Public Works and Government Services Canada

Tender Documents

Requisition No: **EZ899-170879/A**

SPECIFICATIONS
for

Wharf Restoration

Quatsino, BC

Project No. R. 077008.001 July, 2016

APPROVED BY:

Regional Manager, AES — Date: 2016-07-14

Construction Safety Coordinator — Date: 2016-07-11

TENDER:

Project Manager — Date: 15 JUL 16

Real Property Services Branch, Professional and Technical Services, Pacific Region
Room 219 - 800 Burrard Street, Vancouver, B.C., V6Z 0B9

SPECIFICATIONS

APPENDIX A – BOUND WITH SPECIFICATIONS

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APPENDIX C – BOUND WITH SPECIFICATIONS

APPENDIX D – BOUND WITH SPECIFICATIONS

DRAWINGS – BOUND SEPARATELY

PART 1 GENERAL

1.1 Section Includes

.1 Location of site.
.2 Site conditions.
.3 Work covered by contract documents.
.4 Time of completion.
.5 Use of site.

1.2 Precedence

.1 Division 1 Sections take precedence over technical specification sections in other Divisions of these Project Specifications.

1.3 Related Sections

.1 Section 35 05 51 - Marine General Sitework.

1.4 Site Conditions

.1 Visit site before submitting tender. Make inquiries or investigations necessary to become thoroughly acquainted with site, soil, climatic, tidal conditions, and site access along with the nature and extent of the work.
.2 Submission of a tender will be deemed confirmation that the Contractor is familiar with the site and is conversant with all relevant conditions.
.3 All known discrepancies are to be brought to the attention of the Departmental Representative and are to be accounted for in the Contractor's Bid Price.
.4 A fire occurred at the facility in July 2003, resulting in a significant amount of damage. As a result the wharf head and approach superstructure was reconstructed. Limited remediation was completed to the substructure, at that time.

1.5 Location of Site

.1 The work is located at Quatsino Harbours and Ports Facility, Quatsino, B.C. The structures are located in Bergh Cove in Quatsino Sound, about 400 km Northwest of Vancouver, BC. Lot 2077, Rupert District, Vancouver Island, Quatsino, BC.
.2 The work site includes the approach, wharf, floats (public use and seaplane) and water lot areas that form the facility.

1.6 Work Covered by Contract Documents

.1 The principal works to be executed and for which all materials, plant and labour are to be supplied by the Contractor as shown on the plans and in the specifications:
  .1 Replacement of timber piles / pile driving.
  .2 Replacement of timber float members and wear components.
  .3 Replacement of submerged timber components.
  .4 Wrapping of submerged portion of piles.

1.7 References

.1 National Research Council of Canada (NRC):
  .1 National Building Code of Canada (NBC) 2015.
.2 See Section 01 35 33 for additional references.

1.8 Codes and Standards

.1 Perform work in accordance with the National Building Code, the Workers' Compensation Board of B.C., and any other code of provincial or local application provided that, in any case of conflict or discrepancy, the most stringent requirements shall apply.
.2 Meet or exceed requirements of specified standards, codes and referenced documents.

1.9 Submissions

.1 Provide Department Representative the following submissions within 4 weeks of contract award:
  .1 Health and Safety Plan and Fire Safety plan
  .2 Environmental Emergency Response Plan (including Spill Response Plan)
  .3 Signed copy of the Hazard Assessment Form
  .4 Proposed Work Schedule

1.10 Documents Required

.1 Maintain at job site one copy of the following:
  .1 Contract drawings and approved shop drawings
  .2 Specifications
  .3 Addenda
  .4 Change orders

.5 Other modifications to contract

.6 Copy of approved work schedule

.7 Manufacturer's installation and application instructions

.8 Health and Safety Plan and Fire Safety plan

.9 Environmental Emergency Response Plan (including Spill Response Plan)

.10 Signed copy of the Hazard Assessment Form

.2 Department Representative may furnish additional drawings to assist proper execution of work. These documents will be issued for clarification only. Such documents will have the same meaning and intent as if they were included in the plans referred to in the Contract documents.

1.11 Record Drawings

.1 As work proceeds, maintain accurate records to show all deviations from the contract drawings. Note on as-built drawings as changes occur, and at completion supply one set of all drawings and specifications clearly marked.

1.12 Geotechnical Data

.1 Geotechnical data was not prepared for this project.

1.13 Datum

.1 All elevations or soundings used in the drawings and specifications refer to local low water datum.

.2 For the purposes of this Contract, local low water datum will be taken as 5.5 metres below deck elevation.

1.14 Layout of Work

.1 Lay out work on the ground and execute the work to the Departmental Representative's satisfaction.

1.15 Assistance by the Contractor

.1 Place a small work vessel at the Departmental Representative's disposal as required to perform his duties.

1.16 Time of Completion

.1 Complete work within 12 weeks of contract award.

1.17 Work Schedule

.1 Within 7 days of Contract award, provide a schedule of work. Observe the following requirements:

.1 Whenever a variation from the schedule in excess of 5 working days occurs or is expected to occur, notify Departmental Representative of the change.

.2 Provide information as indicated below:

.1 Notify Transport Canada (Nancy Brooks, Nancy.Brookes@tc.gc.ca) of the project schedule at least 5 working days prior to the commencement of work.

.3 Notify Canadian Coast Guard, Regional Marine Information Centre no less than 5 days before start and completion of proposed activities at the site in order that they may issue Notices to Shipping. Contact information is:

.1 Website: http://www.ccg-gcc.gc.ca/e0003905

.2 Mailing Address:

.1 Vancouver MCTS Centre
Canadian Coast Guard
Suite 2380, PO Box 12107
555 West Hastings Street
Vancouver, BC, V6B 4N6

.3 Telephone Numbers:

.1 604-666-6011 RMIC

.2 604-666-1004 Officer-in-Charge

.3 604-666-1003 Administration

.4 604-775-8919 Watch Supervisor

.5 Telex Number: 043-52586 CGTC VAS VCR

.6 Facsimile: 1-604-666-8453

.4 Email:

.1 mctsvancouver@pac.dfo-mpo.gc.ca

.5 RMIC Email:

.1 rmic-pacific@pac.dfo-mpo.gc.ca

.4 Provide copies of all project notifications to Department Representative.

1.18 Use of Site

.1 Keep facility closure to a minimum. As much as possible, regulate construction activities to provide safe access to pedestrian traffic at all times. Complete facility closures are not to exceed two hours at any given time. Closures over one hour must be at least one hour apart. Contractor must post notice of closure at least 48 hrs in advance.

.1 Notice must be posted on a clearly visible sign such that facility users can readily see it.

.2 Contact companies using the facility and make arrangements to ensure interruptions to their operations are minimized.

.3 Derrick is not to be out of service during construction activities. If the work plan requires that the derrick be removed from service due to work activities, approval is to be requested from the Department Representative. Notice of the closure is to be posted in conformance with the project specifications.

.1 A maximum closure of 3 hours will be considered for derrick closure.

.4 Hours of work:

.1 Perform work between normal hours of 07:00 to 18:00, Monday to Friday, except holidays and in accordance with local noise bylaws.

.2 Work may be performed after working hours, on weekends and holidays as approved by Departmental Representative.

1.19 Project Meetings

.1 The Departmental Representative will arrange project meetings and setting the time and location. Contractor to assume responsibility for recording and distributing minutes.

1.20 Location of Equipment and Fixtures

.1 Location of existing equipment and fixtures indicated or specified is to be considered as approximate.

1.21 Material and Equipment

.1 Metric-Sized Products:

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

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

.3 Difficulties caused by the Contractor's lack of planning and effort to obtain modular metric-sized products which are available on the Canadian market will not be considered sufficient reasons claiming that they cannot be provided.

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

.2 Material and Equipment:

.1 Use new material and equipment unless otherwise specified.

.2 Within seven (7) days of written request by Departmental Representative, submit following information for any or all materials and products proposed for supply:

.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.

.3 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 manufacturer's instructions. Departmental Representative will designate which document is to be followed.

.4 Fastenings, General:

.1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work

.5 Fastenings, Equipment:

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

.6 Delivery and Storage:

.1 Deliver, store and maintain packaged material and equipment with manufacturer's seals 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 suppliers' instructions.

.4 Touch up damaged factory-finished surfaces to Departmental Representative's satisfaction. Use primer or enamel to match original. Do not paint over name plates.

.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.

1.22 Testing and Inspection Services

.1 Particular requirements for inspection and testing to be carried out by testing service or in laboratory approved by Departmental Representative are specified under various sections.

.2 Contractor will appoint and pay for services of testing laboratory including the following:

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

.2 Mill tests and certificates of compliance.

.3 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.

.4 Additional tests specified in paragraph following.

.3 Where tests or inspections performed by the testing service reveal work is not in accordance with the contract requirements, Contractor shall pay costs for additional tests or inspections as Departmental Representative may require to verify acceptability of corrected work.

.4 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative.

.5 Provide Departmental Representative with two (2) copies of testing laboratory reports as soon as they are available.

1.23 Interpretation

.1 In interpreting the Contract, in the event of discrepancies or conflicts between anything in the Plans and Specifications and the General Conditions, the General Conditions govern.

.2 In interpreting the Plans and Specifications, in the event of discrepancies or conflicts between:

.1 The Plans and Specifications, the Specifications govern;

.2 The Plans, the Plans drawn with the largest scale govern;

.3 Figured dimensions and scaled dimensions, the figured dimensions govern.

.4 Specifications, Plans and Appendicies; the Specifications and Plans govern over the Appendicies

PART 2 PRODUCTS

Not applicable.

PART 3 EXECUTION

Not applicable

-END OF SECTION-

PART 1 GENERAL

1.1 Contractor Review

.1 Contractor's review of shop drawings and samples prior to submission: refer to Section 01 11 05, Clause 1.9.4.

1.2 General

.1 This Section specifies general requirements and procedures for the Contractor's submissions of shop drawings, product data, samples, health and safety documents, submission of copies of notices to other agencies, and other requested submittals to Departmental Representative for review.

.2 Where items or information is not produced in SI Metric units, converted values are acceptable.

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

.4 Submit to Departmental Representative submittals listed for review in specification package. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract documents and stating reasons for deviations.

.6 Contractor's responsibility for deviations in submission from requirements of Contract documents is not relieved by Departmental Representative's review of submission unless Departmental Representative gives written acceptance of specific deviations.

.7 Make any changes in submissions which Departmental Representative may require consistent with Contract documents and resubmit as directed by Departmental Representative.

.8 Notify Departmental Representative in writing, when resubmitting, of any revisions other than those requested by Departmental Representative.

.9 Do not proceed with work until relevant submissions are reviewed and approved by the Departmental Representative.

1.3 Submission Requirements

.1 Coordinate each submission with the requirements of the work and the Contract documents. Individual submissions will not be reviewed until all related information is available.

.2 Allow (5) five days for Departmental Representative's review of each submission, unless noted otherwise.

.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.

.5 Other pertinent data.

.4 Submissions shall include:

.1 Date and revision dates.

.2 Project title and number.

.3 Name and address of:

.1 Subcontractor.

.2 Supplier.

.3 Manufacturer.

.4 Contractor's stamp, signed by Contractor's authorized representative, certifying approval of submissions, verification of field measurements and compliance with Contract documents.

.5 Details of appropriate portions of work as applicable.

.1 Fabrication.

.2 Layout, showing dimensions (including identified field dimensions) and clearances.

.3 Setting or erection details.

.4 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

.6 After Departmental Representative's review, distribute copies.

1.4 Submittals:

.1 Shop drawings: original drawings or modified standard drawings provided by Contractor to illustrate details of portion

of work which are specific to project requirements.

.2 Maximum sheet size: 850 x 1050 mm.

.3 Submittal Format:

.1 Submit one digital copy in PDF format for each submittal required in the specification sections and/or as requested by the Departmental Representative.

.2 Where required submit original hard-copy of any document that is specified to be "Signed and Sealed".

.4 Cross-reference shop drawing information to applicable portions of the Contract documents.

1.5 Review of Submittals

.1 Review of submittals by Public Works and Government Services Canada is for the sole purpose of ascertaining conformance with the general concept.

.2 This review shall not mean that Public Works and Government Services Canada approves the detail design inherent in the submittals, responsibility for which shall remain with Contractor submitting same.

.3 This review shall not relieve the Contractor of responsibility for errors or omissions in the submittals or of responsibility for meeting all requirements of the construction and Contract documents.

.4 Without restricting the generality of the foregoing, the Contractor is responsible for:

.1 Dimensions to be confirmed and correlated at the job site.

.2 Information that pertains solely to fabrication processes or to techniques of construction and installation.

.3 Coordination of the work of all sub-trades.

- **END OF SECTION -**

PART 1 GENERAL

1.1 References

.1 Government of Canada

- .1 Canada Labour Code, Part II
- .2 Canada Occupational Health and Safety Regulations.

.2 National Building Code of Canada (NBC):

- .1 Part 8, Safety Measures at Construction and Demolition Sites.

.3 Canadian Standards Association (CSA):

- .1 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
- .2 CSA Z797-2009, Code of Practice for Access Scaffold.
- .3 CSA-S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.4 National Fire Code of Canada 2010 (as amended):

- .1 Part 5 – Hazardous Processes and Operations and Division B as applicable and required.
- .2 FCC No. 301, Standard for Construction Operations.
- .3 FCC No. 302, Standard for Welding and Cutting.

.5 American National Standards Institute (ANSI):

- .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.

.6 Province of British Columbia:

- .1 Workers Compensation Act. Part 3 Occupational Health and Safety.
- .2 Occupational Health and Safety Regulation.

1.2 Related Sections

.1 Refer to the following sections as required:

- .1 Marine General Instructions: Section 01 11 05.
- .2 Marine General Sitework: Section 35 05 51.

1.3 Workers' 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.

1.4 Compliance with Regulations

.1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.

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

1.5 Submittals

.1 Submit to Departmental Representative submittals for review.

.2 Work affected by submittals is not to proceed until review is complete.

.3 Submit the following prior to start of work (unless noted otherwise):

.1 Health and Safety Plan.

.2 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.

.3 Emergency procedures.

.4 Copies of reports or directions issued by federal and provincial health and safety inspectors, report within one week of receipt.

.5 Copies of incident and accident reports, report within one week of incident.

.4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative for review upon request.

.5 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.

.6 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:

.1 Be construed to imply approval by the Departmental Representative.

.2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.

.3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 Responsibility

.1 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 the extent that they may be affected by conduct of Work.

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

1.7 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.

.1 Provide appropriate means by use of barricades, fences, and warning signs as required.

.2 Secure site at night time as deemed necessary to protect the public from any and all construction hazards.

1.8 Project/Site Conditions

.1 Work at site will involve:

.1 Construction on wharfs

.2 Pile driving

.3 Construction on floats during high and low tides.

.4 Slippery and unstable surfaces.

.5 Preservative treated wood.

.6 Underwater work will require divers

1.9 Regulatory 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.

1.10 Filing of Notice

.1 The Contractor is to complete and submit a Notice of Project as required by provincial authorities, at least two weeks prior to commencing work.

.2 Provide the Departmental Representative with a copy of all notices, at least two weeks prior to commencing work.

1.11 Health and Safety Plan

.1 Conduct a site-specific hazard assessment based on review of the specifications, required work, and project site. Identify any known and potential health risks and safety hazards.

.2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:

.1 Primary requirements:

.1 Contractor's safety policy.

.2 Identification of applicable compliance obligations.

.3 Definition of responsibilities for project Safety/ Organization chart for project.

.4 General safety rules for project.

.5 Job-specific safe work procedures.

.6 Inspection policy and procedures.

.7 Incident reporting and investigation policy and procedures.

.8 Occupational Health and Safety Committee/Representative procedures.

.9 Occupational Health and Safety meetings.

.10 Occupational Health and Safety communications and recordkeeping procedures.

.2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.

.3 List hazardous materials to be brought on site as required by work.

.4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.

.5 Identify personal protective equipment (PPE) to be used by workers.

.6 Identify personnel and alternates responsible for site safety and health.

.7 Identify personnel training requirements and training plan, including site orientation for new workers.

.3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.

.4 Revise and update Health and Safety Plan as required, and re-submit to the Departmental Representative.

.5 Departmental Representative review: the review of Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility of errors and omissions in the Final Health and Safety Plan or of responsibility for meeting all requirements of construction and the specifications.

1.12 Emergency Procedures

.1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:

.1 Designated personnel from own company.

.2 Regulatory agencies applicable to work and as per legislated regulations.

.3 Local emergency resources.

.4 Department Representative.

.2 Include the following provisions in the emergency procedures:

.1 Notify workers and the first-aid attendant, of the nature and location of the emergency.

.2 Evacuate all workers safely.

.3 Check and confirm the safe evacuation of all workers.

.4 Notify the fire department or other emergency responders.

.5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.

.6 Notify Department Representative.

.3 Provide written rescue/evacuation procedures as required for, but not limited to:

.1 Work with hazardous substances.

.2 Work on, over, under and adjacent to water.

.4 Revise and update emergency procedures as required, and re-submit to the Departmental Representative.

1.13 Hazardous Products

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

.2 Where use of hazardous and toxic products cannot be avoided:

.1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable MSDS and WHMIS documents.

1.14 Overloading

.1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

1.15 Falsework

.1 Design and construct falsework in accordance with CSA S269.1-1975 (R2003).

1.16 Scaffolding

.1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA-Z797-2009.

1.17 Fire Safety and Hot Work

.1 Obtain Departmental Representative authorization before any welding, cutting or any other hot work operations are carried out on site.

.2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

1.18 Fire Safety Requirements

.1 Store oily/paint-soaked rags, waste products, empty containers and materials subject to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada.

.3 Unforeseen Hazards

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

1.19 Posted Documents

.1 Post legible versions of the following documents on site:

.1 Health and Safety Plan.

.2 Emergency procedures.

.3 Notice of Project.

.4 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.

.5 Workplace Hazardous Materials Information System (WHMIS) documents.

.6 Material Safety Data Sheets (MSDS).

.2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, protected from inclimate weather, visible to all

workers and in locations accessible to users of the facility when work of this Contract includes construction activities adjacent to occupied areas.

1.20 Meetings

.1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

1.21 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.

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

.3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The Prime Contractor/subcontractors will be responsible for any costs arising from such a "stop work order".

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

-END OF SECTION-

PART 1 GENERAL

1.1 Environmental Factors

.1 Ensure that operations meet all applicable environmental regulations and standards.

1.2 Vessels

.1 Vessels and floating equipment must not come to rest on the intertidal or subtidal zones unless specified otherwise.

1.3 Fires

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

1.4 Disposal of Wastes

.1 Do not bury rubbish and waste materials on site.

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

1.5 Site Clearing and Plant Protection

.1 Minimize stripping of topsoil and vegetation.

1.6 Work Adjacent to Waterways

.1 Do not operate land based construction equipment within waterways.

.2 Do not use waterway beds for borrow material.

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

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

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

.6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

.7 Work in or adjacent to waterways is to be completed during the following work windows unless otherwise approved by the department representative:

.1 July 1 – August 15

.2 November 15 – February 15

.3 If the construction is scheduled outside of the above in-water work windows the contractor will be responsible for retaining an environmental monitor for the duration of the in water works.

.1 Environmental monitor to provide monitoring services in conformance with the Transport Canada, Environmental Review Record clause: "Environmental Monitoring".

.2 Services are to include an environmental monitoring report per the above noted section.

1.7 Pollution Control

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

.2 Control emissions from equipment and plant to local authorities emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

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

.5 Spill kits and containment are to be maintained on site and ready for deployment in case of spills.

.1 Spill kits are to contain sufficient quantities of absorbent material on site in close proximity to working machinery.

.2 During the work there are to be trained and qualified personnel on site that are ready to deploy spill kits when necessary.

1.8 Protection of Wildlife

.1 Make every effort to minimize disturbance to the benthic and upland wildlife communities.

.2 Any large invertebrates adhering to the portion of the wharf, floats, or mooring piles and chains under construction must be removed and replaced in the nearby marine environment.

.3 Do not disturb eel grass or kelp beds.

1.9 Environmental Monitoring

.1 Following construction the contractor must submit a construction report outlining the following items:

.1 If an environmental monitor was used and if so, the monitors name, company name, and credentials. If no monitor was used, the name of the site supervisor responsible for stopping and assessing a situation if an emergency were to

occur (e.g. Spill).

.2 Dates work was carried out

.3 Picture of Best Management Practices implemented to reduce impacts on water quality outside of the immediate work area

.4 Picture of spill kit on site.

.5 Date and time of the presence of any sea mammals and/or schools of fish observed in the area and what species, if definable.

.6 Duration and activity and percentage of time in which a sediment plume was present during the removal of material from the seabed (include a description and photos).

.7 Details of any incidents and follow-up actions taken, if applicable.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

-END OF SECTION-

PART 1 GENERAL

1.1 References

.1 American Society for Testing and Materials (ASTM):

.1 ASTM A123/A123M-02, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 ASTM A252-98 (2002), Specification for Welded and Seamless Steel Pipe Piles.

.3 ASTM A307-04, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

.2 Canadian Coast Guard (CCG):

.1 MA 2080, General Specifications for Moorings for Aids to Navigation, Issue C (September 1999).

.3 Canadian Institute of Treated Wood/Western Wood Preservers Institute (CITW/WWPI):

.1 Best Management Practices for the Use of Treated Wood in Aquatic Environments (BMP), July 1996.

.2 BMP Amendment #1, 17 April 2002.

.4 Canadian Standards Association (CSA):

.1 CSA B111-1974 (R2003), Wire Nails, Spikes and Staples.

.2 CSA G40.21-04, Structural Quality Steels.

.3 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.4 CAN3-O56-M79 (R2001), Round Wood Piles.

.5 CSA-O80 Series- 2015, Wood Preservation.

.6 CSA O121-M1978 (R2003), Douglas Fir Plywood.

.7 CAN/CSA-S16-09, Limit States Design of Steel Structures.

.8 CSA W47.1-09, Certification of Companies for Fusion Welding of Steel.

.9 CSA W59-13, Welded Steel Construction (Metal Arc Welding).

.5 National Lumber Grades Authority (NLGA):

.1 Standard Grading Rules for Canadian Lumber, 2003 edition.

1.2 Inspection and Acceptance

.1 At his/her discretion, the Departmental Representative may inspect materials and products at any stage of manufacture, transportation and assembly. Satisfactory inspection at any stage does not preclude future rejection if the materials or products are subsequently found to lack uniformity or fail to conform to the specified requirements.

.2 The Contract work will not be accepted until the materials or products are satisfactorily installed in the completed structure as specified.

.3 Additional costs incurred by Canada that result from unsatisfactory materials or workmanship will be charged to the Contractor.

1.3 Mobilization and Demobilization

.1 Mobilization and demobilization will include all work required to supply the material, plant and labour to the site of the work, unless specified otherwise.

1.4 Method of Measurement

.1 The method of measurement for the classes of labour, plant or material constituting the work will be as follows:

.1 Item No. 1, Mobilization and Demobilization

.1 Unit: a single lump sum for all mobilization and demobilization work.

.2 Item No. 2, Supply Treated Piling

.1 Unit: each lineal metre of new treated piling supplied, placed, and remaining an integral part of the completed work as specified, measured from cut-off to ground line plus actual penetration into the ground.

.2 If ground conditions are such that specified penetration cannot be obtained without damaging the pile, measurement will include the portion of cut-off representing the difference between specified and actual penetration.

.3 Penetration in excess of specified penetration will not be measured for payment unless the Departmental Representative is satisfied that such penetration is necessary and has so notified the Contractor in writing.

.4 Make allowance in pile lengths to obtain specified penetration and to allow pile to be cut-off at a sound section below any damage from driving. No portion of cut-off will be measured for payment.

.3 Item No. 3, Driving Bearing Piles

.1 Unit: each pile driven, secured and remaining an integral part of the completed work as specified.

.4 Item No. 4, Mooring Pile Connection

.1 Unit: Lump sum for the work required to complete the mooring pile top connection to the wharf structure including all materials and hardware remaining an integral part of the completed work as specified.

.5 Item No. 5, Supply/Install Pile Wrap

.1 Unit: each lineal meter of pile, wrapped (measured along the pile axis) supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.6 Item No. 6, Supply/Install UHMWPE Well Liner

.1 Unit: each well liner supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.7 Item No. 7, Supply/Install Rub Board

.1 Unit: each linear meter of rub board supplied, placed, secured and remaining as an integral part of the completed work as specified, including connection hardware.

.8 Item No. 8, Supply/Install Bull Rail

.1 Unit: each linear meter of float bull rail supplied, placed, secured and remaining as an integral part of the completed work as specified, including risers and connection hardware.

.9 Item No. 9, Supply/Install Float Flange Splice

.1 Unit: each float flange splice member supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.10 Item No. 10, Supply/Install Float Deck Board

.1 Unit: each linear meter of deck board supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.11 Item No. 11, Supply/Install Chain Anodes

.1 Unit: each anode set to be supplied/installed as per the contract documents including connection hardware and remaining a part of the completed structure including removal and disposal of existing chain anodes.

.12 Item No. 12, Power Wash Float Decking

.1 Unit: A single lump sum for work and equipment required to pressure wash the timber decking to remove organics.

.13 Item No. 13, Supply/Install Float Joists

.1 Unit: A single lump sum for two float joists supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.14 Item No. 14, Supply/Install Rubber Tire Fenders

.1 Unit: each rubber tire supplied, placed, secured and remaining an integral part of the completed work as specified, including connection hardware and removing and disposing of any poor tires or pieces of tires.

.15 Item No. 15, Supply/Install Pile Well Guards

.1 Unit: each lineal meter of treated timber well guard placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.16 Item No. 16, Supply/Install Bullrail Risers

.1 Unit: each bullrail riser placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.17 Item No. 17, Remove and Replace Electrical Box

.1 Unit: a single lump sum for the removal and relocation of the existing electrical box to the new pile well guards. Including all materials supplied, placed, secured and remaining an integral part of the completed work.

.18 Item No. 18, Plug Existing Bolt Hole

.1 Unit: each bolt hole plugged including all labour and materials secured and remaining an integral part of the completed work as specified, including connection hardware.

.19 Item No. 19, Replace Bolt (Approach)

.1 Unit: each bolt placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.20 Item No. 20, Supply/Install Aluminum Pile Hats

.1 Unit: each aluminum pile hat placed, secured and remaining an integral part of the completed work as specified, including connection hardware.

.21 Item No. 21, Removal of Existing Piles

.1 Unit: each timber treated pile to be removed and disposed of as specified and as shown on the plans.

.22 Item No. 22, Disposal of Miscellaneous Removed Materials

.1 Unit: A single lump sum for all miscellaneous materials to be disposed of as per the contract documents.

PART 2 PRODUCT

2.1 General

.1 Use only new materials except where specified otherwise.

2.2 Chain Anodes

.1 Anodes:

.1 152 mm OD and 25 mm thick anodes.

.1 Provide Departmental Representative with metallurgical ladle analysis certification of the anode material.

.2 Ladle analysis is to be provided to Department Representative within 4 weeks of contract award.

.2 Anodes to be placed on all submerged anchor chain, as specified and shown on plans.

.3 Material:

.1 Sacrificial (galvanic) anodes shall be aluminum and conform to the following alloy composition:

.1 Copper 0.002 %

.2 Indium 0.015 % to 0.04 %

.3 Zinc 3.0 to 6.0 %

.4 Silicon 0.1 %

.5 Aluminum remainder

.4 Shape:

.1 Circular.

.5 Mounting:

.1 Single central through bolt.

.2 Anti-seize compound for metallic contact surfaces. Compound shall be Loctite # 242, or alternate approved by addendum during tender.

2.3 Shackles

.1 Shackles:

.1 Crosby load-rated shackles or alternate approved by addendum during tendering.

.2 Secure pin against rotation after fastening with No. 12 gauge (2.052 mm) insulated solid copper wire.

2.4 Hardware

.1 Bolts (drift, machine, carriage, lag, etc.), nuts and washers: hot dip galvanized to CAN/CSA-G164.

.2 Spikes and nails: hot dip galvanized to CAN/CSA-G164 unless otherwise specified.

.3 All other hardware specified to be galvanized: hot dip galvanized to CAN/CSA-G164 unless specified otherwise.

2.5 Mooring Well Liner

.1 Mooring well liner:

.1 Black ultra-high molecular weight (UHMWPE) polyethylene for marine use.

.2 Acceptable product: Tivar 100 or alternative approved by addendum during tender period.

2.6 Piling

.1 Wood piling (round):

.1 Douglas Fir to CSA O56, preservative treated with creosote.

.2 Piles to be size 36, peeled, unless otherwise specified.

2.7 Shimming

.1 Shimming to be completed with treated timber plywood shims.

.2 Each shim placed is to be fit tight between the pilecap and pile to ensure effective bearing is restored.

.3 The smallest horizontal dimension of the shim shall be no less than the diameter of the pile.

2.8 Steel

.1 Small fastenings: to CSA B111.

.2 Drift bolts, machine bolts, washers and miscellaneous iron: to CSA G40.21.

.3 Items manufactured or fabricated from scrap steel of unknown chemical composition or physical properties are not acceptable.

.4 Bolts: all bolts are to be machine bolts unless specified otherwise.

.1 Machine bolts:

.1 Conform to ASTM A307 (Unless noted otherwise).

.2 Provide with steel plate washers under head and nut, unless specified otherwise.

.2 Drift bolts: unpointed, with ragged edges beaten off.

.5 Steel plate washers:

.1 Shape: round, unless specified to be square.

.2 Size: select from table below, unless specified otherwise:

WASHER DIMENSIONS			
Bolt Size	Thickness	Round Plate Outside Diameter	Square Plate Side Size
12.7 mm	5 mm	62 mm	62 mm
15.9 mm	6 mm	69 mm	69 mm
19.1 mm	6 mm	75 mm	75 mm
22.2 mm	8 mm	81 mm	81 mm
25.4 mm	9 mm	87 mm	87 mm
31.8 mm	11 mm	100 mm	100 mm
38.1 mm	11 mm	112 mm	112 mm

.6 Bolt holes:

.1 Machine bolts: bore holes to provide a driving fit.

.2 Drift bolts: bore holes 1.5 mm less than bolt diameter.

.7 Welding:

.1 Unless specified otherwise, welding is to be in accordance with CSA W59.

.2 Provide evidence that welding companies are certified to CSA W47.1.

.8 Wire rope clips:

.1 Forged or Crosby G450, galvanized, U-bolt or double saddle type.

.2 Install in accordance with manufacturer's requirements and WorkSafe BC Regulations.

