off ground, indoors or in dry locations and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
.2 Store and protect wood from nicks, scratches, and blemishes.
.3 Replace defective or damaged materials with new.

Part 2 PRODUCTS

2.1 FRAMING STRUCTURAL AND PANEL MATERIALS

.1 Description Sustainability Characteristics:
.1 Lumber, Finger Jointed Lumber, Glulam, CAN/CSA-Z809, SFI or Forestry Stewardship Council (FSC) certified.

.2 Lumber: softwood, S4S, moisture content S-DRY graded and stamped in accordance with following standards:
.1 CSA O141.
.2 NLGA Standard Grading Rules for Canadian Lumber.

.3 Glulam in accordance with Structural Glued-Laminated Timber CAN/CSA-O122.

.4 Solid Beam Members:
Use Douglas-Fir.
CAN/CSA-Z809 or FSC or SFI certified.
Grade: No. 2 minimum.

.5 Structural Composite Lumber (SCL) in accordance with ASTM D5456.

.6 All lumber shall be SPF No.2 unless otherwise noted.

.7 Furring, blocking, nailing strips, strapping, grounds, rough bucks, bracing, bridging, curbs, and fascia backing: NLGA spruce, pine or fir (SPF), 121c., and pine, 113d.

.8 All sleepers to be Hemlock as indicated on the Contract Drawings.

.9 Plywood, OSB and wood based composite panels: to CSA O325.

.10 Preservative treated plywood: Douglas Fir to CSA O121, G1S good one side, pressure treated with CCA to CAN/CSA O80.9, minimum retention 4.0 kg/m by assay.
.1 Preservative: chromated copper arsenate (CCA) to AWPA P5 as amended by CAN/CSA-O80-Series.

.11 Field applied wood preservative: copper napthenate to AWPA P8, green colour.

2.2 ACCESSORIES

.1 Sealants:
.1 Sealants: VOC limit 250 g/L maximum to SCAQMD Rule 1168.
.2 Adhesives: VOC limit 120 g/L maximum to SCAQMD Rule 1168

.2 General purpose adhesive: to CSA O112 Series.

.3 Nails, spikes and staples: to CSA B111.

.4 Bolts: 12.5 mm diameter unless indicated otherwise, complete with nuts and washers.

.5 Joist hangers: minimum 1 mm thick sheet steel, galvanized ZF001 coating designation.

.6 Fastener Finishes:
.1 Galvanizing: to ASTM A123/A123M ASTM A653/A653M, use galvanized fasteners for exterior work and treated lumber.
.2 Stainless steel: use stainless steel as indicated.

Part 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for product installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative or Delegate.
- .2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative or Delegate.

3.2 PREPARATION

.1 Treat surfaces of material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

.4 Treat material as follows:
- .1 Wood cants, fascia backing, curbs, nailers, sleepers on roof deck.
- .2 Wood sleepers supporting wood subflooring in contact with ground or fill.

3.3 INSTALLATION

.1 Treat surfaces of pressure treated wood which are cut or bored after pressure treatment with field applied wood preservative.

.2 Wood frame construction to National Building Code of Canada 2010, Division B, Part 9.

.3 Install members true to line, levels and elevations, square and plumb to a tolerance of 1:600 and rigidly secure in place.

.4 Construct continuous members from pieces of longest practical length.

.5 Install spanning members with "crown-edge" up.

.6 Select exposed framing for appearance. Install lumber materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.7 Install sleepers as indicated.

.8 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.9 Countersink bolts where necessary to provide clearance for other work.

.10 Secure exterior work with galvanized or non-ferrous fasteners.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 11 00 and 01 74 11.
- .1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 11 00 and 01 74 11.

.3 Waste Management: separate waste materials for recycling.
- .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by rough carpentry installation.

END OF SECTION

PART 1 – GENERAL

1.1 ALTERNATES

.1 Obtain Departmental Representative or Delegate's approval before changing manufacturer's brands, sources of supply, wood species, or wood grade.

1.2 REFERENCES

.1 ASTM International (ASTM)

.1 ASTM A325M-[09], Standard Specification for Structural Bolts, Steel, Heat Treated 830 Mpa Minimal Tensile Strength [Metric].

.2 Canadian Institute of Steel Construction (CISC)/Canadian Paint Manufacturers' Association (CPMP)

.1 CISC/CPMA 1-73a-[1975], A Quick Drying One-coat Paint for Use on Structural Steel.

.3 CSA International

.1 CSA G40.20-04(R2009)/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.

.2 CSA O86 Consolidation-[09], Engineering Design in Wood.

.3 CSA O121-[08], Douglas Fir Plywood.

.4 CSA W59-[03(R2008)], Welded Steel Construction (Metal Arc Welding).

.5 CAN/CSA-Z809-[08], Sustainable Forest Management.

.4 Forest Stewardship Council (FSC)

.1 FSC-STD-01-001-[2004], FSC Principle and Criteria for Forest Stewardship.

.5 Green Seal Environmental Standards (GS)

.1 GS-36-[11], Commercial Adhesives.

.6 National Lumber Grading Authority (NLGA)

.1 NLGA Standard Grading Rules for Canadian Lumber [2007].

.7 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.8 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for splicing of wood components and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

.2 Submit drawings to suitable scale of metal, timber, or wood splices, connections showing details of layout, materials, and construction.

.4 Source Quality Control Submittals

.1 Submit invoices, purchase orders, and suppliers' certificates when requested by Departmental Representative or Delegate.

.2 Advise Departmental Representative or Delegate before ordering or purchasing materials.

.3 Departmental Representative or Delegate to examine and review materials prior to purchase by contractor.

.4 Provide free access to materials for examination by Departmental Representative or Delegate before beginning work on site.

.5 Wood Certification: submit [vendor's] [manufacturer's] Chain-of-Custody Certificate number for CAN/CSA-Z809 or FSC or SFI certified wood.

1.4 QUALITY ASSURANCE

.1 Sustainable Standards Certification:

.1 Certified Wood: submit listing of wood products and materials used in accordance with CAN/CSA-Z809 or FSC or SFI.

.2 Qualifications:

.1 Contractor undertaking work in this section is required to be skilled and trained and to have a minimum of 5 years of experience in this field.

.2 Only workers accepted by Departmental Representative or Delegate will be authorized to perform Work of this Section.

.3 Before the start of work submit qualification documents: curriculum vitae, certificates of skills, and references.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Storage area designated by Departmental Representative or Delegate.

.2 Store materials off ground, indoors or in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.3 Store and protect wood from nicks, scratches, and blemishes.

.4 Replace defective or damaged materials with new.

.5 Stack wood above ground or soil with spacer slats between layers to ensure adequate ventilation for air drying.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Timber framing:
Use Spruce-Pine-Fir for all components.
CAN/CSA-Z809 or FSC or SFI certified.
Grade: No. 2 minimum.

.2 Dimension lumber:
Use Spruce-Pine-Fir to match existing.
CAN/CSA-Z809 or FSC or SFI certified.
Grade: No. 2 minimum.

.3 Solid Beam Members:
Use Douglas-Fir.
CAN/CSA-Z809 or FSC or SFI certified.
Grade: No. 2 minimum.

.4 Timber connections:

Bolts: to ASTM A325M, type 1.

Lag screws: to CSA B34.

.5 Adhesives: to CSA 0112.9

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable.

.1 Visually inspect substrate in presence of Departmental Representative or Delegate.

.2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied.

.2 Stop work and report immediately to Departmental Representative or Delegate conditions relevant to this contract not described in drawings: evidence of deficiencies, fungal or insect attack which may affect the scope of work and durability of the finished product.

3.2 PREPARATION

.1 Protection of in-place conditions:

.1 Protect existing finishes, surfaces, and timber elements adjacent to repair area from damage during the Work.

.2 Surface Preparation:

.1 Install adequate scaffolding, ladders and platforms for completion of work [in accordance with Contract Drawings].

.2 Install adequate shoring, bracing. Ensure support in vicinity of repair.

.1 Review with Departmental Representative or Delegate before start of Work.

3.3 CONSTRUCTION

.1 Cut back damaged or decayed wood to a point 600 mm beyond the last evidence of decay.

.2 Remove decayed wood with extreme care. Cause neither disruption nor damage to adjacent surfaces of structure.

.3 Joints:

.1 Lay out and cut joints as indicated.

.2 Trial fit joints before fastening in place. Adjust as necessary to ensure close accurate fit with adjacent surfaces.

.4 Metal Connectors:
- .1 Tighten bolts finger tight plus ½ turn.
- .2 Paint metal connector colour: Red.
- .3 Trial fit joint and metal framing connections before fastening in place. Adjust as necessary to ensure close accurate fit.

.5 Lamination:
- .1 Set wood laminates in bed of, or brush on generously, Resorcinol or Phenol-Resorcinol Resin Adhesive.
- .2 Apply adhesive evenly to both surfaces and clamp to 600 kPa.
- .3 Avoid adhesive drippings. Remove drips and splashes immediately.
- .4 Remove hard cured adhesive evident in completed work.

END OF SECTION

PART 1 – GENERAL

1.1 REFERENCES

.1 ASTM International
  .1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.

.2 CSA International
  .1 CSA B111-74(R2003), Wire Nails, Spikes and Staples.
  .2 CAN/CSA O80 Series-08, Wood Preservation.
  .3 CSA O86 Consolidation-09, Engineering Design in Wood.
  .4 CAN/CSA-Z809-08, Sustainable Forest Management.

.3. Forest Stewardship Council (FSC)
  .1 FSC-STD-01-001-2004, FSC Principle and Criteria for Forest Stewardship.

.5 Green Seal Environmental Standards (GS)
  .1 GS-36-11, Commercial Adhesives.

.6 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  .1 Material Safety Data Sheets (MSDS).

.7 National Lumber Grades Authority (NLGA)
  .1 Standard Grading Rules for Canadian Lumber 2010.

.8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  .1 SCAQMD Rule 1113-A2011, Architectural Coatings.
  .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.

.9 Sustainable Forestry Initiative (SFI)
  .1 SFI-2010-2014 Standard.

.10 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.11 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer’s instructions, printed product literature and data sheets for wood decking and include product characteristics, performance criteria, physical size, finish and limitations.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect wood decking from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 PRODUCTS

2.1 MATERIALS

.1 Wood decking: Refer to Section 06 10 00.

.2 Decking lengths: Refer to Contract Drawings.

.3 Nails: to CSA B111, galvanized finish; sizes to CSA O86. Supply 200 mm spiral spikes for lateral nailing.

.4 Splines: galvanized metal, as recommended by decking manufacturer.

.5 Wood preservative: Refer to Section 06 05 73.

Part 3 EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for wood decking installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative or Delegate.
- .2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative or Delegate.

3.2 INSTALLATION

.1 Do wood deck work to CSA O86 except where specified otherwise.

.2 Install decking to CSA O86, simple span or continuous over two span pattern.

.3 Supply minimum of 2 bearing supports for each plank. Install sloping deck with tongues up. Join butt ends with splines to assure tight square fit.

.4 Stagger end joints in adjacent planks minimum of 0.5 m.
- .1 Separate joints in same area by at least 2 intervening courses.
- .2 Avoid joints in first fifth of end spans.
- .3 Minimize joints in middle third of span.

.5 Apply preservative to end cuts of pressure treated lumber.

3.3 FIELD QUALITY CONTROL

.1 Testing:
- .1 Testing moisture content of delivered material will be performed by Departmental Representative or Delegate.
- .2 .2 Departmental Representative or Delegate will pay for costs of testing in accordance with Section 01 29 83 - Payment Procedures for Testing Laboratory Services.
- .3 .3 Testing moisture content of delivered material will be by moisture meter with adjustments for species and temperature by testing laboratory designated by Departmental Representative or Delegate.

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.2 Leave Work area clean at end of each day.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.4 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by wood decking installation.

END OF SECTION

PART 1 - GENERAL

1.1 PRICE AND PAYMENT PROCEDURES

.1 Cleaning of structural steel and components, shop painting and field painting will be included in lump sum bid for supply and erection of steel.

.2 Cleaning and preparation of structural steel and components, supply of paint, application of paint and incidental work will be included in lump sum bid for painting.

1.2 REFERENCES

.1 The Master Painters Institute (MPI)
- .1 Exterior Structural Steel and Metal Fabrications, 07.
  - .1 EXT 5.1D, Alkyd.
  - .2 EXT 5.1G, Polyurethane, Pigmented (over epoxy zinc rich primer and high build epoxy).

.2 Environmental Choice Program (ECP)
- .1 CCD-047-98(R2005), Architectural Surface Coatings.
- .2 CCD-048-98(R2006), Surface Coatings - Recycled Water-borne.

.3 Federal Standard (FS)
- .1 FED-STD-595B-89, Colours Used in Government Procurement.

.4 The Society for Protective Coatings (SSPC)
- .1 SSPC-SP 1-82(R2004), Solvent Cleaning.
- .2 SSPC-SP 2-82(R2004), Hand Tool Cleaning.
- .3 SSPC-SP 3-82(R2004), Power Tool Cleaning.
- .4 SSPC-SP 6/NACE No. 3-07, Commercial Blast Cleaning.
- .5 SSPC-SP 7/NACE No. 4-07, Brush-off Blast Cleaning.
- .6 SSPC-Vis-1-89, Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs) Editorial Changes September 1, 2000 (Steel Structures Painting Manual, Chapter 2 - Surface Preparation Specs.).
- .7 SSPC-SP 10/NACE No. 2-07, Near White Blast Cleaning.
- .8 SSPC-PA 204, Measurement of Dry Coat Thickness with Magnetic Gauges.
- .9 SSPC Good Painting Practices, Volume 1, 4th Edition.

