



Public Works and Government Services Canada

Requisition No: EZ899-182125

SPECIFICATIONS
for

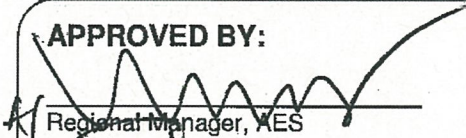
Sandspit Wharf Deconstruction

Sandspit, BC

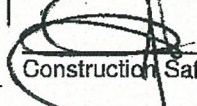
Project No. R. 082008.001

November 10, 2017

APPROVED BY:


Regional Manager, VES

Nov 15, 2017
Date


Construction Safety Coordinator

2017-11-20
Date

TENDER:


Project Manager

14 NOV 17
Date

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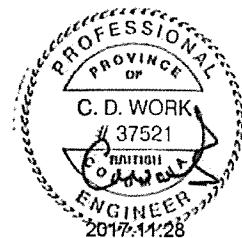
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SCHEDULE OF QUANTITIES AND PRICES

Item No.	Description of Work	Unit	Quantity	Unit Rate	Total Amount (\$)
1	Mobilization and Demobilization (Incl. Health and Safety)	l.s.	1		
2	Removal of Timber Piling	each	305		
3	Removal of Miscellaneous Timber Cross Braces, Stringers and Deck Boards	l.s.	1		
4	Transportation and Disposal of Loose Debris Recovered from the Waterlot	l.s.	1		
5	Transportation and Disposal of Timber Piles	each	305		
6	Transportation and Disposal of Miscellaneous Timber Cross Braces, Stringers and Deck Boards	tonne	330		
7	Supply/Placement of Backfill Material	m ³	305		
Subtotal					
GST					
TOTAL COST ESTIMATE INCLUDING ALL TAXES					

-END OF SECTION-

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.

1.5 Location of Site

- .1 The site is located on the south shore of Skidegate Inlet on the northern end of Moresby Island of Haida Gwaii. The coordinates of the site are 53°15'12" N, 131°49'09" W.
- .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 work generally includes removal and disposal of derelict remains of a timber pile supported approach and wharf, and debris surrounding the structure within the water lot.
 - .1 Removal, transportation and disposal of the existing timber approach. The structure consists of 84 – size 36, driven creosote treated timber

piles arranged in 3-pile bents, supporting the timber pile caps, stingers and decking.

- .2 Removal, transportation and disposal of the existing timber wharf. The structure consists of 112 – size 36, driven creosote treated timber bearing piles arranged in 8-pile bents, supporting the timber pile caps, stingers and decking. The wharf lateral and fendering systems consist of 33 creosote treated timber batter piles, cross bracing and walers throughout the substructure, and approximately 64 fender 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., Canada Labour Code, 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
 - .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 Departmental 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 9.14 metres below deck elevation.

1.14 Assistance by the Contractor

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

1.15 Time of Completion

- .1 Complete work within 16 weeks of contract award.

1.16 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 Departmental Representative 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:
Vancouver MCTS Centre
Canadian Coast Guard
Suite 2380, PO Box 12107
555 West Hastings Street
Vancouver, BC, V6B 4N6
 - .3 Telephone Numbers:
604-666-6011 RMIC
604-666-1004 Officer-in-Charge
604-666-1003 Administration
604-775-8919 Watch Supervisor
Telex Number: 043-52586 CGTC VAS VCR
Facsimile: 1-604-666-8453
 - .4 Email:
mctsvancouver@pac.dfo-mpo.gc.ca
 - .5 RMIC Email:
rmic-pacific@pac.dfo-mpo.gc.ca
 - .6 Provide copies of all project notifications to Department Representative.

1.17 Use of Site

- .1 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.
- .2 Work Site includes the area within the water lot boundary up to the high water mark only. The upland area is to be undisturbed and shall not be entered for any reason.
- .3 Navigational safety shall be maintained during the deconstruction work to avoid interactions between construction vessels and other potential users of the area.
 - .1 Marker buoys with appropriate signage shall be used to warn vessels as appropriate.
 - .2 Any materials or equipment used shall be marked in accordance with the Collision Regulations of *The Canada Shipping Act* if located in or

on the waterway.

