

Part 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 35 29.06 Health and Safety Requirements
- .3 Section 01 52 00 Construction Facilities
- .4 Section 01 56 00 Temporary Barriers and Enclosures

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises general construction of:
 - .1 Supply and Installation of silt curtains and/or silt booms prior to demolition/excavation as per section 01 35 44 - Environmental Protection Procedures for Marine Work.
 - .2 Demolition, removal and disposal of existing middle wharf and components.
 - .3 Construction of new middle timber crib wharf and components.
 - .4 Class "A" Dredging of harbour basin(with varying thin layers of Class "B").
 - .5 Supply and installation of shoreline protection.
 - .6 Supply and installation of new electrical service and components:
 - .1 Provide all labour and materials and everything that is required for a complete electrical installation, all in accordance with but not necessarily restricted to the specifications and the accompanying drawings.
 - .2 The work is to include but not necessarily be limited to:
 - .1 The removal of existing electrical equipment as indicated on electrical drawing E1. Disconnection from NSPI incoming service shall be done by NSPI.
 - .2 Supply and installation of direct buried conduits and feeders from NSPI supplied service pole to main service backboard as indicated on drawing E2.
 - .3 The supply, installation and wiring of new distribution equipment including: main service entrance backboard with enclosed circuit breaker, meter base (meter by NSPI), distribution panel, junction boxes and lighting controls.
 - .4 Power shrouds (x5): Power shrouds shall be galvanized steel. Electrical contractor to supply and install conduits, feeders and electrical devices as indicated on the electrical drawings.

- .5 Supply and install 5 new treated timber poles with new LED luminaires and all associated wiring/cabling as indicated on the electrical drawings.
- .6 Construction of electrical concrete encased duct banks as indicated on the electrical drawings.
- .7 Supply and install protective bollards at power shrouds, poles on wharf and main service backboard.
- .8 Extension of 3-phase overhead service from existing transformer bank to new service pole. All installations and connections for this to be done by NSPI
- .7 The Contractor is responsible for the delineation of the construction zone from the rest of the facility.
- .8 All work to be carried out in accordance with applicable federal, provincial regulations for those agencies having jurisdiction for the work.

1.3 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit project construction progress schedule in accordance with Section 01 32 16.19 Construction Progress Schedule - Bar (Gantt) Chart
- .3 Sustainable Design Submittals:
 - .1 Construction Waste Management:
 - .1 Submit project waste management plan, waste reduction work plan highlighting recycling and salvage requirements.
 - .2 Submit calculations on end-of-project recycling rates, salvage rates and landfill rates demonstrating 50% of construction wastes recycled or salvaged.
- .4 Submit site-specific and Work Plan, Health and Safety planning in accordance with Section 01 35 29.06

1.4 SITE CONDITIONS

- .1 The Contractor will be responsible to visit the site and review existing site conditions.
- .2 All parties tendering should visit the site of the work prior to submission of tenders and make themselves thoroughly acquainted with site conditions, conditions of existing objects to be removed, tides, degree of exposure and all information necessary for the proper carrying out of the work covered by the drawings and this Specification. Submission of Tender will be deemed that Contractor is conversant with site conditions.

- .3 Before submitting a bid, it is recommended that bidders visit the site to review and verify the form, nature and extent of the work, materials needed, the means of access and the temporary facilities required to perform the Work.
- .4 Contractors, bidders or those they invite to site are to review specification Section 01 35 29.06 – Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.
- .5 Details of the existing structure are for the Contractor to determine in considering use with over-weight and non-conforming vehicles in carrying out work on this project and in the demolition of the structure.
- .6 Any information pertaining to soils and all boreholes logs are furnished by the Departmental Representative as a matter of general information only and borehole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.

1.5 INTERPRETATION OF DOCUMENTS

- .1 Supplementary to the Order of Precedence article of the General Conditions of the Contract, the Division 01 Sections take precedence over the technical specification sections in other Divisions of the Specifications Manual.

1.6 TERM ENGINEER

- .1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative as defined in the General Conditions of the Contract.

1.7 WORK SEQUENCE

- .1 Construct Work in stages to accommodate Owner's continued use of premises during construction.
- .2 Co-ordinate Progress Schedule with Owner Occupancy of the SCH facility during construction.
- .3 Contractor shall avoid disruption to user activities and permit unrestricted user access to the harbour facilities during fishing season from last Tuesday in November, 2022 to May 31st, 2023.
- .4 Protect workers and public safety.

1.8 SITE SURVEY AND SETTING OUT WORK

- .1 Topographic survey used in the preparation of these Contract Documents was provided by PSPC.

- .2 A georeferenced CAD file of the site will be provided to the Contractor for use in layout. It is the Contractor's responsibility to verify the accuracy of this information. This includes doing all detail surveys necessary for the work, including locating and maintaining working points, and establishing lines and elevations. Perform all layout work, and carefully preserve benchmarks, reference points and stakes.
- .3 Contractor to carry out all layout. Provide such masts, scaffolds, batter boards, lines, straight edges, templates and other devices as may be necessary to facilitate layout, construction and inspection of the work. Whenever necessary, suspend work for such reasonable time as may be necessary to permit the Departmental Representative to check or inspect any portion of the Work. The Contractor will not be allowed any extra compensation or time for completion because of this suspension of work. All such equipment to be removed at the completion of the work.
- .4 The Contractor shall assume full responsibility for and execute complete layout of work locations, lines and elevations indicated.
- .5 The Contractor shall supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.
- .6 The Contractor shall provide coordinates, elevations and dimensions in the field, as required by the Departmental Representative.
- .7 All surveys will be performed to Canadian Hydrographic Service Standards. Surveys completed with machine mounted equipment will not be considered for payment purposes.

1.9 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of worksite until Substantial Performance.
- .2 Limit use of premises for Work, and for access to allow:
 - .1 Owner occupancy.
 - .2 Partial owner occupancy.
 - .3 Work by other contractors.
 - .4 Public usage.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Do not unreasonably encumber site with materials or equipment.
- .5 Move stored products or equipment which interfere with operations of Departmental Representative or other Contractors.
- .6 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

- .7 Refer to Section 01 52 00 - Construction Facilities and Section 01 56 00 - Temporary Barriers and Enclosures, for temporary facilities, access roads and parking areas, traffic regulations, and utilities.
- .8 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .9 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .10 Ensure that operations conditions of exiting work at completion are still the same, equal to or better than that which existed before new work started.
- .11 Contractor shall avoid disruption to user activities and permit unrestricted user access to the harbour facilities during fishing season from last Tuesday in November, 2022 to May 31st, 2023.

1.10 WORK SCHEDULE

- .1 Provide to the Departmental Representative in writing and within 10 working days after Contract award, a detailed construction schedule. The schedule shall show proposed work to be undertaken and anticipated completion dates for each category of work in the Unit Price Table and Lump Sum items.
- .2 After receiving the Contractor's plan and prior to start of construction, a meeting involving Contractor and Departmental Representative will be held at a place and time to be determined by the Departmental Representative.
- .3 Interim reviews of work progress based on work schedule will be conducted as decided by Departmental Representative and schedule updated by Contractor in conjunction with and to approval of Departmental Representative.
- .4 No work will begin until the pre-construction meeting is held.
- .5 Following the pre-construction meeting and approval of the required pre-construction submittals, the work will be so scheduled to meet the time restraints and have the project completed on time.

1.11 PARTIAL OWNER OCCUPANCY

- .1 Schedule and substantially complete designated portions of Work for Owner's occupancy prior to Substantial Performance of entire Work.
- .2 Designated areas for Owner's occupancy are as follows:
 - .1 Marginal wharf, service area, between Wharves 404 and 401;
 - .2 Trout point road;
 - .3 All structures/sheds surrounding the worksite;
 - .4 Full access to wharf 401, 403;

- .5 All areas not within the SCH property limits.
- .3 Owner will occupy designated areas for purpose of storage of furnishings and equipment required to carry out commercial fishing operations.
- .4 Execute Certificate of Substantial Performance for each designated portion of Work prior to Owner occupancy. Contractor shall allow:
 - .1 Access for Owner personnel.
 - .2 Use of parking facilities.
 - .3 Operation electrical systems.
- .5 On occupancy, Owner will provide for occupied areas:
 - .1 Operation of electrical systems.
 - .2 Maintenance.
 - .3 Security.

1.12 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING

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

1.13 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, give Departmental Representative 48 hours' notice for necessary interruption of electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and 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 for approval by Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services when directed by Departmental Representative to maintain critical tenant services.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

- .8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .10 Record locations of maintained, re-routed and abandoned service lines.
- .11 Construct barriers, as required, in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.14 DOCUMENTS REQUIRED

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

1.15 PROTECTION

- .1 Store all materials and equipment to be incorporated into work to prevent damage by any means.
- .2 Repair and replace all materials or equipment damaged in transit or storage to the satisfaction of the Departmental Representative and at no cost to Crown.
- .3 Contractor will take adequate precautions to protect existing structures and roadway when operating tracked equipment. Contractor shall also take care as to not detrimentally surcharge new and existing structure during activities such as, but not limited to dredging, heavy lifts, and existing structure demolition.
- .4 Exercise care so as not to obstruct or damage public or private property in the area.
- .5 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

1.16 PERMITS AUTHORITIES

- .1 The Contractor shall obtain, and pay for, permits from authorities as required for all operations and construction. They shall also comply with all pertinent regulations of all authorities having jurisdiction over the work. The Contractor shall provide copies of all permits to the Departmental Representative prior to starting the work. The Contractor shall be responsible for obtaining all applicable permits, inspections and approvals required and shall pay all changes in connection therewith.

1.17 RELICS AND ANTIQUITIES

- .1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.
- .2 Give immediate notice to Departmental Representative and await written instructions before proceeding with work in this area.
- .3 Relics, antiquities and items of historical or scientific interest remain her Majesty's property.

1.18 MAINTENANCE TO SHIPPING

- .1 Liaise with the local and federal port officials to coordinate activities such that any interference is minimized. Ensure Navigational warning is reported prior to commencement of work.

1.19 EQUIPMENT RENTAL RATES

- .1 Upon written request, the Contractor will supply the Departmental Representative with a list of the rental equipment to be used on work beyond the scope of bid items. Equipment rental rates will be in accordance with current rates published by the Nova Scotia Department of Transportation and Infrastructure Renewal.

1.20 DATUM

- .1 The datum referred to in this Specification is Chart Datum. Chart Datum is, by International Agreement a plane below which the tide will seldom fall. The Canadian Hydrographic Service has adopted the plane of the lowest normal tide (L.N.T.) as Chart Datum. As the rise, fall, and range of tides varies daily, the Canadian Tide and Current Tables, as issued by the Canadian Hydrographic Service, should be consulted for tidal predictions and other tidal information relating to the work.

1.21 TEMPORARY NAVIGATIONAL BUOYS

- .1 The Contractor is to maintain temporary buoys to mark the position of the outer end of the structure as construction proceeds. All

buoys are to meet the requirements of Canadian Coast Guard Standard TP968 and be equipped with radar reflectors.

[CanadianAidsNavigationSystem2011-eng.pdf \(ccg-gcc.gc.ca\)](#)

- .2 The Contractor shall coordinate the buoy installation with the local harbour authority.
- .3 The Contractor is responsible for all costs associated with the supply, installation and removal of all temporary navigational buoys.

2 PRODUCTS

2.1 NOT USED

- .1 NOT USED.

3 EXECUTION

3.1 NOT USED

- .1 NOT USED.

END OF SECTION

1.1 SUBMITTALS

- .1 Upon acceptance of bid and prior to commencement of work, submit to Departmental Representative the following work management documents:
 - .1 Work Schedule as specified herein.
 - .2 Shop Drawing Submittal Schedule specified in section 01 33 00.
 - .3 Health and Safety Plan specified in section 01 35 29.06.
 - .4 Environmental Plan specified in section 01 35 44.
 - .5 Waste Management Plan specified in section 01 74 21.

1.2 WORK SCHEDULE

- .1 Upon acceptance of bid submit:
 - .1 Detailed work schedule within 21 calendar days of contract award.
- .2 Schedule to indicate all calendar dates from commencement to completion of all work within the time stated in the accepted bid.
- .3 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.
- .4 Detailed work schedule content to include as a minimum the following:
 - .1 Bar (GANTT) Charts, indicating all work activities, tasks and other project elements, their anticipated durations, planned dates for achieving key activities and major project milestones supported with;
 - .2 Written narrative on key elements of work illustrated in bar chart, providing sufficient details to demonstrate a reasonable implementation plan for completion of project within designated time.
 - .3 Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.
- .5 Work schedule must take into consideration and reflect the work phasing, required sequence of work, special conditions and operational restrictions as specified below and indicated on drawings.
- .6 Schedule work in cooperation with the Departmental Representative. Incorporate within Detailed Work Schedule.
- .7 Completed schedule shall be approved by Departmental Representative. When approved, take necessary measures to complete

work within scheduled time. Do not change schedule without Departmental Representative's approval.

- .8 Ensure that all subtrades and subcontractors are made aware of the work restraints and operational restrictions specified.
- .9 Schedule Updates:
 - .1 Submit on a monthly basis or when requested by Departmental Representative.
 - .2 Provide information and pertinent details explaining reasons for necessary changes to implementation plan.
 - .3 Identify problem areas, anticipated delays, impact on schedule and proposed corrective measures to be taken.
- .10 Departmental Representative will make interim reviews and evaluate progress of work based on approved schedule. Frequency of such reviews will be as decided by Departmental Representative. Address and take corrective measures on items identified by reviews and as directed by Departmental Representative. Update schedule accordingly.
- .11 In every instance, change or deviation from the Work Schedule, no matter how minimal the risk or impact on safety or inconvenience to tenant or public might appear, will be subject to prior review and approval by the Departmental Representative.

1.3 PROJECT PHASING

- .1 Unless indicated or approved otherwise, complete all work of a particular phase prior to commencement of another phase. Obtain Departmental Representative's permission prior to moving between phases.

1.4 OPERATIONAL RESTRICTIONS

- .1 Contractor to meet with the Departmental Representative on a weekly basis to identify intended work areas, activities and scheduling for the coming week.
- .2 Safety Signage:
 - .1 Provide onsite, and erect as required during progress of work, proper bilingual signage, mounted on self-supporting stands, warning the public and building occupants of construction activities in progress and alerting need to exercise caution in proceeding through disturbed areas of the facility, and directing building occupants through any detours which may be required.
 - .2 Signage to be professionally printed and mounted on wooden backing, coloured and to express messages as directed by the Departmental Representative.
 - .3 Generally maximum size of sign should be in the order of 1.0 square meters. Number of signs required will be dependent on

- number of areas in facility under renovation at any one time.
- .4 Include costs for the supply and installation of these signs in the bid amount.

1.5 PROJECT MEETINGS

- .1 Schedule and administer project meetings, held on a minimum bi-weekly basis, for entire duration of work and more often when directed by Departmental Representative as deemed necessary due to progress of work or particular situation.
- .2 Prepare agenda for meetings.
- .3 Notify participants in writing 4 days in advance of meeting date.
 - .1 Ensure attendance of all subcontractors.
 - .2 Departmental Representative will provide list of other attendees to be notified.
- .4 Hold meetings at project site or where approved by Departmental Representative.
- .5 Preside at meetings and record minutes.
 - .1 Indicate significant proceedings and decisions. Identify action items by parties.
 - .2 Distribute to participants by mail or by facsimile within 3 calendar days after each meeting.
 - .3 Make revisions as directed by Departmental Representative.
 - .4 Departmental Representative will advise whether submission of minutes by Email is acceptable. Decision will be based on compatibility of software among participants.

