Public Works and Government Services Canada

Requisition No. EZ899-160808/A

MERX I.D. No. _____

SPECIFICATIONS
for

Wharf Restoration

at
Bella Bella, Transport Canada H&P Facility, B.C.

Project No. R.064106.001 July, 2015

APPROVED BY:

Regional Manager A&E — Date 2015-07-16.

Construction Safety Coordinator — Date 01507/15

TENDER:

Project Manager — Date 14 JUL 15

Real Property Services Branch, Professional and Technical Services, Pacific Region
#641 – 800 Burrard Street, Vancouver, B.C. V6Z 2V8

SPECIFICATIONS

Division 1

Division 35

APPENDIX A – BOUND WITH SPECIFICATIONS

APPENDIX B – BOUND WITH SPECIFICATIONS

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DRAWINGS – BOUND SEPARATELY

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DRAWINGS – BOUND SEPARATELY

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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.

.2 Specifications and Drawings take precedence over Appendices.

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 Water depth at the seaward end of the wharfhead is expected to be in the order of 14m at high water. This must be confirmed by the Contractor if deemed important.

.3 Submission of a tender will be deemed confirmation that the Contractor is familiar with the site and is conversant with all relevant conditions.

.4 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 work is located at Bella Bella Harbours and Ports Facility, in the village of Bella Bella, B.C. The village is located on Campbell Island, approximately 180 kilometres north of Port Hardy, B.C.

.2 The work sites include the approach, wharf, gangway, floats, and water lot areas that form the facilities. There are also privately owned floats within this boundary that are not included as a part of this project.

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 are:

- Supply/Install new piles.
- Repair existing piles.
- Repair/Replace existing bracing.
- Replace light standard connection hardware.
- Replace various superstructure components.
- Supply/Install new float 'A'.
- Replace various structural and safety members on floats.
- Supply/Install new gangway.
- Relocate existing gangway.
- Remove sunken skiff.

1.7 References

.1 National Research Council of Canada (NRC):

.1 National Building Code of Canada (NBC) 2010.

.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 Documents Required

.1 Maintain at job site one copy of the following:

.1 Contract drawings and approved shop drawings

.2 Specifications and Appendices
.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)

.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.

1.10 Review of Shop Drawings

.1 In accordance with Section 01 33 00, submit the requested shop drawings.

.2 Allow sufficient time for the following:
.1 Review of shop drawings.
.2 Re-submission with revisions.
.3 Review of re-submission.
.4 Ordering of reviewed material and/or products.

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 at Bella Bella will be taken as 7.0 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 small work vessel at the Departmental Representative's disposal as required to perform his duties.

1.16 Time of Completion

.1 Complete work within 18 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 and copy Departmental Representative on all correspondence:

.1 Notify the local Fisheries Officer and the Regional Director, Environmental Services Branch, no less than 5 days before start and completion of operations.

.2 Notify Transport Canada (Karen Hall, 604-666-5382) 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

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 Do not interrupt regular passenger ferry schedule. If closure of regular berthing location is required, provide alternate berthing with safe loading and unloading area.

.3 Contact companies using the facility and make arrangements to ensure interruptions to their operations are minimized.
.1 Companies known to be using the facility include the Shearwater passenger ferry and gas station. Make inquiries to ensure all other businesses are known and included in communications.

.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 assume responsibility for setting times

.2 The Contractor is responsible 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.
.6 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
.7 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; and

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

1.24 Completion

.1 Submit a written certificate that the following have been performed:

.1 Work has been completed and inspected for compliance with the Contract documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Work is complete and ready for final inspection.

PART 2 PRODUCTS

Not applicable.

PART 3 EXECUTION

Not applicable

-END OF SECTION-

PART 1 GENERAL

1.1 Reviews

.1 Review 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 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 Submit 2 prints of submittals along with one digital copy in PDF format 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 Scaffolding.
  .3 CSA-S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.4 Fire Protection Engineering Services, HRSDC:
  .1 FCC No. 301, Standard for Construction Operations.
  .2 FCC No. 302, Standard for Welding and Cutting.
  .3 HRSDC website: http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/index.shtml

.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 Department Representative submittals for review

.2 Work affected by submittal shall not 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 Department 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 Department 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 extent that they may be affected by conduct of Work.

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

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, vehicular, vessel, and seaplane traffic.

.2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site for public safety.

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

.2 Secure any portions of the site at night time as deemed necessary to protect site against entry to unsafe areas.

1.8 Project/Site Conditions

.1 Work at site will involve:

.1 Construction on floats and pile supported wharf structure during high and low tides.

.2 Slippery and unstable surfaces.
.3 Preservative treated wood.
.4 Timber pile driving.
.5 Underwater work performed by 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.

1.11 Health and Safety Plan

.1 Conduct a site-specific hazard assessment based on review of Contract documents, 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 Contract documents.

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.

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.

.2 Comply with mitigation requirements as noted in the plans and specifications and in the DFO Best Management Practices for Docks and Floats and DFO Best Management Practices for Pile Driving documents found in Appendix A and B.

.3 The contractor is responsible for the completion of the Notice of Project Application, and must submit a copy to the Departmental Representative within two days of submission.

1.2 Vessels

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

1.3 Fires

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

1.4 Disposal of Wastes

.1 For specific waste disposal requirements see Section 35 05 51.

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

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

1.5 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.

1.6 Timing of Work

.1 All work on site must be carried out during the following window:

.1 July 1 to Feb 28

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.

.6 Construction wastes must be prevented from entering the marine environment. If large debris should fall to the ocean bed during repairs/replacement, it must be lifted off of the bottom taking care to minimize as much as practical, disruption to the sea bed and the suspension of sediments in the water column. Debris should be removed either by hand or by crane system from the wharf or from a barge.

.1 Particular attention must be taken to ensure that shavings, cuttings and sawdust from treated wood is not permitted to enter the marine environment;

.2 End treating of fresh cuts is to be done in a manner that ensures that there is no deposit of this deleterious substance to the marine environment.

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 or jetty under construction must be removed and replaced in the nearby marine environment in a manner conducive to their survival.

.3 Do not disturb eel grass or kelp beds.

1.9 Documentation

.1 The Contractor must produce and maintain on site copies of an Environmental Protection Plan, and Spill Response Plan.

.2 Environmental Protection Plan and Spill Response Plan are to be submitted to the Department Representative for review at least two (2) weeks prior to construction.

.3 Construction may not commence until the plans have been approved.

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 F714, Standard Specification for Polyethylene (PE) Plastic Pipe.
- .3 ASTM D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
- .4 ASTM A307-04, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- .5 ASTM F593 - 02(2008), Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

.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- 08, Wood Preservation.
- .6 CSA O121-M1978 (R2003), Douglas Fir Plywood.
- .7 CAN/CSA-S16-01, Limit States Design of Steel Structures.
- .8 CSA W47.1-03, Certification of Companies for Fusion Welding of Steel.
- .9 CSA W59-03, 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. Any minor items required to complete the work as specified not measured separately elsewhere are to be included in the cost of this item.

.2 Item No. 2, Supply Treated Piling

.1 Unit: each linear metre of new size 36 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, Drive Bearing Pile Under Timber Deck

.1 Unit: each bearing pile driven in an area of timber decking, secured and remaining an integral part of the completed work as specified. This item includes the removal and disposal of existing piles being replaced, and all deck rehabilitation required.

.4 Item No. 4, Drive Bearing Pile Under Concrete Deck

.1 Unit: each bearing pile driven in an area of concrete decking, secured and remaining an integral part of the completed work as specified. This item includes the removal and disposal of existing piles being replaced, and all deck rehabilitation required.

.5 Item No. 5, Drive Batter Pile

.1 Unit: each batter pile driven, secured and remaining an integral part of the completed work as specified. This item includes the removal and disposal of existing piles being replaced.

.6 Item No. 6, Drive Fender Pile

.1 Unit: each fender pile driven, secured and remaining an integral part of the completed work as specified. This item includes the removal and disposal of existing piles being replaced.

.7 Item No. 7, Remove Abandoned Pile

.1 Unit: each abandoned pile completely removed, transported, and disposed of as specified, excluding the removal of piles being replaced that are included in other payment items.

.8 Item No. 8, Band Pile

.1 Unit: each set of pile bands supplied, installed, and remaining an integral part of the completed work as specified.

.9 Item No. 9, Plug Abandoned Hole in Pile

.1 Unit: Each abandoned bolt hole plugged as specified

including the removal of abandoned objects within. Does not including those holes created or exposed by other work called up as a part of this project.

.10 Item No. 10, Plumb and Strap Bearing Pile
.1 Unit: each pile plumbed and strapped in place as specified, including the supply of all necessary hardware.

.11 Item No. 11, Supply/Install Pile Shims
.1 Unit: each pile shimmed as specified, including the supply of all necessary hardware.

.12 Item No. 12, Replace Bolted Connection of Pile
.1 Unit: each bearing pile or fender pile bolted connection supplied and installed as specified, excluding connections to be reinstated when driving new piles.

.13 Item No. 13, Replace 8.6m Cross Brace
.1 Unit: each 8.6m cross brace supplied and installed as specified, including removal and disposal of members to be replaced.

.14 Item No. 14, Replace 4.3m Cross Brace
.1 Unit: each 4.3m cross brace supplied and installed as specified, including removal and disposal of members to be replaced.

.15 Item No. 15, Remove Abandoned Cross Brace
.1 Unit: each abandoned cross brace removed and disposed of as specified, excluding the removal of braces being replaced that are included in other payment items.

.16 Item No. 16, Replace Cross Brace Spacer
.1 Unit: each cross brace spacer supplied and installed as specified, including removal and disposal of spacer to be replaced.

.17 Item No. 17, Replace Cross Brace Bottom Connection
.1 Unit: each cross brace bottom connection replaced as specified.

.18 Item No. 18, Replace Pile Cap
.1 Unit: each linear meter of pile cap, supplied, installed and remaining an integral part of the completed work as specified.

.19 Item No. 19, Replace Batter Pile Cap & Corbel
.1 Unit: each batter pile cap/corbel set supplied, installed, and remaining an integral part of the

completed work as specified.

.20 Item No. 20, Replace Wharf Stringer
.1 Unit: each linear meter of stringer supplied, installed on the wharf/approach and remaining an integral portion of the completed work as specified.

.21 Item No. 21, Replace Wharf Heavy Stringer
.1 Unit: each linear meter of heavy stringer supplied, installed on the wharf/approach and remaining an integral portion of the completed work as specified.

.22 Item No. 22, Replace Wharf Wale
.1 Unit: each wale supplied, installed and remaining an integral portion of the completed work as specified.

.23 Item No. 23, Replace 152x305 Fender Chock
.1 Unit: each linear meter of 152x305 fender chock supplied, installed and remaining an integral portion of the completed work as specified.

.24 Item No. 24, Replace 152x350 Fender Chock
.1 Unit: each linear meter of 152x350 fender chock supplied, installed and remaining an integral portion of the completed work as specified.

.25 Item No. 25, Replace Deck Boards
.1 Unit: each linear meter of deck board supplied, installed and remaining an integral portion of the completed work as specified, excluding those removed in the course of completing other portions of the work.

.26 Item No. 26, Replace Chain Ladder
.1 Unit: each chain ladder supplied, installed and remaining an integral portion of the completed work as specified.

.27 Item No. 27, Extend Firewall Depth
.1 Unit: each firewall extended as specified.

.28 Item No. 28, Remove Debris From Beneath Wharf
.1 Unit: a single lump sum to remove all debris from below the wharf and approach as specified, including the sunken skiff near Float ‘B’.

.29 Item No. 29, Replace Light Standard Connection Hardware
.1 Unit: each set of light standard connection hardware supplied, installed and remaining an integral portion of the completed work as specified.

.30 Item No. 30, Remove "No Vehicles" Sign
.1 Unit: a single lump sum to remove and dispose of signage as specified.

.31 Item No. 31, Supply/Install New Float 'A'
.1 Unit: a single lump sum to supply and install a new Float 'A' as specified.

.32 Item No. 32, Replace Mooring Dolphin Brace
.1 Unit: each linear meter of mooring dolphin brace supplied, installed and remaining an integral portion of the completed work as specified.

.33 Item No. 33, Remove and Dispose of Gangway 'A'
.1 Unit: a single lump sum to remove and dispose of Gangway 'A' as specified.

.34 Item No. 34, Relocate Gangway 'B' to Float 'A'
.1 Unit: a single lump sum to relocate Gangway 'B', including the supply and installation of a gangway pad and guides as specified.

.35 Item No. 35, Supply and Install new Gangway to Float 'B'
.1 Unit: a single lump sum to supply and install a new gangway to Float 'B', including the supply and installation of gangway guides on the relocated and extended existing gangway pad as specified

.36 Item No. 36, Replace Float Cross Tie
.1 Unit: each linear meter of cross tie on the float supplied, installed and remaining an integral portion of the completed work as specified.

.37 Item No. 37, Replace Bull Rail
.1 Unit: each linear meter of bull rail on the float supplied, installed and remaining an integral portion of the completed work as specified.

.38 Item No. 38, Replace Rub Board
.1 Unit: each linear meter of rub board on the float supplied, installed and remaining an integral portion of the completed work as specified.

.39 Item No. 39, Refasten Seaplane Decking
.1 Unit: a single lump sum to refasten the deck boards and expanded metal mesh on the seaplane float, including the supply of additional expanded metal mesh as specified.

.40 Item No. 40, Replace Tire Fender
.1 Unit: each tire fender supplied, installed and remaining an integral portion of the completed work

as specified.

.41 Item No. 41, Replace Inter-Float Connection Chains
- .1 Unit: a single lump sum to replace the inter-float connection chains between float 'B' and the Seaplane Float as specified.

.42 Item No. 42, Install Float Transition Mat
- .1 Unit: a single lump sum to install a transition mat between float 'B' and the Seaplane Float as specified.

.43 Item No. 43, Replace Batter Pile Corbel
- .1 Unit: each batter pile corbel supplied, installed and remaining an integral portion of the completed work as specified.

.44 Item No. 44, Remove and Replace Wharfhead Firewall
- .1 Unit: each wharfhead firewall removed and replaced as specified, including disposal, supply, and installation.

PART 2 PRODUCTS

2.1 General

.1 Use only new materials except where specified otherwise.

.2 Use products of 1 manufacturer for material and equipment of the same type or classification unless otherwise specified.

.3 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.

.4 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.

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

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

.7 Use heavy hexagon heads, semi-finished unless otherwise specified.

.8 Bolts may not project more than 1 diameter beyond nuts.

.9 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.

.10 Prevent damage, adulteration and soiling of products during delivery, handling and storage. Immediately remove rejected products from site.

.11 Store products in accordance with suppliers' instructions.

2.2 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: Wharfhead decking is to be full sized rough sawn timber. Float decking is to remain unsurfaced.

.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.

.5 Any required timber shims shall be creosote treated plywood, treated to meet the requirements of use category UC5A as described below.

2.3 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.

2.4 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 bull rails, 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/m^3 or

.2 CCA, 4.0 kg/m^3

.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.

.5 Use 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, firewall timbers, 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.

2.5 Buoyancy Billets

.1 Billets to have dimensions and be positioned as shown in the Plans and Specifications and to be secured to the float frame with nylon banding.

.2 All billets are to be fabricated of polystyrene and coated with polyethylene.

.3 Polystyrene, expanded: uniform cellular structure, free of voids. If a beaded product is to be used, beads shall be fused so that, when the product is broken by hand pressure, there is an excess of broken or sheared beads.

PROPERTY	POLYSTYRENE
Compressive strength at 10% deformation (minimum)	76 kPa
Flexural strength (minimum)	124kPa
Water absorption by volume (maximum)	4%
Density (minimum)	16kg/m^3

.4 Polyethylene coating:

.1 Thickness: 80 mil.

.2 Acceptable products for polyethylene coated billets:

.1 "Enviro-Float", or

.2 "Barr Plastics Inc. 2008 Product Catalogue ACE models {NTS - VF Models are acceptable for non-foam filled uses} or

.3 "Durafloat Sales" Model d-80, or

.4 Alternate approved by addendum during tender period.

.5 Contractor is to provide Departmental Representative with floatation unit supplier information as well as fabrication schedule at least 3 weeks prior to coating of billets so that PWGSC may arrange inspection.

2.6 Steel

.1 Small fastenings: to CSA B111.

.2 Drift bolts, machine bolts, washers and miscellaneous iron: to CSA G40.21 and hot dip galvanized to CAN/CSA-G164.

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

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

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

.6 Bolts: all bolts are to be machine bolts unless specified other-

wise.

.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.

.7 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

.8 Bolt holes:

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

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

.9 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.

.10 Steel Grades:

.1 Channels and Angles: 350W

.2 Miscellaneous Plate: 300W

.11 Finish:

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

2.7 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.

.4 Stainless steel screws to ASTM F593 - 02(2008).

2.8 Anchors in Existing Concrete

.1 All anchors are to be installed in strict accordance with the manufacturer's written instructions.

.2 Submit a copy of installation procedures to Departmental Representative in accordance with Section 01 33 00.

.3 All anchors are to be the adhesive type. Mechanical anchors are only to be used when specifically called-up on the drawings. Substitutions must be approved by the Departmental Representative prior to use.

.4 Anchor rod shall be galvanized ASTM A449.

.5 Refer to drawings for anchor locations, centres and required capacities.

.6 Holes for adhesive anchors shall be drilled and cleaned out in accordance with manufacturer’s written recommendations.

.7 Anchor size and embedment length shall be determined from the manufacturer’s literature and shall take into account the condition of existing concrete, anchor spacing, and edge distance.

.8 Use adhesive appropriate to the existing concrete condition, and weather at the time of installation.

.9 Do not load anchors until full recommended cure time has elapsed.

2.9 Chain and Shackles

.1 Mooring/Float Connection Chain:

.1 To CCG MA 2080 C.

.2 Black carbon steel, 19.1 mm, long-link mooring chains.

.2 Ladder Chain:

.1 To CCG MA 2080 C.

.2 Galvanized, 12.7 mm, long-link mooring chains.

.3 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 copper wire.

2.10 Mooring Well Liner/Wear Strips

.1 Mooring well liner:

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

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

2.11 Non-Shrink grout

.1 Premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents to CSA A23.1/A23.2.

.1 Compressive strength: 30 MPa at 28 days.

2.12 Fire Barrier Caulk

.1 Caulking to be intumescent and compatible with timber.

.2 Tested to minimum 4 hour fire stop rating in accordance with ASTM E 814.

.3 Installed in strict accordance with manufacturer’s written instructions.

2.13 19.8 m Aluminum Gangway

.1 New Aluminum Gangway is to be designed to the following criteria:

.1 Design to National Building Code 2010, CSA CAN3-S157 Strength Design in Aluminum, Canada Labour Code Part II, and WCB except as noted.

.2 Size: To have a length of 19.8m and width of 1.83m.

.3 Live loading: 2.4 kPa uniform loading or 2.25 kN concentrated loading on a 300 x 300 mm area, not simultaneous and not simultaneous with snow loading.

.4 Primary structural material: Marine grade aluminum.

.5 Thickness of members to be selected for rough service usage.

.6 Close ends of all hollow sections and provide drain holes. No openings greater than 3mm will be accepted.

.7 Provide dissimilar metal isolation.

.8 Support at upper (wharfhead) end to be double link hanging hinge type, one hinge assembly each side.

.9 Support at lower (float) end to be low friction slider type using UHMW material fastened to gangway and bearing on gangway guides. Contact surface between slider and float to be less than 75 mm from bottom chord of gangway. Additionally, include UHMW material fastened to the outside of the lower gangway support to prevent wearing between the gangway and the vertical leg of the gangway guides.

.10 Provide transition plate to cover gap at upper end.

.11 Provide at lower end a transition ramp fastened to the gangway with maximum 1V : 10H slope to eliminate step at bottom.

.12 Decking to be one of aluminium mesh grating, fibreglass grating, or frp composite grating, with “slider” and “cleat” portions similar to existing. Cleat to be minimum 250mm and maximum 300mm from inside gangway edge.

.13 Decking to be high friction, at least equivalent to unsurfaced wood.

.14 Provide handrail on both sides, extend handrail at approach end so that even at low tide there is no gap between handrail and guard rail of approach.

.15 Include graspable handrail and protective mid-rails of aluminum.

.16 Provide aluminum toe board along guardrail.

.17 Provide integral lifting lugs for future lifting for maintenance and removal.

.18 Provide shop drawings certified by a professional engineer registered to practise in B.C., for review. Shop drawings to include assembled weight of the finished product.

.19 Gangway supplier is to supply gangway guides as shown on the drawings.

.2 New Aluminium Gangway must be welded in accordance with CSA W59.2 by operators qualified under CSA W47.2 as is required by CSA CAN3-S157.

2.14 Expanded Metal Mesh Walkway

.1 Expanded metal mesh shall be:
  .1 Aluminum, or
  .2 Hot-dipped galvanized steel.
.2 Dimensions:
  .1 Openings to be 12 to 26mm by 24 to 66mm.
  .2 Strands to be minimum 2mm wide by 1.5mm thick.

2.15 Rubber Transition Mat

.1 Transition mat is to be two layers of standard conveyor belt material, minimum 12mm thick each.

PART 3 EXECUTION

3.1 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.

3.2 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.
    .1 Field cutting or drilling shall not be made on any member of the new Float ‘A’, except for the electrical kiosk support joists
  .2 Pile tops, pile bolt holes, pile bracing bolt holes, and cap-to-pile bolt holes may be field cut. Treat as specified.
  .3 The following applies to all work except the construction of the new Float ‘A’:
    .1 Field cuts on the float flanges and splice blocks are not permitted, excluding drilled holes. Timber materials are to be to exact lengths.
    .2 All timbers, including but not limited to float flanges and splice blocks, are to be field drilled to match existing bolt patterns. The timbers are then to be

removed, allowed to dry, bolts holes treated in accordance with CSA 080.

.3 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.

.4 Where field treatment is required, treat with 3 coats of preservative (for specific preservatives refer to CSA-O80 Series- 08, Wood Preservation).

.5 All braces are to have one end drilled prior to treatment and one end drilled to fit in the field. The pre-drilled and treated end is to be installed as the lower end of all sloping members.

3.3 Pile Removal

.1 Piles to be removed: fully extract from ground.

.2 Remove large invertebrates from the piles in accordance with Section 01 35 43 – 1.8.2 – Protection of Wildlife.

.3 Accurately measure embedment of existing piles during removal. Additionally, provide full assistance to Departmental Representative to enable him or her to take the same measurements.

3.4 Pile Driving

.1 Prior to driving piles, review penetration of removed pile. If supplied pile is longer than expected to be required, cut off length from pile tip prior to driving.

.2 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.

.3 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.

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

.5 Drive new piles as follows

.1 Bearing Piles: drive piles around obstacles as shown on the drawings such that their final position is plumb. Penetration to be the greater of 6.1 m or at least 0.3 m deeper than existing removed pile unless solid bearing is reached at a lesser depth and approved by the Departmental Representative in writing.

.2 Fender Piles: drive piles to match existing slope. Penetration to be the greater of 3.1 m or at least 0.3 m deeper than existing removed pile unless solid bearing is reached at a lesser depth and approved by the Departmental Representative in writing.

.3 Battered Piles: drive piles to match existing angle and orientation. Penetration to be the greater of 6.1 m or at least 0.3 m deeper than existing unless solid bearing is reached at a lesser depth and approved by the Departmental Representative in writing.

.6 Cut off piles at the same elevation as existing piles.

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

.1 July 1st – February 28th

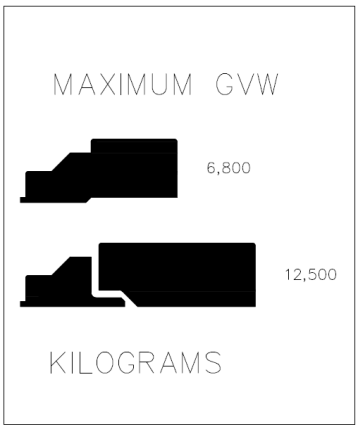
.8 No cranes are to be operating on the wharf structure without a detailed assessment of wharf load capacity.

.1 Contractor is responsible for all analysis to determine whether proposed cranes are able to safely be on the wharf, and to submit analysis signed by a Professional Engineer

registered in the Province of British Columbia to the Departmental Representative for review

.2 Contractor remains responsible for all loading applied on the structure throughout the project.

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



.9 Record pile driving data for each pile driven. This information must include total length of pile supplied, length cut off after driving, length of pile below the mudline, final top elevation, mudline elevation, and if a hammer is used, blow count data. Additionally, provide full assistance to Departmental Representative to enable him or her to take the same measurements.

3.5 Pile Replacement Under Concrete Decking

.1 In order to remove and replace piles in the centre of the concrete-decked approach it will be necessary to temporarily remove the concrete deck panels.

.1 Concrete deck panels are approximately 3000mm x 4600mm x 150mm thick, with a 150mm x 150mm curb along one long edge.

.2 Deck panels are grouted in place.

.3 Deck panels must be removed and stored in a manner that minimizes potential for damage; any damage caused to the panels will be the responsibility of the Contractor to rectify.

.4 Upon replacement of the deck panels after pile work, connections to the substructure and to adjacent panels must be reinstated to equal or better condition as existing.

.5 All grout to be high strength, non-shrink.

.6 Historic construction drawings showing the panels and

their connection to the wharfhead are attached as appendices to this tender package.

.2 It may be possible that piles along the edges of the concrete-decked approach can be removed and replaced without removal of the concrete deck panels being required. The Contractor is responsible for creating a suitable work plan and should visit site to confirm conditions prior to submitting a bid.

3.6 Pile Top Treatment

.1 Battered piles, 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 Fender piles: treat tops with 2 coats of approved wood preservative.

.1 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.

3.7 Installation of New Float ‘A’

.1 The new Float ‘A’ matches the existing and has in-float mooring wells.

.2 The Contractor must prepare a written work plan for the installation of the new float and submit it in accordance with Section 01 33 00 within 2 weeks of contract award.

.3 Contractor must limit the float out-of-service-time to not more than 7 days, and the electrical kiosk out-of-service-time to not more than 3 days.

.1 Electrical Kiosk to be removed from existing float and secured to new float in the approximately equivalent location, mounted through the deck boards to the kiosk support joists with 4-12.7mm diameter by 100mm long lag bolts.

.4 Contractor must not relocate any vessels moored to the float. It is the responsibility of the Contractor to assist the Departmental Representative in coordinating temporary relocation of vessels

by providing work schedules as described elsewhere in these specifications.

3.8 Bolt Holes in Existing 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.

3.9 Plugging Abandoned Bolt Holes

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

.2 Some abandoned bolt holes are partially obstructed with objects such as steel pipe sleeve inserts. Remove obstructions such that the hole is clear to the timber member prior to plugging hole as specified.

3.10 Timber Decking

.1 Wharfhead and Approach decking:

.1 Decking shall meet in square cut butt joints. Stagger joints a minimum of 600 mm apart in any direction.

.2 To be connected with a minimum of two 203 mm long galvanized spiral nails per contact point.

.2 Float decking:

.1 Decking is to be connected with a minimum of two 102 mm long galvanized spiral nails per contact point.

.2 Attach galvanized steel or aluminium mesh as specified.

.3 Nails within 52 mm of the end of any deck board are to be predrilled.

.4 Decking joints are to be centered over supports.

.5 Deck planks are to be spaced at 10 mm +/-

.1 Deck spacing is to be measured at 15% moisture content.

3.11 Refasten Seaplane Decking

.1 Timber to be fastened as specified above.

.2 Metal mesh:

.1 Align new metal mesh with existing and cut to match

width.

.2 Attach metal mesh with 25.4 mm staples, 305 mm on centre, each way.

3.12 Re-Securing/Replacing Existing Members

.1 Unless otherwise stated, when re-securing existing members, replace all connection hardware with new and reuse existing bolt holes wherever possible.

.2 Unless otherwise stated, when replacing existing members, replace with original dimensions and connection hardware as specified for new installations. Reuse existing bolt holes wherever possible.

3.13 Rubber Transition Mat Installation

.1 Transition mat width to be within 300mm of each bull rail.

.2 Each layer of transition mat to be secured to Float 'B' separately.

.1 Bottom Layer: Extending 450mm beyond each float edge, and connected with a single nail and washer to each deck board.

.2 Top Layer: Extending 450mm beyond bottom layer and connected with a single nail and washer to each deck board.

.3 No connection to Seaplane Float.

3.14 Mooring Well Liner/Wear Strip

.1 Mooring well liner:

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

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

.3 Where location is not specified in drawings, center liner/wear strip on adjacent mooring pile.

3.15 Replace Light Standard Connection Hardware

.1 Light standards along the approach are connected to the piles and pile caps.

.2 The bottom connection consists of a bolt through the light standard and the pile, the top connection consists of a metal bracket bolted to the pile cap.

.3 Where specified, replace connection hardware, reusing existing bolt holes.

3.16 Remove "No Vehicles" Sign

.1 The sign stating "No vehicles beyond this point" that is mounted to a timber post near grid line 1P is to be removed and disposed of as specified.

3.17 Remove Debris From Beneath Wharf

.1 All debris beneath the wharf such as driftwood/logs, or other large objects tangled within the bearing/battered piles are to be removed. Some debris is expected to be of sufficient size to necessitate that it be cut into smaller pieces before removal is practical.

.2 Exact quantities are not available, however it is expected that 1 to 3 large diameter logs 10m to 15m long, 3 to 6 small/medium diameter logs15m to 20m long, and an assortment of smaller debris will be present.

3.18 Material Disposal

.1 General:

.1 Debris 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.

.4 Timber decking debris is anticipated to be untreated. All other timber debris shall be assumed to be treated.

.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.

3.19 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.

3.20 Shimming

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

-END OF SECTION-

APPENDIX A

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

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 B

DFO Best Management Practices for Pile Driving & Related Operations

DFO Best Management Practices for Pile Driving and Related Operations

This document is intended to provide guidance to industry contractors and their clients regarding the protection of fish and fish habitat during pile driving operations in the South Coast Area. The notification form attached to this document must be submitted to the Central Nanaimo office (250-756-7325) no less than 5 working days prior to the commencement of any pile driving works.

Most types of pile driving will result in a level of underwater noise that will at least cause changes to fish behavior. While extensive data on pile driving impacts is not yet available, it is apparent that driving of steel pipe piles with large, high energy hammers can produce underwater sound levels capable of killing fish. Sublethal injuries may also occur, resulting in reduced survival or delayed mortality. Even when sound levels are not high enough to kill or injure fish, the underwater noise caused by pile driving may cause behavioral changes such as avoidance of preferred habitat, changes to migration, reduced feeding, or reduced schooling that in turn can result in increased predation. Although beyond the scope of this BMP, underwater noise may also impact other aquatic organisms such as invertebrates, diving birds, and marine mammals.

The *Fisheries Act* prohibits the harmful alteration, disruption or destruction of fish habitat (Section 35) and the destruction of fish (i.e., killing of fish) by means other than fishing (Section 32). Without implementation of appropriate mitigation measures, certain pile driving activities can harm fish habitat and kill fish. It is the responsibility of the proponent and contractors to ensure that appropriate mitigation measures are employed and that their project does not contravene the *Fisheries Act*.

Standard BMP's applicable to all pile driving works/undertakings within the marine environment

1. Project proponents and their contractors must ensure that the pile driving project does not adversely affect fish habitat. For example, where the pile driving project is intended to provide support for proposed docks/floats, an assessment of the marine environment that is located underneath these structures must be undertaken. Projects that include docks or floats may result in adverse shading impacts on marine fish habitat if they are poorly located over eelgrass or other marine vegetation.
2. With respect to existing piles that are redundant and have been treated with creosote or other preservatives or coatings, every effort must be made to extract the entire length of the pile from the ground or seabed. Methods such as pile vibrating, jetting or other appropriate technique must be utilized to remove the pile intact. Where it is not technically feasible to remove the pile intact or where the pile has broken off, every effort must be made to remove the stub in a way that is consistent with safety and the conservation of fish and fish habitat. All debris from pile removal must be disposed of at an appropriate upland disposal site in accordance with all applicable legislation, guidelines and BMP's.
3. New timber piles will comply with the DFO document "Guidelines to Protect Fish and Fish Habitat from Treated Wood Used in Aquatic Environments in the Pacific Region" (http://www.dfo-mpo.gc.ca/Library/245973.pdf).
4. Re-used pilings will not normally be subject to any additional treatments. However, pilings with excessive creosote must be avoided. Freshly treated creosote pilings must stand (weather) in an appropriate upland storage area for a minimum period of 45 days prior to installation. Piles with creosote may not be an appropriate for use in some areas or situations. DFO may require the use of concrete or steel piles in sensitive areas, or may require that creosote piles be covered or wrapped to provide a barrier between the creosote and non-target organisms that attach to the pile (i.e. herring spawn).
5. Creosote timber piles must be protected with rub strips wherever contact with docks or vessels is expected.
6. Contractors must position their vessels and water borne equipment associated with pile driving activities in a manner that will prevent damage to fish habitat (e.g. eelgrass, kelp beds, shellfish beds, salt marshes, etc.). In the event that fish habitat is damaged, the incident must be reported to DFO and appropriate remedial actions should be taken under the direction of DFO.
7. When cleaning out pipe piles (i.e., air lifting), sediment contained in the pipe will be pumped to the surface and processed through an approved containment system and disposed of at an approved landfill site.
8. Pipe piles must be capped or otherwise treated to prevent birds from being trapped inside the piles.
9. All equipment will be maintained in good proper running order to prevent leaking or spilling of potentially hazardous or toxic products. This includes, but is not limited to, hydraulic fluid, diesel, gasoline and other petroleum products.

10. All hydrocarbon products (fuel, oil, hydraulic fuel, lubricants), fueling equipment, and deleterious substances must be stored and handled in accordance with all applicable legislation, guidelines and BMP's. An appropriate spill prevention, containment and cleanup contingency plan for hydrocarbon products and any other deleterious substances that may be used or transported to the project site, must be in place prior to work commencing on the project to ensure that spills are contained and prevented from entering the marine environment.
11. Contractors will have emergency spill equipment available whenever working near or on the water. The emergency spill equipment should be appropriate for the specific operation (e.g., pouring concrete, refueling, etc.) and environmental conditions (e.g., marine, riverine, etc.) and equipment operators should be trained in their deployment and use.
12. All work areas must be adequately contained to prevent the release of demolition and construction debris and materials and any deleterious substances to the marine environment. All construction/demolition debris must be contained, collected and disposed of in an appropriate upland facility in accordance with existing legislation, guidelines and best management practices. Demolition operations should be monitored to determine whether the works are resulting in any adverse effects on fish or fish habitat. Any adverse effects should be reported to DFO.
13. Uncured concrete, cement, mortars and other Portland cement or lime-containing construction materials are considered deleterious substances. The proponent and all contractors must ensure that all work involving the use of concrete, cement, mortars, and other Portland cement or lime-containing construction materials must be conducted so as to ensure that sediments, debris, concrete, and concrete fines are not deposited, either directly or indirectly into any aquatic environment (e.g. any ditch, watercourse, wetland, ravine, storm sewer system, or the sea, including foreshore). Any water contacting uncured or partly cured concrete or Portland cement or lime-containing construction materials, such as the water that may be used for exposed aggregate wash-off, wet curing, equipment washing, etc., must be prevented from entering, directly or indirectly into a watercourse or a storm collection system, unless this water has been tested (to an accuracy of within +/- 0.2 pH units) and found to have a pH of between 6.5 and 9.0 pH units and a turbidity of less than 25 nephelometric turbidity units (NTU). The proponent and all contractors must ensure that suitable containment and treatment facilities are provided at the project site for the wash-down water from concrete delivery trucks, concrete pumping equipment, concrete mixing equipment, and other tools and equipment as required.
14. Wherever concrete work is proposed in or near aquatic areas, the work must be monitored by a qualified environmental consultant to ensure that all applicable BMP's are followed and the habitat provisions of the *Fisheries Act* are upheld.
15. If 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. Contractors/crews must ensure that concrete forms are not filled to overflowing.
16. All concrete forms will be constructed in a manner that will prevent fresh concrete or cement-laden water from leaking into the surrounding water.
17. All work must be undertaken and completed in such a manner as to prevent the discharge or introduction, either direct or indirect, of soils, sediment or sediment-laden water, turbid water or any other deleterious substances into the marine environment.
18. Without restricting the generality of the foregoing paragraph, with respect to the discharge or introduction of sediment, sediment-laden water, and turbid water into the marine environment, the following criteria must be complied with:

    Total Suspended Solids (TSS):

    - TSS should not exceed 25 mg/L

    Turbidity:

    Turbidity should not exceed 2 nephelometric units (NTU) when background is less than 8 NTU.

    - Turbidity should not exceed 8 NTU when background is between 8 and 80 NTU.
    - Turbidity should not exceed background by more than 10% when background is greater than or equal to 80 NTU.
    - "Background" is defined as the level at an appropriate adjacent reference site, that is satisfactory to DFO, and is affected neither by works or activities associated with the project or the works site, nor by sediment-laden water,

- induced suspended sediments, or induced turbidity resulting from works or activities associated with the project or the work site.
- Should the project result in TSS or NTU levels in excess of the criteria outlined above, then those works and activities that might be contributing to these conditions must be halted until measures that will ensure compliance with the criteria outlined above are put in place.
- Where the suspended solids and turbidity criteria outlined above cannot be practicably achieved, work areas and those works and activities that might be contributing to these conditions must be contained and isolated from tidal and flowing waters such that fish are prevented from accessing the work areas, and sediments, sediment-laden water, and turbid water are contained and prevented from leaving the work areas.

Timing Windows

Timing windows are a very effective BMP with respect to mitigating possible adverse effects on fish. Timing windows are intended to ensure that a project is scheduled during periods of reduced marine sensitivity. Although fish are always present in most BC waters, there are certain periods when nearshore areas are heavily utilized by fish. For example, herring move into shallow coastal areas to spawn in late winter or early spring, and high numbers of juvenile salmon migrate along coastal shorelines in the spring and early summer. Where works are proposed close to a river mouth or estuary, project proponents/contractors should also consider the timing of adult salmon migration to ensure conflicts are avoided. Site specific timing windows may be required if a project is proposed near an estuary or mouth of a fish stream.

19. The preferred timing window (time of reduced sensitivity) for pile driving activities is from July 1st to February 15th. Further restrictions may apply during the fall and winter if the project has the potential to effect adult salmon migration.

Special BMP's for pile driving projects that may create high underwater sound

Some types of pile driving are expected to results in sound levels that require special mitigation. For example, installation of steel piles by means of a drop, diesel, or air hammer are expected to produce high sound pressure levels capable of injuring or killing fish. Accordingly, project proponents and their contractors/consultants are responsible to ensure that pile driving associated with the project does not result in underwater noise or increases in underwater peak pressures that would adversely affect fish. Increase in underwater peak pressures in excess of 30 kilopascals (kPa) are likely to adversely effect fish.

20. Any proposed pile driving activity that may result in pressure effects of greater than 30 kPa (e.g. steel piles and power hammer) must incorporate mitigation measures specifically intended to prevent increases in underwater peak pressures in excess of 30 kPa anywhere greater than 1 metre from the pile being driven from adversely affecting fish. Mitigatory measures that might be appropriate include:

    - The use of smaller diameter pipe pile.
    - The use of a vibrating hammer or non-power drop hammer.
    - Scheduling the works outside of periods of heightened sensitivity with respect to fish (e.g., periods of juvenile salmon seaward migration, periods of adult salmon upstream migration to local watercourses; periods of herring spawning)
    - The deployment of netting, or "silt curtains" to isolate the work area and prevent fish from entering any area where the pile driving shock wave might exceed 30 kPa.
    - The deployment of a "bubble curtain" of sufficient design to surround the entire length of each pile being driven and attenuate shock waves radiating out from the pile so that overpressures outside the bubble curtain do not exceed 30 kPa.

21. To ensure that mitigation measures are effective, a hydrophone can be deployed to measure in-water pressure changes resulting from pile driving, monitor the effectiveness of mitigatory measures in use (e.g., isolation curtains, bubble curtains), and to determine the need for further mitigatory measures

22. The deployment of a hydrophone to measure in-water pressure changes resulting from pile driving. Hydrophone measurements should be carried out over the entire course of pile driving, particularly during driving to resistance or seating in bedrock. Hydrophone measurements should include depth profiles taken at a range of distances radiating out from the pile being driven. Each hydrophone depth profile should include measurements taken near the water surface, near the seabed, and at mid water column. The range of distances for hydrophone depth profiles should include a depth profile within 2 metres of

the pile. The continual monitoring of shock wave pressure during pile driving is necessary to monitor the effectiveness of mitigatory measures in use (e.g., isolation curtains, bubble curtains), and to determine the need for further mitigatory measures.

23. Any proposed pile driving activity that may result in pressure effects of greater than 30 kPa (e.g. steel piles and power hammer) must be monitored by an appropriately qualified professional who is familiar with pile driving activities (including the potential affects on fish and the measures required to mitigate these affects) to ensure that effective measures are applied to mitigate adverse affects to fish and that all activities are conducted in accordance with the Fisheries Act. Monitoring must utilize hydrophones operated by appropriately qualified professionals. Pressure levels should be recorded at a range of depths throughout the water column and at varying distances and directions form the driven pile. Monitoring should be carried out throughout the pile driving from beginning to end for various piles and soil conditions and particularly during periods of heavy pile driving or pile refusal.
24. The hydrophone monitoring may be discontinued if the experience with the first 4 or 5 piles shows that the particular pile installation method in use does not result in overpressure of 30 kiloPascals (kPa), when readings are taken 1 metre from the pile being driven, and there have not been any observations of distressed or injured fish. This would only be applicable in situations where future pile driving associated with the project will use the same equipment, methods, type of piles, size of piles and the substrate that the piles are being driven into has the same characteristics as the substrate the test piles were driven into.
25. All work must be suspended and further mitigation measures need to be employed to reduce the pressure wave (e.g. bubble curtain) if pile driving activities result in hydrophone readings in excess of 30 kPa, measured 1 metre or further from the pile being driven or should there be any sign of dead or injured fish within the work area. DFO must be consulted prior to proceeding with pile driving activities.
26. Where pile driving is to occur in intertidal or shallow subtidal areas, it should be conducted during times of low water.
27. Vibratory hammer must be used wherever feasible, particularly when driving steel piles.

Project Monitoring:

28. The project must be appropriately monitored for adverse effects on fish and fish habitat by an appropriately qualified environmental monitor (EM) provided by the project proponents at their own expense. In addition, the EM must ensure that contractors/workers understand the conditions in this BMP document. The EM must have experience and knowledge in local marine biology, pile driving techniques and methods to mitigation any adverse impacts to fish and fish habitat.
29. Project proponents must empower the EM in writing to suspend works that may be harmful to fish or fish habitat, or to direct work so that it is compliant with the Fisheries Act and all other applicable legislation, guidelines and BMP's including this document.
30. The EM must be on site at all times during the course of the project whenever there is the potential for adverse effects or fish or fish habitat.
31. Upon completion of the project, the EM must provide DFO with a monitoring report summarizing the project and describing any environmental issues that arose during the project. Monitoring results should be forwarded to the appropriate contact at DFO's Oceans, Habitat and Enhancement Branch.
32. The monitoring reports should include:

    - Location of the works.
    - Contact information for the owner, contractor and monitor.
    - Documentation of any adverse effects on water quality (including suspended sediment, turbidity, pH, hydrocarbons etc) or other fish habitat impacts.
    - Suspended sediment, turbidity, pH, and hydrophone readings.
    - Distance the reading was taken from the pile or mitigation measure.
    - Depth the reading was taken.
    - Description of any pile driving activity that resulted in hydrophone readings in excess of 30 kPa.

- Description of mitigation measures applied.
- Documentation of any observations of distressed, injured or killed fish.
- Pphotographs.

33. If contractors are working and a herring (or other fish) spawning occurs or if they become aware of any negative impacts to fish or fish habitat, the work will be suspended until the appropriate DFO contact has been notified and has provided direction.

Prior to the commencement of any pile driving activity it is requested that, the proponent with advice from a Qualified Environmental Professional submit DFOs Project Notification and Review Application Form found at the website http://www.pac.dfo-mpo.gc.ca/habitat/index-eng.htm to referralsnanaimo@dfo-mpo.gc.ca. The proponent must indicate either "Notification to DFO', "Request a Project Review" or "Request a Fisheries Act Authorization" by way of submission of this form. If project proponents, QEP or consultants have indicated "Notification to DFO", this indicates that they understand the conditions of this BMP document and agree to comply with all conditions. DFO does not formally respond to Notifications. Notifications are subject to monitoring and auditing by DFO.

The conditions of this BMP document notwithstanding, DFO may at any time and at their sole discretion, direct the project proponents and their agents/contractors/workers to suspend or alter the project, or to implement mitigation measures that avoid adverse impacts to fish or fish habitat.

This BMP document is valid only with respect to the mandate of DFO pursuant to the Fisheries Act, and for no other purposes. It does not purport to release the project proponent from any obligation to obtain permission from or to comply with the requirements of any other regulatory agencies. Any works seaward of higher high water (HHW) might be subject to review by the Canadian Coast Guard (CCG) Navigable Waters Protection Division pursuant to the Navigable Waters Project Act. Any works seaward of HHW may also be of interest to Land & Water BC as the provincial government has jurisdiction over the seabed of *inland waters.*

APPENDIX C

HISTORICAL CONSTRUCTION DRAWINGS

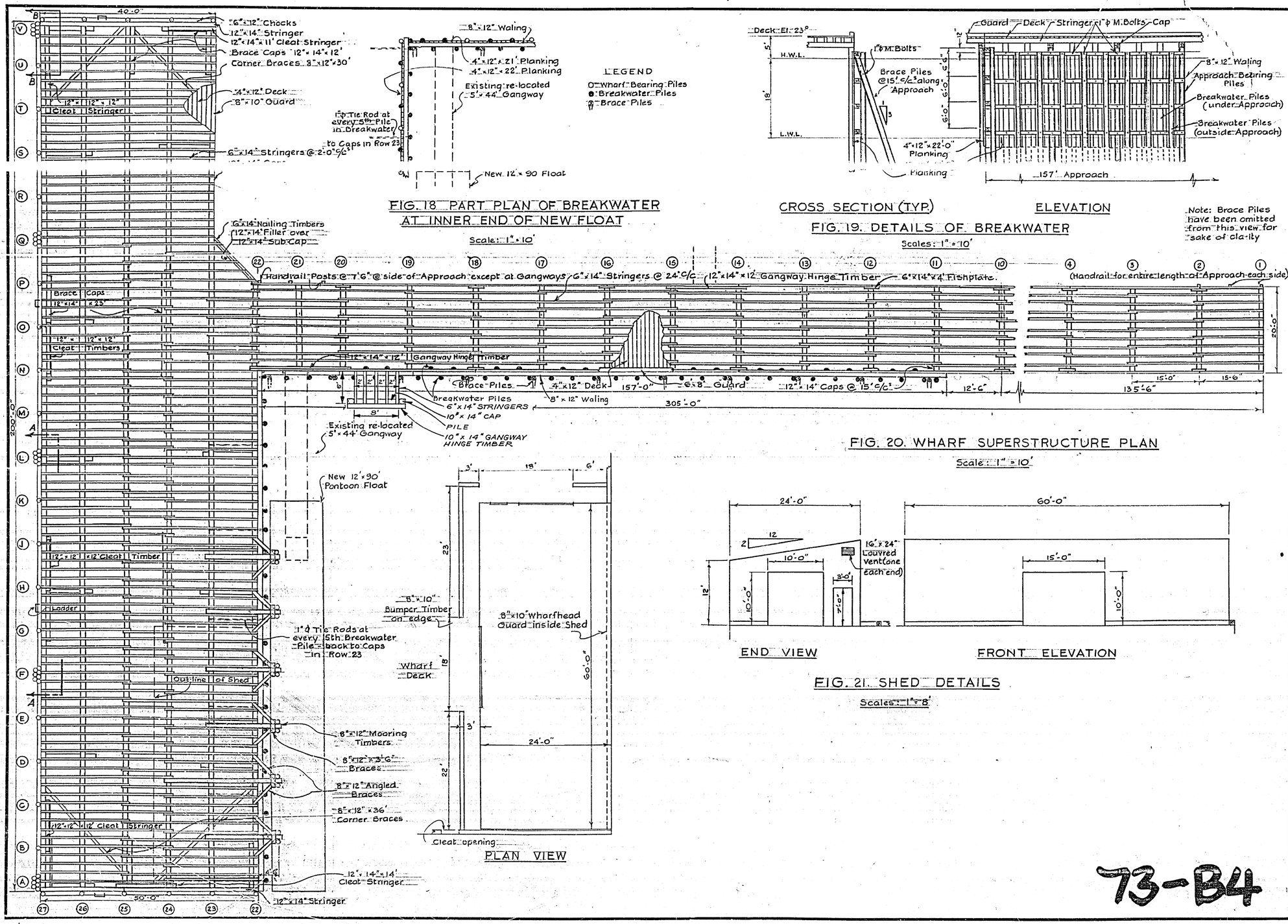


FIG. 18 PART PLAN OF BREAKWATER AT INNER END OF NEW FLOAT

Scale: 1" = 10'

CROSS SECTION (TYP.) ELEVATION

FIG. 19. DETAILS OF BREAKWATER

Scales: 1" = 10'

Note: Brace Piles have been omitted from this view for sake of clarity

FIG. 20. WHARF SUPERSTRUCTURE PLAN

Scale: 1" = 10'

END VIEW FRONT ELEVATION

FIG. 21. SHED DETAILS

Scales: 1" = 8'

PLAN VIEW

73-B4

Department of Public Works
Ministère des Travaux publics

Pacific Region

A detail no. détail no.
B location drawing no. dessin no.
C drawing no. dessin no.
revisions date

project title titre du projet

BELLA BELLA, B.C.

WHARF REPLACEMENT

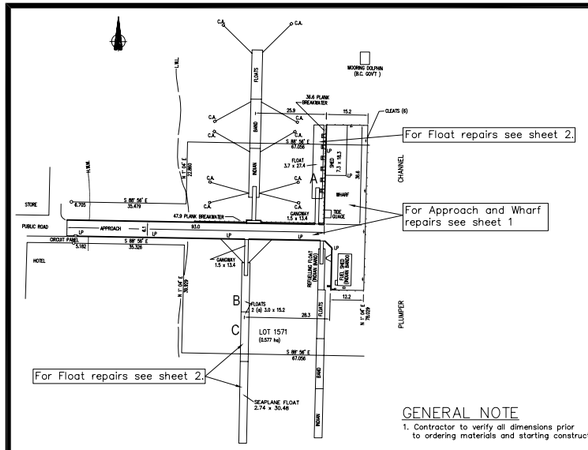
drawing title titre du dessin

APPROACH & WHARF SUPERSTRUCTURE PLAN, TIMBER BREAKWATER & SHED DETAILS

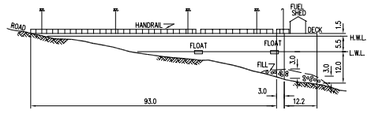
designed by conçu par
date 3/73
drawn by W.G.F. dessiné par
date
reviewed by examiné par
date
approved by approuvé par
date 26/4
Tender Soumission
D.P.W. Project Manager Administrateur de projets M.T.P.
project number no. du projet
88536
drawing no. dessin no.
4 of 5

C14-2

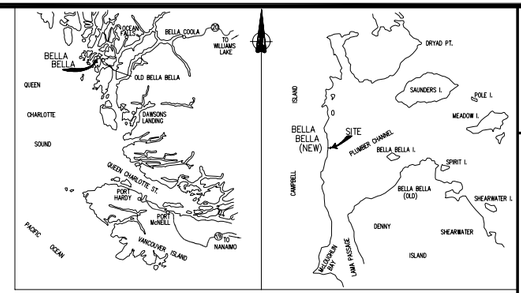
DPW 700 D



SITE PLAN
1:1000



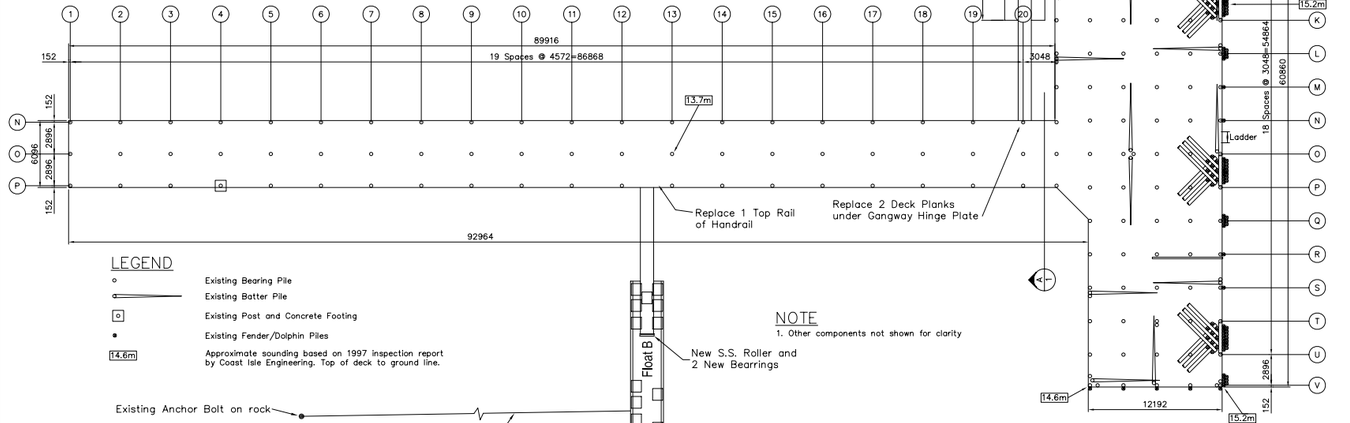
SOUTH ELEVATION
1:750



LOCATION CHARTS

GENERAL NOTE

1. Contractor to verify all dimensions prior to ordering materials and starting construction.



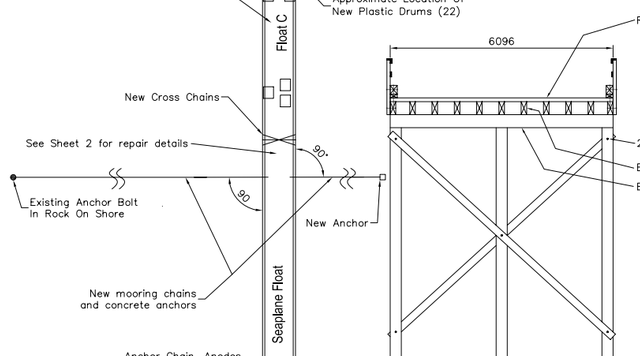
PLAN
1:200

LEGEND

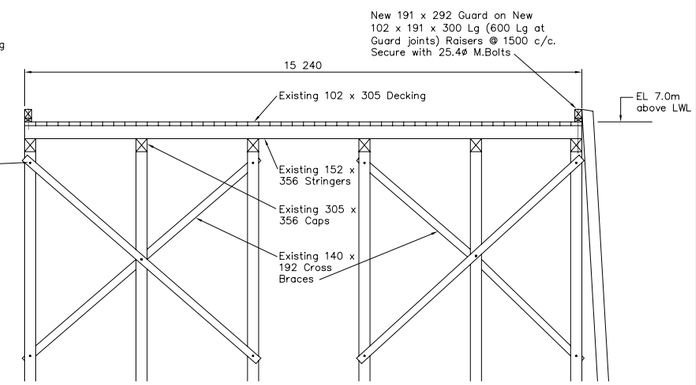
- Existing Bearing Pile
- Existing Batter Pile
- Existing Post and Concrete Footing
- Existing Fender/Dolphin Piles
- 14.6m — Approximate sounding based on 1997 inspection report by Coast Isle Engineering. Top of deck to ground line.

NOTE

1. Other components not shown for clarity



SECTION A/1
1:75



SECTION B/1
1:75

Plot Scale 1:250
#65177 (1vkp01_.dwg)

PWGSC_A1

Public Works and Government Services Canada Pacific Region
Travaux publics et Services gouvernementaux Canada Région du Pacifique

Transport Canada

AS BUILT OCTOBER_2001

revisions | date

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

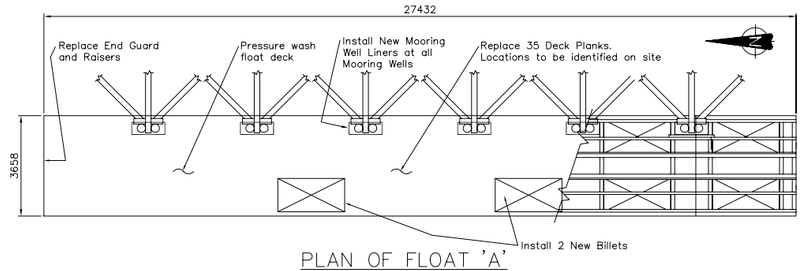
project / projet

BELLA BELLA, B.C. FLOAT REPAIRS

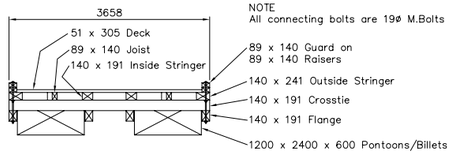
drawing / dessin

PLAN AND DETAILS

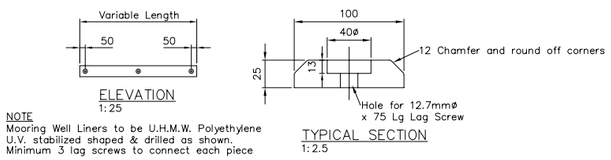
designed / concu: J. Chen
date: Apr. 2001
drawn / dessine: HDT, E.G.H.
date: Apr. 2001
approved / approuve
date
tender / Soumission
PWC Project Manager / Administrateur de projets TPC
project no. / no. du projet: 848856
drawing no. / no. du dessin: 1 of 3



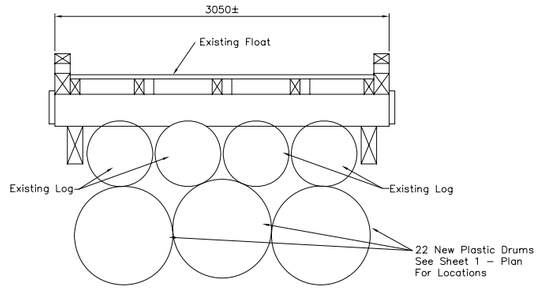
PLAN OF FLOAT 'A'
1:100



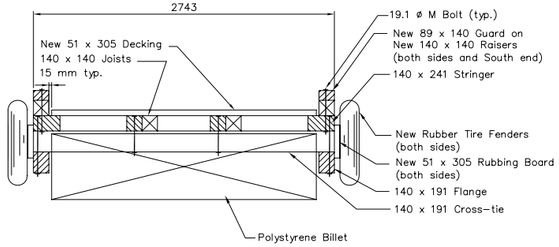
TYPICAL SECTION THRU FLOAT 'A'
1:50



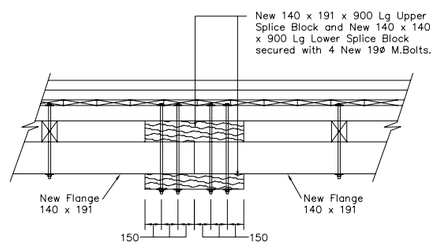
MOORING WELL LINER DETAIL



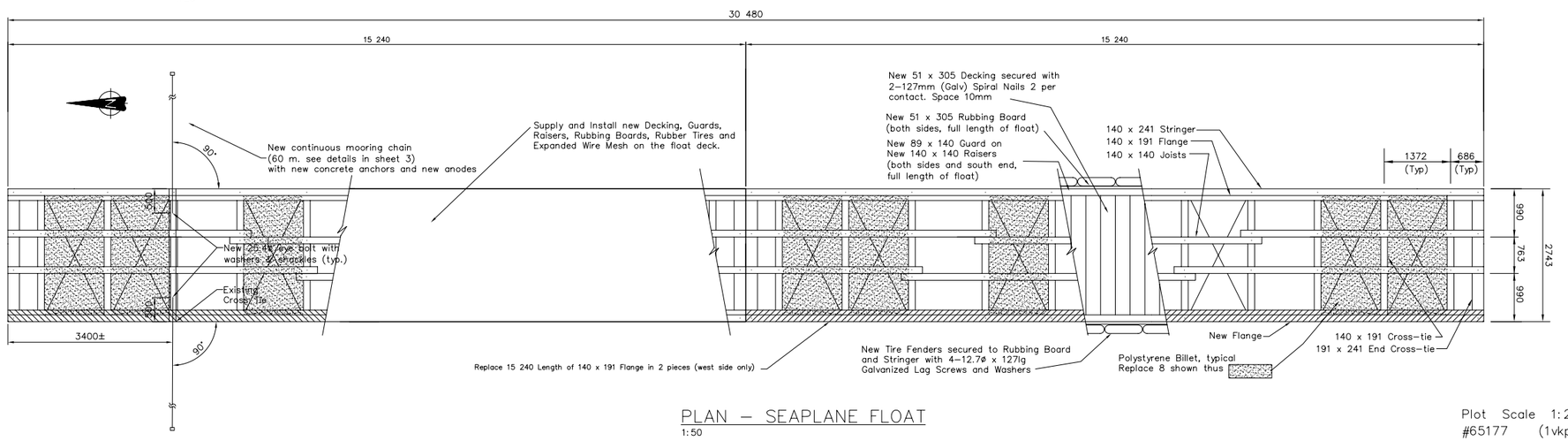
TYPICAL SECTION THROUGH LOG FLOATS 'B' & 'C'
1:25



TYPICAL SECTION THRU SEAPLANE FLOATS
1:25



EXTERIOR FLANGE SPLICE
1:25



PLAN – SEAPLANE FLOAT
1:50

Plot Scale 1:250
#65177 (1vkp01_.dwg)

PWGSC_A1

Public Works and Government Services Canada Pacific Region
Travaux publics et Services gouvernementaux Canada Région du Pacifique

Transport Canada

AS BUILT OCTOBER_2001

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A detail no. no. du détail
B location drawing no. sur dessin no.
C drawing no. dessin no.

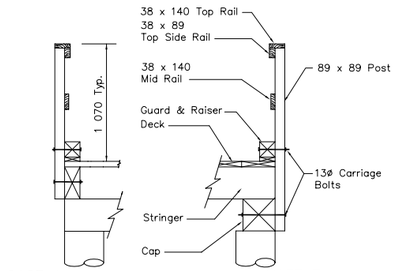
project / projet

BELLA BELLA, B.C.
FLOAT REPAIRS

drawing / dessin

CONSTRUCTION DETAILS

designed / concu: J. Chen
date: Apr. 2001
drawn / dessiné: HDT, E.G.H.
date: Apr. 2001
approved / approuvé
date
tender / Soumission
PWC Project Manager / Administrateur de projets TPC
project no. / no. du projet: 848856
drawing no. / no. du dessin: 2 of 3

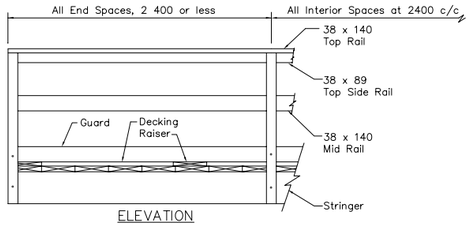


CASE A
Handrail parallel to Stringer

CASE B
Handrail parallel to Cap

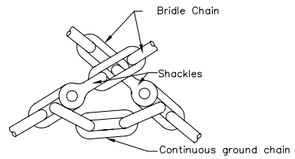
TYPICAL SECTIONS

NOTES:
- All materials to be S4S
- Secure all Rails with two 100mm Nails per contact
- All Rails butt joined on a Post, no more than one joint per Post



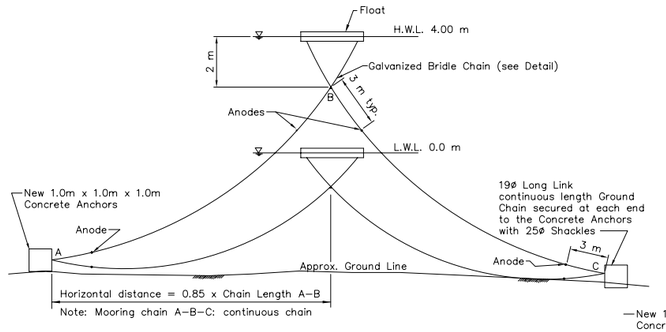
ELEVATION

HANDRAIL DETAIL
1:25

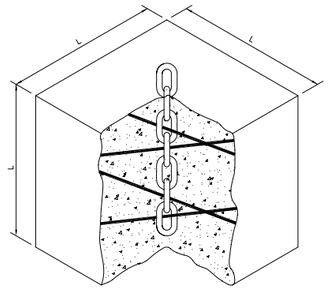


FLOAT MOORING SYSTEM

BRIDLE CHAIN CONNECTION
N.T.S.



MOORING SYSTEM DETAIL (NEW)
N.T.S.



NOTES

Concrete, Concrete Materials, Forms etc. shall conform to the latest standard specification for Concrete and Concrete Materials of Can/C.S.A. A23.1

Minimum Compressive Strength 20MPa at 28 days

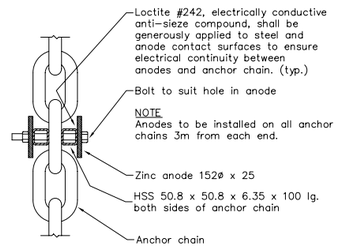
Maximum Slump 75

Minimum Cover 75

44ø Anchor Chain. Top Link exposed to receive 32ø Shackle

4 – 20M Rebars

L (Dimension)	Rebar Length
1000	1000



ANODE TO CHAIN (Per Set) CONNECTION DETAIL
1:10

Plot Scale 1:250
#65177 (1vkp01_.dwg)

PWGSC_A1

Public Works and Government Services Canada Pacific Region
Travaux publics et Services gouvernementaux Canada Région du Pacifique

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BELLA BELLA, B.C.
FLOAT REPAIRS

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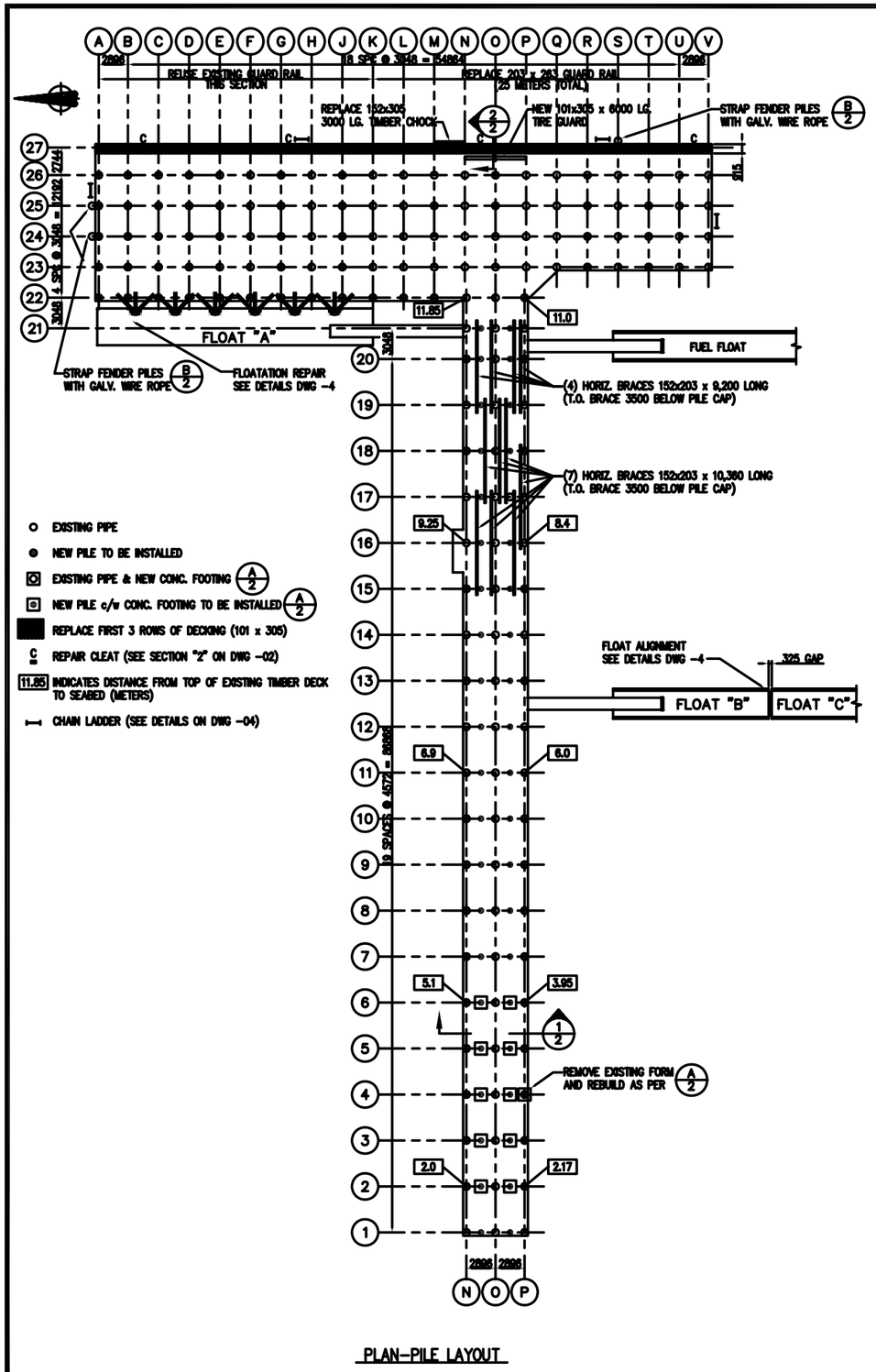
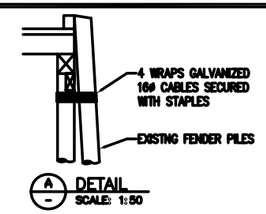
PWC Project Manager / Administrateur de projets TPC

project no. / no. du projet: 848856

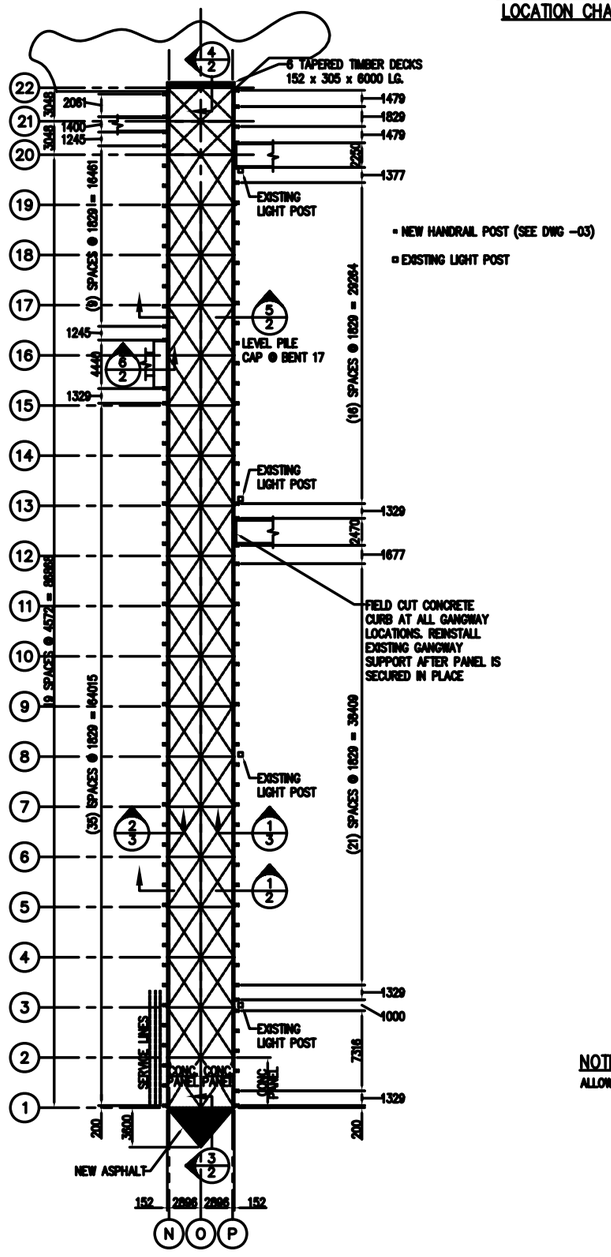
drawing no. / no. du dessin: 3 of 3



PLAN-PILE LAYOUT



DETAIL
SCALE: 1:50



PARTIAL PLAN-CONC. PANEL LAYOUT

LOCATION CHARTS

NOTE:
ALLOW 4 METER LENGTH FOR PILE PENETRATION TYP.

Title # 74896

PLOT SCALE 1:250

Pacific-Western Region

TRANSPORT CANADA

BELLA BELLA, B.C.
TRANSPORT WHARF
APPROACH UPGRADE
& WHARF REPAIRS

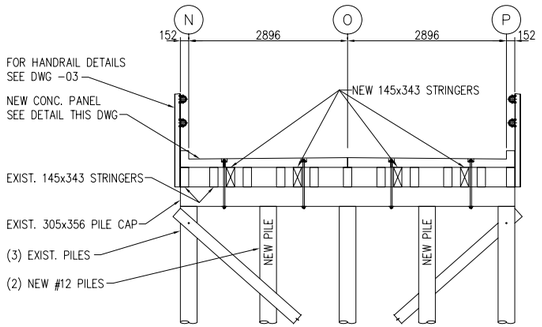
PLANS

D.CHANG
JUNE, 2002

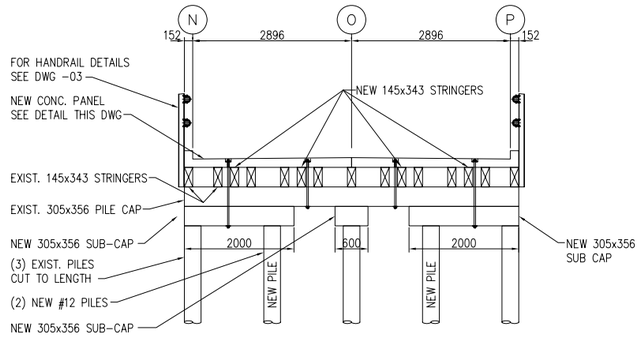
C.GOLDSCHMIDT (AXIS DETAILING)
JUNE, 2002

851108

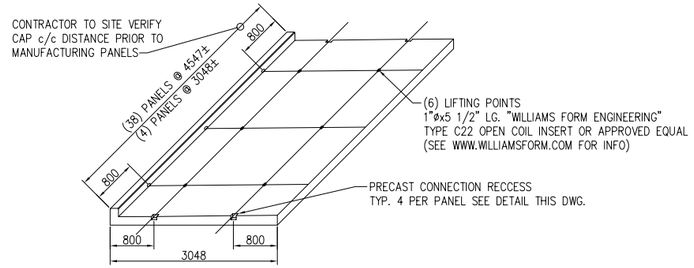
1 of 4



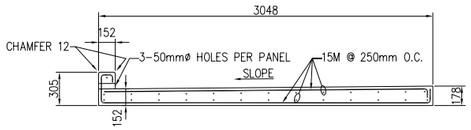
1 SECTION
1 SCALE: 1:50



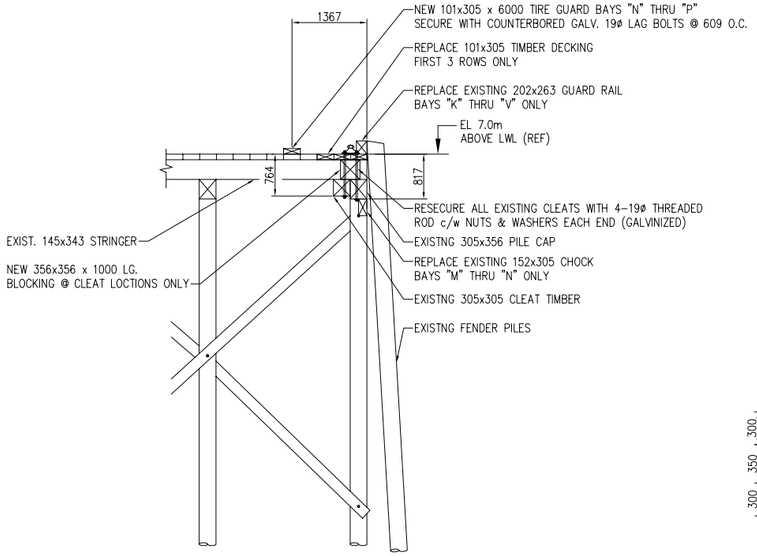
5 SECTION
1 SCALE: 1:50
BENT "17" ONLY



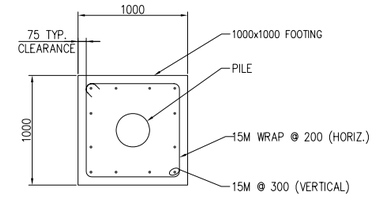
CONC. PANEL DETAL
SCALE 1:50



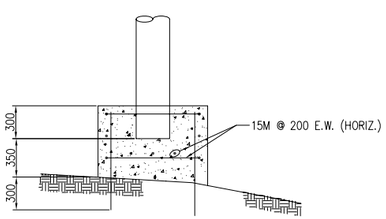
SECTION THRU CONC. PANEL
SCALE 1:25



2 SECTION
1 SCALE: 1:50

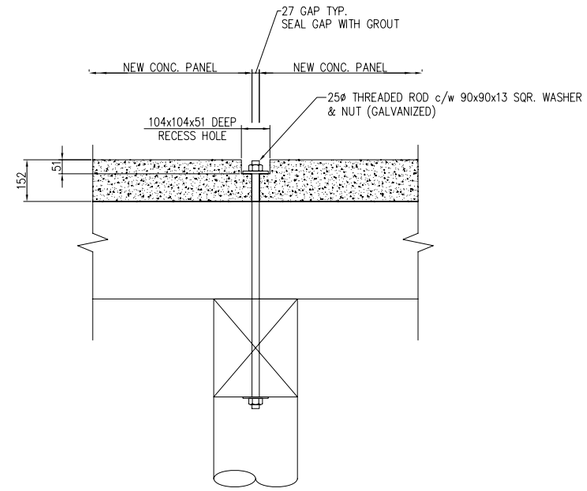


CONC. FOUNDATION PLAN
SCALE 1:25

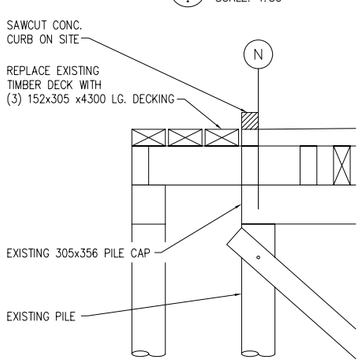


CONC. FOUNDATION ELEVATION
SCALE 1:25

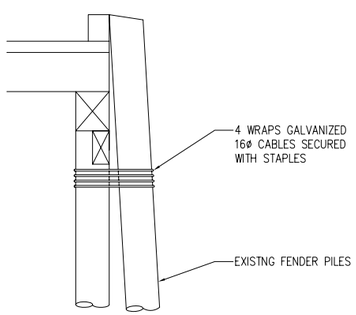
A DETAIL
1 SCALE: 1:50



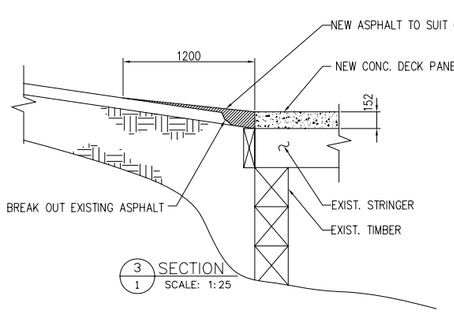
SECTION THRU CONC. PANEL CONNECTION
SCALE 1:10



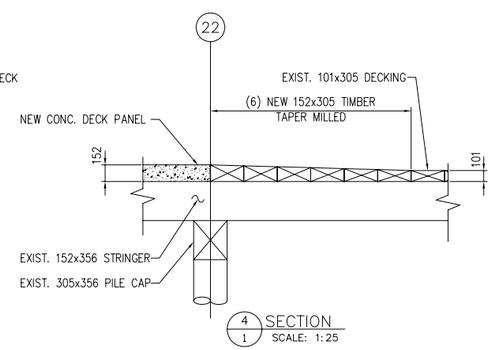
6 SECTION
1 SCALE: 1:25



B DETAIL
1 SCALE: 1:25



3 SECTION
1 SCALE: 1:25



4 SECTION
1 SCALE: 1:25

Tidis # 74897

PLOT SCALE 1:50

Public Works Canada / Travaux publics Canada

Pacific-Western Region

TRANSPORT CANADA

revisions | date

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

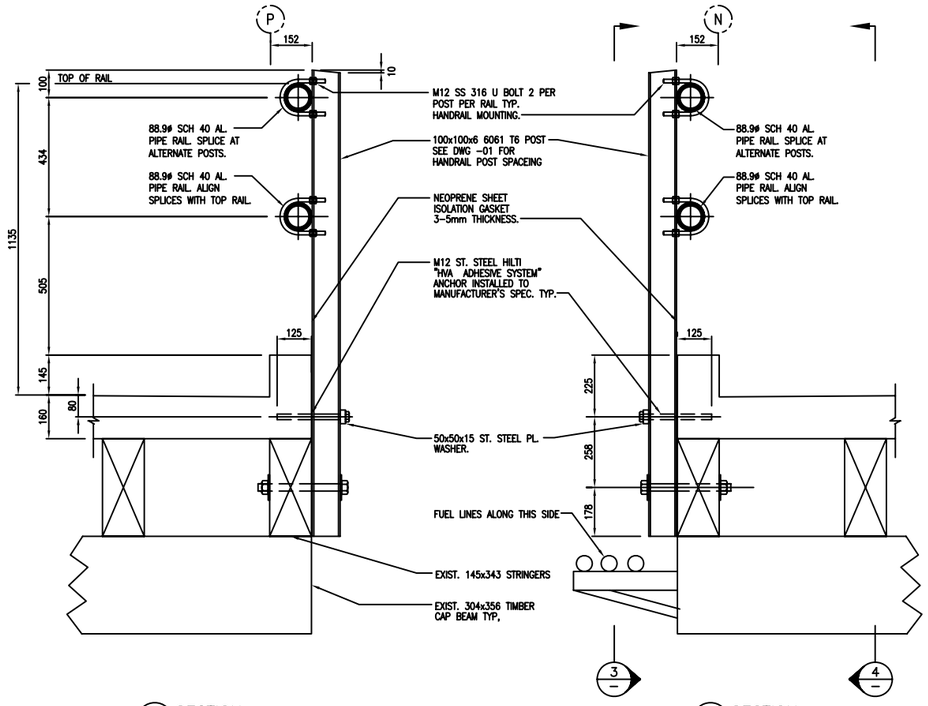
project / projet

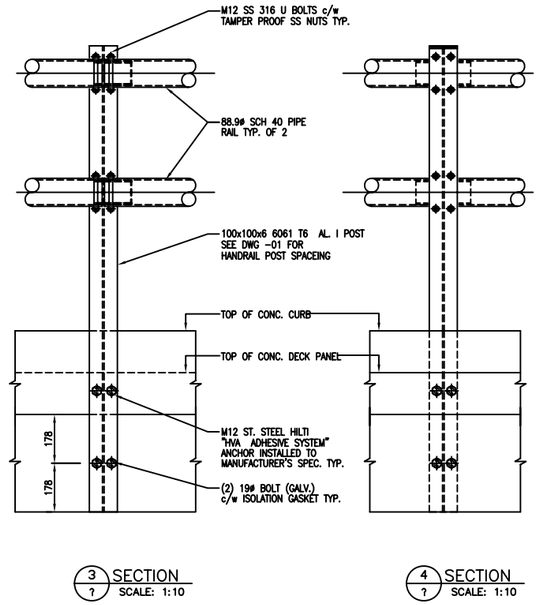
BELLA BELLA, B.C.
TRANSPORT WHARF
APPROACH UPGRADE
& WHARF REPAIRS

drawing / dessin

DETAILS SH.1

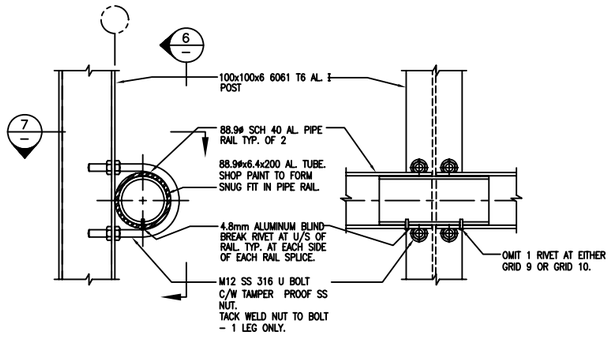
designed D.CHANG JUNE, 2002 / concu
drawn C.GOLDSCHMIDT (AXIS DETAILING) JUNE, 2002 / dessine
reviewed / examine
approved / approuve
tender / Soummission
PWC Project Manager / Administrateur de projets TPC
project no. / no. du projet
851108