- .3 All work must comply with the Navigable Waters Protection Act.

1.18 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.

1.19 Construction Equipment:

- .1 On request, prove to the satisfaction of Departmental Representative that the construction equipment is adequate to complete the work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.
- .2 Maintain construction equipment in good operating order.

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 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
 - .3 Additional tests specified in paragraph following.
- .3 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 Appendices; the Specifications and Plans govern over the Appendices

1.24 Permits

- .1 Contractor is responsible for all required permits except those listed below:
 - .1 DFO Permit (for in water work)
 - .2 All notice of project submissions.

PART 2 PRODUCTS

Not applicable.

PART 3 EXECUTION

Not applicable

-END OF SECTION-

PART 1 GENERAL

1.1 Approvals

- .1 Approval of shop drawings and samples: refer to Section 01 11 05, Clause 1.10.

1.2 General

- .1 This Section specifies general requirements and procedures for the Contractor's submissions of shop drawings, product data, samples and other requested submittals to Departmental Representative for review.
- .2 Present shop drawings and product data in SI Metric units.
- .3 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submissions.
- .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 Shop Drawings

- .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 Submit 6 prints of shop drawings for each requirement requested in the specification sections and/or as requested by the Departmental Representative.
- .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.

1.6 Progress Schedule

- .1 Submit work schedule and cost breakdown as required in Section 01 11 05.

-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 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 The majority of work at this location is anticipated to be completed from a vessel with the exception of preparatory work or the gathering of small debris items for removal which may be completed during suitably low tide. The work within the waterlot at the site will involve:
 - .1 Pile and miscellaneous timber removal.
 - .2 Facility removal efforts using heavy equipment
 - .3 Contaminated sediment removal
 - .4 Wet and slippery conditions

1.9 Regulatory Requirements

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of a conflict between any provisions 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 record keeping procedures.
 - .2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
 - .3 List hazardous materials to be brought on site as required by 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 labeling and provision of Material Safety Data Sheets

(MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

- .2 Where use of hazardous 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.

1.19 Unforeseen Hazards

- .1 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.

1.20 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 inclement 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.

1.21 Meetings

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

1.22 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.

1.10 Archaeological Monitoring

- .1 The deconstruction site is anticipated to have a high potential for archaeological findings.
- .2 Archaeological monitoring must be provided by the contractor for the duration of all works including excavation and ground altering activities above the low water level.
- .3 Archaeological monitor to provide guidance onsite to the contractor if artefacts are identified and a post-deconstruction written report of the construction process as it pertains to the archaeological findings. The written report must contain the following:
 - .1 Artefacts located including general location and time/day.
 - .2 Working days onsite (including start and end times)
 - .3 Report to be submitted to Departmental Representative within 14 days of construction completion.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

-END OF SECTION-

PART 1 GENERAL

1.1 References

.1 Federal Legislation

- .1 Canadian Environmental Protection Act, 1999, c. 33 (CEPA).
- .2 Canadian Environmental Assessment Act, 1992, c. 37 (CEAA).
- .3 Transportation of Dangerous Goods Act 1992, c. 34 (TDGA).
- .4 Motor Vehicle Safety Act 1993, c. 16 (MVSA).

1.2 Definitions

- .1 Alternate Disposal: reuse and recycling of materials by designated facility, user or receiving organization which has valid Certificate of Approval to operate. Alternative to landfill disposal.
- .2 Deconstruction: systematic dismantling of structure to salvage materials for reuse. What cannot be reused is considered subsequently for recycling. Ultimate objective is to recover potentially valuable resources while diverting from landfill what has traditionally been significant portion of waste stream.
- .3 Demolition: rapid destruction of structure with or without prior removal of hazardous materials.
- .4 Disassembly: physical detachment of materials from structure and may include: prying, pulling, cutting, unscrewing.
- .5 Hauler: company (possessing appropriate and valid Certificate of Approval) contracted to transport waste, reusable or recyclable materials off site to designated facility, user or receiving organization.
- .6 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.
- .7 Processing: tasks which are subsequent to disassembly and may include: moving materials, de-nailing, cleaning, separating and stacking.
- .8 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
- .9 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

- .10 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .11 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from remodelling projects before the demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items may include pallets and unused products to vendors.
- .12 Salvage: removal of structural and non-structural structure materials from industrial, commercial and institutional structure deconstruction/disassembly projects for purpose of reuse or recycling.
- .13 Source Separation: acts of keeping different types of waste materials separate beginning from first time they become waste.
- .14 Used Building Material Receipt: receipt issued at end destination for materials designated for alternate disposal.
- .15 Weigh Bill: receipt received from recycling facility indicating weight and content of each load/bin of material.

1.3 Submittals

- .1 Submissions to be submitted to Department Representative for approval. Work influenced by submissions is not to proceed until approval has been granted.
- .2 Prior to start of Work on site; submit descriptions of and anticipated quantities of materials to be reused, recycled and land-filled.

1.4 Deconstruction Drawings

- .1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams and details showing sequence of deconstruction work, materials designated for salvage and support of structures and underpinning.
- .2 Submit drawings stamped and signed by qualified professional Engineer registered or licensed in Province of British Columbia, Canada.

1.5 Quality Assurance

- .1 Qualifications: provide adequate workforce training through meetings and demonstrations. Have someone on site with deconstruction experience throughout project for consultation and supervision purposes.
- .2 Regulatory Requirements: ensure Work is performed in compliance with Worksafe BC Regulations and Guidelines.

1.6 Site Conditions

- .1 Existing Conditions:
 - .1 Base structures to be deconstructed on their current condition
Be responsible for provision of services
required for deconstruction.

1.7 Environmental Protection

- .1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Ensure deconstruction work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air noise pollution.
- .3 Do not dispose of waste or volatile materials into watercourses, storm or sanitary sewers.
 - .1 Ensure proper disposal procedures in accordance with applicable Provincial/Territorial regulations.
- .4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties in accordance with authorities having jurisdiction.
- .5 Use natural lighting to do Work where possible.
 - .1 Shut off lighting except those required for security purposes at end of each day.

1.8 Scheduling

- .1 Meet project time lines without compromising specified minimum rates of material diversion. In event of unforeseen delay notify Departmental Representative in writing.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 Site Verification of Conditions

- .1 Develop strategy for deconstruction to facilitate optimum salvage of reusable and recyclable materials.

3.2 Removal from Site

- .1 Transport material designated for disposal using approved haulers in accordance with applicable regulations.

END OF SECTION

PART 1 GENERAL

1.1 References

- .1 Canadian Coast Guard (CCG):
 - .1 MA 2080, General Specifications for Moorings for Aids to Navigation, Issue C (September 1999).

1.2 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.

1.3 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 as per the contract.
 - .2 Any minor items not measured separately are to be included in the cost of this item.
 - .2 Item No. 2, Removal of Timber Piles
 - .1 Unit: measured per pile removed, to include all equipment labour and material required to complete pile removal as per the contract.
 - .3 Item No. 3, Removal of Miscellaneous Timber Cross Braces, Stringers and Deck Boards
 - .1 Unit: a single lump sum measurement for all equipment, labour and material required to complete the removal of the remaining creosoted treated and non-treated miscellaneous timbers connected to the structure as per the contract.
 - .4 Item No.4, Transportation and Disposal of Loose Debris Recovered from the Water Lot
 - .1 Unit: measured per tonne of recovered loose debris, transported and disposed of at an approved facility as per the contract.
 - .5 Item No. 5, Transportation and Disposal of Timber Piles

- .1 Unit: measured per creosote treated piling, transported and disposed of at an approved facility as per the contract.
- .6 Item No. 6, Transportation and Disposal of Miscellaneous Timber Cross Braces, Stringers and Deck Boards
 - .1 Unit: per tonne of miscellaneous creosote treated and non-treated timbers remaining fastened to the piles, transported and disposed of at an approved facility as per the contract.
- .7 Item No. 7, Supply/Placement of Backfill Material
 - .1 Unit: per cubic meter of clean backfill material, supplied, transported and placed in pile holes as per the contract.