1.6 WORK COORDINATION

- .1 General Contractor is responsible for coordinating the work of the various trades and predetermining where the work of such trades interfaces with each other.
 - .1 Designate one person from own employ having overall responsibility to review contract documents and shop drawings, plan and manage such coordination.
- .2 General Contractor shall convene meetings between trades whose work interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required.
 - .1 Provide each trade with the plans and specs of the interfacing trade, as required, to assist them in planning and carrying out their respective work.
 - .2 Develop coordination drawings when deemed required illustrating potential interference between work of various trades and distribute to all affected parties including structural trade.
 - .3 Submission of shop drawings and ordering of prefabricated equipment or prebuilt components shall only occur once

coordination meeting for such items has taken place between trades and all conditions affecting the work of the interfacing trades has been made known and accounted for.

- .4 Work Cooperation:
 - .1 Ensure cooperation between trades in order to facilitate the general progress of the work and avoid situations of spatial interference.
 - .2 Ensure that each trade provides all other trades reasonable opportunity for the completion of the work and in such a way as to prevent unnecessary delays, cutting, patching and the need to remove and replace completed work.
- .5 No extra costs to the Contract will be considered by the Departmental Representative as a result of Contractor's failure to effectively coordinate all portions of the Work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor to be resolved at own cost.

1.7 OTHER CONTRACTS

- .1 NOT USED

END OF SECTION

1 GENERAL

1.1 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Prior to use, have weigh scales certified as meeting requirements of Statutes of Canada, Chapter 36, Weights and Measures Act, 1971 and subsequent amendments. Display certificate in a prominent position. No payment will be made for materials weighed on non-certified scales.

1.2 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Supply, installation, inspection, certification, maintenance and removal of scales to be considered incidental to the work [unless noted otherwise]

1.3 EQUIPMENT

- .1 Weigh Scales: of sufficient capacity to weigh loaded vehicles in a single operation.
- .2 Scale House:
 - .1 To enclose mass indicator and in which *Departmental Representative's* representative can perform work and maintain records.
 - .2 To be weatherproof and have minimum 750 lx of illumination, one sliding window facing scale platform, one other window for cross ventilation, shelf desk at least 0.6 x 1.8 m, and heat to maintain inside temperature at 20°C. Entrance door not to face onto scale platform.
 - .3 Provide sufficient number of approved weigh tickets, in triplicate, with consecutive serial numbers.

1.4 INSTALLATION

- .1 Provide, install and maintain scales and scale house convenient to project site at location approved by *Departmental Representative*. Ramps to be level for one truck length each side of scale.
- .2 Remove ramps, scales and scale house when no longer required.

1.5 OPERATION

- .1 *Departmental Representative's* representative at scales will weigh materials.

1.6 MAINTENANCE

- .1 Maintain scale platform and scale mechanism clean and free from gravel, asphalt, snow, ice, and debris.

- .2 Maintain approach ramps in good condition free from sags and ruts.
- .3 Have scales retested and recertified if requested by Departmental Representative.

END OF SECTION

1 GENERAL

1.1 PAYMENT PROCEDURES

- .1 This section covers the measurement of Work done for payment purposes.
- .2 The estimated quantities shown in the Unit Price Table are provided for the purposes of comparing proposals, and are not guaranteed to be final, accurate, or complete. Payment to the Contractor will be based on actual quantities of work completed in accordance with the drawings and specifications.
- .3 There shall be no measurement or payment for Work carried out beyond the limits defined on the Drawings.
- .4 The total of all Unit Prices and Lump Sum payments shall constitute full compensation for the entire Work of the Contract, as shown, specified, and intended.
- .5 The Contractor will only be entitled to payment when prior written authorization has been received from the Departmental Representative for utilization and then only to the extent of the work authorized by the Departmental Representative.
- .6 The unit and lump sum prices for all items in the Unit Price Table and Lump Sum Table shall represent the full compensation for the work of the item and shall include the cost of furnishing all materials, labour, tools, and equipment necessary to complete the work in accordance with the Contract, the Drawings and Specifications, and shall cover all costs of surety. Each item shall include all necessary supervision, plant and services, and all operations and allowances customary and necessary to complete each item and the Contract as a whole, notwithstanding the fact that not every such necessary operation is mentioned or included specifically for measurement.
- .7 Unless specified otherwise, all materials necessary to complete the items listed in the Unit Price Table, Lump Sum Table and the finished Work shall be new materials supplied by the Contractor and the cost of such material is to be included in the Contractor's prices.
- .8 All measurements for progress payment purposes shall be taken jointly by the Contractor and the Departmental Representative.
- .9 Items which are measured by the meter shall be measured along centerline of installation unless otherwise indicated.

- .10 In computing volumes of excavation, average end area method will be used unless otherwise directed by Departmental Representative.
- .11 Materials which are specified for measurement by mass shall be weighed on scales approved by Departmental Representative refer to Section 01 15 50 - Weigh Scales. Units used to haul material being paid for by mass shall bear legible identification numbers plainly visible to scale person as it approaches and leaves scale-house.
- .12 Overhaul will not be paid on this Contract.

1.2 MEASUREMENT FOR PAYMENT

- .1 LUMP SUM ITEMS: The following items are to be measured separately for costing purposes, then combined and submitted as one item under Lump Sum items in the bid form:
 - .1 Departmental Representative's Site Office
 - .1 All work associated with the supply, maintenance, and removal from site of the Departmental Representative's site office per Section 01 52 00 of the Specification will constitute a lump sum for measurement purposes.
 - .2 Weigh Scales (if required):
 - .1 Supply, installation, maintenance, and removal of weigh scales will be measured for payment by the lump sum.
 - .3 Mobilization/Demobilization:
 - .1 All work associated with the mobilization and demobilization of all equipment required to perform and complete the work as outlined in the Contract Drawings, shall be measured for payment by lump sum. Fifty percent (50%) of the allocation for mobilization and demobilization will be paid upon commencing the project and the remainder upon completing the project.
 - .4 Environment Controls:
 - .1 All environment controls required to complete the work shall be measured for payment by lump sum.
 - .5 Electrical Work:
 - .1 All electrical work as outlined by the plans and specifications will be measured for payment by lump

sum.

.6 Sitework, Demolition and Removals:

.1 All sitework, demolition, and removals required to complete the work will be measured for payment by the lump sum. Any additional demolition and removals essential to completion of the work will be considered incidental to this item. This item is to include all removals required to construct the new timber cribwork wharf and Rubblemound shore protection. This includes salvage of blasted rock, sorted and suitable for reuse, or if deemed unsuitable, it includes the supply and installation of imported material that meets the project specifications. This includes, but it not limited to, the following:

.1 Crushed Rock Mattress

.1 Supply and installation of Crushed Rock Mattress will be measured for payment by the Lump Sum for material placed to the elevations and grades as shown on the drawings. Mattress will include all material placed below the bottom bearing surface of a crib and consider the horizontal benches and side-slopes shown on the drawings.

.2 Rip Rap Scour Protection (100-200kg):

.1 Supply and installation of rip rap scour protection will be measured for payment by the lump sum.

.3 Corestone (Rock Fill):

.1 Supply and installation of Rock Fill will be measured for payment by the lump sum of material placed to the elevations and grades as shown on the drawings.

.4 Filterstone (100-200kg):

.1 Supply and installation of Filterstone will be measured for payment by the lump sum of material placed to the elevations and grades as shown on the drawings.

.5 Armourstone (1-2 Tonne):

.1 Supply and installation of Armourstone will be measured for payment by the lump sum of material placed to the elevations

and grades as shown on the drawings.

- .7 Miscellaneous Site Regrading:
 - .1 Miscellaneous site regrading will be measured for payment by the lump sum.
- .8 Filter Fabric:
 - .1 Supply and installation of filter fabric will be measured for payment by the lump sum. No allowance will be made for variations, i.e. slopes, bundling of material, etc.
- .2 UNIT PRICE ITEMS: The following items outline the unit of measurement for unit price items as indicated in the tender documents:

DIVISION 3

- .1 Reinforced Concrete Deck:
 - .1 Reinforced Concrete Deck, inclusive of guard and haunches, will be measured for payment by the square metre calculated from neat plan view dimensions. Concrete placed beyond dimensions indicated will not be measured. All associated joint fillers, reinforcing, formwork, anchors, inserts, drains, control joints, construction joints, edge angles and all other supplementary materials are considered incidental to the work.
- .2 Reinforced Concrete Retaining Wall:
 - .1 The reinforced concrete retaining wall at the wharf approach will be measured for payment by the cubic metre calculated from neat drawing dimensions. Concrete placed beyond dimensions indicated will not be measured. All associated joint fillers, reinforcing, formwork, anchors, inserts, and all other supplementary materials are considered incidental to the work. Clear stone base course is considered incidental to this item.
- .3 Timber Cribwork:
 - .1 Timber cribwork including rock ballast, base gravel for concrete slab, and fenders will be measured for payment by the cubic metre. Cubic measure of cribwork will be determined by product of following dimensions measured in place:
 - .1 Height: average of dimensions taken from the bottom of the bottom most timber to the top of crib elevation shown on drawings.
 - .2 Width: as shown on plans between outside faces of exterior longitudinal timbers.
 - .3 Length: as shown on plans between outside faces

of end crossties.

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- .4 Granular Base:
 - .1 Supply and installation of Granular Base (Type 1), including compaction, will be measured for payment by the tonne.
- .5 Granular Sub-Base:
 - .1 Supply and installation of Granular Sub-base (Type 2), including compaction, will be measured for payment by the tonne.

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- .6 Dredging:
 - .1 Dredging will be measured for payment by the cubic metre place measurement (CMPM) of material removed off site. This unit price will include the provision of a boat, motor and survey equipment as specified. The unit price will also include the cost of any Environmental requirements for the disposal of dredge spoils at an approved dump site on land, and the supply, installation and removal of access roads. Dredge materials will predominately be Class "A" material with varying thin layers of Class "B" material.
- .7 Mooring Cleats:
 - .1 Supply and installation of mooring cleats will be measured for payment per each. Anchor bolts, hardware and surface preparation are considered incidental to the work.
- .8 Ladders:
 - .1 Supply and installation of treated timber ladders including holdfasts and extensions will be measured for payment per each. Bolts and hardware will not be measured but considered incidental to the work.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart.
- .2 Section 01 33 00 - Submittal Procedures
- .3 Section 01 52 00 - Construction Facilities
- .4 Section 01 56 00 - Temporary Barriers and Enclosures
- .5 Section 01 78 00 - Closeout Submittals

1.2 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative.
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance Departmental Representative.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties

concerned minimum 5 days before meeting.

- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.19 - Construction Progress Schedule - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings and samples Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures .
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .7 Owner provided products.
 - .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
 - .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
 - .11 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .12 Appointment of inspection and testing agencies or firms.
 - .13 Insurances, transcript of policies.

1.4 PROGRESS MEETINGS

- .1 During course of Work and prior to project completion, schedule progress meetings monthly.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Notify parties minimum 5 days prior to meetings.
- .4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 5 days after meeting.
- .5 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.

- .9 Review submittal schedules: expedite as required.
- .10 Maintenance of quality standards.
- .11 Review proposed changes for affect on construction schedule and on completion date.
- .12 Other business.

2 PRODUCTS

2.01 NOT USED

- .1 NOT USED.

3 EXECUTION

3.01 NOT USED

- .1 NOT USED.

END OF SECTION

1 GENERAL

1.1 RELATED SECTIONS

- .1 Section - 01 45 00 Quality Control
- .2 Section - 01 78 00 Closeout Submittals

1.2 SUBMITTAL GENERAL REQUIREMENTS

- .1 Submit to Departmental Representative for review requested submittals specified in various sections of the specifications including shop drawings, samples, permits, compliance certificates, test reports, work management plans and other data required as part of the work.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work until relevant submissions have been reviewed.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission. Ensure that necessary requirements have been determined and verified and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
 - .1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.
- .7 Verify field measurements and affected adjacent Work are coordinated.
- .8 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .9 Contractor's responsibility for errors, omissions or deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .10 Submittal format:
 - .1 Submit paper originals, or alternatively clear and fully

legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.

- .2 Submit in electronic format as pdf files.
- .11 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, identify in writing of any revisions other than those requested.
- .12 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means fabrication drawings, erection drawings, diagrams, illustrations, schedules, performance charts, technical product data, brochures, specifications, test reports installation instructions and other data which are to be provided by Contractor to illustrate compliance with specified materials and details of a portion of work.
- .2 Shop Drawings Format:
 - .1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.
 - .2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.
 - .3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.
- .3 Shop Drawings Content:
 - .1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.
 - .2 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.
 - .3 Delete information not applicable to project on all submittals.

- .4 Equipment installation/start-up data: include manufacturer's recommended installation instructions, pre-start and start-up checklists for those pieces of equipment and systems designated to be commissioned as specified in section 01 45 00 - Quality Control.
- .4 Allow 14 calendar days for Departmental Representative's review of each submission.
- .5 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Amount. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.
- .6 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.
- .7 Be advised that costs and expenses incurred by Departmental Representative to conduct more than one review of incorrectly prepared shop drawing submittal for a particular material, equipment or component of work may be assessed against the Contractor in the form of a financial holdback to the Contract.
- .8 Accompany each submissions with transmittal letter, in duplicate, containing:
 - .1 Date.
 - .2 Project title and project number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .9 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and project 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 Cross references to particular details of contract drawings and specifications section number for which shop drawing submission addresses.
 - .6 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.
- .10 After Departmental Representative's review, distribute copies.
- .11 The review of shop drawings by the Departmental Representative or by an authorized Consultant or designate is for sole purpose of ascertaining conformance with general concept. This review shall not mean that Canada approves the detail design inherent in the 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 the 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 as specified in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples to Departmental Representative's office or to other address as directed. Do not drop off samples at construction site except for pre-approved circumstances previously approved by Departmental Representative.
- .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 Amount. If adjustments will result in a cost increase to the Contract notify Departmental Representative in writing 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.

END OF SECTION

1 GENERAL

1.1 SECTION INCLUDES

- .1 Fire Safety Requirements.
- .2 Hot Work Permit.
- .3 Existing Fire Protection and Alarm Systems.

1.2 RELATED SECTIONS

- .1 Section 01 35 29 Health and Safety Requirements.
- .2 Section 01 35 25 Special Procedures on Lockout Requirements.

1.3 REFERENCES

- .1 National Fire Code 2015
- .2 National Building Code 2015
- .3 CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes."
- .4 Applicable OHS legislation

1.4 DEFINITIONS

- .1 Hot Work - applies to hot works involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes.

1.5 SUBMITTALS

- .1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days of acceptance of bid.
- .2 Submit in accordance with Section 01 33 00.

1.6 FIRE SAFETY REQUIREMENTS

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code 2015.
 - .2 National Building Code 2015.
 - .3 Provincial OHS Acts and Regulations.
 - .4 CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied

Processes."