.5 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for painting exterior metal surfaces and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit 2 copies of WHMIS MSDS.

.3 Samples:

.1 Submit for review and acceptance of each unit.

.2 Samples will be returned for inclusion into work.

.3 Upon request, Departmental Representative or Delegate will furnish qualified products list of paints.

.4 Paints that do not appear on MPI Approved Products List must be approved by Departmental Representative or Delegate before use on project. When it is proposed to use non-qualified paint, submit 1 2 L sample of paint to Departmental Representative or Delegate at least 4 weeks prior to commencement of painting for analysis and acceptance. Mark samples with name of project, its location, paint manufacturer's name and address, name of paint, MPI standard number and manufacturers paint code number.

.5 Enable Departmental Representative or Delegate to take 2 L samples of each paint delivered to site, one sample from manufacturer's containers and one sample from painters' pot.

.4 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

.5 Test Reports:

.1 Submit test reports showing compliance with specified performance characteristics and physical properties and in accordance with Section 01 45 00.

1.4 QUALITY ASSURANCE

.1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Develop Construction Waste Management Plan related to Work of this Section.

.4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding and packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 20.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Paint:

.1 Sustainability Characteristics:

.1 VOC limit: 50 g/L maximum to CCD-047 CCD-048.

.2 Ensure paint does not contain chemical restrictions to CCD-047 and CCD-048.

.2 Primer: MPI EXT 5.1C, primer, marine for steel.

.1 Primer for second coat: tinted sufficiently off finish colour of first coat to show where second coat is applied.

.2 Tinting material: compatible with primer and not detrimental to its service life.

.3 Enamel: MPI EXT 5.1G, enamel, alkyd, marine, exterior; first coat grey, colour No. 501-205; second coat grey, colour No. 501-203. Colours to match FS-595B. If majority of paint application is to be by brushing, use paint to MPI EXT 5.1D.

.1 Table.

Colour	Coat	Colour Number
Grey	First	501-205
	Second	501-203
Grey	First	501-203
	Second	501-201
Green	First	503-209
	Second	503-208
Green	First	503-221
	Second	503-201
Brown	First	504-102 semi-gloss
	Second	504-101 semi-gloss
Blue	First	502-202 semi-gloss

	Second	502-101 semi-gloss
Black	First	501-201
	Second	512-201

.4 Sand for sandblasting: to SSPC (Steel Structures Painting Council).

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for painting exterior metal surfaces installation in accordance with manufacturer's written instructions.
- .1 Visually inspect substrate in presence of Departmental Representative or Delegate.
- .2 Carry out tests to determine existence of lead base paint on existing exterior metal surfaces.
- .3 If lead exists, stop work and report findings to Departmental Representative or Delegate.
- .4 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
- .5 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative or Delegate.

3.2 PREPARATION

.1 Remove existing loose and rusted paint from exterior metal surfaces.

.2 New metal surfaces:
- .1 Clean surfaces of new metal to be painted by removing rust, loose mill scale, welding slag, dirt, oil, grease and foreign substances in accordance with the following:
  - .1 Hand tool cleaning: to SSPC-SP 2.
  - .2 Power tool cleaning: to SSPC-SP 3.

.3 Metal surfaces to be repainted:
- .1 Clean surfaces by removing loose, cracked, brittle or non-adherent paint, rust, loose mill scale, welding slag, dirt, oil, grease and other foreign substances in accordance with following.
  - .1 Hand tool cleaning: to SSPC-SP 2.
  - .2 Power tool cleaning: to SSPC-SP 3.
- .2 Scrape edges of old paint back to sound material where remaining paint is thick and sound, feather exposed edges.

.4 Apply paint after prepared surfaces have been accepted by Departmental Representative or Delegate.

.5 Prior to starting paint application ensure degree of cleanliness of surfaces is to SSPC-Vis 1.
- .1 Apply primer, paint, or pretreatment after surface has been cleaned and before deterioration of surface occurs.
- .2 Clean surfaces again if rusting occurs after completion of surface preparation.

.6 Mixing paint:
- .1 Do not dilute or thin paint for brush application.
- .2 Mix ingredients in container before and during use and ensure breaking up of lumps, complete dispersion of settled pigment, and uniform composition.
- .3 Do not mix or keep paint in suspension by means of air bubbling through paint.
- .4 Thin paint for spraying according to manufacturer's written instructions. If directions are not on container, obtain instructions in writing from manufacturer and provide copy of instructions to Departmental Representative or Delegate.

.7 Number of paint coats: 2
- .1 New metal surfaces.
  - .1 Shop: 2 primer coats to minimum dry film thickness of 35 microns per coat.
- .2 Repainting existing metal surfaces.
  - .1 One primer coat to minimum dry film thickness of 35 microns.

3.3 APPLICATION

.1 Manufacturer's Instructions: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.

.2 Apply paint by spraying, brushing, or combination of both. Use sheepskins or daubers when no other method is practical in places of difficult access.

.3 Use dipping or roller coating method of application when specifically authorized by Departmental Representative or Delegate in writing.

.4 Caulk open seams at contact surfaces of built up members with material approved by Departmental Representative or Delegate, before second undercoat of primer is applied.

.5 Where surface to be painted is not under cover, do not apply paint when:
- .1 Air temperature is below 5°C or when temperature is expected to drop to 0°C before paint has dried.
- .2 Temperature of surface is over 50°C unless paint is specifically formulated for application at high temperatures.
- .3 Fog or mist occur at site; it is raining or snowing; there is danger of rain or snow; relative humidity is above 85%.
- .4 Surface to be painted is wet, damp or frosted.
- .5 Previous coat is not dry.

.6 Supply cover when paint must be applied in damp or cold weather. Supply, shelter, or heat surface and surrounding air to comply with temperature and humidity conditions specified. Protect until paint is dry or until weather conditions are suitable.

.7 Remove paint from areas which have been exposed to freezing, excess humidity, rain, snow or condensation. Prepare surface again and repaint.

.8 Apply each coat of paint as continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.

.9 Brush application:
- .1 Work paint into cracks, crevices and corners and paint surfaces not accessible to brushes by spray, daubers or sheepskins.
- .2 Brush out runs and sags.
- .3 Remove runs, sags and brush marks from finished work and repaint.

.10 Spray application: (In Shop Only)
- .1 Provide and maintain equipment that is suitable for intended purpose, capable of properly atomizing paint to be applied, and equipped with suitable pressure regulators and gauges.
- .2 Provide traps or separators to remove oil and water from compressed air and drain periodically during operations.
- .3 Keep paint ingredients properly mixed in spray pots or containers during paint application either by continuous mechanical agitation or by intermittent agitation as frequently as necessary.
- .4 Apply paint in uniform layer, with overlapping at edges of spray pattern.
- .5 Brush out immediately runs and sags.

.6 Use brushes to work paint into cracks, crevices and places which are not adequately painted by spray. In areas not accessible to spray gun, use brushes, daubers or sheepskins.

.7 Remove runs, sags and brush marks from finished work and repaint.

.11 Shop painting:

.1 Do shop painting after fabrication and before damage to surface occurs from weather or other exposure.

.2 Spray paint contact surfaces of field assembled, bolted, friction type joints with primer coat only. Do not brush primer after spraying.

.3 Do not paint metal surfaces which are to be embedded in concrete.

.4 Paint metal surfaces to be in contact with wood with either full paint coats specified or three shop coats of specified primer.

.5 Do not paint metal within 50 mm of edge to be welded. Give unprotected steel one coat of boiled linseed oil or other approved primer protective coating after shop fabrication is completed.

.6 Remove weld spatter before painting. Remove weld slag and flux by methods as specified in paragraph 3.2.3 Metal Surfaces to be Repainted.

.7 Protect machine finished or similar surfaces that are not to be painted but that do require protection, with coating of rust inhibitive petroleum, molybdenum disulphide, or other coating approved by Departmental Representative or Delegate.

.8 Copy previous erection marks and weight marks on areas that have been shop painted.

.12 Field painting:

.1 Paint steel structures as soon as practical after erection.

.2 Touch up metal which has been shop coated with same type of paint and to same thickness as shop coat. This touch-up to include cleaning and painting of field connections, welds, rivets, nuts, washers, bolts, and damaged or defective paint and rusted areas.

.3 Field paint surfaces (other than joint contact surfaces) which are accessible before erection but which are not to be accessible after erection.

.4 Apply final coat of paint after concrete work is completed or as directed by Departmental Representative or Delegate. If concreting or other operations damage paint, clean and repaint damaged area. Remove concrete

spatter and droppings before paint is applied.

.5 Where painting does not meet with requirements of specifications, and when so directed by Departmental Representative or Delegate, remove defective paint, thoroughly clean affected surfaces and repaint in accordance with these specifications.

.13 Handling painted metal:

.1 Handle painted metal after paint has dried, or when necessary for handling for painting or stacking for drying.

.2 Scrape off and touch up paint which is damaged in handling, with same number of coats and kinds of paint as were previously applied to metal.

3.4 FIELD QUALITY CONTROL

.1 Site Tests, Inspections:

.1 Upon completion of the painting procedures test for dry film reading and evaluate the results as per SSPC-PA 2.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect painted surfaces from damage during construction.

.2 Protection of surfaces:

.1 Protect surfaces not to receive paint.

.2 Prevent contamination of cleaned surfaces by salts, acids, alkalis, corrosive chemicals, grease, oil and solvents before prime coat is applied and between applications of remaining coats of paint. Remove contaminants from surface and apply paint immediately.

.3 Repair damage to adjacent materials caused by painting exterior metal surface application installation.

END OF SECTION

PART 1 - GENERAL

1.1 WORK INCLUDED

.1 Excavation and backfilling.

1.2 REFERENCES

.1 ASTM International
- .1 ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 ASTM D698-12, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ftü) (600kN-m/mü).
- .3 ASTM D751-06(2011), Standard Test Methods for Coated Fabrics.

.2 CSA International
- .1 CSA A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
- .2 CSA A3000-08, Cementitious Materials Compendium.

.3 Ministère des Transports du Québec
- .1 CCDG 14.02, Cahier des charges et devis généraux.

.4 Ontario Provincial Standard Specifications (OPSS)/Ontario Ministry of Transportation
- .1 OPSS 401 November 2010 (formerly 514), Ontario Provincial Standard Specification, Construction Specification for Trenching, Backfilling, and Compacting.
- .2 OPSS 1004 November 2006, Ontario Provincial Standard Specification, Material Specification for Aggregates - Miscellaneous.
- .3 OPSS 1010 April 2004, Ontario Provincial Standard Specification, Material Specification for Aggregates - Base, Subbase, Select Subgrade, and Backfill Material.

.5 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.
- .2 EPA 833-R-06-004, May 2007, Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites.

.6 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Samples: submit to designated testing agency, 23 kg sample of backfill for fill/unshrinkable fill material proposed for use, no later than 1 week before backfilling or filling work.

.3 Site Quality Control Submittals: submit in accordance with Section 01 45 00.
- .1 Submit condition survey of existing conditions as described in EXISTING CONDITIONS article.
- .2 Submit testing results as described in PART 3 - FIELD QUALITY CONTROL.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular A to OPSS 1010.
- .1 Granular A, maximum size 13.2 19.0 mm.

.2 Sand: clean, washed, minimum 100% passing 4.75 mm sieve, maximum 5% passing 0.075 mm sieve to OPSS 1004.05.07, November 2006.

.3 Drainage material: 19 mm crushed stone or 19 to 63 mm clean gravel to OPSS 1004.05.02, November 2006.

.4 Unshrinkable fill: proportioned and mixed to provide:
- .1 Maximum compressive strength of 0.4 MPa at 28 days.
- .2 Maximum Portland cement content of 25 kg/mü.
- .3 Minimum strength of 0.07 MPa at 24 hours.
- .4 Concrete aggregates: to CSA A23.1/A23.2.
- .5 Cement: to CSA A3000, Type GU.
- .6 Slump: 160 to 200 mm.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Temporary erosion and sedimentation control:
- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction sediment and erosion control drawings sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

.2 Protection of in-place conditions:
.1 Protect excavations from freezing.
.2 Keep excavations clean, free of standing water, and loose soil.
.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative or Delegate's approval.
.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.

3.2 EXCAVATION

.1 Strip topsoil over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil.
.1 Stockpile topsoil on site for later use.

.2 Excavate as required to carry out work.
.1 Do not disturb soil or rock below bearing surfaces.
.2 Notify Departmental Representative or Delegate when excavations are complete.
.3 If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.
.4 Excavation taken below depths shown without Departmental Representative or Delegate's written authorization to be filled with concrete of same strength as for footings at Contractor's expense.

3.3 FIELD QUALITY CONTROL

.1 Testing of materials and compaction of backfill and fill/unshrinkable fill will be carried out by testing laboratory designated by Departmental Representative or Delegate.

.2 Not later than 1 week minimum before backfilling or filling, submit to designated testing agency, samples of backfill as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.3 Do not begin backfilling or filling operations until material has been approved for use by Departmental Representative or Delegate.

.4 Not later than 48 hours before backfilling or filling with approved material, notify Departmental Representative or Delegate to allow compaction tests to be carried out by designated testing agency.

3.4 BACKFILLING

.1 Inspection: do not commence backfilling until fill material and spaces to be filled have been inspected and approved by Departmental Representative or Delegate.