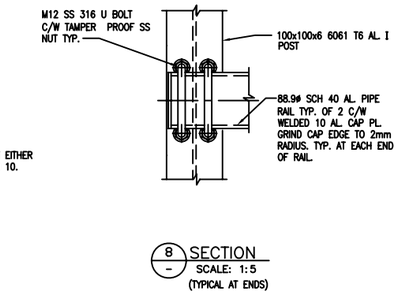
3 SECTION ? SCALE: 1:10

4 SECTION ? SCALE: 1:10

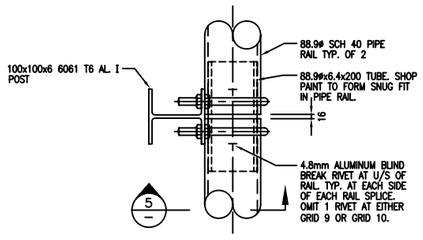


5 SECTION - SCALE: 1:5

6 SECTION - SCALE: 1:5



8 SECTION - SCALE: 1:5 (TYPICAL AT ENDS)



7 SECTION - SCALE: 1:5

1. GENERAL

1.1 THE DRAWINGS CONTAINED IN THIS SET ARE TO BE READ IN CONJUNCTION WITH THE FOLLOWING.

i) CONTRACT SPECIFICATIONS
ii) THE REFERENCE DRAWINGS SHOWN IN THE TABLE ON SHEET 1

1.2 THE DIMENSIONS AND DETAILS OF THE EXISTING COMPONENTS HAVE BEEN TAKEN FROM THE REFERENCE DRAWINGS PROVIDED BY PWGSC WITHOUT FIELD VERIFICATION. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE ALL FIELD ELEVATIONS AND DIMENSIONS NECESSARY FOR HIS WORK PRIOR TO COMMENCEMENT OF CONSTRUCTION OR ORDERING AND FABRICATING ANY MATERIAL.

1.3 THE METRIC SYSTEM OF UNITS IS USED UNLESS SPECIFIED OTHERWISE. THE REFERENCE DRAWINGS ARE IN THE IMPERIAL SYSTEM OF UNITS.

1.4 THE CONTRACTOR IS TO CONFIRM LOCATION OF ALL UTILITIES AND ELEMENTS THAT MAY BE AFFECTED BY THE WORK TO BE PERFORMED IN THIS CONTRACT PRIOR TO COMMENCING THE WORK.

1.5 REMOVE EXISTING ELEMENTS TO GAIN ACCESS TO WORK AS NECESSARY. REINSTATE TO MATCH EXISTING.

1.6 THE CONTRACTOR IS TO PERFORM WORK WITHOUT INTERFERING WITH THE OPERATION OF THE DOCKS EXCEPT AS ARRANGED WITH AND APPROVED BY PWGSC.

2. DESIGN CRITERIA

2.1 THE SAFETY RAILS ARE DESIGNED FOR EQUIVALENT LOADING TO PEDESTRAIN SAFETY RAIL LOADING IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE. RAIL SPACING CRITERIA SPECIFIED IN THE ABOVE CODE HAS BEEN EXCEEDED ON THE INSTRUCTION OF PWGSC.

2.2 DESIGN LOADS:

i) RAIL LOAD
HORIZONTAL 1.2kN/m PER ANY RAIL ELEVATION
VERTICAL 1.5kN/m PER ANY RAIL ELEVATION

ii) ANCHORAGE LOAD PULL OUT 15 kN – 125% OF RAIL LOAD RESTRAINT REQUIREMENT.

3. EXISTING MATERIALS

3.1 TIMBER MEMBERS ARE TAKEN TO BE #1 D/FIR.

4. NEW MATERIAL

4.1 ALUMINIUM RAILS & BRACKETS
4.1.1 ALUMINIUM WORK TO CONFORM TO CAN3-S157 AND WELDED TO W59.2
4.1.2 ALL ALUMINIUM TO BE OF GRADE 6061T6

4.2 ANCHORS
4.2.1 ANCHOR BOLTS INTO EXISTING CONCRETE TO BE AISI GRADE 316 STAINLESS STEEL RODS. ANCHORS TO BE EPOXIED USING HILTI "HVA ADHESIVE SYSTEM" OR APPROVED EQUAL INSTALLED TO MANUFACTURER'S REQUIREMENTS
4.2.2 EMBEDMENT OF ANCHORS TO BE AS PER MANUFACTURER'S SPECIFICATIONS BUT NOT LESS THAN THAT DETAILED ON THE DRAWINGS.

4.3 CORING
4.3.1 ALL CORES FOR ANCHOR INSTALLATION ARE TO BE DRILLED.

SUMMARY OF WORK

5.1 GANGWAY INSTALLATION
i) FIELD CUT PANEL CURB TO SUIT
ii) REUSE ALL EXISTING GALVANIZED CONNECTIONS

5.2 RAIL REPLACEMENT
i) REPLACE SAFETY RAILS AT BOTH SIDES OF APPROACH
ii) INSTALL ALUMINUM RAIL SUPPORT POSTS AT POSITIONS INDICATED
iii) INSTALL ALUMINIUM BRACKETS AND PIPE RAILS

5.3 DEMOLITION & DISPOSAL
i) DEMOLISH EXIST. WOOD RAILS AT BOTH SIDES OF APPROACH
ii) DISPOSE OF DEMOLISHED MATERIAL.

EDRM # 74898

PLOT SCALE 1:10

Public Works Canada / Travaux publics Canada

Pacific–Western Region

TRANSPORT CANADA

revisions / date

A detail no. no. du détail
B location drawing no. no. dessin no.
C drawing no. dessin no.

project / projet

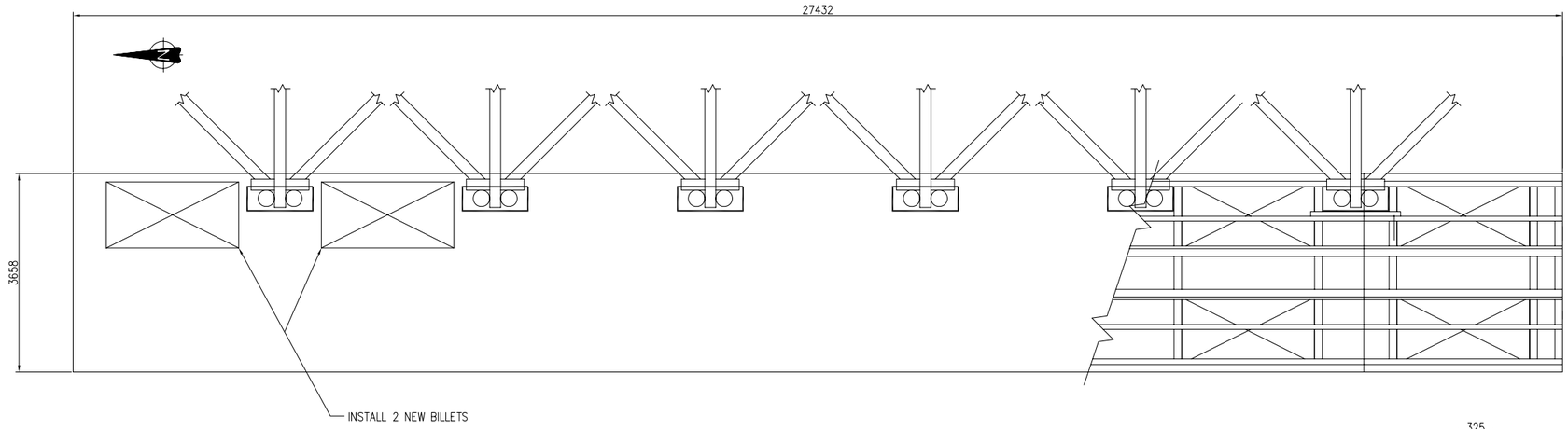
BELLA BELLA, B.C.
TRANSPORT WHARF APPROACH UPGRADE & WHARF REPAIRS

drawing / dessin

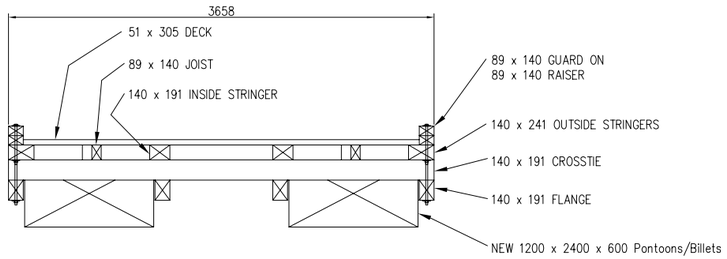
DETAILS SH.2

designed D.CHANG JUNE, 2002 — date
drawn C.GOLDSCHMIDT (AXIS DETAILING) JUNE, 2002 — date
reviewed — date
approved — date
tender / Soumission
PWC Project Manager / Administrateur de projets TPC
project no. / no. du projet 851108

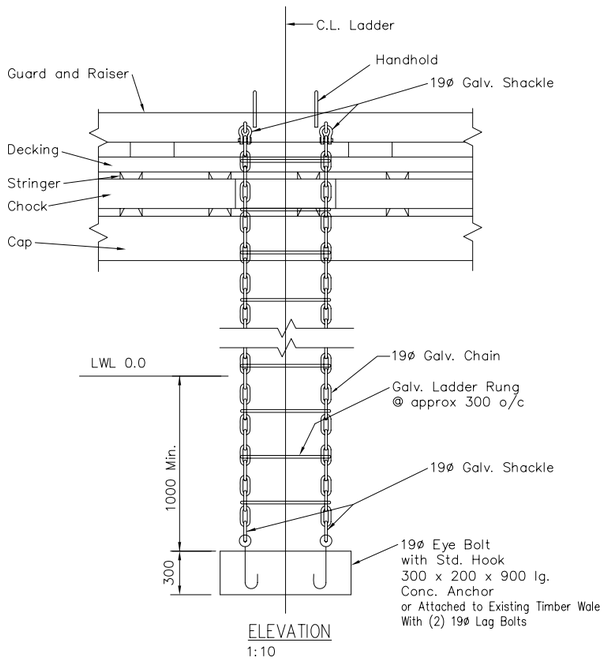
3 of 4



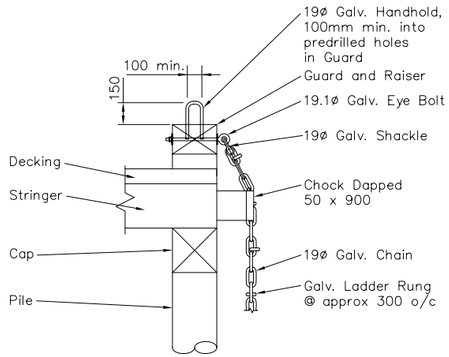
PLAN OF FLOAT 'A'
1:50 (FLOATATION REPAIR)



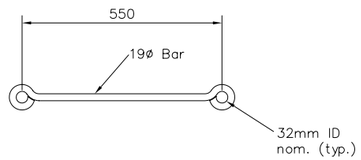
TYPICAL SECTION THRU FLOAT 'A'
1:25



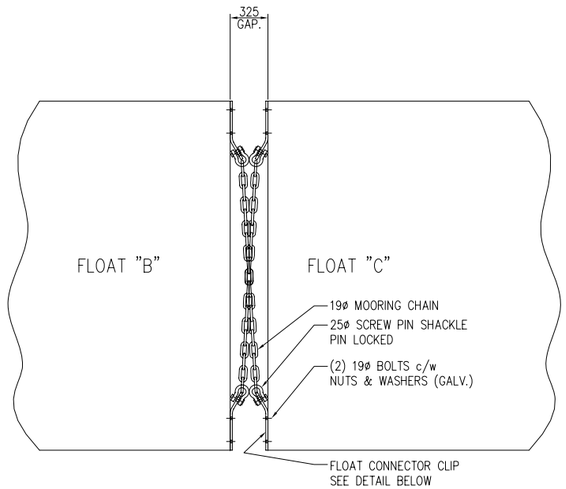
ELEVATION
1:10



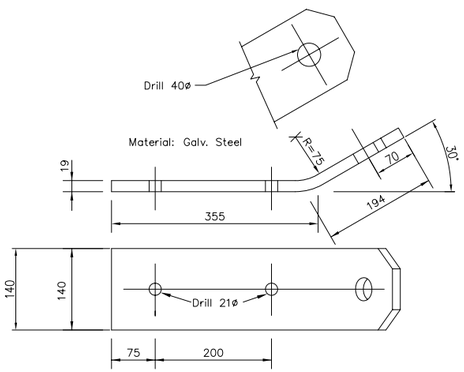
SIDE ELEVATION
1:10



RUNG DETAIL
1:10



PLAN OF FLOAT 'B&C'
1:25 (FLOATATION ALIGNMENT)



STANDARD FLOAT CONNECTOR CLIP
SCALE 1:5

EDRM # 75899

PLOT SCALE 1:50

Public Works Canada / Travaux publics Canada

Pacific–Western Region

TRANSPORT CANADA

revisions | date

A detail no. no. du detail
B location drawing no. sur dessin no.
C drawing no. dessin no.

project / projet

BELLA BELLA, B.C.
TRANSPORT WHARF
APPROACH UPGRADE
& WHARF REPAIRS

drawing / dessin

DETAILS SH.4

designed / conçu: D.CHANG, JUNE, 2002
drawn / dessiné: C.GOLDSCHMIDT (AXIS DETAILING), JUNE, 2002
reviewed / examiné:
approved / approuvé:
tender / Soumission
PWC Project Manager / Administrateur de projets TPC
project no. / no. du projet: 851108

4 of 4

APPENDIX D

Environmental Effects Determination Form

Transport Canada Transports Canada

ENVIRONMENTAL EFFECTS DETERMINATION FORM

1. PROJECT IDENTIFICATION			
Project Title:	Wharf and Floats Restoration		
Project Location:	Bella Bella Public Port Facility, British Columbia		
TC File No.	9526713		
NWPP File No.			
OPI File No.	8115444 (PAD, Project Number 5752)		
RDIMS Record No.	9526713		
NEATS Record No.	37383		
Total Estimated Cost:	$450K	**Start Date:** FY 2014/15	**End Date:**

2. PROPONENT INFORMATION		
Contact Information	**Proponent**	**Representative and/or Environmental Consultant (if applicable)**
Contact Name:	Wayne Marston, Regional Manager, Program and Technical Services (THO)	
Organization Name:	Transport Canada	
Mailing Address:	600-800 Burrard St Vancouver, BC V6Z 2J8	
Tel:	(604) 666-5459	
Fax:	(604) 666-9122	
Email:	wayne.marston@tc.gc.ca	

3. PROJECT DESCRIPTION, DESCRIPTION OF THE ENVIRONMENT AND FEDERAL SCOPE

Project Description

This project involves repairs as identified in Herold Engineering Limited's Structural Condition Inspection and Report conducted in September 2012 and Health and Safety Inspection in May 2012 that recommends replacement of a significant number of bearing piles and cross braces due to fungal decay where they have been exposed to the weather. Replacement of the gangway to Float A with the current gangway leading to Float B and installation of a longer gangway to Float B. Other isolated and minor repairs to the floats are also identified.