2.9 Steel Grades:

.1 Steel Grades:

.1 Channels and Angles: 350W

.2 Miscellaneous Plate: 300W

.2 Finish:

.1 All fabricated steel channels, angles and plates are to be hot dipped galvanized unless otherwise noted.

2.10 Rubber Tires:

.1 Rubber tires for fendering on floats may be new or used passenger or light SUV/truck tires.

.2 Size to be 150 to 210 mm tread width, overall diameter 550 to 630 mm, minimum sidewall (tread to bead distance) 100 mm.

.3 Tires to have intact beads, to not have any missing tread, to not have splits, to not have holes larger than 10 mm diameter, and to not have any exposed cord or fabric.

2.11 Timber

.1 Timber to NLGA, No. 1 Structural Grade Coast Douglas Fir conforming to NLGA Standard Grading Rules for Canadian Lumber 2003 unless otherwise specified.

.2 Decking lumber: decking to be wane free.

.3 Timber shall be graded in the following classes:

.1 Boards, sheathing and form lumber.

.2 Light framing.

.3 Joists and planks.

.4 Beams and stringers.

.5 Posts and timbers.

.4 Frame and bore timber before treating unless specified otherwise.

2.12 Treatment of Wood Materials

.1 Produce and install treated wood products in accordance with CSA 080-08 series and the Western Wood Preservers Institute and Canadian Institute of Treated Wood Best Management Practices for Treated Wood in Western Aquatic Environments, latest edition, (BMP).

.2 Testing:

.1 PWGSC will carry out materials testing, including core sampling, at the treating plant. Data will be made available to the Contractor for information only.

.2 Notwithstanding PWGSC's testing program, Contractor will ensure that materials meet PWGSC's requirements in all respects. PWGSC reserves the right to reject materials on site.

.3 Before shipping material to site, provide a certificate from the treated wood producer that BMP's were utilized, including a description of the BMP's that were utilized.

.3 Use Category UC 3.2, solid sawn products, exposed to weather, not in ground contact. May be coated for aesthetics.

.1 Includes decking, guard raisers, wharf guards, float upper splice blocks, float guards, handrails, handrail posts if no ground contact.

.2 Treat in accordance with CSA O80 for products under use category UC 3.2 and Clause 9.2 of O80.1.

.1 Preservatives, retention, and penetration:

.1 ACZA, 4.0 kg/m3 or

.2 CCA, 4.0 kg/m3

.3 Penetration of solid sawn products in accordance with O80:

.1 10 mm and 90% of sapwood if material is less than 115 mm thick, or

.2 13 mm and 90% of sapwood if material is greater than or equal to 115 mm thick

.4 Use Category UC 4.1, contact with ground, freshwater, and/or salt water splash.

.1 Includes float and wharf joists, float and wharf stringers, fishplates, plywood shims not under UC5A, pile caps, corbels, dolphin blocking.

.2 For solid sawn products, treat in accordance with CSA O80 for products under use category UC 4.1 and Clause 9.2 of O80.1

.1 Preservatives, retention, and penetration:

.1 ACZA, 6.4 kg/m^3 or

.2 CCA, 6.4 kg/m^3 or

.3 Creosote [not allowed for handrail posts],

.1 160 kg/m^3 if thickness less than 115 mm

.2 120 kg/m^3 if thickness greater than or equal to 115 mm

.4 Penetration of solid sawn products in accordance with O80:

.1 10 mm and 90% of sapwood if material is less than 115 mm thick, or

.2 13 mm and 90% of sapwood if material is greater than or equal to 115 mm thick

.3 For composite products (plywood), treat in accordance with CSA O80 for products under use category UC4.1 and Clause 9.7 of O80.1.

.1 Preservatives and retention:
.1 ACZA, 6.4 kg/m^3 or
.2 CCA, 6.4 kg/m^3 or
.3 Creosote, 160 kg/m^3Use

.5 Category UC5A, Marine (salt water exposure).

.1 Includes round wood piles, solid sawn products, and plywood, including piles, pile braces, pile walers, bulkhead timbers, retaining wall materials, float cross ties, float flanges, lower and middle splice blocks for float flanges and stringers.

.2 Treat in accordance with CSA O80 for products under use category UC5A and Clause 9.8 of O80.1

.1 Preservatives, retention, and penetration:
.1 ACZA, 30 kg/m^3 or
.2 CCA, 24 kg/m^3 or
.3 Creosote, 290 kg/m^3
.4 Penetration of solid sawn products in accordance with O80:
.1 10 mm and 90% of sapwood if material is less than 115 mm thick, or
.2 13 mm and 90% of sapwood if material is greater than or equal to 115 mm thick
.5 Penetration of plywood in accordance with O80 for products under Clause 9.6.5 of O80.2.
.6 Penetration of piling in accordance with O80: 19 mm and 90% of sapwood.

2.13 Pile Shimming

.1 Any required timber shims shall be creosote treated plywood.

2.14 Pile Wrap

.1 Contractor shall comply with all written recommendations of the manufacturer regarding supply, application and fastening of the specified system.

.2 System to be comprised of under wrapped piling tape and outer wrapping HDPE cover to the following characteristics:

.1 Pile Tape: Marine Piling Tape shall be comprised of a non-woven synthetic fabric carrier fully impregnated and coated with a neutral petrolatum based compound with

water displacing agents and wide spectrum biocides and backed with a thin layer of HDPE. The marine piling tape shall have a character stable in composition and plasticity over a wide temperature range. The tape shall be non-hardening and non-cracking. The tape shall accommodate vibration and extreme movement of substrate and be highly resistant to mineral acids and alkalis.

.1 Acceptable products for marine pile tape include:

.1 Denso Seashield Series 90 – timber pile protection system – Denso North America

.2 Pile-Guard® PVC-T with Petrolatum Tape – Barrier Industrial Marine Products LLC

.3 Alternate approved by addendum during tender period.

.2 Contractor to submit for review material specifications, data sheets, and manufacturers installation instructions within four (4) weeks of contract award.

.2 HDPE Outer Cover. The flexible outer cover shall be High Density Polyethylene (HDPE). It shall be new, seamless non-rigid virgin material. The sheet shall be uniform throughout, free from dirt, oil and other foreign matter and free from cracks, creases, wrinkles, bubbles, pinholes and any other defects that may affect its service. The sheet shall conform to the following mechanical and physical properties.

.1 Physical Properties: ASTM Method/ Typical Values

.1 Tensile Strength: 21 N/mm / ASTM D-638

.2 Elongation: HDPE 560% min. / ASTM D-638

.3 Specific Gravity: 0.90-0.96 / ASTM D-1505

.4 Low Temperature: -73°C / ASTM D-746

.5 Tape thickness: 1.0 mm minimum

.6 Fabrication Thickness Tolerance: +/-10% / ASTM D-1593.

.2 Contractor to submit for review material specifications, data sheets, and manufacturers installation instructions within four (4) weeks of contract award.

PART 3 EXECUTION

3.1 Bolt Holes in Treated Material

.1 Re-use existing bolt holes wherever possible.

.2 Plug unused bolt holes with a tight-fitting creosote-treated plug and cover with a copper patch as specified and as shown on the drawings.

.3 Department Representative is to agree in advance of completing the work if the contractor does not believe an existing bolt hole is suitable for re-use.

3.2 Bullrail (Tie-up Rail) Replacement

.1 Bullrails to be replaced full length up to 6.1m of rail.

.2 Replacement sections to be match drilled using existing members to match existing bolt holes.

.3 New timber risers 89x140 to be provided to suit float bullrail system.

3.3 Field Preservative Treatment

.1 Treated materials:

.1 Do not make field cuts in treated material unless permitted by the Departmental Representative. When specified, field treat cuts as specified with field treatment preservative.

.2 Pile tops, pile bolt holes, pile bracing bolt holes, and cap-to-pile bolt holes may be field cut. Treat as specified.

.3 Treated piles and timbers, pile tops, raw timber ends, field framed joints, field drilled holes, and raw timber from other causes: when field treating is permitted, field treat to CSA O80, using 2 coats of wood preservative for field treatment indicated in CSA O80.

.4 Field cuts on the float flanges and splice blocks are not permitted except for field drilling. Timber materials are to be to exact lengths.

.5 All timbers, including but not limited to float flanges and splice blocks, are to be field drilled to match existing bolt patterns. The new timbers are then to be removed, allowed to dry and bolts holes treated in accordance with CSA 080.

.6 The bolts are to be coated in a roofing tar and each surface face of the bolt hole in the timber is to be sealed with a neoprene gasket beneath the metal washer.

.7 Where field treatment is required, treat with 3 coats of preservative (for specific preservatives refer to section 2.6 Treatment of Wood Materials for each type of member treated).

3.4 Handling of Treated Materials

.1 Creosoted piling will be rejected if sharp or pointed tools (i.e. dogs, pike poles, peavies, etc.) are used beyond 1 metre from either end in handling them during construction.

.2 Treated material will be rejected if damaged in any manner during handling, including damage from strapping and slings.

3.5 Pile Removal

.1 Piles to be removed: fully extract from ground. Full extraction of the piles governs over recommendations included in Appendix A.

.1 Expected level of effort:

.1 Full extraction is the use of a vibratory hammer and straight-line pull along the axis of the pile.

.2 Minimum characteristics of vibratory hammer are to include the following:

.1 Line pull 450 kN minimum.

.2 Bare hammer weight 2,000 kg.

.3 Adjustable frequency between 0 – 2,300 vibrations per minute.

.4 Equipped with end suitable for removal of timber piles.

.2 Contractor may choose alternate extraction methods. If full extraction is not achieved, provide alternate equipment to achieve the requirement up to and including the equipment identified in “Expected level of effort”. Provision of this alternate equipment will be at no additional cost to Canada.

.3 Failure of the equipment identified under “Expected level of effort” to fully extract the piles will be considered as a change in ground conditions.

.4 If any piles are not able to be fully removed Department Representative is to be contacted for further instruction.

.2 Measure, record and report the penetration length of extracted pile (pile length below the mudline).

.3 Piles are to be driven at least 0.3 m further (below mudline) than the extracted pile.

.4 Remove large invertebrates from the piles in accordance with Section 01 35 43 – 1.9.2 – Protection of Wildlife

.5 Schedule of pile driving to be confirmed with Department Representative 3 days prior to planned pile removal.

3.6 Pile Driving

.1 Equipment: to be capable of driving piles at each of the locations required by the drawings and specifications.

.1 Hammer:

.1 Capable of developing a blow at operating speed with an energy of not less than 20,000 joules per blow.