- .2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK AUTHORIZATION

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot Work on site.
- .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
- .3 Upon review and confirmation that effective fire safety measures will be implemented and followed during performance of hot work, Departmental Representative will give authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Subdivide the work into pre-determined, individual activities, each activity requiring a separately written authorization to proceed.
- .4 Requirement for individual authorization will be based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
- .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.
- .6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Departmental Representative. When directed, perform Hot Work only during non-operative hours of the Facility. Follow Departmental Representative's directives in this regard.
- .7 Hot works shall be performed only by personnel trained in the safe use of equipment in conformance with this Section

1.8 HOT WORK PERMIT

- .1 Maintenance:

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- .1 Hot work equipment shall be maintained in good operating condition.
- .2 Inspection:
 - .1 Hot work equipment shall be examined for leakage or defects prior to each use.
 - .2 Leaks or defects found in hot work equipment shall be repaired prior to use.
- .3 Equipment Not in Use:
 - .1 All valves shall be closed and gas lines bled when Class 2 gas hot work equipment is not in use.
 - .2 electric hot work equipment shall be de-energized when not in use.
- .4 Compressed Gas Equipment
 - .1 The design and installation of oxygen-fuel gas equipment shall conform to NFPA 51, "Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes."
 - .2 Unalloyed copper piping shall not be used for acetylene gas.
 - .3 Oil or grease shall not be used with equipment for oxygen.
 - .4 Cylinders of Class 2 gases shall conform to Part 3.

1.9 PREVENTION OF FIRES

- .1 Location of Operations
 - .1 Except as provided in Sentence (2), hot work shall be carried out in an area free of combustible and flammable contents, with walls, ceilings and floors of noncombustible construction or lined with noncombustible materials.
 - .2 When it is not practicable to undertake hot work in an area described in Sentence (1),
 - .1 Combustible and flammable materials within a 15 m distance from the hot work shall be protected against ignition in conformance with Article 4 below
 - .2 A fire watch shall be provided during the hot work and for a period of not less than 60 min after its completion.
 - .3 A final inspection of the hot work area shall be conducted 4 h after completion of work.
 - .3 When there is a possibility of sparks leaking onto combustible materials in areas adjacent to the area where hot work is carried out,
 - .1 Openings in walls, floors or ceilings shall be covered or closed to prevent the passage of sparks to such adjacent areas, or
 - .2 Sentence (2) shall apply to such adjacent areas.
 - .4 Protection of Combustible and Flammable Materials
 - .1 Any combustible and flammable material, dust or residue shall be:

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- .1 removed from the area where hot work is carried out, or
 - .2 protected against ignition by the use of noncombustible materials.
- .2 Combustible materials or *building* surfaces that cannot be removed or protected against ignition as required in Sentence (1) shall be thoroughly wetted where hot work is carried out. Any process or activity that produces flammable gases or vapours, *combustible dusts* or *combustible fibres* in quantities sufficient to create a fire or explosion hazard shall be interrupted and the hazardous conditions shall be removed before any hot work is carried out.

1.10 HOT WORK PROCEDURES

- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
- .2 Hot Work Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate work area beforehand for each hot work event in accordance with Safety Plan specified in section 01 35 29.
 - .2 Use of a Hot Work Permit system with individually issued permit by Contractor's Superintendent to worker or subcontractor granting permission to proceed with Hot Work.
 - .3 Permit required for each Hot Work event.
 - .4 Designation of a competent person on site as a Fire Safety Watcher responsible to conduct a fire safety watch for a minimum duration of 60 minutes immediately following the completion of the Hot Work.
 - .5 Compliance with fire safety codes, standards and occupational health and safety regulations specified.
 - .6 Site specific rules and procedures in force at the site as provided by the Facility Manager.
- .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Label document as being the Hot Work Procedures for this contract.
- .4 Procedures shall clearly establish responsibilities of:
 - .1 Worker performing hot work,
 - .2 Person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractor(s) and Contractor.
- .5 Brief all workers and subcontractors on Hot Work Procedures and of Permit system. Stringently enforce compliance.

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1.11 HOT WORK PERMIT

- .1 Hot Work Permit to include the following:
 - .1 Project name and project number;
 - .2 Building name and specific room or area where hot work will be performed;
 - .3 Date of issue;
 - .4 Description of hot work type needed;
 - .5 Special precautions to be followed, including type of fire extinguisher needed;
 - .6 Name and signature of permit issuer.
 - .7 Name of worker to which the permit is issued.
 - .8 Permit validity period not to exceed 8 hours. Indicate start time/date and termination time/date.
 - .9 Worker's signature with time/date of hot work completion.
 - .10 60 minute - minimum time period of fire watch.
 - .11 Fire Safety Watcher's signature with time/date.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.
- .3 Each Hot Work Permit to be completed in full, signed and returned to Contractor's Superintendent for safe keeping on site.

1.12 FIRE PROTECTION AND ALARM SYSTEMS

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut-off, unless approved by Departmental Representative.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting
- .3 Costs incurred, from the fire department, Facility owner [and tenants], resulting from negligently setting off false alarms will be charged to the Contractor in the form of financial progress payment reductions and holdback assessments against the Contract.

1.13 DOCUMENTS ON SITE

- .1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.
- .2 Upon request, make available to Departmental Representative or to authorized safety Representative for inspection.

END OF SECTION

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1 GENERAL

1.1 SECTION INCLUDES

- .1 Procedures to isolate and lockout electrical facility and other equipment from energy sources.

1.2 RELATED REQUIREMENTS

- .1 Section 01 35 29 Health and Safety Requirements.
- .2 Section 01 35 24 Special Procedures on Fire Safety Requirements.

1.3 REFERENCES

- .1 CSA C22.1- 15, Canadian Electrical Code.
- .2 CAN/CSA-C22.3 No.1-06, Overhead Systems.
- .3 CSA C22.3 No.7-06, Underground Systems.
- .4 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

1.4 DEFINITIONS

- .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.
- .2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment has been isolated.
- .3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).
- .4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.
- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of

energy that is capable of making it dangerous.

- .6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 COMPLIANCE REQUIREMENTS

- .1 Comply with the following in regards to isolation and lockout of electrical facilities and equipment:
 - .1 Canadian Electrical Code 2015.
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health and Safety Requirements.
 - .3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
 - .4 Procedures specified herein.
- .2 In event of conflict between any provisions noted above, the most stringent provision will apply.

1.6 SUBMITTALS

- .1 Submit copy of lockout procedures, sample of lockout permit and lockout tags for review.
- .2 Submit within 14 calendar days of contract award. Do not proceed with work until submittal has been reviewed by Departmental Representative.
- .3 Submit above documents in accordance with the submittal - general requirements specified in Section 01 33 00.
- .4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.

1.7 ISOLATION OF EXISTING SERVICES

- .1 Obtain Departmental Representative's written authorization prior to working on existing live or active electrical facilities and equipment and before proceeding with isolation of such item.
- .2 To obtain authorization, submit to Departmental Representative the following documentation:
 - .1 Written request to isolate the particular service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.

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- .3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, as follows:
 - .1 Fill-out standard form in current use at the Facility as provided by Departmental Representative or;
 - .2 Where no form exist, make written request indicating:
 - .1 The equipment, system or service to be isolated and its location;
 - .2 Duration of isolation period (i.e.: start time & date and completion time & date).
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.
- .4 Do not proceed with isolation until receipt of written notification from Departmental Representative granting the Isolation Request and authorizing to proceed with the work.
 - .1 Note that Departmental Representative may designate another person at the Facility being authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shutdown of equipment or facility. De-energize, isolate and lockout power and other sources of energy feeding the equipment or facility.
- .6 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require isolation of existing services.
- .7 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of Facility operations. Follow Departmental representative's directives in this regard. Provide temporary power to other equipment that needs to be remain operational if a shutdown is not possible.
- .8 Conduct hazard assessment as part of the process in accordance with health and safety requirements specified Section [01 35 29].
- .9 When entire sections of the facility need to be locked-out to do full demolition a separate temporary construction power distribution is to be provided for this purpose.

1.8 LOCKOUTS

- .1 De-energize, isolate and lockout electrical facility, mechanical equipment and machinery from all potential sources of energy prior to working on such items.
- .2 Develop and implement clear and specific lockout procedures to be followed as part of the Work.
- .3 Prepare typed written Lockout Procedures describing safe work

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practices, procedures, worker responsibilities and sequence of activities to be followed on site by workforce to safely isolate an active piece of equipment or electrical facility and effectively lockout and tagout it's sources of energy.

- .4 Include as part of the Lockout Procedures a system of lockout permits managed by Contractor's Superintendent or other qualified person designated by him/her as being "in-charge" at the site.
 - .1 A lockout permit shall be issued to specific worker providing a Guarantee of Isolation before each event when work must be performed on a live equipment or electrical facility.
 - .2 Duties of person managing the permit system to include:
 - .1 Issuance of permits and lockout tags to workers.
 - .2 Determining permit duration.
 - .3 Maintaining record of permits and tags issued.
 - .4 Making a Request for Isolation to Departmental Representative when required as specified above.
 - .5 Designating a Safety Watcher, when one is required based on type of work.
 - .6 Ensuring equipment or facility has been properly isolated.
 - .7 Collecting and safekeeping lockout tags returned by workers as a record of the event.
- .5 Clearly establish, describe and allocate responsibilities of:
 - .1 Workers.
 - .2 Person managing the lockout permit system.
 - .3 Safety Watcher.
 - .4 Subcontractor(s) and General Contractor.
- .6 Generic procedures, if used, must be edited and supplemented with pertinent information to reflect specific project requirements.
 - .1 Incorporate site specific rules and procedures in force at site as provided by Facility Manager through the Departmental Representative.
 - .2 Clearly label the document as being the Lockout procedures applicable to work of this contract.
- .7 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
- .8 Use industry standard lockout tags.
- .9 Provide appropriate safety grounding and guards as required.

1.9 CONFORMANCE

- .1 Brief all workers and subcontractors on requirements of this section. Stringently enforce use and compliance.

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2022-01-05 **1.10 DOCUMENTS ON SITE**

- .1 Post Lockout Procedures on site in common location for viewing by workers.
- .2 Keep copies of Request for Isolation forms and lockout permits and tags issued to workers on site for full duration of Work.
- .3 Upon request, make available to Departmental Representative or to authorized safety representative for inspection.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 DEFINITIONS

- .1 Competent Person: means a person who is:
 - .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
 - .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
 - .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .2 Medical Aid Injury: any injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
- .3 PPE: personal protective equipment.
- .4 Work Site: where used in this section shall mean areas, located at the premises here Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.
- .5 Incident - occurrence, condition, or situation arising in the course of work that resulted in or could have resulted in injury, illness, property damage, environmental issues or fatality.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit Site-Specific Health and Safety Plan prior to commencement of Work.
 - .1 Submit within 7 work days of notification of Bid Acceptance. Allow for 5-10 days for Department review and recommendations prior to the commencement of work. Provide [3] copies.
 - .2 Departmental Representative will review Health and Safety Plan and provide comments.
 - .3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.
 - .4 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval

- or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
- .5 Submit revisions and updates made to the Plan during the course of Work.
 - .3 Submit name of designated Health and Safety Site Representative and support documentation specified in the Safety Plan.
 - .4 Submit building permit, compliance certificates and other permits obtained.
 - .5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other Department of Labour organization.
 - .1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.
 - .6 Submit copies of reports or directions issued by Federal or Provincial authorities within 24 hours after the visit to the Departmental Rep.
 - .7 Submit copies of incident and accident reports 24 hours after the event to the Departmental Representative.
 - .8 Submit documented plans as prescribed through Public Health requirements, directions, orders and declarations. Include industry best practices when preparing the plan and revise/update accordingly and in a timely manner as per Public Health requirements and recommended industry best practices. (Covid 19 - a source of advice can be found in the link below:

1.4 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act for Province of Nova Scotia and Regulations made pursuant to the Act.
- .2 Comply with Provincial/Federal Public Health requirements, directions, and declarations. Prepare documented plans as prescribed by Public Health and/or industry best practices in consultation with the Departmental Representative.
- .3 Canadian Standards Association (CSA):
 - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
- .4 Observe construction safety measures of:
 - .1 NBC 2015, Division B, Part 8.
 - .2 NFC 2015,
 - .3 Municipal by-laws and ordinances.
- .5 In case of conflict or discrepancy between above specified requirements, the more stringent shall apply.

- .6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter in Good Standing.
- .7 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.

1.5 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to Work Site with safety requirements of Contract Documents, applicable federal, provincial, and local by-laws, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.6 SITE CONTROL AND ACCESS

- .1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.
 - .1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.
- .2 Isolate Work Site from other areas of the premises by use of appropriate means.
 - .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.
 - .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
 - .3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.
- .3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site. Maintain records of such orientation on site for review and audit by the DR or their authorized inspector.
- .4 Ensure persons granted site access wear appropriate PPE. Supply

PPE to inspection authorities who require access to conduct tests or perform inspections.

- .5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm. [Provide security guard where adequate protection cannot be achieved by other means].

1.7 PROTECTION

- .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF NOTICE

- .1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work. Departmental Representative will assist in locating address if needed.

1.9 PERMITS

- .1 Is responsible to pay all fees to obtain all permits required to conduct the work.
- .2 Is responsible to provide authorities with plans and information for acceptance certificates and the costs arising from same.
- .3 Is responsible to provide inspections certificates as evidence that work conforms to requirements of Authorities Having Jurisdiction (AHJ).
- .4 Post permits, licenses and compliance certificates at Work Site.
- .5 Where a particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 HAZARD ASSESSMENTS

- .1 Perform a documented site specific Project hazard assessment for the Work. Include any site issues / hazards / concerns identified arising from the site visit that must be considered.
- .2 Carryout initial assessment prior to commencement of Work with further assessments completed and documented as needed during progress of work, including when new trades and subcontractors

arrive on site.

- .3 Record results and address in Health and Safety Plan.
- .4 Share information and controls identified from original and updated Project hazard assessments with project workers. Record this information sharing complete with names and dates. Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE CONDITIONS

- .1 NOT USED

1.12 MEETINGS

- .1 Attend pre-construction health and safety meeting, convened and chaired by Departmental Representative, prior to commencement of Work, at time, date and location determined by Departmental Representative. Ensure attendance of:
 - .1 Superintendent of Work.
 - .2 Designated Health & Safety Site Representative.
 - .3 Subcontractors.
- .2 Conduct pre shift tool box talks with the crew and conduct regularly scheduled minimum bi-weekly safety meetings during the Work.
- .3 Keep documents on site for review by DR or their authorized rep.

1.13 HEALTH AND SAFETY PLAN

- .1 Prior to commencement of Work, develop a written Site Specific Safety Plan for the Project. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.
 - .1 Items to include in the Site Specific Safety Plan;
 - .1 Name of the designated Site Safety Rep showing proof of his/her competence and reporting relationship in Contractor's company. This person is expected to be on site during all work execution.
 - .2 A copy of a current WCB Letter of Good Standing
 - .3 Details as to how WHMIS 2015 / GHS will be managed on site.
 - .4 Details as to how the Project work areas will be delineated/protected from other areas of the premises.(fences, signs). Must be project specific.
 - .5 Details as to how Safety orientations will be managed. Include a summary of what topics are covered in the safety orientation described in this section?
 - .6 A copy of a Notice of Project that was sent to the Provincial OHS regulator.