The work is being contracted and managed by Public Works and Government Services Canada (PWGSC) on behalf of Transport Canada.

Description of the Environment

The site is approximately 0.6 hectares in area and comprises a trestle approach, a wharf head, and four floats. Transport Canada owns two of the floats, and the Heiltsuk First Nation owns two. A fuel office facility and a tide gauge shed are located on the wharf head. The wharf had three lights and the north sub float had one light, for a total of four lights that are supplied power from the shore. The structures are situated almost entirely over water.

Creosote-treated timbers support the wharf head, which, is constructed of wooden planks. The vehicle

access ramp has a concrete slab deck. Seven fuel lines run the length of the access ramp.

The shoreline is mostly rocky beach, with private residence on upland properties to the north and south of the Site. A grocery store and a liquor store are located adjacent to the access road to the wharf, and a bulk fuel storage area is located to the north of the store. The First Nation's sub floats were mainly debris free.

A foreshore habitat survey concluded that the marine habitats at the Site have been impacted by physical and shading impacts, and possibly by chemical contaminants from the abundant amount of debris in the water lot. Physical impacts have occurred within 8-10 metres of the floats and wharf from the discarded debris, much of which is not suitable substrate for vegetation growth. Shading impacts to sub-tidal kelp and eelgrass have occurred as a result of dock and float structures, reducing the amount of light reaching the vegetation below.

Hemmera conducted a Sediment Environmental Risk Assessment in 2005. The report found metal contamination of sediment in the northern portion of the Site to be correlated with the location of the stormwater outfall, which appeared to be acting as a continuing source of contaminant loading to the Site. Hemmera recommended that the anthropogenic debris be removed, and an environmental management plan be put in place to mitigate against further contaminant loading from site operations and stormwater discharge.

Federal Scope of Project

The scope includes the modification (replacement of piles and floats) and operation of the wharf within the Bella Bella Public Port Facility boundaries (water lot). The footprint of the structure will remain the same and the new piles will be at the same location as the current ones.

4. ENVIRONMENTAL PROTECTION MEASURES UNDER NEMS

☐ Due to the nature and/or location of the project/activity, a review under NEMS was not considered necessary (if this option is chosen, the rest of this section may be deleted in order to provide a more succinct report)

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
  - ☐ Groundwater
  - ☐ Storm Water
  - ☐ Surface
  - ☐ Wastewater
- ☒ Waste Management
  - ☐ Non-Hazardous
  - ☐ Hazardous
- ☐ Emergency Preparedness
  - ☐ Environmental Emergency Plans
  - ☐ Environmental Emergency Exercise
- ☐ 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

5. IDENTIFICATION OF ENVIRONMENTAL EFFECTS

Complete the following tables in order to identify the relevant potential adverse environmental effects.

Note: Mitigation measures/BMPs are considered effective and established if they meet all of the following criteria: have been implemented before in similar situations, are well understood and considered reliable, and are known to be effective.

Biophysical Effects	NO	YES and can be managed through Effective and Established MM / BMPs	YES but must be managed through other MM/ BMPs
Does the project have the potential to harmfully alter, disturb or destroy vulnerable natural features (e.g. habitat for endangered species, water source for a town, wetlands, etc.)?	X		
Does the project have the potential to release a polluting substance into the land, water, or air?		X	
Does the project have the potential to alter landscape features (e.g. resource extraction, deforestation, clearing of vegetation, etc.)?	X		
Does the project have the potential to affect vegetation, birds and wildlife (flora and fauna), including species at risk and its critical habitat?	X		
Does the project have the potential to result in alteration of water level, quality, flow or management regime in a water body, or result in other important changes to surface or groundwater resources (including well-water)?		X	
Does the project have the potential to cause sensory disturbances (i.e. eyesores, noise, vibrations, smells)?		X	
Does the project have the potential to contribute to greenhouse gas emissions and/or can the project be affected by climate change?	X		
Does the project have the potential to cause any other change to the environment on federal lands or incidental to a federal decision?	X		

Please specify:			

Socio-economic effects (Aboriginal Peoples)	NO	YES
Does the project have the potential to result in changes to the environment that may impact aboriginal peoples, specifically with respect to:		
- Health and Socio-economic conditions	X	
- Physical and cultural heritage	X	
- Current use of lands and resources for traditional purposes	X	
- Any structure site or thing that is of historical, archaeological, paleontological or architectural significance.	X	

Socio-economic effects (general)	NO	YES
Does the project have the potential to cause a change in the environment resulting from a related federal decision (power, duty or function) that may result in impacts to:		
- Health and Socio-economic conditions	X	
- Physical and cultural heritage	X	
- Any structure site or thing that is of historical, archaeological, paleontological or architectural significance.	X	

Other Considerations	NO	YES
Has the project been previously assessed through a federal or provincial environmental assessment process?	X	
Does the project have a likelihood of generating public interest or concern?	X	

6. MITIGATION MEASURES

Are environmental mitigation measures required to mitigate significant adverse environmental effects for this proposed project?

☐ No - proceed to Section I (Aboriginal Consultation)
☒ Yes - proceed to table(s) below.

1. DFO has defined a fisheries timing window to conduct low risk activity of least risk to fish and fish habitat in the area of Bella Bella: July 1 to February 28.
   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.
   a. 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.
   b. If a sediment curtain is not utilized, the contractor is responsible for reporting what mitigation was implemented to contain sediment and procedures implemented during the presence of fish and sea mammals.

2. The contractor is responsible for adhering to the following document: *Best Management Practices for Pile Driving and Related Operations – BC Marine and Pile Driving Contractors Association – March, 2003*. These Best Management Practices (BMPs) were developed with DFO are currently being updated. In the mean time, DFO has developed BMPs for Pile Driving and Related Operations for the South Coast Area, which could also apply to the North Coast Area as well. It is strongly suggested that the contractor refers to these BMPs as well. The difference in both BMPs is that **the contractor is no**

longer required to submit any document to or contact DFO prior, during or after the pile driving activities.

3. 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.

4. A spill kit must be maintained on-site at all times. Personnel must be familiar with spill recovery equipment and its use.

5. Construction wastes must be prevented from entering the marine environment. If large debris should fall to the ocean bed during repairs/replacement, it must be lifted off of the bottom taking care to minimize as much as practical, disruption to the sea bed and the suspension of sediments in the water column. Debris should be removed either by hand or by crane system from the wharf or from a barge.

6. All refuse that is removed must be disposed of at an approved landfill site (approved by the BC Ministry of Water, Land and Air Protection under the Waste Management Act and by the appropriate Municipal Authority). Some form of documentation (e.g. certificate, letter, etc.) must be obtained from the approved facility/landfill upon disposal.

7. In order to protect the health of personnel working on-site, as well as employees and the general public, the Contractor must ensure the implementation of an appropriate Health and Safety Plan prior to the project start.

8. A copy of the Transport Canada Environmental Review as well as any other pertinent documentation must be on site at all times for the duration of works associated repair work.

9. Transport Canada, Environmental Services (Suzanne L'Heureux, 604-666-2694, suzanne.lheureux@tc.gc.ca) must be notified of the project schedule at least 5 working days prior to the commencement of work.

10. Transport Canada, Environmental Services reviewed the PWGSC Specifications (see reference in Section 10 of this document) for the proposed work and is satisfied with the sections related to environmental protection.

7. ABORIGINAL CONSULTATION

Request submitted to the Aboriginal Consultation Unit (ACU) for Aboriginal Consultation consideration:

☐ Yes
☒ No (if no, please explain)

This type of work is standard procedure for repair and maintenance of wharfs.

8. NAVIGATION CONSIDERATION (IF APPLICABLE)

Were direct or indirect effects related to navigation identified for this project? (Note: any measures necessary to mitigate direct effects will be included as conditions of the *Navigable Waters Protection Act* approval.)

☒ Only direct effects were identified; therefore the effects of the project on navigation are not

addressed in this Environmental Effects Determination.

☐ Indirect effects were identified and have been addressed in this Environmental Effects Determination.

NOTE:
As per confirmation from TC Navigation Protection Program, Bella Bella PPF was 'grand fathered' under the *Navigable Waters Protection Act* (NWPA). This means that Sections 5 and 9 of the NPA (see extract below) would more likely apply to the proposed repair works at Bella Bella PPF. Navigation Protection Program staff can confirm.

Marginal note: Assessment by Minister

5. (1) An owner who proposes to construct, place, alter, repair, rebuild, remove or decommission a work — other than a designated work — in, on, over, under, through or across any navigable water that is listed in the schedule shall give notice of the proposal to the Minister.

Marginal note: Notice

(2) The notice shall be made in the form and manner, and contain the information, that is specified by the Minister and shall be accompanied by the applicable fee.

Marginal note: Application

(3) Subsection (1) also applies even if the construction, placement, alteration, repair, rebuilding, removal or decommissioning of the work has begun or is completed before the Minister is notified under subsection (1).

Marginal note: Permitted works

9. (1) An owner may construct, place, alter, repair, rebuild, remove or decommission a work in, on, over, under, through or across any navigable water that is listed in the schedule that the Minister has determined under section 5 is not likely to substantially interfere with navigation only if the construction, placement, alteration, repair, rebuilding, removal or decommissioning is in accordance with the requirements under this Act.

9. MONITORING AND OVERSIGHT

Will a Monitoring Plan be developed for this project?

☐ Yes – Please summarize:

☐ No - Please provide rationale:

☒ To be determined by PWGSC and contractor

Are other CEAA 2012 Authorities assisting in the monitoring and oversight?

☐ Yes – Please identify:

☒ No

Will the Proponent be reporting on implementation of mitigation measures?
☒ Yes – Please identify reporting timeline: To be determined by PWGSC and contractor
☐ No

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 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.

The contractor must provide a short report (1-2 pages), outlining the following:

- Names contractor undertaking works and if an environmental monitor was present (not a requirement unless deemed appropriate)
- Date of when work was completed
- Description of conditions under which work was completed (weather conditions etc.)
- Picture/Description of BMPs implemented to reduce environmental impact (e.g. siltation booms deployed, work stopped due to herring presence, etc)- if it becomes applicable
- Picture of the spill kit on site
- Anything else that would be relevant in carrying out this project in an environmentally responsible manner.

10. REFERENCES

1) Project Approval – Wharf Restoration - Bella Bella, BC, Project Number 5752 (RDIMS 8115444)

2) PWGSC – Specifications for Wharf Restoration at Bella Bella, Transport Canada H & P Facility, BC - Project No. R.064106.001 - May, 2014

3) PWGSC – Stamped Drawing Set (part of the Specifications) for Wharf Restoration at Bella Bella, Transport Canada H & P Facility - Project No. R.064106.001 - May, 15, 2014

4) Regional Harbours and Ports Environmental Audit 2011 – Bella Bella, Campbell Island, BC (RDIMS 6694881)

5) Projects Near Water - British Columbia Marine/Estuarine Timing Windows for the Protection of Fish and Fish Habitat – North Coast Area (http://www.dfo-mpo.gc.ca/pnw-ppe/timing-periodes/bc-n-eng.html)

6) BMP for Pile Driving & Related Operations – BC Marine & Pile Driving Contractors Association – March 2003
http://a100.gov.bc.ca/appsdata/epic/documents/p351/d32211/1273516310337_a8f9af96262d9ff325e4452109b72a5c6e2c4828796e47dd8ed0c732bc322dfb.pdf

7) DFO Best Management Practices for Pile Driving and Related Operations (electronic copy attached)

11. ENVIRONMENTAL DETERMINATION

Transport Canada National Environmental Management System

☐ Transport Canada is committed to environmental stewardship under the National Environmental Management System. An 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.

☒ Based on operational experience, this project and/or activity has been identified as not likely to have an environmental effect.

☐ A review under NEMS was not required.

Section 67 Determination under CEAA 2012

☒ After the implementation of mitigation measures, 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

- ☐ No formal federal action is being taken to enable the project to proceed. Section 67 of CEAA 2012 does not apply.
- ☐ Project is not a "project" as defined under Section 66 of CEAA 2012.

12. SIGN-OFF			
Analysis Completed by:	*Suzanne L'Heureux* Environmental Officer Transport Canada	Date:	July 8, 2015

TRANSPORT CANADA
OFFICE OF PRIMARY
INTEREST (OPI)

Jim Chan, Regional Manager, Program and Technical Services
{Division} Regional Manager, Program and Technical Programs, Pacific Region
Transport Canada

June 13/15
Date

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

Environmental Services
Support Provided By:

Ian Chatwell, Regional Manager

July 16, 2015
Date

The above has read this Environmental Review and confirms that- based on the information provided by the Proponent- the component of the project occurring on federal lands is not likely to result in significant adverse environmental effects. Environmental Services is committed to carrying out monitoring and oversight when required.