.2 When required penetration is not obtained by use of hammers complying with minimum requirements, use a larger hammer or take other measures approved by the Departmental Representative.

.2 Vibratory Hammer:

.1 If the contractor proposes the use of a vibratory hammer for driving piles the specifications of the equipment to be used must be submitted in writing to the Departmental Representative prior to acceptance of the alternate.

.3 Leads:

.1 Pile driver leads to provide free movement of hammer. Hold leads in position at top and bottom with guys, stiff braces or other means approved by the Departmental Representative, to ensure support to pile while being driven.

.2 Provide length of leads so that use of follower is unnecessary.

.2 Drive piles so as to avoid splitting, brooming or other damage to piles. Make sufficient allowance so that, when driven to final position, pile may be cut off at a sound section.

.3 Piles damaged in driving: remove from site and replace with new piles.

.4 Drive piles vertically to the deeper of 5.0m penetration or that specified in "Pile Removal" clause unless solid bearing is reached at a lesser depth and approved by the Departmental Representative in writing.

.5 Cut off piles as specified.

.6 No cranes are to be operating on the wharf structure without prior approval from the departmental representative due to wharf load capacity.

.1 Prior to the use of equipment on the wharf structure a written proposal is to be provided to the department representative for review and approval. Details of the submission are to include:

.1 Details of the proposed equipment

.2 Placement on the wharf

.3 Wharf strengthening methods to ensure crane is operating within the capacity limits of the structure.

.4 Statement from a professional engineer registered in the province of British Columbia stating the suitability of the loading for the structure in accordance with the proposed procedure.

.1 The professional engineer must examine the structure and determine that the structure has the capacity for the crane and associated loads to transit and operate in accordance with the procedure.

.2 The professional engineer must prepare the submitted procedure together with any required drawings, and will undertake any necessary field supervision.

.2 The load capacity of this facility is as follows:

.7 Pile driving is to be completed within the following windows:

.1 July 1st – August 15th

.2 November 15th – February 15th

.8 Record pile driving data for each pile driven. This information must include total length of pile and length of pile below the mudline (for both the new and existing piles) and if a hammer is used hammer weight, drop height and blow count data.

.9 Schedule of pile driving to be confirmed with Department Representative 3 business days prior to pile driving.

3.7 Pile Top Treatment

.1 Bearing piles and posts:

.1 Cut off to provide full bearing for the cap.

.2 Protection: treat end cut-offs and drilled bolt holes with preservative in accordance with CSA O80.

.3 Immediately after cut-off and preservative treatment, cover the tops of all piles or posts with an aluminum cap.

.2 Mooring piles, dolphin piles, and Fender piles: treat tops with 2 coats of approved wood preservative.

.3 Provide further protection by covering each pile top with a sheet of 0.8 mm annealed corrosion-resistant aluminum, cut 150 mm larger than pile top diameter, edges turned down and secured to the pile with 8 aluminum roofing nails. Do not cut or otherwise puncture aluminum sheet.

3.8 Pile Wrapping

.1 Pile wrap is to be installed in conformance with manufacturer's written recommendations for installation of the specified system.

3.9 Pressure Washing

.1 Timber float decking to be pressure washed to remove organics from the decking surface.

.2 Pressure washer to be minimum of 2500 psi rating, operated with a low pressure tip such that no damage to the float decking occurs but deck is sufficiently cleaned of organics.

3.10 Timber Decking

.1 Decking shall meet in square cut butt joints.

.2 Decking spacing shall be as specified in the project documents for a given moisture content of 19%.

.3 Float decking shall be connected using 125 mm long spiral nails, 2 per contact, predrilled holes if within 52 mm of the end of the deck board. (This procedure is valid for 52 mm decking.)

.4 Wharf decking shall be connected using 200 mm long spikes, 2 per contact, predrilled if within 102 mm from the end of the deck board. (This procedure is valid for 102 mm decking.)

3.11 Material Disposal

.1 General:

.1 Debris (including all surplus and cut-off members) specified to be removed and disposed of becomes the property of the Contractor. Disposal of the debris shall be performed in an environmentally sensitive manner at upland site(s) approved by the Ministry of Water, Land and Air Protection under the B.C. Waste Management Act, and by other agencies having jurisdiction, including municipal authorities.

.2 All disposal sites must be operating with up-to-date permits and licences.

.3 The Contractor shall submit proof of approval(s), copies of current permits and licences to the Departmental Representative 10 days before the initial disposal of debris.

.2 Certificates of Disposal:

.1 Provide the Departmental Representative with certificates of disposal from the disposal site, noting the dates, quantities, weights and general description of the debris received and proof of payment of all disposal fees.

.2 Provide certificates within 5 days of disposal.

.3 The Contract work will not be accepted until all certificates have been received by the Departmental Representative.

3.12 Restoration

.1 Salvage and reinstall, using new galvanized hardware, existing decking, raisers, guards and handrails where the work necessitates their removal

.2 Any portion of the existing structure or other facilities at the site that are damaged due to construction activities are to be restored to new condition at the Contractor's expense.

-END OF SECTION-

APPENDIX A

DFO – Best Management Practices Document
Pile Driving

Best Management Practices for Pile Driving and Related Operations – BC Marine and Pile Driving Contractors Association - November, 2003

The BC Marine and Pile Driving Contractors Association and Fisheries and Oceans Canada (DFO) have developed a Best Management Practices Policy for pile driving operations and related activities when working on the water within the province of British Columbia.

The Pile Driving Industry utilizes many different construction methods, equipment and materials in order to complete the contractual obligations for its client. Hammers; including drop, diesel, air, vibratory and hydraulic, vibroflot and rotary, air and churn drills are the primary instruments in a pile driving operation. These hammers and drills are supported by a wide variety of heavy equipment, including a range of conventional cranes (truck mounted, crawler and pedestal mounted), spud scows, support barges and other water borne equipment. The piling types include treated timber (primarily creosote), concrete and steel (pipe, h-beam and sheet). Construction projects have the potential to utilize a number of different combinations of equipment and materials. It is the purpose of this document to examine the characteristics of each potential combination and develop a Best Management Practices Policy that will meet the following criteria:

-Maximize environmental protection
-Avoid contravention of the Fisheries Act
-Provide construction services economically

1) Basic Rules of Operation

When in an aquatic environment, contractors will employ the following BASIC Best Management Practices:

- All equipment will be maintained in good proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes hydraulic fluid, diesel, gasoline and other petroleum products.
- Storage of fuels and petroleum products will comply with safe operating procedures, including containment facilities in case of a spill.
- Pile cut-offs, waste or any miscellaneous unused materials will be recovered for either disposal in a designated facility or placed in storage. Under no circumstances will materials be deliberately thrown overboard.
- Contractors will have emergency spill equipment available whenever working near or on the water.
- Contractors, where possible, will position their water borne equipment in a manner that will prevent damage to identified fish habitat (i.e. eelgrass). Where possible, alternative methods will be employed (i.e.: use of anchors instead of spuds). In the event that, despite precautions, the contractor is aware that fish habitat has been

inadvertently damaged, the incident must be reported and discussed with DFO to ensure that appropriate action (restoration) is taken.

- Prior to the commencement of any work, the contractor will complete and forward the attached "Notice of Project" to the Department of Fisheries and Oceans. Letters of advice or Habitat Authorizations may be required, depending on the scope of work proposed.
- If contractors are working and a herring (or other fish) spawning occurs, the work will be temporarily suspended and the appropriate DFO contact notified.
- There will be no restriction of work during closure periods (the only exception being when spawning is present, all work must cease and the local DFO habitat biologist must be contacted for further instructions), provided the contractors employ an exclusion device (protective netting or geotextile material suspended in the water column around pile driving area) around the work area to prevent fish access or when required, an effective method of mitigating shock waves (bubble curtain).
- Whenever shock wave monitoring (hydrophone) is performed at a marine construction site and the findings are available to the contractor, the data will be forwarded to the BC Marine and Pile Driving Contractors Association and Svein Vagle at the Institute of Ocean Sciences in Sidney, BC. It is hoped that a database can be built that will more precisely define work procedures and reflect the safest and most economical approach to protecting the fish and their habitat.

2) Timber Piling (creosote):

When driving timber piling, the following Best Management Practices will be employed to prevent impact to marine fish and their habitat:

- Where possible, new timber piles will comply with the best Management Practices for the use of treated wood in aquatic environments as developed by the Canadian Institute of Treated Wood and the Western Wood Preservers Institute and the DFO document "Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments in the Pacific Region".
- Where the above is not possible, creosote piling will stand (weather) for a minimum of 45 days prior to installation.
- These requirements are for new piling only. Reused piling will not normally be subject to any additional treatments (timberfume is a provincially licensed preservative that is available for treatment of used piles), however, pilings with excessive creosote should be avoided. Reuse of suitable piling should be encouraged. In the case of mooring piles, exposed to significant wear, the contractor should encourage the owner to protect the piling with rub strips as per the "Guidelines for use of Treated Wood.
- Timber piling is normally driven using a drop hammer, a diesel/air impact hammer or a small vibratory hammer. Because of the relative small diameter of the timber pile, and its excellent energy absorbing quality, there is little threat of sound pressure impacts to fish and their habitat when driving timber piles.

- Environmental monitoring of sound pressure impacts is not required.
- An attempt should be made to determine whether least impact means full extraction of the piling or if leaving a stub that would not interfere with navigation is acceptable. If complete demolition is required on timber pile structures, the contractor will remove the piling by mechanical means and avoid breaking the piling at the mud line or below. It may be appropriate to cut off the piling flush with the mud line. All demolition operations should be monitored in order to control and contain the construction debris and to determine whether there are any effects on fish or fish habitat.

3) Concrete Piles

When driving concrete piles, regardless of which hammer is being used, the following Best Management Practices will be employed to minimize/prevent impacts to fish habitat:

Concrete Piles 24 inch diameter and less

- The physical design of 24 inch concrete pile dictates that: 1/ the energy required must be controlled in order to prevent the pile from breaking and 2/ the concrete construction of the pile will absorb the energy. These two factors are expected to result in low level shock wave emission (less than 30 kPa.) and minimal or no effects to fish and their habitat should result.
- Environmental monitoring of sound pressure levels is generally not required.