PART 2 PRODUCT

2.1 Backfill

- .1 All fill placed within the project area must meet the following criteria:
 - .1 Clean Fill
 - .2 Gradations must be within limits specified when tested to ASTM C136. Sieve sizes to CAN/CGSB-8.1 and CAN/CGSB-8.2.

Table 1 - Backfill Material Gradation

Sieve Designation	% Passing
25 mm	-
19 mm	-
12.5 mm	100
9.5 mm	75-100
4.75 mm	50-100
2.00 mm	30-70
0.425 mm	20-45
0.180 mm	10-25
0.075 mm	3-8

- .3 Maximum allowable contaminant levels in the clean fill will be provided to the contractor upon request.

PART 3 EXECUTION

3.1 Existing Conditions

- .1 Investigate existing site conditions and substrates for problems related to extraction of the piles. Report to Departmental Representative unsatisfactory or unfavourable conditions before proceeding with work.

3.2 Silt Curtains

- .1 Contractor is to monitor turbidity with acceptable meters.
- .2 Silt curtains are to be deployed if turbidity is more than 8 NTUs above background.
- .3 Silt curtains are to enclose the area where turbidity is being generated, and extend from the bottom to water surface.
- .4 Silt curtains are to remain in place until turbidity is less than 8 NTUs.

3.3 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.
 - .2 If any piles are not able to be fully removed Department Representative is to be contacted for further instruction.

- .3 Schedule of pile removal to be confirmed with Department Representative 7 days prior to planned pile removal.
- .4 All holes resulting from the extraction of piles are to be backfilled with clean fill as specified in clause 2.1.
 - .1 The expected volume of fill for each pile hole is 0.4 m³.
 - .2 Prior to placing any fill samples of the fill to be used must be sent to an accredited laboratory for analysis and the resulting laboratory report, QA/QC data and chain of custody documentation is to be submitted to the Departmental Representative for review in accordance with Section 01 33 00.

3.4 Material Disposal

- .1 General:
 - .1 Debris, timber, steel, and all other deconstruction materials specified to be removed and disposed of becomes the property of the Contractor.
 - .1 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 All debris is to be removed from the site by lifting. At no point shall any debris be dragged.
 - .4 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.

END OF SECTION



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Services gouvernementaux
Canada

PWGSC Project #: R.082008.001

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:

Underwater Drilling

- 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: _____



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Canada

PWGSC Project #: R.082008.001

APPENDIX B

Hazard Assessment Form



PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	R. 082008.001 – Sandspit Wharf Deconstruction
Location:	TC H&P Facility, Sandspit, B.C.
Date:	7 October, 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
	PWGSC, OGD's, or tenants		General Public or other contractors		
Examples: Chemical, Biological, Natural, Physical, and Ergonomic					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.
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.	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 vehicles, public vehicles, etc.)	yes				
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				Derelict timber facility
Working in Isolation	yes				
Working Alone	yes				
Violence in the Workplace	yes				
High Noise Levels	yes				
Inclement weather	yes				
High Pressure Systems		no			
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		no			
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				Existence of lead based paint is unknown but should be assumed.
Mercury in Thermostats or Switches		no			
Application of Chemicals or Pesticides	yes				
PCB Liquids in Electrical Equipment		no			
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	
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Signatory for Service Provider		Date Signed	
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RETURN EXECUTED DOCUMENT TO PWGSC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING