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Small Craft Harbours Branch

Technical Specifications

RUSHBROOK AND FAIRVIEW HARBOUR

HEAVY MARINE REPAIR WORK

PRINCE RUPERT, BC

June 2020

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END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.

2 DEFINITIONS

- .1 Throughout contract documents, the words "Sites," "Contracting Authority," "Owner," "Engineer/Departmental Representative," "Contractor," "Department," or "Harbour Authority," shall be defined as follows:

- .1 Sites

"Sites" referred to herein are Rushbrook Small Craft Harbour, 181 George Hills Rd, Prince Rupert, BC Canada and Fairview Small Craft Harbour, Foot of Park Ave Prince Rupert, British Columbia, V8J 1R3, Canada.

- .2 Contracting Authority

"Contracting Authority" referred to herein is Public Services and Procurement Canada (PSPC).

- .3 Owner

"Owner" referred to herein is the Department of Fisheries and Oceans Canada – Small Craft Harbours, Suite 200-401 Burrard Street, Vancouver, BC V6C 3S4.

- .4 Engineer/Departmental Representative

"Engineer/Departmental Representative" referred to herein is commonly an employee of the Owner assigned by the Owner as the Engineer and Technical Authority for the project. The Engineer may be a sub-contract Engineer for technical and inspection purposes and the Technical Authority must still be an employee of the Owner.

- .5 Contractor

"Contractor" referred to herein is the party accepted by the Owner, with whom a formal contract is signed, to complete the work of this project.

- .6 Department

The Department of Fisheries and Oceans, Canada.

- .7 Harbour Authority (HA)

Port Edward Harbour Authority, 200 Bayview Dr., Port Edward, BC V0V 1G0.

3 SITE LOCATIONS

- .1 Fairview and Rushbrook Small Craft Harbours (the Project Sites) are located in Prince Rupert, British Columbia.
- .2 Project Site addresses are referenced in Summary of Work Section 2.1.1.

4 TIMING REQUIREMENTS

- .1 All off-site work may commence **immediately upon contract award.**
- .2 No mobilization of crew or equipment to project site before September 9th, 2020.

- .3 All Mandatory Work Items including clean-up and demobilization must be completed by **December 20th, 2020.**
- .4 The Contractor is expected to be familiar with the site including current and historical weather conditions and is to make allowances as necessary in order to complete the work as specified during the indicated work dates.

5 WORK INCLUDED

- .1 The work under this contract shall include the supply of equipment, labour and materials for the performance of all work as required by the Contract Documents. All replaced items, cut-offs and waste material shall be disposed by the contractor in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.
- .2 The work to be carried out under this contract includes the repair of the timber approach and wharfhead in Rushbrook Harbour and float repairs in Rushbrook and Fairview Harbours.
- .3 A list of owner supplied materials is provided in Section 01 11 02.

6 DESCRIPTION OF ITEMS

The following section describes each work item, as listed in the Unit Price Sheet.

.1 Mandatory Work Items

.1 Mobilization/Demobilization- Rushbrook Harbour

The lump sum cost of mobilization/demobilization includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Move all crew and equipment to Rushbrook Small Craft Harbour.
- .2 Conduct an inventory check of all the Owner Supplied Materials as delivered to Rushbrook Small Craft Harbour. The Contractor shall verify all specified Owner Supplied Materials are accounted for, in good condition, and available for use.
- .3 Crew expenses such as goods and accommodations.
- .4 Site clean-up daily throughout construction.
- .5 Disposal of any general waste and replaced materials not included in other items.
- .6 Any overhead costs not covered in other items.

.2 Internal Bearing Pile Replacement – Rushbrook Harbour

“Internal bearing pile” refers to piles that are not located along, and cannot be installed from, the perimeter of the wharf structure. The unit rate cost per pile for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of one (1) existing vertical internal creosote bearing pile.
- .2 Supply and install one (1) creosote vertical bearing pile as per the drawings.
- .3 Shim the piles with plywood or galvanized steel shims as required, as per Detail A on drawing 220105-RB2.

- .4 Re-fasten the bracing and secure the piles to existing pile caps/corbels with steel straps as required, as per drawing 220105-RB2, Detail A.
- .5 Remove existing deck planks and restore with new owner supplied deck planks and contractor supplied hardware, as shown on the drawings.
- .6 Any existing adjacent structures requiring modification are to be returned to original condition.
- .7 Located on the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 6D, 6E, 17B, 19B, 20B, 22B, 26D, 27B, 27C.

.3 Perimeter Bearing Pile Replacement – Rushbrook Harbour

“Perimeter bearing pile” refers to piles that are located at, and can be installed from, the perimeter of the wharf structure. The unit rate cost per pile for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of one (1) existing perimeter creosote bearing pile.
- .2 Supply and install one (1) creosote bearing pile as per the drawings.
- .3 Shim the piles with plywood or galvanized steel shims as required, as per drawing 220105-RB2, Detail A.
- .4 Re-fasten the bracing and secure the piles to pile caps/corbels with steel straps as shown on drawing 220105-RB2, Detail A.
- .5 Remove existing deck planks and restore with new owner supplied deck planks and contractor supplied hardware, as shown on the drawings.
- .6 Any existing adjacent structures requiring modification are to be returned to original condition.
- .7 Located on the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 12C, 15C, 16C, 17A, 20A, 20C, 21C, 23C, 23D, 23E, 24A, 25A, 26E, 27E, 28A, 29B.

.4 Bearing Pile Repairs- Rushbrook Harbour

The unit rate cost per pile for each type of bearing pile repair includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

.1 Type 1

- .1 Fresh-head the timber piles 300mm (+/-) below pile cap and install new Owner supplied corbel as shown on drawing 220105-RB3, Detail B.
- .2 Shim the piles with plywood or galvanized steel shims as required, as shown on drawing 220105-RB3, Detail B.
- .3 Remove existing deck planks and restore with new owner supplied deck planks and contractor supplied hardware, as shown on the drawings.
- .4 Any existing adjacent structures requiring modification are to be returned to original condition.
- .5 Located on the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 4E, 10A, 10C, 19A, 25E.

.2 Type 2

- .1 Fresh-head the timber pile 600mm (+/-) below pile cap and install new Owner supplied double corbel as shown on drawing 220105-RB3, Detail C.
- .2 Shim the pile with plywood or galvanized steel shims as required, and as shown on drawing 220105-RB3, Detail C.
- .3 Remove existing deck planks and restore with new owner supplied deck planks and contractor supplied hardware, as shown on the drawings..
- .4 Any existing adjacent structures requiring modification are to be returned to original condition.
- .5 Located on the Rushbrook Harbour wharfhead at the following pile location, as per the drawings: 25C.

.3 Type 3

- .1 Shim the pile with plywood or galvanized steel shim as required.
- .2 Remove existing deck planks and restore with new owner supplied deck planks and contractor supplied hardware, as shown on the drawings.
- .3 Any existing adjacent structures requiring modification are to be returned to original condition.
- .4 Located on the Rushbrook Harbour approach at the following pile location, as per the drawings: 4C.

.5 Pile Cap Replacement- Rushbrook Harbour

The unit rate cost per pile cap for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of one (1) existing timber pile cap.
- .2 Install one (1) owner supplied 292mm x 292mm creosote pile cap including cutting and field treating as required to fit existing conditions.
- .3 Secure the pile cap to piles/corbels with steel straps as required, as per drawing 220105-RB3, Detail D.
- .3 Located on the Rushbrook Harbour wharfhead at the following pile locations, as per the drawings: 28A-28C.

.6 Steel Banding Installation- Rushbrook Harbour

The lump sum cost for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Supply and install 25 mm wide (12 Ga.) stainless steel band where piles are split.
- .2 Located on piles at the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 4A, 10B, 11C, 25B.

.7 Concrete Abutment Repair- Rushbrook Harbour

The lump sum cost for this item at Rushbrook Harbour includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Supply and place approximately 5 cu. meters of sand-cement bags at the abutment from pile row A to pile row C.
- .2 Supply and install 0.5 cu. meters of grout and grout undermined section.

.2 Option Work Items**.1 Fender Pile Replacement- Rushbrook Harbour**

The unit rate cost per pile for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of one (1) existing creosote fender pile.
- .2 Supply and install one (1) creosote fender pile as per the drawings.
- .3 Fender pile to be connected to edge stringer with one 25mm (1") diameter bolt countersunk into pile.
- .4 Existing piles connected to wale at elevation +1.0(±).
- .5 Final pile cut off and treatment of pile tops as per Section 31 62 19 Timber Piles.
- .6 Any existing adjacent structures requiring modification to be returned to original condition.
- .7 Located at Rushbrook Harbour at the following pile locations, as per the drawings: 23E1, 23E2, 24E1, 24E2, 25E1, 25E2, 26E2, 27E3, 29B1, 29C1, 29C2, 29D1, 29D2.

.2 Pile Patching Repairs- Rushbrook Harbour

The lump sum cost for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Clean and fill open bolt holes with mastic.
- .2 Located on the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 6A, 10B, 11B, 14C, 26C, 27A.

.3 Cross-Brace Hardware Replacement- Rushbrook Harbour

The lump sum cost for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Supply and replace 25mm (1") diameter cross-brace bolts complete with nuts and washers.
- .2 Located at Rushbrook Harbour at the following pile locations, as per the drawings: 11C-11A, 13C-13A, 23D-25D, 27D-25D, 29A-27A.

.4 Cross-Brace Replacement – Rushbrook Harbour

The unit rate cost per cross-brace for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of one (1) existing creosote timber cross-brace.
- .2 Install one (1) owner supplied 200mm x 150mm creosote cross-brace including cutting and field treating as required to fit existing conditions.
- .3 Cross-braces to be connected to piles with 25mm (1") diameter bolts through brace and piles using existing bolt holes in piles.
- .4 Located on the Rushbrook Harbour approach and wharfhead at the following pile locations, as per the drawings: 4A-4C, 19A-19C, 25C-25E, 25B-27B.