Piles Greater than 24 inch diameter

- When driving concrete piles with a diameter greater than 24 inches using an impact or hydraulic hammer, the following Best Management Practice will be employed to minimize the impact on fish habitat:
- Visual and hydrophone monitoring of the impact on fish by the sound waves emitted will be required. If sound pressures over 30 kPa are measured or a fish kill occurs, the contractor will introduce effective means of reducing the level of the shock waves. Appropriate mitigating measures would be the deployment of a bubble curtain over the full length of the wetted pile. This should reduce the shock waves to an acceptable level.
- If, despite the introduction of preventative measures, further visual/hydrophone monitoring reveals unacceptable conditions (fish kill or sound pressure over 30 kPa), the work will stop immediately, DFO will be contacted, and the methods will be reviewed and corrected

4) Steel Pipe Piles

Piles less than 18 inch diameter

When driving steel piles 24 inches in diameter and less, regardless of the type of hammer being used, the following Best Management Practices will be employed to prevent impacts to fish habitat:

- Because of the small diameter of the pile it is assumed that the energy required to drive the pile to the final point of installation will not result in shock waves in excess of 30 kPa, therefore, protective measures to reduce shock waves are not expected to be required.
- If, however, ground conditions during pile installation cause a fish kill, work will cease and contractors will be responsible for introducing effective means of reducing the level of shock waves or will introduce measures that will prevent fish from entering the potentially harmful shock wave area. Appropriate mitigating measures would include the deployment a bubble curtain over the full length of the wetted pile. This technique should reduce the shock waves to an acceptable level.
- If, despite the introduction of preventive measures, further visual/hydrophone monitoring reveals unacceptable conditions (fish kill or sound pressure over 30 kPa), then the work will stop immediately and the methods will be reviewed and corrected (with consultation with DFO).

Piles Greater than 24 inches in diameter

When driving steel pipe piles with a diameter greater than 24 inches using impact or hydraulic hammers, the following Best Management Practices will be employed to prevent impacts to fish habitat:

- Hydrophone and visual monitoring of the effects of the shock waves on fish will be required. If a fish kill occurs, the contractor will introduce effective means of reducing the level of the shockwave. Appropriate mitigating measures would be the deployment of a bubble curtain over the full length of the wetted pile.
- If, despite the introduction of preventive measures, further visual/hydrophone monitoring reveals unacceptable conditions (fish kill or sound pressure over 30 kPa), then the work will stop immediately and the methods will be reviewed and corrected (with consultation with DFO).

5) Steel Sheet Piles and H-piles

When driving steel sheet piles and H-piles with a drop hammer, an impact hammer or a vibratory hammer, the following Best Management Practices will be employed to minimize the impact on fish habitat:

- It is anticipated that the driving of these types of piles will not generate shock waves in excess of 30kPa, therefore, mitigating measures are not expected to be required.
- If, however, ground conditions during pile installation cause a fish kill, work will cease and contractors will be responsible for introducing effective means of reducing the level of shock waves or will introduce measures that will prevent fish from

entering the potentially harmful shock wave area. Appropriate mitigating measures would include the deployment a bubble curtain over the full length of the wetted pile. This technique should reduce the shock waves to an acceptable level.

- If, despite the introduction of preventive measures, further visual/hydrophone monitoring reveals unacceptable conditions (fish kill or sound pressure over 30 kPa), then the work will stop immediately and the methods will be reviewed and corrected (in consultation with DFO).

6) Stone Column Construction

When installing stone column using a vibroflot, the following Best Management Practices will be employed to prevent impacts to fish habitat:

- The vibrating action and air flush associated with the operation of the probe results in a high degree of turbidity. When this level exceeds the criteria as outlined in the British Columbia Approved Water Quality Guidelines, the contractor will introduce containment methods that are designed to isolate the contaminated area and to prevent fish from entering the contaminated area. Silt curtains and netting are two methods that can provide the necessary protection.
- When supplying the aggregate to the probe, the contractor will ensure that spillage is prevented, thereby providing additional protection to fish habitat.
- An independent environmental consultant will be used to monitor turbidity levels.

7) Underwater Drilling and Blasting

When performing underwater drilling and blasting the following Best Management Practices will be employed to prevent impacts to fish habitat:

<u>Underwater Drilling</u>

- Generally, drilling underwater is a process that has very little impact on fish or fish habitat. The procedure does not generate shock waves.

- Contractors will ensure that all attachments (hydraulic connections and couplings) are in good operating order and inspected prior to the start of every day. Spill kits and containment booms must be maintained on-site in case of spills.
- Depending on soil conditions and the potential for turbidity, drill cuttings will be deposited adjacent to the operation, contained on the sea bed or pumped to the surface for deposit into containment skiffs or scows for land disposal when it is determined that the drill cuttings are unsuitable for return to the environment.

Underwater Blasting

Contractors required to perform blasting underwater will provide the following protection to prevent impacts to fish habitat:

- Because of the potential for harmful shock waves resulting from a blast, a protection shield will surround the immediate blast area. This would be in the form of an air-induced bubble curtain, which has the primary purpose of absorbing the shock wave and a secondary purpose of preventing fish from entering the blast area.
- In order to protect against flying rock, mats (rubber) will be placed over the blasting area. The placement of the mats may also provide protection for any fish swimming in the immediate area.
- Monitoring of fish movement and concentrations will be conducted using a sounder to determine if fish herding or scaring techniques (seal bombs) can be utilized to reduce the presence of fish in the blast area. If fish scaring techniques are deemed necessary, the DFO habitat biologist or technician responsible for the project must be consulted to determine the risk to fish.

8) Cleaning out Pipe Piles:

When cleaning out pipe piles (i.e.: air lifting) the following Best Management Practices will be employed to prevent impacts to fish habitat:

- Generally, sediment contained in the pipe is will be pumped to the surface and processed through an approved containment system and disposed of at an approved landfill site.
- If the contractor knows that the sediment is toxic, the sediment must not be redistributed in the area. If the sediment is non-toxic, and if fish are not present in the area, and adjacent fish habitats are not a concern (contact DFO) it may be acceptable to:

1. Pump the sediment through a discharge tube and allow it to settle in the immediate area with or without a silt curtain to contain the sediment.
2. Pump the sediment through a discharge tube and additional flex hosing and redirect it back to the base of the pile.

9) Containment of Concrete Residue and Water Run Off

When placing concrete in form work over or in water, the following Best Management Practices will be employed to prevent the impacts to fish habitat:

Pouring concrete

- Spills: When pouring concrete all spills of fresh concrete must be prevented. Concrete is toxic to fish due its high pH. If concrete is discharged from the transit mixer directly to the formwork or placed by wheelbarrow, proper sealed chutes must be constructed to avoid spillage. If the concrete is being

- placed with a concrete pump, all hose and pipe connections must be sealed and locked properly to ensure the lines will not leak or uncouple. Crews will ensure that concrete forms are not filled to overflowing.
- Sealing forms: All concrete forms will be constructed in a manner which will prevent fresh concrete or cement-laden water from leaking into the surrounding water.

Curing concrete

- When fresh water is used to cure concrete, the run off must be monitored for acceptable pH levels. If the pH levels are outside the allowable limits then the run off water must be contained and neutralized.

Grinding concrete

- When grinding cured concrete, the dust and fines entering the water must not exceed the allowable limits for suspended solids. When grinding green or incompletely cured concrete and the dust or fines are entering the water, pH monitoring will be conducted to ensure allowable ranges are maintained. In the event that the levels are outside the acceptable ranges, preventative measures will be introduced. This may include introducing silt curtains to contain the solids and prevent fish from entering a contaminated area or constructing catch basins to recover the run off and neutralizing it prior to disposal.

Patching concrete

- Spills: When patching concrete, all spills must be contained and prevented from entering the water.

Washing hand tools, pumps and transit mixer

- All tools, pumps, pipes, hoses and trucks used for finishing, placing or transporting fresh concrete must be washed off in such a way as to prevent the wash water and excess concrete from entering the marine environment. The wash water will be contained and disposed of upland in an environmentally acceptable manner.

Whenever there is the possibility of contaminants entering water, the contractor will monitor pH levels to ensure acceptable levels.

APPENDIX

Fisheries and Oceans Canada

Contact List

Name	Telephone No.	Fax. No.

NOTICE OF PROJECT

Project Location:

To: Fisheries and Oceans Canada Attention:

Telephone/Fax/email:_____

From: "Contractor"

Telephone/Fax/email:_____

Representative:

Please be advised of the following marine/pile driving project:

Project Name:

Project Location:

Project Manager/Superintendent:

Project Telephone/Fax/email:_____

Project commencement date:

Project Information:

Type: Bearing Fender Mooring

Number of Piles:

Pile Diameter (if steel)

Type of Driving: Vibro Drop Hammer _____

Special Conditions at the Bottom (use of pins, sockets, epoxy, concrete, other)
_____

General Equipment On-Site (barge, truck, crane, etc.) _____

Signature of Contractor: _____

Date: _____

APPENDIX B

DFO – Best Management Practices Document
Docks and Floats

Fisheries and Oceans | Pêches et Océans

Pacific Region

Best Management Practices (BMPs) for Constructing Docks and Floats in the South Coast Area (Vancouver Island - Sunshine Coast)

- These BMPs apply to docks, floats and gangways proposed for the marineand freshwater shoreline. They do not, however, apply to congested waterways or foreshores where there are presently numerous docks and floats in a restricted area.
- Adherence to the BMPs should allow a property owner to construct a dock or float that will not adversely affect fish habitat.
- If you are able to meet the criteria set forth in these BMPs, you do not require further advice from Fisheries & Oceans Canada (DFO) Habitat Management staff. Completion of the notification page of this document and provision of the notification to the local DFO office is all that is necessary (See notification form attached).
- It is your responsibility to ensure that you have met the requirements of other agencies with jurisdication over land and water development in your area (Land and Water BC; local government, Regional Districts, etc).

The focus of these BMPs is to protect fish habitat from the impacts of shading, fill placement and low tide grounding of both structures and vessels.

1. Access ramps or walkways should be a minimum of 1.0 metre above the highest high water mark (HHW) of the tide, lake or stream.
2. Walkways should be a maximum width of 1.5 metres.
3. The bottom of floats should be a minimum of 1.0 m above the bed of the sea, lake or stream during the lowest water level or tide. Float height above lowest water level will need to be increased if deep draft vessels are to be moored at the dock or float.
4. Grating incorporated into ramps, walkways or floats will increase light and reduce shading of the sea/lake/stream bed. If grating is impractical, deck planks should be no wider than 15cm (6in) and planks should be spaced at least 2.5cm (1in) apart to allow light penetration.
5. North/South dock alignments will further improve light penetration.
6. Floats must not to be installed over marine or freshwater vegetation (eelgrass, kelp, saltmarsh, lake weeds, etc.).
7. Concrete, steel, BMP-treated or recycled timber piles are acceptable. For detailed information on treated wood options, refer to the *Guideline to Protect Fish and Fish Habitat from Treated Wood Used in the Aquatic Environment in the Pacific Region*, available on-line at *http://www.dfo-mpo.gc.ca/Library/245973.pdf*.

8. The dock/float structure and the vessel to be moored at the structure are not to come to rest on intertidal seabed, lakebed or streambed areas during the lowest tide or lowest water period of the year.
9. Construction must not to include use of native beach materials (boulders, cobble, gravel, sand, drift logs etc.).
10. Access to the beach for construction purposes is to be from the adjacent upland property wherever possible. If heavy equipment is required to work on the beach or access is required along the beach, you should seek the advice of a professional biologist to ensure that fish habitat, including riparian, intertidal saltmarch or in-water vegetation, is not adversely affected during construction.
11. Filling, dredging or blasting below the High Water Mark is not permitted.
12. Works at the upland/water interface are to be conducted when the site is not wetted by the tide or when the water levels in lakes and streams have receded, if practical.
13. Works are to be conducted in a manner that does not result in the deposit of toxic or deleterious substances (e.g. sediment, uncured concrete, sediment, fuel, lubricants, paints, stains, etc.) into waters frequented by fish.
14. Refueling of machinery and washing of buckets and hand tools must take place a minimum of 10m away from waters frequented by fish.
15. Marine foreshore construction should take place between June 1 and February 15 of any calendar year. Freshwater construction should occur during the period July 1 to September 15 in any calendar year.
16. Terrestrial riparian vegetation and intertidal saltmarsh or in-water vegetation must not be harmfully affected by access or construction. You are advised to seek the advice of a professional biologist if vegetation will be affected in any way by your proposed works

Please be advised that works in and around fish habitat (riparian habitats adjacent to fish bearing waters, tidal foreshores, lakeshores and streams) can negatively affect fish habitat. Section 35(1) of the Fisheries Act prohibits the harmful alteration, disruption or destruction of fish habitat (HADD). The Fisheries Act may be enforced if a HADD occurs during access, construction or maintenance of the erosion control structure.

For additional information, please visit our DFO website at www.pac.dfo-mpo.gc.ca

Revised by: DFO-Habitat Management, South Coast Area, March, 2004

NOTIFICATION TO DFO – CONSTRUCTION OF FLOATS AND DOCKS

You signature below indicates that you have read and understood these guidelines and will abide by them.

Name: _____
Address:_____

_____

Telephone #/cell#:_____
Worksite Address (if different from above):_____

_____

Detailed Description of Works(dimensions; materials-attach a drawing if desired):

_____

_____

_____

Start Date for Works:_____End Date for Works:_____

I acknowledge thatI will adhere to the conditions described for construction of floats and docks as outlined above. I will not place fill below the HHW mark, use native beach materials for construction or harmfully affect riparian or in-water vegetation or other fish habitats

Signature:_____ Date Signed: _____

Fax or Mail this form to your local DFO office AT LEAST **5** BUSINESS DAYS PRIOR to the planned construction start date. A Fisheries Officer may inspect your construction site to ensure compliance with the Fisheries Act.

Fax Numbers:
DFO- Comox: (250) 339-4612
DFO- Duncan: (250) 746-8397
DFO- Nanaimo: (250) 754-0309
DFO- Pender Harbour: (250) 883-2152
DFO- Powell River: (250) 485-7439
DFO- Port Alberni: (250) 724-2555
DFO- Powell River: (250) 485-7439
DFO- Victoria: (250) 363-0191

APPENDIX C

Environmental Review Document

Transport Canada | Transports Canada

Transport Canada Pacific Region
Environmental Review Record

A. PROJECT DESCRIPTION

Project Title	**Quatsino – Wharf and Float Repairs**
Project Location	**Quatsino, British Columbia**
OPI File no.	
RDIMS Record no.	**11896303**
NEATS Record no.	**39183**

B. PROJECT CONTACTS

Proponent	Transport Canada - Operations	**Telephone**	
		Email	
Representative and/or Environmental Consultant (if applicable)		**Telephone**	
		Email	

C. PROJECT DESCRIPTION

Transport Canada is proposing to conduct repairs and maintenance to the wharf and float at the Owikeno Public Port Facility. Works will include:

- Replacement of timber piles/pile driving
- Replacement of timber gloat members and wear components
- Replacement of submerged timber components
- Wrapping of submerged portion of piles

Work will be taking place within the waterlot and will involve heavy equipment (pile driver) mounted to a barge.

D. FEDERAL ACTION REQUIRED

Transport Canada:

- ☒ Is the proponent of the project
- ☐ Proposes to fund all or part of a project (*Which G&C Program*)
- ☐ Proposes to sell, lease or otherwise dispose of land for the project
- ☐ Proposes to issue a license, permit, approval (*Which license, permit or approval*)
- ☒ Minister approval required
- ☐ No formal federal action required.

Other Government Departments:

Identify the department(s)

- ☐ Is the proponent of the project
- ☐ Proposes to fund all or part of a project (*Which G&C Program*)
- ☐ Proposes to sell, lease or otherwise dispose of land for the project
- ☐ Proposes to issue a license, permit, approval (*Which license, permit or approval*)
- ☐ Minister approval required
- ☐ No formal federal action required but will provide expert advice

Details:

Transport Canada – Operations is the OPI and has contracted PWGSC to oversee the Project Management of this project.

Navigation Protection will be issuing a Section 9 (1) Permitted Notice under the *Navigation Protection Act*

E. TRANSPORT CANADA ENVIRONMENTAL REVIEW

Review under the Transport Canada Environmental Management System

☒ Transport Canada is committed to environmental stewardship under the National Environmental Management System. A region based environmental review has been conducted for applicable federal environmental interests.

☐ Based on operation experience, this project and/or activity has been identified as not having the potential to have an environmental effect. An environmental due diligence review was not required.

Review under CEAA 2012

☒ The project as proposed does not meet the definition of a designated project under CEAA 2012. However, this project is located on federal land and is therefore reviewable under Section 67 of CEAA 2012.

☐ Section 67 of CEAA 2012 does not apply.

F. PROCESS FIRST NATION CONSULTATION

☒ This project has been identified as unlikely to trigger a *Constitution Act* section 35 legal duty to consult as there is no crown conduct that would impact any potential or established section 35 rights. This project requires no consultation.

☐ Although it has been determined that there is no *Constitution Act* section 35 legal duty to consult, the project is being analyzed for potential environmental effects, as per section 5(1)(c) of CEAA 2012.

☐ This project activity does trigger a *Constitution Act* section 35 legal duty to consult

- ☐ s. 35 consultation is being conducted by the authority in Transport Canada responsible for the federal action enabling the project activity
- ☐ s. 35 consultation is being conducted as a part of the projects potential environmental effects, as per s.5(1)(c) of CEAA 2012.

RDIMS # for Consultation Record: n/a

G. ENVIRONMENTAL PROTECTION MEASURES

The following aspects and management components under Transport Canada's National Environmental Management System were taken into consideration:

- ☐ Air Quality
  - ☐ GHGs
  - ☐ Air Pollutants
- ☐ Land Management
  - ☐ Contaminated Soils/Sediments
  - ☐ Archaeology
- ☒ Water Quality
  - ☐ Drinking
  - ☐ Storm Water
  - ☒ Surface
  - ☐ Wastewater
- ☒ Waste Management
  - ☒ Non-Hazardous
  - ☒ Hazardous
- ☒ Emergency Preparedness
  - ☒ Environmental Emergency Plans
  - ☐ Environmental Emergency Exercise
- ☐ Green Buildings
- ☐ Hazardous Material Management
  - ☐ Glycol
  - ☐ Storage Tanks
  - ☐ Ozone Depleting Substances
  - ☐ Pesticides
  - ☐ Other Identified Hazardous Materials
- ☐ Resource Use
  - ☐ Fuels
- ☒ Flora/Fauna Management
  - ☒ Fish and Fish Habitat
  - ☐ Species at Risk
  - ☐ Migratory Birds
- ☐ Environmental Assessment
  - ☐ CEAA 2012 Sec 67
- ☒ Environmental Monitoring
- ☐ Due to the nature and/or location of the project/activity, a review under NEMS was not considered necessary

Environmental Services reviewed the Justification PAD in 2015/16 and provided initial comments on expectations for environmental protection related to the design and approach to carrying out the proposed work (RDIMS 10516494). These comments were made based on an initial scan of environmental components that had the potential to be impacted by the proposed work.

Further review was conducted in 2016 of the following document(s):
Draft Tender Specifications (99% review documents) produced by PWGSC and provided to Transport Canada on April 15, 2016 (RDIMS 11852800)

In order to make a determination under Section 67 of the *Canadian Environmental Assessment Act*, it was determined that the following would need to be included in the project design.

Fish and Fish Habitat and Water Quality

The project will include in water works which, without appropriate environmental controls, has the potential to impact fish and fish habitat.

