
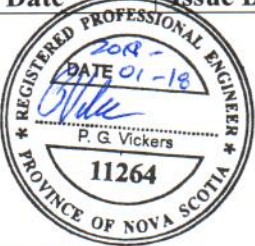


Fisheries and Oceans Canada
Small Craft Harbours Branch

PROJECT SPECIFICATIONS

Whitman's Wharf Fender Piling
Canso, Guysborough County, NS

Project No. 722871

Issued for Tender	VL	Jan. 18, 2019	PV
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 INNOVATIVE ENGINEERING AND DESIGN			

This document is the document referred to as "Plans and Specifications" and marked "A" in the Articles of Agreement and includes the following:

"A"

Fisheries and Oceans Canada
Small Craft Harbours
Whitman's Wharf Fender Piling
Canso, Guysborough County, NS
Project No. 722871

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END OF SECTION

The enclosed drawings (plans) listed hereunder form part of the documents referred to as "Plans and Specifications" and marked "A" in the Articles of Agreement and consists of the following:

"A"

Fisheries and Oceans Canada
Small Craft Harbours
Whitman's Wharf Fender Piling
Canso, Guysborough County, NS
Project No. 772871

Drawing No. Title

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END OF SECTION

PART 1 – GENERAL

- 1.1 Documents Required .1 Maintain at job site, one copy each of the following:
- .1 Contract drawings;
 - .2 Specifications;
 - .3 Addenda;
 - .4 Reviewed shop drawings/submissions;
 - .5 Change Orders;
 - .6 Other modifications to Contract;
 - .7 Field test reports;
 - .8 Copy of approved work schedule;
 - .9 Manufacturer's installation and application instructions.
- 1.2 Site Conditions .1 Records of existing structures and geotechnical reports may be available for inspection at the offices of Department of Fisheries and Oceans, 2920 Highway 104, Antigonish Nova Scotia. This material is not necessarily up-to-date and is for information purposes only. It should be complemented with site visits and consultation with appropriate expertise.
- 1.3 Work Schedule and Completion Dates .1 All timber fender piles shall be delivered and stored on site by March 31, 2019.
- .2 No work shall occur on the wharf during April 12 to May 30, 2019 due to fishing operations.
- .3 Prepare and submit to the *Departmental Representative* with five (5) days of notification of Contract award, one (1) copy of the construction schedule, in the form of a bar chart, showing the dates for commencement and completion of each major activity of the work, including the work of subcontractors; dates of submissions, review and return of all drawings, etc.; the dates of Substantial Completion; and intended man hours of labour and equipment for each major items of work. If the schedule as submitted is unacceptable in any way, submit without delay a revised schedule satisfactory to the *Departmental Representative*.
- .4 The *Departmental Representative* is to notify the Contractor in writing of acceptance of the Construction Schedule. Comply with the Dates of the Construction Schedule at all times. If, for any reason the Construction Schedule is not followed, immediately

notify the *Departmental Representative* of the changes and submit a revised schedule for acceptance. Upon written acceptance by the *Departmental Representative*, this schedule will become the Construction Schedule.

- .5 Whenever required, give further written particulars concerning this schedule. The submission to and acceptance by the *Departmental Representative* of the Contractor's Construction Schedule or the furnishing of details and particulars thereto will not relieve the Contractor of any duties and responsibilities under the Contract.

1.4 Measurement Responsibilities

- .1 Notify *Departmental Representative* sufficiently in advance of operations to permit required measurements for payment purposes.

1.5 Contractor's Use of Site

- .1 Cooperate with Harbour Authority and users of existing facilities. All work taking place will be coordinated and agreed to so that there will be minimal impact to the daily ongoing activities of the harbour.
- .2 Harbour Authority Representative:
 - .1 Bob Anderson 902-863-7940
- .2 Should interference's occur, take directions from *Departmental Representative*.
- .3 Do not unreasonably encumber site with materials or equipment.
- .4 Move stored products or equipment which interfere with operations of *Departmental Representative* or other Contractors.
- .5 Obtain and pay for use of additional storage or work areas needed for operations.
- .6 Comply with all regulations and authorities having jurisdiction over the work, whether on land or on water.
- .7 Ensure no damage occurs to existing structures as a result of operations. Any said damage will be repaired at Contractor's expense.

1.6 Codes and Standards

.8 Provide temporary barriers and warning signs in location where work is adjacent to areas used by public.

.1 Perform work in accordance with National Building Code of Canada (NBC) 2015 and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements will apply.

.2 Meet or exceed requirements of specified standards, codes and referenced documents. When a standard or code is outdated, the latest edition will supersede the referenced date.

.3 Observe and enforce construction safety measures by Canadian Construction Safety Code and Construction Safety Code of Nova Scotia. In the event of conflict between any provisions of above authorities the most stringent provision will apply.

.4 National Fire Code (NFC) of Canada 2015.

1.7 Project Meetings

.1 *Departmental Representative* will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

1.8 Setting Out of Work

.1 Do all detail surveys necessary for the work, including locating and maintaining working points, and establishing lines and elevations. Perform all layout work, and carefully preserve benchmarks, reference points and stakes.

.2 Provide such masts, scaffolds, batter boards, lines, straight edges, templates and other devices as may be necessary to facilitate layout, construction and inspection of the work. Whenever necessary, suspend work for such reasonable time as may be necessary to permit the *Departmental Representative* to check or inspect any portion of the Work. The Contractor will not be allowed any extra compensation or time for completion because of this suspension of work.

- .3 Elevations for the various grades and features of the specified works to be referenced and properly related to a benchmark as shown on the drawings.
- .4 Verify all grades, lines, levels, and dimensions shown on the drawings and report any errors or inconsistencies to the *Departmental Representative* before commencing work. Provide and maintain well built batterboards at all points to facilitate the progress of the work. Establish all other grades, lines, levels required to facilitate the work.

1.9 Existing Services

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian, vehicular traffic, and services.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify *Departmental Representative* of findings.
- .3 Submit schedule to and obtain acceptance from *Departmental Representative* for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise *Departmental Representative* and confirm findings in writing.

1.10 Contract Documents

- .1 Contract Drawings:
 - .1 The drawings for the Work consist of all drawings listed in these "Plans and Specifications" marked "A" and any additional drawings issued at a later date by the *Departmental Representative*.
 - .2 *Departmental Representative* may furnish additional drawings to assist in proper execution of work. These drawings will be issued for clarification only. Such drawings will have same meaning and intent as if they were included with plans referred to in Contract Documents.
 - .3 The drawings indicate the extent and general dimensions of the work. Make all necessary measurements to ensure that the result of the work is in accordance with the intent.

.4 Verify all existing conditions in field prior to proceeding with work.

.2 Contract Specifications:

.1 The general requirements and technical specifications are written solely for the General Contractor. They are organized into the NMS format of separate divisions and sections.

.2 Specification language is of the 'Short Form type' for example, where the word "provide" occurs, interpret it to mean "the Contractor shall furnish all labour, material and equipment necessary to complete the work".

.3 This Specification and accompanying drawings are intended to describe and provide for a finished project. They are intended to be complementary, and what is called for by either will be as binding as if called for by both. The Contractor shall understand that the work herein described will be complete in every detail, notwithstanding that every item necessarily involved is not particularly mentioned, and Contractor will be held to provide all labour, materials and equipment necessary for the entire completion of the work and will not avail himself of any errors or omissions.

1.11 Permits and Regulations

.1 Apply for, obtain and pay for all necessary permits, approvals and other authorizations required for the work.

.2 Comply with all by-laws, ordinances and regulations of all authorities having jurisdiction.

.3 Pay for any Municipal permits, per General Conditions as stated in the contract.

1.12 Cutting, Fitting and Patching

.1 Execute cutting (including excavation), fitting and patching required to make work fit properly.

.2 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

.3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.

- .4 Obtain *Departmental Representative's* approval before cutting, boring or sleeving, or excavating adjacent to load-bearing members.

1.13 Record of Construction

- .1 As work progresses, maintain accurate records to show all deviations from the contract drawings, with particular reference to work which will be concealed. Prior to the inspection of the work for the issuance of the Final Certificate of Completion, provide the *Departmental Representative* with one set of white prints of the drawings with all deviations shown neatly thereon.
- .2 Provide "as built" cross sections of any excavation, dredging or fill work.

1.14 Payment

- .1 Payment for all work under this contract to be according to the Contract.
- .2 No separate payment will be made for work specified under General Conditions, Supplementary Conditions or any sections of Specification under Division 01. The cost of this work is to be considered as overhead and to be included in the unit prices of the Contract.
- .3 Dimensional changes as directed by the *Departmental Representative* to suit existing conditions, but not resulting in additional work or materials, will not be considered as extra to the Contract.

1.15 Site Examination

- .1 All parties tendering should visit the site of the work prior to submission of tenders and make themselves thoroughly acquainted with site conditions, conditions of existing objects to be removed, tides, degree of exposure and all information necessary for the proper carrying out of the work covered by the drawings and this Specification. Submission of Tender will be deemed that Contractor is conversant with site conditions.
- .2 The *Departmental Representative* will give no consideration whatsoever to any claim by the Contractor resulting from failure to have made all the necessary investigations prior to tendering.

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- 1.16 Cooperation & Assistance to Departmental Representative
- .1 Co-operate with *Departmental Representative* on inspection of work.
 - .2 Provide assistance when requested.
 - .3 Provide small motor boat with operator for *Departmental Representative's* use when requested.
- 1.17 Datum
- .1 Datum referred to in this Specification is Chart Datum. Chart Datum is, by International Agreement a plane below which the tide will seldom fall. The Canadian Hydrographic Service has adopted the plane of the lowest normal tide (L.N.T.) as Chart Datum. As the rise, fall, and range of tides varies daily, the Canadian Tide and Current Tables, as issued by the Canadian Hydrographic Service, should be consulted for tidal predictions and other tidal information relating to the work.
- 1.18 Contractor's Representative
- .1 Continuously maintain on the site an authorized representative to whom communication may be addressed and who will be competent to speak for the Contractor in discussing work methods.
- 1.19 Workers Compensation
- .1 Contractor and all sub-contractors must be registered under the Workers Compensation Act and provide evidence of good standing.
 - .2 At completion of Contract and before final payment is made, the Contractor will present to the *Departmental Representative* a Letter of Certification from the Workers Compensation Board, showing that all required assessments are paid in connection with all trades.
- 1.20 Laws, Standards Taxes and Fees
- .1 Comply with all laws and standards governing all or any part of the work, pay all applicable taxes and pay for all permits and certificates required in respect of the execution of the work. Where variances exist between the requirements of agencies governing all or any part of the work, the most restrictive will govern, but in no instance will the standards established by the
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drawings and this Specification, which exceed such requirements, be reduced.

- 1.21 Protection and Repair .1 Repair any damage resulting from operations under this contract.
- 1.22 Location of Equipment and Fixtures .1 Location of equipment, fixtures or any appurtenances indicated are to be considered approximate.
- 1.23 Inspection And Testing .1 The *Departmental Representative* may employ an Inspector and/or Testing Company to ensure work conforms with contract.
- 1.24 Disposal of Debris .1 Debris, including construction materials not incorporated in the work, oil products and containers, and other materials of this nature will be disposed of in suitable locations off the site. This includes costs of disposing of contaminated materials such as creosote treated timber. Disposal is the responsibility of the Contractor.
- .2 Material from the work will not be permitted to go adrift or otherwise become a menace to navigation.
- 1.25 Existing Soils Conditions .1 Any information pertaining to soils and all boreholes logs are furnished by the *Departmental Representative* as a matter of general information only and borehole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.
- 1.26 Relics And Antiquities .1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.

- .2 Give immediate notice to *Departmental Representative* and await written instructions before proceeding with work in this area.
- .3 Relics, antiquities and items of historical or scientific interest remain her Majesty's property.

1.27 Temporary
 Navigational Buoys

- .1 The Contractor is to maintain temporary buoy's to mark the position of the outer end of the structure as construction proceeds. All buoy's are to meet the requirements of Canadian Coast Guard Standard TP968 and be equipped with radar reflectors.
- .2 During Construction, the construction area shall be marked with a yellow cautionary buoy, to be placed no more than 10 meters from the seaward end of the construction area in order to identify the location of the construction project.
- .3 The Contractor shall coordinate the buoy installation with the local harbour authority.
- .4 The Contractor is responsible for all costs associated with the supply, installation and removal of all temporary navigational buoy's.

END OF SECTION

PROJECT PARTICULARS

1.1 Description
of Work

- .1 The work under this contract involves the installation of timber fender piles along the seaward face of the existing stem and tee of the wharf. Currently there is closed timber sheathing supported by timber fender piles and wales along the seaward face of the existing stem and tee.
- .2 The contractor shall install the first 30 piles as shown on drawings using the methodology submitted to the *Departmental Representative* prior to the commencement of work. The *Departmental Representative* will arrange for a diving inspection to inspect that the fender piles are installed correctly and to ensure any gaps between piles are minimized. Contractor shall not install additional piles until *Departmental Representative* is satisfied with the installation method verified with the diving inspection. Contractor shall modify installation methodology and resubmit if required by the *Departmental Representative*.
- .3 The work includes but is not limited to:
 - .1 Removal of existing ladders and horizontal holdfasts. Ladders indicated not to be reused shall be delivered to Small Craft Harbour office in Antigonish for storage.
 - .2 Supply and installation of closed face timber piles.
 - .3 Reinstallation of existing ladders.
 - .4 Supply and installation of new holdfasts complete with step platform.

PROJECT MEASUREMENT

2.1 General

- .1 This section details the measurement method to be used for payment purposes. Incidental items covered in the various sections of the Specification are to be allowed for in the pricing of each pay item.
- .2 The contractor will be requested to provide a breakdown of the lump sum items for payment purposes following award of the contract.

2.2 Measurement
For Payment

.1 **Lump Sum Items (Accumulated Total)**

Note: All items designated as lump sum are to be combined into one accumulated lump sum total in the tender documents.

.1.1 Sitework, Demolition and Removals: All sitework, demolition, and removals required to complete the work, including removal of existing ladders and holdfasts, shall be measured for payment by the lump sum. The delivery of ladders not reinstalled shall be considered incidental to this work. Any additional demolition and removals essential to complete the work will be considered incidental to this demolition item.

.1.2 Environment Controls: All environment controls required to complete the work shall be measured for payment by the lump sum.

.1.3 Mobilization and Demobilization: All work associated with the mobilization and demobilization of all equipment required to perform and complete the work as outlined in the Contract Drawings, shall be measured for payment by the lump sum.

.2 **Unit Price Items**

Note: The following outlines the unit of measurement of the unit price items as indicated in the tender documents.

.2.1 Reinstallation of Existing Ladders: Reinstallation of existing treated timber ladders shall be measured for payment per each (Ea.). Bolts and hardware required for reinstallation shall not be measured but considered incidental to the work.

.2.2 Ladder Holdfasts: Supply and installation of new ladder holdfasts complete with step platform shall be measured for payment per each (Ea.). Bolts and hardware, surface preparation and galvanized shall not be measured, but considered incidental to the work.

.2.3 Installation of Timber Fender Piles: The installation of timber fender piles shall be measured for payment per each (Ea.) pile successfully installed. All hardware, fasteners, bolts, pile shoes, installation template shall be considered incidental to the work.

- .2.4 Supply of Timber Fender Piles: Supply of timber fender piles shall be measured for payment by the linear metre (m) of piling successfully delivered to site. Pile lengths indicated on drawings account for 1 meter cut off allowance.

END OF SECTION

PART 1 – GENERAL

1.1 General

- .1 Submit to *Departmental Representative*, for review, shop drawings, product data, samples and other information specified.
- .2 Until submission is reviewed, work involving relevant product may not proceed.

1.2 Shop Drawings

- .1 Drawings to be originals prepared by contractor, subcontractor, supplier or distributor, which illustrate appropriate portion of work, showing fabrication, layout, setting or erection details as specified in appropriate sections.
- .2 Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- .3 Maximum sheet size 860mm X 1120 mm.
- .4 Reproductions for submissions: opaque diazo prints.

1.3 Product Data

- .1 Certain specification sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams schedules, performance chart, illustrations and other standard descriptive data will be accepted in lieu of shop drawings.

1.4 Samples

- .1 Submit samples in sizes and quantities specified.
- .2 Construct field samples and mock-ups at locations acceptable to *Departmental Representative*.
- .3 Accepted samples will become standards of workmanship and material against which, installed work will be checked on project.

1.5 Miscellaneous Data

- .1 Provide certificates, methodologies, design and test results as required.

1.6 Coordination
of Submissions

- .1 Review shop drawings, product data, samples and miscellaneous data prior to submissions.
- .2 Verify:

- .1 Field Measurements.
- .2 Field Construction Criteria.
- .3 Catalogue numbers and similar data.

- .3 Coordinate each submission with requirements of work and contract documents. Individual submissions will not be reviewed until all related information is available.

- .4 Contractor's responsibility for errors and omissions in submission is not relieved by the *Departmental Representative's* review of submissions.

- .5 Contractor's responsibility for deviations in submission from requirements in Contract documents is not relieved by *Departmental Representative's* review of submission, unless *Departmental Representative* gives written acceptance of specified deviations.

- .6 Notify the *Departmental Representative*, in writing at time of submission, of deviations from requirements of contract documents stating reasons for deviations.

- .7 After *Departmental Representative's* review, distribute copies.

1.7 Submission Requirements

- .1 Schedule submissions at least 14 days before dates reviewed submissions will be needed.

- .2 Submit number of opaque diazo copies of shop drawings, product data which Contractor requires for distribution, plus two (2) copies which will be retained by *Departmental Representative*.

- .3 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 submitted.
 - .5 Other pertinent data.

- .4 Submissions shall include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
 - .1 Contractor.
 - .2 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Separate details when pertinent.
- .4 Identification of product or material.
- .5 Relation to adjacent structure or materials.
- .6 Field dimensions, clearly identified as such.
- .7 Specification Section Number.
- .8 Applicable standards such as CSA or CGSB numbers.
- .9 Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with contract documents.

1.8 Shop Drawings Review

- .1 The review of shop drawings by the Departmental Representative or its authorized consultant, is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that the Departmental Representative approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents. Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.

1.9 Other Reviews

- .1 As for shop drawings above, other reviews are for the sole purpose of ascertaining the general concept.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

- .1 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.
- .2 Section 01 35 24 – Special Procedures on Fire Safety Requirements.
- .3 Section 01 35 25 – Special Procedures on Lockout Requirements.

1.2 Definitions

- .1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .2 Competent Person: means a person who is:
 - .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
 - .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
 - .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
- .4 PPE: personal protective equipment.
- .5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 Submittals

- .1 Make submittals in accordance with Section 01 33 00.
- .2 Submit site-specific Health and Safety Plan prior to commencement of Work.
 - .1 Submit within 10 work days of notification of Bid Acceptance. Allow for 5-10 days for Department review and recommendations prior to the commencement of work.

- .2 *Departmental Representative* will review Health and Safety Plan and provide comments.
- .3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.
- .4 *Departmental Representative's* review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
- .5 Submit revisions and updates made to the Plan during the course of Work.

- .3 Submit name of designated Health and Safety Site Representative and support documentation specified in the Safety Plan.
- .4 Submit building permit, compliance certificates and other permits obtained.
- .5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other Department of Labour organization.
 - .1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.
- .6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .7 Submit copies of incident reports.
- .8 Submit WHMIS MSDS - Material Safety Data Sheets.

- 1.4 Compliance Requirements
 - .1 Comply with Occupational Health and Safety Act for Province of Nova Scotia, and Regulations made pursuant to the Act.
 - .2 Comply with Canada Labour Code - Part II (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations as well as any other regulations made pursuant to the Act.
 - .1 The Canada Labour Code can be viewed at:
[www.http://laws-lois.justice.gc.ca/eng/acts/L-2/fulltext.html](http://laws-lois.justice.gc.ca/eng/acts/L-2/fulltext.html).

- .2 Canadian Occupational Health and Safety Regulations can be viewed at:<http://lawslois.justice.gc.ca/eng/regulations/SOR-86-304/index.html>.
 - .3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: 819-956-4800 or 1-800-635-7943 Publication No. L31-85/2000 (E or F).
 - .3 Treasury Board of Canada Secretariat (TBS):
 - .1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/poldoceng.aspx?id=17316§ion=text.
 - .4 Canadian Standards Association (CSA):
 - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
 - .5 Observe construction safety measures of:
 - .1 NBC 2015, Division B, Part 8.
 - .2 Municipal by-laws and ordinances.
 - .6 In case of conflict or discrepancy between above specified requirements, the more stringent shall apply.
 - .7 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter in Good Standing.
 - .8 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.
- 1.5 Responsibility
- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.
 - .2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to Work Site with safety requirements of Contract Documents, applicable federal, provincial, and local by-laws, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.6 Site Control and Access

- .1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.
 - .1 *Departmental Representative* will provide names of those persons authorized by *Departmental Representative* to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.
- .2 Isolate Work Site from other areas of the premises by use of appropriate means.
 - .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.
 - .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
 - .3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.
- .3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site.
- .4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.
- .5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm.

1.7 Protection

- .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take

measures to rectify situation and prevent damage or harm. Advise *Departmental Representative* verbally and in writing.

1.8 Filing of Notice

- .1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.
 - .1 *Departmental Representative* will assist in locating address if needed.

1.9 Permits

- .1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.
- .2 Where a particular permit or compliance certificate cannot be obtained, notify *Departmental Representative* in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 Hazard Assessments

- .1 Perform site specific health and safety hazard assessment of the Work and its site.
- .2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.
- .3 Record results and address in Health and Safety Plan.
- .4 Keep documentation on site for entire duration of the Work.

1.11 Project / Site Conditions

- .1 Existing site conditions include overhead power line and an active harbour facility.

1.12 Meetings

- .1 Attend pre-construction health and safety meeting, convened and chaired by *Departmental Representative*, prior to commencement of Work, at time, date and location determined by *Departmental Representative*. Ensure attendance of:
 - .1 Superintendent of Work.
 - .2 Designated Health & Safety Site Representative.
 - .3 Subcontractors.
- .2 Conduct regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.

1.13 Health and Safety Plan

- .3 Keep documents on site.
- .1 Prior to commencement of Work, develop written Health and Safety Plan specific to the Work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.
- .2 Health and Safety Plan shall include the following components:
 - .1 List of health risks and safety hazards identified by hazard assessment.
 - .2 Control measures used to mitigate risks and hazards identified.
 - .3 On-site Contingency and Emergency Response Plan as specified below.
 - .4 On-site Communication Plan as specified below.
 - .5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
 - .6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.
- .3 On-site Contingency and Emergency Response Plan shall include:
 - .1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.
 - .2 Emergency Contacts: name and telephone number of officials from:
 - .1 General Contractor and subcontractors.
 - .2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
 - .3 Local emergency resource organizations.
- .4 On-site Communication Plan:
 - .1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.

- .2 List of critical work activities to be communicated with Facility Manager which have a risk of endangering health and safety of Facility users.
 - .5 Address all activities of the Work including those of subcontractors.
 - .6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.
 - .7 *Departmental Representative* will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.
 - .8 Post copy of the Plan, and updates, prominently on Work Site
- 1.14 Safety Supervision
- .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
 - .2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
 - .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
 - .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
 - .3 Conduct site safety orientation session to persons granted access to Work Site.
 - .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
 - .5 Stop the Work as deemed necessary for reasons of health and safety.
 - .3 Health & Safety Site Representative must:
 - .1 Be qualified and competent person in occupational health and safety.
 - .2 Have site-related working experience specific to activities of the Work.
 - .3 Be on Work Site at all times during execution of the Work.

- .4 All supervisory personnel assigned to the Work shall also be competent persons.
- .5 Inspections:
 - .1 Conduct regularly scheduled safety inspections of the Work on a minimum bi-weekly basis. Record deficiencies and remedial action taken.
 - .2 Follow-up and ensure corrective measures are taken.
- .6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by *Departmental Representative*.
- .7 Keep inspection reports and supervision related documentation on site.

1.15 Training

- .1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.
- .2 Maintain employee records and evidence of training received. Make data available to *Departmental Representative* upon request.
- .3 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise *Departmental Representative* verbally and in writing.

1.16 Minimum Site
Safety Rules

- .1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:
 - .1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.
 - .2 Immediately report unsafe condition at site, near-miss accident, injury and damage.

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- .3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
 - .4 Obey warning signs and safety tags.
- .2 Brief persons of disciplinary protocols to be taken for noncompliance.
- 1.17 Correction Of Non Compliance
- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by *Departmental Representative*.
 - .2 Provide *Departmental Representative* with written report of action taken to correct non-compliance of health and safety issues identified.
 - .3 *Departmental Representative* will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.
- 1.18 Incident Reporting
- .1 Investigate and report the following incidents to *Departmental Representative*:
 - .1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
 - .2 Medical aid injuries.
 - .3 Property damage in excess of \$10,000.00,
 - .4 Interruptions to Facility operations resulting in an operational lost to a Federal department in excess of \$5,000.00.
 - .2 Submit report in writing.
- 1.19 Hazardous Products
- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
 - .2 Keep MSDS data sheets for all products delivered to site.
 - .1 Post on site.
 - .2 Submit copy to *Departmental Representative*.
- 1.20 Blasting
- .1 Blasting or other use of explosives is not permitted on site.
- 1.21 Powder Actuated
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- Devices .1 Use powder actuated fastening devices only after receipt of written permission from *Departmental Representative*.
- 1.22 Confined Spaces .1 Abide by occupational health and safety regulations regarding work in confined spaces.
- 1.23 Site Records .1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.
- .2 Upon request, make available to *Departmental Representative* or authorized Safety Officer for inspection.
- 1.24 Posting of Documents .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.
- .2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan.
.2 WHMIS data sheets.

END OF SECTION

PART 1 – GENERAL

1.1 References

- .1 Canada Shipping Act, Transport Canada, 2001, amended 2017-12-12.
- .2 Canadian Coast Guard Regulations, Fisheries and Oceans Canada.
- .3 Canadian Environmental Assessment Act, 2012, amended 2017-06-22.
- .4 Canadian Environmental Protection Act, 1999, amended on 2018-06-22.
- .5 Fisheries Act, 1985, Fisheries and Oceans Canada, amended 2016-04-05.
- .6 Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998.
- .7 Migratory Birds Convention Act, 1994, Environment Canada, amended 2017-12-12.
- .8 Navigation Protection Act, 1985. Transport Canada, amended 2017-06-22.
- .9 Nova Scotia – Environment Act, 1994-95, amended 2017
- .10 Species at Risk Act, 2002, amended 2018-05-30.
- .11 The Federal Policy on Wetland Conservation, 1991, Environment Canada.
- .12 Transportation of Dangerous Goods Act, 1992, Transport Canada, amended 2009-06-16.
- .13 Workplace Hazardous Materials Information System, Health Canada.

1.2 Definitions

- .1 Archaeological Resources: All tangible evidence of human activity that is of historical, cultural or scientific interest. (Examples can include features, structures, archaeological objects or remains)

- at or from an archaeological site, or an object recorded as an isolated archaeological find.)
- .2 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.
 - .3 Deleterious substance: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.
 - .4 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.
 - .5 Hazardous material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .6 Invasive or alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm.
 - .7 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.
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- .8 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.
- .9 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands," and mineral wetlands or mineral soil areas that are influenced by excess water but produce little or no peat.

1.3 Operation of Machinery

- .1 Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- .2 Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the water body.
- .3 Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.

1.4 Containment and Spill Management

- .1 Comply with Federal (CEPA *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and Provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on site.
- .2 Do not dump petroleum products or any other deleterious substances on ground or in the water.
- .3 Be diligent and take all necessary precautions to avoid spills and contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fueling and servicing of vehicles and equipment.
- .4 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit for containment and cleanup of spills.

- .5 Maintain vehicles and equipment in good working order to prevent leaks on site.
- .6 In the event of a petroleum spill, immediately notify the *Departmental Representative* and the Canadian Coast Guard (CCG) at 1-800-565-1633 (24 hour report line). Perform clean-up in accordance with all regulations and procedures stipulated by authority having jurisdiction.
- .7 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.
- .8 Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance.

1.5 Hazardous
Material Handling

- .1 Store and handle hazardous materials in accordance with applicable federal and provincial regulations, codes, standards and guidelines. Store in location that will prevent spillage into the environment.
- .2 Label containers to WHMIS requirements and keep MSDS data sheets on site for all hazardous materials.
- .3 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage.
- .4 Store and handle flammable and combustible materials in accordance with National Fire Code.

1.6 Disposal of Wastes

- .1 Do not bury rubbish, construction and demolition debris (i.e., concrete, creosote timbers, steel, impacted soil materials etc.) and waste materials on site. Remove construction materials/debris from site upon project completion.
- .2 Construction material and debris are not allowed to become waterborne.
- .3 No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of

- building or placing a work in a navigable water to remain in such water after the completion of the project.
- .4 All work(s) and associated equipment shall be removed from the waterway at Contractor's expense in the event the operation of the work(s) is terminated.
 - .5 Dispose and recycle construction and demolition debris and waste materials in accordance with Provincial Waste Management Regulations and the project waste management requirements specified in section 01 78 00 – Construction/Demolition Waste Management and Disposal.
 - .6 Do not dispose of hazardous waste, volatile materials (such as mineral spirits, paints, thinners etc.) and petroleum products into waterways, storm or sanitary sewers or in waste landfill sites.
 - .7 Dispose of hazardous waste in accordance with applicable federal and provincial, regulations, codes, standards and guidelines.
 - .8 Concrete waste:
 - .1 Do not discharge residual or rejected concrete on site.
 - .2 Immediately clean any accidental release of concrete on site prior to solidification.
 - .3 Do not wash and clean concrete vehicles on site.
 - .4 Perform dumping of residual material and truck cleaning operations only at the concrete plant. Follow environmental regulations and good practices as approved by the Provincial Department of the Environment and other authorities having jurisdiction.
 - .9 Removal of piles potentially containing creosote-treated timber:
 - .1 Remove any piles using a slow steady pull to minimize the disturbance of the substrate and avoid bringing contaminated sediments to the surface.
 - .2 A reasonable attempt should be made to remove entire pile. Depending on the sensitivity of the habitat at the site, if a pile breaks off it may not be advisable to dredge the remainder out.
 - .3 Remove spoil materials in a way that ensures sediment or debris does not enter the watercourse.
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1.7 Water Quality

- .1 Minimize duration of in-water work.
- .2 Conduct work in such a manner to limit turbidity and reduce sediment suspension in the water to an absolute minimum at all times.
 - .1 Maintain appropriate production speed and momentum of the excavation equipment. Make adjustments as required and as approved by *Departmental Representative*.
 - .2 Strategically position excavator equipment and haul vehicles to avoid over the water swings of excavated material whenever possible.
 - .3 Restrict the amount of material excavated to the work area.
 - .4 Avoid bottom stockpiling, dragging or side casting material during excavation.
- .3 Visual monitoring of the turbidity will be required in the vicinity of the project to ensure that the turbidity is limited. If excessive change occurs in the turbidity that differs from the existing conditions of the surrounding water body (i.e., distinct colour difference) as a result of the project activities, the work a *Departmental Representative* will be contacted to determine if additional mitigation measures are required.
- .4 Do not wash down equipment within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .5 Where required, install effective sediment control measures before starting work to prevent the entry or re-suspension of sediment in the water body. Inspect sediment control measures regularly to ensure they are functioning properly, and make all necessary repairs if any damage occurs. Upon completion of use and once site is stabilized, remove these control measures in a way that prevents the escape of settled sediment.
- .6 Stabilize waste material (e.g., excavated material, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby water bodies to prevent re-entry.
- .7 Water contamination by preservative treated wood:

- .1 Preservative treated lumber and timber, whether plant or site treated, shall be cured for a minimum of 30 days from date of the treatment application before their installation in areas which will be in contact with the water.
- .2 Do not cut treated wood lumber over the surface of a watercourse or wetland.
- .3 Do not use liquid applied preservative products over the surface of a watercourse or wetland.
- .4 Wood treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be CSA or American Wood Preserver Association (AWPA)
- .5 Do not use timber and lumber treated with creosote, petroleum and pentachlorophenol for any part of the work.

1.8 Blasting

- .1 Blasting will not be permitted on site.

1.9 Socioeconomic
Restrictions

- .1 Abide by municipal and provincial regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.
- .2 Place flood lights in opposite direction of adjacent residential and business areas.
- .3 Work equipment and machinery must be equipped with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.

1.10 Bird and Bird Habitat

- .1 Become knowledgeable with and abide by the Migratory Birds Convention Act (MBCA) in regards to the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.
- .2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.
- .3 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.

- .4 During night time work, position flood lights in opposite direction of nearby bird nesting habitat.
- .5 Do not use beaches, dunes and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the *Departmental Representative*.
- .6 Should nests of migratory birds in wetlands be encountered during work, immediately notify *Departmental Representative* for directives to be followed.
 - .1 Do not disturb nest site and neighboring vegetation until nesting is completed.
 - .2 Minimize work immediately adjacent to such areas until nesting is completed.
 - .3 Protect these areas by following recommendations of Canadian Wildlife Service.
- .7 Time work to protect birds, including their young and / or the organisms upon which they feed. Ensure loss or disturbance to terrestrial habitat is minimized and sensitive nesting habitats are avoided.

1.11 Fish Protection

- .1 Avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- .2 Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
- .3 Be aware of the risk for contamination of the fish habitat at the site as a result of alien species being introduced in the water.
- .4 To minimize the possibility of fish habitat contamination and the spread of aquatic invasive (alien species), all construction equipment which will be immersed into the water of a watercourse, or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and alien species.
 - .1 Equipment shall include boats, barges, cranes, excavators, haul trucks, pumps, pipe lines and other all miscellaneous

tools and equipment previously used in a marine environment.

- .5 Cleaning and washing of equipment shall be performed immediately upon their arrival at the site and before use in or over the body of water.
- .6 Conduct cleaning and washing operations as follows:
 - .1 Scrape and remove heavy accumulation of mud and dispose appropriately.
 - .2 Wash all surfaces of equipment by use of a pressurized fresh water supply.
 - .3 Immediately follow with application of a heavy sprayed coating of undiluted vinegar or other environmentally approved cleaning agent to thoroughly remove all plant matter, animals and sediments.
 - .4 Check and remove all plant, animal and sediment matter from the all bilges and filters.
 - .5 Drain standing water from equipment and let fully dry before use.
 - .6 Upon removal from the water, drain standing water from equipment and let fully dry before removal off the site.
- .7 Do not perform cleaning and washdown within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .8 Record of Assurance Logbook:
 - .1 Maintain an on-going log of past and present usage and washdowns of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species.
 - .2 Write data in a hard cover bound logbook to include the following:
 - .1 Date and location where equipment was previously used in a watercourse or wetland;
 - .2 Type of work performed.
 - .3 Dates of wash down for each piece of equipment;
 - .4 Cleaning method and cleaning agent(s) used.

- .9 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to *Departmental Representative* for review.
- .10 Time work in water to protect fish, including their eggs, juveniles, spawning adults and / or the organisms upon which they feed. Ensure loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.

1.12 Air Quality

- .1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.
- .2 Dust suppression by the application of water must be employed, when required. Apply dust control measures to roads, parking lots and work areas. The *Departmental Representative* shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil must not to be used for dust control under any circumstances.
- .3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.
- .4 Do not use oil or any other petroleum products for dust control.

1.13 Fires

- .1 Fires and burning of rubbish on site is not permitted.

1.14 Archaeological

- .1 All construction personnel are responsible for reporting any unusual materials unearthed during construction activities to the Construction Supervisor.
- .2 In those situations where the find is believed to be an archaeological resource:
 - .1 The Construction Supervisor will immediately stop work in the vicinity of the find and notify the PWGSC Project Manager.
 - .2 Work in the area will be stopped immediately and an archaeological curator at the Nova Scotia Department of

Communities, Culture and Heritage – Nova Scotia Museum will be contacted at 902-424-7344.

- .3 Work can only resume in the vicinity of the find when authorized by the PWGSC Project Manager and Construction Supervisor, after approval has been granted by the Nova Scotia Department of Communities, Culture and Heritage.

- .3 In the event of the discovery of human remains or evidence of burials, the excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the PWGSC Project Manager and/or the Construction Supervisor.

END OF SECTION

PART 1 – GENERAL

1.1 Access

- .1 Provide and maintain adequate access to project site.
- .2 If authorized to use existing roads or structures for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.
- .3 The Contractor is to maintain full access to the work site. Should a court injunction be required ordering a person or group to refrain from impeding access to the site, such as a demonstration, picketing or union action, then obtaining the injunction and any associated costs will be considered incidental to this Contract. Any delays associated with such activity will be considered incidental to this Contract.

1.2 Contractor's
Site Office

- .1 Establish on the site of the work and keep open at all times during the execution of the work an office where all letters, orders, notices and other communications may be received or acknowledged either by the Contractor or his authorized agent or representative. Provide a telephone in the office.
- .2 Keep one up-to-date copy of contract documents, bulletins and other materials as specified under Section 01 10 10.

1.3 Departmental
Representative's
Site Office

- .1 Provide temporary office for sole use of *Departmental Representative*, complete with heat and lights. Insulated office required during October to May. Locate on or adjacent to site.
- .2 Inside dimensions minimum 5 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with 4-50% opening windows and one lockable door.
- .3 Arrange and pay for telephone, computer with internet service, and printer installation and service in *Departmental Representative's* office for the *Departmental Representative's* exclusive use. Long distance calls placed on this phone by the *Departmental Representative* will be paid for by *Departmental Representative*.

- .4 Washroom facilities not required in the office. Provide outside sanitary facilities to approval.
- .5 Equip office with six chairs, flat 1200 X 2400 X 25 mm table with writing surface and 4 drawer lockable filing cabinet.
- .6 Maintain in clean condition.

1.4 Storage Sheds

- .1 Provide adequate weather tight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
- .2 Contractor to make his own arrangements for on-site storage areas.

1.5 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.

1.6 Parking

- .1 Contractor to make own arrangements to provide parking space for work force.

1.7 Power

- .1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.
- .2 Install temporary facilities for power such as pole lines and cables to approval of local power supply authority

1.8 Water Supply

- .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

1.9 Barricades

- .1 Provide and maintain sufficient barricades, fencing, notices, warning signs, light signals, etc. for the protection of adjoining property and to warn others and workmen engaged on the job of the dangers caused by the work.

- .2 Types and location of barricades, etc. to be in accordance with local regulations and to the satisfaction of *Departmental Representative*.
 - .3 The presence of such barricades, lights, etc. shall not relieve the Contractor of the responsibility for any damages.
- 1.10 Security
- .1 Contractor to make his own arrangements for security of his equipment, materials, damages resulting from fire and theft.
- 1.11 Site Signs and Notices
- .1 Only Project Identification and Consultant/ Contractor signboards and notices for safety or instruction are permitted on site.
 - .2 Format, location and quantity of site signs and notices to be accepted by *Departmental Representative*.
 - .3 Signs and notices for safety or instruction to be in English and French languages, or commonly understood graphic symbols.
- 1.12 Removal of Temporary Facilities
- .1 Remove temporary facilities from site when directed by *Departmental Representative*.
 - .2 When project is closed down for a period of time, keep temporary facilities operational until no longer required by *Departmental Representative*.

END OF SECTION

PART 1 – GENERAL

1.1 General

- .1 Use new material and equipment unless otherwise specified.
- .2 Submit following information for any or all materials and products proposed for supply within seven (7) days of request by *Departmental Representative*:
 - .1 name and address of manufacturer
 - .2 trade name, model and catalogue number
 - .3 performance, descriptive and test data
 - .4 manufacturer's installation or application instructions
 - .5 evidence of arrangements to procure.
- .3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- .4 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

1.2 Manufacturer's Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify *Departmental Representative* in writing of any conflict between these specifications and manufacturers' instructions. *Departmental Representative* will designate which document is to be followed.

1.3 Fastenings – General

- .1 All fastenings are to be the sizes indicated on the contract plans and are to be hot dipped galvanized to ASTM A123 unless otherwise noted.

1.4 Delivery and Storage

- .1 Deliver, store and maintain packaged material and equipment with manufacturer's seal and labels intact.
- .2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
- .3 Store material and equipment in accordance with supplier's instructions.

1.5 Conformance

- .1 When material or equipment is specified by standard or performance specifications, upon request of *Departmental Representative*, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

1.6 Substitution

- .1 Proposals for substitution may be submitted only after award of Contract. Such requests must include statements of respective costs of items originally specified and proposed substitutions.
- .2 Proposals will be considered by *Departmental Representative* if:
 - .1 Products selected by tenderer from those specified, are not available, or
 - .2 Delivery date of products from those specified would unduly delay completion of Contract, or
 - .3 Alternative products to those specified, which are brought to attention of, and considered by *Departmental Representative* as equivalent to those specified and will result in a credit to Contract amount.
- .3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.
- .4 Amounts of all credits arising from approval of substitutions will be determined by *Departmental Representative* and Contract price will be reduced accordingly. No substitutions will be permitted without prior written approval of *Departmental Representative*.
- .5 *Departmental Representative* reserves the right for acceptance or rejection of substitution of materials.

1.7 Construction
Equipment and Plant

- .1 On request, prove to the satisfaction of *Departmental Representative* that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.

- .2 Maintain construction equipment and plant in good operating order.
- .3 Contractor shall submit construction methodology and, if requested, provide a stamped letter from a professional engineer registered in Nova Scotia confirming the proposed construction equipment is within the design capacity of all structures that will be loaded by such construction equipment.

1.8 Damaged and Rejected Materials

- .1 Immediately replace, repair or otherwise make good any material damaged, broken or defaced during construction to the satisfaction of *Departmental Representative*.
- .2 Remove rejected materials from site.

END OF SECTION

PART 1 – GENERAL

1.1 Record
Drawings

- .1 Departmental Representative will provide two (2) sets of white prints for record drawing purposes.
- .2 Maintain project record drawings and accurately record deviations from contract documents caused by site conditions and changes ordered by *Departmental Representative*.
- .3 Mark changes in red coloured ink.
- .4 Record following information:
 - .1 Elevations of various elements in relation to Chart Datum.
 - .2 Field changes in dimensions and details.
 - .3 Changes made by Change Order.
- .5 At completion of project and prior to final inspection, neatly transfer notations to second set and submit both sets to Departmental Representative.

END OF SECTION

PART 1 – GENERAL

1.1 General

- .1 Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
- .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .3 Prevent accumulation of waste which creates hazardous conditions.

1.2 Cleaning During Construction

- .1 Maintain the work, at least on a daily basis free from accumulations of waste material and debris.
- .2 Provide on-site containers for collection of waste materials, and debris.
- .3 Remove waste materials, and debris from site.
- .4 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces.

1.3 Final Cleaning

- .1 In preparation for acceptance of the project on an interim or final certificate of completion perform final cleaning.
- .2 Remove grease, dust, dirt, stains, and other foreign materials, from exterior finished surfaces.

END OF SECTION

PART 1 – GENERAL

1.1 Definitions

- .1 Demolition Waste Audit (DWA): Relates to actual waste generated from project.
- .2 Materials Source Separation Program (MSSP): Consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .3 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.
- .4 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .5 Recycling: Process of sorting, cleaning, 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.
- .6 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from remodeling projects before demolition stage for resale, reuse on current project or as storage for use on a future project.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .7 Salvage: Removal of structural and non-structural materials from deconstruction and disassembly projects for the purpose of reuse or recycling.
- .8 Separate Condition: Refers to waste sorted into individual types.
- .9 Source Separation: Acts of keeping different types of waste materials separate beginning from first time they became waste.

1.2 Materials Source
Separation Program
(MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Authorities Having Jurisdiction.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition and transport to recycling facility.

1.3 Storage, Handling
and Protection

- .1 Surplus ladders shall be delivered to Small Craft Harbour compound in Anitgonish for storage. Arrange with Departmental Representative.
- .1 Unless specified otherwise, materials for removal become the Contractor's property.
- .2 Protect, stockpile, store and catalogue salvaged items.
- .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to approved local facility.
- .4 Protect structural components not removed for demolition from movement or damage.
- .5 Support affected structures. If safety of facility is endangered, cease operations and immediately notify the *Departmental Representative* and Authorities Having Jurisdiction.

- .6 Protect surface drainage, mechanical and electrical from damage and blockage.
- .7 Separate and store materials produced during dismantling of structures in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities. On-site source separation is recommended.

1.4 Disposal of Wastes

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of any waste into waterways, storm or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.5 Use of Site and Facilities

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Provide security measures which are to be approved by *Departmental Representative*.

1.6 Scheduling

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

PART 2 – PRODUCTS

Not applicable

PART 3 – EXECUTION

3.1 Application

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

3.2 Cleaning

- .1 remove tools and waste materials at 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 or recycled into specified sort areas.

3.3 Diversion of
Materials

- .1 Separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by *Departmental Representative* and consistent with applicable fire regulations and as follows, at a minimum:
 - 1. Mark containers or stockpile areas.
 - 2. Provide instruction on disposal practices.
- .2 On-site sale or distribution of salvaged materials to third parties will not be permitted.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

- .1 Refer to other Specification Sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.

1.2 Submittals

- .1 Make submittals in accordance with Section 01 33 00.
- .2 Defective products shall be rejected, regardless of previous inspections. Replace products at Contractor's expense.

1.3 Final Cleaning

- .1 In preparation for acceptance of the project on an interim or final certificate of completion, perform final cleaning.
- .2 Remove grease, dust, dirt, stains and other foreign materials from finished surfaces.

1.4 As-Builts
and Samples

- .1 Maintain, in addition to requirements in General Conditions, at site for *Departmental Representative*, at least one record copy of:
 - .1 Contract Drawings;
 - .2 Specifications;
 - .3 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 numbers used in this Specification Document. 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 viewing and inspection by *Departmental Representative*.

- 1.5 Recording Actual Site Conditions
 - .1 Record information on set of as built drawings and supply to the Departmental Representative.
 - .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 On Contract Drawings and shop drawings mark each item to record actual construction including, at a minimum:
 - .1 Measured depths of pile tips and driving records.
 - .2 Field changes of dimension and detail.
 - .3 Changes made by change orders.
 - .4 Details not on the original Contract Drawings.
 - .5 References to related shop drawings and modifications.
 - .6 Other pertinent information as specified or indicated.
 - .5 Specifications: Mark each item to record actual construction including, at a minimum:
 - .1 Manufacturer, trade name and catalogue number of each product actually installed, particularly optional items and substituted items.
 - .2 Changes made by Addenda and Change Orders.
 - .6 Other Documents: Maintain manufacturer's certifications and field test records required by individual specification sections.

- 1.6 Final Survey
 - .1 Submit final site survey certificate in accordance with Section 01 71 00 certifying that elevations and locations of completed Work are in conformance, or where not in conformance, with Contract Documents.

END OF SECTION

PART 1 – GENERAL

1.1 Reference Standards

- .1 ASTM A123/A123M-17, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .2 ASTM A307-14e1, Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- .3 CSA G40.20-13 / G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.
- .4 CSA S16-14, Design of Steel Structures.
- .5 CSA W59-18, Welded Steel Construction.
- .6 ASTM A722/A722M-18 – Standard Specification for High-Strength Steel Bars for Prestressed Concrete.
- .7 ASTM A1011/A1011M-18a, Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

1.2 Related Work

- .1 Refer to other Specification Sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawings/ Submissions requirements.

1.3 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Shop Drawings:
 - .1 Clearly indicate the following items:
 - .1 General arrangements, dimensions, clearance locations and directions of assemblies as installed on structures.
 - .2 Locations, sizes and installation tolerances of anchor bolts, eye bolts and embedded parts.
 - .3 Types of materials used, finishes and core thickness.
 - .4 All other pertinent details and accessories.
- .3 Test Results:

.1 Provide test results for the galvanized items.

.4 Submissions

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

PART 2 – PRODUCTS

2.1 Materials

.1 Steel Sections: to CSA G40.21, Grade 350W.

.2 Steel rod, plate and angles: to CSA G40.21, Grade 300W.

.3 Pile shoes: fabricated from steel plate minimum 6 mm thickness. Steel plate to CSA G40.21, Grade 300 W. Welding to CSA W59. No galvanizing required.

.4 Machine bolts, drift bolts, nuts , round plate washers: to ASTM A307

.5 Welding materials: to CSA W59.

.6 Bolts and anchor bolts: to ASTM A307.

.7 Galvanizing: hot dipped galvanizing with zinc coating 610 g/m² to ASTM A123.

.8 All hardware galvanized unless otherwise shown on plans.

.9 Zinc primer: Zinc rich, ready mix to ASTM 123.

.10 Do not use items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties.

.11 Adhesive Anchors: high strength epoxy to ASTM C881, Type IV, Grade 3. Acceptable material: Epcon Ceramic 6, Hilti HIT HY-200 or approved equal.

2.2 Fabrication

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

.2 Fabricate items from steel unless otherwise noted.

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

- .4 Ensure exposed welds are continuous for length.
- 2.3 Miscellaneous
Metal Work Items
 - .1 Miscellaneous anchors, bolts and inserts:
 - .1 Where size, spacing and the like are not indicated, provide as necessary for the purpose.
 - .2 Galvanize all miscellaneous anchors, bolts and inserts.
 - .2 Miscellaneous Steel:
 - .1 Provide miscellaneous steel as required for guide units and the like to shape, size and details required.
 - .2 Galvanize all miscellaneous steel items.

PART 3 – EXECUTION

- 3.1 Erection
 - .1 Install metalwork square, plumb, straight and true, accurately fitted, with tight joints and intersections.
 - .2 Make field connections with bolts to CSA S16, or weld.
 - .3 Touch-up bolts and scratched surfaces after completion of erection with zinc primer.
- 3.2 Adhesive Anchors
 - .1 Install adhesive anchors in strict accordance with manufacturer's recommendations.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

- .1 Refer to other Specification Sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawing/Submissions requirements.

1.2 Reference Standards

- .1 ASTM A307-14, Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- .2 CAN/CSA O80 Series-15, Wood Preservation.
- .3 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .4 Copper naphthenate containing 2% copper for Brush or Spray Treatment for Field Cuts.
- .5 CSA O86-14, Engineering Design in Wood.
- .6 NLGA standard grading rules for Canadian Lumber 1980 edition or most recent at time of tendering.
- .7 ASTM D4637 / D4637M-15, EPDM Sheet Used in Single-Ply Roof Membrane.

1.3 Submissions

- .1 At least two (2) weeks prior to finalizing timber order, submit drawings, clearly indicating installation details.
- .2 Submit methodology for field treatment.
- .3 Provide submissions in accordance with Section 01 33 00.

1.4 Measurement For Payment

- .1 Timber will be measured in accordance with Section 01 29 00.

PART 2 – PRODUCTS

2.1 Materials

- .1 Softwood Timber: Graded and stamped to National Lumber Grading Authority (NLGA) No. 1 Structural, Eastern Hemlock, Western Hemlock or Douglas Fir Species only will be used.

- .2 Hardwood Timber: Sound merchantable grade yellow birch, hard maple, red or white oak conforming to grading rules approved by the National Hardwood Lumber Association.
- .3 Timber Treatment:
 - .1 Preservative treatment to CSA O80 Series-15 for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are to be taken as 1.5 times the indicated gauge retention.
 - .2 Make arrangements for testing of timber by:
 - .1 Plant Inspection: Provide treatment plant identification, date of treatment, list of various pieces in the charge, charge number, plant assay testing results, concentration and type of preservative used, duration of treatment, gauge retention, species of wood; and make arrangements with the treatment plant to locate bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.
 - .2 Filling in and submitting a preprinted form, agreed to by the *Departmental Representative*, containing the above information.
- .4 Miscellaneous Hardware: Hardware must meet the following specifications:
 - .1 Machine bolts, lag bolts, drift bolts, anchor bolts, nuts, round plate washers: to ASTM A307.
 - .2 Hot dip galvanized hardware, bolts, nuts, washers and spikes to ASTM A123, with minimum zinc coating of 600 g/m².
 - .3 All hardware will be galvanized unless otherwise shown on plans.

PART 3 – EXECUTION

3.1 General

- .1 Supply and install dimension timbers to details shown on drawings or as specified. Treated timber to be supplied in pre-cut lengths to suit. Install lag bolts in sound existing timber.
- .2 Boreholes for drift bolts to be 1.5mm smaller in diameter than bolt and for full length of bolt. Boreholes for machine bolts to be same

diameter as bolts. Boreholes for lag bolts to be same diameter as shank for unthreaded portion and 0.70 times the shank diameter for the threaded portion. Threaded portion of lag bolts will be installed using a wrench, not by driving.

- .3 All countersunk holes to be recessed 25 mm and shall receive two coats of Copper naphthenate, allowing sufficient time between applications to permit total absorption. The cost of supply and application of Copper naphthenate will not be measured for payment but will be considered incidental to the work.

3.2 Handling Timber

- .1 Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.
- .2 Tops of vertical untreated timber to be field treated with minimum two liberal coats of Copper naphthenate.

3.3 Handling Treated Timber

- .1 Handle treated material to avoid damage causing alteration in original treatment.
- .2 Treat in field, spike holes, boreholes, plugged holes, cuts and any damage to treated material, using Copper naphthenate, as specified herein, regardless of plant treatment type. Fill all unused bored holes and any other holes with tight fitting treated wooden plugs prior to any exposure to water containing marine borers.
- .3 Provide methology pertaining to heating and application. Apply to dry surfaces wherever possible.
- .4 Treat boreholes, using a pressurized container with an extension rod, to produce a fine spray in the holes with one application. Alternately a cylindrical brush may be used.
- .5 Treat field cuts and any abrasions with minimum of two (2) liberal applications of approved preservative, using either spray or brush.
- .6 In addition, field cuts and underwater damaged areas will receive a coating of plastic compound, capped with lead flashing secured with galvanized roofing nails. Plastic compound not to be water soluble and is subject to approval.

- .7 Environmental Concern: Ensure no spillage or excess application of field preservative. Provide workmen with sufficient training and protective gear to properly and safely handle the treated materials and to apply field treatment, so as to prevent undue hazard to themselves, others, or the environment.

- .8 Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

- .1 Refer to other Specifications Sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawing/Submissions requirements.
- .3 Section 31 61 13 – Pile Foundations – General.
- .4 Section 31 62 18 – Steel H-Piles.
- .5 Section 31 62 19 – Wood Piles.

1.2 References

- .1 ASTM A252-10(2018), Standard Specification for Welded and Seamless Steel Pipe Piles.
- .2 ASTM A307-14e1, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- .3 ASTM F3125 / F3125M-15a, Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- .4 CAN/CSA G40.20-13 / G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.
- .5 CAN/CSA-S16-14, Design of Steel Structures.
- .6 CAN/CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel.
- .7 CAN/CSA W59-18, Welded Steel Construction.
- .8 CAN/CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.

1.3 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 33 00 - Submissions/Shop Drawing.
- .2 Indicate the following items:
 - .1 Material

-
- .2 Anchorage, field control and alignment methods
 - .3 Design parameters
 - .4 Tolerance for driving pile
 - .5 Removable members
 - .6 Alternatives
- 1.4 Design Criteria
- .1 Design templates to safely withstand following loads:
 - .1 All gravity loads to which template shall be subjected.
 - .2 Lateral loads to firmly hold pile in position when driving.
 - .3 All weather-related loads that may be applied during driving activities.
- 1.5 Protection
- .1 Protect templates from damage. Repair damage to templates, formwork or concrete arising from operations to satisfaction of *Departmental Representative* at no extra cost.
- 1.6 Measurement For Payment
- .1 No measurement will be made under this section. Include costs in items of work that require templates.
- PART 2 – PRODUCTS
- 2.1 Materials
- .1 Steel sections and plates: to CAN/CSA-G40.20 and CAN/CSA-G40.21, Type 350W.
 - .2 Welding Materials: to CSA W59.
 - .3 Bolts, nuts and washers: to ASTM A307 or ASTM F3125.
- PART 3 – EXECUTION
- 3.1 Fabrication
- .1 Fabricate structural steel for templates in accordance with CAN/CSA-S16 and reviewed shop drawings.
 - .2 Welding in accordance with CSA W59.
 - .3 Welding companies shall be qualified under provisions of CSA W47.1.
- 3.2 Positioning
- .1 Install pile template prior to the driving of timber fender piles.
-

3.4 Removal of
Templates

- .1 Avoid any damage to piling when removing templates.
- .2 When instructed by *Departmental Representative* remove templates from project site.

END OF SECTION

PART 1 – GENERAL

1.1 Related Work

- .1 Refer to other specification sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawing/Submission requirements.

1.2 Submissions

- .1 Methodology:
 - .1 When requested provide methodology for carrying out the work
- .2 Provide submission in accordance with Section 01 33 00.

1.3 Protection

- .1 Prevent movement, settlement or damage of adjacent structures. Provided bracing and shoring as required. In event of damage, immediately replace such items or make repairs to approval of *Departmental Representative* and at no additional cost to *Departmental Representative*.
- .2 Prevent debris from going adrift and becoming a menace to navigation.
- .3 All damage to existing structures, roadways, pipelines, electrical systems not specified for removal to be repaired at the Contractor's cost to the satisfaction of the *Departmental Representative*.

1.4 Measurement
For Payment

- .1 Sitework, demolition and removals will be measured in accordance with Section 01 29 00.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

3.1 Preparation

- .1 Inspect site and verify with *Departmental Representative* items designated for removal and items to be preserved.
- .2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

- .3 Provide temporary power and lighting as shown on the plan or as required by the *Departmental Representative*.
- .4 Existing fill and vent pipes, oil waste tanks and underground storage tanks to be protected from any damages. All repairs to damages as a result of Contractor's operations to be at his cost and to the satisfaction of the *Departmental Representative*.

3.2 Removal

- .1 Remove items indicated.
- .2 Do not disturb adjacent structures designated to remain in place.
- .3 At end of each day's work, leave work in safe condition so no part is in danger of toppling or falling.

3.3 Disposal of Material

- .1 Disposal of materials not designated for salvage or re-use in work, will be the contractor's responsibility, and must be disposed of off-site.
- .2 The material to be disposed is to be transported and disposed of in an environmentally acceptable manner to the satisfaction of the Departmental Representative, and in accordance with any local, Municipal, Provincial and Federal restrictions and regulations.

3.4 Restoration

- .1 Upon completion of work, remove debris, trim surfaces and leave work site clean.
- .2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work. Match condition of adjacent, undisturbed areas.

END OF SECTION

PART 1 - GENERAL

1.1 Related Work

- .1 Refer to other Specification Section for related information.
- .2 Refer to Section 01 33 00 for Shop Drawings/Submissions requirements.
- .3 Section 31 09 18 – Pile Driving Templates.
- .4 Section 31 62 19 – Wood Piles.

1.2 Submissions

- .1 Methodology:
 - .1 Provide methodology including type of pile driving equipment to carry out the work.
 - .2 Provide submissions in accordance with Section 01 33 00.

1.3 Protection

- .1 Protect public and construction personnel, adjacent structures and work of other sections from hazards attributed to pile driving operations or any other operations.

1.4 Scheduling of Work

- .1 Submit schedule of planned sequence of pile driving to *Departmental Representative* for review, not less than 2 weeks prior to commencement of pile driving for structure.

1.5 Delivery, Storage
And Handling

- .1 Protect piles from damage due to excessive bending stresses impact, abrasion or other damages during storage and handling.
- .2 Replace damaged piles to the satisfaction of the *Departmental Representative*.

PART 2 – PRODUCTS

2.1 Materials

- .1 Supply full length timber piles as indicated in accordance with Section 31 62 19 – Wood Piles.
- .2 Provide equipment of sufficient capacity to handle full length piles without cutting and splicing.
- .4 Pile lengths indicated are based on lengths estimated to remain in completed structure.

PART 3 – EXECUTION

3.1 Equipment Requirements

- .1 Equipment information: prior to commencement of pile installation operation, submit to *Departmental Representative* for review, details of equipment for installation of piles.

3.2 Preparation

- .1 Ensure that conditions at pile locations are adequate to support pile driving operation. Make provision for access and support of piling equipment during performance of work.

3.3 Field Measurement

- .1 Maintain accurate records of driving for each pile, including:
 - .1 Type and make of hammer, stroke or related energy.
 - .2 Other driving equipment including water jet, driving cap, cushion.
 - .3 Pile size, length and location.
 - .4 Sequence of driving piles.
 - .5 Final tip and cut-off elevations.
 - .6 Other pertinent information such as interruption of continuous driving, pile damage.
 - .7 Record elevation taken on adjacent piles during driving of each pile.
- .2 Provide *Departmental Representative* with three copies of records.

3.4 Driving

- .1 Use driving caps to protect piles. Reinforce pile heads if necessary. Piles with damaged heads as determined by *Departmental Representative* will be rejected.
- .2 Use steel driving shoes to protect pile toes during driving to the approval of the *Departmental Representative*.
- .3 Hold piles securely and accurately in position while driving.
- .4 Deliver hammer blows in direct axis of pile.
- .5 Reinforce pile heads if necessary.
- .6 Redrive piles lifted during driving of adjacent piles.
- .7 Remove cut-off lengths from site on completion of work.

- .8 Installation of each pile will be subject to acceptance by *Departmental Representative*. *Departmental Representative* will be sole judge of acceptability of each pile with respect to final driving resistance and depth of penetration. *Departmental Representative* to accept final driving of all piles prior to removal of pile driving rig from site.
- .9 Shape bottom of timber pile so that shoe will have full bearing on pile prior to driving. Install pile shoes using spikes.
- .10 Wood fender piles have to be driven to competent soil to develop the required lateral resistance. The required driving resistance is 4 blows for the last 25mm of pile penetration.

3.5 Driving Tolerances

- .1 Pile heads to be within 10 mm of locations indicated.
- .2 Piles not to be more than 1% of length out of alignment.

3.6 Obstructions

- .1 Where obstruction is encountered that causes sudden and unexpected change in penetration resistance or deviation from specified tolerances, advise *Department Representative* and submit for their review the Contractor's proposed method(s) for achieving specified penetrations and tolerances. Incorporate review comments in the proposed method(s) and proceed with the work.

3.7 Damaged or Defective Piles

- .1 Remove rejected pile and replace with a new, and if necessary, a longer pile.
- .2 No extra compensation will be made for removing and replacing or other work made necessary through rejection of a defective pile.

3.8 Penetration

- .1 Protect adjacent structures, services and work of other section from hazards due to pile driving operations.
- .2 Arrange sequencing of pile driving operations and methods such that no damage occurs to adjacent existing structures. If damaged, remedy damaged items to original or better condition at Contractor's expense and to the satisfaction of the *Departmental Representative*.

END OF SECTION

PART 1 - GENERAL

1.1 Related Work

- .1 Refer to other Specification Sections for related information.
- .2 Refer to Section 01 33 00 for Shop Drawing/Submission requirements.
- .3 Section 31 09 18 – Pile Driving Templates.
- .4 Section 31 61 13 – Pile Foundations – General.

1.2 Reference Standards

- .1 CAN/CSA O80 Series-15, Wood Preservation.
- .2 NLGA standard grading rules for Canadian Lumber 1980 edition or most recent edition at time of tendering.
- .3 ASTM A123/A123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .4 ASTM A307-14, Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 psi Tensile Strength.
- .5 CSA O56-10 (R2015), Round Wood Piles.
- .6 CSA G40.21-13, Structural Quality Steel.
- .7 CSA W59-18, Welded Steel Construction.

1.3 Submissions

- .1 At least two (2) weeks prior to finalizing timber order, submit a schedule of pile lengths for review.
- .2 Submit methodology for field treatment.
- .3 Provide submissions in accordance with Section 01 33 00.

1.4 Protection

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Avoid breaking surfaces of treated piles.
- .3 Do not damage surfaces of treated piles below cut-off elevation by boring holes or driving nails or spikes into them to support temporary material or staging. Support staging in rope slings

carried over tops of piles or by attaching to pile clamps of approved design.

.4 Treat cuts, breaks or abrasions on surfaces of treated piles, bolt holes and field cuts in accordance with CSA O80 using field applied preservative.

1.5 Inspection

.1 All timber piles to be inspected and accepted by *Departmental Representative* prior to being incorporated in the work.

1.6 Measurement
For Payment

- .1 Consider shoes and cap plates incidental to installation of piles.
- .2 Supply of timber fender piles will be measured in accordance with Section 01 29 00.
- .3 Installation of timber fender piles will be measured in accordance with Section 01 29 00.
- .4 Mobilization of equipment will be considered incidental to installation of piles.
- .5 *Departmental Representative* will establish actual number and lengths of piles installed from driving records.
- .6 Adjustments in contract price due to changes in number and lengths of piles will be based on unit prices established in Contract.

PART 2 - PRODUCTS

2.1 Materials

- .1 Round Wood Piles:
 - .1 Fender Piles: Red pine, with minimum butt size of 300mm and tip diameter in accordance with Table A-1 CAN/CSA-O56. *Departmental Representative* shall be sole judge as to quality and dimension of piles or equal to CAN/CSA-O56 and shall give final acceptance of piles when delivered to site.
- .2 Timber Treatment:
 - .1 Preservative treatment to CSA O80 Series for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are to be taken as 1.5 times the

indicated gauge retention. Creosote preservative will not be permitted for fender piles.

- .2 Make arrangements for timber testing by:
 - .1 Plant Inspection: Provide treatment plant identification, date of treatment, list of various pieces in the charge, charge number, plant assay testing results, concentration and type of preservative used, duration of treatment, gauge retention, species of wood; and make arrangements with the treatment plant to locate bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.
 - .2 Field Inspection: Providing same information as above and facilitating the inspection in the field.
 - .3 Filling in and submitting a preprinted form, agreed to by the *Departmental Representative*, containing the above information.
- .3 The *Departmental Representative* may test in the plant or in the field or may choose to not test some charges at either the plant or the field.
- .4 Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.
- .5 Field treatment: same as pile preservative.

.3 Miscellaneous Hardware: Refer to specification section 05 50 00.

2.2 Wood Preservation

- .1 Wood piles are to be treated with wood preservative treatment as specified.

PART 3 - EXECUTION

3.1 Handling Timber

- .1 Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.

3.2 Handling Treated Timber

- .1 Handle treated material to avoid damage causing alteration in original treatment.

- .2 Treat in field, spike holes, boreholes, plugged holes, cuts and any damage to treated material, using preservative, as specified herein, regardless of plant treatment type.
- .3 Treat boreholes, using a pressurized container with an extension rod, to produce a fine spray in the holes with one application. Alternately a cylindrical brush may be used.
- .4 Treat field cuts and any abrasions with minimum of two liberal applications, using either spray or brush.
- .5 In addition, field cuts and underwater damaged areas will receive a coating of plastic compound, capped with lead flashing secured with galvanized roofing nails. Plastic compound not to be water soluble and is subject to approval.
- .6 Environmental Concern: Ensure no spillage or excess application of field preservative. Provide workmen with sufficient training and protective gear to properly and safely handle the treated materials and to apply field treatment, so as to prevent undue hazard to themselves, others, or the environment.
- .7 Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.

3.3 Preparation

- .1 Protect pile heads during driving and hold in position by using a combination cushion-driving head and pilot. Closely fit driving heads to top of pile, and extend down sides of pile for at least 75 mm. Where necessary protect pile heads by means of heavy steel straps of wrought iron rings.

- .2 Equip piles with metal shoes.

3.4 Installation

- .1 Install piles in accordance with Section 31 61 13 – Pile Foundations – General.

- .2 Install pile driving template angle prior to installation of timber fender piles as shown on the drawings.

- .3 Certified diver to be on site during installation of timber fender piles to ensure toe of pile is aligned properly prior to driving of piles.
- .4 During driving restrain lateral movement of piling at intervals not exceeding 6 m over length between ground surface and driving head.
- .5 Cut off fender piles giving a bevel of 4H:1V.
- .6 Treat tops of cut off bearing and batter piles with two liberal coats of copper naphthenate and a minimum 13 mm of tar roofing felt, folded over sides of pile and securely fastened. Saturate felt with copper naphthenate preservative and cover with 20 gauge or thicker galvanized metal or aluminium sheet, completely covering felt. Apply this procedure regardless of type of preservative used for initial treatment of pile. This procedure is not required for tops encased in concrete.

END OF SECTION
