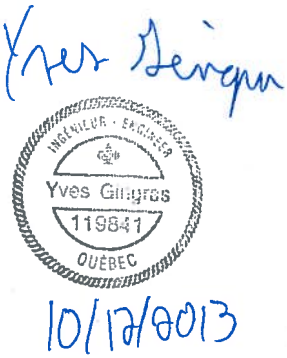
Fisheries and Oceans Canada

Small Craft Harbours

Matane – Gaspesia region

Construction and installation of floating docks

Project n° 720663



Specifications for bid

DECEMBER 2013

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Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 14 00 – Regulatory Requirements

.2 Section 01 32 18 - Construction Progress Schedules - Bar (Gantt) Charts

1.2 REFERENCES

.1 CCDG - Cahier des charges et devis généraux – Infrastructures routières - Construction et réparation, Gouvernement du Québec.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

.1 This list of work is not necessarily complete and does not relieve the Contractor of his responsibility to carry out any other work, alterations or changes required to complete the work stipulated in this project satisfactorily.

.2 Work construction and installation of floating docks in Fishing Harbour of Matane in the Gaspesia Region comprises, but is not limited to:

- .1 Construction of treated wood floating docks
- .2 Construction of hot dip galvanised steel components
- .3 Construction of concrete anchor blocks
- .4 Supply of an aluminum gangway with engineering documents
- .5 Construction of a CCA-treated wood cribwork for the gangway.
- .6 Delivery of components to harbour of Matane
- .7 Installation of concrete anchor blocks and wooden cribwork
- .8 Supply of hardware for floating docks installation
- .9 Installation of floating docks and required adjustments.

1.4 WORK EXTENT

.1 Work included in this project comprises the supply of all materials, labour, tools, equipment, and also protection and transport necessary to execute and finish work accordingly to specifications, in such a manner that the whole property shows uniformity.

.2 Co-ordination and allocation of work among subcontractors is the sole responsibility of the General Contractor, and no reference to subcontractors in these documents shall be construed as binding Canada with respect to any such allocation.

.3 Contractor who has questions on Harbour operation or wants to visit work site shall contact the Harbour Authority:

- .1 M. Roger Arsenault Tél. : 418 562-9785 ou 418 566-5419

1.5 OWNER OCCUPANCY

.1 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

.2 Contractor shall consider while planning works, that activities in fishing Harbour take place from around Marsh 15th and end in October. Access and wharves shall be available at anytime.

.3 Repair or replace, as directed by the Departmental Representative, for connection to the existing structure or an adjacent structure or for alignment with them, the parts of the existing structure that have been modified during construction.

.4 Once the work is completed, existing structures must be in the same or better condition than before the work began.

1.6 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING

.1 Execute work with least possible interference or disturbance to occupants, public and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

1.7 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to tenant operations.

.3 Provide alternative routes for personnel, pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.5 Submit schedule to and obtain approval from Departmental Representative for any shutdown or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.7 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.8 WORK SEQUENCE

.1 Construct Work in stages, and if possible, as directed by Departmental Representative.

.2 Coordinate Progress Schedule with Departmental Representative.

.3 Required stages:

.1 As soon as reception of the Notice of Acceptance of the offer, the Contractor may carry out Work

.2 Construction and delivery of floating docks, aluminum gangway, hot dip galvanised steel components, prefab concrete anchor blocks and all hardware for assembling shall be completed for Mars 15th, 2014.

.3 Installation of anchor blocks and construction of cribwork shall begin prior to Marsh 31th, 2014.

.4 All work shall be completed no later than April 30th, 2014.

.5 For more information on schedules, refer to Section 01 32 18 – Construction Progress Schedules – Bar (Gantt) Charts.

.4 Sequence activities to limit exposure of partially constructed work to waves, ice and snow storms. Damages to new structures, partially constructed or approved, prior to substantial completion, due to Contractor or subcontractor operations, shall be repaired by Contractor at no additional cost for Departmental Representative.

1.9 CONTRACTOR USE OF PREMISES

.1 Contractor has unrestricted use of site until substantial performance. On the other hand, Contractor shall share work site access with other users.

.2 Contractor shall limit use of premises for work, storage, and access as indicated on drawings. Parking areas may be used by the Contractor prior to a written agreement with the Harbour Authority. Provide a copy of the agreement to the Departmental Representative

.3 Co-ordinate use of premises under direction of Departmental Representative.

.4 If the Contractor wishes to use private land for work or storage space required for operations under this contract, other than those already identified in the plan as reserved for use by the Contractor, the latter shall obtain a written agreement reached between both parties and pay the applicable fees. A copy of this agreement shall be provided to the Departmental Representative.

1.10 MEASUREMENT METHOD

.1 Provision of materials, labour, tools, equipment, protection, transport, administration fees, profits, financing, etc., required to perform the work in this undertaking are included in each item described below, unless otherwise indicated.

.2 Measuring method for items will be:

.1 Item no. 1 Site organization

.1 Item will be measured as a global unit and includes all items listed in division 1, also items that cannot be assigned to another measurement item.

.2 This item shall include all the necessary work and the means to ensure continuity of services for fishers.

.3 Site organization during work will be paid proportionately with monthly progress payments. A maximum amount of 10 % of Site Organization to be paid at the end of stone delivery at Pointe-aux-Loups Harbour

.2 Item No. 2 – Demolition

.1 The item will be measured as a global unit and includes, but is not limited to, all demolition work necessary for floating docks installation, such as saw cut for stonework, wheelguard and pavement demolition of access road and other work described in this specification.

.2 These include recovery of stone and work to rebuild access road with bituminous pavement, concrete for wheelguard and reuse of stone for stonework protection.

.3 It also includes disposal of non contaminated material and recovery of granular material for reuse.

.4 This item includes expenses of loading, transport and unloading of demolition material at waste disposal site.

.3 Item No. 3 – Floating docks

.1 The Item will be measured as a global unit.

.2 This item will include the cost of all material, labour and equipment for construction, transport and unloading on worksite, including the Contractor's quality control activities.

.3

.4 Item No. 4 – Steel components

.1 The item will be measured as a global unit

.2 The item includes the cost of material, labour and equipment for construction, hot dip galvanisation, protection, transport and unloading on worksite, including the Contractor's quality control.

.3 The item also includes supply and transport of galvanised hardware and steel cables.

.5 Item No. 5 – Aluminum Gangway

.1 The items will be measured as a global unit

.2 The item includes supply, protection, transport and unloading on worksite of an aluminum gangway with 4.8 kN/m of capacity, as indicated in specs and drawings.

.3 It also includes supply of the engineering documents.

.6 Item No. 6 – Construction

.1 This item is divided as follows:

.1 Anchor blocks

.2 Cribwork

.3 Floating docks installation

.2 Item .1 will be measured as a global unit and includes, but is not limited to, construction and installation of concrete anchor blocks.

.3 The item also includes supply of stone and geotextile for installation of concrete units, monitoring and spot-check surveys required to complete Work as indicated on specs and drawings.

.4 The cost for demolition and reconstruction of existing for anchors blocks installation are included in item No 2 - Demolition

.5 Item .2 will be measured as a global unit of the wood cribwork to be built and includes, but is not limited to, all work required for the construction of the wooden cribwork that support the gangway. It includes material, labour, tools, equipment, geotextiles, 150-25 mm crushed stone for the foundation of the crib structures and 250-400 mm ballast stone as well as all work needed for construction consistent with the specified requirements.

.6 This item also includes the disposal of construction waste

.7 Quantities will be calculated according to the theoretical dimensions or those authorized by the Departmental Representative.

.8 Item .3 will be measured as a global unit and includes, but is not limited to, works, labour and necessary adjustments for installation of 20 floating docks with accessories, 7 anchor blocks with accessories and an heavy duty aluminum gangway with a 4.8 kN/m^2 of capacity, as indicated on drawings

.3 The global lump sum that contractor had to furnish at item SA-03 of bid forms shall be detailed and furnished as indicated at article 1.10.4 to Departmental Representative within 48 hours after request.

1.11 DOCUMENTS REQUIRED

.1 Maintain at work site, one copy of each document mentioned above:

.1 Contract drawings

.2 Specifications

.3 Addenda

.4 Reviewed shop drawings

.5 List of outstanding shop drawings

.6 Change orders

.7 Other modifications to Contract

.8 Field test reports

.9 Copy of approved work schedule

.10 Health and safety plan and other safety related documents

.11 Other documents as specified

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 32 18 - Construction Progress Schedules - Bar (Gantt) Charts

.2 Section 01 35 43 – Environmental Procedures

.3 Section 01 56 00 – Temporary Barriers and Enclosures

1.2 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.3 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated. For more information on harbour activities, contact:

.1 M. Roger Arsenault Tél. : 418 562-9785 ou 418 566-5419

.2 Maintain the existing utilities services and provide personnel and vehicles with access to the work site.

.3 Where security is reduced by work provide temporary means to maintain security.

1.4 EXISTING SERVICES

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 If taps on existing networks or connections to these networks are necessary, give the Departmental Representative 48 hours' notice before the scheduled interruption of electrical services or mechanical systems.

.3 Keep the duration of interruptions to a minimum and ensure interruptions occur after the occupants' regular work hours, preferably on weekends.

.4 Provide traffic control and construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.5 Maintain safe navigation in harbour entrance and inside harbour.

1.5 SPECIAL REQUIREMENTS

.1 Work shall be completed as described in Section 01 32 18 – Construction Progress Schedules.

.2 Contractor shall comply with environmental limitation mentioned in Section 01 35 43 – Environmental Procedures.

.3 Develop and submit construction progress schedule in accordance with Section 01 32 18 – Construction Progress Schedules.

.4 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.5 Keep within limits of work, and avenues of ingress and egress free of obstacles.

.6 In his construction schedule, the Contractor shall ensure the continuity of operations by other users during the work period.

.7 The Contractor is responsible for obtaining, from harbour authority officials, all relevant information concerning activities in the fishing harbour. Plan and carry out the work so as not to hamper fishing activities or impede access to port facilities.

1.6 NAVIGATION INTERFERENCE

.1 It is of Contractor's responsibility to get from harbour authorities all information necessary to perform his activities in the harbour. Contractor shall plan and execute work in such manner that it will not interfere with usual operations, or limit access to wharf, by land or water.

.2 Contractor is responsible for loss of time, equipment, material or any other cost related to interference with moored vessels, displacements of ships in harbour or other impacts Caused by Contractor's operations.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 03 30 00 – Cast-in-Place concrete

.2 Section 0 5 50 00 – Metal fabrications

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

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

1.3 APPOINTMENT AND PAYMENT

.1 Departmental Representative will appoint and pay for services of testing laboratory except follows:

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

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Mill tests and certificates of compliance.

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

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Departmental Representative to verify acceptability of corrected work.

1.4 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

.1 Provide access to Work for inspection and testing.

.2 Facilitate inspections and tests.

.3 Make good Work disturbed by inspection and test.

.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

.2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide 5 day-work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.

.6 Master Plan: summary-level schedule that identifies major activities and key milestones.

.7 Milestone: significant event in project, usually completion of major deliverable.

.8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision-making throughout project life cycle.

.9 Project Planning, Monitoring and Control System: overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 The Contractor shall begin work immediately after acceptance of a valid insurance certificate and contract award.

.2 Construction of floating docks and other components shall began on contract award

.3 Delivery of all components (floating docks, gangway, steel components, etc) shall be executed prior to March 15th, 2014.

.4 Work installation of anchor blocks and wooden crib to begin prior to March 31th, 2014.

.5 All work shall be completed no later than April 30, 2014, when Substantial Performance Certificate to be delivered as defined times of completion.

.6 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.7 Plan to complete Work in accordance with prescribed milestones and time frame.

.8 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.9 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

.10 The implementation schedule and bar (Gantt) chart shall reflect the work schedule as per the steps described in item 1.5.

.11 The construction Progress Schedule and the Bar Gantt chart shall take into consideration restrictions to respect during the period of piles installation as described in Section 01 35 43 – Environmental Procedures.

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative within 10 working days of Notice of acceptance of the offer, the Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

.3 Submit Project Schedule to Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

.4 The Contractor shall be responsible for the information required to set up the work schedule. The Contractor shall submit to the Departmental Representative information concerning the work operations and sequence, the breakdown of the work into activities and the duration of these activities.

.5 Work schedules are submitted subject to approval by the Departmental Representative. The Departmental Representative may require additional schedules or reports to demonstrate timely progress in the work or any other project deadline or indication of unrealistic performance.

.6 Approval of work schedules by the Departmental Representative does not release the Contractor from its obligation to complete the work in accordance with the contract documents. Approval of the submitted schedules by the Departmental Representative shall not make the latter liable for time or cost overruns resulting from delays in the schedule.

.7 The work implementation schedule and monthly schedule updates shall be provided to the Departmental Representative for review with each request for payment as a condition of processing the payment request.

.8 The Departmental Representative and the Contractor shall revise the updated work schedule at each progress meeting. The Contractor shall revise the schedule to incorporate changes made during the progress meetings.

.9 When the deadlines or the completion date are not met, the Contractor shall, at no additional cost to the Departmental Representative, undertake one or more of the following: increase labour, increase working hours or take other actions to eliminate work delays.

1.4 PROJECT MILESTONES

.1 Steps to be identified or considered when planning the work are:

.1 Contract award date
.2 Construction of floating docks and components
.3 Delivery of floating docks and components
.4 Worksite mobilization
.5 Partial demolition of stone protection and access road.
.6 Installation of anchor blocks
.7 Cribwork
.8 Full installation of floating docks and components
.9 Work shall be completed no later than April 30, 2014.

1.5 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

.5 Contractor shall be responsible for information required to develop the construction schedule. Contractor shall provide Departmental Representative with information regarding work operations, sequence of work, breakdown of the work into activities, and time estimates for the activities.

1.6 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure that detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award
.2 Shop Drawings, Samples
.3 Permits
.4 Mobilization
.5 Construction and delivery of floating docks and components
.6 Stonework demolition
.7 Cribwork
.8 Anchor blocks installation
.9 Floating docks and components installation
.10 Demobilization

1.7 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on weekly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

.3 The approval of Project Schedule by the Departmental Representative does not relieve the Contractor of his obligation to achieve works according to specifications. The acceptance of submitted Project Schedule by Departmental Representative will not make him responsible for goings of time or costs resulting from delays.

.4 Both Departmental Representative and Contractor will have to update the Project Schedule at each site meeting. The Contractor will have to modify the Project Schedule in order to include the modifications that are done.

.5 When the limit date or work achievement date will not be respected, the Contractor will, and this without additional fees for Departmental Representative, have to take one or more following actions: increase labour, working time, or take other action in order to eliminate delays.

1.8 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Partie 1 General

1.1 RELATED SECTIONS

.1 Section 01 45 00 - Quality control

1.2 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

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

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

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

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in the Province of Québec, Canada.

.3 Coordinate the submission of necessary documents or samples in accordance with work and contract document requirements. Documents or samples submitted individually will not be verified until all related information is available.

.4 Use the bid register and transmittal form. The exact format of bid documents shall be approved by the Departmental Representative and accepted by the Contractor.

.5 Identify potential stakeholders in the project, such as the Contractor, subcontractors and suppliers, as well as all sections of the specifications, shop drawings and details relating thereto.

.6 Leave a space on the documents for the "Document Verification" stamp by the Contractor and Departmental Representative.

.7 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.8 Allow 5 days for Departmental Representative's review of each submission.

.9 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.10 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.11 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, product data and sample
- .5 Other pertinent data

.12 Submissions 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.

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

.14 Submit 3 copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.15 Submit 3 copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.16 Delete information not applicable to project.

.17 In addition to routine information, provide any additional details that apply to the work.

.18 Make necessary referrals of contract documents to the appropriate parties.

.19 Submit 3 copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.20 Submit three (3) copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.21 Supplement standard information to provide details applicable to project.

.22 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.23 Review of shop drawings is for sole purpose of ascertaining conformance with general concept. This review shall not mean that Department approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely

to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SAMPLES

.1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's site office.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing Departmental Representative prior to proceeding with Work.

.6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 PHOTOGRAPHS SHOWING WORK PROGRESS

.1 The Contractor shall take photographs during construction to show work progress.

.2 The Departmental Representative shall receive a set of all photographs taken. The Contractor shall receive written notice from the photographer stating that the Departmental Representative may use any photographs without restriction for future purposes. A copy of this notice shall be provided to the Departmental Representative and the contracting authority.

.3 Photographs of the work site showing major construction activities shall be taken at least once a week. The date the photographs were taken shall appear on the front of the photographs.

1.6 MOCK-UPS

.1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.7 CERTIFICATES AND TRANSCRIPTS

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

.2 The Contractor shall:

.1 When specified in individual Specification Sections, submit certification by manufacturer to Departmental Representative, in quantities required.

.2 Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

.3 Certificates may be recent or previous test results on material or Product, but must be acceptable to Departmental Representative.

1.8 PRODUCT DATA

.1 1 The Contractor shall:

.1 Submit the number of copies that the Contractor requires, plus two copies to be retained by Departmental Representative.

.2 Mark each copy to identify applicable products model, option, and other data. Supplement manufacturers' standard data to provide information unique to the Project.

Partie 2 Products

2.1 NOT USED

.1 Not Used.

Partie 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Contractor shall manage his operations so that safety and security of the public and of site workers always take precedence over cost and scheduling considerations.

1.2 REFERENCES

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

.2 Canadian Standards Association (CSA)

.3 Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.4 Act Respecting Occupational Health and Safety, R.S.Q. Chapter S-2.1.

.5 Construction Safety Code, S-2.1, r.6.

.6 *Canada Shipping Act* and *Navigable Waters Protection Act*

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative, the CSST and the Association paritaire en santé et sécurité du secteur de la construction (ASP Construction) the site-specific safety program, as outlined in 1.8 at least 10 days prior to start of work. The Contractor must review his program during the course of the project if any change occurs in work methods or site conditions. The Departmental Representative may, after receiving the program or at any time during the project, ask the Contractor to update or modify the program in order to better reflect the reality of the construction site and activities. The Contractor must make the required changes before work begins.

.3 Submit to Departmental Representative the site inspection sheet, duly completed, at the intervals indicated in 1.12.1.

.4 Submit to Departmental Representative within 24 hours a copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.

.5 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.

.6 Submit to Departmental Representative all safety data sheets for hazardous material to be used at the site at least three days before they are to be used.

.7 Submit to Departmental Representative copies of all training certificates required to apply the safety program, in particular:

.1 General construction site safety and health courses;

.2 Safety officer attestations;

.3 First aid in the workplace and cardiopulmonary resuscitation;

.4 Wearing and fitting of individual protective gear;

.5 Forklift truck;

.6 Positioning platform;

.7 Any other requirement of Regulations or the safety program.

.8 Medical examinations : Wherever legislation, regulations, directives, specification or a safety program require medical examinations, Contractor must:

.1 Prior to start-up, submit to Departmental Representative certificates of medical examination for all concerned supervisory staff and employees who will be on duty when the site opens.

.2 Thereafter, submit without delay certificates of medical examination for any newly hired concerned personnel as and when they start work at the site.

.9 Emergency plan : The emergency plan, as defined in 1.8.3, shall be submitted to Departmental Representative at the same time as the site-specific safety program.

.10 Notice of site opening : Notice of site opening shall be submitted to the Commission *de la santé et de la sécurité du travail* before work begins . A copy of such notice shall be submitted to Departmental Representative at the same time and another posted in full view at the site. During demobilization, a notice of site closing shall be submitted to the CSST, with copy to Departmental Representative.

.11 Engineer’s plans and certificates of compliance : Submit to the CSST and to Departmental Representative a copy signed and sealed by engineer of all plans and certificates of compliance required pursuant to the Construction Safety Code (S-2.1, r. 6), or by any other legislation or regulation or by any other clause in the specifications or in this contract. Copies of these documents must be on hand at the site at all times.

.12 Certificate of compliance delivered by the CSST: The certificate of compliance is a document delivered by the CSST confirming that the contractor is in rule with the CSST, i.e. that he had pay out all the benefits concerning this contract. This document must be delivered to Departmental Representative at the end of the work.

1.4 HAZARDS ASSESSMENT

.1 The contractor must identify all hazards inherent in each task to be carried out at the site.

.2 The contractor must plan and organize work so as to eliminate hazards at source or promote mutual protection so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falling is required, workers shall use safety harness that meets standard Can - CSA- Z-259.10 - 06. Safety belts shall not be used as protection against falling.

.3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work to be executed.

.4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever he suspects a defect or accident risk, Departmental Representative may at any time order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.

1.5 MEETINGS

.1 Contractor decisional representative must attend any meetings at which site safety and health issues are to be discussed

.2 Set up a site safety committee, and convene meetings in accordance with the Construction Safety Code.

1.6 LEGAL AND REGULATORY REQUIREMENTS

.1 Comply with all legislation, regulations and standards applicable to the site and its related activities.

.2 Comply with specified standards and regulations to ensure safe operations at site containing hazardous or toxic materials.

.3 Regardless of the publication date shown in the construction safety code, always use the most recent version.

1.7 SITE-SPECIFIC CONDITIONS

.1 In his work planning, Contractor shall not disturb Harbour activities

.2 Workers to be exposed to the following conditions:

.1 Work near watercourse.

.2 Work involving risk of drowning.

.3 Marine work with difference of tide of around 2.8 meters and water depth near 3.5 meters under chart datum.

.4 Works with CCA treated wood

.3 The weather conditions may be difficult (wind, cold, etc…).

.4 The continuity of various maritime services shall be maintained in a safe manner throughout the duration of the works.

.5 Until final acceptance, the protection of work for work stability and workers' security during work progress remains under Contractor's responsibility.

1.8 SAFETY AND HEALTH MANAGEMENT

.1 Acknowledge and assume all the tasks and obligations which customarily devolve upon a principal Contractor under the terms of the Act Respecting Occupational Health and Safety (R.S.Q., chapter S-2.1) and the Construction Safety Code (S-2.1, r.6).

.2 Develop a site-specific safety program based on the hazards identified and apply it from the start of project work until close-out is completed. The safety program must take account of all information appearing in 1.7 and must be submitted to all parties concerned, in accordance with the provisions set forth in 1.2. At a minimum, the site-specific safety program must include:

- .1 Company safety and health policy.
- .2 A description of the work, total costs, schedule and projected workforce curve.
- .3 Flow chart of safety and health responsibility.
- .4 The physical and material layout of the site.
- .5 First-aid and first-line treatment standards.
- .6 Identification of site-specific hazards.
- .7 Risk assessment for the tasks to be carried out, including preventive measures and the procedures to apply them.
- .8 Training requirements.
- .9 Procedures in case of accident/injury
- .10 Written commitment from all parties to comply with the prevention program.
- .11 A site inspection schedule based on the preventive measures.

.3 The contractor must draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned, pursuant to the provisions of 1.2.The emergency plan must include:

- .1 Evacuation procedure;
- .2 Identification of resources (police, firefighters, ambulance services, etc.);
- .3 Identification of persons in charge at the site;
- .4 Identification of those with first-aid training;
- .5 Training required for those responsible for applying the plan;
- .6 Any other information needed, in the light of the site characteristics.

.4 For all work involving risk of drowning, conform to following requirements:

- .1 Comply with the Safety Code for the Construction Industry, paragraph 2.10.13.
- .2 Ensure that required life vests are conform to:
  - .1 CAN/GGSB-65.7-2007, Life Jackets, Inherently Buoyant published by the Canadian General Standards Board (CGSB).
  - .2 or exceptions to be approved by Transport Canada.
- .3 Obtain and submit to Departmental Representative a letter of compliance issued by Transport Canada for approval of any craft (transportation, rescue, inspection or other) prior to commencement of work

.4 Ensure that a rescue craft is moored, in the water and available for every shift. When craft is accessible by land, it can be used by several work locations provided that distance between each work location and craft is less than 100 metres.

.5 Ensure that craft is equipped with a motor powerful enough to travel upstream.

.6 Ensure that craft has required characteristics to carry individuals likely to participate in a rescue operation.

.7 Ensure that craft is available for personnel at all times in case of emergency.

.8 Ensure that a qualified individual is available to operate rescue equipment. Individual must be qualified to operate recreational craft, depending on length of craft used.

.9 Establish written rescue procedures containing the information below and ensure that all personnel concerned by these procedures have received the necessary training and information to apply them.

.1 Complete description of the procedures, including responsibilities of individuals permitted access to place of work.

.2 Location of rescue equipment.

.10 When place of work is a landing wharf, dock, jetty, pier or other similar structure, install a ladder with at least two rungs below surface of water on front of structure every 60 metres. This measure also applies to construction projects. In this case, a temporary (or portable) ladder can be used and removed at end of work if Owner does not have basic facilities. But we have to notify the owner that site is not in accordance with the Canada Labour Code, Part 2.

1.9 RESPONSIBILITIES

.1 No matter the size of the construction site or how many workers are present at the workplace, designate a competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the site and likely to be affected by any of the work.

.2 Take all necessary measures to ensure application of and compliance with the safety and health requirements of the contract documents, applicable federal and provincial regulations and standards as well as the site-specific safety program, complying without delay with any order or correction notice issued by the Commission de la santé et de la sécurité du travail.

.3 Take all necessary measures to keep the site clean and in good order throughout the course of the work

1.10 COMMUNICATIONS AND POSTING

.1 Make all necessary arrangements to ensure effective communication of safety and health information at the site. As they arrive on site, all workers must be informed of their rights and obligations pertaining to the site specific safety program. The Contractor must insist on their right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons at the site. The Contractor must keep

and update a written record of all information transmitted with signatures of all affected workers.

.2 The following information and documents must be posted in a location readily accessible to all workers:

.1 Notice of site opening;
.2 Identification of principal Contractor;
.3 Company OSH policy;
.4 Site-specific safety program;
.5 Emergency plan;
.6 Data sheets for all hazardous material used at the site;
.7 Minutes of site committee meetings;
.8 Names of site committee representatives;
.9 Names of those with first-aid training;
.10 Action reports and correction notices issued by the CSST.

1.11 UNFORESEEN CIRCUMSTANCES

.1 Whenever a source of danger not defined in the specifications or identified in the preliminary site inspection arises as a result of or in the course of the work, immediately suspend work, take appropriate temporary measures to protect the workers and the public and notify Departmental Representative, both verbally and in writing. Then the Contractor must modify or update the site specific safety program in order to resume work in safe conditions.

1.12 INSPECTION OF SITE AND CORRECTION OF HAZARDOUS SITUATIONS

.1 Inspect the work site and complete the site inspection sheet at least once a week.

.2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the site safety and health coordinator or during routine inspections.

.3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.

.4 Give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption and resuming of work as and when deemed necessary or desirable in the interests of safety and health. This person should always act so that the safety and health of the public and site workers and environmental protection take precedence over cost and scheduling considerations.

.5 Without limiting the scope of sections 1.8 and 1.9, Departmental Representative may order cessation of work if, in his/her view, there is any hazard or threat to the safety or health of site personnel or the public or to the environment.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

1.2 PRIORITIES

.1 In addition to the requirements of this section, the Contractor must refer to mitigation measures and to particular requirements (period of exclusion or other) just as licenses (LPEN, LP, etc.) of project. In case of a contradiction between specifications and licence, the most constraining measure will be applied.

1.3 FIRES

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

1.4 DISPOSAL OF WASTES

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

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

.3 Grade and classify all non reusable demolition materials from wharf to manage their future utilisation or disposal in compliance with all applicable environmental regulations.

.4 All necessary installations for the use of grading and classification of reusable or disposal materials must be plan out of work site and in a safe and predetermined area.

.5 Reusable or recyclable materials from demolition are as follows:

- .1 Different size rocks;
- .2 CCA wood treated debris;
- .3 Concrete and bituminous pavement from partial demolition of access road.

.6 Information on managing demolition material is found in Section 01 74 21 – Construction/Demolition Waste Management

.7 Contractor shall gradually dispose of non-reusable material from demolition off work site to an authorized site.

.8 Waste materials from demolition and non reusable in the new structure shall be recycle if possible, and if not, the site of disposal shall be approved by the Quebec Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP). This includes any dry material, waste or rubbish from demolition or construction.

.9 Contractor shall submit a copy of official authorization and permits prior to seek Departmental Representative's authorization to remove waste materials from work site, the

.10 Dispose of contaminated waste and soils according to Québec's regulation and with Québec's Soil Protection and Rehabilitation of Contaminated Sites Policy.

1.5 WORK ADJACENT TO WATERWAYS

.1 Do not use banks or waterway beds material for borrow.

.2 Do not dump construction material, waste or debris in waterways.

.3 Cleaning of equipment in the water is prohibited.

.4 Service and refuel vehicles at least 30 m from bank.

.5 Do not store petroleum products or any other hazardous materials less than 30 m from bank.

.6 If for some reasons certain equipment or hazardous products, implying hazardous material handling, should stay beneath 30 m from waterways, Contractor shall submit a contingency plan to the Departmental Representative and get it approved from PWGSC prior to beginning of work. The plan will provide, without being limited to, details as follows:

.1 Designated inner limits of work area for the use of operations;

.2 Handled or stored hazardous products (ex. diesel, waste oils, etc.);

.3 Containment methods used in order to limit contamination during maintenance and refuelling of equipments and vehicles (in case of oil leakage);

.4 The presence of emergency equipment in case of spill near supplying zone and maintenance area.

.5 The procedure for hazardous spill.

.6 A list of contacts in case of hazardous spill.

.7 If generators must be used, make sure that the fuel tank of each generator is with double walls and that it is installed on an impermeable floor with raised kerb to avoid any discharge.

.7 In the event of soil contamination in the targeted areas as a result of project-related activities, the site shall be restored to comply with its intended use, and the contaminated soil shall be disposed of at an MDDEFP-authorized site.

1.6 POLLUTION CONTROL

.1 Materials used shall be inert and exempt from contaminants.

.2 Prevent fine materials and other extraneous materials from contaminating air and water beyond work site.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

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

.5 Use machinery in good operating condition to avoid grease, oil or fuel leaks. Submerged equipment parts shall be clean and free of leaks.

.6 Perform service and verifications before arrival at site. Ensure there are no fuel, oil or grease leaks, and silencer must be in good condition. Repair non-compliant equipment as rapidly as possible (noise or leaks).

.7 Immediately recover any contaminant spill in the environment and dispose of it in accordance with applicable legislation.

.8 Maintain absorbent materials on site at all times for rapid intervention in case of hazardous spill. Know how to use emergency equipment in case of accidental spill. Report any oil spill or other environmental incident to Departmental Representative and authorities having jurisdiction. Recover hydrocarbons and contaminated soil and dispose of in conformance with applicable legislation.

.9 Submit emergency plan related to hazardous spill, with a list of all contributors with their phone number.

.10 Keep on site suitable emergency equipments in case of an accidental spill and ensure the appropriate use of it.

.11 Keep on site, near the work area and near the supplying zone established, an emergency spill response kit. The emergency spill response kit shall contain absorbent material in adequate quantities to remove petroleum from site.

.12 In the event of a hydrocarbons spill or other hazardous material, the Contractor must advise Departmental Representative and authorities having jurisdiction mentioned in the emergency plan. Report immediately the situation to Environment Canada Emergency services (1-866-283-2333), Environment Emergency of Québec (1-866-694-5454) for an on land spills and to Canadian Coast Guard- Marine Accidental Spill Incidents (1-800-363-4735).

.13 Wasted oils and other contaminated wastes shall be managed in compliance with effective regulation. This included storage at site, transportation and elimination.

.14 Do not dispose of volatile materials such as mineral oils and oil or paint thinner in rivers, storm-water or sewers.

.15 Any hazardous waste generated on the work site will have to be conveyed to a well-authorized disposition site by MDDEFP.

.16 Hazardous waste storage and transport will have to be done in accordance with the regulation in force in order not to contaminate the environment.

.17 Prior to conveying hazardous waste from work site, the Contractor shall obtain the Departmental Representative authorization by showing a copy of all licenses obtained from the owners or hazardous waste disposal site authorities

1.7 TRANSPORT OF MATERIALS

.1 Materials may be transported on public roads to construction site from Monday to Saturday unless notified otherwise by the authorities having jurisdiction. Transport is prohibited on Sundays and public holidays.

.2 Materials may be transported through the city between 7:00 a.m. and 7:00 p.m. Transport outside these hours is prohibited.

.3 Ensure proper operation of trucks used. Any trucks or other means of transport creating sound levels that Departmental Representative deems to exceed standards shall cease transporting materials or be repaired or modified to be made acceptable.

.4 Contractor shall use adequate signalization and co-operate with municipality, Departmental Representative and other authorities having jurisdiction to minimize the impact of transportation on the daily lives of residents in area adjacent to truck route and construction site.

.5 Use a sheet to cover granular material during transportation.

.6 Limit traffic for the transportation of material to roads and areas identified in the specifications.

.7 Maintain the roads used in good condition at all times and take the necessary measures to ensure they can be safely used and crossed by other users.

.8 Upon work completion, promptly restore the roads to a condition that is at least equal to their original state.

1.8 PROTECTION OF THE AQUATIC ENVIRONMENT IN THE WORK AREA

.1 The work area should be clearly defined.

.2 Ensure workers are informed of environmental and safety measures.

.3 Do not store stone or debris from demolition on bank.

.4 The Contractor shall minimize the work in aquatic environment and on bank. At anytime the heavy equipment will be allowed the move outside the work area.

.5 For underwater works required, the Contractor must assure that all equipment pieces involved are free of contamination and of any oil leakage.

.6 Land-based equipment storage shall be made in anytime above high tides level and as conditions described in section 1.5 – Work adjacent to waterways.

.7 Work shall be performed when the wave height is equal to or less than 1.5 m in order to minimize the resuspension of SS.

.8 When conditions are right, carry out stonework or install the crib structures in a dry environment, or at low tide, which significantly mitigates the impacts on surface water quality by limiting suspended solids (SS) (in this case, possibly contaminated sediments) and noise propagation.

.9 When weather conditions deteriorate, work must be avoided to prevent the dispersion of material resuspended by the work;

1.9 TREATED WOOD

.1 Treated wood shall be temporarily stored under waterproof tarps so that the wood can be protected from the rain and so that runoff does not reach the soil or waterways.

.2 During the work, take all necessary measures to avoid spreading debris into the aquatic environment:

.1 Store waste and debris at a site distant from the aquatic environment, as agreed with the Departmental Representative.

.3 Treated wood debris shall be sent to a site authorized by the MDDEFP and intended for this purpose.

1.10 NOISY WORKS

.1 Noisy works are prohibited at night, with less of peremptory necessity.

1.11 WORK MONITORING

.1 The Department Representative will complete an environmental control data record of work site. This control data record will be given to Contractor on a weekly basis.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 All work shall meet or exceed the requirements of the latest edition of the standards of the Canadian Government Specifications Board (CGSB), the Canadian Standards Association (CSA), the National Building Code of Canada (NBC), the American Society for Testing and Materials (ASTM), the Canadian Standard Association (CSA), the American Concrete Institute (ACI), Cahier des charges et Devis généraux (CCDG) from Ministère des Transports du Québec and the other standards and codes referred to herein, including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Where conflict arises in the course of work, the strictest standards shall apply.

.3 At any time when the specifications refer to standards, standard to be applied shall be the latest edition available, regardless of the edition designated in specification.

.4 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 LAWS, REGULATIONS AND DECREES

.1 Contractor shall conform to all rights and privileges of others, and to all federal, provincial and municipal laws, regulations and decrees; he must also make sure that his employees, in law or in fact, and his subcontractors conform to same.

.2 The applicable permits and approvals will have to be obtained by the Contractor before the beginning of work.

1.3 PERMITS, FEES AND TAXES

.1 Contractor shall give all notices, obtain and pay all fees and construction permits for the demolition and for construction, and for all other services, as required by the authorities having jurisdiction.

.2 Contractor shall be responsible for all damage and costs resulting from default to obtain these fees and permits.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Inspection and testing, administrative and enforcement requirements

.2 Tests and mix designs

.3 Mock-ups

1.2 RELATED SECTIONS

.1 Section 01 33 00 – Submittal procedures

.2 Section 01 77 00 – Closeout procedures

1.3 INSPECTION

.1 Allow Departmental Representative 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 inspections, approvals or special tests required by Departmental Representative or by law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative 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.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

.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, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.5 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.

1.6 PROCEDURES

.1 Notify appropriate agency and Departmental Representative 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.

1.7 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative 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 Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative 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 Departmental Representative.

1.8 REPORTS

.1 Submit 2 copies of inspection and test reports to Departmental Representative

.2 Provide copies to manufacturer or fabricator of material being inspected or tested.

1.9 TESTS AND MIX DESIGNS

.1 Furnish test results and mix designs 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

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 52 00 – Construction facilities

.2 Section 01 56 00 – Temporary barriers and enclosures

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 TEMPORARY POWER AND LIGHT

.1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.

.2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

.3 Temporary power for electric equipment requiring of above is provided by Departmental Representative.

.4 Provide and maintain temporary lighting throughout project. Ensure level of illumination on work site is not less than required by Departmental Representative.

1.4 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

.2 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Construction aids

.2 Office and sheds

.3 Parking area

.4 Project identification

1.2 RELATED SECTIONS

.1 Section 01 51 00 - Temporary Utilities

.2 Section 01 56 00 - Temporary Barriers and Enclosures

.3 Section 01 74 11 - Cleaning

1.3 INSTALLATION AND REMOVAL

.1 Provide construction facilities in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.4 HOISTING

.1 Provide, operate and maintain hoists required for moving of workers, materials and equipment and provide maintenance and use of hoists.

.2 Hoist to be operated by qualified operator.

1.5 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products and materials.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

.3 Before storing equipment or materials on-site, the Contractor shall obtain written authorization from Harbour Authority.

1.6 ON-SITE PARKING

.1 Parking will be permitted on site if it does not disrupt performance of Work. The storage area planned for the Contractor can be used for this purpose.

.2 Provide and maintain adequate access to project site.

.3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and repair damages resulting from Contractors' use of roads

.4 Clean runways where used by Contractor's equipment.

1.7 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.8 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.9 ELECTRICAL SERVICES

.1 Supply necessary electrical services on work site.

.2 Assume the cost of these electrical services, whether for lighting, heating or other uses.

.3 Assume the cots of installation and removal of these electrical services

.4 The installation of electrical services shall be abide by applicable laws and regulations

1.10 CLEANING

.1 Once cleaning is completed, remove machinery/tools and evacuate waste to leave the place in order.

.2 Clean work area progressively.

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Temporary Site Enclosures and Barriers

.2 Fire Routes

1.2 RELATED SECTIONS

.1 Section 01 14 00 – Work Restrictions

.2 Section 01 51 00 – Temporary Utilities

.3 Section 01 52 00 – Construction Facilities

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guardrails and barricades around deep excavations.

.2 Provide items as required by governing authorities.

1.5 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.7 PROTECTION OF WORK FINISHES

.1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.

.2 Provide necessary screens, covers, and hoardings.

.3 Be responsible for damage incurred due to lack of or improper protection.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Product quality, availability, storage, handling, protection, and transportation

.2 Manufacturer's instructions

.3 Work execution, coordination and fastenings

.4 Existing structures

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal procedures

1.3 REFERENCES

.1 Conform to these reference standards, in whole or in part as specifically requested in specifications.

.2 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.3 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

.4 If no specific date or edition is mentioned, conform to the most recent standards in force at the time of the deposit of tender.

1.4 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve Contractor responsibility, but is precaution against oversight or error. Contractor shall remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.5 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work might be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store cementitious products clear of earth or concrete floors, and away from walls.

.4 Store products subject to damage from weather in weatherproof enclosures.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet or panel materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over nameplates.

1.7 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

.2 Transportation cost of products supplied by Department will be paid for by Department. Unload, handle and store such products.

1.8 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 QUALITY OF WORK

.1 Ensure Quality of Work is of best quality, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site of workers deemed incompetent or careless.

.3 Decisions as to standard, fitness or quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.10 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 LOCATION OF FIXTURES

.1 Consider location of mechanical and electrical items indicated as approximate.

.2 Inform Departmental Representative of conflicting installation. Install as directed.

1.13 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of structures. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Departmental Representative.

1.14 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work and local users.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION CONTENT

.1 Field engineering survey services to measure and stake site

.2 Survey services to establish or validate work location (steel sheet piling wall, tie-rod, lighting, pulling boxes, etc.) and confirm inverts for Work

.3 Works preparation

1.2 RELATED SECTIONS

.1 Section 01 32 18 - Construction progress schedules – Bar (GANTT) charts

1.3 REFERENCES

.1 Department's identification of existing survey control points and property limits.

1.4 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered technician, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.5 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 The benchmark can be described as follows:

.1 Reference mark # BM 74L0468 (67°30’48’’West 48°51’12’’North) of LGC is a plug vertically anchored in the concrete slab at 0.7km north from intersection of road 132 and rue du port. BM located at the South East side of the Matane commercial wharf. The elevation is 5,828 meters above Chart Datum.

.2 Reference mark # GCC 92L4051 (67°31’59’’West 48°51’12’’North) of the Canadian Coast Guard is anchored in the concrete on the wharf on the West side of the ferry wharf. The mark is located on the top of a concrete wall on the East side of the wharf, just before the breakwater. The elevation is 5,429 meters above Chart Datum.

.3 Detailed descriptions of reference marks are available at following Internet site:

http://www.meds-sdmm.dfo-mpo.gc.ca/meds/prog_nat/benchmark/public/station_f.asp? T1=2840

.4 All elevation indicated on plans refer to chart datum.

.5 Tide range is generally 2.8 m and higher high water of level tide reaches approximately +4.1 m, but the Contractors should consult tide tables published by the Department of Fisheries and Oceans in order to ascertain the effect of tides on the work. Also consider waves and wind that raise water level near structures.

.6 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.7 Make no changes or relocations without prior written notice to Departmental Representative.

.8 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.9 Require surveyor to replace control points in accordance with original survey control.

1.6 SURVEY REQUIREMENTS

.1 Establish permanent benchmarks on site, referenced to established benchmarks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Establish lines and levels, locate and lay out, by instrumentation.

.3 Stake for work.

.4 The Contractor shall take on the entire responsibility for the marking out of the work and the complete execution in accordance with the location, the lines and the levels indicated.

.5 Provide the necessary material for the marking out and the implantation.