- Based on the preliminary project description, a self-assessment was conducted to ensure this project does not need to be reviewed by Fisheries and Oceans Canada (DFO). This project meets the criteria under Harbours and Marine Commercial Activities and does not require DFO review.
- Even though the South Coast Area Pile Driving Best Management Practices (2003) have been archived by DFO, Transport Canada still requires that all applicable best management practices outlined within the document, excluding notification to DFO, are incorporated into the construction of the project. ***It is noted that this BMP and the BMP for Constructing Dock and Floats in the South Coast Area (Vancouver Island – Sunshine Coast) have been included in the Tender Specifications 99% Review Documents. Please note that the Contractor is not required to notify DFO of these works, based on the self-assessment completed by Transport Canada***

- The proposed work must be planned to be carried out between July 1st to August 15th or November 15th to February 15th. These timing windows represent the time period when the timing window of least risk to fish and fish habitat is open.
    - If works is to occur outside of the timing window of least risk, the contractor is expected to provide adequate environmental monitoring for the duration of the activity. This monitoring is referred to below in the environmental monitoring section.
        - Transport Canada, Environmental Services, must be notified at least 20 calendar days prior to the start of work outside of the timing window of least risk.
- Transport Canada is aware that Section 36(3) of the federal *Fisheries Act*, administered by Environment Canada, prohibits the discharge of deleterious substances to waters frequented by fish, or to a place where those substances might enter such waters. The Contractor and Public Works and Government Services Canada must ensure on behalf of Transport Canada that, at all times during the project, deleterious substances are prevented from entering into fish-bearing waters. Due diligence is required at all times to prevent such discharges.
- Care must be taken to ensure that fish or fish habitats are not damaged during the process of accessing and carrying out the work. Care must be taken when spudding down or anchoring the barge that fish habitats are not harmfully altered, disrupted or destroyed.
- Barges and other operating vessels are to avoid eelgrass, kelp beds, shellfish beds and other areas of shallow water. Increased turbidity as a result of prop wash must be avoided.
- No machinery is to be operated within the inter-tidal area.
- If a silt curtain is not being utilized, work should be temporarily stopped if a sea mammal or a school of fish has been sighted in the immediate work area. This physical area for such observations should be defined by the extent of any sediment plume created during the removal of debris and/or the extent to which equipment will be moving around within the waterlot.

Waste Management

- All refuse that is removed must be disposed of at an approved landfill site (approval may be from the Province of BC, or the designated regional authority under the Waste Management Act or by Department of Indian and Northern Affairs under the Indian Reserve Waste Disposal Regulations). Documentation must be obtained from the approved facility/landfill upon disposal. The documentation must include the name of the landfill, location of landfill, evidence of it being an approved facility, the date the debris was disposed of, and a general description of the debris disposed. A copy of the documentation must be sent to Environmental Services, Transport Canada via Public Works and Government Services Canada. This mitigation is applicable to all debris, including hazardous wastes.

Environmental Emergencies

It is noted that an environmental Emergency Response Plan (including Spill Response Plan) is a required document in the Tender Specification - 99% Review Documents.

A spill kit must be on site for the duration of the work and be appropriately equipped to deal with potential spills identified in the planning noted above. The Contractor will be required to also have personnel trained to use the spill equipment.

Environmental Monitoring

Transport Canada will require the Contractor to provide a short report (1-2 pages) once completed, outlining the following:

- If an Environmental Monitor was used and if so, name and credentials. If not, the name of the site supervisor responsible for stopping and assessing a situation if an emergency were to occur, (e.g. spill)
- Dates work was carried out
- Picture of Best Management Practices implemented to reduce impacts on water quality outside of the immediate work area
- Picture of Spill kit on site

- Date and time of the presence of any sea mammals and/or schools of fish observed in the area and what species, if identifiable. Action taken during mammal movement must be documented.
- Duration of activity and percentage of time in which a sediment plume was present during the removal of material from the seabed. This should include a description and pictures
- Details of any incidents and follow-up actions taken, if applicable

If works is to occur outside of the timing window of least risk, the contractor is expected to provide adequate environmental monitoring for the duration of the activity. Monitoring must include components listed above and:

- It is expected that an environmental monitor will be on site for the duration of the activity. Information regarding this individual(s) must be included and a description of their role and responsibilities
- The contractor is responsible for reporting what mitigation was implemented to contain sediment during the removal of debris from the sea floor and what procedures were implemented during the presence of fish and sea mammals.
- Date and time of any noted fish presence and what species, if identifiable. Action taken during fish movement must be documented.
- Date and time of the presence of any sea mammals in the area and what species, if identifiable. Action taken during mammal movement must be documented.
- Pictures of sediment curtain in use. If sediment curtain is not used, pictures of other mitigation implemented, if applicable.

Review Conclusions

Environmental Services is satisfied, based on the review of the above mentioned documents, that sufficient environmental protection measures can be utilized to reduce the potential environmental impacts associated with this type of activity, within the proposed work location.

H. ENVIRONMENTAL DETERMINATION

Transport Canada National Environmental Management System

☒A region based environmental review has been conducted for applicable federal environmental interests. With appropriate environmental mitigation in place, the proposed project and associated activities will have a minimal impact on environmental components of federal interest.

☐ A review under NEMS was not required.

Section 67 Determination under CEAA 2012

☒Transport Canada has determined that the carrying out of the project is not likely to cause significant adverse environmental effects

☐Transport Canada has determined that carrying out of the project is likely to cause significant adverse environmental effects and the Governor in Council must decide if those effects are justified in the circumstances under subsection 69(3) of CEAA 2012.

☐Not Applicable

I. SIGN-OFF

Analysis Completed by:	Karen Hall Environmental Officer Transport Canada	Date:	2016-04-29

Authority in Transport Canada responsible for the federal action enabling the project:

Jim Chan
Regional Manager, ~~Properties~~ Operations.
Transport Canada

Date

The above has read this Environmental Review, and confirms that the environmental measures/controls required to reduce the impact to the environment will be incorporated into appropriate tools being used to carry out the federal action enabling the project. Environmental Services is also committed to carrying out monitoring and oversight and will be supported by this Division in conducting appropriate site visits and/or requesting documentation as requested.

Environmental Services Support Provided By:

Ian Chatwell
Regional Manager, Environmental Services
Transport Canada

May 3, 2016.
Date

Authority in Transport Canada responsible for the federal action enabling the project:

Ryan Greville
Regional Manager, Navigation Protection Program
Transport Canada

3/5/16
Date

The above has read this Environmental Review, and confirms that the environmental measures/controls required to reduce the impact to the environment will be incorporated into appropriate tools being used to carry out the federal action enabling the project. Environmental Services is also committed to carrying out monitoring and oversight and will be supported by this Division in conducting appropriate site visits and/or requesting documentation as requested.

APPENDIX D

Hazard Assessment Form

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	**R. 077008.001 – Wharf Restoration**
Location:	**TC H&P Facility, Quatsino, B.C.**
Date:	**8 April 2016**
Name of Departmental Representative:	**Jimmy Wong**
Name of Client:	**Transport Canada**
Name of Client Project Co-ordinator	PH: ( )- -

Site Specific Orientation Provided at Project Location **Yes** ☐ **No** ☐

Notice of Project Required **Yes** ☐

NOTE:
PWGSC REQUIRES A Notice of Project FOR ALL CONSTRUCTION WORK RELATED ACTIVITIES

NOTE:
OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

Important Notice: This hazard assessment has been prepared by PWGSC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PWGSC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
Examples: Chemical, Biological, Natural, Physical, and Ergonomic Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.	**PWGSC, OGD's, or tenants**		**General Public or other contractors**		Note: When thinking about this pre-construction hazard assessment, remember a **hazard** is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the **risk** is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
	Yes	**No**	**Yes**	**No**	

Typical Construction Hazards					
Concealed/Buried Services (electrical, gas, water, sewer etc)	yes				
Slip Hazards or Unsound Footing	yes				
Working at Heights	yes				
Working Over or Around Water	yes				
Heavy overhead lifting operations, mobile cranes etc.	yes				
Marine and/or Vehicular Traffic (site	yes				

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vehicles, public vehicles, etc.					
Fire and Explosion Hazards	yes				
High Noise Levels	yes				
Excavations		no			
Blasting		no			
Construction Equipment	yes				
Pedestrian Traffic (site personnel, tenants, visitors, public)	yes				
Multiple Employer Worksite	yes				Example: Contractor working in an occupied Federal Employee space.

Electrical Hazards					**Comments**
Contact With Overhead Wires	yes				Electrical wires may be fastened to the structures.
Live Electrical Systems or Equipment	yes				
Other:					
Physical Hazards					
Equipment Slippage Due To Slopes/Ground Conditions	yes				
Earthquake	yes				
Tsunami	yes				
Avalanche		no			
Forest Fires		no			
Fire and Explosion Hazards	yes				Potential transport of dangerous goods at facility
Working in Isolation	yes				
Working Alone	yes				
Violence in the Workplace	yes				
High Noise Levels	yes				
Inclement weather	yes				
High Pressure Systems	yes				Use of a pressure washer
Other:	yes				Exposed to sea water – tides, currents, waves
Hazardous Work Environments					
Confined Spaces / Restricted Spaces	yes				
Suspended / Mobile Work Platforms	yes				
Other:	yes				Operation of heavy equipment
Biological Hazards					
Mould Proliferations	yes				
Accumulation of Bird or Bat Guano	yes				
Bacteria / Legionella in Cooling Towers / Process Water		no			
Rodent / Insect Infestation	yes				
Poisonous Plants		no			
Sharp or Potentially Infectious Objects in Wastes		no			
Wildlife	yes				Includes marine mammals, fish, and birds.
Chemical Hazards					

Asbestos Materials on Site		no			
Designated Substance Present		no			
Chemicals Used in work	yes				
Lead in paint	yes				No disturbance of existing paint is expected.
Mercury in Thermostats or Switches		no			
Application of Chemicals or Pesticides	yes				
PCB Liquids in Electrical Equipment	yes				TBD. No disturbance of any electrical equipment is expected.
Radioactive Materials in Equipment		no			
Other:	yes				Existing wood may be treated with wood preservatives including creosote, CCA, and ACZA.
Contaminated Sites Hazards					
Hazardous Waste		no			
Hydrocarbons		no			
Metals		no			
Other:					

Security Hazards					**Comments**
Risk of Assault	yes				Includes violence in the work-place.
Other:					
Other Hazards					

Other Compliance and Permit Requirements[1]	**YES**	**NO**	**Notes / Comments[2]**
Is a Building Permit required?		**no**	
Is an Electrical permit required?		**no**	
Is a Plumbing Permit required?		**no**	
Is a Sewage Permit required?		**no**	
Is a Dumping Permit required?		**no**	
Is a Hot Work Permit required?		**no**	
Is a Permit to Work required?		**no**	Mandatory for ALL AFD managed work sites.
Is a Confined Space Entry Permit required?	**yes**		Mandatory for any Confined Space Entry required to carry out the work. Service provider to identify confined spaces and implement permits as required. No confined space entry expected.
Is a Confined Space Entry Log required	**yes**		Mandatory for all Confined Spaces
Discharge Approval for treated water required	**yes**		No discharge of treated water expected.

Notes:

(1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.

(2) TBD means To Be Determined by Service Provider.

Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary protective measures (which may exceed those cited herein) for performance of the work.			
Service Provider Name			
Signatory for Service Provider		**Date Signed**	
RETURN EXECUTED DOCUMENT TO PWGSC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING			