SPECIFICATIONS FOR

WHARF REHABILITATION

WHITE CLOUD ISLAND (KIDD BAY), ONT

Department of Fisheries & Oceans
Small Craft Harbours Branch
Burlington, ON

2015

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01 11 05 – GENERAL INSTRUCTIONS

Part 1 General

1.1 DESCRIPTION OF WORK

.1 The work site described in this specification is Kidd Bay on White Cloud Island. Kidd Bay is located on the West side of White Cloud Island approximately 7 kilometres Northwest of Big Bay, Ontario See Chart of Location on Drawing MA-01.

.2 The work under this contract covers the following:

.1 Demolition and removal of all existing timber components on Timber Bulkhead Wall and Timber Retaining wall.

.2 The supply and installation of a new timber crib wharf and deadman anchors, including excavation for installation of cribs, geotextile and granular backfill.

.3 The supply and installation of shore protection rock

.3 The work to be done by the Contractor under this Contract shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, insurance, and all things necessary for and incidental to the satisfactory performance and completion of all work as specified herein. All work to be done in accordance with details shown on the accompanying plans as specified herein.

1.2 DEFINITIONS

.1 The word, "provide", means "supply and install".

.2 For purposes of this contract, "Departmental Representative", "Architect/Engineer" and "Engineer" shall have the same meaning.

1.3 WORK SCHEDULE

.1 Provide within 10 working days after Contract award, schedule showing anticipated progress stages and final completion of work within time period required by contract documents.

.2 Interim reviews of work progress based on word schedule will be conducted as decided by Engineer and schedule updated by Contractor in conjunction with and to approval of Engineer.

.3 Work under this contract is to be performed to completion in a timely manner. Commence planning and preparatory work immediately upon receipt of official notification of acceptance of Contract and schedule the work so that the project will be complete within the specified time frame.

.4 Work sequence:

.1 Before work is undertaken, ensure that all materials and trades required are available to finish work in as short a period as possible.

.2 No area to be renovated shall be placed out of service until it is confirmed that there shall be no need to stop the work waiting for receipt of materials, equipment or labour.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

1.5 FEES, PERMITS AND CERTIFICATES

.1 Provide authorities having jurisdiction with information requested.

.2 Pay fees and obtain certificates and work permits required.

.3 Furnish certificates and permits when requested.

1.6 MEASUREMENT FOR PAYMENT

.1 Notify Engineer sufficiently in advance of operations to permit required measurements for payment.

.2 Submit to Engineer, at least 14 days before Information for first application for payment; cost breakdown, Progress Payment in detail as directed by Engineer, for parts of Work, aggregating total amount of Contract Price, so as to facilitate evaluation of applications for payment. After approval by Engineer, cost breakdown will be used as basis for progress payments.

1.7 INTERPRETATION OF DOCUMENTS

.1 In the event of discrepancies or conflicts in interpreting the Plans (drawings) and Specifications, Specifications take precedence over drawings bound with specifications.

.2 Drawings and specifications are complementary. When work is shown or mentioned on the drawings but is not indicated in the specifications, or when work is indicated in the specifications but is not shown or mentioned on the drawings, it shall nevertheless be included in the Contract.

.3 The sub-division of the Specification into sections, identified by title and number, is for convenience only and does not modify the singularity of the document, nor does it operate to make or imply that the Engineer is an arbiter to establish the limits or extent of contract between Contractor and Subcontractors or to determine the limits or extents of work that may be decided by trade unions or contractors' organizations. Extras to the Contract will not be considered on the grounds of differences in interpretation of the Specification and/or Drawings as to which trade performs the work.

.4 Do not scale off drawings.

1.8 CONTRACTOR'S USE OF SITE

.1 Co-ordinate use of premises under direction of the Engineer.

.2 Do not unreasonably encumber the site with materials and equipment.

.3 Assume full responsibility for protection and safekeeping of products under this Contract.

.4 Move stored products or equipment which interferes with operations of Engineer or other harbour users.

.5 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.6 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.7 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Engineer.

.8 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

.9 Hoard-off construction site with suitable safety fences and signage to prevent access to the construction area by public, and allow public to move by the construction hoarding to use the main wharf areas with at least a 1.5M wide minimum safe path of access.

1.9 EXISTING SERVICES – (MAY NOT BE APPLICABLE)

.1 Establish location and extent of service lines in area of work, if there are any services (none anticipated) before starting work. Notify Engineer of findings.

1.10 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Reviewed Shop Drawings.
.5 Change Orders.
.6 Other Modifications to Contract.
.7 Copy of Approved Work Schedule.
.8 Health and Safety Plan and Other Safety Related Documents.
.9 Other documents as specified.

1.11 CODES AND STANDARDS

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

.2 Work to meet or exceed requirements of contract documents, specified standards, codes and referenced documents.

1.12 PROJECT MEETINGS

.1 Engineer will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

1.13 SETTING OUT OF WORK

.1 Engineer will provide only those survey control points and set such stakes as necessary to define general location, alignment and elevations of work. Give engineer reasonable notice of requirements for such control points and stakes.

.2 Set grades and lay out work in detail from control points and grades established by Engineer.

.3 Provide devices needed to lay out and construct work.

.4 Supply such devices needed to lay out and construct work.

.5 Supply such devices as straight edges and templates required to facilitate Engineer's inspection of work.

.6 Supply stakes and other survey markers required for laying out work.

1.14 ADDITIONAL DRAWINGS

.1 Engineer may furnish additional drawings for clarification. These additional drawings have same meaning and intent as if they were included with plans referred to in Contract documents.

.2 When additional drawings and instructions are required by the Contractor, provide reasonable notice in writing to the Engineer in advance of the date they are required.

1.15 EXAMINATION

.1 Before submitting tender, examine existing conditions and determine conditions affecting work.

.2 Obtain all information which may be necessary for proper execution of Contract.

1.16 SITE INSPECTION

.1 The submission of a tender is deemed to be a confirmation of the fact that the Tenderer has inspected the site and is fully conversant with all the conditions under which the work is to be carried out.

1.17 MATERIAL AND EQUIPMENT

.1 Use new products unless otherwise specified.

.2 Deliver and store material and equipment to manufacturer's instructions with manufacturer's labels and seals intact.

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

1.18 SECURING WORK AREA

.1 Secure the work areas in each stage in an approved manner. This includes fencing or barricades to prevent public access to any areas where construction activities occur and construction materials are stored.

1.19 DRAWINGS

.1 The following drawings are to be read in conjunction with this specification:

.1 MA-01 and MA-02.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

01 35 29 – HEALTH AND SAFETY REQUIREMENTS

Part 1 General

1.1 REFERENCES

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

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 Province of Ontario

.1 The Occupational Health and Safety Act and Regulations for Construction Projects, revised statues of Ontario 1990, Chapter 0.1 as amended, O.Reg. 213/91 as amended by O.Reg. 631/94, O.Reg. 143/99, O.Reg 571/99, O.Reg. 145/00, O. Reg.527/00. R.R.O. 1990, Reg. 834, 0. Reg. 278/05 (Asbestos – Construction), O. Reg. 845/90 (Silica) as amended by O. Reg. 521/92 and O. Reg. 391/00.

.2 Workplace Safety and Insurance Act, 1997.

.3 Municipal statutes and authorities.

1.2 SUBMITTALS

.1 Submit site-specific Health and Safety Plan: Within 10 days after date of Notice to Proceed and prior to commencement of Work.

.2 Submit copies of incident and accident reports to Engineer.

.3 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within 5 days after receipt of comments from Engineer.

.4 Engineer's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

1.3 SAFETY ASSESSMENT

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

1.4 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Observe and enforce construction safety measures required by Canadian Construction Safety Code, Provincial Government, Worker’s Compensation Board and municipal statutes and authorities.

.3 In the event of a conflict between any provisions of above, authorities having the most stringent provision will apply.

1.5 RESPONSIBILITY

.1 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.

.2 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.

1.6 POSTING OF DOCUMENTS

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

1.7 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or Departmental Representative.

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

01 35 43 – ENVIRONMENTAL PROCEDURES

Part 1 General

1.1 MEASUREMENT FOR PAYMENT

.1 No separate measurement will be for work of this section. Work is incidental to the project cost.

1.2 FIRES

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

1.3 DRAINAGE

.1 Provide temporary drainage and pumping required to keep excavations and site free from water.

.2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 WORK ADJACENT TO WATERWAYS

.1 Construction equipment may not enter the lake unless the lake is frozen. If construction equipment will be located on the frozen surface of the lake, it will be removed from the lake each night if the on-ice component of the projects spans more than one day.

.2 Construction equipment will enter and leave the lake at such a location and in such a manner that disturbance to the lakeshore is minimal.

.3 Every effort will be made to minimize the introduction of sediment to the lake during on ice work activities. Any sediment tracked onto the ice during the project must be cleaned off at the end of the project. This includes any ice that needs to be removed from the shoreline to accommodate stabilization works. All material used for shoreline stabilization will be clean and free of silt and clay.

.4 Do not use waterway beds for borrow material.

.5 Waterways to be free of excavated fill, waste material and debris.

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

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

.8 Avoid damage to shoreline.

.9 Supply, install, and maintain approved erosion control blankets to unprotected slopes until re-vegetation is established.

.10 Any impacts below ordinary high water mark that are not shown on the site plan are not permitted without written approval from the Engineer. Up to 30 days may be required for approval.

.11 Protect shoreline with a build-up of snow.

.12 Reclaim and restore disturbed areas to previous or better condition.

.13 Areas used for stockpiling construction materials, including fill or other equipment storage will be well back from the edge of the water body and, if possible, in areas which have already been disturbed or are devoid of vegetation.

.14 All required machinery should be supplied with appropriate spill containment kits as a precaution in the event of accidental fuel spills or hydraulic leaks. Additional kits should be available on site with the capacity to contain any spills of deleterious substances that may be reasonably expected to occur. Contractors should ensure that all personnel are familiar with the spill kits.

1.5 POLLUTION CONTROL

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

.2 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.

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

.4 Locate temporary fuel storage 100 metres from shore and comply with Provincial Environmental Legislation, as well as Land Owner’s express approval in writing.

.5 Refueling, servicing, or cleaning of equipment on ice or within 100 metres of shore is prohibited. Contractor to ensure all equipment operating on project is free of external fluid leaks, grease, oil, and mud.

.6 Contractor to contain all oil leaks from equipment working adjacent to waterways.

.7 No maintenance of vehicles or equipment in construction areas.

.8 Use drip pans to catch leaking oil from compressors, pumps, etc.

1.6 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site unless approved by Engineer.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways. Hazardous wastes including fuels, oils and lubricants to be disposed of by a licensed hazardous waste carrier/handler in accordance with Provincial Environment Legislation.

.3 Collect all rubbish and waste material and dispose of in accordance with applicable governing authorities.

.4 Do not allow debris of any type to enter waterway.

1.7 PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties.

.2 Avoid disturbance of topsoil and vegetation unless otherwise specified. Contractor is responsible to restore all impacted areas to original state.

1.8 VERTICAL SILT CURTAIN

.1 Contractor to isolate the work area from the lake with an approved silt curtain to prevent the drift of sediment form the work area into the lake as required. The silt

curtain must extend from the top of the ice/water to within 300mm of the lake bottom. The silt curtain must be left in place until all suspended sediments are settled out. On completion of the project carefully remove silt curtain to ensure settled sediment is not disturbed. An acceptable product is "Tough Guy" Type 1E Turbidity Barrier or approved equivalent. Costs for supply, installation, maintenance, and removal to be included in lump sum costs for the project.

.2 Construction shall be monitored to ensure that the mitigation measures are effective at containing the sediment to the launch ramp construction area. Adjustments may have to be made to get the containment to function properly.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

01 45 00 – QUALITY CONTROL

Part 1 General

1.1 INSPECTION

.1 Allow Engineer access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer.

.3 Engineer will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.2 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies may be engaged by Engineer for purpose of inspecting and/or testing portions of Work.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, an appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Engineer at no cost to Crown. Pay all costs for retesting and re-inspection if required.

1.3 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.4 PROCEDURES

.1 Notify Engineer in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.5 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage - whether incorporated in Work or not - which has been rejected by Engineer as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of Engineer it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Engineer.

1.6 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs as requested.

1.7 MILL TESTS

.1 Submit mill test certificates as requested.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

01 77 00 – CLOSEOUT PROCEDURES

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor to conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.2 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Engineer.

.2 When Work is deemed incomplete according to Engineer, complete outstanding items and request re-inspection.

.3 Final Payment:

.1 When Engineer considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.4 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

1.2 FINAL CLEANING

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

1.3 RECORD DRAWINGS

.1 Maintain project “as-built” record drawings and record accurately significant deviations from Contract documents caused by site conditions and changes ordered by Engineer.

.2 Mark “as-built” changes in red coloured ink.

.3 Record the following information:

.1 Field changes of dimension and detail.

.2 Changes made by Change Order or Field Order.

.4 At completion of project and prior to final inspection, neatly transfer “as-built” notations to second set and submit both sets to Engineer.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

02 41 13 – SELECTIVE SITE DEMOLITION

Part 1 General

1.1 DESCRIPTION

.1 Mobilization, demobilization, all materials and work required for the demolition and removal of the existing Timber Bulkhead wall and Retaining Wall as specified on the drawings to be included in lump sum costs.

1.2 DELIVERY, STORAGE AND HANDLING

.1 Storage and Protection.

.1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Engineer and at no cost to Engineer.

.2 Remove and store materials to be salvaged, in manner to prevent damage.

.3 Store and protect in accordance with requirements for maximum preservation of material.

.4 Handle salvaged materials as new materials.

1.3 SITE CONDITIONS

.1 Site Environmental Requirements.

.1 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.2 Ensure proper disposal procedures are maintained throughout the project.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 PREPARATION

.1 Inspect site and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition, if any services are found at the site (not anticipated).

3.2 REMOVAL OPERATIONS

.1 Remove items as indicated.

.2 Do not disturb items designated to remain in place.

.3 Salvage existing ballast rock if removal is necessary. Contractor will be responsible for storage of stone until it is reinstalled.

3.3 REMOVAL FROM SITE

.1 Dispose of materials not designated for salvage or re-use in work, off-site at location acceptable to Engineer.

3.4 RESTORATION

.1 Remove debris, trim surfaces and leave work site clean, upon completion of Work.

.2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

END OF SECTION

05 55 00 – METAL FABRICATIONS

Part 1 General

1.1 MEASUREMENT FOR PAYMENT

.1 New Mooring Cleats will be paid for per unit supplied and installed including any required fasteners.

.2 New ladders will be measured by each unit supplied and installed including any required fasteners

.3 New Ladder extensions will be measured by each unit supplied and installed including any required fasteners.

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

.1 ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

.2 ASTM A269-02, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

.3 ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.

.2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)

.1 CAN/CSA-G40.20/G40.21-98, General Requirements for Rolled or Welded Structural Quality Steel.

.2 CAN/CSA-G164-M92(R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CAN/CSA-S16.1-01, Limit States Design of Steel Structures.

.4 CSA W48-01, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-1989(R2001),Welded Steel Construction (Metal Arc Welding) (Imperial Version).

.4 The Environmental Choice Program

.1 CCD-047a-98, Paints, Surface Coatings.

.2 CCD-048-98, Surface Coatings - Recycled Water-borne.

Part 2 Products

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.

.2 Steel pipe: to ASTM A53/A53M standard weight, painted finish.

.3 Welding materials: to CSA W59.

.4 Welding electrodes: to CSA W48 Series.

.5 Bolts and anchor bolts: to ASTM A307.

2.2 FABRICATION

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

.2 Where possible, fit and shop assemble work, ready for erection.

.3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m^2 to CAN/CSA-G164.

.2 Chromium plating: chrome on steel with plating sequence of 0.009 mm thickness of copper 0.010 mm thickness of nickel and 0.0025 mm thickness of chromium.

.3 Shop coat primer: to CAN/CGSB-1.40.

.4 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 ISOLATION COATING

.1 Isolate aluminum from following components, by means of bituminous paint:

.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.

.2 Concrete, mortar and masonry.

.3 Wood.

2.5 SHOP PAINTING

.1 All steel components, bolts, nuts, washers, and drift-bolts are to be galvanized, unless noted otherwise.

.2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.

.3 Clean surfaces to be field welded; do not paint. Remove all burrs and sharp edges.

Part 3 Execution

3.1 ERECTION

.1 Perform welding work in accordance with CSA W59 unless specified otherwise.

.2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.

.3 Provide suitable means of anchorage acceptable to Engineer such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

.4 Exposed fastening devices to match finish and be compatible with material through which they pass.

.5 Provide components for building by other sections in accordance with shop drawings and schedule.

.6 Make field connections with bolts to CAN/CSA-S16.1, or weld.

.7 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.

.8 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

3.2 CLEANING

.1 Perform cleaning after installation to remove construction and accumulated environmental dirt.

.2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

06 05 73 – WOOD TREATMENT

Part 1 General

1.1 MEASUREMENT FOR PAYMENT

.1 No measurement will be made under this Section.

1.2 RELATED SECTIONS

.1 Section 31 53 13 – Timber Cribwork

1.3 REFERENCES

.1 American Wood-Preservers' Association (AWPA)

- .1 AWPA M2-01, Standard for Inspection of Treated Wood Products.
- .2 AWPA M4-06, Standard for the Care of Preservative-Treated Wood Products.

.2 Canadian Standards Association (CSA International)

- .1 CSA O80 Series-97(R2002) - O80S2-05, Wood Preservation.
- .2 CSA O80.20-1.1-M97(R2002), This Standard applies to the fire-retardant treatment of lumber by pressure processes..
- .3 CSA O80.27-1.1-M97(R2002), This Standard covers the fire-retardant treatment of Douglas Fir, hardwood, softwood, and Poplar plywood by pressure processes.
- .4 CSA O80.201-M89, This Standard covers hydrocarbon solvents for preparing solutions of preservatives.
- .5 CSA O322-02, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.

Part 2 Products

2.1 MATERIALS

.1 Preservative treatment by a pressure process to CSA O80 Series.

Part 3 Execution

3.1 APPLICATION: PRESERVATIVE

.1 Treat timber to CSA O80 Series preservative to obtain minimum net retention of 6.4 $kg/m^3$of wood.

3.2 CARE OF PRESSURE-TREATED WOOD PRODUCTS

.1 Apply the recommended and accepted practices followed in the care and handling of all wood products to pressure-treated wood products.

.2 Avoid damage of field fabrication causing alteration of the original pressure-treated surface.

.3 Thoroughly saturate all cuts or injuries occurring subsequent to pressure treatment by liberal brushing, spraying, dipping, soaking or coating with preservative solution.

.4 Fill holes necessarily bored after pressure treatment with preservative solution to allow ample soaking time for penetration of solution.

.5 Use in any of the above the same preservative solution as that used in the original pressure treatment or a field treating solution of colour to match original treatment.

END OF SECTION

31 53 13 – TIMBER WHARF WORK

Part 1 General

1.1 MEASUREMENT PROCEDURES

.1 Deconstruction and all removals shall be measured as a lump sum and shall include disposal offsite. Ballast rock will also be included in the lump sum for removal, storage and reuse.

.2 Treated decking will be paid for by the square metre of timber supplied, installed and remaining in the work. This item includes all fastenings.

.3 Treated square sawn timber to be measured in cubic metres of timber supplied, installed and remaining in the work, including all fastenings, posts, post caps and cribwork timbers,

.4 Wood timber in the form of curb, fascia and fenders shall be measured in linear metres of timber supplied, installed and remaining in the work.

.5 Ballast rock will be paid for by the tonne supplied, installed and remaining in the work. This item to include ballast rock salvaged from existing wharf.

.6 Rock Mattress will be paid for by the tonne supplied, installed and remaining in the work. This item to include ballast rock salvaged from existing wharf.

.7 Cubic measure of timber to be determined by product of actual cross-sections and length dimensions in place. The cross-section dimensions will be obtained from Table N-9 in “Metric Handbook for Canadian Softwood Lumber”.

1.2 REFERENCES

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

.1 ASTM A307-04, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 Canadian Standards Association (CSA International)

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

.2 CSA-O80 Series-97 (R2002), Wood Preservation.

.3 National Lumber Grades Authority (NLGA)

.1 Standard Grading Rules for Canadian Lumber 2003 edition.

1.3 QUALITY ASSURANCE

.1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29 - Health and Safety Requirements.

.2 Worker protection:

.1 Workers must wear gloves, eye protection and protective clothing when handling, drilling, sawing or cutting preservative treated wood and applying preservative materials.

.2 Workers must not eat, drink or smoke while applying preservative material.

.3 Clean up spills of preservative materials immediately with absorbent material. Safely discard of absorbent material to approved landfill.

1.4 WASTE MANAGEMENT

.1 Do not dispose of preservative treated wood through incineration.

.2 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.3 Dispose of treated wood, end pieces, wood scraps and sawdust at an approved landfill.

Part 2 Products

2.1 MATERIALS

.1 Timber: use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Accreditation Board of CSA.

.1 Species:

Group A (Douglas Fir).

.2 Grade: Structural, No 2 or better

.3 Grading authority: NLGA

.4 All timber to be rough sawn, unless specified otherwise.

.5 All decking to be smooth, planed sized lumber, unless specified otherwise.

.6 All specified treated timber and planks to be pressure treated with CCA preservative salts, incision method, to 6.4 kg/cubic metre (0.40 lb/cubic foot) retention or refusal. Treatment to conform to the latest edition of CSA specification 080.

.7 All end cuts, abrasions and bolt holes to be well soaked with two coats of CCA preservative acceptable to Engineer.

.8 Machine bolts used are to be of sufficient length to accept two washers and one fully threaded hexagonal headed nut.

.9 Drift bolts to have countersunk, tapered head and chisel point as manufactured by Dominion Bridge or equivalent.

.10 Bore holes for drift bolts 1.5 mm smaller diameter than bolt and 52 mm short of length of bolt. Bore holes for machine bolts to same diameter as bolt.

.11 All end cuts to be placed above high water line where possible.

.2 Miscellaneous steel:

.1 Hot dip galvanized: to CAN/CSA-G164.

.2 Wire nails, spikes, staples: to CSA-B111.

.3 Bolts, nuts, washers: to ASTM A307.

.4 Steel straps and plates: to CAN/CSA-G40.21, Grade 300.

.3 Ballast for filling cribs to following requirements:

.1 Stone, consisting of hard durable particles free from clay lumps, organic material and other deleterious materials.

.2 Ballast stone supplied to be well graded with maximum size not exceeding 200 mm and minimum size to be not less than 150 mm.

.3 Crushed rock mattress: 100 mm minus.

Part 3 Execution

3.1 DECONSTRUCTION AND REMOVALS

.1 Carefully remove designated curb, curb blocks, decking, stringers, fenders, and crib timbers and stockpile for removal to an approved sanitary landfill site.

.2 Remove and store existing crib rock ballast for reuse.

.3 Maintain adjacent area of wharf structure not designated for removal. Restore areas damaged during removals.

.4 Dispose of removed materials off site at an approved sanitary landfill facility.

3.2 PREPARATION

.1 Confirm existing measurements on site and confirm materials supply is sufficient. Inform engineer of any measurement discrepancies present.

.2 Before construction, stockpile sufficient ballast to completely fill cribs, allowing reuse of existing core stone from existing bulkhead walkway, and stone removed from lake bottom (fallen from cribs) and adjacent retaining wall backfill material.

3.3 DECKING, FASCIA AND CURB

.1 Decking will be 76 mm square sawn sized lumber laid heart side down. Planks will be spaced 6 mm apart and secured with two 200 mm galvanized spiral spikes per timber contact. Plank widths to be not less than 200 mm and not more than 310 mm wide. Deck planks to cross width of wharf in one length except where indicated on Drawing MA-02.

.2 Planks to be cut flush with outer faces of work.

.3 All planks to be pre-drilled for the spikes to prevent splitting.

.4 In cases where the thickness of deck planks vary due to shrinkage or swelling, planks are to be sorted and installed so that changes in elevations are kept to a minimum. Chamfer edges of plank where changes cannot be avoided.

.5 Place curb on risers and secure with countersunk 20 mm diameter machine bolts as shown on the plan.

.6 Riser blocks are to be secured to the deck with two 200 mm galvanized spiral spikes.

.7 Fascia boards to be installed vertically on shore face of cribs 76 mm square sawn sized lumber laid heart side against cribs. Planks will be spaced 6 mm apart and secured with two 200 mm galvanized spiral spikes per timber contact. Plank widths to be not less than 200 mm and not more than 310 mm wide. Deck planks to cross height of wharf in one length except where indicated on Drawing MA-02.

3.4 CRIB CONSTRUCTION

.1 All longitudinal and cross timbers shall be of sufficient length to span crib in one length or as noted on drawing. Longitudinals and cross timbers to be drifted to each other at each contact point with 20 mm x 355 drift bolts. Each longitudinal and cross timber to be fastened to vertical binder post with 20 mm machine bolt complete with nut and 2 washers. All machine bolts used to be of sufficient length to accept 2 washers and have room for fully threading a hexagonal nut. All machine bolts to be countersunk on exterior faces.

.2 Place ballast floor on pockets on bottom or second course from bottom timbers. Secure each ballast floor timber to bottom timbers with 20 mm x 305 drift bolts.

.3 Vertical binder posts to be in one length from bottom of cribwork to top of cribwork.

.4 Stringers to be installed in lengths as shown on drawings. Stringers to be fastened to crib timbers with 20 mm x 355mm drift bolts at each contact.

.5 Maximum spacing between cross timbers and longitudinal not to exceed 215mm.

.6 Bore holes for drift bolts 1.5 mm smaller diameter than bolt 52 mm short of length of bolt. Bore holes for machine bolts to same diameter as bolts.

.7 Salvage and reinstall existing mooring cleats and steel safety ladders in locations designated by Engineer.

3.5 HANDLING TREATED TIMBER

.1 Handle treated material without damaging original treatment.

.1 Replace treated timber with major damage to original treatment, as instructed by Engineer.

.2 Field treatment: apply and saturate cuts, minor surface damage, abrasions, and nail and spike holes with preservative to CAN/CSA-O80 Series.

3.6 BALLAST

.1 Place ballast to avoid damage to timber cribwork.

.2 Place ballast so that differential height of fill between adjacent cells, at any time, will be less than 1 m.

.3 Cribs to be fully ballasted from ballast floor to bottom of stringers.

3.7 TOLERANCES

.1 1 in 300 in overall dimensions.

3.8 CLEANING

.1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

35 31 24 – SHORE PROTECTION

Part 4 General

4.1 MEASUREMENT PROCEDURES

.1 Armour stone will be measured in tonnes of material supplied and placed to the final dimensions indicated on the drawings and incorporated into the completed work and shall include all labour, equipment and materials necessary to complete the work.

.2 Weigh all stone placed in the Work at the quarry on a scale approved and certified as correct by the Department of Consumer and Corporate Affairs Weights and Measures Inspection Branch. Prior to use, have weigh scale certified as meeting requirements of Statutes of Canada, Chapter 36, Weights and Measures Act 1971 and subsequent amendments. Provide the Departmental Representative with a copy of the certificate and display certificate in prominent location. Costs for maintenance and operation of scale shall be considered incidental to the work.

.3 Provide the Departmental Representative with weigh tickets at time of delivery to site.

Part 5 Products

5.1 MATERIALS

.1 Rock materials:

.1 Material to be transported to site. Source of material to be approved by Engineer.

.2 Armour stone:

.1 Greatest dimension of each stone not to exceed two times least dimension.

.2 Stone sizes to be in range of 300mm to 600mm. Armour rock to be fractured and angular. Field stone not acceptable.

.3 Free from cracks, seams and other defects which may impair durability. The Los Angeles abrasion loss determined using ASTM procedures shall not exceed 35%. The armour rock shall be durable, blasted limestone. Slate and shale not acceptable.

Part 6 Execution

6.1 ARMOUR STONE

.1 Place armour stone to lines, grades and dimensions as indicated.

.2 Place armour stone in thickness courses to total layer thickness as shown on the drawing.

.3 Place each armour stone in stable position.

6.2 TOLERANCES

.1 Completed component layers to be within following tolerances of lines and grades as indicated:

.1 Armour: plus or minus 200 mm.

END OF SECTION