.6 Provide the required material such as rules and gauges to ease the work of the Departmental Representative concerning the inspection of the works.

1.7 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative

1.8 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of maintained, re-routed and abandoned service lines.

1.9 SUBMITTALS

.1 Submit signed certificate certifying and noting elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.10 SUBSURFACE CONDITIONS

.1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Cleaning as work progresses

.2 Final cleaning

1.2 RELATED SECTIONS

.1 Section 01 74 21 - Construction/demolition Waste Management

.2 Section 01 77 00 - Closeout Procedures

1.3 WORK SITE CLEANLINESS

.1 Maintain work site in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Conduct work site cleaning and disposal operations to comply with local ordinances and Clean Air Act.

.4 Prevent accumulation of hazardous waste.

.5 Keep work site and public properties clean and free of debris and waste.

.6 Keep work site access road free of ice and snow. Place snow only at indicated areas or evacuate out of work site as indicated.

.7 Clean up dirt from passage of trucks and equipment to the satisfaction of municipal authorities and the Departmental Representative, as work progresses.

.8 Make arrangements to obtain all necessary licences from authorities for waste disposal.

.9 Provide on-site containers for collection of waste materials and debris.

.10 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.11 Dispose of waste materials and debris at designated dumping areas by the Department Representative.

.12 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.4 FINAL CLEANING

.1 When work is substantially performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris including that caused by Owner or other Contractors.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.6 Make arrangements to obtain all necessary licences from authorities for waste disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 35 43 – Environmental Procedures

.3 Section 01 74 11 – Cleaning

.4 Section 02 41 16 – Structure Demolition

.5 Section 02 81 01 – Hazardous materials

1.2 DEFINITIONS

.1 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.2 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.3 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.4 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

1.3 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 The Contractor will have to provide a weekly report on its construction/demolition waste disposal. This report will include, if required, the results of the physicochemical analyses carried out on materials coming from the work site or any other relevant document.

.3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal.

.1 Failures to submit could result in hold back of final payment.

.2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.

.3 For each material reused, sold or recycled from project, include amount in tonnes and the destination.

.4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.4 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Unless specified otherwise, materials for removal become Contractor's property. Contractor is responsible for disposing of these materials and choosing authorized landfill site.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Support affected structures. If safety of structures is endangered, cease operations and immediately notify Departmental Representative.

.7 Protect mechanical and electrical from damage and blockage.

.8 Separate and store materials produced during dismantling of structures in designated areas.

.9 Prevent contamination of materials to be salvaged and recycled in accordance with requirements for acceptance by designated facilities.

- .1 On-site source separation is recommended.
- .2 Remove co-mingled materials to off-site processing facility for separation.
- .3 Provide waybills for separated materials.

.10 Store treated wood on site in a temporary containment area set up for this purpose to prevent streaming water from reaching aquatic environment.

.11 Transport materials whose level of contamination would be equal or higher than the generic C criterion of the MDDEFP Soil Protection and Rehabilitation of Contaminated Sites Policy, either in a closed means of containment or in a dump vehicle equipped with a waterproof tarpaulin completely covering the top of the body and the load. (Art. 18, *Transportation of dangerous substances Regulation*).

1.5 DISPOSAL OF WASTES

.1 Recover, sort and separate waste generated by demolition into categories in preparation for transfer to various licensed sites. Contractor shall recover (reuse and/or recycle) non contaminated materials before disposal:

- .1 Rock and other granular materials to be removed from existing structures will be recovered and reused for the construction of new structures, if they meet the specification requirements.
- .2 Wood residues from construction must be managed according to the best practices and standards in effect.

.2 Manage construction or demolition debris and waste that cannot be reclaimed on land in conformance with requirements of the Quebec Department of Sustainable Development, the Environment, the Fauna and Parks (according to the "Soil Protection and Rehabilitation of Contaminated Sites Policy" or "Dry Materials Management"). Do not incorporate any demolition materials into work other than those accepted. Contractor is responsible for disposing of these materials and choosing authorized landfill site.

.3 Do not bury rubbish or waste materials.

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

.5 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.6 Evacuate waste materials out of site along with work progress.

.7 Prepare project summary to verify destination and quantities on a material-by-material basis as identified.

1.6 SCHEDULING

.1 Co-ordinate Waste management and Source Separation with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 APPLICATION

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progress.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittal Procedures

1.2 INSPECTION AND DECLARATION

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

- .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
- .2 Request Departmental Representative's Inspection.

.2 Departmental Representative's Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.

.3 Completion: submit written certificate that following have been performed:

- .1 Work has been completed and inspected for compliance with Contract Documents.
- .2 Defects have been corrected and deficiencies have been completed.
- .3 Equipment and systems have been tested, adjusted, balanced and are fully operational.
- .4 Certificates required by Utility companies have been submitted.
- .5 Operation of systems has been demonstrated to Owner's personnel.
- .6 Work is complete and ready for final inspection.

.4 Final Inspection:

- .1 When items noted above are completed, request final inspection of Work by Departmental Representative and Contractor.
- .2 If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

.5 Declaration of Substantial Performance: Departmental Representative considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Departmental Representative's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Certificate of Final Performance:

.1 When Departmental Representative considers final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment.

.2 If Work is deemed incomplete by Departmental Representative, complete outstanding items and request reinspection.

1.3 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

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

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Methods and procedures for total or partial demolition of structures.

1.2 RELATED SECTIONS

.1 Section 01 11 11 – Description of work

.2 Section 01 33 00 - Submittal Procedures

.3 Section 01 35 30 – Health and safety requirements

.4 Section 01 35 43 – Environmental procedures

.5 Section 01 56 00 - Temporary Barriers and Enclosures

.6 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

1.3 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME)

.1 CCME PN 1148, Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products

.2 Canadian Standards Association (CSA International).

.1 CSA S350-M, Code of Practice for Safety in Demolition of Structures.

.3 Department of Justice Canada (Jus).

.1 Canadian Environmental Assessment Act (CEAA).

.2 Canadian Environmental Protection Act (CEPA).

.1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.

.3 Transportation of Dangerous Goods Act (TDGA).

.4 Underwriters' Laboratories of Canada (ULC)

.1 CAN/ULC-S660, Standard for Nonmetallic Underground Piping for Flammable and Combustible Liquids.

.2 ULC/ORD-C58.15, Overfill Protection Devices for Flammable Liquid Storage Tanks.

.3 ULC/ORD-C58.19, Spill Containment Devices for Underground Flammable Liquid Storage Tanks.

.5 U.S. Environmental Protection Agency (EPA)/Code of Federal Regulations (CFR), Title 40 - Protection of Environment, Chapter 1, Subchapter C - AIR, Part 86 - CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES.

.1 EPA CFR 86.098-10, Emission standards for 1998 and later model year Otto-cycle heavy-duty engines and vehicles.

.2 EPA CFR 86.098-11, Emission standards for 1998 and later model year diesel heavy-duty engines and vehicles.

1.4 DEFINITIONS

.1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.

1.5 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 The Contractor is responsible for fulfilment of reporting requirements.

.3 Submit if requested by Departmental Representative, copies of certified weigh bills, bills of lading or receipts from authorized disposal sites and reuse and recycling facilities for material removed from site.

.1 Written authorization from Departmental Representative is required to deviate from receiving organizations.

.4 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.

.5 Submit drawings stamped and signed by qualified professional engineer registered or licensed in Province of Quebec, Canada.

1.6 QUALITY ASSURANCE

.1 Regulatory Requirements: Ensure Work is performed in compliance with CEPA, CEAA, TDGA, and applicable Provincial/Territorial and Municipal regulations.

.2 Meetings:

.1 Prior to start of Work arrange for site visit with Departmental Representative to examine existing site conditions adjacent to demolition work.

.2 Hold project meetings as requested by Departmental Representative.

.3 Ensure all key personnel attend.

.4 Departmental Representative will provide written notification of change to meeting schedule established upon contract award.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Divert excess materials from landfill to site approved by Departmental Representative.

1.8 ENVIRONMENTAL PROTECTION

.1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.

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

.3 Fires and burning of waste or materials is not permitted on site.

.4 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.

.1 Ensure proper disposal procedures are maintained throughout project.

.5 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.6 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction and as directed by Departmental Representative.

.7 Cover or wet down dry materials and waste to prevent blowing dust and debris. If required by Departmental Representative, control dust on all temporary roads.

1.9 EXISTING CONDITIONS

.1 The Contractor shall take the necessary steps to become thoroughly familiar with all aspects of the work site environment.

.2 The results of a 10 years old bathymetric survey are included in drawings. The information is provided for tender only. Information can differs form site conditions during Work

.3 Should material resembling hazardous substance be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Do not proceed until written instructions have been received.

.4 If the demolition works require the installation of temporary supporting structures to protect the existing hauling ramp, the workshop drawings must carry the seal and signature of a recognized qualified engineer or holding a license enabling him to exert in Canada, in the Province de Québec.

.5 Structures to be demolished to be based on their condition on date that tender is accepted.

.1 Remove, protect and store salvaged items as directed by Departmental Representative.

.6 The Contractor shall conduct research on historical temperature, wave and ice conditions and assess possible difficulties. There shall be no additional payment for lost time as a result of weather conditions.

.7 Weather conditions can be difficult (wind, cold, etc.). The work site may be subject to significant agitation due to waves.

1.10 SCHEDULING

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 In event of unforeseen delay notify Departmental Representative in writing.

Part 2 Products

2.1 EQUIPMENT

.1 Equipment and heavy machinery to:

.1 On-road vehicles to meet applicable emission requirements as prescribed in CEPA-SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 PROTECTION

.1 Prevent movement, settlement or damage of adjacent structures to prevent damage. Protect existing steel sheet pilling to preserve near dolosse protection

.1 Repair damage caused by demolition work as directed by Departmental Representative.

.2 Support affected structures and, if safety of structure being demolished or adjacent structures appears to be endangered, take preventative measures, stop Work and immediately notify Departmental Representative.

3.2 PREPARATION

.1 Do Work in accordance with Section 01 35 30 - Health and Safety Requirements.

.2 Information concerning the existing structures given on drawings is partial and have to be supplemented on the site.

3.3 SAFETY CODE

.1 Do demolition work in accordance with Section 01 56 00 - Temporary Barriers and Enclosures, 01 35 30 Safety and Health and also codes regarding demolition work.

3.4 REMOVAL OF HAZARDOUS WASTES

.1 Remove contaminated or dangerous materials as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal in accordance with section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.5 DEMOLITION AND EXCAVATION

.1 No compensation will be approved for demolition work outside boundaries of demolition indicated on plans or determined by Departmental Representative.

.2 Information concerning the existing structures is drawn from « As-built » plans as well as from statements carried out on the le site. The tender must reflect these conditions. In the 48 hours following the discovery of a divergence at the time of the realization of work, Contractor shall inform the Departmental Representative of the situation.

.3 Carry out excavation and demolition work to elevations indicated on drawings.

.4 Carry out excavation and demolition to perform indicated work.

.5 Excavate the existing material to create the foundation for new anchor blocks and crib. Reuse the excavated material as stone or run material as fill material for new stuctures.

.6 When demolition and excavation works are done, ask Departmental Representative for verification of rises and dimensions.

.7 Do not allow pieces of wood to drift or release demolition material in the water. The Contractor shall immediately recover any debris released into water, at his own expense, and will be held responsible for any damage caused by floating or released material.

.8 Identify sources for recycling granular material.

.1 To get more information about recycling, communicate with provincial/local granular material supplier.

.9 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.

.10 At the end of each day work, leave Work in safe and stable condition.

.11 Carry out demolition work as so to minimize dusting. Keep materials wet as directed by Departmental Representative.

.12 Only dispose of waste material within the specified alternative disposal option as directed by Departmental Representative.

.1 Additional disposal options for waste diversion to be provided on-site by Departmental Representative's representative prior to disposal.

.13 Do not dispose materials in landfill or waste stream destined for landfill.

.14 Unless otherwise specified, remove and dispose of demolition materials in accordance with competent authority requirements.

.15 Use natural lighting to do work where possible. Shut off lighting at the end of each day, except for those required for security purposes.

.16 Take account of the hydrostatic and hydrodynamic uplifts during demolition and construction work, in particular, in the sector of the dolosse protection.

3.6 POST-DEMOLITION SURVEY

.1 After demolishing work and prior to installation of new structures, the Contractor shall conduct a land survey.

.2 The Contractor shall not begin construction of the crib structures until the Departmental Representative has reviewed the survey and given permission.

3.7 MATERIALS

.1 Do all sorting of materials directly at demolition site. Unless specified, no other method will be accepted.

.2 The Contractor shall refer to Section 01 74 21 – Construction/Demolition Waste Management for the procedures for handling and storing demolition materials on-site.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 74 21 – Construction/Demolition Waste Management and Disposal

1.2 REFERENCES

.1 Export and Import of Hazardous Waste Regulations

.2 National Fire Code of Canada

.3 Transportation of Dangerous Goods Act

.4 Transportation of Dangerous Goods Regulations

1.3 DEFINITIONS

.1 Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.

.2 Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.

.3 Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.

.4 Workplace Hazardous Materials Information System (WHMIS): a Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

1.4 SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.

.3 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.5 STORAGE AND HANDLING

.1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.

.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

.4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.

.1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of Departmental Representative.

.5 Transfer of flammable and combustible liquids is prohibited within buildings.

.6 Do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices.

.7 Do not use flammable liquids having flash point below 38 degrees C, such as naphtha or gasoline as solvents or cleaning agents.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.

.9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.

.10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are not mixed.

.6 Store hazardous materials and wastes in secure storage area with controlled access.

.7 Maintain clear egress from storage area.

.8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.

.9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.

.10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

.12 Immediately announce discharges or accidents to Departmental Representative. Submit to Departmental Representative a written report within 24 hours.

1.6 TRANSPORTATION

.1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.

.3 If hazardous waste is generated on site:

.1 Co-ordinate transportation and disposal with Departmental Representative.

.2 Ensure compliance with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

.3 Use licensed carrier authorized by provincial authorities to accept subject material.

.4 Prior to shipping material obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.

.5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Ensure that trained personnel handle, offer for transport, or transport dangerous goods.

.7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.

.9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 MATERIALS

.1 Only bring on site quantity of hazardous materials required to perform work.

.2 Maintain MSDSs in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 DISPOSAL

.1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

.2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.

.3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.

.7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

.8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:

- .1 Hazardous wastes recycled in manner constituting disposal.
- .2 Hazardous waste burned for energy recovery.
- .3 Lead-acid battery recycling.
- .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 03 20 00 – Concrete Reinforcing

.2 Section 03 30 00 - Cast-in-place concrete

.3 Section 03 41 00 – Precast Structural Concrete

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

- .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA-O86S1, Supplement No. 1 to CAN/CSA-O86-01, Engineering Design in Wood
- .3 CSA O121, Douglas fir Plywood
- .4 CSA O151, Canadian Softwood Plywood
- .5 CSA O153, Poplar Plywood
- .6 CSA O437, Standards for OSB and Waferboard
- .7 CSA S269.1, Falsework for Construction Purposes
- .8 CAN/CSA-S269.3, Concrete Formwork, National Standard of Canada

.2 Council of Forest Industries of British Columbia (COFI)

- .1 COFI Exterior Plywood for Concrete Formwork

1.3 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) required in accordance with section 02 81 01 – Hazardous Materials

.3 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts.

.4 Comply with CSA S269.1, for falsework drawings

.5 Comply with CAN/CSA-S269.3 for formwork drawings.

.6 Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.

.7 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.

1.4 WASTE MANAGEMENT DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction/Demolition Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

.4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

Part 2 Products

2.1 MATERIALS

.1 Formwork materials:

.1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-O121, CAN/CSA-O86.1, CSA O437 Series or CSA-O153.

.2 The formwork must be in conformity with standard CAN3-A23.1-M77. Respect the maximum tolerances for the finished concrete works as mentioned in standard 347 of ACI « Recommended Practice for Concrete Formwork ».

.2 Form ties:

.1 For concrete not designated 'Architectural', use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm of diameter in concrete surface.

.2 For Architectural concrete, use snap ties complete with plastic cones and light grey concrete plugs.

.3 Form liner:

.1 Plywood: Douglas fir to CSA O121, Canadian Softwood Plywood to CSA O151 or Poplar to CSA O153.

.2 Waferboard: to CAN3-O188.0.

.4 Form release agent: non-toxic, biodegradable and low VOC.

.5 Form stripping agent: colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene, with viscosity between 70 and 110 Saybolt Universal (15 to 24 mm^2/s) at 40®C, flashpoint minimum 150®C, open cup.

.6 Sealant: use appropriate material.

Part 3 Execution

3.1 FABRICATION AND ERECTION

.1 Verify lines, levels and centres before proceeding with formwork and ensure dimensions agree with drawings.

.2 Obtain Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Do not place concrete slabs or footings on frozen ground.

.5 Provide site drainage to prevent washout of soil supporting mud sills and shores.

.6 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.

.7 Use 25 mm chamfer strips on external corners and/or 25mm fillets at interior corners, joints, unless specified otherwise.

.8 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.9 Construct forms for architectural concrete, and place ties as indicated and/or as directed. Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

.10 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.11 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.

3.2 REMOVAL AND RESHORING

.1 Leave formwork in place for following minimum periods of time after placing concrete.

.1 At least three (3) days for low wall and cast-on-soil slab.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 03 10 00 – Concrete forming and accessories

.2 Section 03 30 00 - Cast-in-Place Concrete

.3 Section 03 41 00 – Precast Structural Concrete

1.2 REFERENCES

.1 American Concrete Institute (ACI)

.1 ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure

.2 American National Standards Institute/American Concrete Institute (ANSI/ACI)

.1 ANSI/ACI 315, Details and Detailing of Concrete Reinforcement

.3 American Society for Testing and Materials (ASTM)

.1 ASTM A 775/A 775M, Specification for Epoxy-Coated Reinforcing Steel Bars

.4 Canadian Standards Association (CSA)

.1 CAN/CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction

.2 CAN3-A23.3, Design of Concrete Structures for Buildings

.3 CAN/CSA-G30.18-M, Billet-Steel Bars for Concrete Reinforcement

.4 CAN/CSA-G40.20/G40.21, Structural Quality Steels

.5 CAN/CSA-G164-M, Hot Dip Galvanizing of Irregularly Shaped Articles

.6 CAN/CSA-S6, Canadian Highway Bridge Design Code

.7 CAN/CSA W186-M, Welding of Reinforcing Bars in Reinforced Concrete Construction

1.3 SHOP DRAWINGS

.1 Submit shop drawings, including placing of reinforcement in accordance with Section 01 33 00 – Submittal Procedures.

.2 Indicate on shop drawings, bar bending details, lists, quantities of reinforcement, sizes, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings. Indicate sizes, spacings and locations of chairs, spacers and hangers. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada or ANSI/ACI 315 and ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.3 Detail lap lengths and bar development lengths to CAN3-A23.1/A23.2, unless otherwise indicated.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 MATERIALS

.1 Substitute different size bars only if permitted in writing by Departmental Representative.

.2 Reinforcing steel: billet steel, grade 400 to CAN/CSA-G30.18, deformed bars to CAN/CSA-G30.18, unless indicated otherwise. If required by Departmental Representative, weldable low alloy steel deformed bars to CAN/CSA-30.18.

.3 Cold-drawn annealed steel wire ties: to CSA G30.

.4 Chairs, bolsters, bar supports, spacers: to CAN/CSA-A23.1/A23.2.

.5 Mechanical splices: subject to approval of Departmental Representative.

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CAN/CSA-G30.18 and ANSI/ACI 315, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada, unless indicated otherwise.

.2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.

.3 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

Part 3 Execution

3.1 FIELD BENDING

.1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.

.2 When field bending is authorized, bend without heat, applying slow and steady pressure.

.3 Replace bars, which develop cracks or splits.

3.2 PLACING REINFORCEMENT

.1 Place reinforcing steel as indicated on placing drawings and in accordance with CSA-A23.1/A23.2.

.2 Concrete cover requirement of reinforcement is 75 mm, otherwise indicated. Maintain concrete cover of 75 mm during concrete pouring.

.3 At least 24 hours Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.

.4 Metal pieces susceptible of rusting shall not touch the surface of concrete parts exposed to bad weather.

3.3 FIELD TOUCH-UP

.1 Not Used

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

.2 Section 03 10 00 - Concrete Forming and Accessories

.3 Section 03 20 00 - Concrete Reinforcing

.4 Section 03 41 00 – Precast Structural Concrete

1.2 ABBREVIATIONS ANS ACRONYMS

.1 Cement: hydraulic cement or blended hydraulic cement (where b denotes blended).

- .1 Type GU or GUb - General use cement.
- .2 Type MS or MSb - Moderate sulphate-resistant cement.
- .3 Type MH or MHb - Moderate heat of hydration cement.
- .4 Type HE or Heb - High early-strength cement.
- .5 Type LH or LHb - Low heat of hydration cement.
- .6 Type HS or HSb - High sulphate-resistant cement.

.2 Fly ash:

- .1 Type F - with CaO content less than 8%.
- .2 Type CI - with CaO content ranging from 8 to 20%.
- .3 Type CH - with CaO greater than 20%.

.3 S Type : Ground, granulated blast-furnace slag.

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM)

- .1 ASTM C109/C109M, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50-mm Cube Specimens)
- .2 ASTM C260, Specification for Air-Entraining Admixtures for Concrete
- .3 ASTM C309, Specification for Liquid Membrane-Forming Compounds for Curing Concrete
- .4 ASTM C494M, Specification for Chemical Admixtures for Concrete
- .5 ASTM C827, Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures
- .6 ASTM D1752, Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

.2 Canadian Standards Association (CSA)

.1 CAN/CSA-A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.1 CSA-A3001, Cementitious Materials for Use in Concrete.

.2 CAN/CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction / Methods of Test for Concrete

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

.4 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 Government of Quebec, Department of Transports

.1 Cahier des charges et devis généraux (CCDG)

1.4 CERTIFICATES

.1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.

.2 Minimum 1 week prior to starting concrete work submit to Departmental Representative manufacturer's test data and certification by qualified independent inspection and testing laboratory that following materials will meet specified requirements:

.1 Portland cement

.2 Blended hydraulic cement

.3 Supplementary cementing materials

.4 Grout

.5 Admixtures

.6 Aggregates

.7 Water

.3 Provide certification that mix proportions selected will produce concrete of quality, yield and strength as specified in concrete mixes, and will comply with CAN/CSA-A23.1.

.4 Provide certification that plant, equipment, and materials to be used in concrete comply with requirements of CAN/CSA-A23.1.

1.5 QUALITY ASSURANCE

.1 Minimum 1 week prior to starting concrete work, submit proposed quality control procedures in accordance with Section 01 45 00 - Quality Control for Departmental Representative's approval for following items:

.1 Cold weather concrete

.2 Curing

.3 Finishes

.4 Formwork removal

.5 Joints

1.6 DELIVERY, STORAGE AND HANDLING

.1 Delivery and Acceptance Requirements:

.1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.

.1 Do not modify maximum time limit without receipt of prior written agreement from Departmental Representative and concrete producer as described in CSA A23.1/A23.2.

.2 Deviations to be submitted for review by Departmental Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Designate a cleaning area for tools to limit water use and runoff.

.3 Carefully coordinate the specified concrete work with weather conditions.

.4 Ensure emptied containers are sealed and stored safely for disposal away from children.

.5 Prevent plasticizers, water-reducing agents and air-entraining agents from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with an inert, non-combustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations.

.6 Choose least harmful, appropriate cleaning method which will perform adequately.

Part 2 Products

2.1 MATERIALS

.1 Portland cement, for general purposes, GU-B-SF, to CAN/CSA-A3001.

.2 Cementitious hydraulic slag: to CAN/CSA-A23.1/A23.2.

.3 Water: to CAN/CSA-A23.1/A23.2.

.4 Aggregates: to CAN/CSA-A23.1/A23.2. Coarse aggregates to be normal density.

.5 Air entraining admixture: to ASTM C260.

.6 Chemical admixtures: to ASTM C494. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.7 Concrete retarders: to ASTM C494 water based, low VOC. Do not allow moisture of any kind to come in contact with the retarder film.

.8 Steel, Anchors: to CAN/CSA-G40.20/G40.21 Grade 350W or as indicated.

.9 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 610 g/m^2.

2.2 MIXES

.1 Proportion concrete in accordance with CAN/CSA-A23.1/A23.2. Mix proportions as specified below.

.1 Concrete:

.1 GU-b SF Portland cement.

.2 Minimal compressive strength at 28 days: 35 Mpa.

.3 Class of exposure: C-1.

.4 20 mm nominal size coarse aggregate.

.5 Slump at time and point of discharge: 80 mm to 125 mm.

.6 Air content 5% to 8 %.

.7 Chemical admixtures: water reducing strength increasing, set retarding, accelerating, strength increasing, air entraining, super plasticizers, following admixtures in accordance with ASTM C 494.

.8 Weight per cubic meter: 2 400 kg/m^3 minimum.

.9 Water/Cement content: lower than 0.40.

.10 Minimum cement content: 375 kg/m^3 of concrete.

.2 Ensure materials to be used in concrete mix have been submitted for testing.

.3 Co-ordinate construction methods with Departmental Representative to suit concrete mix proportions and parameters.

.4 Identify and report immediately to Departmental Representative when concrete mix design and parameters pose anticipated problems or deficiencies related to construction.

.2 Not with standing specification CAN/CSA_A23.1-04, the Contractor will provide the Departmental Representative with a mixing formula for the concrete. This formula is only a guide prepared according the aggregates supplied by the Contractor and submitted to the designated laboratory for all processes such as grading, washing, etc. It is the Contractor’s responsibility to use similar aggregates and to handle them so as to obtain good results. It is also Contractor’s responsibility to set the mixing guide formula depending on possible variations of aggregates or other concrete components.

2.3 CURING

.1 Storage and curing procedures shall meet the requirements of CAN/CSA-A23.1.

Part 3 Execution

3.1 PREPARATION

.1 Obtain Departmental Representative's approval before placing concrete. Provide 24 hours notice prior to placing of concrete.

.2 Pumping of concrete is permitted only after approval of equipment and mix.

.3 Ensure reinforcement and inserts are not disturbed during concrete placement.

.4 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing.

.5 Maintain accurate records of poured concrete items to indicate precisely date, location of pour, quality, air temperature and test samples taken.

.6 The Contractor shall coordinate his pouring schedule in such a manner that uninterrupted pours are made for better uniformity of work.

.7 Do not place load upon new concrete until authorized by Departmental Representative.

.8 During concreting operations:

- .1 Development of cold joints not allowed.
- .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.

3.2 CONSTRUCTION

.1 Do cast-in-place concrete work in accordance with CAN/CSA-A23.1/A23.2.

.2 Anchor bolts

- .1 Set anchor bolts to templates in co-ordination with appropriate trade prior to placing concrete.
- .2 Grout anchor bolts in preformed holes or holes drilled after concrete has set only after receipt of written approval from Departmental Representative.
  - .1 Formed holes: 100 mm minimum diameter.
  - .2 Drilled holes: to manufacturers' recommendations.
- .3 Protect anchor bolt holes from water accumulations, snow and ice build-ups.
- .4 Set bolts and fill holes with shrinkage compensating grout or epoxy grout.
- .5 Locate anchor bolts used in connection with expansion shoes, rollers and rockers with due regard to ambient temperature at time of erection.

.3 Finishing

- .1 Finish concrete in accordance with CAN/CSA-A23.1/A23.2.
- .2 Use procedures noted in CAN/CSA-A23.1/A23.2 to remove excess bleed water. Ensure surface is not damaged.

.3 Use curing compounds compatible with applied finish on concrete surfaces.

.4 For concrete slab, execute a broom or brush groovy finish.

3.3 TOLERANCE

.1 Concrete finishing tolerance in accordance with CAN/CSA-A23.1/A23.2

3.4 FIELD QUALITY CONTROL

.1 Inspection and testing of concrete and concrete materials will be carried out by a Testing Agencies designated by Departmental Representative in accordance with CAN/CSA-A23.1/A23.2 and Section 01 45 00 - Quality Control.

.2 Departmental Representative will pay for costs of tests as specified in Section 01 29 83 - Payment Procedures: Testing Laboratory Services.

.3 Departmental Representative will take additional test cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete which they represent.

.4 Non-destructive Methods for Testing Concrete shall be in accordance with CAN/CSA-A23.1/A23.2.

.5 Inspection or testing by Departmental Representative will not augment or replace Contractor quality control nor relieve him of his contractual responsibility.

.6 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing agency and Departmental Representative.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

.1 Canadian Standards Association (CSA)

- .1 CAN/CSA-A23.1/A23.2- Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
- .2 CAN3-A23.4- Precast Concrete - Materials and Construction.
- .3 CSA-A251-Qualification Code for Manufacturers of Architectural and Structural Precast Concrete.
- .4 CSA-G30.15- Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- .5 CAN/CSA-G30.18-Billet-Steel Bars for Concrete Reinforcement.
- .6 CAN/CSA-G40.20/G40.21-General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .7 CAN/CSA-G164-Hot Dip Galvanizing of Irregularly Shaped Articles.
- .8 CSA-W47.1-Certification of Companies for Fusion Welding for Steel Structures.
- .9 CSA-W48.1-Carbon Steel Covered Electrodes for Shielded Metal Arc Welding.
- .10 CSA-W59-Welded Steel Construction (Metal Arc Welding).

1.3 DESIGN REQUIREMENTS

.1 Design precast elements to CAN3-A23.4 to carry handling stresses.

1.4 PERFORMANCE REQUIREMENTS

.1 Tolerance of precast elements to CAN3-A23.4, Section 10.

1.5 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures and in accordance with CAN3-A23.4 .

.2 Include the following items:

- .1 Details of concrete units, reinforcement and their connections.
- .2 Camber.
- .3 Finishing schedules.
- .4 Methods of handling and erection.
- .5 Openings, sleeves, inserts and related reinforcement.

1.6 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

1.7 QUALIFICATIONS

.1 Precast concrete elements to be fabricated and erected by manufacturing plant certified by Canadian Standards Association in appropriate categories according to CSA-A251.

.2 Precast concrete manufacturer to be certified in accordance with CSA's certification procedures for precast concrete plants prior to submitting tender and to specifically verify as part of tender that plant is currently certified in appropriate categories, suah as Structural precast concrete products.

.3 Only precast elements fabricated in such certified plants to be acceptable to owner, and plant certification to be maintained for duration of fabrication, erection until warranty expires.

.4 Welding companies certified to CSA-W47.1.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management.

Part 2 Products

2.1 MATERIALS

.1 Cement, aggregates, water, admixtures: to CAN/CSA-A23.1 and CAN3-A23.4.

.2 Reinforcing steel: to CAN/CSA-G30.18.

.3 Hardware and miscellaneous materials: to CAN/CSA-A23.1.

.4 Forms: to CAN3-A23.4.

.5 Anchors and supports: to CAN/CSA G40.21 Type 350 W, galvanized.

.6 Welding materials: to CSA-W48.1.

.7 Welding electrodes: to CSA-W48.1 and certified by Canadian Welding Bureau.

.8 Galvanizing: hot dipped galvanizing with minimum zinc coating of 610 g/m^2 to CAN/CSA-G164.

2.2 MIXES

.1 Concrete.

.1 Proportion normal density concrete in accordance with CAN/CSA-A23.1, to give physical properties following Section 03 30 00 – Cast-in-Place Concrete.

2.3 MANUFACTURED UNITS

.1 Manufacture units in accordance with CAN3-A23.4 and CSA-A251.

.2 Mark each precast unit to correspond to identification mark on shop drawings for location with date cast on part of unit which will not be exposed.

.3 Provide hardware suitable for handling elements.

2.4 FINISHES

.1 Finish units to CSA-A23.4.

2.5 SOURCE QUALITY CONTROL

.1 Provide Ministerial Representative with certified copies of quality control tests related to this project as specified in CAN3-A23.4 and CSA-A251.

.2 Provide records from in-house quality control programme based upon plant certification requirements to Ministerial Representative for inspection and review.

.3 Precast plants should keep complete records of supply source of concrete material, steel reinforcement, prestressing steel and provide to Ministerial Representative for review upon request.

Part 3 Execution

3.1 ERECTION

.1 Do precast concrete work in accordance with CSA-A23.3 and CSA-A23.4.

.2 Do welding in accordance with CSA-W59, for welding to steel structures and CSA-W186, for welding of reinforcement.

.3 Non-cumulative erection tolerances in accordance with CAN3-A23-4.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 61 00 – Common product requirements

.3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

1.2 REFERENCES

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

- .1 ASTM A6/A6M, Standard Specification for general Requirements for Rolled Structural Steel Bars, Plater, Shapes and Sheet Piling.
- .2 ASTM A53, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
- .3 ASTM A 36/A36M, Specification for Structural Steel.
- .4 ASTM A123/123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Production
- .5 ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- .6 ASTM A563, Standard Specification for Carbon and Alloy Steel Nuts
- .7 ASTM A 780, reparations of damaged galvanized coating.

.2 American National Standards Institute, (ANSI)

- .1 AWS D3.6M, Specification for underwater welding.

.3 Canadian Standards Association (CSA International)

- .1 CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
- .2 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA-S16-S1, Limit States Design of Steel Structures.
- .4 CSA-S136.S1, Limit States Design of Steel Structures (Specification for the Design of Cold-Formed Steel Structural Members).
- .5 CSA-S136.1, Commentary on CSA Standard S136.
- .6 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.
- .7 CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
- .8 CSA W59, Welded Steel Construction (Metal Arc Welding) [Metric].

.4 Canadian Institute of Steel Construction

- .1 Handbook of steel construction

1.3 DESIGN REQUIREMENTS

.1 Design details and connections in accordance with requirements of CAN/CSA-S16 and CAN/CSA-S136 with CSA-S136.1 to resist forces, moments, shears and allow for movements indicated.

.2 Shear connections:

.1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.

.2 Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.

.3 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in Province of Quebec, Canada for non standard connections.

1.4 SHOP DRAWINGS

.1 Submit shop drawings including fabrication and erection documents and materials list in accordance with Section 01 33 00 - Submittal Procedures.

.2 Erection drawings: indicate details and information necessary for assembly and erection purposes including:

.1 Description of methods.

.2 Sequence of erection.

.3 Type of equipment used in erection.

.4 Temporary walers.

.3 Ensure Fabricator drawings showing designed assemblies, components and connections are stamped and signed by qualified professional engineer licensed in the province of Quebec, Canada.

1.5 QUALITY ASSURANCE

.1 Submit 2 copies of mill test reports 4 weeks prior to fabrication of structural steel.

.1 Mill test reports to show chemical and physical properties and other details of steel to be incorporated in project.

.2 Provide mill test reports certified by metallurgists qualified to practice in province of Quebec, Canada.

.2 Provide structural steel Fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated.

1.6 CONTRÔLE DE LA QUALITÉ

.1 The departmental representative will be responsible for obtaining services from independent trial and inspection firms. Cost of such services will be borne by Departmental Representative

.2 The fabrication work will be inspected by a 10% sampling method

.1 All welds must be made as shown on manufacturing drawings and in accordance with CSA W59-03 Welded Steel Construction (arc welding). Compliance with welding procedures when carrying out the work will be checked. Welding will be inspected under section 12 of the CSA W59-03. The weld bead to be inspected visually and by magnetic particles.

.3 Work performed by trial and inspection firms does not relieve the Contractor from their responsibility to execute work in compliance with contract document requirements.

.4 Provide work areas and safe access roads for testing on site, as required by the testing agency and as authorized by the Departmental Representative.

.5 Remove defective elements or elements deemed non-compliant with contract documents and rejected by the departmental representative for not being “state of the art” or for being made of defective materials or products, although they may have been already integrated in the work. Replace or redo such elements as per contract documents.

1.7 TRANSPORTING, STORING AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 – Basic Product Requirements.

.2 Handle steel pieces so as to avoid permanent deformations.

.3 Handle with care steel pieces that have received a special coating.

.2 Storage and Protection:

.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.

.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 MATERIALS

.1 Structural steel: to CAN/CSA-G40.20/G40.21 Grade 300W or as indicated.

.2 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.

.3 Welding electrodes: to CSA W48 Series.

.4 Anchor bolts: to ASTM A307, as indicated

.5 Nuts and washers: following asked bolts, to develop full strength. Lubricated in accordance with ASTM A563.

.6 Hot dip galvanizing: galvanize steel, where indicated, to CAN/CSA-G164, minimum zinc coating of 600 g/m^2 or in accordance with ASTM A123/123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Production

2.2 FABRICATION

.1 Fabricate structural steel in accordance with CAN/CSA-S16, CAN/CSA-S136 and in accordance with reviewed shop drawings.

.2 Bolts Tightening: use tightening torque in accordance with CISC.

.3 Continuously seal members by continuous welds where indicated. Grind smooth.

.4 Where possible, works to be adjusted and built in shop, and delivered ready to fix.

2.3 SHOP PAINTING

.1 All steel components to be hot-dip galvanized, not painted.

2.4 STEEL COMPONENTS

.1 Plates, fastening system, anchor arm, cleat and steel sections to CAN/CSA-G40.21, Grade 300W.

.2 Welding: in accordance with CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Ensure exposed welds or extremity of members is grinded smooth and flush.

.5 Components to be hot-dip galvanized.

Part 3 Execution

3.1 GENERAL

.1 Structural steel work: in accordance with CAN/CSA-S16 and CAN/CSA-S136.

.2 Welding: in accordance with CSA W59.

.3 Companies to be certified under Division 2 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.

.4 Respect the minimum torque value and the approximate tightening torque for the diameter of the classes and types of bolts.

3.2 GALVANIZING

.1 Preparation of items for the galvanization by acid cleaning after pickling at half-white.

.2 Clean and prepare surfaces so that zinc coat bond perfectly to all surfaces.

.3 An item shall be completely fabricated before to be galvanized. Galvanizing bath shall be sufficiently large in order that items to be galvanized in only one dip.

.4 Hot dip galvanization to obtain a zinc continuous layer, uniform thickness for complete steel protection after erection.

.5 Welding not allowed after galvanization

.6 Galvanize different items respecting the following rate:

.1 Bolts and nuts: 400g/m^2

.2 Sections, plates, and bars: 705 g/m^2

.7 Clean thread of bolts in such a way that the nuts have a normal clearance on them after galvanization

.8 Manufacturer shall take all necessary measures to avoid fragilization, warping or deformation of an item during galvanization. It is recommended to follow the method specified in ASTM-A143 and A384 as well as the appendices of ATM 123/123M

.9 All item deformed or warped will be rejected except in the Manufacturer rectifies the item in such a quay that neither the piece nor the galvanization are damaged

.10 Manufacturer shall carry out testing to determine quality of the adherence and the repair of zinc layer specified in ASTM A123/123M

3.3 INSTALLATION

.1 Surface welding: welding work must be done in conformity with the requirements of the standards indicated to article 1.3 of this section, and with the dimensional tolerances specified in the standards of this article. The welders must be qualified according to Canadian Welding Bureau for the type of welding corresponding to work carried out.

.2 Finish : Carefully finish the various parts of work. Cutting, carving, boring and machining shall be done with care and precision. Finished components must meet prescribed alignment requirements and be free from torsion, curves, open joints, sharp corners and ridges.

.3 On-site additional splices: obtain Departmental Representative’s approval before making on-site additional splices (to facilitate transport and assembly of elements). No additional cost for expenses incurred by the additional splices done on-site.

.4 All the adjacent welding with galvanized parts will receive a coat of protective paint of type “GalvanoSpray” or the equivalent.

3.4 CONNECTION TO EXISTING WORK

.1 Verify dimensions and condition of existing work, report discrepancies and potential problem areas to Departmental Representative for direction before commencing fabrication.

3.5 MARKING

.1 Mark materials in accordance with CAN/CSA G40.20/G40.21. Do not use die stamping. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.

.2 Match marking: shop mark bearing assemblies and splices for fit and match.

3.6 ERECTION

.1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16, CAN/CSA-S136 and in accordance with reviewed erection drawings.

.2 Field cutting or altering structural members, to approval of Departmental Representative.

.3 Erect steel accurately, level, plumb straight, line up and adjusted with precision, joints and crossing well fixed.

.4 Provide and install suitable anchorings approved by Departmental Representative such as studs, tie-rods, anchor bolts, expansion bolts, etc.

.5 Visible fastening to be compatible with crossed or fixed to material.

.6 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.

.7 Clean with mechanical brush and touch up coat protection to bolts, rivets, welds or burned or scratched surfaces at completion of erection.

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

.9 Continuously seal members by continuous welds where indicated. Grind smooth.

.10 Allowable tolerances for bolt holes:

.1 Matching holes for bolts to register so that a gauge 2 mm less than diameter than hole will pass freely through assembled members at right angles to such members.

.2 Finish holes not more than 2 mm in diameter larger than diameter of bolt unless otherwise specified by Departmental Representative.

.3 Centre-to-centre distance between 2 holes of a group of holes to vary but not more than 1 mm from dimensioned distance between such holes..

.4 Centre-to-centre distance between any group of holes to vary not more than following:

Centre-to-centre (m)	Difference (±) (mm)
Less than 10	1
10 to 20	2
20 to 30	3

3.7 FIELD QUALITY CONTROL

.1 Inspection and testing of materials and workmanship will be carried out by a testing laboratory designated by Departmental Representative.

.2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Departmental Representative.

.3 Submit test reports to Departmental Representative within 2 weeks of completion of inspection.

.4 Departmental Representative will pay costs of tests as specified in Section 01 29 83 - Payment Procedures: Testing Laboratory Services.

END OF SECTION

Partie 1 General information

1.1 SECTION CONTENT

.1 This section includes specifications for the construction of wood embankments to be built.

1.2 RELATED SECTIONS

.1 Section 06 05 73 – Wood Treatment

.2 Section 05 50 00 – Metal Fabrications

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in compliance with section 01 74 21 – Construction/demolition waste management and disposal.

Partie 2 Products

1.4 MATERIALS

.1 Steel

- .1 All machine bolts, lag bolts, drift spikes and nails will be of medium construction steel, in compliance with standard ASTM-A307.
- .2 All steel parts must be galvanized in compliance with standards ASTM A123/123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Production.
  - .1 Galvanize the various parts in accordance with the following rates:
    - .1 Bolts and nuts: 460 g/m2;
    - .2 Section, plates and rods: 705 g/m2
- .3 Threads will meet the specifications of standard ANS/B1-1, class 2A.
- .4 Washers will be made of grey cast iron or steel.
- .5 Machine bolts, lag bolts and drift spikes will have forged heads.
- .6 The length of bolts specified does not include the head; the length of the machine bolt threads is 100 mm.
- .7 The spiral galvanized nails will be 200 mm long.
- .8 All drift spikes will be properly worked down and will have 9 mm countersunk heads, larger than the diameter of the iron used; All drift spike holes will be drilled to a diameter of 2 mm smaller than the diameter of the bolts used and 75 mm shorter than their length;
- .9 The lag bolts will be threaded and have hexagonal heads;

.2 Wood

.1 All wood used in the construction of the embankment will be treated with pressurized ACC in accordance with CAN/CSA-O80-M, except for ballast floor. Retention to be 24 kg/m^3 as required for marine application in accordance with requirements.

.2 Wood to be of sustainable forest management in compliance with CSA_ISO 41001 or FSC.

.3 All wood varieties will be in compliance with the requirements of the NLGA (National Lumber Grades Association) entitled ¨Standard Grading Rules for Canadian Lumber.¨

.4 The coastal Douglas fir tree and the Pacific Coast hemlock will meet the requirements of the British Columbia Lumber Manufacturer's Association entitled ¨Standard Specifications for Construction Grade.¨

.5 The spruce, jack pine and eastern hemlock will meet the requirements of the latest standard grading rules of the ¨Eastern Spruce Grading Committee¨ approved and published by the Canadian Lumbermen's Association, the Quebec Lumber Manufacturers Association and the ¨Maritime Lumber Bureau,¨ with the exception of the balsam fir which will not be accepted although it is mentioned in rule No. 1.

.6 Square timber and embankment wood (narrow side: greater than or equal to 127 mm): the wood introduced into the construction will be coastal Douglas fir or Pacific Coast hemlock, eastern hemlock, jack pine, red pine or tamarack. All wood used will be of the varieties mentioned and of No. 2 structure quality or better in compliance with paragraph 130.C of the NLGA standard for beams and stringers and 131.C for poles and square timber. However, no altered wood (soft rot) will be accepted.

.7 Planks and dim wood (thickness greater or equal to 51 mm and smaller than 127 mm, width greater or equal to 127 mm): all wood used will be from the S-P-F variety group or eastern hemlock, red pine or tamarack. No. 2 structure quality, or better, in compliance with paragraph 124.C of the NLGA standard.

.8 The wood will be double end trimmed at a right angle before treatment following standard NLGA 748-B.

.9 Spruce and balsam fir will not be accepted when treated wood is specified.

.10 All material treated under pressure requiring cutting, in order to be adjusted, will be coated, while dry, with three (3) layers of preservative as is required in standard CAN/CSA-080-M. All holes in timber pieces will be treated in this fashion.

.11 Ends of wood pieces exposed to sea water and over plastic sheathing must, in addition to the 3 layers of preservative, be equipped with a prong mending plate.

.3 Ballast stone

.1 Stone measuring 250 to 400 mm in diameter.

.2 The smallest size stones must not be less than 200 mm.

.3 Stones from The Magdalen Islands won't be accepted.

.4 The stone used must be quarried from hard and durable stone. The use of shale or slate and round stones will not be accepted in any part of the structure. The stones

used must be free of planes of weakness such as stratification, bedding, cracks and argillite beds.

.5 The stone must have a minimum density of 2,600 kg per cubic meter, show an absorption rate of less than 1% (ASTM-C127) and provide less than 1.5% loss in magnesium sulfate durability tests after 5 cycles (ASTM-C88).

.6 The ballast stone must be evenly distributed between the minimum and maximum values.

.7 It is the sole responsibility of the Contractor to ensure the availability of usable sources of supply and the quantity and sizes of stone that can be obtained.

Partie 3 Execution

1.5 BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC

.1 The construction must comply with the following document: Best Management Practices for the use of treated wood in aquatic and other sensitive environments.

.2 The Contractor shall make every effort to adhere to good practices. Such as:

.1 Wood must be protected by tarps during transport and until its use.

.2 Wood must be handled carefully to avoid damage and exposure of sections of non-impregnated wood. Damaged sections must be treated with an approved product.

.3 Store the material far from any waterway before use. Be sure the material is stored on well-drained land and not directly on debris or vegetation.

.4 The construction of crib structures must be carried out far enough from any waterway or other sensitive areas to avoid contamination that could be caused by debris or sawdust.

.5 Debris and sawdust must be recovered and disposed of according to the regulations in effect for such material. If these materials are temporarily stored on-site, they must be stored between tarps or in a waterproof container.

.6 If the wood is treated with an oil-based preservative, temporarily set up a boom and absorbent material to contain the film.

1.6 WOOD EMBANKMENT

.1 Build 203 mm x 203 mm wood embankments, as specified on the plans.

.2 These embankments will be built on site so that faces, stringers, bolsters etc, are installed horizontally. They will be built in compliance with the plan and will have the specified dimensions.

.3 These embankments will be entirely filled up to the internal face of the joists with ballast stone.

.4 If, after immersion, cages are unaligned, the Contractor will have to remove ballast stone, at his own expense until the cages float and will have to replace them at the proper locations.

.5 The Contractor will have to notify the department representative, fifteen (15) days before the probable immersion date of the cages and these will not be immersed before the department representative has given written approval.

.6 Preparation of foundation:

.1 Prior to embankment installation, the Contractor will have to conduct a survey of the zone where the embankment will be placed. The Contractor will have to add, as needed, 150-25 mm crushed stone in order to respect the levels required.

.7 Bottom parts:

.1 The bottom parts include the lower layers of the embankment. They will have 203 mm of squaring and be placed fore and aft or crosswise, as required.

.2 Crosswise bottom parts will be of one length.

.3 They will be secured to each piece of wood they cross, as specified in the plans.

.4 The bottom parts will be secured to each vertical pole they cross using a machine bolt, 20 mm in diameter of the appropriate length. Bottom parts will be placed horizontally.

.8 Ballast platform:

.1 The ballast platform will be made up of 150 to 200 mm diameter logs, placed, head to foot to bottom parts. They will be of required length and their joint will be done on a bottom part, as specified in the plans.

.2 The logs will be placed on the second layer of the bottom parts. Each log extremity will be anchored to bottom parts using 20 mm diameter drift bolt of appropriate length.

.9 Stringers and bolsters

.1 Stringers and bolsters will be made up of 203 mm squaring pieces, as specified on the plan. Bolsters will be placed on one horizontal length, while stringers with length as indicated on drawings.

.2 These pieces will be secured to each crossing with a bolster or a facing timber using a 20 mm diameter drift bolt of appropriate length. They will also be secured to each crossing with a vertical pole using a machine bolt 20 mm in diameter of the appropriate length.

.10 Vertical poles

.1 Vertical poles will be made up of wood pieces with 203 mm squaring, situated as specified on the plans. They will be of one length going from below the bottom parts up to the upper face of the wood joists.

.2 Poles will be secured to each intersection with a bottom part, bolster, ledger, wall, crown, using 20 mm diameter machine bolts of the appropriate length.

.11 Stringers

.1 203 mm squaring wood joists will be installed on the embankment.

.2 Joists will be placed as specified on the plans. They will be secured to each bolster using a 24 mm diameter drift bolt of the appropriate length.

1.7 WOODEN WHEEL-GUARDS

.1 A wooden 203 mm x 203 mm wheel guard will be constructed in compliance with plans.

.2 The wheel guard will be secured to blocks and concrete slabs using 20 mm diameter threaded bars of appropriate length and chemical anchor.

.3 The top of wheel guards will be level, of the proper elevation and their upper rims will have a 20 mm bevel.

.4 The wheel guard will rest on 75 mm x 203 mm x 600 mm long blocks placed at every 1,500 mm on center.

1.8 WOOD FLOORS

.1 A 75 x 203 mm wood floor will be installed at locations specified on plans.

.2 Each piece will be secured to the existing joists using 150 mm galvanized drive screws at each joint intersection.

END OF SECTION

Part 1 General information

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Documents and samples to be submitted.

.2 Section 01 74 21 – Construction/demolition waste management and disposal.

1.2 REFERENCES

.1 American Wood-Preservers' Association (AWPA)

.1 AWPA M2, Standard Inspection of Treated Wood Products.

.2 AWPA M4, Standard for the Care of Preservative-Treated Wood Products.

.2 Canadian Standards Association (CSA)

.1 CAN/CSA O80, Wood preservation.

.3 Best Management Practice for the Use of Treated Wood in Aquatic Environments (BMPs).

1.3 REQUIREMENTS FROM REGULATORY AGENCIES

.1 Each piece of treated wood or batch of treated wood pieces must display a label.

1.4 CERTIFICATES

.1 Submit required certificates in compliance with specifications from section 01 33 00 - Documents and samples to be submitted.

.2 Each piece of lumber to be identified by CSA O322 certified stamp.

.3 Submit the following information with regards to materials impregnated under pressure with a preservation product, after they have been certified by an authorized representative from a treatment factory.

.1 Information included in standard AWPA M2 and modifications listed in standards from the CSA O80 series, under the heading of ¨Additional requirements to standard AWPA M2, applicable to the prescribed treatment.¨

.2 The degree of humidity, once drying is complete following treatment with a water-soluble preservation product.

.3 The acceptable types of paints, stains and clear finishing products which could be applied to treated wood materials.

1.5 WASTE MANAGEMENT AND DISPOSAL

.1 Sort and recycle waste in compliance with specifications of section 01 74 21 – Construction/demolition waste management and disposal.

.2 Wood treated with a preservation product must be separated from materials to be recycled or reused.

.3 Send treated wood ends, waste and sawdust to a landfill site approved by the department representative.

Part 2 Products

2.1 MATERIALS

.1 Chemical preservation products:

.1 Chromated copper arsenate (CCA), in compliance with standards from CSA O80 series.

Part 3 Execution

3.1 PRESERVATION TREATMENT

.1 Treat materials, with a preservation product, in order to obtain a net retention in compliance with the requirements from the standard O80 series for usage in a marine environment. Use the CCA water-borne preservative treatment to obtain minimum net retention of 24 kg/$m^3$of wood.

.2 Carry out the preservation treatments in compliance with the recommendations from the Best Management Practices for the Use of Treated Wood in Aquatic Environments (BMP).

.3 Dry wood materials prior to treatment to optimize preservative retention.

.4 All wood must be incised for preservative treatment.

.5 Following water-borne preservative treatment, dry material to acceptable moisture content.

3.2 TREATMENTS CONDUCTED ON SITE

.1 Carry out work in compliance with standard AWPA M4 and modifications listed in standards from the CSA O80 series, under the heading of ¨Additional requirements to standard AWPA M2, applicable to the prescribed treatment¨.

.2 Remove all chemical product deposits from wood pieces on which a finishing product will be applied.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 35 30 - Health and Safety Requirements

.3 Section 01 35 43 - Environmental Procedures

.4 Section 01 56 00 - Temporary Barriers and Enclosures

.5 Section 01 74 21 - Construction/Demolition Waste Management and Disposal

.6 Section 31 32 21 - Geotextiles

1.2 REFERENCES

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

.1 ASTM C117, Standard Test Method for Material Finer Than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

.2 ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D422, Standard Test Method for Particle-Size Analysis of Soils.

.4 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ^{3}) (2,700 kN-m/m ^{3}).

.5 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

.6 ASTM C 127, Standard Test Method for Specific Gravity and Absorption of Coarse Aggregate.

.7 ASTM C 535, Standard Test Method for Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.2-M, Sieves, Testing, Woven Wire, Metric.

.3 Department of Justice Canada (Jus)

.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.2 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 Government of Québec, Ministère des Transports

.1 Cahier des charges et devis généraux (CCDG).

1.3 DEFINITIONS

.1 Waste material: excavated material unsuitable for use in Work or surplus to requirements.

.2 Unsuitable materials:

.1 Weak, chemically unstable, and compressible materials.

.2 Frost susceptible materials:

.1 Fine grained soils with plasticity index less than 10 when tested to ASTM D4318, and gradation within limits specified when tested to ASTM D422 and ASTM C136: Sieve sizes to CAN/CGSB-8.2.

.2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45

.3 Coarse-grained soils containing more than 20 % by mass passing 0.075 mm sieve.

.3 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.

.4 Recycled fill material: material, considered inert, obtained from alternate sources and engineered to meet requirements of fill areas.

.5 Unshrinkable fill: very weak mixture of cement, concrete aggregates and water that resists settlement when placed in utility trenches, and capable of being readily excavated.

1.4 SUBMITTALS

.1 Make submittals in accordance with Section 1 33 00 - Submittal Procedures.

.2 Preconstruction Submittals:

.1 Submit construction equipment list for major equipment to be used in this section prior to start of Work.

.3 Samples:

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 At least 4 weeks prior to beginning Work, inform Departmental Representative of material source and provide access for sampling.

1.5 QUALITY ASSURANCE

.1 Engage services of qualified professional engineer who is registered or licensed in Province of Quebec, Canada in which Work is to be carried out to design and inspect cofferdams, shoring, bracing and underpinning required for Work.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Place materials defined as hazardous or toxic in designated containers.

.3 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.

1.7 PROTECTION OF EXISTING STRUCTURES

.1 Protect existing features in accordance with Section 01 56 00 - Temporary Barriers and Enclosures and applicable local regulations.

.2 Existing buried utilities and structures:

.1 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

.2 Prior to beginning excavation Work, notify Departmental Representative and authorities having jurisdiction and establish location and state of use of buried utilities and structures.

.3 Confirm locations of buried utilities by careful test excavations.

.4 Maintain and protect from damage, water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated by Departmental Representative and authorities having jurisdiction.

.5 Where utility lines or structures exist in area of excavation, obtain direction of Departmental Representative and authorities having jurisdiction before removing or re-routing.

.6 Record location of maintained, re-routed and abandoned underground lines.

.7 Confirm locations of recent excavations adjacent to area of excavation.

.3 Existing buildings and surface features:

.1 Conduct, with Departmental Representative, condition survey of existing structures which may be affected by Work.

.2 Protect existing buildings and other surface structures from damage while Work is in progress. In event of damage, immediately make repair as directed by Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Hard, durable, abrasion-resistant material which will not disintegrate under wave action or wet-dry, freeze-thaw cycles, wet dry cycle and to Departmental Representative.

.1 Relative density (formerly specific gravity): not less than 2.5 kg/m3, to ASTM C 127.

.2 Absorption: maximum of 2.0%, to ASTM C 127.

.3 Test of aggregate degradation in a magnesium sulfate solution (MgSO4): maximum loss of 10% after 7 cycles to BNQ 2560-450.

.2 Fill material: properties the following requirements:

.1 Crushed, pit run or screened stone, gravel or sand.

.2 Gradations to be within limits specified when tested to ASTM C117, ASTM C136. Sieve sizes to CAN/CGSB-8.2 and Cahier des charges et devis généraux (CCDG) from Government of Quebec.

.3 Quarry-Run 300-0 mm

Sieve Designation	% Passing
300 mm	100
250 mm	80 - 90
150 mm	40 - 60
50 mm	10 - 25
12.5 mm	5 - 15

.3 Backfill material: selected material from excavation or other sources, approved by Departmental Representative for use intended, unfrozen and free from refuse or other deleterious materials.

.4 Class A aggregate material: clean sand.

.5 Geotextiles: to Section 31 32 21 - Geotextiles.

Part 3 Execution

3.1 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 STOCKPILING

.1 Stockpile fill materials in areas designated by Departmental Representative

.2 Stockpile fill materials in manner to prevent segregation.

.3 Protect fill materials from contamination.

.4 Implement sufficient erosion and sediment control measures to prevent sediment release off construction boundaries and into water bodies.

3.3 COFFERDAMS, SHORING, BRACING AND UNDERPINNING

.1 Maintain sides and slopes of excavations in safe condition by appropriate methods and in accordance with Section 01 35 30 - Health and Safety Requirements and Health and Safety Act for the Province of Quebec.

.1 Where conditions are unstable, Departmental Representative has to verify and advise methods. Contractor is responsible for methods to protect and maintain in same condition structures to preserve.

.2 If required, Construct temporary Works to depths, heights and locations as indicated or directed by Departmental Representative.

.3 During backfill operation:

.1 Unless otherwise indicated or directed by Departmental Representative, remove sheeting and shoring from excavations.

.2 Pull sheeting in increments that will ensure compacted backfill is maintained.

3.4 DEWATERING AND HEAVE PREVENTION

.1 Keep excavations free of water while Work is in progress.

.2 Provide for Departmental Representative's review details of proposed dewatering or heave prevention methods.

.3 Avoid excavation below groundwater table if quick condition or heave is likely to occur.

.1 Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut-offs, or other means.

.4 Protect open excavations against flooding and damage due to surface run-off.

.5 Dispose of water in accordance with Section 01 35 43 - Environmental Procedures in manner not detrimental to public and private property, or portion of Work completed or under construction.

.1 Provide and maintain temporary drainage ditches and other diversions outside of excavation limits.

.6 Provide flocculation tanks, settling basins, or other facilities to remove suspended solids or other materials before discharging to storm sewers, watercourses or drainage areas.

3.5 EXCAVATION

.1 Advise Departmental Representative at least 7 days in advance of excavation operations for initial cross sections to be taken.

.2 Excavate to lines, grades, elevations and dimensions as indicated.

.3 Make saw cuts to delineate the excavation trenches.

.4 Remove concrete, paving and other obstructions encountered during excavation in accordance with Section 02 41 16 – Structure demolition.

.5 Excavation must not interfere with bearing capacity of adjacent foundations.

.6 For trench excavation, unless Departmental Representative has given his written authorization, do not excavate more than 30 m of trench before proceeding to the installation of the elements to burry, and do not leave open more than 15 m at the end of a work day.

.7 Keep excavated and stockpiled materials at a safe distance away from edge of trench as directed by Departmental Representative.

.8 Restrict vehicle operations directly adjacent to open trenches.

.9 Dispose of surplus and unsuitable excavated material off site.

.10 Do not obstruct flow of surface drainage or natural watercourses.

.11 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.12 Notify Departmental Representative when bottom of excavation is reached.

.13 Obtain Departmental Representative’s approval for completed excavations.

.14 Remove unsuitable material from trench bottom including those that extend below required elevations to extent and depth as directed by Departmental Representative.

.15 Correct unauthorized over-excavation as follows:

.1 Use unshrinkable fill under supporting surfaces.

.2 Fill under bearing surfaces and footings with fill approved by Departmental Representative compacted not less than 95 % of corrected Standard Proctor maximum dry density.

.16 Hand trim, make firm and remove loose material and debris from excavations.

.1 Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil.

.17 Install geotextiles in accordance with Section 31 32 21 - Geotextiles.

3.6 FILL TYPES AND COMPACTION

.1 Use fill materials as indicated. Compaction densities are not less than 95% of maximum densities obtained from corrected maximum dry density or as indicated on plan.

3.7 BEDDING AND SURROUND OF UNDERGROUND SERVICES

.1 Place and compact granular material for bedding and surround of underground services as indicated and as specified by Departmental Representative or authority having jurisdiction.

.2 Place bedding and surround material in unfrozen condition.

3.8 BACKFILLING

.1 Do not proceed with backfilling operations until completion of following:

.1 Departmental Representative has inspected and approved installations.

.2 Departmental Representative has inspected and approved of construction below finish grade.

.3 Inspection, testing, approval, and recording location of underground utilities.

.2 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.

.3 Do not use backfill material which is frozen or contains ice, snow or debris.

.4 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to grades indicated. Compact each layer before placing succeeding layer.

.5 Backfilling around installations:

.1 Place bedding and surround material as specified elsewhere.

.2 Do not backfill around or over cast-in-place concrete within 24 hours after placing of concrete.

.3 Place layers simultaneously on both sides of installed Work to equalize loading.

.4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:

.1 Permit concrete to cure for minimum 14 days or until it has sufficient strength to withstand earth and compaction pressure and approval obtained from Departmental Representative.

.2 If approved by Departmental Representative, erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Departmental Representative.

.6 Place fill with reused materials in areas as indicated.

3.9 RESTORATION

.1 Upon completion of Work, remove waste materials and debris in accordance to Section 01 74 21 - Construction/Demolition Waste Management and Disposal, trim slopes, and correct defects as directed by Departmental Representative.

.2 Reinstate pavements disturbed by excavation to thickness, structure and elevation which existed before excavation.

.3 Clean and reinstate areas affected by Work as directed by Departmental Representative.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation of polymeric geotextiles used in revetments, breakwaters, retaining wall structures, filtration, drainage structures, roadbeds and railroad beds purpose of which is to:

.1 Separate and prevent mixing of granular materials of different grading.

.2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures

.2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal

1.3 REFERENCES

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

.1 ASTM D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2 No. 11.2-M, Textile Test Methods - Bursting Strength - Ball Burst Test.

.2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.

.1 No.2-M, Methods of Testing Geosynthetics - Mass per Unit Area.

.2 No.3-M, Methods of Testing Geosynthetics - Thickness of Geotextiles.

.3 No.6.1, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.

.4 No.7.3, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.

.5 No. 10, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

1.4 SUBMITTALS

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative following samples at least 2 weeks prior to beginning Work.

.1 At least 300 x 300 mm of geotextile.

1.5 DELIVERY, STORAGE AND HANDLING

.1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 MATERIAL

.1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls.

.1 Composed of: minimum 85% by mass of polypropylene.

.2 Physical properties:

.1 Thickness: to CAN/CGSB-148.1, No.3, minimum 2.5 mm.

.2 Tensile strength and elongation (in any principal direction): to CAN/CGSB-148-1 No.7.3.

.1 Tensile strength: minimum 1 000 N, wet condition.

.2 Elongation at break: 70-110 %

.3 Bursting strength: to CAN/CGSB-148.1, No.6.1 minimum 2 600 kPa, wet condition.

.3 Hydraulic properties:

.1 Filtration opening size (FOS): to CAN/CGSB-148.1 No.10, 55 to 105 micrometers.

.4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m^2.

.5 Factory seams: sewn in accordance with manufacturer's recommendations.

.6 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.

Part 3 Execution

3.1 INSTALLATION

.1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position.

.2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Overlap each successive strip of geotextile 600 mm over previously laid strip above water level and 1 000 below water level.

.5 Pin successive strips of geotextile with securing pins.

.6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.7 After installation, cover with overlying layer within 24 hours of placement.

.8 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

.9 Place and compact soil layers in accordance with Section 31 23 10 – Excavating, Trenching and Backfilling.

3.2 CLEANING

.1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.3 PROTECTION

.1 Vehicular traffic not permitted directly on geotextile.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 – Submittals procedures

.2 Section 01 61 00 – Common Product Requirements

.3 Section 05 50 00 – Metal fabrications

.4 Section 06 05 73 – Wood treatment

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

- .1 CSA-G40.20/G40.21, Exigences générales relatives à l'acier de construction laminé ou soudé/Aciers de construction.
- .2 CAN/CSA O80, Préservation du bois.
- .3 CSA W47.1, Certification des compagnies de soudage par fusion des structures en acier.
- .4 CSA W48, Métaux d'apport et matériaux associés pour le soudage à l'arc.
- .5 CSA W59, Construction soudée en acier (soudage à l'arc).

1.3 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Provide shop drawings or data sheets of floating dock components:

- .1 Bolt products
- .2 Steel components
- .3 Treated wood
- .4 Buoyancy billets

.3 Sustainable Design Submittals:

- .1 Wood Certification: submit supplier's Chain-of-Custody Certificate number for FSC certified wood.

1.4 SHOP DRAWINGS

.1 Submit shop drawings including fabrication and erection documents and materials list in accordance with Section 01 33 00 - Submittal Procedures.

.2 Erection drawings: indicate details and information necessary for assembly and erection purposes including:

- .1 Description of methods.
- .2 Sequence of erection.
- .3 Type of equipment used in erection.

1.5 CONTROLE DE LA QUALITE

.1 Enlever les éléments défectueux ou jugés non conformes aux documents contractuels et rejetés par le représentant ministériel, soit parce qu'ils n'ont pas été exécutés selon les règles de l'art, soit parce qu'ils ont été réalisés avec des matériaux ou des produits défectueux, et ce, même s'ils ont déjà été intégrés à l'ouvrage. Remplacer ou refaire les éléments en question selon les exigences des documents contractuels.

1.6 TRANSPORTING, STORING AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 – Basic Product Requirements.

.2 Handle steel pieces so as to avoid permanent deformations.

.3 Handle with care steel pieces that have received a special coating.

.2 Storage and Protection:

.1 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

Part 2 Products

2.1 MATERIALS

.1 Steel:

.1 All steel parts must be galvanized in compliance with standards ASTM A123/123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Production.

.1 Galvanize the various parts in accordance with the following rates:

.1 Bolts and nuts: 460 g/m2;

.2 Section, plates and rods: 705 g/m2

.2 All mechanical bolts, lag screw, nails shall be galvanized, medium grade steel in accordance with ASTM A-307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

.3 Machine bolts, lag bolts and drift spikes will have forged heads.

.4 Lag-screw to be threaded

.5 The lag bolt holes must conform to the following:

.1 The pilot hole for the bolt shank must be the same diameter as the bolt shank and the same height as the bolt shank length without the thread.

.2 The diameter of the pilot hole for the threaded portion must be 60 to 75 percent of the diameter of the bolt shank for the length equal to the threaded portion of the bolt.

.3 The threaded portion of the screw must be inserted into the pilot hole by turning the screw with a wrench and not by using a hammer.

.4 Soap or any other lubricant that is not petroleum based may be used on the screw or in the pilot hole in order to facilitate insertion and prevent damage to the screw.

.2 Wood:

.1 FSC certified.

.2 The spruce, jack pine and eastern hemlock will meet the requirements of the latest standard grading rules of the ¨Eastern Spruce Grading Committee¨ approved and published by the Canadian Lumbermen's Association, the Quebec Lumber Manufacturers Association and the ¨Maritime Lumber Bureau,¨ with the exception of the balsam fir which will not be accepted although it is mentioned in rule No. 1.

.3 All wood varieties will be in compliance with the requirements of the NLGA (National Lumber Grades Association) entitled ¨Standard Grading Rules for Canadian Lumber.¨

.4 Wood grade to be No1 or Standard in compliance with the requirements of the NLGA (National Lumber Grades Association)

.5 All wood used in the construction of the embankment will be treated with pressurized ACC in accordance with CAN/CSA-O80-M, except for ballast floor. Retention to be 24 kg/m^3 as required for marine application in accordance with requirements.

.6 The wood will be double end trimmed at a right angle before treatment following standard NLGA 748-B.

.7 All material treated under pressure requiring cutting, in order to be adjusted, will be coated, while dry, with three (3) layers of preservative as is required in standard CAN/CSA-080-M. All holes in timber pieces will be treated in this fashion.

.3 Buoyancy billets

.1 Buoyancy billets to be of extruded polystyrene foam or high density expanded polystyrene (20 psi minimum compressive applied load) and with a buoyancy of 312 kg/buoyancy billet.

2.2 FABRICATION

.1 Where possible, works to be adjusted and built in shop, and delivered ready to fix.

Part 3 Execution

3.1 FLOATING DOCKS CONSTRUCTION

.1 Build floating docks made of treated wood to required dimensions and in accordance with drawings.

.2 All wood pieces will be of one length.

.3 Notches, holes and chamfers to be treated using an equivalent preservative product prior to wood pieces installation.

.4 To prevent damage, protect buoyancy billets during construction and handling.

.5 Floating docks will not be deposited directly on the ground. They will have to be supported by wood pieces and to be levelled.

.6 Erect Work accurately, level, plumb straight, line up and adjusted with precision, joints and crossing well fixed.

.7 Where possible, works to be adjusted and built in shop, and delivered ready to fix.

3.2 FIELD QUALITY CONTROL

.1 Site Tests/Inspections:

.1 Provide Departmental Representative with minimum of 10 days notice of date of beginning Work on pontoons and provide access to Work for inspection.

.2 Pontoons constructed in whole or in part without inspection will not be accepted.

.3 Final inspection of pontoon will be made in place.

3.3 CLEANING

.1 Proceed in accordance with Section 01 74 11 – Cleaning.

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

END OF SECTION