- .7 Project site specific hazard assessment.
 - .8 Details as to how tool box and safety meetings will be held and recorded.
 - .9 An organizational chart illustrating supervision and subs (if available) that are assigned to this Project.
 - .10 On-site Emergency Response Plans that cover all potential emergency situations that could arise. This should harmonize with the facility if possible.
Emergency Contacts: name and telephone number of officials from:
 - .1 General Contractor and subcontractors. (key personnel)
 - .2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
 - .3 Local emergency resource organizations.
 - .11 List of critical work activities which have a risk of endangering health and safety of Facility users and/or others.
 - .12 Details as to how the subcontractors documented safety program will be reviewed and managed prior to allowing them to work on site.
 - .13 Details as to how the site safety inspection program will be managed. Include frequency, assignment of responsibility as well as standard inspection form to be used.
 - .14 Basic PPE requirements as well as specialized PPE requirements; minimum being hard hat, safety footwear, safety glasses and high vis vest.
 - .15 General safety rules as well as the disciplinary protocols to be taken for noncompliance.
 - .16 Details as to how Incident investigations will be managed. Include procedure and incident form.
- .2 Post copy of the Plan, and updates, prominently on Work Site.

1.14 SAFETY SUPERVISION

- .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
- .2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
 - .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
 - .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.

- .3 Conduct site safety orientation session to persons granted access to Work Site.
- .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
- .5 Stop the Work as deemed necessary for reasons of health and safety.
- .3 Health & Safety Site Representative must:
 - .1 Be qualified and competent person in occupational health and safety.
 - .2 Have site-related working experience specific to activities of the Work.
 - .3 Be on Work Site at all times during execution of the Work.
 - .4 All supervisory personnel assigned to the Work shall also be competent persons.
 - .5 Inspections:
 - .1 Conduct regularly scheduled safety inspections of the Work on a minimum weekly basis. Record deficiencies and remedial action taken.
 - .2 Follow-up and ensure corrective measures are taken.
 - .3 Share inspection reports with crews / subs
 - .6 Cooperate with the Facility's and / or the PSPC Occupational Health and Safety representative.
 - .7 Keep inspection reports and supervision related documentation on site.

1.15 TRAINING

- .1 Use only skilled workers on Work Site who are deemed competent and are trained in occupational health and safety procedures and practices pertinent to their assigned task.
- .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers. Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
- .3 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.
- .4 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.16 MINIMUM SITE SAFETY RULES

- .1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; the company shall establish rules to govern the conduct and actions of their employees. These rules should leave no room for discretion and argument. The rules must be enforced and action should be taken every time a rule is violated.
- .2 Brief persons of the documented disciplinary protocols to be taken for noncompliance. Post rules on site.

1.17 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 INCIDENT REPORTING

- .1 Investigate and report all incidents to Departmental Representative.
- .2 Notify the Departmental representative as soon as reasonably practicable following the incident.
- .3 Ensure the Authority having Jurisdiction is notified as prescribed by applicable legislation.
- .4 Submit report in writing.

1.19 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site.
 - .1 Post on site.
 - .2 Submit copy to Departmental Representative.
- .3 For interior work in an occupied Facility, post additional copy in one or more publicly accessible locations.

1.20 BLASTING

- .1 Blasting or other use of explosives is not permitted on site without prior receipt of written permission and instructions from Departmental Representative.
- .2 Do blasting operations in accordance with section 01 35 44 - Environmental Protection Procedures For Marine Work.

1.21 POWDER ACTUATED DEVICES

- .1 Use powder actuated fastening devices only after receipt of written permission from Departmental Representative.

1.22 CONFINED SPACES

- .1 Abide by occupational health and safety regulations regarding work in confined spaces.
- .2 Obtain an Entry Permit in accordance with Part XI of the Canada Occupational Health and Safety Regulations for entry into an existing identified confined space located at the Facility or premises of Work.
 - .1 Keep copy of permit issued.
- .3 Safety for Inspectors:
 - .1 Provide PPE and training to Departmental Representative and other persons who require entry into confined space to perform inspections.
 - .2 Be responsible for efficacy of equipment and safety of persons during their entry and occupancy in the confined space.

1.23 SITE RECORDS

- .1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.
- .2 Upon request, make available to Departmental Representative or authorized Safety Officer for inspection.

1.24 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in a conspicuous location on the Work Site in accordance with Acts and Regulations of Province. See local legislation for specifics.
- .2 Post other documents as specified herein, including:
 - .1 Site specific Health and Safety Plan.

.2 WHMIS data sheets.

END OF SECTION

Part 1 GENERAL

1.1 REFERENCE STANDARDS

- .1 Canada Shipping Act, Transport Canada, 2001, latest edition.
- .2 Canadian Coast Guard Regulations, Fisheries and Oceans Canada
- .3 Canadian Environmental Impact Assessment Act, 2019, latest edition.
- .4 Canadian Navigable Waters Act, 2019, latest edition, Transport Canada
- .5 Fisheries Act, 1985, Fisheries and Oceans Canada, latest edition.
- .6 Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998, latest edition.
- .7 Migratory Birds Convention Act, 1994, Environment Canada, latest edition.
- .8 Nova Scotia - Environment Act
- .9 Species at Risk Act, 2002, latest edition
- .10 The Federal Policy on Wetland Conservation, 1991, Environment Canada
- .11 Transportation of Dangerous Goods Act, 1992, Transport Canada, latest edition
- .12 Workplace Hazardous Materials Information System, Health Canada.
- .13 Recycling Certification Institute (RCI):
 - .1 RCI Certification Construction and Demolition Materials Recycling

1.2 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements of agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans, or degrade environment aesthetically, culturally, and/or historically.
- .2 Environmental Protection: prevention/control/mitigation of the pollution and disturbance of the environment during construction.
- .3 Archaeological Resources: All tangible evidence of human activity that is of historical, cultural or scientific interest. Examples

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include features, structures, archaeological objects or remains at or from an archaeological site, or an object recorded as an isolated archaeological find.

- .4 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.
- .5 Deleterious substance: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.
- .6 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.
- .7 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 the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .8 Invasive or alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm.
- .9 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.
- .10 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.
- .11 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands," and mineral wetlands or mineral soil areas that are influenced by excess water

but produce little or no peat.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 An Environmental Briefing will be held prior to work commencing at the site, which will outline environmental factors to be considered during the work. It is mandatory that all current staff of the Contractor attend this meeting with the Departmental Representative and Environmental Protection Officer (EPO).
- .3 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .4 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .5 Environmental Protection Plan: include as applicable:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of Environmental Protection Personnel Training Program.
 - .5 Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.
 - .7 Spill Contingency Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .8 Non-Hazardous Solid Waste Disposal Plan identifying methods and locations for solid waste disposal including clearing debris and recycling of decommissioned structure materials.
 - .9 Air Pollution Control Plan detailing provisions to assure that dust, debris, materials, and trash, do not become airborne and travel off project site.
 - .10 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal,

Provincial, and Municipal laws and regulations for storage and handling of these materials.

- .11 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 TRANSPORTATION

- .1 Transport hazardous materials and hazardous waste in compliance with the Transportation of Dangerous Goods Act.
- .2 Eliminate free board spillage when excavating, loading and hauling dredged material.
- .3 Trucks transporting dredged material will have watertight boxes.
- .4 Do not overload trucks when hauling dredged material.
- .5 Maintain trucks clean and free of mud, dirt and other foreign matter.
- .6 Secure contents against spillage. Avoid potential release of contents and of any foreign matter onto highways, roads and access routes used for the work. Immediately clean any ground spills and soils to extent as directed by authority having jurisdiction.
- .7 Prior to commencement of work, advise and seek approval from the Departmental Representative of the existing roads and temporary routes / roads proposed to be used to access work areas and to haul material to and from the site, including roads to the dredge material disposal site.
- .8 Construction material and debris is not to become waterborne.
- .9 Any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water are not to remain in place after the completion of the project.
- .10 Vessels are to be permitted safe access through the worksite at all times, and assisted as necessary.
- .11 All materials and equipment used in construction must be marked in accordance with the Collision Regulations of the Canada Shipping Act, 2001 when located on the waterway.
- .12 Advise the Canadian Coast Guard, Marine Communication and Traffic Services (MCTS) at (902)564-7751 or toll free at 1-800-686-8676 sufficiently in advance of commencement of work or when deploying or removing site markings in order to allow for appropriate Notices

to Shipping/Mariners action.

- .13 Obtain approval from Departmental Representative of the proposed route to be used to haul dredge material to designated disposal site.
- .14 Wash down stations will be employed prior to leaving the dredge site (harbour); and also at designated disposal site. Advise and seek approval from the Departmental Representative of wash down stations locations and ensure adequate sediment control measures to control run-off water.
- .15 Work activities must comply with all / any conditions of the Navigation Protection Act (NPA) permit issued by Transport Canada.

1.5 TEMPORARY CAUSEWAYS AND ACCESS ROADS

- .1 It will be the Contractor's responsibility to gain access to the dredge area. The construction and removal of temporary causeways and access roads will be at the Contractor's expense and will be removed immediately after clearance of the dredge area.
- .2 It will be the contractor's responsibility to identify a location for the disposal of material imported by the Contractor for the construction of temporary causeways and access roads.
- .3 All material used for construction of temporary causeways and access roads must be clean and free from excessive fines, organics, debris and non-toxic (i.e., free of fuel, oil, grease and/or any other contaminants), non-ore bearing and from a provincially approved non-water source.
- .4 Material is to be screened, if required, to ensure that no fines or stones less than 0.2 kilograms are placed in the work. Gradation of the material to be imported for the construction of the causeways, roads etc. shall be within the following limits:

IMPERIAL SIZE	METRIC SIZE	PERCENT PASSING
18"	450 mm	100
8"	200 mm	44-75
4"	100 mm	24-50
2"	50 mm	7-14

- .5 Material to be blended so that a homogeneous mix of smaller and larger sizes within the approved range is attained.
- .6 Heavy machinery and equipment must be operated from a dry platform only. Temporary causeways and access roads shall be constructed at an elevation such that machinery and equipment is operating completely out of the water at all stages of the tide. If tidal work is being carried out, machinery and equipment shall be relocated back to a suitable elevation to prevent operating in

submerged waters.

- .7 The Contractor is to maintain temporary buoys to mark the position of the access road including the outer toe as construction proceeds. All buoys are to meet requirements for the applicable Canadian Coast Guard standard and be equipped with radar reflectors.
- .8 Any temporary structures built and/or placed below the mean high water mark will only be built and/or placed within the footprint of the approved dredge boundary unless otherwise indicated.

1.6 OPERATION OF MACHINERY

- .1 Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- .2 Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the water body.
- .3 Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.

1.7 DISPOSAL OF DREDGED MATERIAL

- .1 Material will be disposed of offsite at an approved Provincial waste disposal facility.
- .2 Water that decants from the disposed dredge spoil shall not enter any waterways.
- .3 Site should allow for diffuse, dispersion or diversion onto a field or woodland, but not into drainage ditches that would carry water to a waterway.
- .4 Dredge material must be deposited no closer than:
 - .1 30 meters from a common road or public highway, except as approved by authorities having jurisdiction.
 - .2 45 meters from a residential or commercial building, unless a lesser distance is approved by the landowner
 - .3 90 meters from any domestic water supply.
 - .4 8 meters from any adjacent property boundary.
 - .5 30 meters from any surface watercourse, including wetlands.
- .5 The contractor will be responsible to construct berms to contain the disposed dredge material including any required settling ponds or other controls. The level of effort and details will depend on the site and the contractor will be required to describe the level of effort in the Site Management Plan.

- .6 Place and spread dredge material at the disposal site in a uniform and well graded manner. Minimize height and slopes of the disposed material. Match slopes and contours of the existing surrounding terrain as much as possible.
- .7 Items such as rubber tires, bottles, cans and other debris or litter must be removed from the disposal site following regarding. Failure to remove such debris may constitute a littering offence under applicable regulations.
- .8 Control runoff of water containing suspended materials or other harmful substances in accordance with requirements of all federal, provincial and municipal authorities having jurisdiction.
- .9 Disposed dredged material to be limed immediately following placement, and covered with soil and hydro seeded following settlement and one season of drying out.
- .10 Obtain approval from Departmental Representative of the proposed route to be used to haul dredged material to the disposal site.
- .11 Wash down stations will be employed prior to leaving dredge site (harbour); and also at disposal site.
- .12 Suctions Dredging
 - .1 Routinely inspect pipe for any potential breach in the sediment train and keep in good leak free condition at all time.
 - .2 Should leakage occur along the pipeline immediately cease dredging operations and repair leak

1.8 CONTAINMENT AND SPILL MANAGEMENT

- .1 Comply with Federal (*CEPA Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and Provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on site.
- .2 Do not dump petroleum products or any other deleterious substances on ground or in the water.
- .3 Be diligent and take all necessary precautions to avoid spills and contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fueling and servicing of vehicles and equipment.
- .4 Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas (including wetlands, beaches and dunes).
- .5 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit

for containment and cleanup of spills.

- .6 Maintain vehicles and equipment in good working order to prevent leaks on site.
- .7 In the event of a petroleum spill, immediately notify the *Departmental Representative* and the Canadian Coast Guard (CCG) at 1-800-565-1633 (24 hour report line). Preform cleanup in accordance with all regulations and procedures stipulated by authority having jurisdiction.
- .8 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.
- .9 Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance.

1.9 HAZARDOUS MATERIAL HANDLING

- .1 Store and handle hazardous materials in accordance with applicable federal and provincial regulations, codes, standards and guidelines. Store in location that will prevent spillage into the environment.
- .2 Label containers to WHMIS requirements and keep MSDS data sheets on site for all hazardous materials.
- .3 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when stored.
- .4 Store and handle flammable and combustible materials in accordance with National Fire Code.

1.10 DISPOSAL OF WASTES

- .1 Dispose of waste in accordance with Section 01 74 21 - Constructional Waste Management and Disposal.
- .2 Dispose of hazardous waste in accordance with applicable federal and provincial, regulations, codes, standards and guidelines.
- .3 Concrete waste:
 - .1 Do not discharge residual of rejected concrete on site.
 - .2 Immediately clean any accidental release of concrete on site prior to solidification.
 - .3 Do not wash and clean concrete vehicles on site.
 - .4 Perform dumping of residual material and truck cleaning operations only at the concrete plant. Follow environmental regulations and good practices as approved by the Provincial

Department of the Environment and other authorities having jurisdiction.

1.11 WATER QUALITY

- .1 Conduct dredging of a watercourse in such a manner to limit turbidity and reduce sediment suspension in the water to an absolute minimum at all times.
 - .1 Maintain appropriate production speed and momentum of the excavation equipment. Make adjustments as required and as approved by *Departmental Representative*.
 - .2 Strategically position excavator equipment and haul vehicles to avoid over the water swings of dredged material whenever possible.
 - .3 Restrict the amount of material dredged to the area and depth required for navigation.
 - .4 Cease the work when weather conditions are not favourable to prevent the further dispersion of suspended sediment.
 - .5 Avoid bottom stockpiling, dragging or side casting material during dredging. If these activities are being proposed, the Contractor must:
 - .1 Employ suitable operational and engineering controls (e.g., silt curtain), as approved by the *Departmental Representative*, around the dredge work area, or
 - .2 Hire a qualified professional to develop a Water Quality Monitoring (WQM) program for the site. The Contractor will not be permitted to start any in-water work or dredging until the WQM program is approved by the *Departmental Representative*. The WQM program will require direct-read turbidity measurements from a data-logger as well as collection of water samples for Total Suspended Solids (TSS) for off-site analysis in a certified laboratory. The WQM program will include a suitable number of fixed collection points from which data shall be collected prior to any dredging operations to establish background levels of turbidity and TSS. A collection point must also be established for the collection of data within 30 meters of the dredge while the dredge is operating. If the turbidity and TSS results at any of the collection points exceed the CCME Water Quality Guidelines for the Protection of Aquatic Life, the Contractor shall cease dredging operations immediately and a DFO Fisheries Protection Program (FPP) Biologist must be contracted at 902-426-3909 to determine what adaptive measures shall be employed including additional operational and engineering controls (e.g., silt curtains).
- .2 Where work may affect the water quality adjacent to water intake lines used by lobster holding facilities, fish processing facilities and other harbour users, schedule work in cooperation

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with the Harbour Authority as directed by *Departmental Representative* to minimize interference and impact to harbour users.

- .3 Do not wash down equipment within a 30 meter buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .4 Where required, install effective sediment control measures before starting work to prevent the entry or re-suspension of sediment in the water body. Inspect sediment control measures regularly to ensure they are functioning properly, and make all necessary repairs if any damage occurs. Upon completion of use, remove these control measures in a way that prevents the escape of settled sediment.
- .5 Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the water body during all phases of the work. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the water body or settling basin and runoff water is clear. The plan should, where applicable, include:
 - .1 Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
 - .2 Measures for managing water flowing onto the site, as well as water being pumped / diverted from the site such that sediment is filtered out prior to the water entering a water body. For example, pumping / diversion of water to a vegetated area, construction of a settling basin or other filtration system.
 - .3 Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, underwater cable installation).
 - .4 Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby water bodies to prevent re-entry.
 - .5 Regular inspection and maintenance of erosion and sediment control measures and structures during the course of the work.
 - .6 Repairs to erosion and sediment control measures and structures if damage occurs.
 - .7 Removal of non-biodegradable erosion and sediment control materials once site is stabilized.
- .6 Water contamination by preservative treated wood:
 - .1 Preservative treated lumber and timber, whether plant or site treated, shall be cured for a minimum of 30 days from date of

- the treatment application before their installation in areas which will be in contact with the water.
- .2 Do not cut treated wood lumber over the surface of a watercourse or wetland.
 - .3 Do not use liquid applied preservative products over the surface of a watercourse or wetland.
 - .4 Wood treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be CSA or American Wood Preserver Association (AWPA) approved.
 - .5 Do not use timber and lumber treated with creosote, petroleum and pentachlorophenol for any part of the work.

1.12 BLASTING

- .1 Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.
- .2 If explosives are required as part of a project (e.g., removal of structures such as piers, pilings, footing; removal of obstructions such as beaver dams; or water intake), the potential for impacts to fish and fish habitat should be minimized by implementing the following measures:
 - .1 Time in-water work requiring the use of explosives to prevent disruption of vulnerable fish life stages, including eggs and larvae, by adhering to appropriate Fisheries & Oceans Canada timing windows.
 - .2 Isolate the work site to exclude fish from within the blast area by using bubble/air curtains (i.e., a column of bubbled water extending from the substrate to the water surface as generated by forcing large volumes of air through a perforated pipe/hose), cofferdams or aquadams.
 - .3 Remove any fish trapped within the isolated area and release unharmed beyond the blast area prior to initiating blasting.
 - .4 Minimize blast charge weights used and subdivide each charge into a series of smaller charges in blast holes (i.e., decking) with a minimum 25 millisecond (1/1000 seconds) delay between charge detonations.
 - .5 Back-fill blast holes (stemmed) with sand or gravel to grade or to streambed / water interface to confine the blast.
 - .6 Place blasting mats over top of holes to minimize scattering of blast debris around the area.
 - .7 Do not use ammonium nitrate based explosives in or near water due to the production of toxic by-products.
 - .8 Remove all blasting debris and other associated equipment / products from the blast area.

1.13 SOCIOECONOMIC RESTRICTIONS

- .1 Abide by municipal and provincial regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.
- .2 Place flood lights in opposite direction of adjacent residential and business areas.
- .3 Work equipment and machinery must be equipped with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.

1.14 BIRD AND BIRD HABITAT

- .1 Become knowledgeable with and abide by the Migratory Birds Convention Act (MBCA) in regards to the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.
- .2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.
- .3 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.
- .4 During night time work, position flood lights in opposite direction of nearby bird nesting habitat.
- .5 Do not use beaches, dunes and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the Departmental Representative.
- .6 Should nests of migratory birds in wetlands be encountered during work, immediately notify *Departmental Representative* for directives to be followed.
 - .1 Do not disturb nest site and neighbouring vegetation until nesting is completed.
 - .2 Minimize work immediately adjacent to such areas until nesting is completed.
 - .3 Protect these areas by following recommendations of Canadian Wildlife Service.

1.15 FISH PROTECTION

- .1 Avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- .2 Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the

channel width, or reduce flows.

- .3 Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
- .4 Be aware of the risk for contamination of the fish habitat at the site as a result of alien species being introduced in the water.
- .5 To minimize the possibility of fish habitat contamination and the spread of aquatic invasive (alien species), all construction equipment which will be immersed into the water of a watercourse, or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and alien species.
 - .1 Equipment shall include boats, barges, cranes, excavators, haul trucks, pumps, pipe lines and other all miscellaneous tools and equipment previously used in a marine environment.
- .6 Cleaning and washing of equipment shall be performed immediately upon their arrival at the site and before use in or over the body of water.
- .7 Conduct cleaning and washing operations as follows:
 - .1 Scrape and remove heavy accumulation of mud and dispose appropriately.
 - .2 Wash all surfaces of equipment by use of a pressurized fresh water supply.
 - .3 Immediately follow with application of a heavy sprayed coating of undiluted vinegar or other environmentally approved cleaning agent to thoroughly remove all plant matter, animals and sediments.
 - .4 Check and remove all plant, animal and sediment matter from the all bilges and filters.
 - .5 Drain standing water from equipment and let fully dry before use.
 - .6 Upon removal from the water, drain standing water from equipment and let fully dry before removal off the site.
- .8 Do not perform cleaning and washdown within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .9 Record of Assurance Logbook:
 - .1 Maintain an on-going log of past and present usage and washdowns of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species.

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- .2 Write data in a hard cover bound logbook to include the following:
 - .1 Date and location where equipment was previously used in a watercourse or wetland;
 - .2 Type of work performed.
 - .3 Dates of wash down for each piece of equipment;
 - .4 Cleaning method and cleaning agent(s) used.
- .10 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to Departmental Representative for review.
- .11 Abide by requirements and recommendations from Fisheries and Oceans Canada - Fisheries Protection Program in cleaning and wash down of equipment.
- .12 Work activities must comply with all/any conditions of the Fisheries Act Authorization or Letter of Advice issued by Fisheries and Oceans Canada. A copy of the Fisheries Act Authorization will be provided prior to commencement of work and must be kept on site at all times.
- .13 Time work in water to protect fish, including their eggs, juveniles, spawning adults and / or the organisms upon which they feed. Ensure loss or disturbance to aquatic habitats are avoided.

1.16 AIR QUALITY

- .1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.
- .2 Dust suppression by the application of water must be employed, when required. Apply dust control measures to roads, parking lots and work areas. The *Departmental Representative* shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil must not to be used for dust control under any circumstances.
- .3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.
- .4 Do not use oil or any other petroleum products for dust control.

1.17 FIRES

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

1.18 ARCHEAEOLOGICAL

- .1 All construction personnel are responsible for reporting any unusual materials unearthed during construction to the construction supervisor. If the find is believed to be an archaeological resource, the Construction Supervisor will immediately stop work in the vicinity of the find and notify the PWGSC Project Manager.
- .2 If an archaeological and / or historically significant item is discovered during the work activities, work in the area will be stopped immediately and the *Departmental Representative* will be contacted as well as the provincial Archaeological Services unit. Nova Scotia - NS Department of Communities, Culture and Heritage, Special Places Program, telephone: (902) 424-6475
- .3 Work can only resume in the vicinity of the find when authorized by the PWGSC Project Manager and Construction Supervisor, after approval has been granted by the Nova Scotia Department of Communities, Culture and Heritage.
- .4 In the event of the discovery of human remains or evidence of burials, excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the PWGSC Project Manager and/or the Construction Supervisor.

Part 2 PRODUCTS

- .1 NOT USED.

Part 3 EXECUTION

- .1 NOT USED

END OF SECTION

1.03 SUBMITTAL REQUIREMENTS

- .1 Develop written **IN-WATER ENVIRONMENTAL PROTECTION PLAN** based on project-specific requirements prior to beginning Work and continue to implement, maintain, and enforce plan until demobilization from work site.
- .2 Develop written **EROSION AND SEDIMENT CONTROL PLAN** based on the project-specific requirements under this contract.
- .3 Develop written **EMERGENCY RESPONSE PLAN** to be implemented immediately in the event of a sediment release or spill of a deleterious substance. Plan must include provincial environmental emergency contact information and *Departmental Representative's* contact information.
- .4 Develop written **BLASTING PLAN** based on the project-specific requirements under this contract.

1.04 REFERENCES

- .1 Canada Shipping Act, 2001, amended 2013-12-01; Transport Canada
- .2 Canadian Coast Guard Regulations, Fisheries and Oceans Canada
- .3 Canadian Environmental Protection Act, 1999, amended 2014-03-28; Environment and Climate Change Canada
- .4 Canadian Navigable Waters Act, 2019-08-28; Transport Canada
- .5 Explosives Act, 2015-02-26; Natural Resources Canada
- .6 Fisheries Act, 1985, amended 2019-06-21; Fisheries and Oceans Canada
- .7 Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters, 1998; Fisheries and Oceans Canada
- .8 Impact Assessment Act, 2019-08-28; Environment and Climate Change Canada
- .9 Migratory Birds Convention Act, 1994, amended 2010-12-10; Environment and Climate Change Canada
- .10 Species at Risk Act, 2002, amended 2013-03-08; Environment and Climate Change Canada and Fisheries and Oceans Canada
- .11 The Federal Policy on Wetland Conservation, 1991; Environment and Climate Change Canada
- .12 Transportation of Dangerous Goods Act, 1992, amended 2009-06-16; Transport Canada
- .13 Workplace Hazardous Materials Information System; Health Canada.
- .14 Nova Scotia - Environment Act.

1.05 DEFINITIONS

- .1 Archaeological Resources: all tangible evidence of human activity that is of historical, cultural or scientific interest. Examples include features, structures, archaeological objects (artifacts) or remains at or from an archaeological site, or an object recorded as an isolated archaeological find. An "artifact" is any object manufactured, used, moved or otherwise modified by human beings, including all waste materials and by-products of these processes.
- .2 Buffer zone: a vegetated land that protects watercourses from adjacent land uses.
- .3 Deleterious substance:
 - (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water,
 - or
 - (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.
- .4 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.
- .5 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 the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .6 Invasive or alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm.
- .7 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.
- .8 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.
- .9 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands", and mineral wetlands or mineral soil areas that are influenced by excess water but produce little or no peat.

1.06 TRANSPORTATION

- .1 Transport hazardous materials and hazardous waste in compliance with the *Transportation of Dangerous Goods Act*.
- .2 All vessels, floating plant equipment and scows used in the work must comply with all *Canada Shipping Act* requirements for inspection, which includes certification of the vessel and adequate training and appropriate certificate of competency for the operators, codes and standards of practice for shipping.
- .3 All materials and equipment used in the work must be marked in accordance with the *Collision Regulations* of the *Canada Shipping Act* when located on the waterway.
- .4 All vessels using the harbour are to be permitted safe access through the work site at all times, and assisted as necessary.
- .5 Maintain trucks clean and free of excessive mud, dirt, dredged material and other foreign matter.
- .6 All trucks to have watertight seals in their boxes to prevent leakage during loading and transporting dredge material.
- .7 Secure contents against free board spillage when excavating, loading and hauling material, including dredged material. Do not overload trucks when hauling material and avoid potential release of contents, including dredged material, and of any foreign matter onto highways, roads and access routes used for the work. Immediately clean any ground spills and soils to extent as directed by authority having jurisdiction.
- .8 Work must comply with all conditions of the *Canadian Navigable Waters Act (CNWA)* Approval issued by Transport Canada. A copy of the *CNWA* approval will be provided to the contractor prior to commencement of work and a copy must be kept on site at all times.

1.07 OPERATION OF MACHINERY

- .1 Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- .2 Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of a water body.
- .3 Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
- .4 Biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices.
- .5 No storage of vehicles or equipment/material is permitted on any beach, dune, wetland or other environmentally sensitive areas.

- .6 Do not perform cleaning and wash down within a 30-metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.

1.08 CONTAINMENT AND SPILL MANAGEMENT

- .1 Comply with federal (CEPA - *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on the site.
- .2 In the event of a petroleum spill and release into the environment, stop work and immediately notify the *Departmental Representative* and the Canadian Coast Guard 24-Hour Environment Emergencies Report System (1-800-565-1633). Contain spill and perform clean-up in accordance with all regulations and procedures stipulated by authority having jurisdiction.
- .3 Do not dump petroleum products or any other deleterious substances on ground or in the water.
- .4 Be diligent and take all necessary precautions to avoid spills and contamination of the soil and water (both surface and subsurface) when handling petroleum products on the site and during fuelling and servicing of vehicles and equipment.
- .5 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit for containment and clean-up of spills.
- .6 Maintain vehicles and equipment in good working order to prevent leaks on site. Hoses, couplings and tanks are to be inspected on a regular basis to prevent fractures and breaks.
- .7 All equipment to be used in or over the marine environment is to be free from leaks or coatings of hydrocarbon-based fluids and/or lubricants harmful to the environment.
- .8 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.
- .9 Develop and submit to the *Departmental Representative* an **Emergency Response Plan** that is to be implemented immediately in the event of a sediment or spill release of a deleterious substance. Include federal and provincial environmental emergency contact information and *Departmental Representative's* contact information.
- .10 Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.
- .11 If an oiled seabird is encountered, methodology for the handling and release of marine and migratory birds outlined in Environment and Climate Change Canada (ECCC) - Canada Wildlife Service (CWS)'s Oiled Birds Protocol will be implemented. A permit application must be obtained from ECCC-CWS prior to implementation of this protocol.

- .12 Ensure that all [floating plant equipment], [barges], [vessels] will have procedures in place to ensure safeguards against marine pollution: awareness training of all employees, means of retention of waste oil on board and discharge to shore-based reception facilities, capacity of responding to and clean-up of accidental spill caused by equipment involved in any particular part of the project.
- .13 If heavy machinery is being operated from a barge, on-site crews must have emergency spill clean-up equipment, adequate for the activity involved, on the barge. Spill equipment will include, as a minimum, at least one 250 L (i.e. 55 gallon) overpak spill kit containing items to prevent a spill from spreading; absorbent booms, pillows, and mats; rubber gloves; and plastic disposal bags. Take appropriate measures to contain and clean up any spills and all releases into the marine environment must be promptly reported to the 24-Hour Environment Emergencies Report System (1-800-565-1633).

1.13 HAZARDOUS MATERIAL HANDLING

- .1 Store and handle hazardous materials in accordance with applicable federal and provincial regulations, codes, standards and guidelines. Store in location that will prevent spillage into the environment.
- .2 Label containers to Workplace Hazardous Materials Information System (WHMIS) requirements and keep MSDS data sheets on site for all hazardous materials.
- .3 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when stored.
- .4 Store and handle flammable and combustible materials in accordance with National Fire Code.
- .5 Workers in contact with hazardous materials must be provided with, and use regulated Personal Protective Equipment (PPE) and must have the necessary training to know how to handle the different hazardous materials in accordance with applicable health and safety and environmental regulations.

1.14 DISPOSAL OF WASTES

- .1 Do not bury construction and demolition-related debris (e.g., concrete, creosote timbers, steel, impacted soil, etc.) and waste materials on site.
- .2 Dispose and recycle construction and demolition-related debris and waste materials in accordance with provincial waste management regulations and the project waste management requirements specified in Section 02 41 23 - Demolition and Removals.
- .3 Do not dispose of hazardous wastes (e.g., paints, batteries, cleaners, acids ,etc.) including volatile materials (e.g., solvents, mineral spirits, aerosol cans, etc.) and petroleum products on the ground or into waterways, storm or sanitary sewers or in waste landfill sites. Dispose of hazardous wastes in accordance with applicable federal and provincial, regulations, codes, standards and guidelines.
- .4 All salvageable stockpiles of creosote timbers must be situated a minimum of [500] meters from any dwelling or potable water well and a minimum of [100] meters from any watercourse/wetland or other environmentally sensitive area.

All stockpiles must be must be contained on federal land, unless approved by *Departmental Representative*. Prior to completion of the work, all salvageable/disposal material must be removed from the site as directed by the *Departmental Representative*.

- .5 Construction material and debris is not to become waterborne. Retrieve any debris entering the marine environment without delay, when it is safe to do so.
- .6 Concrete waste:
 - .1 Perform dumping of residual material and truck cleaning operations off site or as directed by the *Departmental Representative*.
 - .2 Do not perform washing and cleaning of concrete vehicles within 30 meters of a wetland, watercourse or other identified environmentally sensitive area.
 - .3 Immediately clean any accidental release of concrete on site prior to solidification.
 - .4 Follow environmental regulations and good practices as approved by the provincial Departments of the Environment and other authorities having jurisdiction.

1.15 WATER QUALITY

- .1 Contractor is responsible to develop and implement an **Erosion and Sediment Control Plan** for the work site that will minimize the risk of entry or re-suspension of sediment in a water body during all phases of the work. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the water body or settling basin and runoff water is clear.
- .2 The Plan is to be submitted as per section 01 33 00, for review by the *Departmental Representative* and should, where applicable, include:
 - .1 Effective sediment control measures (e.g. silt fencing, check dams, etc.) as an initial step in the construction sequence.
 - .2 Measures for managing water flowing onto the site, as well as water being pumped / diverted from the site such that sediment is filtered out prior to entering a water body (e.g., pumping / diversion of water to a vegetated area, construction of a settling pond or other filtration system). The water can be pumped into a settling pond or filter bag to ensure that the concentration of sediment is below regulated discharged criteria before it reaches a water body.
 - .3 Measures for containing and stabilizing waste material (e.g., dredged material, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris, etc.) above the high water mark of nearby water bodies to prevent re-entry.
 - .4 Regular inspection and reporting details for sediment control measures to ensure they are functioning properly. .
 - .5 Repair methodology for erosion and sediment control measures and structures if damage occurs.
 - .6 Removal methodology of non-biodegradable erosion and sediment control materials once site has been stabilized. Upon completion of use, these control measures must be removed in a way so as to prevent the escape of settled sediments.
 - .7 Methodology for monitoring weather, specifically rainfall and storms and altering work plans and contingency measures as a result of inclement weather.

- .3 Where work may affect water quality, schedule work in cooperation with the Harbour Authority as directed by *Departmental Representative* to minimize interference and impact on harbour users.
- .4 Where work may affect the water quality adjacent to water intake lines used by lobster holding facilities, fish processing facilities or other harbour users, schedule work in cooperation with the Harbour Authority, facility owners and as directed by *Departmental Representative* to minimize interference and impact to harbour users.
- .5 Conduct work in such a manner to limit turbidity and minimize sediment resuspension in the water to an absolute minimum at all times:
 - .1 Maintain appropriate production speed and momentum of the excavation equipment. Make adjustments as required and as approved by *Departmental Representative*.
 - .2 Strategically position excavation equipment, haul vehicles and scows to minimize over the water swings of dredged material whenever possible.
 - .3 Avoid overfilling of the dredge bucket.
 - .4 Minimize wash downs of equipment and wharf deck.
 - .5 Restrict the volume of material dredged to the areas and depths in the contract, unless otherwise directed by the *Departmental Representative*.
 - .6 No bottom stockpiling, dragging or side casting of material on the ocean floor outside of the wharf footprint during dredging operations.
- .6 The total volume of dredge material must not exceed the approved volume unless otherwise approved in writing by the appropriate authorities or as directed by the *Departmental Representative*.
- .7 Contractor is responsible to visually monitor the water turbidity will be required in the vicinity of the project to ensure that turbidity is limited. If excessive change occurs in the turbidity that differs from the existing conditions of the surrounding water body (i.e., distinct change in water clarity) as a result of the project activities, the work will stop, the contractor will notify the *Departmental Representative* and implement contingency measures as required.
- .8 To prevent water contamination by preservative treated wood:
 - .1 Wood treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be Canadian Standards Association (CSA) or American Wood Preserver Association (AWPA) approved.
 - .2 Preservative treated lumber and timber, whether plant or field treated, shall be cured for a minimum of 30 days from date of the treatment application before their installation in areas which will be in contact with the water.
 - .3 Do not field cut or bore treated timber and lumber over the surface of a watercourse or wetland.
 - .4 Do not allow sawdust or shavings from field cutting and boring of treated timber and lumber to get washed or blown into a watercourse or wetland.
 - .5 Take extra precautions to prevent dripping of product when using liquid applied preservative products over the surface of a watercourse.

- .6 Do not use timber and lumber treated with creosote, pentachlorophenol or other petroleum-based products for timber that will be in contact with the water.
- .9 To prevent water contamination during concrete placement:
 - .1 Concrete placement should stop in moderate to heavy rain [2.6-7.6 mm/hr or more] to prevent leaching contaminants into aquatic environment.
 - .2 When concrete repair work is necessary on structures, timber staging will be placed next to the face to prevent concrete from falling into the water, or a cofferdam will be constructed to enclose the work area.
 - .3 Forms will have sealed corners to prevent leakage.
 - .4 Splash panels to be used during the pour to prevent material from entering the aquatic environment.
 - .5 Any accidental release of concrete will be removed prior to solidification.
 - .6 Work will cease until the spill is contained and the source of the leak can be identified.
 - .7 Contractor must notify the Departmental Representative of all accidental releases of concrete into fish bearing waters and contact applicable federal and provincial regulators immediately.

1.16 AIR QUALITY

- .1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.
- .2 Dust suppression by the application of water must be employed, when required. Apply dust control measures to roads, parking lots and work areas. The *Departmental Representative* shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil or any other petroleum products must not to be used for dust control under any circumstances.
- .3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.
- .4 Fires and burning of rubbish on site is not permitted.
- .5 To reduce emissions of air contaminants and greenhouse gas, implement an idling policy that includes:
 - .1 Diesel construction equipment will be turned off when not in active use.
 - .2 Vehicles idling more than 5 minutes will be turned off.
 - .3 Morning vehicle warm-ups will be restricted to 3-5 minutes.

- .4 A staging zone will be established for trucks that are waiting to load/unload to minimize public exposure to emissions.
- .5 Idling restrictions will not apply when:
 - .1 The engine is required to power auxiliary equipment (e.g., hoist, lift, computers, safety lights, etc.);
 - .2 Extreme weather conditions (-10° Celsius or below / +30° Celsius or above) or any other circumstance where heating or air conditioning is required for worker's health and safety;
 - .3 The original equipment manufacturer specifically recommends a longer idling period for normal and efficient operation of the motor vehicle in which case such recommended period shall not be exceeded;
 - .4 Vehicle/equipment maintenance and diagnostic purposes;
 - .5 Where the unit is not expected to restart due to mechanical issues.

1.17 BIRD AND BIRD HABITAT

- .1 Become knowledgeable with and abide by the *Migratory Birds Convention Act* regarding the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.
- .2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the work.
- .3 During night time work, position flood lights in opposite direction of nearby bird nesting habitat.
- .4 Ensure that no litter (including food wastes) is left in and around the site.
- .5 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.
- .6 Do not use beaches, dunes, coastal wetlands and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the *Departmental Representative*.
- .7 All machinery must be well muffled. If necessary, trucks may be required to avoid the use of engine brakes along specific sections of the route.
- .8 To avoid the risk of nest destruction, the proponent shall avoid vegetation clearing during the most critical period of the migratory bird breeding season, which is April 15th through August 31st.
- .9 Maintain a minimum distance of 300 m from all areas occupied by concentration of seabirds and waterbirds. Travel at steady speeds when close to seabird and waterbird colonies, moving parallel to the shore, rather than approaching the colony directly. Avoid any sharp or loud noises, do not blow horns or whistles, and maintain constant engine noise levels. Do not pursue seabirds or waterbirds swimming on the water surface and avoid concentration of these birds on the water.
- .10 Should nests or chicks of migratory birds or raptors be encountered during work, immediately stop work in that area and notify *Departmental Representative* for directives to be followed.
 - .1 Do not disturb nest site and neighbouring vegetation until nesting is completed.

- .2 Minimize work immediately adjacent to such areas until nesting is completed.
- .3 Protect these areas by following recommendations of Canadian Wildlife Service (CWS).
- .4 Vessel movement in the vicinity of nesting islands for seabirds and waterbirds should take place at steady speeds, moving parallel to the shore, rather than approaching the island directly.
- .5 Dredge disposal sites may provide habitat suitable for ground-nesting and burrowing birds, including species of conservation concern such as the Common Nighthawk and Bank Swallow. During the breeding season, it is important that nests not be disturbed by erosion prevention and control measures or by excavation and construction activities. If stockpiles are on site or will be on site, any disturbance to such dredge stockpiles is not to be undertaken during the regional nesting period for migratory birds. Nest searches must be undertaken by an experienced observer prior to construction activities, and any nests that are discovered must be protected with an appropriate buffer for the species.
- .6 Intrusive work conducted in potential migratory bird nesting habitat should be scheduled to avoid the regional migratory bird nesting period. In the Maritime Provinces, the regional nesting period is from mid-April to late August, with the exception of southwest Nova Scotia where it extends from early April to late August.

1.18 FISH AND FISH HABITAT PROTECTION

- .1 Monitor and assess weather forecast on a daily basis to determine the risk of extreme weather. Avoid work during periods for which ECCC has issued rainfall or wave warnings for the work area.
- .2 For water-based operations, avoid placing vertical spuds or other anchors into sensitive fish habitat areas outside the footprint of the dredge area (e.g. eelgrass or kelp beds, saltmarshes, shellfish harvesting areas and known spawning areas).
- .3 Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
- .4 Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
- .5 The release of deleterious substances into the watercourse is strictly prohibited. In the event of a release of a deleterious substance, stop work, contain sediment-laden water or other deleterious substances and prevent their further migration into the watercourse. Immediately report any spills or releases of sewage, oil, fuel or other deleterious material, whether near or directly into a water body.
- .6 Work must comply with all conditions of the *Fisheries Act* authorization or Letter of Advice issued by Fisheries and Oceans Canada. A copy of the *Fisheries Act* authorization will be provided to the contractor prior to commencement of work and a copy must be kept on site at all times.

- .7 Be aware of the risk for contamination of the fish habitat at the site as a result of invasive (or alien species) being introduced into the marine environment.
- .8 To minimize the possibility of fish habitat contamination and the spread of aquatic invasive species, all construction equipment that will be immersed into the water of a watercourse, or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and invasive species prior to mobilization to the site.
 - .1 Equipment shall include boats, barges, scows, cranes, excavators, haul trucks, pumps, pipe lines and other all miscellaneous tools and equipment previously used in a marine environment.
- .9 Cleaning and washing of equipment shall be performed immediately upon their arrival at the site and before use in or over the water body.
- .10 Conduct cleaning and washing operations as follows:
 - .1 Scrape and remove heavy accumulation of mud and dispose appropriately.
 - .2 Wash all surfaces of equipment by use of a pressurized fresh water supply.
 - .3 Immediately follow with application of a heavy sprayed coating of undiluted vinegar or other environmentally approved cleaning agent to thoroughly remove all plant matter, animals and sediments.
 - .4 Check and remove all plant, animal and sediment matter from all bilges and filters.
 - .5 Drain standing water from equipment and let fully dry before use.
 - .6 Upon removal from the water, drain standing water from equipment and let fully dry before removal off the site.
- .11 Record of Assurance Logbook:
 - .1 Maintain an on-going log of past and present usage and washdowns of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species.
 - .2 Write data in a hard cover bound logbook to include the following:
 - .1 Date and location where equipment was previously used in a watercourse or wetland;
 - .2 Type of work performed.
 - .3 Dates of wash down for each piece of equipment;
 - .4 Cleaning method and cleaning agent(s) used.
 - .3 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to *Departmental Representative* for review.
 - .4 The *Departmental Representative* has the right to request a video inspection of the equipment, including hulls, to ensure that they are free of marine growth and invasive species prior to mobilization to the site.
- .12 A safety zone for leatherback sea turtles and marine mammals must be established at the work site. The safety zone shall consist of a circle with a radius of at least 500 meters as measured from the center of the work site.
- .13 Maintain periodic visual surveys for leatherback sea turtles and marine mammals within the safety zone.

- .14 If leatherback sea turtles or marine mammals are observed within the safety zone while in-water activities are underway, all in-water activities must cease until the animals leave the safety zone and are not observed within the safety zone for a minimum period of 30 minutes.
- .15 Work may start or restart if marine mammals are not observed within the safety zone within the 30-minute period.

1.21 SOCIOECONOMIC RESTRICTIONS

- .1 Abide by provincial and municipal regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.
- .2 Work equipment and machinery must be equipped with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.
- .3 Place flood lights in opposite direction of adjacent residential and business areas. Use LED lights instead of other types of lights, where possible. LED light fixtures are less prone to light trespass (i.e., are better at directing light where it needs to be, and do not bleed light into the surrounding area).
- .4 Sounds such as whistle blasts and horns will be limited or replaced, to the extent possible, with radio communications.
- .5 Contractor to coordinate with the local Harbour Authority prior to commencement of the work such that the schedule with the least possible conflicts will be implemented.

1.22 ARCHAEOLOGICAL

- .1 All construction personnel are responsible for reporting any cultural materials, which may be archaeological resources, unearthed during construction to the Construction Supervisor. If the find is believed to be an archaeological resource, the Construction Supervisor will immediately stop work in the vicinity of the find and notify the *Departmental Representative*.
- .2 If an archaeological and/or historically significant item (an archaeological resource) is discovered, Work in the area will be stopped immediately and the *Departmental Representative* will be contacted as well as the provincial Archaeological Services unit.
 - .1 Nova Scotia Special Places Program contact can be reached at (902) 424-6475. Alternatively, Nova Scotia Museum contact can be reached at (902) 424-6468.
- .3 Work can only resume in the vicinity of the archaeological find when authorized by the *Departmental Representative*, after approval has been granted by the provincial authority.
- .4 In the event of the discovery of possible human remains or possible evidence of human burials, the work will immediately cease. If the discovery is potential, but not positively human remains, contact the *Departmental Representative* as well as the provincial Archaeological Services unit. If the materials discovered

are undoubtedly human remains, the nearest law enforcement agency will be contacted immediately by the *Departmental Representative* and/or the Construction Supervisor. Until determined otherwise, the possible human remains should be treated as evidence in a criminal investigation. If the possible human remains are found in the bucket of heavy equipment, the bucket should not be emptied as physical evidence may be destroyed by that action. The area should immediately be designated as "Out of Bounds" to all personnel and the public. Depending on the weather and other conditions, the potential human remains should be provided with non-intrusive protection, such as covering with a cloth or canvas tarp (non-plastic preferred). Curiosity seekers should be kept off the site.

1.25 MITIGATION MEASURES PRIOR AND DURING BLASTING

- .1 Prior to commencement of any drilling or blasting activities, a blast plan and marine mammal survey plan must be submitted to the *Departmental Representative* for submission to DFO's Fish and Fish Habitat Protection Program and Transport Canada for review and written approval. Blasting or other use of explosives is not permitted without prior written approval by *Departmental Representative*.
- .2 Contractor will retain a licensed blasting specialist company to develop the blast plan for all blasting-related activities to be conducted. Blast plan to be developed in accordance with *Explosives Act and Regulations*. For additional guidance, refer to DFO's Guidelines for the use of Explosives in or near Canadian Fisheries Waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv + 34p.
- .3 Licensed specialist blasting company to carry out seismographic survey to determine maximum charges that can be used at different areas for which blasting is required. Following survey, provide full report detailing control requirements throughout project to the *Departmental Representative* prior to the start of blasting. Report or any part thereof will not over-rule requirements of local authority having jurisdiction unless report requirements are more stringent.
- .4 No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa (14.5 psi) in the swim bladder of a fish.
- .5 No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation.
- .6 No explosive is to be knowingly detonated within 500 m of any marine mammal (or no visual contact from an observer using 7 X 35-power binocular).
- .7 Pre-blast surveys must be conducted on all surrounding residential buildings within 250 m prior to any blasting at the harbour.
- .8 Where possible, store blasting agents off site at an approved facility, bringing only the amount on site that is needed for one day of work.
- .9 Back-fill blast holes (stemmed) with sand or gravel to grade or to streambed/water interface to confine the blast.

- .10 Place blasting mats over top of holes to minimize scattering of blast debris around the area.
- .11 A standby vessel shall be on station for the duration in order to provide mariners with on-site directions and safe passage as required.
- .12 Do not use ammonium nitrate based explosives in or near water due to the production of toxic by-products.
- .13 Remove all blasting debris and other associated equipment / products from the blast area.
- .14 There shall be no diving birds within 100 m of open water during blasting operations. Blasting shall not occur when any species listed under the *Species at Risk Act* as "Endangered" or avian species listed as "Threatened" or of "Special Concern" are within 250 m of the work site. Blasting may resume when avian species of risk have naturally left the area. The area will be inspected prior to blasting to ensure there are no bird nests present on the rock before blasting. If nests are identified blasting must not commence until all birds have fledged and left the nest.

1.26 DISPOSAL OF DREDGE MATERIAL ON LAND

- .1 Dredged material is to be disposed of at the designated land disposal area located in Sandy Cove East, Digby County, NS, PID 30269542.
- .2 Water that decants from the disposed dredge material shall not directly enter any waterways.
- .3 Site should allow for diffuse, dispersion or diversion onto a field or woodland, but not into drainage ditches that would carry water to a waterway.
- .4 Items such as rubber tires, bottles, cans and other debris or litter must be removed from the disposal site following regrading. Failure to remove such debris may constitute a littering offence under applicable regulations.
- .5 Control runoff of water containing suspended materials or other harmful substances in accordance with requirements of all federal, provincial and municipal authorities having jurisdiction.
- .6 Obtain approval from *Departmental Representative* of the proposed route to be used to haul dredged material to the disposal site.
- .7 Dredged materials shall be stored in a manner to ensure they do not enter or re-enter any water body.
- .8 Unless berms are being constructed, place and spread dredge material at the disposal site in a uniform and well graded manner. Minimize height and slopes of the disposed material. Match slopes and contours of the existing surrounding terrain as much as possible.

End of Section

1 GENERAL

1.1 RELATED REQUIREMENTS

1. Section 01 33 00 - Submittal Procedures.

1.2 INSPECTION

- .1 Refer to GC 2.3.
- .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 special tests, inspections or approvals by Departmental Representative instructions, or 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. If such Work is found in accordance with Contract Documents Departmental Representative will pay cost of examination and replacement.

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Appointment and Payment
 - .1 Departmental Representative will appoint and pay for services of testing laboratory as part of their own Quality Assurance program. However, the Contractor is responsible for the payment and coordination of all Quality Control Testing, including:
 - .1 All field quality control testing and inspection items relating to the Contractor's work. The Contractor will be responsible for all testing as part of their work to ensure Quality Control. All results must be forwarded to the Departmental Representative for review.
 - .2 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .3 Inspection and testing performed exclusively for Contractor's convenience.
 - .4 Mill tests and certificates of compliance.

- .5 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
- .6 Weld testing if required shall be the contractor's responsibility.
- .2 Where tests or inspections by designated testing laboratory reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as *Departmental Representative* may require to verify acceptability of corrected work.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, 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.

1.4 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.
- .3 Make good work disturbed by inspection and tests

1.5 PROCEDURES

- .1 Notify appropriate agency 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.

1.6 REJECTED WORK

- .1 Refer to GC 2.4

- .2 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.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 REPORTS

- .1 Submit original and electronic copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Provide all necessary instruments, equipment, and qualified personnel to perform tests designated as Contractor's responsibilities herein or elsewhere in the Contract Documents.
- .3 As stated in Clause 1.3.1.2, Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations as specified and acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups 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.

- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative .
- .7 Mock-ups may remain as part of Work.

1.10 MILL TESTS

- .1 NOT USED

1.11 EQUIPMENT AND SYSTEMS

- .1 NOT USED

Products

NOT USED

NOT USED

Execution

NOT USED

NOT USED

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 Submittal Procedures.

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 [CAN/CGSB 1.189-\[00\]](#), Exterior Alkyd Primer for Wood.
 - .2 [CGSB 1.59-\[97\]](#), Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
 - .1 [CSA-A23.1/A23.2-\[04\]](#), Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 [CSA-0121-\[M1978\(R2003\)\]](#), Douglas Fir Plywood.
 - .3 [CAN/CSA-S269.2-\[M1987\(R2003\)\]](#), Access Scaffolding for Construction Purposes.
 - .4 [CAN/CSA-Z321-\[96\(R2001\)\]](#), Signs and Symbols for the Occupational Environment.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings for all temporary structures which are required to be engineered. Shop drawings submitted to bear signature and stamp of qualified professional engineer registered or licensed in Province of NS.

1.4 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be graveled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs as required.

1.6 HOISTING

- .1 Provide, operate and maintain hoists, cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists, cranes to be operated by qualified operator.

1.7 SITE STORAGE/LOADING

- .1 Refer to GC 3.12.
- .2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 The Contractor is advised that while parking facilities for his workers and subcontractors will be on property, such parking facilities may be remote from the actual site of the work. In any case, follow all instructions from the Departmental Representative in regards to parking facilities.
- .3 Build and maintain temporary access roads and provide snow removal and dust control during period of work.
- .4 Maintain existing roads and parking areas at site, where used by Contractor, for duration of contract.
 - .1 Keep clean and free of mud and dirt by washing on a regular basis.
 - .2 Provide snow removal in areas located within construction site or enclosed by work.
- .5 Make good and repair damage resulting from Contractor's use of existing roads, asphalted areas and lawns on site.
- .6 Provide and maintain adequate access to project site.

1.9 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.10 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 Departmental Representative's Site office.
 - .1 Provide temporary office for Departmental Representative.
 - .2 Inside dimensions minimum 3.6 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with 4 50% opening windows and one lockable door.
 - .3 Insulate building and provide heating system to maintain 22 degrees C inside temperature at -20 degrees C outside temperature, and a minimum of 24 degrees C inside temperature during summer months.
 - .4 Finish inside walls and ceiling with plywood, hardboard or wallboard and paint in selected colours. Finish floor with 19 mm thick plywood.
 - .5 Install electrical lighting system to provide min 750 lx using surface mounted, shielded commercial fixtures with 10 % upward light component.
 - .6 Provide communications hook-up for telephone and internet. Capacity of internet to be suitable for business applications.
 - .7 Provide private washroom facilities adjacent to office complete with flush or chemical type toilet, lavatory and mirror and maintain supply of paper towels and toilet tissue.
 - .8 Equip office with 1 x 2 m table, 4 chairs, 6 m of shelving 300 mm wide, one 3 drawer filing cabinet, one plan rack and one coat rack and shelf.
 - .9 Equip office with water cooler / filter and maintain supply of bottled water.
 - .10 Maintain in clean condition.
 - .11 If site office cannot provide telephone and internet connection, a second office within 3 km of the site is to be provided which conforms to all conditions including telephone and internet connection.

1.11 EQUIPMENT, TOOL, AND MATERIALS STORAGE

- .1 Locate site storage trailers where directed by Departmental

Representative. Place in location of least interference with existing Facility operations.

- .2 Material storage space on site is limited. Coordinate delivery to minimize storage period on site before being needed for incorporation into work.
- .3 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .4 Make arrangements elsewhere nearby as deemed required and pay all costs for storage of materials not ready for incorporation into work.
- .5 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.12 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.
- .3 When permanent water and drain connections are completed, provide temporary water closets and urinals complete with temporary enclosures, inside building. Permanent facilities may be used on approval of Departmental Representative.

1.13 CONSTRUCTION SIGNAGE

- .1 Provide and erect project sign, within three weeks of signing Contract, in a location designated by Departmental Representative.
- .2 Construction of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.
- .3 Indicate on sign, name of Owner, Departmental Representative and Contractor, of design style established by [Departmental Representative as detailed].
- .4 No other signs or advertisements, other than warning signs, are permitted on site.
- .5 Provide project identification site sign comprising [foundation], framing, and one 1200 x 2400 mm signboard as detailed and as described below.
 - .1 Foundations: 15 MPa concrete to [CSA-A23.1](#) minimum 200 mm x 900 mm deep.
 - .2 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.
 - .3 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood

- to CSA 0121.
- .4 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.
- .5 Fasteners: hot-dip galvanized steel nails and carriage bolts.
- .6 Vinyl sign face: printed project identification, self-adhesive, vinyl film overlay, supplied by Departmental Representative.
- .6 Locate project identification sign as directed by Departmental Representative and construct as follows:
 - .1 Build concrete foundation, erect framework, and attach signboard to framing.
 - .2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.
 - .3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.
- .7 Direct requests for approval to erect Consultant/Contractor signboard to Departmental Representative. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign.
- .8 Signs and notices for safety and instruction in both official languages Graphic symbols to [CAN/CSA-Z321](#).
- .9 Maintain approved signs and notices in good condition for duration of project, and dispose of offsite on completion of project or earlier if directed by Departmental Representative.

1.14 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs.
- .4 Protect travelling public from damage to person and property. Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor responsible for repair of damage to roads caused by construction operations.

- .6 Construct access and haul roads necessary.
- .7 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .8 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .9 Dust control: adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .10 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .11 Provide snow removal during period of Work.
- .12 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.15 CLEAN UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

1.16 TESTING LABORATORY

- .1 NOT USED

1.17 REMOVAL OF TEMPORARY FACILITIES

- .1 Remove temporary facilities from site when directed by Departmental Representative.

2 PRODUCTS

2.1 NOT USED

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 sediment and erosion control drawings, sediment and erosion control plan, specific to site that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 GENERAL

1.1 RELATED REQUIREMENTS

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

1.2 REFERENCE STANDARDS

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-[97] , Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00 , Exterior Alkyd Primer for Wood.
- .2 CSA Group (CSA)
 - .1 CSA-O121-M1978(R2003), Douglas Fir Plywood.
- .3 Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR)
 - .1 Nova Scotia Temporary Workplace Traffic Control Manual (TWTCM)

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 HOARDING

- .1 Erect temporary site enclosure using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m on centre. Provide one lockable truck gate. Maintain fence in good repair.

1.5 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.
- .2 Provide as required by governing authorities.

1.6 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.7 PUBLIC TRAFFIC FLOW

- .1 Provide and maintain competent signal flag operators, traffic

signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.8 FIRE ROUTES

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

1.9 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.

1.10 PROTECTION OF BUILDING 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 Confirm with Departmental Representative locations and installation schedule 3 days prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

1.11 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling or reuse 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 RELATED REQUIREMENTS

- .1 Section 01 45 00 - Quality Control

1.2 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 borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .4 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date of issue is specifically noted.

1.3 ADMINISTRATION

- .1 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
 - .1 Name and address of manufacturer.
 - .2 Trade name, model and catalogue number.
 - .3 Performance, descriptive and test data.
 - .4 Compliance to specified standards.
 - .5 Manufacturer's installation or application instructions.
 - .6 Evidence of arrangements to procure.
 - .7 Evidence of manufacturer delivery problems or unforeseen delays.
- .2 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- .3 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.
- .4 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.

1.4 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 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations.

1.5 ACCEPTABLE MATERIAL AND ALTERNATIVES

- .1 Acceptable Materials: When materials specified include trade names or trademarks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.
- .2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.
- .3 Substitutions: After contract award, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.6 MANUFACTURERS 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.

1.7 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 the Departmental Representative at commencement of the Work and should it subsequently appear that Work may 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.

1.8 WORKMANSHIP

- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Departmental Representative if required Work is such as to make it impractical to produce the required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.
- .4 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.
- .5 Coordinate work between trades and subcontractors. See section 01 14 10 - Scheduling And Management Of Work in this regard.
- .6 Coordinate placement of openings, sleeves and accessories.

1.9 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 products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .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 materials, 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 name plates.

1.10 CONSTRUCTION EQUIPMENT AND PLANT

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

1.11 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out the Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves, and accessories.

1.12 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.

1.13 PROTECTION OF WORK IN PROGRESS

- .1 Prevent overloading of parts of new and existing bridges. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of the 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, pedestrian and vehicular traffic.
- .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 RELATED REQUIREMENTS

- .1 Section 01 11 00 - Summary Of Work.
- .2 Section 01 45 00 - Quality Control.

1.2 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-LATEST EDITION, Stipulated Price Contract.
- .2 Owner's identification of existing survey control points and property limits.

1.3 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.4 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Departmental Representative.
- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.5 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks 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 grading, fill and topsoil placement and landscaping features.
- .4 Stake slopes and berms.

- .5 Establish pipe invert elevations.
- .6 Stake batter boards for foundations.
- .7 Establish foundation column locations and floor elevations.
- .8 Establish lines and levels for mechanical and electrical work.

1.6 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 within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.7 LOCATION OF EQUIPMENT AND FIXTURES

- .1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
- .3 Inform Departmental Representative of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.8 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 Record locations of maintained, re-routed and abandoned service lines.

1.9 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

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 REQUIREMENTS

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

1.2 REFERENCE STANDARDS

- .1 Canadian Construction Documents Committee (CCDC)
 - .1 CCDC 2-[2008], Stipulated Price Contract.

1.3 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than 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 Clear snow and ice from access to facility.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .7 Dispose of waste materials and debris at designated dumping areas on off site.
- .8 Clean areas prior to start of finishing work, and maintain areas free of debris and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate the surrounding environment.

1.4 FINAL CLEANING

- .1 Refer to CCDC 2, GC 3.14.
- .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 other than 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 with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Clean lighting reflectors, lenses, and other lighting surfaces.
- .8 Remove dirt and other disfiguration from exterior surfaces.
- .9 Sweep and wash clean paved areas.

1.5 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.

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 SUMMARY

- .1 This Section includes requirements for management of construction waste and disposal, which forms the Contractor's commitment to reduce and divert waste materials from landfill and includes the following:
 - .1 Waste reduction;
 - .2 Diversion of waste from landfill, and;
 - .3 Material Recycling.

1.2 RELATED REQUIREMENTS

- .1 Section 01 52 00 - Construction Facilities.
- .2 Section 02 41 16 - Structure Demolition.

1.3 REFERENCE STANDARDS

- .1 American Society for Testing and Materials (ASTM):
 - .1 [ASTM E 1609](#) 01, Standard Guide for Development and Implementation of a Pollution Prevention Program
 - .2 RCI Certification Construction and Demolition Materials Recycling

1.4 DEFINITIONS

- .1 Clean Waste: Untreated and unpainted; not contaminated with oils, solvents, sealants or similar materials.
- .2 Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, repair and demolition operations.
- .3 Hazardous: Exhibiting the characteristics of hazardous substances including properties such as ignitability, corrosiveness, toxicity or reactivity.
- .4 Non-hazardous: Exhibiting none of the characteristics of hazardous substances, including properties such as ignitability, corrosiveness, toxicity, or reactivity.
- .5 Non toxic: Not poisonous to humans either immediately or after a long period of exposure.
- .6 Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

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- .7 Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.
- .8 Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form; recycling does not include burning, incinerating, or thermally destroying waste.
- .9 Return: To give back reusable items or unused products to vendors for credit.
- .10 Reuse: To reuse a construction waste material in some manner on the project site.
- .11 Salvage: To remove a waste material from the project site to another site for resale or reuse by others.
- .12 Sediment: Soil and other debris that has been eroded and transported by storm or well production run off water.
- .13 Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.
- .14 Toxic: Poisonous to humans either immediately or after a long period of exposure.
- .15 Trash: Any product or material unable to be reused, returned, recycled, or salvaged.
- .16 Volatile Organic Compounds (VOC's): Chemical compounds common in and emitted by many building products over time through outgassing:
 - .1 Solvents in paints and other coatings;
 - .2 Wood preservatives; strippers and household cleaners;
 - .3 Adhesives in particleboard, fiberboard, and some plywood; and foam insulation.
 - .4 When released, VOC's can contribute to the formation of smog and can cause respiratory tract problems, headaches, eye irritations, nausea, damage to the liver, kidneys, and central nervous system, and possibly cancer.
- .17 Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.5 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate waste management requirements with all Divisions of the Work for the project, and ensure that requirements of the Construction Waste Management Plan are followed.
- .2 Preconstruction Meeting: Arrange a pre-construction meeting in accordance with Section 01 31 19 - Project Meetings before starting

any Work of the Contract attended by the Owner, Contractor, Departmental Representative and Consultant to discuss the Contractor's Construction Waste Management Plan and to develop mutual understanding of the requirements for a consistent policy towards waste reduction and recycling.

1.6 SUBMITTALS

- .1 Provide required information in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals: Provide the following submittals before starting any work of this Section:

1.7 QUALITY ASSURANCE

- .1 The following sources may be useful in developing the Draft Construction Waste Management Plan:
 - .1 Recycling Haulers and Markets: Investigate local haulers and markets for recyclable materials, and incorporate into CWM Plan.
 - .2 Waste-to-Energy Systems: Investigate local waste-to-energy incentives where systems for diverting materials from landfill for reuse or recycling are not available.

1.8 WASTE REDUCTION WORKPLAN (WRW)

- .1 Prepare and submit WRW prior to project start-up.
- .2 WRW identifies strategies to optimize diversion through reduction, reuse, and recycling of materials and comply with applicable regulations.
- .3 Structure WRW to prioritize actions and follow as first priority Reuse, then followed by Recycle.
- .4 Workplan to include:
 - .1 Waste audit.
 - .2 Waste reduction practices.
 - .3 Material source separation process.
 - .4 Procedures for sending recyclables to recycling facilities.
 - .5 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
 - .6 Training and supervising workforce on waste management at site.
- .5 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.
- .6 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.

- .7 Submit copy of Workplan to Departmental Representative for review and approval.
 - .1 Make revisions to Plan as directed by Departmental Representative.
- .8 Implement and manage all aspects of Waste Management Workplan for duration of work.
- .9 Revise Plan as work progresses addressing new opportunities for diversion of waste from landfill.

1.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up. The Demolition Waste Audit (DWA), with related weight bills and /or receipt must be submitted on a monthly basis with the Contractor's monthly Progress claim.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities to collect, handle and store anticipated quantities of reusable, salvageable and recyclable materials.
 - .1 Use suitable containers for individual collection of items based on intended purpose.
 - .2 Locate to facilitate deposit but without hindering daily operations of existing building tenants.
 - .3 Clearly mark containers and stockpiles as to purpose and use.
- .4 Perform demolition and removal of existing building components and equipment following a systematic deconstruction process.
 - .1 Separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:
 - .1 Reinstallation into the work where indicated.
 - .2 Salvaging reusable items not needed in project which Contractor may sell to other parties. Sale of such items not permitted on site.
 - .3 Sending as many items as possible to locally available recycling facility.
 - .4 Segregating remaining waste and debris into various individual waste categories for disposal in a "non-mixed state" as recommended by waste processing/landfill sites.
- .5 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.
- .6 Send leftover material resulting from installation work for recycling whenever possible.

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- .7 Establish methods whereby hazardous and toxic waste materials, and their containers, encountered or used in the course work are properly isolated, stored on site and disposed in accordance with applicable laws and regulations from authorities having jurisdiction.
- .8 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.10 DELIVERY, STORAGE AND HANDLING

- .1 Storage Requirements: Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.
- .2 Handling Requirements: Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials:
 - .1 Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.
 - .2 Arrange for collection by or delivery to the appropriate recycling or reuse facility.
 - .3 Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations.
- .3 Unless specified otherwise, materials for removal become Contractor's property.
- .4 Protect, stockpile, store and catalogue salvaged items.
- .5 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .6 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .7 Separate and store materials produced during project in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.
 - .1 On-site source separation is required.
 - .2 Remove co-mingled materials to off-site processing facility for separation.
 - .3 Obtain waybills, receipts and/or scale tickets for separated materials removed.

1.11 DISPOSAL OF WASTE

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner and the like into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.
- .5 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in strict accordance with provincial and municipal regulations.
- .6 Sale of salvaged items by Contractor to other parties not permitted on site.

Part 2 PRODUCTS

2.1 NOT USED

- .1 NOT USED.

Part 3 EXECUTION

3.1 IMPLIMENTATION

- .1 Do Work in compliance with WRW.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

END OF SECTION

Part 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 78 00: Closeout Submittals.

1.2 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.
 - .1 Notify Departmental Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Departmental Representative's inspection of the completed work.
 - .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: Accompany Departmental Representative during all substantial and final inspections of the Work.
 - .1 Departmental Representative and Contractor will perform inspection of Work to identify obvious defects of deficiencies.
 - .2 Contractor to correct Work accordingly.
- .3 Note that Departmental Representative will not issue a Certificate of Substantial Performance of the work until such time that Contractor performs following work and turns over the specified documents:
 - .1 Project record as-built documents;
 - .2 Final Operations and Maintenance manuals;
 - .3 Maintenance materials, parts and tools;
 - .4 Compliance certificates from applicable authorities;
 - .5 Reports resulting from designated tests;
 - .6 Demonstration and training complete with user manuals;
 - .7 Manufacturer's Guarantee certificates.
 - .8 Testing, adjusting and balancing of equipment and systems complete with submission of test reports.
 - .9 Commissioning of equipment and systems specified.
- .4 Correct all discrepancies before Departmental Representative will issue the Certificate of Completion.
- .5 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.

PWGSC	CLOSEOUT PROCEDURES	SECTION 01 77 00
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END OF SECTION

Part 1 GENERAL

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00: Submittal Procedures.
- .2 Section 01 77 00: Closeout Procedures.

1.2 PROJECT RECORD DOCUMENTS

- .1 Departmental Representative will provide 2 white print sets of contract drawings and 2 copies of Specifications Manual specifically for "As-Built" purposes.
- .2 Maintain at site one set of the contract drawings and specifications to record actual As-Built site conditions.
- .3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative upon request.
- .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of work, neatly transfer notations to second set (also by use of red ink).
 - .2 Submit both sets to Departmental Representative prior to application for Certificate of Substantial Performance.
 - .3 Stamp all drawings with "As-Built". Label and place Contractor's signature and date.
 - .4 Show all modifications, substitutions and deviations from what is shown on the contract drawings.
- .5 As-Built Specifications: legibly mark in red each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.
 - .2 Changes made by Addenda and Change Orders.
 - .3 Mark up both copies of specifications; stamp "As-Built", sign and date similarly to drawings as per above clause.
- .6 Maintain As-Built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Failure to maintain as-builts current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.
- .7 Submit on paper and in electronic format as pdf files. Forward pdf and in the native program format, MS Word], MS Excel, MS Project and AutoCAD dwg and photograph jpg files on USB compatible with

PWGSC encryption requirements or through email or alternate electronic file sharing service such as ftp, as directed by Departmental Representative.

1.3 REVIEWED SHOP DRAWINGS

- .1 Provide a complete set of all shop drawings reviewed for project to incorporate into each copy of the Operations and Maintenance Manuals.
- .2 Submit full sets at same time and as part of the contents of the Operation and Maintenance Manuals specified.

1.4 UPDATING OF DIGITAL DRAWINGS

- .1 Obtain and pay for the services of a qualified drafting firm to update the digital files which were used to produce the contract drawings.
 - .1 Update the digital drawing files with the same As-Built information as specified for the paper As-Built drawings.
 - .2 Supply of digital documents does not replace the requirement to provide marked-up white prints specified above.
- .2 The Departmental Representative will provide a copy of the digital drawing files.
- .3 Incorporate the as-built changes to the digital drawings by following the standards specified in the latest version of the PWGSC National CADD Standard. A copy of this manual will be provided by the Departmental Representative.
- .4 Make revisions to electronic files found to be in non-conformance with the PWGSC National CADD Standard as directed by Departmental Representative.
- .5 In regards to updating the digital files to reflect changes resulting from Change Orders, the change in cost of completing the As-Built documentation of changes is to be included in the amount for each Change Order issued. The amount included will constitute only the increase or decrease in CADD related costs resulting directly from the change. In determining the cost difference, full consideration will be given to the fact that other clauses of this section require As-Built CADD updates to the drawings irrespective of any Change Orders.
- .6 Deliver the digital As-Built information in same format and sequence as the contract drawings and specifications.
 - .1 Submit on PWGSC encrypted USB.
 - .2 Provide 1 full set of paper plots.
 - .3 Submit the digital As-Built at the same time as the marked-

up paper white prints.

1.5 OPERATIONS & MAINTENANCE MANUAL

- .1 O&M Manual - Definition: an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of the specifications.
- .2 Manual Language: final manuals to be in [English] [French] [both English and French] languages.
- .3 Number of copies required:
 - .1 Submit 2 interim copies of the manual for review and inspection by Departmental Representative. Make revisions and additions as directed and resubmit.
 - .2 Upon review and acceptance by Departmental Representative, submit 3 final copies. Interim copies are not to be considered as part of the final copies unless they have been fully revised and are identical to the final approved version.
- .4 Submission Date: submit complete operation and maintenance manual to Departmental Representative 3 weeks prior to application for Certificate of Substantial Performance of the work.
- .5 Binding:
 - .1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.
 - .2 Use vinyl, hard covered, 3 "D" ring binders, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
 - .3 Where multiple binders are needed, correlate data into related consistent groupings.
 - .4 Identify contents of each binder on spine.
 - .5 Organize and divide data following same numerical system as the section numbers of the Specification Manual.
 - .6 Dividers: separate each section by use of cardboard dividers and labels. Provide tabbed fly leaf for each individual product and system and give description of product or component.
 - .7 Type lists and notes. Do not hand write.
 - .8 Drawings, diagrams and manufacturers' literature must be legible. Provide with reinforced, punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .6 Manual Contents:
 - .1 Cover sheet containing:
 - .1 Date submitted.
 - .2 Project title, location and project number.
 - .3 Names and addresses of Contractor, and all Sub-Contractors.
 - .2 Table of Contents: provide full table of contents in each

-
- binder(s), clearly indicate which contents are in each binder.
- .3 List of maintenance materials.
 - .4 List of spare parts.
 - .5 List of special tools.
 - .6 Original or certified copy of warranties and product guarantees.
 - .7 Copy of approval documents and certificates issued by Inspection Authorities.
 - .8 Copy of reports and test results performed by Contractor as specified.
 - .9 Product Information (PI Data) on materials, equipment and systems as specified in various sections of the specifications. Data to include:
 - .1 List of equipment including manufacturer's name, supplier, local source of supplies and service depot(s). Provide full addresses and telephone numbers.
 - .2 Nameplate information including equipment number, make, size, capacity, model number and serial number.
 - .3 Parts list.
 - .4 Installation details.
 - .5 Operating instructions.
 - .6 Maintenance instructions for equipment.
 - .7 Maintenance instructions for finishes.
- .7 Shop drawings:
- .1 Include complete set of reviewed shop drawings into each copy of the operations and maintenance manual.
 - .2 Fold and bind material professionally in a manner that corresponds with the specification section numbering system.
 - .3 When large quantity of data is submitted, place into separate binders of same size as O&M binders.
- .8 Equipment and Systems Data: the following list indicates the type of data and extent of information required to be included for each item of equipment and for each system:
- .1 Description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed colour coded wiring diagrams.
 - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

- .6 Servicing and lubrication schedule, and list of lubricants required.
 - .7 Manufacturer's printed operation and maintenance instructions.
 - .8 Sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports.
 - .15 Additional requirements as specified in individual specification sections.
- .9 Materials and Finishes Maintenance Data:
- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
 - .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
 - .3 Additional Requirements: as specified in individual specifications sections.

1.6 FINAL SURVEY

- .1 Submit final site as-built survey plan in both electronic and paper format. Electronic format to be CAD (AutoCAD Civil 3D) and PDF copy of paper format. Paper format to be stamped and signed by a qualified registered land surveyor, licensed to practice in [Province of Work]. Survey information to include all features within the extents of the site and extend to existing ground prior to construction. Streambed within the site is also to be surveyed. Maximum spacing between survey points not to exceed 10 meters.
- .2 Submit final site survey certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.7 SPARE PARTS, TOOLS AND MAINTENANCE MATERIALS

- .1 Provide spare parts, special tools and extra materials for maintenance purposes in quantities specified in individual specification sections.
- .2 Tag all items with associated function or equipment.

- .3 Provide items of same manufacture and quality as items in Work.
- .4 Deliver to site in well packaged condition. Store in location as directed by Departmental Representative.
- .5 Clearly mark as to contents indicating:
 - .1 Part number.
 - .2 Identification of equipment or system for which parts are applicable.
 - .3 Installation instructions or intended use as applicable.
 - .4 Name, address and telephone number of nearest supplier.
- .6 Prepare and submit complete inventory list of items supplied. Include list within Maintenance Manual.

END OF SECTION