.2 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.

.3 Compaction of subgrade: compact existing subgrade under walks, paving, and slabs on grade, to same compaction as fill.
- .1 Fill excavated areas with selected subgrade material or gravel and sand compacted as specified for fill.

.4 Placing:
- .1 Place backfill, fill and base course material in 150 mm lifts: add water as required to achieve specified density.
- .2 Place unshrinkable fill in areas as indicated: consolidate and level unshrinkable fill with internal vibrators.

.5 Compaction: compact each layer of material to following densities for material to ASTM D698:
- .1 To underside of base courses: 95%.
- .2 Base courses: 100%.
- .3 Elsewhere: 90%.

.6 Restore surface of excavation with material and finish to match existing adjoining surfaces.

3.5 GRADING

.1 Grade so that water will drain away from structures.
- .1 Grade to be gradual between finished structures.

.2 Strip topsoil as specified in 3.3.1 above over areas to be covered by new construction, over areas where grade changes are required, and so that excavated material may be stockpiled without covering topsoil. Stockpile topsoil on site for later use.

.3 Fill and grade site to achieve elevations indicated.

.4 Place Granular A excavated material in 150 mm lifts.

.5 Compact to 95% Standard Proctor Density.

.6 Grade to a uniform slope with a tolerance of 1:120.

3.6 SHORTAGE AND SURPLUS

.1 Supply necessary fill to meet backfilling and grading requirements and with minimum and maximum rough grade variance.

.2 Dispose of surplus material off site.

3.7 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.
- .1 Leave Work area clean at end of each day.
- .2 Dispose of cleared and grubbed material off site daily.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Waste Management: separate waste materials for reuse, recycling and organics in accordance with Section 01 74 20.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 ASTM International (ASTM)
- .1 ASTM D4791-10, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

.2 U.S. Environmental Protection Agency (EPA)/Office of Water
- .1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

.3 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for aggregate materials and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Samples:
- .1 Submit 3 samples.
- .2 Allow continual sampling by Departmental Representative or Delegate during production.
- .3 Provide Departmental Representative or Delegate with access to source and processed material for sampling.
- .4 Install sampling facilities at discharge end of production conveyor, to allow Departmental Representative or Delegate to obtain representative samples of items being produced. Stop conveyor belt when requested by Departmental Representative or Delegate to permit full cross section sampling.
- .5 Provide front end loader or other suitable equipment including trained operator for stockpile sampling as necessary. Move samples to storage place as directed by Departmental Representative or Delegate.
- .6 Supply new or clean sample bags or containers according appropriate to aggregate materials.
- .7 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.
- .8 Provide water, electric power and propane to Departmental Representative or Delegate laboratory trailer at production site.

1.3 DELIVERY,

.1 Deliver, store and handle materials in accordance with Section 01 61 00 and with manufacturer's

written instructions.

STORAGE AND HANDLING

.2 Transportation and Handling: handle and transport aggregates to avoid segregation, contamination and degradation.

.3 Storage: store washed materials or materials excavated from underwater 24 hours minimum to allow free water to drain and for materials to attain uniform water content.

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, free from adherent coatings and injurious amounts of disintegrated pieces or other deleterious substances.

.2 Flat and elongated particles of coarse aggregate: to ASTM D4791.
.1 Greatest dimension to exceed 5 times least dimension.

.3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
.1 Screenings produced in crushing of quarried rock, boulders, gravel or slag.

.4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
.1 Crushed rock.
.2 Gravel and crushed gravel composed of naturally formed particles of stone.
.3 Light weight aggregate, including slag and expanded shale.
.

2.2 SOURCE QUALITY CONTROL

.1 Inform Departmental Representative or Delegate of proposed source of aggregates and provide access for sampling 4 weeks minimum before starting production.

.2 If materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate alternative source.

.3 Advise Departmental Representative or Delegate 4 weeks minimum in advance of proposed change of material source.

.4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its

field performance is found to be unsatisfactory.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions are acceptable for topsoil stripping.
- .1 Visually inspect substrate in presence of Departmental Representative or Delegate.
- .2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
- .3 Proceed with topsoil stripping. Only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative or Delegate.

3.2 PREPARATION

.1 Topsoil stripping:
- .1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.
- .2 Begin topsoil stripping of areas as directed by Departmental Representative or Delegate after area has been cleared of brush weeds and grasses and removed from site.
- .3 Strip topsoil to depths as directed by Departmental Representative or Delegate. Avoid mixing topsoil with subsoil.
- .4 Dispose of topsoil to location as indicated as directed by Departmental Representative or Delegate.

.2 Aggregate source preparation:
- .1 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.
- .2 Trim off and dress slopes of waste material piles and leave site in neat condition.
- .3 Provide silt fence or other means to prevent contamination of existing watercourse or natural wetland features.

.3 Processing:
- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- .2 Blend aggregates, as required, including reclaimed materials that meet physical requirements of specification is permitted in order to satisfy gradation requirements for material and, percentage of crushed particles, or particle shapes specified.
  - .1 Use methods and equipment approved in writing by Departmental Representative

or Delegate.

.4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate gradation.

.5 Where necessary, screen, crush, wash, classify and process aggregates with suitable equipment to meet requirements.
- .1 Use only equipment approved in writing by Departmental Representative or Delegate.

.6 Stockpiling:
- .1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Departmental Representative or Delegate. Do not stockpile on completed pavement surfaces.
- .2 Stockpile aggregates in sufficient quantities to meet project schedules.
- .3 Stockpiling 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, provide compacted sand base not less than 300 mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into Work.
- .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 or Delegate within 48 hours of rejection.
- .7 Stockpile materials in uniform layers of thickness as follows:
  - .1 Maximum 1.5 m for coarse aggregate and base course materials.
  - .2 Maximum 1.5 m for fine aggregate and sub-base materials.
  - .3 Maximum 1.5 m for other materials.
- .8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
- .9 Do not cone 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.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.

.4 Leave any unused aggregates in neat compact stockpiles as directed by Departmental Representative or Delegate.

.5 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1 - GENERAL

1.1 MEASUREMENT PROCEDURES

.1 Measure following items in hectares within limits as indicated:
- .1 Clearing.
- .2 Grubbing.
- .3 Close cut clearing.
- .4 Underbrush clearing.

.2 Measure clearing isolated trees and grubbing isolated tree stumps as number of isolated trees cleared and number of isolated stumps grubbed.

1.2 REFERENCES

.1 U.S. Environmental Protection Agency (EPA) / Office of Water.
- .1 EPA 833-R-06-004, May 2007, Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites.

.2 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 DEFINITIONS

.1 Clearing consists of cutting off trees and brush vegetative growth to not more than a specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.

.2 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.

.3 Clearing isolated trees consists of cutting off to not more than specified height above ground of designated trees, and disposing of felled trees and debris.

.4 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, and trees smaller than 50 mm trunk diameter and disposing of all fallen timber and surface debris.

.5 Grubbing consists of excavation and disposal of stumps and roots boulders and rock fragments of specified size to not less than a specified depth below existing ground surface.

1.4 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Samples:
- .1 Submit 3 samples of each material listed below for approval prior to delivery of

materials to project site.

.2 Tree wound paint: one liter can with manufacturer's label.

.3 Submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.4 Submit manufacturer's installation instructions.

1.5 QUALITY ASSURANCE

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06.

.2 Safety Requirements: worker protection.

.1 Clean up spills of preservative materials immediately with absorbent material and safely discard to landfill.

1.6 STORAGE AND PROTECTION

.1 Prevent damage to trees, natural features, site appurtenances, water courses, and root systems of trees which are to remain.

.1 Repair any damaged items to approval of Departmental Representative or Delegate.

.2 Replace any trees designated to remain, if damaged, as directed by Departmental Representative or Delegate.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Bituminous based paint of standard manufacture specially formulated for tree wounds.

.2 Soil Material for Fill:

.1 Excavated soil material: free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, deleterious, or objectionable materials.

.2 Remove and store soil material for reused.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, sediment and erosion control drawings sediment and erosion control plan, specific to site, that complies with EPA 833-R-06-004 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 PREPARATION

.1 Inspect site and verify with Departmental Representative or Delegate, items designated to remain.

.2 Keep roads and walks free of dirt and debris.

3.3 APPLICATION

.1 Manufacturer's instructions: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.4 CLEARING

.1 Clearing includes felling, trimming, and cutting of trees into sections and satisfactory disposal of trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within cleared areas.

.2 Clear as directed by Departmental Representative or Delegate , by cutting at a height of not more than 300 mm above ground. In areas to be subsequently grubbed, height of stumps left from clearing operations to be not more than 1000 mm above ground surface.

.3 Cut off branches and cut down trees overhanging area cleared as directed by Departmental Representative or Delegate.

.4 Cut off unsound branches on trees designated to remain as directed by Departmental Representative or Delegate.

.5 Cutting of trees where permitted must be done outside of Migratory Bird Nesting window (in Pukaskwa June 1 - August 1). Tree cutting shall minimize erosion/ soil disturbance, stump and root system should be maintained. Trees shall be felled away from trail, with attempt to minimize disturbance to other standing trees and shrubby vegetation. Felled trees shall be left entire (e.g. not limbed or bucked) and allowed to decompose naturally.

3.5 UNDERBRUSH CLEARING

.1 Clear underbrush from areas as indicated to within 300 mm of ground surface.

3.6 GRUBBING

.1 Remove and dispose of roots larger than 7.5 cm in diameter, matted roots, and designated stumps from indicated grubbing areas.

.2 Grub out stumps and roots to not less than 200 mm below ground surface.

3.7 REMOVAL AND DISPOSAL

.1 Remove cleared and grubbed materials to disposal area designated by Departmental Representative or Delegate.

.2 Cut timber greater than 125 mm diameter to 1 metre lengths and stockpile as indicated. Stockpiled timber becomes property of Departmental Representative or Delegate .

.3 Dispose of cleared and grubbed materials to disposal area designated by Departmental Representative or Delegate.

.4 Remove diseased trees identified by Departmental Representative or Delegate and dispose of this material to approval of Departmental Representative or Delegate.

3.8 FINISHED SURFACE

.1 Leave ground surface in condition suitable for immediate grading operations to approval of Departmental Representative or Delegate.

3.9 CLEANING

.1 Proceed in accordance with Section 01 74 11.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 833-R-06-004, May 2007, Developing Your Stormwater Pollution Prevention Plan - A Guide for Construction Sites.

.2 Appendix C – Environmental Basic Impact Analysis (BIA).

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction sediment and erosion control drawings sediment and erosion control plan, specific to site, that complies with EPA 833-R-06-004 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.2 STRIPPING OF TOPSOIL

.1 Ensure that procedures are conducted in accordance with applicable Provincial and Municipal requirements.

.2 Remove topsoil before any construction procedures commence to avoid compaction of topsoil.

.3 Handle topsoil only when it is dry and warm.

.4 Remove vegetation from targeted areas by non-chemical means and dispose of stripped vegetation by alternative disposal.

.5 Remove brush from targeted area by non-chemical means and dispose of through alternative disposal.

.6 Strip topsoil by scraper to depths as indicated. Avoid mixing topsoil with subsoil.

.7 Pile topsoil in berms in locations as directed by Departmental Representative or Delegate. Stockpile height not to exceed 1.0 m.

.8 Dispose of unused topsoil in location as indicated by Departmental Representative or Delegate.

.9 Protect stockpiles from contamination and compaction.

.10 Topsoil that has been piled for long term storage will be covered with trefoil or grass to maintain agricultural potential of soil.

3.3 PREPARATION OF GRADE

.1 Verify that grades are correct. If discrepancies occur, notify Departmental Representative or Delegate and do not commence work until instructed by Departmental Representative or Delegate.

.1 Grade area only when soil is dry to lessen soil compaction.

.2 Grade soil with scrapers establishing natural contours and eliminating uneven areas and low spots, ensuring positive drainage.

3.4 PLACING OF TOPSOIL

.1 - 1.15 mü to allow for aeration of soil.

.2 Place topsoil only after Departmental Representative or Delegate has accepted subgrade.

.3 During dry conditions spread topsoil by hand in uniform layers not exceeding 150 mm, over unfrozen subgrade free of standing water.

.4 Cultivate the soil following spreading procedures.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCES

.1 ASTM International (ASTM)
.1 ASTM D698-12, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m ü).

.2 Underwriters' Laboratories of Canada (ULC)

.3 Appendix C – Environmental Basic Impact Analysis (BIA).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Sustainable Design Submittals:
.1 Construction Waste Management:
.1 Submit project Waste Management Plan Waste Reduction Workplan highlighting recycling and salvage requirements.
.2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating that 50 75% of construction wastes were recycled or salvaged. 3
3 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Fill material: Type Granular A in accordance with of Section 31 00 00.01.

.2 Excavated or graded material existing on site suitable to use as fill for grading work if approved by Departmental Representative or Delegate.

PART 3 - EXECUTION

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for rough grading installation in accordance with manufacturer's written instructions.
.1 Visually inspect substrate in presence of Departmental Representative or Delegate.
.2 Inform Departmental Representative or Delegate of unacceptable conditions immediately upon discovery.
.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to

proceed from Departmental Representative or Delegate.

3.2 STRIPPING OF TOPSOIL

.1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected as determined by Departmental Representative or Delegate.

.2 Commence topsoil stripping of areas as indicated as directed by Departmental Representative or Delegate after area has been cleared of brush weeds and grasses

.3 Strip topsoil to depths as indicated as directed by Departmental Representative or Delegate. Rototill weeds and grasses and retain as topsoil on site. Avoid mixing topsoil with subsoil.

.4 Stockpile in locations as indicated directed by Departmental Representative or Delegate. Stockpile height not to exceed 1 m.

.5 Dispose of unused topsoil as directed by Departmental Representative or Delegate.

3.3 GRADING

.1 Rough grade to levels, profiles, and contours allowing for surface treatment as indicated.

.2 Prior to placing fill over existing ground, scarify surface to depth of 150 mm minimum before placing fill over existing ground. Maintain fill and existing surface at approximately same moisture content to facilitate bonding.

.3 Compact filled and disturbed areas to maximum dry density to ASTM D698, as follows:
.1 85% under landscaped areas.
.2 95% under paved and walk areas.

.4 Do not disturb soil within branch spread of trees or shrubs to remain.

3.4 TESTING

.1 Inspection and testing of soil compaction will be carried out by testing laboratory designated by ULC. Costs of tests will be paid by Departmental Representative or Delegate in accordance with Sections 01 29 83 and 01 45 00.

.2 Submit testing procedure, frequency of tests, testing laboratory as designated by ULC or certified testing personnel to Departmental Representative or Delegate for review.

3.5 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11.
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11.

.3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 20.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 PROTECTION

.1 Protect existing trees, landscaping, natural features, bench marks, which are to remain as directed by Departmental Representative or Delegate. If damaged, restore to original or better condition unless directed otherwise.

.2 Maintain access roads to prevent accumulation of construction related debris on roads.

END OF SECTION

PART 1 - GENERAL

1.1 PRICE AND PAYMENT PROCEDURES

.1 Cost of rock removal will be carried in the Lump Sum Contract.

.2 Measurement Procedures:

1.2 REFERENCES

.1 Definitions:
- .1 Rock: any solid material which cannot be removed by hand.

.2 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit submittals in accordance with Section 01 33 00.

.2 Rock Removal is to be cone by mechanical Jack/Chisel if required. NO blasting will be permitted.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Not used.

PART 3 - EXECUTION

3.1 ROCK REMOVAL

.1 Perform excavation in accordance with Erosion and Sedimentation Control Plan.

.2 Co-ordinate this Section with Section 01 35 29.06.

.3 Remove rock to alignments, profiles, and cross sections as indicated.

.4 Explosive blasting is not permitted.

.5 Remove boulders and fragments which may slide or roll into work areas.

.6 Correct unauthorized rock removal at no extra cost, in accordance with Section 31 00 00.01.

3.2 CLEANING

.1 Clean in accordance with Section 01 74 11.

.2 Rock Disposal:
- .1 Dispose of removed rock as indicated in accordance with Section 01 74 20.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 Submittal Procedures.

.2 Section 31 00 00.01 Earthwork – Short Form.

.3 Section 33 46 16 - Subgrade Drainage Network.

1.2 REFERENCES

.1 Ontario Provincial Standard Specifications (OPSS)
.1 OPSS 1860 Nov. 2004, Material Specification for Geotextiles.

.2 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 DELIVERY, STORAGE AND HANDLING

.1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

.2 Store materials in dry well-ventilated area in accordance with manufacturer’s recommendations.

PART 2 – PRODUCTS

2.1 MATERIAL

.1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls, Terrafix 270R or approved equal.

PART 3 – EXECUTION

3.1 INSTALLATION

.1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated.

.2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Overlap each successive strip of geotextile 600 mm over previously laid strip.

.5 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.6 After installation, cover with overlying layer within 4 h of placement.

.7 Replace damaged or deteriorated geotextile to approval of the Engineer.

3.2 CLEANING

.1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.3 PROTECTION

.1 Vehicular traffic not permitted directly on geotextile.

END OF SECTION

PART 1 - GENERAL

1.2 REFERENCES

.1 American Society for Testing and Materials International (ASTM)
.1 ASTM A307-07b, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 American Wood-Preserver's Association (AWPA)
.1 AWPA M4-[02], Standard for the Care of Preservation - Treated Wood Products.

.3 Canadian Standards Association (CSA International)
.1 CSA B111-[1974(R2003)], Wire Nails, Spikes and Staples.
.2 CAN/CSA-G40.20/G40.21-[04], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.3 CAN/CSA G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
.4 CSA-O80 Series-[97(R2002)], Wood Preservation.

.4 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.1-[88], Sieves, Testing, Woven Wire, Inch Series.
.2 CAN/CGSB-8.2-[M88], Sieves, Testing, Woven Wire, Metric.

.5 Canadian Wood Council
.1 Wood Design Manual - 2005.

.6 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber 2005 edition.

.7 Appendix A – Guidelines for the Use, Handling, and Disposal of Treated Wood.

.8 Appendix C – Environmental Basic Impact Analysis (BIA).

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00.

.2 Shop Drawings:
.1 Submit shop drawings in accordance with Section 01 33 00.

.3 Manufacturer's Instructions:
.1 Submit manufacturer's installation instructions.

1.4 QUALITY ASSURANCE

.1 Quality Assurance: in accordance with Section 01 45 00.

.2 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.

1.5 WASTE MANAGEMENT

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 20.

.2 Place materials defined as hazardous or toxic in designated containers.

.3 Ensure emptied containers are sealed and stored safely.

.4 Do not dispose of preservative treated wood through incineration.

.5 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.6 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

PART 2 – PRODUCTS

2.1 MATERIALS

.1 Timber: use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Accreditation Board of CSA.

.1 Species: Hemlock.
.2 Grade: as indicated.
.3 Preservative treatment: N/A

.2 Miscellaneous steel:
.1 Hot dip galvanized: to CAN/CSA-G164.
.2 Wire nails, spikes, staples: to CSA-B111.
.3 Bolts, nuts, washers: to ASTM A307.

PART 3 – EXECUTION

3.1 PREPARATION

.1 Dredge area of crib base to bedrock.

.2 Before construction, stockpile sufficient ballast to fill cribs.

3.2 CRIB CONSTRUCTION

.1 Precut timber prior to preservative treatment.

.2 Bore holes for drift bolts 1.5 mm smaller diameter than bolt and for full length of bolt. Bore holes for machine bolts to same diameter as bolts.

.3 Construct timber cribwork to full height prior to sinking in final position in work.

.4 Levelling pieces:
- .1 Place timber levelling pieces beneath bottom timbers to conform to shape of base area.
- .2 Place levelling pieces horizontally.
- .3 Secure succeeding pieces at intersections of bottom timbers and vertical posts, and other levelling pieces with machine bolts.

.5 Bottom timbers:
- .1 Place bottom timbers in complete enclosure to form bottom courses of cribs.
- .2 Lengthwise bottom timbers to be minimum 1.2m long drift bolts to timbers immediately below.

3.3 HANDLING TREATED TIMBER

.1 Handle treated material without damaging original treatment.
- .1 Replace treated timber with major damage to original treatment, as instructed by Departmental Representative or Delegate.

.2 Field treatment: apply and saturate cuts, minor surface damage, abrasions, and nail and spike holes with preservative to CAN/CSA-O80 Series

3.4 BALLAST

.1 Place ballast to avoid damage to timber cribwork.

3.5 TOLERANCES

.1 1 in 300 in overall dimensions.

.2 Locate cribs within 100mm of location as indicated.

3.6 CLEANING

.1 Proceed in accordance with Section 01 74 11.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

APPENDIX A

https://buyandsell.gc.ca/cds/public/2013/08/13/859712001dd972216e852781f34d28fe/annex_e_treated_wood_guidelines_-_eng.pdf

APPENDIX B

Insert Site Photograph Package Here

APPENDIX C

PNP16-13-Parks Canada Basic Impact Analysis

1. PROJECT TITLE & LOCATION

Title: Rehabilitation of Trail Bridge Structures

Locations: Pukaskwa National Park front and back country area (map in appendix 2)

2. PROPONENT INFORMATION

Project Sponsor: Robin Lessard (robin.lessard@pc.gc.ca, telephone: 807-346-2905)
Project Lead: Cory Gaudet (Cory.gaudet@pc.gc.ca, telephone: 807-346-2909)
Project Manager: Dhruba Subedi (Dhruba.Subedi@pc.gc.ca, telephone: 647-409-9169)
Project Officer: Mehdi Eliraqi (Mehdi.eliraqi@pc.gc.ca, telephone: 807-229-0801 Ext 224)
Consultant: WSP Canada

3. PROPOSED PROJECT DATES

Planned commencement: 2017-06-01
Planned completion: 2018-11-30

4. INTERNAL PROJECT FILE

PNP16-13

5. PROJECT DESCRIPTION

The project description is attached (Appendix 2). Further detail can be found in Design Plans by WSP Canada Inc (December 2016).

In summary, this project is to plan and implement the repair, replacement or removal of trail bridges and/or find suitable alternatives for bridges, trail stairs, docks, walkways and viewing platforms in the front and in the back country, to improve the overall condition rating, improve functionality to meet prevailing design standards, and ensure code compliance and public safety for 29 structures.

The type of structures subject to this investigation include the following:

- Three (3) Suspension Bridges;
- Fifteen (15) Pedestrian Foot Bridges;
- Six (6) Staircases;
- Two (2) Viewing Platforms;
- One (1) Helicopter Platform;
- One (1) Dock; and,

One (1) Low-Lying Section of Boardwalk.

6. VALUED COMPONENTS LIKELY TO BE AFFECTED

Soil/Land Resources
Air/Noise Quality
Water Quality
Vegetation
Wildlife
Visitor Safety & Experience
Cultural Resources

7. EFFECTS ANALYSIS

The potential effects of this project on the Valued Components (above) are:

Soil/Land Resources:
- Soil compaction and rutting
- Soil erosion, loss of topsoil and exposure of subsoils
- Soil contamination from waste (e.g., garbage, litter, sewage, fuel)
- Increase in anthropogenic footprint
- Trail-side trampling

Air/Noise Quality:
- Temporary decreased ambient air quality (e.g., dust, equipment emissions)
- Temporary increased levels of CO2 and other pollutants
- Increased ambient noise levels

Water Quality:
- Surface and groundwater contamination from waste (e.g., garbage, litter, sewage, fuel)
- Sedimentation, causing increased turbidity
- Changes in temperature regime and natural drainage patterns
- In-water works carry a high risk of affecting water quality, fish, wildlife species, riparian and aquatic habitats by altering waterbodies and riparian areas.
- Contamination of water body from leaks or spills from machinery, discharges or spills of toxic or deleterious substances like concrete or cement products, equipment oils and fuels, wood waste, herbicides and sediment which can kill fish, frogs, salamanders, insects, and other aquatic organisms
- Contamination of water body from any concrete work. Contaminated concrete water is alkaline and highly toxic to fish and aquatic life.
- Disturbance of streambed sediments resulting in increased sedimentation of waterbodies.
- The introduction of fine sediments directly from digging activity in the waterbody and indirectly from run-off from exposed soils has severe negative impacts on all life stages of fish and other aquatic life and their habitats

Vegetation:
- Damage to and/or removal of vegetation from trail route clearing; side-trampling during use; root exposure, resulting in physiological stress and, in the case of trees, susceptibility to windfall
- Introduction of invasive alien species, or expansion of existing populations
- Impacts on valued and sensitive vegetation features
- Habitat destruction and mortality from wildfire

Wildlife:
- Wildlife disturbance during construction and on-going use of the trail causing displacement/preferred habitat avoidance
- Wildlife habituation/attraction to artificial food sources from garbage or litter
- Damage to nests/dens/roosts and disruption of nesting/denning/roosting animals
- Loss of food sources and habitat
- Introduction of alien invasive species, or expansion of existing populations
- Habitat destruction and mortality from wildfire
- Although the project is taking place within the bounding polygon for Woodland Caribou (*Rangifer tarandus caribou*) Critical Habitat for the Coastal Range within the Central Boreal Shield Ecoregion (Environment Canada 2012), it is not affecting Critical Habitat as the area does not meet the biophysical attributes for Critical Habitat (Environment Canada 2012, Table H-4C, page 81); all of the project areas have been previously developed.

Visitor Safety and Experience:
- Reduced quality of visitor experience due to noise and presence of construction equipment

- Increased visibility of human disturbance on the landscape and decreased aesthetic
- Reduced accessibility to portions of the site where work is taking place
- Hazard to visitors and staff due to conflict with trail use and trail construction and maintenance activities (e.g., heavy equipment and hand tool operation, helicopter use, tree removal)

Cultural Resources:
- Adverse effects on the heritage value or character-defining elements of a cultural resource or a heritage place, including:
    - o Impacts to archaeological resources (known or potential) from displacement or destruction resulting in loss of heritage value
    - o Adverse effects on cultural landscapes or landscape features of heritage value
    - o Wildfire risk

8. MITIGATION MEASURES

This project will require an Environmental Protection Plan approved by Parks Canada prior to the commencement of work. The Environmental Protection Plan should be scaled to the scope and associated risks of the project, and should address implementation of the mitigations outlined below.

Mitigations applicable to this project have been extracted from the Parks Canada Best Management Practices for Trails (Parks Canada, August 2016), Sections 1-3 and supplemented with information specific to Pukaskwa National Park in red font below. Section 4 are mitigations extracted from a draft of Parks Canada`s Best Management Practices for Work in Water or below the high-water mark (Parks Canada, January 2017).

1. Common Activities

Work Site Conditions/Staging/Laydown

1. All people working on the project must review the mitigation measures and any site specific considerations with designated Parks Canada staff before work begins.
2. Staging and parking areas for material and equipment must be identified, including duration of use, within an existing disturbed footprint (e.g., roadway, gravel surface, previously disturbed area with high resiliency). Parks Canada must approve the location for staging and parking. Area should be minimized so that parking for visitors is maximized as much as possible.
3. Material drop sites (via foot, vehicle, helicopter or boat) must be approved by designated Parks Canada staff.
4. If transporting material via helicopter:
    - o Choose a drop point that is open and easily accessible from the construction site and that will minimize travel to and from the construction site.
    - o Plan multiple drop sites at strategic locations to avoid doubling back on the trail to distribute materials.
5. Cover construction material with weighted tarps when appropriate. Minimise damage to adjacent plant material and rehabilitate if necessary.
6. Use existing roadways, trails, disturbed areas or other areas as approved by designated Parks Canada staff for site access, travel within the site and construction activities (e.g., sawing wood). Heavy equipment will not be used in accessing sites or completing work at the sites.
7. Clearly mark work site and restricted areas with stakes, biodegradable flagging tape or other means; remove when project is completed.
8. Keep disturbance footprint as small as possible and limit vehicle access to essential vehicles only.

Equipment Operations

9. Equipment must be properly tuned, clean and free of contaminants, in good operating order, free of leaks (e.g., fuel, oil or grease), and fitted with standard air emission control devices and spark arrestors prior to arrival on site.
10. During construction, any required cleaning of tools and equipment must be done greater than 30 meters from waterbodies to prevent the release of wash water that may contain deleterious substances.
11. Equipment operators must be fully trained and experienced.
12. Select equipment appropriate to the nature of work being conducted (e.g., avoid using large scale machinery when hand tools or smaller scale machinery could be used). Heavy equipment will not be used in this project.
13. The crossing of any waterbody by construction equipment, or the use of such equipment within waterbodies must be approved by designated Parks Canada staff. If approved:
    - Consult with designated Parks Canada staff prior to project start-up, to determine single entry and exit points for any watercourse crossings.
    - Use small scale equipment when at all possible (e.g., mini excavator, ATV, Ditch Witch)
    - Use established/constructed fords when available.
    - Protect access points (e.g., swamp mats, pads).
14. When crossings are not required, operate machinery above the High Water Mark to minimise disturbance to the banks and waterbody.
15. Use low pressure or rubber tracked equipment or access matting where feasible to minimize soil compaction and ground disturbance.
16. Minimize idling of engines, contingent on operating instructions and temperature consideration.
17. Machinery (e.g., chainsaws, generators) must be stored, maintained and refuelled on a flat surface, outside the drip line[1] of trees if possible and a minimum of 30 meters from waterbodies, as measured from the High Water Mark; increase the 30 meter buffer depending on level of risk and site specific conditions. Refueling must take place on a tarp or portable berm, or on compacted ground.
18. Consider using bio-degradable chain oil/vegetable oils in chain saws, especially when working within 30 meters of waterbodies.
19. If operating chain saws directly over or adjacent to waterbodies is unavoidable, use measures such as tarps to trap and prevent debris from entering the waterbody as much as possible.
20. Gas generators must be secured to prevent movement during operation and set up on an impermeable fuel mat with a berm or within a container that can contain 150% of the volume of fuel in the generator.

Construction Materials and Practices

21. Ideally, use timber that contributes to sustainable practice, such as recycled old growth or certified materials (e.g., Forest Stewardship Council certification). Trees of significant importance to the landscape must not be used unless otherwise directed by designated Parks Canada staff.
22. When building with unfinished wood, consider using species native to the area as directed by designated Parks Canada staff. In Pukaskwa, the a species native to the area that would be suitable for use in this project is eastern White Cedar (*Thuja occidentalis*).
23. Use natural material and environmentally-friendly finishes (e.g., paints and stains) and products whenever possible.
24. When practical, consider pre-fabrication (e.g., bench or parts of structures) at an off-site location to minimize on-site construction impacts.
25. When practical, treatment of wood products (e.g., preservatives, paints, stains) should be done at an approved location prior to transport to the site. Field treatments should be applied over tarps or in another approved contained area and not be applied over or within 30 meters of water. Treatments must be approved by designated Parks Canada staff.
26. Treated wood must be handled, installed, and disposed of according to the Guide for the Use, Handling and Disposal of Pressure Treated Wood (Parks Canada 2009) or contact the designated Parks Canada staff for advice.

[1] The area defined by the outermost circumference of a tree canopy where water drips from and onto the ground.

27. Minimise the number of saw cuts made to treated wood in the field. If unavoidable, cut treated wood away from waterbodies and over tarps to catch debris; cuttings, sawdust and other treated wood waste material must not enter waterbodies.
28. All cuttings, sawdust and other treated wood waste material must be collected and disposed of at an approved disposal facility.
29. Treated wood must not be burnt or left onsite to decay.
30. Concrete mixing activities must take place over tarps a minimum of 30 meters from waterbodies. Fresh, wet, uncured concrete and concrete dust must not come into contact with waterbodies; contain and remove any associated concrete waste to an approved disposal facility.

Invasive Alien Species

31. Footwear, clothing, equipment and machinery coming into contact with the terrestrial or aquatic environment must be free of invasive alien species individuals, seeds, propagules (i.e., any other material that may cause the spread of the species) and pathogens. In particular:
    - Equipment from outside the protected heritage place must be washed/steam cleaned prior to arrival.
    - Ensure that footwear, clothing and equipment are free of invasive alien species (e.g., seeds, propagules) when travelling between invaded and uninvaded terrestrial and aquatic sites within the protected heritage place.
32. All soil, gravel, untreated construction lumber, erosion and sediment control products, or other applicable materials from outside the protected heritage place must be from a certified weed-free source.
33. Ensure that organic material (e.g, topsoil, borrow and fill material, gravel) taken from the construction site is free of invasive alien species before using in other parts of the protected heritage place.
34. Minimise ground disturbance and vegetation removal, as practical and within project requirements.
35. Minimise bare soil exposure (e.g., cover stockpiled material with tarps, plant native species, cover with natural mulch/ground coverings).
36. Stabilize and re-vegetate disturbed areas as soon as possible with native plants, soil and seed mix approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, stabilize the site to prevent erosion and vegetate the following spring.
37. Monitor disturbed and re-vegetated areas for several growing seasons to ensure that native vegetation is growing successfully and invasive alien species spread is prevented. In the first season post-construction monitoring should be conducted by the proponent. Additional seasons will be monitored by Parks Canada staff.

Waste

38. All wildlife attractants must be secured (e.g., petroleum products, human food, recyclable drink containers and garbage) within wildlife-proof containers, a secure building or vehicle. Keep food waste separate from construction waste and remove daily; if daily removal is not possible, secure until it can be removed.
39. Notify designated Parks Canada staff immediately should wildlife gain access to the above mentioned attractants.
40. Contain and stabilize waste material (e.g., dredging spoils, construction waste and materials, vegetation) above the High Water Mark to prevent them from entering any waterbody.
41. All construction materials must be removed from the site on project completion (e.g., refuse material, waste petroleum, construction material).
42. Contain waste and transport to an approved waste landfill site outside the Parks Canada protected heritage place, unless otherwise directed; cover waste loads during transportation.

Hazardous Material

43. Prevent the release of hazardous substances into the environment, including but not limited to, petroleum products and their derivatives, antifreeze or solvents.
44. All on-site personnel must be briefed on reporting requirements for hazardous materials spills; spills must be reported immediately to designated Parks Canada staff.
45. All construction sites must be equipped with containers suitable for the secure, temporary storage of hazardous wastes, separated by type.
46. A spill contingency response kit including sorbent material and berms to contain 110% of the largest possible spill (i.e., fuel or other toxic liquids) related to the work must be available on site at all times. On-site

personnel must be aware of its location and trained in its use. Any contaminants must be recovered at source and disposed according to applicable laws, policies and regulations.

47. Identify and handle all toxic/hazardous materials as required under the *Canadian Environmental Protection Act*, *Transportation of Dangerous Goods Act* and Workplace Hazardous Materials Information Service.
48. Petrochemical products, paints and chemicals must be stored a minimum of 30 meters away from waterbodies and secured overnight in a Parks Canada approved enclosed area under lock and key; increase the 30 meter buffer depending on level of risk and site specific conditions.
49. Any hazardous waste or contaminated material uncovered during excavation/construction, must be investigated, source identified, removed and disposed of outside the protected heritage place at an approved facility. Disposal documentation must be provided to designated Parks Canada staff.

Wildlife

50. On-site personnel must be made aware of and report any incidental sightings of species at risk immediately to designated Parks Canada staff.
    Parks Canada staff must be notified immediately and all work must be stopped until further notice in the event that a Woodland Caribou is sighted.
51. Follow Reducing Risk to Migratory Birds guidance from Environment and Climate Change Canada, including avoiding vegetation clearing during site-specific migratory bird timing windows. In Pukaskwa, clearing vegetation should be done outside of June and July in order to protect habitat of breeding migratory birds.
52. Should active nests, dens, roosts or calving areas be discovered, stop work and contact designated Parks Canada staff immediately for direction. Clearing of large trees (>20cm diameter at breast height) requires pre-approval by Parks Canada staff ~2 weeks prior to removal.
53. Conduct trail activities during daylight hours, avoiding critical foraging times (dusk and dawn).
54. Minimize the time excavations remain open and cover or fence when left unattended to reduce the potential for wildlife injury.
55. Never approach or harass wildlife (e.g., feeding, baiting, luring).
56. If wildlife is observed at or near the work site, allow the animal(s) the opportunity to leave the work area and move away from areas of potential conflict.
57. Designated Parks Canada staff must be alerted immediately to any potential wildlife conflict (e.g., aggressive behaviour, persistent intrusion), distress or mortality. In the case of aggressive behaviour or persistent intrusion, stop work and evacuate the area. All black bear sightings, especially in camping areas, should be reported to park staff as soon as possible.

Vegetation

58. Apply Wildlife mitigations #50-57.
59. Carry cut branches and slash away from trail infrastructure and out of trail user view. Spread branches out with cut ends facing away from trail.
60. Burning is not permitted within the protected heritage place unless approved by Parks Canada.
61. Where re-vegetation is required, use weed-free salvaged topsoil, native plants and seed mix approved by designated Parks Canada staff. The use of seed mix should be avoided – preference to restoring site with locally salvaged woody plants appropriate for the area being re-vegetated. Topsoil /earth will be sourced locally and will not be imported from outside the Park. Any soil pits ('borrow pits') for such purposes should be pre-approved by the designated Parks Canada staff.

Erosion and Sediment Control

62. Apply Alien Invasive Species mitigations as appropriate.
63. Schedule operations to avoid wet, windy and rainy periods or very dry periods that may increase erosion and sedimentation.
64. In areas prone to erosion, install erosion and sediment control measures before starting work, especially within 30 meters of a waterbody.
65. Regularly inspect and maintain erosion and sediment control structures during all phases of the project and modify measures as necessary.
66. Select erosion and sediment control products that correspond with the nature and duration of the project.
67. Use erosion and sediment control products made of 100% biodegradable materials (e.g., jute, sisal or coir fiber) when possible. Ensure backing materials are also biodegradable.

68. Use of hay or straw in erosion and sediment control are potential wildlife attractants and may contain invasive species; their use is not permitted in Pukaskwa National Park for this project.
69. Use sediment and erosion control products that reduce potential for wildlife entanglement[2] when possible. These options include:
    - Net-less erosion control blankets made of excelsior or loose mulch and unreinforced silt fences.
    - Netting with a loose-weave wildlife safe design.
70. Limit duration of soil exposure; phase activities whenever possible and restore disturbed areas as soon as possible.
71. Consider removing and maintaining sod mats for improved re-vegetation success and erosion control; disturbed areas should be reclaimed with topsoil.
72. Cover spoil piles with biodegradable mats or tarps or plant them with woody vegetation salvaged from the project/ in the immediate vicinity.
73. Topsoil separation is required; stockpile topsoil away from subsoils and spoil material and more than 15 meters away from waterbodies, drainage features and/or the top of steep slopes.
74. Store excavated soils on tarps to limit damage to underlying vegetation and cover with weighted tarps if left for an extended period of time.
75. Excess organic material will be distributed on the trail tread or other existing un-vegetated areas.
76. Immediately stabilize disturbed areas, shoreline or banks, preferably through re-vegetation, with native species salvaged from the immediate vicinity, as approved by designated Parks Canada staff. If there is insufficient time remaining in the growing season, the site should be stabilized, (e.g., cover exposed areas with erosion control blankets to keep soil in place) and/or vegetated the following spring; maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved.
77. Maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved.
78. Remove temporary erosion and sediment control products, especially non-biodegradable materials, when they are no longer required.

Visitor Safety and Experience

79. If possible, schedule construction activities outside peak visitor season.
80. Maintain a safe working distance between work activities and visitors; consider the use of lookouts to manage traffic through the construction/hazard area.
81. As much as possible, schedule noisy activities to minimise impacts to visitors.
82. Secure and clearly mark unattended safety hazards (e.g., excavations, unsecured decking on a bridge, debris piles) with fencing, warning signs, area closures or combination thereof.

Cultural Resources

83. If cultural resources are encountered, leave in place, mark the location (e.g. with prominent flagging) and cease work in the immediate area. The designated Parks Canada staff must be notified and will provide the information immediately to the Terrestrial Archaeology section. An assessment of significance must be completed before work can resume.

2. Bridge, Boardwalk & Dock Maintenance

84. When working in close proximity to fish bearing waterbodies or in/near waterbodies that feed directly into fish bearing waterbodies, respect timing windows[3] to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed. Pukaskwa NP falls within the Northeast region of Ontario[4]. Scheduling of in-water or below high-water work should avoid spawning times for any species likely to occur (e.g. in Pukaskwa NP this could be walleye, northern pike, lake sturgeon, rainbow trout, brook trout, lake trout, pacific salmon, lake whitefish, lake herring or other) and must be approved by the designated Parks Canada staff.
85. Minimise the extent and duration of work within watercourses and bank areas.

---

[2] Wildlife-Friendly Plastic-Free Netting in Erosion and Sediment Control Products

[3] http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/index-eng.html

[4] http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/on-eng.html

86. Conduct in-stream work during periods of low flow or at low tide and not when flows are elevated due to local rain events or seasonal flooding.
87. Minimize the removal of natural woody debris, rocks, sand or other materials from the banks, the shoreline or the bed of waterbodies below the High Water Mark. If material is removed, set it aside and return it to the original location once construction activities are completed.
88. Ensure contingencies are in place for occurrence of unexpected high flow conditions during the activity.
89. When rock material is used in or near a watercourse:
    - Use clean, durable, non-ore-bearing, coarse granular aggregate material that is appropriately sized to resist displacement during peak flood events.
    - Do not obtain rocks from below the High Water Mark of any watercourse.
    - Do not use acid-generating rock or rock that fractures and breaks down easily.
    - Install rock at a similar slope to maintain a uniform stream bank and natural stream alignment.
    - Ensure rock does not constrict the natural channel width.
90. When removal and application of protective coatings is required implement the following:
    - Remove paint or protective coatings in a manner that prevents paints, paint flakes, primers, solvents or other waste material from entering the watercourse.
    - When feasible, use tarps to trap and prevent falling debris, spills or drips from entering the watercourse.
    - Store, mix and transfer paints and solvents on land and not on the bridge to prevent spills into the watercourse.
    - Contain paint flakes, abrasives and other waste materials and dispose at an approved location; waste materials must not be deposited into watercourses or riparian areas.
91. When removal of debris is required within culverts and around bridge piers and abutments, implement the following:
    - Remove materials with hand tools when feasible. If machinery is required, operate from land and minimise damage to the bank of the watercourse.
    - Limit removal of accumulated material (e.g., branches, stumps, woody materials, garbage) to the area within the culvert, immediately upstream of the culvert and to that which is necessary to retain culvert function and water flow. For bridges, only remove debris necessary to protect piers and abutments.
    - Remove accumulated material and debris slowly to allow clean water to pass, to prevent downstream flooding and reduce amount of sediment-laden water going downstream.
92. Boardwalks should be high enough above the existing ground surface to allow grasses and native shrubs to re-vegetate around the structure and beneath deck boards.
93. Limit ground disturbance under boardwalks to the installation of staircase posts and sills.
94. Stabilize shoreline or banks disturbed by any activity associated with the project.
95. Restore bed and banks of the water body to the original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct the natural water flow should be restored.

3. Decommissioning and Rehabilitation of Trail Structures & Fixtures
(e.g., boardwalks, viewing platforms, stairs, railing, benches)

96. Confine work to the existing footprint of the item to be decommissioned.
97. Rehabilitate the site to a natural condition, in consultation with designated Parks Canada staff.
98. Ensure any holes or depressions left from removal of structures or fixtures are filled.
99. Ensure wastes from demolition activities do not enter waterbodies (e.g., use tarps to capture debris). Any waste that does fall into a waterbody will be immediately retrieved, provided worker safety is not compromised, and if removal can be done without excessive disturbance of bottom sediment.
100. Consider re-use of structures, fixtures and materials (e.g., benches, building material) where practical and appropriate elsewhere in the protected heritage area. If not salvageable, materials must be disposed of outside the national protected place at an approved disposal facility unless otherwise directed by designated Parks Canada staff.

4. Work In-Water or below the High-water mark

101. Apply all measures from the above sections *Common Activities, Bridge, Boardwalk & Dock Maintenance, Decommissioning and Rehabilitation of Trail Structures & Fixtures*
102. Schedule work during times that will reduce erosion, and outside timing windows for sensitive species. To maintain compliance with the *Migratory Birds Convention Act, Fisheries Act* and *Species at Risk Act*.
    - Restrict in-water works to approved fish timing windows (see above for Pukaskwa specific windows).
    - Avoid all vegetation removal during nesting birds and bat breeding season.
    - If amphibians and reptiles are present, avoid construction during periods when they are congregated for breeding, nesting or seasonal migrations.
    - Adapt the work schedule for any other sensitive features present.

103. Follow Fisheries and Oceans Canada's Projects Near Water process to determine what level of review is needed. There are specific measures on: *Project planning, Erosion and sediment control, Shoreline/bank re-vegetation and stabilization, Fish protection* and *Operation of machinery.*

104. If there are unforeseen negative impacts to fish, wildlife, cultural or visitor experience resources, all works shall cease until the problem has been corrected and/or the designated Parks Canada staff are consulted.

105. Identify and protect important herptile habitats—such as aquatic breeding sites for amphibians, caves and seepage areas for salamanders, turtle nesting grounds, or snake hibernacula. If work must be completed during summer months, choose a time period that minimizes risk to all species at the site.

106. Avoid fording watercourses or operating equipment within water bodies below the normal water level. If necessary use temporary crossing structure or minimize crossings during the project.

107. Any equipment operating in water bodies must be cleaned prior to entering the water and inspected daily for leaks; never leave equipment in the water overnight. Proof that this mitigation was applied may be requested before equipment is permitted into the protected heritage place.

108. Machinery used in-water will be cleaned following work to avoid the spread of zebra mussels or other invasive species.

109. Poured concrete and concrete wash-water is not permitted to enter the watercourse at any time.

110. Debris shall not be allowed to drop into the water. As temporary catchment device will be deployed at each work site to collect debris and prevent it from dispersing into the water.

111. Prior to bridge, docks, wharves or any other physical work, demolition or repair, it must be assessed for asbestos containing material, loose or peeling lead based paint, and other regulated materials. If asbestos, lead based paint or other regulated materials such as mercury or PCBs are identified, the materials must be properly managed and disposed at an approved facility.

112. When work is performed from a barge in a scheduled navigable waters:
    - Project likely to interfere with navigation must comply with the Navigation Protection Act (See PCA "Factsheet: Navigation Protection Act"
    - Issue a notice to shipping;
    - Ensure the work will not affect the visibility of navigational aids;
    - Mark a safety perimeter using cautionary yellow buoys in accordance with Transports Canada requirements.

113. Protect riparian vegetation during construction:
    - Carefully survey, sign and clearly mark all riparian protection area boundaries including the drip line (root zone) of riparian trees;
    - Establish vegetative buffers between construction zones and areas known to have sensitive vegetation and wildlife.
    - Prevent all access inside the riparian protection area, except that associated with authorised construction activities;
    - Minimize vegetation cutting, maintain windbreaks and restore disturbed areas as soon as possible to minimize duration of soil exposure.

Erosion and Sediment Control Plan

114. An Erosion and Sediment Control Plan (ESCP) that covers all construction and restoration periods is required.
115. The plan should be scaled to the scope and associated risks of the project and can include consideration of:

a. Project design and spatial concept of environmental sensitivities (e.g. watercourses, wetlands, steep slopes etc.);
b. Erosion prevention procedures (e.g., project schedule, minimization of work area, site management, ground cover measures);
c. Sediment control measures (e.g. sediment fences, check dams, sediment traps, etc.) including specifications and typical drawings of sediment control structures;
d. Detailed plans for in-water works including site isolation measures and project timelines;
e. Water management plans including site control, equipment necessary and proposed dewatering locations;
f. Locations of erosion and sediment control measure application;
g. Monitoring of prevention and control measures and corrective actions (e.g., repairs);
h. Removal of non-biodegradable materials once site is stabilized.

116. Schedule work to avoid extreme wet, windy and rainy periods that may increase erosion and sedimentation. Temporarily stop work when wet ground conditions contribute to erosion and sediment transport.
117. Review and follow Fisheries and Oceans Canada's Projects Near Water process and the specific measures on *Erosion and sediment control.*
118. Prior to commencement of work, install and maintain erosion and sediment control measures necessary to prevent silt or sediment from entering the waterbody. Maintain until project activity is completed and the site has been stabilized, including during any periods of construction inactivity or shutdown.
119. If the sediment and erosion control measures are not functioning properly, the work must stop. No further work shall be carried out until the sediment control plans are adjusted to address the problem.
120. Minimize the length of time soils are exposed and complete work in one area before commencing work in another area.
121. If vegetation clearing is scheduled early due to timing windows, maintain soil stability by delaying grubbing until just prior to construction activities.
122. Ensure all erosion and sediment control devices are weed free.
123. Ensure rock, riprap, or other materials placed on the banks or within the active channel or floodplain of the waterbody is inert and free of silt, overburden, debris, or other substances deleterious to aquatic life.
124. Remove excavated material and debris from the site or place it in a stable area above the high-water mark or active floodplain of the waterbody, as far as possible from the waterbody.
125. Protect excavated material from erosion and reinter-entering the waterbody, (i.e. cover with erosion blankets, seed or plant with native vegetation).
126. Following completion of work, and prior to removal of sediment and erosion control measures all disturbed surfaces and shorelines shall be stabilized and re-vegetated with native vegetation as soon as possible.
127. Remove accumulated sediments prior to removing erosion control devices. Silt or debris accumulated around a temporary cofferdam must be removed prior to withdrawal of cofferdam.

Terrestrial Vegetation Removal Mitigation

128. Minimize clearing in riparian areas as much as possible to maintain vegetative buffer at shoreline, cover and windbreaks.
129. Minimize removal or disturbance of snags (e.g. tree stumps or other coarse woody debris) and rocks.
130. Avoid all vegetation removal during nesting birds and bats in spring and summer. If vegetation removal is scheduled to occur within these times, a qualified biologist must complete a survey to establish species presence, identify any occupied bird nests, eggs, or nests of species protected under the Migratory Bird Convention Act (MBCA) or species at risk protected under the Species at Risk Act.
131. If a nest is found during the pre-work surveys or during work, the vegetated area will be left intact with a suitable sized buffer of shrubs/trees around it until the young have fledged and left the nest. Size of buffer is species dependent, to be determined in consultation with professional biologist or park ecologist.
132. Trees felled across a waterbody can only be done when no other method of tree removal is possible because of safety reasons (e.g., to protect fallers or buildings). Removal of the felled tree must be completed in a manner that does not damage the banks and the bed of the waterbody. If possible, leave and anchor the trunk, letting it remain as large woody debris within the riparian zone.
133. Ensure tree limbs/stumps are flush cut as close to the ground or stem as possible.

134. Move logs and other salvage materials to areas outside the riparian zone, minimize the spread of debris or damage to other standing trees or landscape resources outside the marked clearing. Debris will not be deposited in water bodies.
135. Where vegetation has been removed/damaged, re-establish with native vegetation as soon as possible to re-stabilize slopes. Stabilize slopes as appropriate for local site conditions; possible methods include: grading to a stable slope, erosion control blanket, brush bundles, etc.

9. OTHER Considerations

Check all that apply

☐ Public/stakeholder engagement

☐ Aboriginal engagement or consultation

☒ Surveillance

☒ Follow-up monitoring, required to evaluate effectiveness of mitigation measures and/or assess restoration success

☐ Follow-up monitoring, required by legislation or policy (indicate basis of requirement e.g. required by the *Species at Risk Act)*

☐ SARA Notification

Given the extent of potential impacts and mitigations, surveillance by a Parks Canada representative is required throughout construction to ensure compliance with this BIA and the Environmental Protection Plan.

Where vegetation restoration is undertaken, follow-up monitoring should be conducted to meet the requirements of mitigation #37 (*Monitor disturbed and re-vegetated areas for several growing seasons to ensure that native vegetation is growing successfully and invasive alien species spread is prevented.)*

In the first season post-construction monitoring will be conducted by the proponent. Additional seasons will be monitored by Parks Canada staff.

10. SIGNIFICANCE OF RESIDUAL ADVERSE EFFECTS

Taking into account the implementation of the mitigation measures outlined in this analysis, the project is not likely to cause significant adverse environmental effects.

11. EXPERTS CONSULTED

Department/Agency/Institution: Parks Canada Agency	Date of Request: 2017-01-06
Expert's Name & Contact Information: **Wendy Botkin**	Title: Environmental Assessment Specialist
Expertise Requested: General review of BIA for completeness.	
Response: *[comments addressed throughout document]*	
Department/Agency/Institution: Parks Canada Agency	Date of Request: 2017-01-06
Expert's Name & Contact Information: **Joanne Tuckwell** 145 McDermot Ave, Winnipeg, Manitoba R3B 0R9 joanne.tuckwell@pc.gc.ca, Tel:204-984-2416	Title: Species Conservation Specialist
Expertise Requested: Review of BIA for Species At Risk concerns.	
Response: *[comments addressed throughout document]*	
Department/Agency/Institution: Parks Canada Agency	Date of Request: 2017-01-06

Expert's Name & Contact Information: **Stacey Taylor** Indigenous Affairs and Cultural Heritage Directorate Parks Canada, Government of Canada 111 Water St E, Cornwall ON, K6H 6S3 stacey.taylor@pc.gc.ca, Tel: 613-938-5794	Title: Terrestrial Archaeologist
Expertise Requested: Cultural Resources Impact Review	
Response: *Overall no concerns where work is taking place on bedrock, on existing structures or within footprint of existing structures providing minimal soil disturbance occurs.*	
Department/Agency/Institution: Parks Canada Agency	Date of Request: 2017-01-06
Expert's Name & Contact Information: **Annique Maheu** Pukaskwa National Park, Parks Canada CP 212, Heron Bay, ON, P0T 1R0 annique.maheu@pc.gc.ca / Tél: 807-229-0801 poste 227	Title: Visitor Experience Manager
Expertise Requested: Review for completeness of impacts/mitigations related to visitors.	
Response: *[comments addressed throughout document]*	

12. DECISION

Taking into account implementation of mitigation measures outlined in the analysis, the project is:

- ☒ not likely to cause significant adverse environmental effects.
- ☐ likely to cause significant adverse environmental effects.

NOTE: If the project is identified as likely to cause significant adverse effects, CEAA 2012 prohibits approval of the project unless the Governor in Council (Cabinet) determines that the effects are justified in the circumstances. A finding of significant effects therefore means the project CANNOT go ahead as proposed.

FOR SARA REQUIREMENTS:

- ☒ There are no residual adverse effects to species at risk and therefore the SARA-Compliant Authorization Decision Tool was not required[5]

OR, the SARA-Compliant Authorization Decision Tool was used and determined:

- ☐ There is no contravention of SARA prohibitions
- ☐ Project activities contravene a SARA prohibition and CAN be authorized under SARA
- ☐ Project activities contravene a SARA prohibition and CANNOT be authorized

[5] While this project is occurring within the critical habitat of woodland caribou (p. 126, Environment Canada 2012), as the area was previously cleared, it does not meet the biophysical attributes of critical habitat (p. 81, Environment Canada 2012) and therefore critical habitat is not being destroyed.

13. RECOMMENDATION AND APPROVAL

Prepared by: EIA author: Christine Drake, Park Ecologist, EA Officer	Date: 13 January 2017
Recommended by: Functional manager of the project: Cory Gaudet, Asset Manager	Date: 13 January 2017
Approval signature: Sharon Hayes, Site Superintendent, Pukaskwa National Park. S Hayes	Date: 16 January 2017

14. BEST MANAGEMENT PRACTICES & ATTACHMENTS

14.1. Best Management Practices

- Best Management Practice for Trails (Parks Canada 2016)
- Guide for the Use, Handling and Disposal of Pressure Treated Wood (Parks Canada 2009)

14.2. Attachments (e.g., project area diagrams, sensitive area maps, project execution plan, previous analysis)

- Parks Canada Project Description (January 2017)

15. NATIONAL IMPACT ASSESSMENT TRACKING SYSTEM

☒ Project registered in tracking system

☐ Not yet registered *(CEAA 2012 requires PCA submit a report to Parliament annually. EIAs must be entered in the tracking system* ***by the end of April*** *to enable reporting.*

16. REFERENCES

Environment and Climate Change Canada. 2016. General Nesting Periods of Migratory Birds in Canada. Retrieved from http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1#_tab01

Environment Canada. 2012. Recovery Strategy for the Woodland Caribou (*Rangifer tarandus caribou*), Boreal population, in Canada. Environment Canada, Species at Risk Act Recovery Strategy Series, Ottawa, xi+138 pp.

Parks Canada Agency. 2016. Parks Canada National Best Management Practices for Trail Maintenance and Modification. 21 pp.

Parks Canada Agency (Draft 2017). Parks Canada National Best Management Practice for In-Water Works. 30 pp.

WSP Inc, December 2016. 1433 PUK NP – Rehabilitation of Trail Bridge Structures. Design Development Report for Pukaskwa National Park. 99% Submission. 188pp.

*****Ensure that all required mitigation measures and conditions (e.g. follow-up monitoring requirements) are included in project permits and authorizations*****

Appendix 1 : Effects Identification Matrix

***Section A** focuses on direct effects of the project and **Section B** on indirect effects that are caused by changes to the environment.*

A. Direct Effects

		Valued components potentially directly affected by the proposed project				
		Natural Resources				
		Air	Soil & landforms	Water (surface, ground, crossings, etc.)	Flora (full vegetation cover)	Fauna (nesting birds, mammals)
Phase	Examples of Associated Activities					
Preparation /construction operation/implementation/decommissioning	Access	☐	☒	☒	☒	☒
	Clearing	☐	☒	☐	☒	☐
	Use of machinery	☒	☒	☒	☒	☒
	Use of Chemicals	☒	☒	☒	☐	☐
	Vehicle Traffic	☒	☒	☒	☐	☒
	Site restoration	☐	☒	☒	☒	☒
		☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐

***Section B** of the matrix should be used to identify potential indirect effects that may result from impacts of the project to components of the environment you have identified on the preceding pages (see Section A - direct effects to natural resources). Consideration of indirect effects is required under CEAA 2012 Sections 5(1)(c) and 5(2)(b), and by the PCA mandate. For example:*

- *if the proposed project could lead to adverse effects to water quality and quantity, could this then effect the quantity and quality of water resources (e.g. potable water) used by an Aboriginal community?*
- *could there also be adverse socio-economic effects to a community that relies on recreational fishing tourism?*
- *could changes to the environment (e.g. digging, clearing) affect visitor access, opportunities, or safety?*
-

B. Indirect Effects (all phases)							
		Impacts as a result of changes to the environment					
		With respect to non-Aboriginal peoples:	With respect to Aboriginal peoples:		With respect to visitor experience		
		Health and socio-economic conditions	Health & socio-economic conditions	Current use of lands and resources for traditional purposes	Access & services	Recreation & accommod'n opportunities	Safety
Phase	**Natural resource components affected by the project**						
Preparation /construction operation/implementation /decommissioning	Air	☐	☐	☐	☒	☒	☒
	Soils	☒	☐	☐	☐	☒	☒
	Water	☒	☐	☐	☒	☒	☒
	Flora	☐	☐	☐	☒	☒	☒
	Fauna	☒	☐	☐	☒	☒	☒

Appendix 2 – Project Description

Project Title: Rehabilitation Of Trail Bridge Structures
Project Contacts:
Project Sponsor: Robin Lessard (robin.lessard@pc.gc.ca, telephone: 807-346-2905)
Project Lead: Cory Gaudet (Cory.gaudet@pc.gc.ca, telephone: 807-346-2909)
Project Manager: Dhruba Subedi (Dhruba.Subedi@pc.gc.ca, telephone: 647-409-9169)
Project Officer: Mehdi Eliraqi (Mehdi.eliraqi@pc.gc.ca, telephone: 807-229-0801 Ext 224)
Consultant: WSP Canada

Date of Request: 2016/11/16 (Y / M / D) **Proposed Project Start:** 2017 / 04 / 15 (Y / M / D)

PROJECT DESCRIPTION *(to be completed by proponent)*

Project objective: *Provide a brief description of the project elements & related activities or developments needed to support the project (e.g. construction of a yurt, vegetation clearing, new outhouses, trenching for utilities).*

The objective of this project is to plan and implement the repair, replacement or removal of trail bridges and/or find suitable alternatives for bridges, trail stairs, docks, walkways and viewing platforms in the front and in the back country, to improve the overall condition rating, improve functionality to meet prevailing design standards, and ensure code compliance and public safety for 29 structures.

The type of structures subject to this investigation include the following:

- Three (3) Suspension Bridges;
- Fifteen (15) Pedestrian Foot Bridges;
- Six (6) Staircases;
- Two (2) Viewing Platforms;
- One (1) Helicopter Platform;
- One (1) Dock; and,
- One (1) Low-Lying Section of Boardwalk.

Project rationale (optional): *Provide a brief rationale for project (e.g. to support visitor experience objectives, improve public safety, implement actions from the park management plan, etc.).*

All projects are linked, directly or indirectly, to improving service offers to our visitors. Consideration to all aspects of the project with the potential to impact visitors will be of significant importance to the overall success of the project.

Annique Maheu, Visitor Experience Manager, will for part of the design review team to evaluate options based on the implications to visitor service offers.

Project location: *describe site location & size, include locations of any off-site requirements (e.g. for staging materials, excavating a borrow pit, etc.)*

Primary Location: Pukaskwa National Park Front and back country area – see map in appendix A

Footprint size: 29 structures of various footprints (from Approximately 20 m^2 to 360 m^2)

Off-site Location(s): N/A

Project phases and activities: *i.e. "how the project will be completed" – through the site preparation, construction, operation and decommissioning phases. The* ***Project Phases & Activities Table*** *on the next page can help organize the information. Include:*

This project will follow the traditional design, bid, build structure. The consultant will create a design to meet our overall objectives (in short, meeting provincial standards). Contractors will then bid on the project, and put forward their proposals for how they intend to perform the work. Therefore, it is difficult at this stage to give specific details of the construction phase. Some of the information below will be determined through the design development stages and a portion will be dependent on the contractor's proposed plans.

1. *Site preparation/access activities*

Site mobilisation and demobilisation will be determined by the contractor. Due the remoteness of the trail structures, the access for construction material delivery and labourers will be either by boat or helicopter, followed by foot access on existing trail/ pathways.

2. *Dimensions of structures, size of excavation, area of disturbance, fill requirements*

Structures are being maintained or replaced primarily within their existing footprint.
Staging areas for construction at each site will be within existing cleared areas or minimized adjacent to the structure.
Fill (granular or earth) will be added for some structures

Additional details are provided by contractor in the design package.

3. *Construction activities, methods, materials, equipment to be used*

See 99% Design Report.

4. *Associated project work (e.g., paving, vegetation removal, excavation, etc.)*

Anticipated work to trail structures (such as foot bridges, stairways, boardwalk) includes replacement, maintenance as well as decommissioning/ removal. Some additional vegetation removal may be required, as well as some additional excavating around existing structures for the purpose of ensuring footing is secure.

5. *Changes to utilities, capacity or demand, new lines (i.e. water, electric, natural gas, wastewater)*

Not applicable in this project.

6. *Toxic or hazardous materials (e.g. cast in place concrete, chemicals, fuels, paints, solvents, explosives)*

Concrete pads for posts, Pressure treated wood, fuel/oil for chainsaws, paint

7. *Operational requirements: (materials, maintenance procedures, monitoring, waste & wastewater management requirements)*

Geomat will be used for erosion control; as well as vegetative
Fill will be used for stabilizing landings/ structures
Other details provided in design package

8. *Site modifications, structure removals, site reclamation activities*

The project is expected to stay within existing developed areas. Removal, replacement and renovation will be in the same location. The only exception is the suspension bridge over the Swallow River (BDGS17-01) which is being removed entirely.

9. *Plans & drawings attached.*

See Design report.

Project Environment

Other facilities that may be affected:

None

Site history (previous use, contamination, buried tanks, lines, cables):

Currently used as trail bridges or trail-related structures. No changes to use.

Known cultural resources (e.g. buildings, engineering works, landscapes and landscape features, historical and archaeological objects):

None

Distance to nearest water body, water crossings, shoreline work:

Bridges are directly adjacent to water bodies or span water crossings.

Fish & fish habitat:

Some structures will be over fish-bearing streams and likely involve some work below the high-water mark.

Species at risk, critical habitat, and residence of individuals (if any):

The following Species at Risk are found regularly in Pukaskwa:

Species	Scientific Name	COSEWIC Status	SARA Scheduie 1 Status
Barn Swallow	*Hirundo rustica*	Threatened	Not Listed
Bank Swallow	*Riparia riparia*	Threatened	Not Listed
Canada Warbler	*Cardellina canadensis*	Threatened	Threatened
Common Nighthawk	*Chordeiles minor*	Threatened	Threatened
Eastern Wood-pewee	*Contopus virens*	Special Concern	Not Listed
Lake Sturgeon (Great Lakes – Upper St. Lawrence populations)	*Acipenser fluvescens*	Threatened	Not Listed
Little Brown Myotis	*Myotis lucifugus*	Endangered	Endangered
Monarch	*Danaus plexippus*	Endangered	Special Concern
Olive-sided Flycatcher	*Contopus cooperi*	Threatened	Threatened
Peregrine Falcon (*anatum/tundrius*)	*Falco peregrinus anatum/tundrius*	Special Concern	Special Concern
Pitcher's Thistle	*Cirsium pitcheri*	Special Concern	Endangered
Rusty Blackbird	*Euphagus carolinus*	Special Concern	Special Concern
Shortjaw Cisco	*Coregonus zenithicus*	Threatened	Not Listed
Woodland Caribou (boreal population)	*Rangifer tarandus*	Threatened	Threatened
Snapping turtle	*Chelydra serpentina*	Special Concern	Special Concern

Other species & habitat:

Within boreal forest habitat.

Site photos or map attached:

Appendix A.

Project timing: *details on proposed project schedule (Terms of Reference, contract package, construction phases & scheduling, in-service targets, reclamation activities).*

It is proposed to initiate the construction work in the Spring of 2017 to allow adequate time for the planning, Construction, and Post-Construction Phases of the Project. It is recommended to conduct the majority of the work

during the Park's Shoulder Season such that there is minimal pedestrian traffic on the trails and the proposed work does not interfere with the Visitor's Experience.

The Preliminary Schedule for the proposed 2017 work (from the 99% Design Package):

MILESTONE DATE(S) (Alternate DATE(S))

Completion of Detailed Design and Contract Documents
September 2016 - December 22, 2016 (September 2016 - December 22, 2016)

Tendering Phase
February 2017 – April 2017 (April 2017 – June 2017)

Award of Construction Contract
May 2017 (June 2017)

Shop Work
June 2017 – July 2017 (June 2017 – August 2017)

Field Construction
August 2017 – November 2017 (August 2017 – October 2017)

Post Construction Services (Including Warranty)
December 2017 – November 2018 (October 2017 – October 2018)

Additional details (as required):

Potential for project to affect use of lands or resources by aboriginal persons (as relevant):

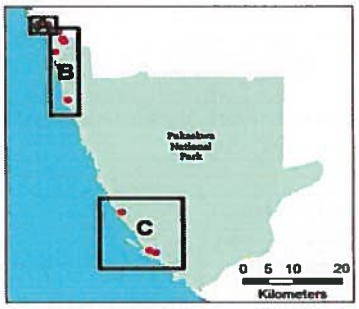
None

Other jurisdictions or departments involved in project development, review & approval (as relevant): Project review team will incorporate Visitor Experience and Resource Conservation departments, as well as site management.

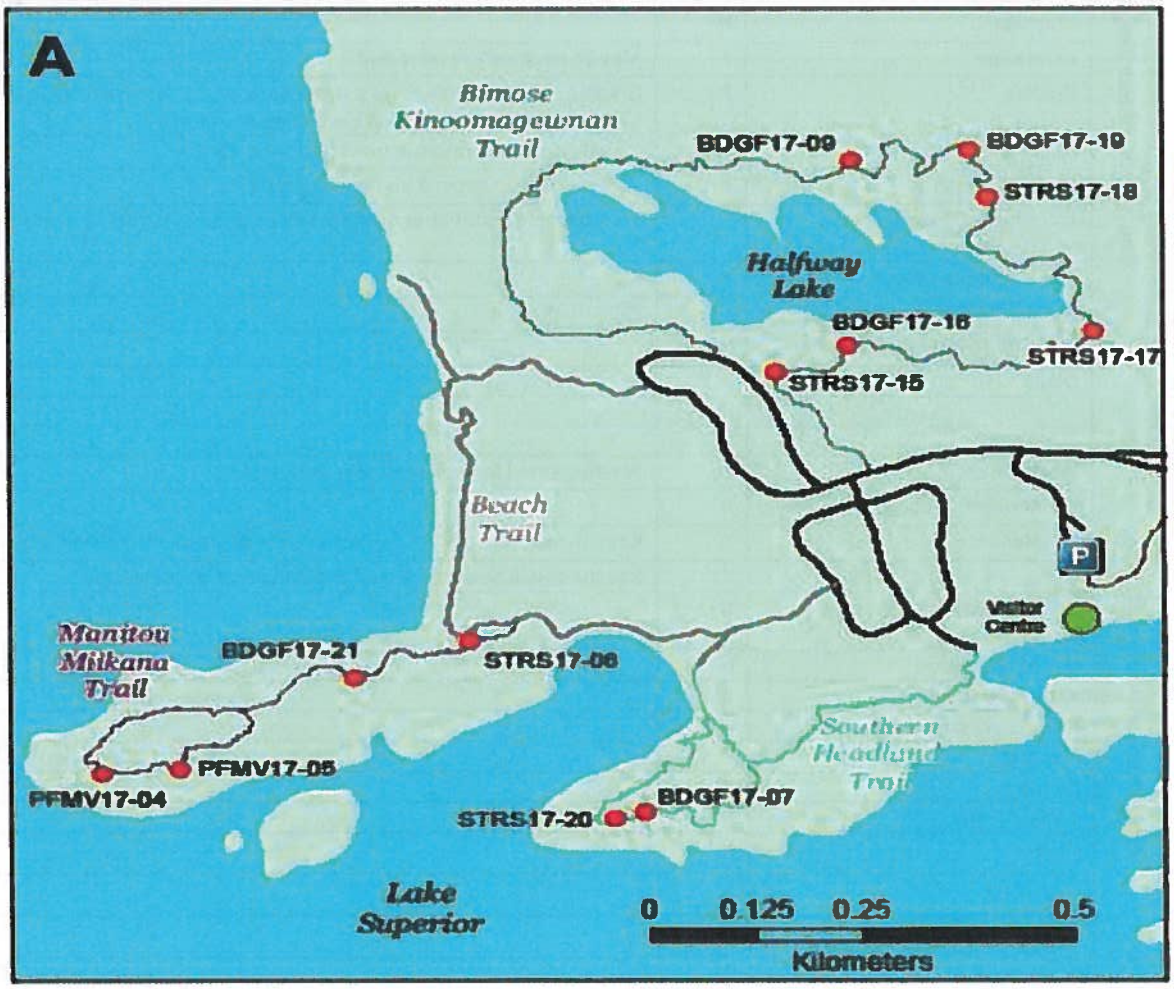
Depending on the final scope of the project, review by Fisheries and Oceans Canada may be needed (see http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html).

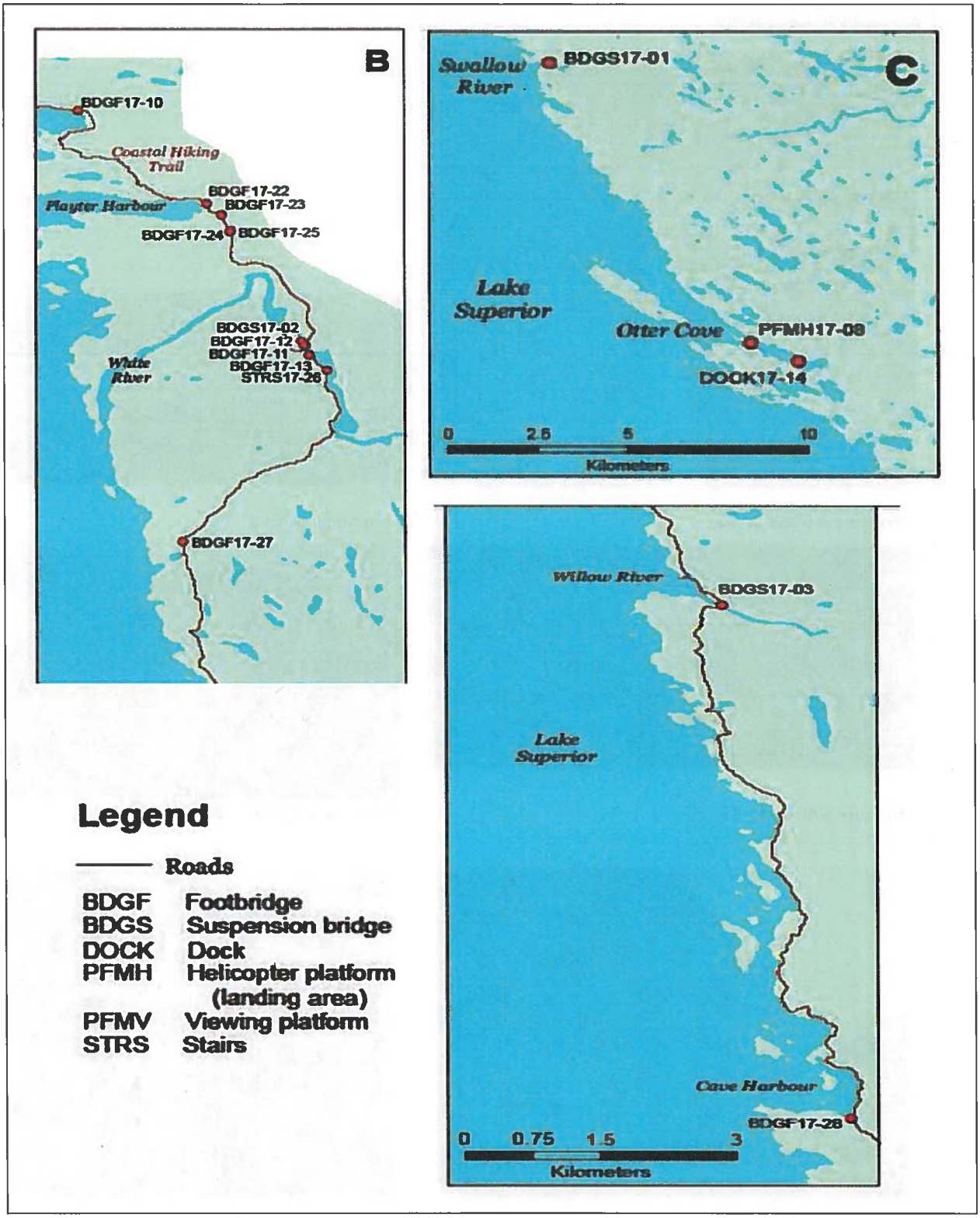
Project Phases and Activities Table				
	Use this table to help identify phases of your project and associated activities.			
	Phases	**Examples of Associated Activities**	Y / N	Details
Project Components	**Construction / Site Preparation**	Supply and storage of materials	Y	Any materials necessary to complete the work. Storage on exposed rock or previously impacted areas as much as possible.
		Burning	N	
		Clearing	Y	Some vegetation removal may be required.
		Demolition	Y	Some demolition – Swallow River bridge will be removed.
		Disposal of waste	Y	All removed materials will be disposed of off-site.
		Blasting/ Drilling	N	Structures to be fastened to bedrock may require drilling.
		Dredging	N	
		Drainage	N	
		Excavation	Y	May be necessary for levelling.
		Grading	N	Grading may occur, however it is still unclear at this current stage (Details will be provided in the design development report)
		Backfilling	Y	Fill will occur in some structures (granular, earth)
		Use of machinery	Y	Various (Will be depend on the contractor)
		Transport of materials/ equipment	Y	Transport old material/equipment will be done by a boat or helicopter
		Building of fire breaks	N	
		Use of Chemicals	Y	Paint, fuel/oil
		Set up of temporary facilities	N	
		Other...		
	Operation/Implementation Decommissioning	Waste disposal	Y	Waste created by project closing or turnover.
		Wastewater disposal	N	
		Maintenance	Y	Routine maintenance will be required for all structures on ongoing basis
		Use	Y	Structures will be used by staff and visitors on ongoing basis
		Use/Removal of temporary facilities	N	
		Use of Chemicals	N	
		Active fire stage	N	
		Clean-up of prescribed burn	N	
		Planting	N	
		Culling	N	
		Vehicle Traffic	N	
		Other...	N	

Appendix A. Map of locations



N



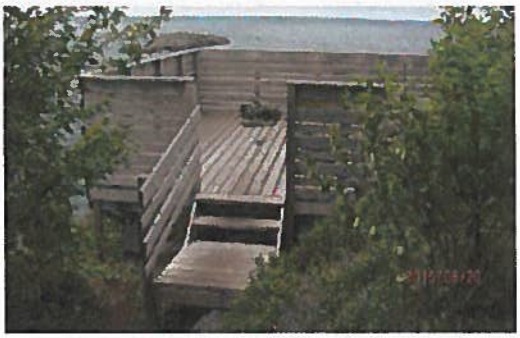

B
BDGF17-10
Coastal Hiking Trail
BDGF17-22
Playter Harbour
BDGF17-23
BDGF17-24
BDGF17-25
BDGS17-02
BDGF17-12
BDGF17-11
BDGF17-13
STRS17-26
White River
BDGF17-27
C
Swallow River
BDGS17-01
Lake Superior
Otter Cove
PFMH17-08
DOCK17-14
0 2.5 5 10
Kilometers
Willow River
BDGS17-03
Lake Superior
Cave Harbour
BDGF17-28
0 0.75 1.5 3
Kilometers
Legend
Roads
BDGF Footbridge
BDGS Suspension bridge
DOCK Dock
PFMH Helicopter platform (landing area)
PFMV Viewing platform
STRS Stairs

Appendix B. Site photos

Structure # BDGS 17-01

Structure # BDGS 17-02

Structure # BDGS 17-03

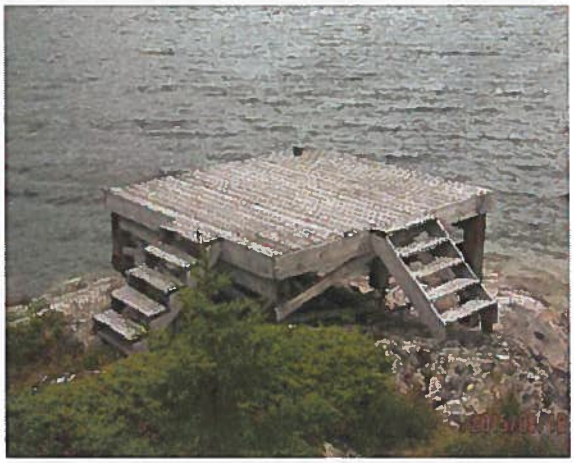


Structure # PFMV 17-04

Structure # PFMV 17-05

Structure # STRS 17-06

Structure # BDGF 17-07



Structure # PFMH 17-08

Structure # BDGF 17-09

Structure # BDGF 17-10

Structure # BDGF 17-11

Structure # BDGF 17-12

Structure # BDGF 17-13

Structure # DOCK 17-14

Structure # STRS 17-15

Structure # BDGF 17-16

Structure # STRS 17-17

Structure # STRS 17-18

Structure # BDGF 17-19

Structure # STRS 17-20

Structure # BDGF 17-21

Structure # BDGF 17-22

Structure # BDGF 17-23

Structure # BDGF 17-24

Structure # BDGF 17-25

Structure # STRS 17-26

Structure # BDGF 17-27

Structure # BDGF 17-28

Structure # BDGF 17-31 – Low-lying Boardwalk