.5 Dolphin Pile Replacement- Rushbrook Harbour

The unit rate cost per pile for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Disconnect dolphin blocking timber and remove and dispose of one (1) existing creosote dolphin pile.
- .2 Supply and install one (1) creosote dolphin pile as per the drawings.
- .3 Piles to be fastened at the top similar to the existing pile connections. Pile cut-off elevation at +10.3m for R5 and S6, and +12.5m for T1, T2 and T5.
- .4 Final pile cut off and treatment of pile tops as per Section 31 62 19 Timber Piles.
- .5 Any existing adjacent structures requiring modification to be returned to original condition.
- .6 Located at Rushbrook Harbour at the following pile locations on Float A, as per the drawings: R5, S6, T1, T2, T5.

.6 Mobilization/Demobilization- Fairview Harbour

The lump sum cost of mobilization/demobilization includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Move all crew and equipment from Rushbrook Small Craft Harbour to Fairview Harbour.
- .2 Conduct an inventory check of all the Owner Supplied Materials as delivered to Rushbrook Small Craft Harbour. The Contractor shall verify all specified Owner Supplied Materials are accounted for, in good condition, and available for use.
- .3 Crew expenses such as good and accommodations.
- .4 Site clean-up daily throughout construction.
- .5 Disposal of any general waste, existing or miscellaneous materials, used and not included in other items.
- .6 Any overhead costs not covered in other items.

.7 Dolphin Pile Replacement- Fairview Harbour

The unit rate cost per pile for this item includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Disconnect dolphin blocking timber and remove and dispose of one (1) existing creosote dolphin pile.
- .2 Supply and install one (1) creosote dolphin pile as per the drawings.
- .3 Piles located at the South Harbour to be connected to the existing top dolphin timber bracing at elevation ± 11.5 m.
- .4 Piles located at the North Harbour to be connected to the existing top dolphin timber bracing at elevation ± 11.0 m.
- .5 Final pile cut off and treatment of pile tops as per Section 31 62 19 Timber Piles.
- .6 Any existing adjacent structures requiring modification to be returned to original condition.
- .7 Located at the following pile locations on Float 801 at the Fairview South Harbour, as per drawing 220105-FV3: A1, B2, B3, B4, C3, C5, D3, D6, E3, G3.
- .8 Located at the following pile locations on Float 807 at the Fairview North Harbour, as per drawing 220105-FV4: A3, B6, B8, C8, D7, E1, F3, F7.

.8 Install Foam Buoyancy Billets- Fairview Harbour

The lump sum cost to install foam buoyancy billets at Fairview South Harbour includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Install two (2) owner supplied foam buoyancy billets at the southwest corner of Float 801 and two (2) owner supplied buoyancy billets at the northeast corner of Float 801 all with approximate dimensions of 610mm x 610mm x 2438mm, as per drawing 220105-FV3.

.9 Remove and Dispose of Timber Walkway- Fairview Harbour

The lump sum cost to Remove and Dispose of Timber Walkway includes all labour, equipment and materials (except for Owner Supplied) to complete the following:

- .1 Remove and dispose of the 1.8m x 7.3 derelict timber trestle at the southwest corner of the Fairview South Harbour approach, as per drawing 220105-FV2.

END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.

2 OWNER SUPPLIED MATERIALS

This section provides a list of Owner Supplied materials. All other materials required to complete the contract shall be supplied by the Contractor. The following materials shall be supplied by the Owner at the Rushbrook Small Craft Harbour before construction begins.

.1 Mandatory Work Items

.1	Deck Planks:	90mm x 292mm x 4877mm	QTY:50
.2	Cross-Braces:	200mm x 150mm x 6706mm	QTY:10
.3	Pile Cap:	292mm x 292mm x 6069mm	QTY: 1
.4	Corbel:	292mm x 292mm x 1200mm	QTY:10

.2 Option Work Items

.1	Foam Buoyancy Billets:	610mm x 610mm x 2438mm	QTY: 4
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END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.

2 COMMENCEMENT AND COMPLETION

- .1 Work shall commence upon **Contract Award**.
- .2 All work including clean-up and demobilization must be completed by **December 20, 2020**.

3 INSPECTION OF SITE

- .1 It is the responsibility of each bidder to obtain all necessary information pertaining to local site conditions and existing works, beyond the information provided in this Specification and accompanying drawing(s).

4 PERMITS, CERTIFICATES, LAWS AND ORDINANCES

- .1 The Contractor must, at his own expense, procure all permits, certificates and licenses required of him by law for the execution of his work under this contract. They shall comply with all Federal, Provincial or Municipal laws, ordinances or rules and regulations relating to the performance of his work and in force during the duration of this contract.
- .2 The Contractor is required to give all required notices, comply with all local, municipal, provincial, and federal laws, ordinances, codes, by-laws, rules and regulations relating to the work.
- .3 All work to be done in accordance with Work Safe BC regulations.
- .4 The Contractor shall comply with Federal and Provincial laws, orders and regulations concerning the control and abatement of water and air pollution.
- .5 The Contractor shall comply with the requirements of any local or other Noise By-Laws.

5 MINIMUM STANDARDS

- .1 In the absence of other standards specified in the contract documents, all work is to conform to, or exceed, the minimum standards of the Canadian Government Specifications Boards, the Canadian Standards Association, the American Society for Testing of Materials, or the National Building Code of Canada, whichever is applicable.
- .2 All work to be done in accordance with Work Safe BC regulations.

6 INTERFERENCE WITH OPERATION

- .1 The Contractor shall obey all navigation regulations and conduct operations so as to interfere as little as possible with the use of berthing spaces, fairways and passages. Install and maintain any and all protection to navigation as may be required by any properly constituted authority or by the Owner. During the course of construction and clean-up, do not dispose of surplus, waste or demolished materials in navigable waters.

- .2 The Contractor shall upon instruction of the Owner or Engineer, promptly remove any of the Contractor's equipment located outside the specified work area and obstructing any harbour operation.

7 COMPLIANCE WITH STANDARD SPECIFICATIONS CODES AND REGULATIONS

- .1 Unless expressly stated to the contrary, all materials, equipment and articles furnished by the Contractor shall comply with the applicable provisions of the standards of the Canadian Standards Association (CSA) or the Canadian Government Specification Board (CGSB) with the applicable provisions of the American Society for Testing Materials (ASTM), National Dredging Association (NFPA), American Concrete Institute (ACI) and the American Water Works Association (AWWA).
- .2 The Contractor shall follow all regulations in accordance with the Fisheries Act. Care shall be taken not to release any deleterious materials to fish habitat, into the water.
- .3 All work to be done in accordance with Work Safe BC regulations.

8 CONTRACTOR'S PERSONNEL

- .1 The Contractor's representative on site shall be completely familiar with the method of work to be employed. Such personnel shall remain on site for the duration of the work.

9 RESPONSIBILITY TO PERSONNEL

- .1 The Contractor shall have full responsibility for the board, lodging and transportation of his personnel and subcontractors. The cost for this shall be incorporated into his unit prices. They shall comply with all labor requirements, and Worker's Compensation regulations.

10 BARRIERS, LIGHTS AND WATCHING

- .1 The Contractor shall provide all requisite barriers, fences, warning signs, lights and watching for the protection of persons and property on or adjacent to the site.

11 SITE ACCESS

- .1 The Contractor shall provide access to the work for the Owner's inspectors and surveyors as required.
- .2 General site access shall be coordinated with the Owner.
- .3 The Contractor shall maintain routes of travel, with the Owner being the sole judge as to what may be deemed reasonable.
- .4 The Contractor shall erect and maintain barriers, fences, lights, warning devices, and other protective devices as may be required for prevention of theft or damage of goods and protection of the public and workmen, or if so ordered by the Owner.

12 CONSTRUCTION AREA

- .1 The Contractor shall regulate construction traffic on public areas and comply with all local ordinances in connection therewith, including load limitation and removal of debris.

- .2 The Contractor shall confine his operations on the site to those areas actually required for the work including routes and regulations approved by the Owner for haulage of materials.

13 NIGHT WORK

- .1 The Contractor shall keep proper lights each night between the hours of sunset and sunrise upon all floating plants, false-work and other obstructions where necessary, and upon all buoys of such size and in such locations as required by a governing authority. When work is done at night, maintain from sunset to sunrise such lights on or about the work and plant as necessary for the proper observation of the work and the efficient prosecution thereof.

14 CLEAN-UP

- .1 At all times the Contractor shall keep the site free from accumulation of waste material and debris and leave the site clean and tidy on completion.

15 TEMPORARY SERVICES

- .1 On site the Contractor shall make his own arrangements for supply of water and electricity.
- .2 The Contractor shall supply for his own use; sanitary, first aid, and all other temporary services and facilities required for the work.

16 PROGRESS REPORT

- .1 The Contractor shall keep a daily record of progress of the work available for inspection by the Engineer.
- .2 The daily record shall include particulars of weather conditions, number of men working, plant and equipment working and work performed.

17 ENGINEER'S ACCESS

- .1 The Contractor shall provide access to the work for the Engineer's inspectors and surveyors as required.

18 PERMITS AND ROYALTIES

- .1 Permits and licenses required for the Contractors work are the responsibility of the Contractor and shall be for the Contractor's account. The Contractor shall have the appropriate business license.

19 PROTECTION OF EXISTING STRUCTURES

- .1 Existing structures, adjacent marine facilities, roads, services, piping or equipment within the work area which are not to be replaced shall be properly protected from any injury or damage, direct or indirect. Any damage that is caused as a result of the operations of the Contractor shall be repaired and made good at the Contractor's expense to the satisfaction of the Engineer.

20 WEATHER

- .1 Time lost by the Contractor due to stoppage on account of adverse weather conditions may be allowed, at the discretion of the Engineer, as an extension of time for the completion of the work over and above the date of completion specified in the contract agreement.

21 SOIL DATA AND EXISTING TOPOGRAPHY

- .1 The Contractor shall notify the Engineer of any subsurface conditions at the place of the work that may differ materially from those indicated in the contract documents.

22 UTILITIES AND SERVICES

- .1 The Contractor shall be responsible for any damage to overhead, underwater and/or underground utilities and/or services caused by the Contractor's operations and shall repair and make good the repairs at the Contractor's own expense.
- .2 The Contractor shall be responsible, unless otherwise agreed to by the Engineer, for all temporary or construction services and utilities, and first aid facilities.

23 CARE OF FINISHED WORK

- .1 The Contractor shall protect all finished work from injury, defacement, unauthorized entry, or trespass until such time as the work described in the contract documents is substantially complete.

24 DISPOSAL

- .1 All material designated to be replaced or removed will become the property of the Contractor and will be disposed of in an environmentally acceptable manner so that they neither become a menace to marine navigation nor a nuisance to the public on adjacent or any other property.
- .2 All replaced items, cut-offs and waste material shall be disposed by the Contractor in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.
- .3 Conduct clean-up and disposal operations to comply with local ordinances and antipollution laws.
- .4 The Contractor is responsible for all costs related to the disposal of any material.

25 MATERIAL HANDLING AND STORAGE

- .1 Any materials damaged by the Contractor during handling, transportation and storage shall be replaced at the Contractor's expense.
- .2 While the Contractor is mobilized on site, the Contractor is responsible for protecting all materials (including Owner supplied materials) from damage and theft. As a minimum, the Contractor shall provide fencing around any stored materials that are accessible to the general public.

26 CONSTRUCTION WORK SCHEDULE

- .1 The Contractor shall work whatever shifts required in order to ensure the work meets regulatory windows and is completed by the completion date of the contract.
- .2 The Contractor shall normally perform all work within daylight hours, except in instances where the Contractor has requested and received approval for shift changes from the Owner.
- .3 Within 7 days of award the Contractor shall supply a week by week schedule of proposed activities related to the contract.
- .4 The Contractor must notify the Owner immediately whenever a variation from the construction schedule is expected to occur or when the submission of the submittals will be delayed.

27 SETTING OUT OF WORK

- .1 The Contractor is expected to familiarize themselves with the site, facilities and amenities within.
- .2 The Contractor shall not enter on nor occupy with men, tools, equipment or material, any ground outside the property of the Harbour Authority without the written consent of the party owning such ground. Other Contractors or employees or representatives of the Department may, for all necessary purposes, enter upon the work and premises used by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others nor adjacent to the site.

28 AS-BUILT DRAWINGS

- .1 The Contractor shall mark up one set of plans with any changes or amendments implemented during the Contract. These plans shall be submitted to the engineer before the Final Certificate of completion is issued.

29 SITE SECURITY

- .1 The Contractor is responsible for all materials and equipment either supplied by the Contractor, the Client Department, or the Owner. The Contractor is responsible for the repair and replacement of stolen or damaged items.

30 SITEWORK

- .1 All heavy construction equipment shall be free of leaks and cleaned prior to construction.
- .2 The Contractor shall have absorbent pads on site in case of any oil leaks or contaminants entering the water.
- .3 The Contractor shall develop a construction plan that minimizes disruption to harbour operations.
- .4 The site shall be left in a safe condition at the completion of each work day.

31 CO-OPERATION WITH HARBOUR AUTHORITY

- .1 The Contractor shall give the Harbour Authority **minimum 1 week notice** for start of construction.
- .2 The Contractor shall give the Harbour Authority **minimum 48 hours notice** for work that requires vessels to be moved.
- .3 The Contractor shall give the Harbour Authority **minimum 48 hours notice** for work that may interrupt harbour operations including access to floats.

32 CONDITION OF STRUCTURE

- .1 Existing structures, adjacent marine facilities, roads, and all other structures, services, piping or equipment within the work area shall be properly protected from any injury or damage, direct or indirect. Any damage that is caused as a result of the operations of the Contractor shall be repaired and made good at the Contractors expense to the satisfaction of the Owner.

33 INSPECTION OF STRUCTURE

- .1 The Owner or inspector, shall inspect the completed works. The Contractor shall be responsible for the costs of any re-inspections that may be required due to errors or omissions of the Contractor.

END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.

2 REFERENCE DOCUMENTS

Unless specified otherwise, Health and Safety Requirements shall conform to the current edition of the following standards:

- .1 Government of Canada
Canada Labour Code, Part II
Canada Occupational Health and Safety Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 National Building Code of Canada (NBC):
Part 8, Safety Measures at Construction and Demolition Sites.
- .4 Canadian Standards Association (CSA):
CSA S269, Falsework for Construction Purposes.
CSA S269.2, Access Scaffolding for Construction Purposes.
CSA-S350, Code of Practice for Safety in Demolition of Structures.
- .5 Province of British Columbia:
Workers Compensation Act. Part 3 Occupational Health and Safety.
Occupational Health and Safety Regulations.

3 GENERAL CONDITIONS

- .1 Provide safety barricades around work site as required to provide a safe working environment for workers and protection for pedestrian traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
- .3 Provide appropriate means by use of barricades, fences, and warning signs as required.
- .4 Secure site at night time as deemed necessary to protect site against entry.
- .5 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.
- .6 Place and maintain buoys, markers and lights required to define work and disposal areas.

4 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor under this Contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

- .3 Comply with and enforce compliance by employees with safety requirements of contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

5 GENERAL REQUIREMENTS

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.
- .3 Mark floating equipment with lights in accordance with requirements and directives of Queen's Harbour Master.
- .4 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .5 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

6 COMPLIANCE REQUIREMENTS

- .1 Small Craft Harbours may terminate the Contract without liability to Small Craft Harbours where the Contractor, in the opinion of Small Craft Harbours, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

7 WORKER'S COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

8 SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

- .3 Risk Management and Safety Procedure for possible events including but not limited to storm, fire, and fall.
- .2 Submit one copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets if requested.
- .6 Departmental Representative may review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .7 Departmental Representative review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .9 Submit on-site Contingency and Emergency Response Plan which addresses standard operating procedures to be implemented during emergency situations if requested.

9 FILING OF NOTICE

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

10 SAFETY ASSESSMENT

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

11 MEETINGS

- .1 Schedule and administer Health and Safety meeting prior to commencement of Work.

12 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 Harbour Manager.
 - .2 Departmental Representative.

13 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, 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.

14 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities associated with the repairs.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work.

15 POSTING OF DOCUMENTS

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

16 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 may stop Work if non-compliance of health and safety regulations is not corrected.

17 WORK STOPPAGE

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

END OF SECTION

GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.
- .2 References
 - .1 Definitions:
 - .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
 - .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.
- .3 In Water Works
 - .1 Construction equipment to be operated on land or from floating barge equipment.
 - .2 Waterways to be kept free of excavated fill, waste material and debris.
- .4 Notification
 - .1 Engineer will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
 - .2 Contractor: after receipt of such notice, Engineer of proposed corrective action and take such action for approval by Engineer.
 - .1 Take action only after receipt of written approval by Engineer.
 - .3 Engineer will issue stop order of work until satisfactory corrective action has been taken.
 - .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

2 EXECUTION

- .1 Cleaning
 - .1 Leave work area clean at end of each day.
 - .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials.
 - .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment to the approval of the Owner.

END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.
- .2 Where existing works are to be removed, they shall be removed and salvaged or disposed of to the satisfaction of the Engineer.
- .3 The Contractor shall furnish all labour, materials, tools, plant and services required incidental to the completion to the full extent of the drawings and specifications for the execution of all demolition salvage and protection work specified herein.
- .4 Demolition and disposal shall be carried out in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.
- .5 Demolition shall be carried out in accordance with the construction schedule as approved by the Owner.

2 REMOVAL OF DEMOLISHED MATERIAL

- .1 All material, which are not to be salvaged for the Owner, shall become the Contractor's property and the Contractor must remove it from the site.
- .2 It shall be the Engineer's decision as to which material shall be salvaged and which materials shall be disposed of.
- .3 Timber piles shall be completely removed where possible. If it is not possible to remove a pile, the pile shall be broken off below ground level.

3 SALVAGE

- .1 Material to be salvaged for the Owner shall be stored as directed by the Engineer.

4 PROTECTION

- .1 The Contractor shall protect the remaining structural elements and adjacent structures against damage from falling debris or other causes.
- .2 The Contractor shall take precautions to guard against movement or settlement of adjacent structures and remaining structural elements, provide and place shoring or bracing as required, and be responsible for the safety and support of such structures, be liable for any damage or injury caused thereby or resulting therefore. If at any time safety of any adjacent structure appears to be endangered; the Contractor shall cease operations and notify the Engineer.

END OF SECTION

1 WORKMANSHIP

- .1 All fabrication and erection of structural steel shall comply with CSA Standard CAN3-S16.1, latest revision.

2 MATERIALS

- .1 Hollow structural steel sections shall conform to CSA Standard G40.20/G40.21-M, Class "C", Grade 350W.
- .2 All other rolled sections and miscellaneous plate shall be grade 300W, unless noted otherwise on the drawings, in conformance with CSA Standard G40.20/G40.21-M.
- .3 All structural steel members shall be made of the size and weight shown on the drawings unless written approval for any change is first obtained from the Engineer.
- .4 Bolts, washers and nuts shall conform to ASTM specification A325.

3 WELDING

- .1 Welding practice and qualifications of welders and erectors of welded construction shall conform to the requirements of CSA Standards W47, W48, and W59 latest editions. The metallurgy of weld metal shall be similar to the parent material.
- .2 Unless noted otherwise, all welds shall develop the full strength of the connected members, and shall be continuous seal welds with a minimum 6 mm leg length.
- .3 Where on the drawings it is called for double sided welding; the welding details called for on the near side shall be duplicated on the far side if not called up otherwise.

4 INSPECTION

- .1 The Contractor shall furnish all facilities for inspecting and testing the weight, dimensions and quality of workmanship at the shop where the material is fabricated.
- .2 The Engineer shall be notified well in advance of the start of work, in order to allow sufficient time for inspection of material and workmanship.

5 SHOP DRAWINGS

- .1 Submittal of shop drawings will not be required.

6 COATINGS

- .1 All bolts, inserts, washers, connection brackets and nuts shall be hot dip galvanized in accordance with ASTM Specifications A-153 or A-123 or CSA G 164-M (minimum zinc coating 610 g/m²).

END OF SECTION

1 SCOPE OF WORK

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.
- .2 All work shall be carried out in accordance with Specification CAN/CSA 086.1-M, latest revision and in accordance with Best Management Practices (BMP) for the use of treated wood in aquatic environments.
- .3 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

2 PRODUCT

.1 Lumber Material

- .1.1 Lumber grades shall conform to the requirements of the N.L.G.A. Standard Grading Rules for Canadian Lumber, latest revision.
- .1.2 All lumber except deck planks and handrails shall be D.Fir-L(N), No. 1 Structural grade or better as called for on the drawings. Deck planks and handrails shall be D.Fir-L(N), No. 2 Structural grade or better.
- .1.3 All lumber, unless specified otherwise, shall be properly air dried and seasoned, containing not more than 19% moisture.

.2 Fasteners

- .2.1 All bolts, nuts and washers shall be hot dip galvanized in accordance with Specification CAN/CSA G164-M.
- .2.2 Bolt holes in timber shall be bored to provide driving fit. Holes for drift bolts shall be 2 mm undersize and longer than the drift bolts.
- .2.3 All bolts to meet the requirements of Standard ASTM - A307.
- .2.4 Deck planks shall be fastened with two galvanized nails at each contact with one nail at each side of the plank. Nails shall be 100 mm long for deck planks on the floats and 200 mm long for deck planks on the approach and wharfhead.

.3 Wood Preservative

- .3.1 All preservative treatment, inspection and re-treatment shall be in accordance with Specification CAN/CSA 080-M, latest edition.
- .3.2 All lumber except pile caps, stringers, braces and chocks shall be given a ACZA preservative treatment in accordance with the Best Management Practices.
- .3.3 Pile caps, stringers, braces and chocks shall be given a full-cell creosote treatment in accordance with the Best Management Practices for Creosote, to a net retention of 224 kg per m³ (14 lb/c.f.) and to a minimum penetration of 22 mm (7/8 inch).
- .3.4 All treated timbers shall be incised before treatment.

3 EXECUTION

- .1 All timber, which has been given a preservative treatment, shall be carefully handled to avoid breaking through the treated surfaces. Cant hooks and rafting dogs shall not be used on timbers. No spikes shall be driven into timbers except to tack the timbers in their final position. If spikes are used, they shall be fully driven and left in.
- .2 Bolt holes and countersunk holes shall be filled with ACZA preservative and the bolts shall be dipped in ACZA preservative concentrate before the bolts are placed. Bolt holes with a final position at an elevation below high water level shall be filled with approved mastic before the bolts are placed.
- .3 All cut ends of lumber shall be treated with two separate coats of ACZA preservative. Cut ends of lumber with a final position at an elevation below high water level shall in addition be treated with one coat of approved mastic at least 5 mm thick.
- .4 All structural timber used in the work shall be carefully and accurately placed in accordance with the drawings.

END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.
- .2 All work to be in accordance with Best Management Practices (BMP) for the use of treated wood in aquatic environments.

2 MATERIAL

.1 Pile Material

- .1 Round wood piles conforming to CSA STD. CAN-054, with minimum butt size of 350mm within +/- 20mm.
- .2 Type of peeling: clean peeled.
- .3 Pile species: #14 Pacific Coast Douglas Fir.
- .4 Preservative Treatment: to CAN/CSA – 080 full cell creosote treatment to a minimum net retention of 225 kg/cu meter (14 lb/ft³).
- .5 The Engineer shall be the sole judge as to quality and dimension of piles. Rejected piles shall be removed from the Project Site of work at the Contractor's expense.

.2 Fasteners

- .1 All bolts, nuts, washers, drift pins, spikes and nails shall be hot dip galvanised in accordance with Specification CAN/CSA G164-M.
- .2 Bolt holes in timber piles shall be bored to provide driving fit. Holes for drift pins shall be 2 mm undersize and longer than the drift pins. Hole sizes of lag screws are to be as specified in Standard CAN/CSA 086.1-M, latest edition.
- .3 Unless otherwise specified, connection bolts, lag screws or drift bolts shall be placed through the centre of the timber piles and shall not be less than seven times the bolt diameter from the end of the timber pile.
- .4 Plate washers shall be used under the heads and nuts of all bolts against timber piles.
- .5 All bolts to meet the requirements of Standard ASTM - A307.
- .6 Nails, spikes and staples to meet the requirements of Standard CAN/CSA B111-M.

3 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 Standard CAN/CSA 080-M.

4 EXECUTION

.1 Preparation

- .1 Protect pile heads during driving and closely fit driving heads to top of pile. Where necessary protect pile heads by means of heavy steel straps or wrought iron rings.
- .2 Protect treated piles to avoid breaking through the treated surface. Cant hooks and rafting dogs may be used only in the end of piles. No spikes shall be driven into the piles below high-water level. All cuts or breaks in the surfaces of creosote treated piles shall be treated with one coat of approved mastic.
- .3 Bolt holes with a final position at an elevation above high water level shall be filled with CCA preservative and the bolts shall be dipped in CCA preservative concentrate before the bolts are placed. Bolt holes with a final position at an elevation below high water level shall be filled with approved mastic before the bolts are placed.
- .4 Where timber piles have to be cut for plate washers, the cut surface shall be treated with two coats of CCA preservative and a further coat of mastic before washers are placed.

.2 Field Measurements

- .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 cap and cushion.
 - .3 Pile size and length, location of pile in pile group, designation of pile group.
 - .4 Number of blows for last 1000mm or appropriate blow counts at the end of driving when refusal is reached at a rock surface.
 - .5 Final tip and cut off elevation.
 - .6 Other pertinent information such as interruption of continuous driving, pile damage, etc.

.3 Installation

- .1 Piles shall be installed in accordance with Best Management Practice for Pile Driving and Related Operations – BC Marine and Pile Driving Contractors Association – November; 2003.

- .2 Piles shall be driven with standard equipment; vibrator, air, steam, diesel or drop hammer approved by the Engineer. Piles shall be driven tip down.
- .3 Prior to any pile driving, the Contractor shall inform the Engineer about the equipment they intend to use. Based on the type and size of hammer, the Engineer will determine the final set requirements.
- .4 Piles shall be driven to refusal or to a minimum penetration of 6 m.
- .5 Piles shall be installed with a maximum deviation of 100 mm at the seabed from the given location and not more than 0.5% off alignment.
- .6 Timber piles shall be driven in such a way that they are not broken or split. The heads of piles shall be sniped and the tips shall be fresh if the driving is hard in the opinion of the Engineer. A ring or wire mesh shall be used to prevent the head from splitting during hard driving. If the rings or wire mesh do not prevent splitting, steel tension bands 30 mm by 1 mm shall be used. These materials are to be supplied by the Contractor. After driving, the piles shall be cut off at the elevation shown on the drawings.
- .7 Any pile which is split or otherwise damaged below the cut-off elevation or is driven out of position or location, so that in the opinion of the Engineer it is unfit for the use for which it is intended, shall be removed and replaced with a sound pile, at the Contractor's expense.

.4 Treatment of Pile Tops

- .1 The tops of all piles shall be treated with two separate coats of ACZA preservative and one coat of approved mastic at least 5 mm thick.
- .2 In addition, the tops of all piles shall be covered with a sheet of 1 mm annealed corrosion-resistant aluminium cut 150 mm larger than the diameter of the pile top. The overhanging edges shall be crimped and turned down and secured to the piles with eight aluminium roofing nails and shall not be cut to facilitate fitting.

END OF SECTION

1 GENERAL

- .1 PWGSC's General Conditions and related contract documents form an integral part of this section.
- .2 Buoyancy billets to have dimensions and be positioned as shown in the plans and specifications and to be secured to the float frame with 50 mm wide nylon strapping spaced no more than 1 m.

2 MATERIAL

- .1 All billets are to be fabricated of polystyrene and coated as specified below.
- .2 Polystyrene expanded with uniform cellular structure, free of voids. If a beaded product is to be used, beads shall be fused so that, when the product is broken by hand pressure, there is an excess of broken or sheared beads.
- .3 Polystyrene properties:
 - Minimum compressive strength at 10% deformation of 76 kPa.
 - Minimum flexural strength of 124 kPa.
 - Maximum water absorption by volume of 4%.
 - Minimum density of 16 kg/m³.
- .4 Polystyrene coating:
 - Polyethylene or polyurea marine coating.
 - Minimum thickness of coating to be 2 mm (80 mil).

3 INSPECTION

- .1 The Engineer shall be notified at least 1 week prior to fabrication as well as 1 week prior coating of the billets.

END OF SECTION