SPECIFICATION

SHORELINE PROTECTION IMPROVEMENTS

FLATROCK, NL

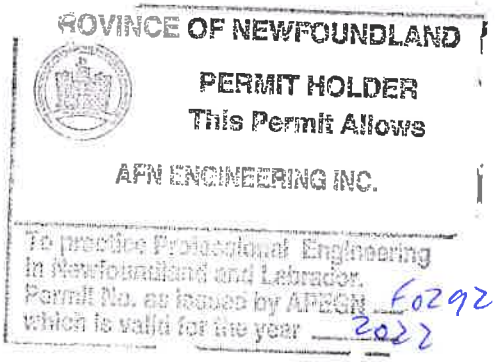
C2-00470

PREPARED FOR:

Fisheries and Oceans Canada

DATE

February 12, 2022
Revision 2



LIST OF DRAWINGS

Shoreline Protection Improvements
Flatrock, NL
C2-00470

2022-02-12

DRAWING NO	TITLE
C1 of 4	Existing Site Plan
C2 of 4	New Site Plan
C3 of 4	Sections
C4 of 4	Sections

1.1 SCOPE

.1 The work consists of the furnishing of all plant, labour, equipment and material for shoreline protection improvements at Flatrock, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.

.2 Note that the Contractor must incorporate COVID-19 standardized protocols in their site specific Health and Safety Plan. The protocols are to include:
.1 Prevention (signage, practices to reduce risk of transmission, encouragement of social distancing, use of PPE, use of individual modes of transportation, monitoring status of workers, construction jobsite and trailer cleaning protocols, etc.).
.2 Detection (screening at entry of construction site, unauthorized entry points, etc.).
.3 Response measures (shut down procedures, individual case handling, etc.)

1.2 DESCRIPTION OF WORK

.1 In general, work under this contract will consist of, but will not necessarily be limited to, the following:

.1 Supply and installation of filter stone and armour stone, as noted on the drawings.
.2 Supply and installation of concrete toe wall (drilled/anchored into bedrock).

1.3 SITE OF WORK

.1 Work will be carried out at Flatrock, NL, in the location as shown on the accompanying drawings.

1.4 DATUM

.1 Datum used for this project is Lowest

Normal Tides (LNT) which is assumed to be 5.277m below bench mark CHS 92F9168. Departmental Representative will confirm a benchmark prior to start of construction.

.2 Bidders are advised to consult the Tide Tables issued by Fisheries and Oceans in order to make sure of the tidal conditions affecting work.

1.5 FAMILIARIZATION WITH SITE

.1 Before submitting a bid, it is recommended that bidders visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, severity, exposure and uncertainty of weather, soil conditions, any accommodations they may require, and in general shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid or costs to do the work. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

.2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.

1.6 CODES AND STANDARDS

.1 Perform work in accordance with the latest edition of the National Building Code of Canada, FCC Standard 373 - Standard for Piers and Wharves (http://www.hrsdc.gc.ca/eng/labour/

fire_protection/policies_standards/commissioner/373/page00.shtml), and any other code of provincial or local application including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.

.2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.7 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.

1.8 SETTING OUT WORK

.1 Set grades and layout work in detail from control points and grades established by Departmental Representative.

.2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.

.3 Provide devices needed to layout and construct work.

.4 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

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

1.9 COST BREAKDOWN

.1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract

price.

.2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.

.3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.

.4 All work items not designated in the unit price table as a measurement for payment, are to be included in the lump sum arrangement, as noted on the Bid and Acceptance Form.

1.10 WORK SCHEDULE

.1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance letter.

.2 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.

.3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient

details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.

.4 Submit schedule updates on a minimum monthly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.

.5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to complete work within approved time. Do not change schedule without Departmental Representative's approval.

.6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

1.11 ABBREVIATIONS .1 Following abbreviations of standard specifications have been used in this specification and on the drawings:

CGSB - Canadian Government Specifications Board
CSA - Canadian Standards Association
NLGA - National Lumber Grades Authority
ASTM - American Society for Testing and Materials

.2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 QUARRY AND EXPLOSIVES

.1 Make own arrangements with Provincial authorities and owners of private properties, for the quarrying and transportation of rock and all materials and machinery necessary for work over their property, roads or streets as case may be.

1.13 SITE OPERATIONS

.1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. Do not interfere with normal day-to-day operations in progress at site. All arrangements for space and access will be made by Contractor.

.2 Remove snow and ice as required to maintain safe access in a manner that does not damage existing structures or interfere with the operations of others.

1.14 PROJECT MEETINGS

.1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.

.2 Project meetings will take place on site of work unless so directed by the Departmental Representative.

.3 Departmental Representative will assume responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.

.4 Have a responsible member of firm present at all project meetings.

1.15 PROTECTION

.1 Store all materials and equipment to be incorporated into work to prevent damage

by any means.

.2 Repair or replace all materials or equipment damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.16 EXISTING SERVICES

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to site operations, pedestrian, vehicular traffic and tenant operations.

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

.3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility. This includes disconnection of electrical power and communication services to tenant's operational areas. Adhere to approved schedule and provide notice to affected parties.

.4 Provide temporary services when directed by Departmental Representative to maintain critical facility systems.

.5 Provide adequate bridging over trenches which cross walkways or roads to permit normal traffic.

.6 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.7 Protect, relocate or maintain existing active services as required. When inactive services are encountered, cap off in

manner approved by authorities having jurisdiction over service. Record locations of maintained, re-routed and abandoned service lines.

1.17 DOCUMENTS REQUIRED

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

.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 Site specific Health and Safety Plan and other safety related documents
.11 Other documents as stipulated elsewhere in the Contract Documents.

1.18 PERMITS

.1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other Authorities.

.2 Provide appropriate notifications of project to municipal and provincial inspection authorities.

.3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.

.4 Submit to Departmental Representative, copy of application submissions and approval documents received for above referenced authorities.

.5 Submit to Departmental Representative, copy of quarry permit, if applicable, prior to start of quarry operations.

.6 Comply with all requirements, recommendations and advice by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.19 CUTTING, FITTING AND PATCHING

.1 Execute cutting, including excavation, fitting and patching required to make work fit properly.

.2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.

.3 Do not cut, bore, or sleeve load-bearing members.

.4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

1.20 EXISTING SUB-SURFACE CONDITIONS

.1 Information pertaining to the existing sub-surface conditions may be available by contacting the Departmental Representative.

.2 Contractors are cautioned that any previous investigations that may be available for review, were intended to provide general site information only. Any interpolation and/or assumptions made relative to any previous investigations is the Contractor's responsibility.

1.21 LOCATION OF EQUIPMENT

.1 Location of work shown or specified shall be considered as approximate. Actual location shall be as required to suit conditions at time of installation and as is reasonable. Obtain approval of Departmental Representative.

.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 when impending installation conflicts with other new or existing components. Follow directives for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.22 FISH HABITAT

.1 This work is being conducted in an area where fish habitat may be affected. Perform work to conform with rules and regulations governing fish habitat and in accordance with authorization for work or undertakings affecting fish habitat. If required by DFO, supply and maintain a silt curtain during all dredging activities to ensure turbidity levels do not increase to unacceptable levels outside the immediate work area.

.2 Contact the local Department of Fisheries and Oceans detachment at least 48 hours in advance of starting any work on site. Submit confirmation to the Departmental Representative that DFO have been contacted.

1.23 NOTICE TO SHIPPING/MARINERS

.1 Notify the Marine Communications and Traffic Services' Centre, of Fisheries and Oceans Canada at (709)695-2168, ten (10) days prior to commencement and upon completion of the work, in order to allow for the issuance of Notices to Shipping/Mariners.

.2 During construction any vessels or barges utilized must be marked in accordance with the provisions of the Canada Shipping Act Collision Regulations.

1.24 ACCEPTANCE

.1 Prior to the issuance of the Certificate of Substantial Performance, in company with Departmental Representative, make a check of all work. Correct all discrepancies before final inspection and acceptance.

1.25 WORKS COORDINATION

.1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.

.2 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. Provide each trade with the plans and specifications of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

.3 Canada will not be responsible for or held accountable for any extra costs incurred as a result of the failure to carry out coordination 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

and shall be resolved at no extra cost to Canada.

1.26 CONTRACTOR'S USE OF SITE

.1 Construction operations, including storage of materials for this contract, not to interfere with the fishing activity and/or operations at this harbour facility.

.2 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.

.3 Contractor will take adequate precautions to protect existing concrete decks and asphalt when operating tracked equipment.

.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.

1.27 WORK COMMENCEMENT

.1 Mobilization to project site is to commence immediately after acceptance of bid and submission of Site Specific Safety Plan and insurance documentation, unless otherwise agreed by Departmental Representative.

.2 Project work on site is to commence as soon as possible, with a continuous reasonable work force, unless otherwise

agreed by Departmental Representative.

.3 Weather conditions, short construction season, delivery challenges and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.

.4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

1.28 FACILITY SMOKING ENVIRONMENT

.1 Comply with smoking restrictions.

1.29 WORKING ADJACENT TO COMMUNITY ROADS

1. The Contractor will be responsible to restore any damage to existing roadways.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Inspecting and testing by inspecting firms or testing laboratories designated by Departmental Representative.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

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

1.3 APPOINTMENT AND PAYMENT

.1 Departmental Representative will appoint and pay for services of testing laboratory except for the following:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Mill tests and certificates of compliance.
.4 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
.5 Tests requested by Departmental Representative to confirm material specifications when the applicable manufacturer's documentation or test results are unavailable.
.6 Additional tests specified in the following paragraph.

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

1.4 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:
.1 Provide access to Work to be inspected and tested.
.2 Facilitate inspections and tests.
.3 Make good Work disturbed by inspection and test.
.4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.

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

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

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

PART 2 - PRODUCTS

2.1 NOT USED

.1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED

.1 Not Used.

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Shop drawings and product data.

.2 Samples.

.3 Certificates.

1.2 SUBMITTAL GENERAL REQUIREMENTS

.1 Submit to Departmental Representative for review submittals listed, including shop drawings, samples, certificates and other data, as specified in other sections of the Specifications.

.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 are reviewed by Departmental Representative.

.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 to Departmental Representative. Ensure during review that necessary requirements have been determined and verified, required field measurements or data have been taken, 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 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent work and coordinate.

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

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

.11 Submittal format: 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.

.12 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.

.13 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 drawings, diagrams, illustrations, schedules, performance charts, product data, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Number of Shop Drawings: submit sufficient copies of shop drawings which are required by the General Contractor and sub-contractors plus 2 copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified, if applicable.

.3 Shop Drawings Content and Format:

.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 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 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.

.4 Delete information not applicable to project on all submittals.

.4 Allow 10 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 Price. 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 Accompany each submission with transmittal letter, 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.

.8 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.

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

.10 The review of shop drawings by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that the Departmental Representative 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 SCHEDULES, PERMITS AND CERTIFICATES

.1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.

.2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.

.3 Submission of above documents to be in accordance with Submittal General Requirements procedures specified in this section.

1.1 SECTION INCLUDES

.1 Fire Safety Requirements.

.2 Hot Work Permit.

1.2 RELATED WORK

.1 Section 01 35 25 - Special Procedures on Lockout Requirements.

.2 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
.1 FCC No. 301-June 1982 Standard for Construction Operations (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml).
.2 FCC No. 302-June 1982 Standard for Welding and Cutting (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/302/page00.shtml).
.3 FCC standards, may also be viewed at the Regional Fire Protection Services' office (previously known as the Fire Commissioner of Canada) located at 99 Wyse Road, 8th Floor, Dartmouth, NS, Tel: (902) 426-6053.

1.4 DEFINITIONS

.1 Hot Work defined as:
.1 Welding work.
.2 Cutting of materials by use of torch or other open flame devices.
.3 Grinding with equipment which produces sparks.

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 after notification of acceptance of bid.

.2 Submit in accordance with the Submittal General Requirements specified in 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, latest edition.
.2 Fire Protection Standards FCC 301 and FCC 302.
.3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29.

.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 during performance of hot work, Departmental Representative will provide authorization to

proceed as follows:
.1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
.2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

.4 Requirement for individual authorization 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 Facility. Follow Departmental Representative's directives in this regard.

1.8 HOT WORK PROCEDURES

.1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.

.2 Procedures to include:
.1 Requirement to perform hazard assessment of site and immediate hot work area

for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29.
.2 Use of a Hot Work Permit system for each hot work event.
.3 The step by step process of how to prepare and issue permit.
.4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
.5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
.6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29.

.3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
.1 Worker(s),
.2 Authorized person issuing the Hot Work Permit,
.3 Fire Safety Watcher,
.4 Subcontractors and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.
.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental

Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

1.9 HOT WORK PERMIT

.1 Hot Work Permit to include, as a minimum, the following data:
.1 Project name and project number.
.2 Building name, address and specific room or area where hot work will be performed.
.3 Date when permit issued.
.4 Description of hot work type to be performed.
.5 Special precautions required, including type of fire extinguisher needed.
.6 Name and signature of person authorized to issue the permit.
.7 Name of worker (clearly printed) to which the permit is being issued.
.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.
.9 Worker signature with date and time upon hot work termination.
.10 Specified time period requiring safety watch.
.11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.

.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 and signed as follows:
.1 Authorized person issuing Permit before

hot work commences.
.2 Worker upon completion of Hot Work.
.3 Fire Safety Watcher upon termination of safety watch.
.4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 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.

1.1 SECTION INCLUDES

.1 Procedures to isolate and lockout electrical facility or other equipment from energy source.

1.2 RELATED WORK

.1 Section 01 35 24 – Special Procedures on Fire Safety Requirements.

.2 Section 01 35 29 - Health and Safety Requirements.

1.3 REFERENCES

.1 C22.1-06 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.

.2 CAN/CSA C22.3 No. 1-10 - Overhead Systems.

.3 CAN/CSA C22.3 No. 7-10 - 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 is 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 Perform lockouts in compliance with:
.1 Canadian Electrical Code.
.2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29.
.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 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.

1.6 SUBMITTALS

.1 Submit copy of proposed Lockout Procedures and sample form of lockout permit or lockout tags for review.

.2 Submit documentation within 7 calendar days of acceptance of bid. Do not proceed with work until submittal has been reviewed by Departmental Representative.

.3 Submit above documents in accordance with the submittal 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 conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.

.2 To obtain authorization, submit to Departmental Representative the following documentation:
.1 Written Request for Isolation of the service or facility and;
.2 Copy of Contractor's Lockout Procedures.

.3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, and as follows:
.1 Fill-out standard forms in current use at the Facility when so directed by Departmental Representative or;

.2 Where no form exist at Facility, make request in writing identifying:
.1 Identification of system or equipment to be isolated, including it's location;
.2 Time duration, indicating Start time and date, and Completion time and date when isolation will be in effect;
.3 Voltage of service feed to system or equipment being isolated;
.4 Name of person making the request.
.3 Document to be in typewritten format.

.4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.

.5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.

.6 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.

.7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.

.8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29.

1.8 LOCKOUTS

.1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting work on such items.

.2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.

.3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.

.4 Use industry standard lockout tags.

.5 Provide appropriate safety grounding and guards as required.

.6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.

.7 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:
.1 Controlling issuance of permits or tags to workers.
.2 Determining permit duration.
.3 Maintaining record of permits and tags issued.

.4 Submitting a Request for Isolation to Departmental Representative when required in accordance with Clause 1.7 above.
.5 Designating a Safety Watcher, when one is required based on type of work.
.6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.
.7 Collecting and safekeeping lockout tags, returned by workers, as a record of the event.

.8 Clearly establish, describe and allocate, within procedures, the responsibilities of:
.1 Workers.
.2 Designated person controlling issuance of lockout tags/permits.
.3 Safety Watcher.
.4 Subcontractors and General Contractor.

.9 Procedures shall meet the requirements of Codes and Regulations specified in clause 1.5 above.

.10 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.
.1 Incorporate site specific rules and procedures established by Facility Manager and in force at site. Obtain such procedures through Departmental Representative.

.11 Procedures to be in typewritten format.

.12 Submit copy of Lockout Procedures to Departmental Representative, in accordance with submittal requirements of clause 1.6 herein, prior to commencement of work.

1.9 CONFORMANCE

.1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.

.2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.

.3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

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 submitted to Departmental Representative and lockout permits or tags issued to workers during the course of work for full project duration.

.3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

1.1 RELATED WORK

.1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.

.2 Section 01 35 25 - Special Procedures on Lockout Requirements.

1.2 DEFINITIONS

.1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.

.2 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.

.3 Medical Aid Injury: any minor 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.

.4 PPE: personal protective equipment.

.5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 SUBMITTALS

.1 Make submittals in accordance with Section 01 33 00.

.2 Submit site-specific Health and Safety Plan prior to commencement of Work.
- .1 Submit within 10 work days of notification of Bid Acceptance. 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 & 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, Provincial and Territorial health and safety inspectors.

.7 Submit copies of incident reports.

.8 Submit WHMIS MSDS - Material Safety Data Sheets.

1.4 COMPLIANCE REQUIREMENTS

.1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.

.2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.

.1 The Canada Labour Code can be viewed at: www.http://laws.justice.gc.ca/en/L-2/

.2 COSH can be viewed at: www.http://laws.justice.gc.ca/eng/SOR-86-304/ne.html.

.3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).

.3 Observe construction safety measures of:

.1 Part 8 of National Building Code.

.2 Municipal by-laws and ordinances.

.4 In case of conflict or discrepancy between any 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 of 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 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.

.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.
.1 Departmental Representative will

assist in locating address if needed.

1.9 PERMITS

.1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.

.2 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 site specific health and safety hazard assessment of the Work and its site.

.2 Carryout initial assessment prior to commencement of Work with further assessments 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 Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE CONDITIONS

.1 The following are known or potential project related safety hazards at site:

.1 Working in close proximity of water.
.2 Use of water crafts and floating platforms.
.3 Wet and slippery conditions.
.4 Inclement weather.
.5 Potential structural weakness of existing structures.
.6 Heavy equipment activity in the area.
.7 Heavy lifting.
.8 Working at heights.

.9 Cutting tools and other construction power tools.
.10 Overhead power/utility lines.
.11 Risk of electric shock.
.12 Vehicular and pedestrian traffic.
.13 Confined spaces.

.2 Above items shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work.

.3 Include above items into hazard assessment process.

.4 MSDS Data sheets of pertinent hazardous and controlled products stored on site can be obtained from Departmental Representative.

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 regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.

.3 Keep documents on site.

1.13 HEALTH AND SAFETY PLAN

.1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce

Plan for entire duration of Work and until final demobilization from site.

.2 Health and Safety Plan shall include the following components:
- .1 List of health risks and safety hazards identified by hazard assessment.
- .2 Control measures used to mitigate risks and hazards identified.
- .3 On-site Contingency and Emergency Response Plan as specified below.
- .4 On-site Communication Plan as specified below.
- .5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
- .6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

.3 On-site Contingency and Emergency Response Plan shall include:
- .1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.
- .2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills, location of fire fighting equipment and other related data.
- .3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
- .4 Emergency Contacts: name and telephone number of officials from:
  - .1 General Contractor and

subcontractors.

.2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.

.3 Local emergency resource organizations.

.5 Harmonize Plan with Facility's Emergency Response and Evacuation Plan. Departmental Representative will provide pertinent data including name of Departmental Representative and Facility Management contacts.

.4 On-site Communication Plan:

.1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.

.2 List of critical work activities to be communicated with Facility Manager which have a risk of endangering health and safety of Facility users.

.5 Address all activities of the Work including those of subcontractors.

.6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.

.7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.

.8 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 bi-weekly basis. Record deficiencies and remedial action taken.
  - .2 Conduct Formal Inspections on a minimum monthly basis. Use

standardized safety inspection forms. Distribute to subcontractors.

.3 Follow-up and ensure corrective measures are taken.

.6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by Departmental Representative.

.7 Keep inspection reports and supervision related documentation on site.

1.15 TRAINING

.1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.

.2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.

.3 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; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:

.1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.

.2 Immediately report unsafe condition at

site, near-miss accident, injury and damage.
.3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
.4 Obey warning signs and safety tags.

.2 Brief persons of disciplinary protocols to be taken for non compliance. 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 the following incidents to Departmental Representative:
.1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
.2 Medical aid injuries.
.3 Property damage in excess of $10,000.00.
.4 Interruptions to Facility operations resulting in an operational lost to a Federal department in excess of $5000.00.

.2 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.

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 local and provincial codes.

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 Obtain permit from Facility Manager
.2 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 conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.

.2 Post other documents as specified herein, including:
.1 Site specific Health and Safety Plan.
.2 WHMIS data sheets.

1.25 DIVING OPERATIONS

.1 All diving work to comply fully with the requirements of CSA Z275.2-04, "Occupational Safety Code for Diving Operations", CSA Z275.4-02, "Competency Standards for Diving Operations "and CSA Z180.1-00,"Compressed Breathing Air and Systems."

.2 Dive personnel must meet the minimum competency requirements of the CSA Z275.4-02 (R2008) and all divers must possess a valid Category 1 Diving Certificate or an Unrestricted Surface-supplied Certificate.

.3 Diving in free-swim mode is not permitted at the work site.

.4 Divers must have a current(less than one year) validated medical examination certificate(s) from a licensed Diving Physician in Newfoundland and Labrador who is knowledgeable and competent in diving and hyperbaric medicine, for all dives.

1.1 RELATED WORK

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

1.2 DEFINITIONS

.1 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.

1.3 FIRES

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

1.4 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS

.1 Do not bury rubbish and waste materials on site. Dispose at approved landfill sites as specified in Section 01 74 21.

.2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.

.3 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

.4 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carryout such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.

.5 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials. Separate at source all construction waste

materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.

.6 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.5 DRAINAGE

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

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.

.4 Pumped water must meet applicable federal, provincial, and municipal standards before it can be discharged to a surface water body. If regulatory guidelines exceedences are noted, the Departmental Representative has the right to issue stop pumping instructions to the Contractor. Contractor will not be compensated for any delays associated with retrofitting equipment to meet guidelines.

.5 Provide control devices such as filter fabrics, sediment traps and settling ponds to control drainage and prevent erosion of adjacent lands. Maintain in good order for duration of work.

1.6 PERMITS

.1 All guidelines and instructions stated on permits must be strictly adhered to. Use a silt/turbidity curtain if required to reduce sedimentation outside the work area during dredging to the approval of DFO.

1.7 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

.3 Do not dump excavated fill, waste material or debris in waterways.

.4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial and federal environmental regulations.

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

.6 Avoid indicated spawning beds when constructing temporary crossings of waterways.

.7 Do not blast within 100 m of spawning beds.

.8 Do not refuel any type of equipment within 100 m of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.8 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

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

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and around entire construction site.

.5 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage began.

.6 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.

.7 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

.8 Provide a floating debris containment boom whenever any of the Contractors methods of work allow for the potential of floating debris.

1.9 WILDLIFE PROTECTION

.1 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.

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mill tests.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION

.1 Facilitate Departmental Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.

.3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed. Pay costs to uncover and make good such Work.

.4 In accordance with the General Conditions, Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 Departmental Representative may engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting

and testing portions of Work except for the following which remain part of Contractor's responsibilities:

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

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

.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Mill tests and certificates of compliance.

.5 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.

.6 Additional tests specified in Clause 1.4.2.

.2 Where tests or inspections by designated Testing Agency 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.

.3 Employment of inspection and testing agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.5 ACCESS TO WORK

.1 Furnish labour and facility to provide access to the work being inspected and tested.

.2 Co-operate to facilitate such inspections and tests.

.3 Make good work disturbed by inspections and tests.

1.6 PROCEDURES

.1 Notify Departmental Representative sufficiently in advance of when work is ready

for tests, in order for Departmental Representative to make attendance arrangements with Testing Agency. When directed by Departmental Representative, notify such Agency directly.

.2 Submit representative samples of materials specified to be tested. Deliver in required quantities to Testing Agency. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples on site. Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.

1.7 REJECTED WORK

.1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.

.2 Make good damages to existing or new work, including work of other Contracts, resulting from removal or replacement of defective work.

1.8 TESTING BY CONTRACTOR

.1 Provide all necessary instruments, equipment and qualified personnel to perform tests designated as Contractor's responsibilities herein or elsewhere in the Contract Documents.

.2 At completion of tests, turn over 2 copies of fully documented test reports to Departmental Representative.

.3 Submit mill test certificates and other certificates as specified in various sections.

.4 Furnish test results and mix designs as specified in various sections.

1.1 ACCESS

.1 Provide and maintain adequate access to project site.

.2 Maintain access roads for duration of contract and make good damage resulting from Contractors' use of roads.

1.2 CONTRACTOR'S SITE OFFICE

.1 Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative.

1.3 DEPARTMENTAL REPRESENTATIVE'S SITE OFFICE

.1 Provide or construct a separate site office for the use of the Departmental Representative and the Site Representative. The building must be in place prior to commencement of work.

.2 Provide heating system to maintain 22°C inside temperature at -20°C outside temperature.

.3 The building will be approximately 2400 mm x 3600 mm. It will have a suitable frame covered with a weatherproof siding and lined with plywood or other approved material. The floor will be of 19 mm thick material. It will be provided with suitable window with at least 1 m^2 of glass and arranged to provide at least 0.5 m^2 of screened opening. The door will be fitted with a lockset and 2 keys.

.4 The office will be equipped with a drafting chair and a 900 mm x 1500 mm table having a hinged, smooth wooden top suitable for drafting.

.5 Install electrical lighting system to provide minimum 750 lux using surface mounted,

shielded commercial fixtures with 10% upward light component.

.6 Maintain office in clean condition.

.7 Arrange and pay for telephone, internet and facsimile machine in the Departmental Representative's Office for Site Representative's exclusive use. Long distance calls or faxes placed on this phone by the Departmental Representative or the Site Representative will be paid by the Departmental Representative.

.8 Contractor may, on approval of Departmental Representative, provide cellular or mobile phone. If approval to use cellular or mobile phone is granted, be responsible for all services, airtime, license and network access fees, and all other fees or charges required to utilize the phone as intended by the manufacturer.

1.4 SANITARY FACILITIES

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

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

1.5 POWER

.1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.

.2 Supply and install all temporary facilities for power such as pole lines and underground cables to approval of local power supply authority.

1.6 WATER SUPPLY

.1 Arrange, pay for and maintain temporary water

supply in accordance with governing regulations and ordinances.

1.7 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CSA797-09.

.2 Erect scaffolding independent of walls. Remove when no longer required.

1.8 CONSTRUCTION SIGN AND NOTICES

.1 Contractor or subcontractor advertisement signboards are not permitted on site.

.2 Only notices of safety or instructions are permitted on site.

.3 Safety and Instruction Signs and Notices:
.1 Signs and notices for safety and instruction shall be in both official languages.

.4 Maintenance and Disposal of Site Signs:
.1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.9 REMOVAL OF TEMPORARY FACILITIES

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

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Barriers.

.2 Traffic Controls.

1.2 INSTALLATION AND REMOVAL

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

.2 Remove from site all such work after use.

1.3 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 centres. Provide one lockable truck gate. Maintain fence in good repair.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around open excavations.

.2 Provide barricades along wharf structure when wheelguard is removed.

.3 Provide as required by governing authorities.

1.5 ACCESS TO SITE

.1 Provide and maintain access to adjacent harbour facilities.

1.6 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 the public.

1.7 FIRE ROUTES

.1 Maintain access to property including

overhead clearances for use by emergency response vehicles.

1.8 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.

1.1 DESCRIPTION

.1 This section specifies requirements for board, lodgings and related services to be provided by the Contractor for the Inspector.

.2 It is a requirement of this contract that the Contractor provide and pay for all board and lodgings for the Site Inspector's sole use for the duration of the project. Provide for and maintain acceptable living accommodations on site for the Site Inspector's sole use. The minimum requirement would be a hotel within 5km of the project site, or other arrangement approved by the Departmental Representative. The minimum daily allowance for the site inspector's meals (to be paid for by the contractor), is in accordance with the latest published Treasury Board guidelines for breakfast/lunch/dinner allowances (these can be found on-line at http://www.njc-cnm.gc.ca/directive/travel-voyage/s-td-dv-a3-eng.php).

1.2 BOARD AND LODGINGS

.1 For the purpose of this contract board and lodgings shall include but not necessarily be limited to: sleeping accommodation, meals and dining facilities, washroom facilities, laundry facilities, electrical and heating service, linens and bedding, etc. and any reasonable service as directed by the Departmental Representative.

.2 Board and lodgings must be approved by the Departmental Representative and Contractor will cooperate in providing all services required to maintain an acceptable standard of living during construction period.

.3 The Contractor shall include all calendar days, including weekends and statutory holidays in determining the cost.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

.1 Comply with any or all applicable Agencies regulation of the Province of Newfoundland and Labrador, relating to the set up, servicing and maintenance of accommodations for the Site Inspector.

.2 Obtain and pay for any permits which may be required and comply to regulations of same.

1.1 GENERAL

.1 Use new material and equipment unless otherwise specified.

.2 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 manufacturer's installation or application instructions;
.5 evidence of arrangements to procure.
.6 evidence of manufacturer delivery problems or unforseen delays.

.3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.

.4 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

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

1.2 PRODUCT QUALITY AND REFERENCED STANDARDS

.1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.

.2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions.

1.3 ACCEPTABLE MATERIALS AND ALTERNATIVES

.1 Acceptable Materials: When materials specified include trade names or trade marks 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 acceptance of bid, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 MANUFACTURERS INSTRUCTIONS

.1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.

.2 Notify Departmental representative in writing of any conflict between these specifications and manufacturers instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

.1 Immediately notify Departmental Representative in writing of unforeseen or unanticipated material delivery problems by manufacturer. Provide support documentation as per Clause 1.1.2 above.

1.6 WORKMANSHIP

.1 Ensure quality of work is of highest standard,

executed by workers experienced and skilled in respective duties for which they are employed.

.2 Remove unsuitable or incompetent workers from site as stipulated in General Conditions.

.3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.

.4 Coordinate work between trades and subcontractors.

.5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS - GENERAL

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

.2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.

.3 Keep exposed fastenings to minimum, space evenly and lay out neatly.

.4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.

.5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See Section 01 35 29 on Health and Safety in this regard.

1.8 FASTENINGS - .1 Use fastenings of standard commercial sizes

EQUIPMENT

and patterns with material and finish suitable for service.

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

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur and, use resilient washers with stainless steel.

1.9 STORAGE, HANDLING AND PROTECTION

.1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.

.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 and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible

debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Immediately remove damaged or rejected materials from site.

.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. Prevent oil and other contaminant leaks. Should any contaminant leak onto ground or into the water, take immediate and appropriate measures to contain, cleanup and dispose in an environmentally responsible manner.

PART 1 - GENERAL

1.1 GENERAL

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.

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

.3 Prevent accumulation of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 MATERIALS

.1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.3 CLEANING DURING CONSTRUCTION

.1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.

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

.3 Remove waste materials and debris from site on a daily basis.

1.4 FINAL CLEANING

.1 In preparation for acceptance of the Work perform final cleaning.

.2 Inspect finishes, fitments and equipment. Ensure specified workmanship and operation.

.3 Broom clean exterior paved and concrete surfaces; rake clean other surfaces of grounds.

1.1 RELATED SECTIONS

.1 Section 01 35 43 - Environment Procedures.

.2 Section 02 41 16 - Sitework, Demolition and Removal.

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

1.2 WASTE MANAGEMENT PLAN

.1 Prior to commencement of work, prepare waste Management Workplan.

.2 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.

.3 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.

.4 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.

.5 Submit copy of Workplan to Departmental Representative for review and approval.
.1 Make revisions to Plan as directed by Departmental Representative.

.6 Implement and manage all aspects of Waste Management Workplan for duration of work.

.7 Revise Plan as work progresses addressing new opportunities for diversion of waste from landfill.

1.3 WASTE AUDIT

.1 At project start-up, conduct waste audit of:
.1 Site conditions identifying salvageable and non-salvageable items and waste resulting from demolition and removal work.
.2 Projected waste resulting from product packaging and from material leftover after installation work.

.2 Develop written list. Record type, composition and quantity of various salvageable items and waste anticipated, reasons for waste generation and operational factors which contribute to waste.

1.4 WASTE REDUCTION

.1 Based on waste audit, develop waste reduction program.

.2 Structure program to prioritize actions, with waste reduction as first priority, followed by salvage and recycling effort, then disposal as solid waste.

.3 Identify materials and equipment to be:
.1 Protected and turned over to Departmental Representative when indicated.
.2 Salvaged for resale by Contractor.
.3 Sent to recycling facility.
.4 Sent to waste processing/landfill site for their recycling effort.
.5 Disposed of in approved landfill site.

.4 Reduce construction waste during installation work. Undertake practices which will minimize waste and optimize full use of new materials on site, such as:
.1 Use of a central cutting area to allow for easy access to off-cuts;
.2 Use of off-cuts for blocking and bridging elsewhere.
.3 Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut

materials to allow for easy incorporation into work whenever possible avoiding unnecessary waste.

.5 Develop other strategies and innovative procedures to reduce waste such as minimizing the extent of packaging used for delivery of materials to site, etc.

1.5 MATERIAL SOURCE SEPARATION PROCESS

.1 Develop and implement material source separation process at commencement of work as part of mobilization and waste management at site.

.2 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.

.3 Perform demolition and removal of existing structure 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.

.4 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.

.5 Send leftover material resulting from installation work for recycling whenever possible.

.6 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.

.7 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.6 WORKER TRAINING AND SUPERVISION

.1 Provide adequate training to workforce, through meetings and demonstrations, to emphasize purpose and worker responsibilities in carrying out the Waste Management Plan.

.2 Waste Management Coordinator: designate full-time person on site, experienced in waste management and having knowledge of the purpose and content of Waste Management Plan to:

.1 Oversee and supervise waste management during work.

.2 Provide instructions and directions to all workers and subcontractors on waste reduction, source separation and disposal practices.

.3 Post a copy of Plan in a prominent location on site for review by workers.

1.7 CERTIFICATION OF MATERIAL DIVERSION

.1 Submit to Departmental Representative, copies of certified weigh bills from authorized waste processing sites and sale receipts from recycling/reuse facilities confirming receipt of building materials and quantity of waste diverted from landfill.

.2 Submit data at pre-determined project milestones as determined by Departmental Representative.

.3 Compare actual quantities diverted from landfill with projections made during waste audit.

1.8 DISPOSAL REQUIREMENTS

.1 Burying or burning of rubbish and waste materials is prohibited.

.2 Disposal of waste, volatile materials, mineral spirits, oil, paint, paint thinner or unused preservative material into waterways, storm, or sanitary sewers is prohibited.

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

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

.5 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.

.6 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.

.7 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.

.8 Transport waste intended for landfill in separated condition, following rules and recommendations of Landfill Operator in support of their effort to divert, recycle and reduce amount of solid waste placed in landfill.

.9 Collect, bundle and transport salvaged materials to be recycled in separated categories and condition as directed by recycling facility. Ship materials only to approved recycling facilities.

.10 Sale of salvaged items by Contractor to other parties not permitted on site.

1.1 SECTION INCLUDES

.1 Project Record Documents as follows:
.1 As-built drawings;
.2 As-built specifications;
.3 Reviewed shop drawings.

1.2 PROJECT RECORD DOCUMENTS

.1 Departmental Representative will provide two white print sets of contract drawings and two 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 at any time during construction.

.4 As-Built Drawings:
.1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of project and prior to final inspection, neatly transfer notations to second set (also by use of red ink). Submit both sets to Departmental Representative. All drawings of both sets shall be stamped "As-Built Drawings" and be signed and dated by Contractor.
.2 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
.3 Record following information:
.1 Horizontal and vertical location of various elements in relation to Geodetic Datum.
.2 Field changes of dimension and detail.
.3 All design elevations, sections, and details dimensioned and marked-up to consistently report finished

installation conditions.

.4 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings must also be marked-up and dimensioned to reflect final as-built conditions and appended to the as-built drawing document.

.5 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.

.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. Frequency of reviews will be subject to Departmental Representative's discretion. 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.

1.3 REVIEWED SHOP DRAWINGS	.1	Compile 2 full sets of all reviewed shop drawings.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for demolishing and removing wholly or in part various items designated to be removed or partially removed.

.2 Demolition and removal will consist of, but not necessarily be limited to, the following:

.1 Removal of the existing asphalt and underlying granulars as noted on the drawings. Existing asphalt to be disposed of at Robin Hood Bay. Contractor shall obtain and pay for all necessary permits and disposal fees for use of any approved waste disposal site.

1.2 GENERAL REQUIREMENTS

.1 A Notice to Shipping is to be issued prior to commencement and upon completion of work.

.2 During construction, any vessels or barges utilized must be marked in accordance with the provisions of the Canada Shipping Act Collision Regulations.

.3 Upon completion of the project, a written Notice to Mariners must be issued.

1.3 PROTECTION

.1 Protect existing objects designated to remain. In event of damage, immediately replace or make repairs to approval of and at no additional cost to Canada.

.2 Place a floating boom around entire demolition site to prevent loss of any materials. If required by DFO Habitat, place a silt curtain around the work area and maintain throughout the period of construction.

.3 Remove all floating debris from water on a

routine and timely basis.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXECUTION

.1 Inspect site and verify with Departmental Representative objects designated for removal.

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

3.2 REMOVAL

.1 Remove in their entirety all materials and objects specified for removal.

.2 Do not disturb adjacent work designated to remain in place.

3.3 RESTORATION

.1 Upon completion of work, remove debris, trim surfaces and leave work site in clean condition.

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

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 20 00 - Concrete Reinforcing.

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

1.2 REFERENCES

.1 Canadian Standards Association (CSA)
.1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
.2 CAN/CSA-O86-09, Engineering Design in Wood.
.3 CSA O121-08, Douglas Fir Plywood.
.4 CSA O151-09, Canadian Softwood Plywood.
.5 CSA O153-M1980 (R2008), Poplar Plywood.
.6 CAN3-O188.0-M78, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
.7 CSA O437 Series-93 (R2006), Standards for OSB and Waferboard.
.8 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
.9 CAN/CSA-S269.3-M92 (R2008), Concrete Formwork.

1.3 SHOP DRAWINGS

.1 Submit shop drawings for formwork and falsework in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings Comply with CAN/CSA-S269.3 for formwork drawings.

.3 Indicate formwork design data, such as permissible rate of concrete placement, and

temperature of concrete, in forms.

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

.5 Each shop drawing submission shall bear stamp and signature of qualified Professional Engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

1.4 WASTE MANAGEMENT AND DISPOSAL

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

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

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

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

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Formwork materials:
.1 Use formwork materials to CAN/CSA-A23.1.

.2 Form ties:
.1 Removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.

.3 Form release agent: non-toxic, chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.

.4 Falsework materials: to CSA-S269.1.
.1 Materials required to bear grade marks, or be accompanied with certificates, test reports or other proof of conformity.

.5 Premoulded joint fillers:
.1 Bituminous impregnated fibreboard to ASTM D1751.

.6 Bond Breaker:
.1 Impermeable tube formed of polyvinylchloride, rubber or similar material to the approval of the Departmental Representative. Internal diameter equal to dowels.

PART 3 - EXECUTION

3.1 FABRICATION AND ERECTION

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

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

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

.4 Fabricate and erect falsework in accordance with CSA S269.1.

.5 Fabricate and erect formwork in accordance

with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.1.

.6 Align form joints and make watertight. Keep form joints to minimum.

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

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

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

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

3.2 REMOVAL AND RESHORING

.1 Leave formwork in place for following minimum periods of time after placing concrete.
.1 5 days for slabs, decks and other structural members, or 3 days when replaced immediately with adequate shoring to standard specified for falsework.

.2 Remove formwork when concrete has reached 75% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.

.3 Provide all necessary reshoring of members where early removal of forms may be required

or where members may be subjected to additional loads during construction as required.

.4 Space reshoring in each principal direction at not more than 3000 mm apart.

.5 Re-use formwork and falsework subject to requirements of CAN/CSA-A23.1.

3.3 JOINT FILLERS .1 Install joint filler in all joints.

3.4 JOINT SEALANT .1 Fill control joints with sealer as per manufacturer instructions. Sealant to be suitable for application in a seawater marine environment.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 03 10 00 - Concrete Forming and Accessories.

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

1.2 REFERENCES

. 1 American Concrete Institute (ACI)
.1 ACI 315R-04, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.2 American National Standards Institute/American Concrete Institute (ANSI/ACI)
.1 ANSI/ACI 315-99, Details and Detailing of Concrete Reinforcement.

.3 American Society for Testing and Materials International (ASTM)
.1 ASTM A185/A185M-07, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
.2 ASTM A497/A497M-07, Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
.3 ASTM-A123/A123M-09, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

.4 Canadian Standards Association (CSA)
.1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
.2 CSA-A23.3-04(R2010), Design of Concrete Structures.
.3 CAN/CSA-G30.18-09, Carbon Steel Bars for Concrete Reinforcement.
.4 CSA-G40.20-04/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality

Steel.

.5 CSA W186-M1990 (R2007), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.3 SHOP DRAWINGS

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

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

1.4 WASTE MANAGEMENT AND DISPOSAL

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

.2 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.

.3 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-30.18.

.4 Cold-drawn annealed steel wire ties: to ASTM A-82/A-82M.

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

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

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CAN/CSA-A23.1, ANSI/ACI 315, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada. ACI 315R, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures unless indicated otherwise.

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

.3 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.

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

2.3 SOURCE QUALITY CONTROL

.1 Provide Departmental Representative with certified copy of mill test report of

reinforcing steel, showing physical and chemical analysis, minimum 2 weeks prior to commencing reinforcing work.

.2 Upon request inform Departmental Representative of proposed source of material to be supplied.

PART 3 - EXECUTION

3.1 FIELD BENDING

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

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

.3 Replace bars which develop cracks or splits.

3.2 PLACING REINFORCEMENT

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

.2 Use approved type chairs to locate the reinforcing steel at the proper grade.

.3 Tie reinforcement where spacing in each direction is:
.1 Less than 300 mm: tie at alternate intersections.
.2 300 mm or more: tie at each intersection.

.4 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.

.5 Ensure cover to reinforcement is maintained during concrete pour.

3.3 CLEANING

.1 Clean reinforcing before placing concrete to CAN/CSA-A23.1.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies requirements for supply, placing, finishing, protecting and curing cast-in-place concrete for concrete slab and concrete seawall.

1.2 RELATED SECTIONS

.1 Section 03 10 00 - Concrete Forming and Accessories.

.2 Section 03 20 00 - Concrete Reinforcing.

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM)
- .1 ASTM C109/C109M-08, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50 mm Cube Specimens).
- .2 ASTM C260/260M-10a, Standard Specification for Air-Entraining Admixtures for Concrete.
- .3 ASTM C494/C494M-10a, Standard Specification for Chemical Admixtures for Concrete.

.2 Canadian Standards Association (CSA)
- .1 CAN/CSA-A23.1-09, Concrete Materials and Methods of Concrete Construction.
- .2 CAN/CSA-A23.2-09, Methods of Test for Concrete.
- .3 CSA-A283-06, Qualification Code for Concrete Testing Laboratories.
- .4 CAN/CSA-A3000-08, Cementitious Materials Compendium (consists of A3001, A3002, A3003, A3004 and A3005).
  - .1 CSA-A3001-08, Cementitious Materials for Use in Concrete.

1.4 CERTIFICATES

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

.2 Minimum 2 weeks prior to starting concrete work submit to Departmental Representative manufacturer's test data and certification by qualified independent inspection and testing laboratory that following materials will meet specified requirements:
.1 Portland cement.
.2 Blended hydraulic cement.
.3 Supplementary cementing materials.
.4 Grout.
.5 Admixtures.
.6 Aggregates.
.7 Water.
.8 Joint filler.
.9 Joint Sealant.

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

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

1.5 STORAGE OF MATERIALS

.1 Store materials to prevent contamination or deterioration.

.2 Provide adequate storage facilities for materials to ensure a continuous supply of these materials during batching operations.

.3 Store cement in weathertight facility.

1.6 QUALITY ASSURANCE

.1 Minimum 2 weeks prior to starting concrete work, submit proposed quality control procedures to Departmental Representative for the following items:
.1 Cold weather concrete.

.2 Curing.
.3 Finishes.
.4 Formwork removal.
.5 Joints.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Use trigger operated spray nozzles for water hoses.

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

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

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

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

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

1.8 MEASUREMENT FOR PAYMENT

.1 Concrete Slab: Supply and installation of the concrete slab to be measured in square metres (m^2) calculated from actual field measurements. Contractor to provide all plant, equipment, material, and labour including concrete, reinforcing steel, and control joints.

.2 Concrete Toe Wall: Supply and installation

of the concrete toe wall will be measured by the linear metre (LM). Contractor to provide all plant, equipment, material, and labour including concrete, reinforcing steel, drilled anchors, grout, etc.

.3 No separate payment will be made for any other ingredient or feature of concrete work, and all factors, including cold weather placement, reinforcing steel, joint filler for control joints, cement, thickening of slab on grade to achieve slope, drilling/grouting, expansion joints, plant and labour will be considered as being included in the unit price for item.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Cement to CAN/CSA-A3001: Type GU.

.2 Supplementary cementing materials: to CAN/CSA-A3001.

.3 Cementitious hydraulic slag: to CAN/CSA-A3001.

.4 Water: to CAN/CSA-A23.1.

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

.6 Air entraining admixture: to ASTM C260.

.7 Chemical admixtures: to ASTM C494/C494M. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.8 Concrete retarders: to ASTM C494/C494M. Do not allow moisture of any kind to come in contact with the retarder film.

.9 Curing compound: curing compounds are not to be used.

.10 Premoulded joint fillers:
.1 Sponge rubber: to ASTM D1752, Type I, flexible grade.

.11 Grout for drilled anchors: Sika MS Cable or approved equal.

2.2 MIXES

.1 Proportion concrete in accordance with CAN/CSA-A23.1, Clause 4.3.

.2 Proportion concrete to comply with Alternate 1, Table 2 in CAN/CSA-A23.1 and following requirements:
.1 Cement:
.1 Type GU Portland cement.
.2 Minimum compressive strength: 35 MPa at 28 days.
.3 Class of exposure: C1 (chloride ion penetrability test requirement of <1,500 coulombs within 56 days does not have to be met for this mix design).
.4 Minimum cement content: 385 kg/m³ of concrete.
.5 20 mm nominal size coarse aggregate.
.6 Air content 5% to 8%.
.7 Density of air-dry concrete in range of 2240 kg/m³ to 2400 kg/m³.
.8 Slump at time and point of discharge 50 mm to 100 mm.

.3 When the Contractor wishes to purchase concrete from a ready mix concrete supplier, submit a letter from the supplier certifying the following:
.1 That plant and equipment is certified and all materials to be used in the concrete comply with the requirements of CAN/CSA-A23.1.
.2 That the mix proportions selected

will produce concrete of the specified quality and yield. Indicate mix proportions and sources of all materials.
.3 That the strengths will comply with the strengths specified herein.

.4 When the Contractor wishes to mix concrete on site, identify the source of aggregates and submit samples of fine and coarse aggregates to a testing laboratory for testing and trial mixes in order to determine a suitable mix design. The testing laboratory, at Contractor's cost, will test the trial mix for slump, air content, density and strength. The results of these tests will be submitted to the Departmental Representative to be reviewed for compliance with the specification. This review must be completed before permission to place concrete is given.
.1 The sand, gravel, water and air entraining agent should be mixed prior to the addition of cement and water reducer.

.5 Weigh aggregates, cement, water and admixture when batching. No alternative methods of measuring will be permitted.

.6 Do not use calcium chloride.

PART 3 - EXECUTION

3.1 PREPARATION

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

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

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

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

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

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

3.2 CONSTRUCTION

.1 Comply with additional requirements of CAN/CSA-A23.1, Clause 4.1.1.5, for concrete exposed to seawater environments.

.2 Minimum concrete cover over reinforcing steel bars to be 75 mm.

.3 Place concrete in hot weather to CAN/CSA-A23.1.

.4 Place concrete in cold weather to CAN/CSA-A23.1.

.5 Keep concrete surfaces moist continually during protection stage.

.6 Place, consolidate, finish, cure and protect concrete to CAN/CSA-A23.1.

.7 Do not commence placing concrete until Departmental Representative has inspected and approved forms, foundations, reinforcing steel, joints, conveying, spreading, consolidation and finishing equipment and curing and protective methods.

3.3 FORMWORK

.1 Install and strip formwork to CAN/CSA-A23.1 and Section 03 10 00.

3.4 INSERTS

.1 Position and secure anchor bolts in formwork to maintain line and grades.

3.5 CONTROL JOINTS

.1 Construct control joints in locations shown on drawings or directed by Departmental Representative.

.2 All joints will be centred over a support. Joints will be made in a perfectly straight line.

.3 Cut control joint when concrete has hardened.

.4 Fill saw cut with joint sealer as specified.

3.6 PLACING CONCRETE

.1 Place and consolidate concrete to CAN/CSA-A23.1.

.2 Do not place concrete on or against frozen material.

.3 Place concrete continuously from joint to joint.

.4 Place concrete in a uniform heading, normal to the centreline. Limit rate of placing to that which can be finished before beginning of initial set.

3.7 STRIKE OFF AND CONSOLIDATION

.1 High speed internal poker vibrators shall be used to consolidate the concrete during placing. Final compaction of the surfaces shall be done by beam-type vibratory air screed as approved by Departmental Representative. A surcharge of

approximately 65 mm of concrete will be maintained at the screed face during consolidation.

.2 Strikeoff and consolidation must be completed before excess water bleeds to the surface.

.3 Ensure that the concrete deck conforms to the elevations and slopes as shown on the drawings so that satisfactory drainage will result.

3.8 FINISHING

.1 Only ACI certified or other pre-approved concrete finishers are to be utilized in finishing all concrete works. All work is to be finished to CAN/CSA-A23.1, and as specified below.

.2 The surface will be brought to the specified level by means of darbying or bull floating which will be carried out immediately following screeding and must be completed before any bleed water is present on the surface. Surface tolerance to be 8 mm under a 3 metre straight edge.

.3 Provide slope as shown on the drawings to permit proper drainage of the concrete deck.

.4 Finish slabs to elevations indicated on drawings.

.5 Strike off the surface with a straight edge.

.6 Hand tamp low slump concrete with jitterbug.

.7 Darby or bull float the surface to smooth and level the concrete.

.8 Allow bleed water or sheen to disappear.

.9 Float the surface by means of power and/or hand float where the concrete has hardened enough for a man to leave only slight footprints on the surface.

.10 Do not bring water and fines to the surface by over floating. Where extra floating is required the floating operation shall be repeated after the time interval necessary for any sheen to disappear and for concrete to set further.

.11 Steel trowel the concrete surfaces by means of power and/or hand trowel. Do not leave any hard, smooth, polished or burnished surface area.

.12 Do not bring water and fines to the surface by overtrowelling.

.13 After slight interval necessary for concrete to further harden, repeat the trowelling operation.

.14 Lightly broom surface with a soft bristle broom obtaining a fine and even textured finish with a non-slip finish. All brush strokes to be parallel across paving.

.15 The surface shall be true and accurate to a maximum tolerance of 1 mm in 500 mm.

3.9 PROTECTION AND CURING

.1 Cure to CAN/CSA-A23.1.

.2 Cure concrete by protecting it against loss of moisture, rapid temperature change and mechanical injury for at least 7 days after placement. After finishing operations have been completed, the entire surface of the newly placed concrete shall

be covered by whatever curing medium is applicable to local conditions and approved by the Departmental Representative. The edges of concrete slabs exposed by removal of forms shall be protected with continuous curing treatment equal to the method selected for curing the slab and curb surfaces. Cure to CAN/CSA-A23.1. Have the equipment needed for adequate curing at hand and ready to install before actual concrete placement begins.

.3 When air temperature is at or below 5°C or when there is a probability of its falling to that limit within 24 hours of placing (as forecast by the nearest official meteorological office) cold weather protection as per CAN/CSA-A23.1 will be provided and the following:

.1 Housing - Protect concrete by a windproof shelter of canvas or other material to allow free circulation of inside air around fresh touch formwork and provide sufficient space for removal of formwork for finishing. Supply approved heating equipment capable of keeping inside air at a constant temperature sufficiently high to maintain concrete at following curing temperatures.

.1 For initial 3 days at a temperature of not less than 15°C nor more than 27°C at surface.

.2 Maintain concrete at 10°C for an extra 4 days plus the initial 3 days.

.3 In addition to the protective housing, the concrete must be cured as outlined in Clause 3.9.2 above.

3.10 TESTING

.1 Departmental Representative will appoint a concrete testing company to test all work under this section of specification as per CAN/CSA-A23.1.

.2 Cost of compressive strength tests shall be paid for by the Departmental Representative.

.3 Testing company shall issue reports to Departmental Representative on quality of test cylinders.

.4 Notify Departmental Representative at least 7 days prior to start of placing concrete. Provide for testing purposes an adequate quantity of approved test cylinders.

.5 At least 1 set of 3 cylinders each shall be taken from 25 m^3 or fraction thereof of each day's pour, whichever is less. 1 cylinder shall be tested at 7 days and other 2 tested at 28 days.

.6 Crate cylinders and deliver to the testing laboratory within 48 hours after casting in accordance with CAN/CSA-A23.1. Contractor will pay for crating and delivery of cylinders to the laboratory.

.7 If strength tests of test cylinder for any portion of the work falls below the specified compressive strength at 28 days, the Departmental Representative reserves the right to determine the acceptability of the concrete by performing additional field testing as outlined in CAN/CSA-A23.1.

.8 If concrete does not conform to drawings or specifications, take measures as directed to correct the deficiency. All costs of correctional measures will be at the expense of the Contractor.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

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

1.2 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)
.1 ASTM A 53/A53M-10, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
.2 ASTM A 269-10, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
.3 ASTM A307-10, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
.4 AST-A123/A123M-09, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
.2 CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.

.3 Canadian Standards Association (CSA International)
.1 CSA-G40.20/G40.21-04 (R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
.2 CAN/CSA-S16.1-09, Design of Steel Structures.
.3 CSA W48-06, Filler Metals and Allied

Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).
.4 CSA W59-03 (R2008), Welded Steel Construction (Metal Arc Welding).

.4 The Environmental Choice Program
.1 CCD-047a-98, Paints, Surface Coatings.
.2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.3 SUBMITTALS

.1 Product Data:
.1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
.2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
.1 For finishes, coatings, primers and paints.

.2 Shop Drawings
.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
.2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

.1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

.2 Certificates: Product certificates signed by manufacturer certifying materials

comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Packing, Shipping, Handling and Unloading:

.2 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

.3 Storage and Protection:
.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.

.2 Welding materials: to CSA W59.

.3 Welding electrodes: to CSA W48 Series.

.4 Bolts and anchor bolts: to ASTM A 307.

2.2 FABRICATION

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

.2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.

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

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

2.3 FINISHES

.1 Galvanizing: hot dipped galvanizing with zinc coating to ASTM-A123/A123M.

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

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

2.4 SHOP PAINTING

.1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.

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

.3 Clean surfaces to be field welded; do not paint.

PART 3 - EXECUTION

3.1 ERECTION

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

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

.3 Provide suitable means of anchorage acceptable to Departmental Representative

such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.

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

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

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

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

3.2 CLEANING

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

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

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Geotextile not measured separately for payment. Include costs in the lump sum.

.2 Materials and installation of polymeric geotextiles, purpose of which is to:
.1 Separate and prevent mixing of granular materials of different grading.
.2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.

1.2 RELATED WORK

.1 Section 01 33 00 - Submittal Procedures.

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

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM D4491-99a(2004)e1, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
.2 ASTM D4595-05, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
.3 ASTM D4716-04, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
.4 ASTM D4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-4.2-M88, Textile Test Methods.
.2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Geomembranes.

.1 No.2-M85, Mass per Unit Area.
.2 No.3-M85, Thickness of Geotextiles.
.3 No.7.3-92, Grab Tensile Test for Geotextiles.
.4 No.6.1-93, Bursting Strength of Geotextiles Under No Compressive Load.

.3 Canadian Standards Association (CSA)
.1 CAN/CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.
.2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

1.4 SAMPLES

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

.2 Submit to Departmental Representative the following samples at least 2 weeks prior to commencing work.
.1 Minimum length of 1 m of roll width of geotextile.

1.5 MILL CERTIFICATES

.1 Submit to Departmental Representative a copy of mill test data and certificate at least 2 weeks prior to start of work.

1.6 DELIVERY AND STORAGE

.1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.7 WASTE MANAGEMENT AND DISPOSAL

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

.2 Remove from site and dispose of all

packaging materials at appropriate recycling facilities.

.3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, and packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.

.4 Fold up metal banding, flatten and place in designated area for recycling.

PART 2 - PRODUCTS

2.1 MATERIAL

.1 Geotextile: woven or non-woven synthetic fibre fabric, supplied in rolls.
.1 Width: 3.5 m minimum.
.2 Length: 50 m minimum.
.3 Composed of: minimum 85% by mass of polyester with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure.

.2 Physical properties:
.1 Thickness: to CAN/CGSB-148.1, No.3, minimum 2.5 mm.
.2 Mass per unit area: to CAN/CGSB-148.1, No. 2, minimum 400 g/m².
.3 Tensile strength and elongation (in any principal direction): to ASTM D4595.
.1 Tensile strength: minimum 1200 N, wet condition.
.2 Elongation at break: 50 to 100 percent.
.3 Seam strength: equal to or greater than tensile strength of fabric.
.4 Mullen burst strength: to CAN/CGSB-4.2, method 11.1, minimum 3100 kPa.

.3 Hydraulic properties:
.1 Apparent opening size (AOS): to ASTM D4751, 50 to 150 micrometres.
.2 Permittivity: to ASTM D4491, 0.25 cm per second.

.4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CAN/CSA G164.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Place one (1) layer of geotextile material along side slope and retain in position.

.2 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with securing pins and washers.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.5 Overlap each successive strip of geotextile 600 mm over previously laid strip.

.6 Join successive strips of geotextile by sewing.

.7 Pin successive strips of geotextile with securing pins at mid point of lap to

satisfaction of Departmental Representative.

.8 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.9 After installation, cover with overlying layer within 4 hours of placement.

.10 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

3.2 CLEANING

.1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.3 PROTECTION

.1 Vehicular traffic not permitted directly on geotextile.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section specifies the requirements for the supplying, producing and placing crushed gravel for quarried stone as a granular base course to lines, grades and typical cross sections indicated, or as directed by Departmental Representative.

1.2 REFERENCES

.1 ASTM C 117-04, Test method for material finer than 0.075 mm sieve in mineral aggregates by washing.

.2 ASTM C 131-06. Test method for resistance to degradation of small size coarse aggregate by abrasion and impact in the Los Angeles machine.

.3 ASTM C 136-6, Method for sieve analysis of fine and coarse aggregates, CAN/CGSB-8.2-M88, Sieves testing, woven wire, metric..

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver and stockpile aggregates as directed by Departmental Representative.

1.4 MEASUREMENT FOR PAYMENT

.1 Class “A” Granular Base: The supply and installation of Class “A” granular base will be measured in cubic metres of materials supplied and installed in the work. Include all costs in the unit price including plant, material and labour.

.2 Class “B” Granular Sub-Base: The supply and installation of Class “B” granular sub-base will be measured in cubic metres of materials supplied and installed in the work. Include all costs in the unit price including plant, material and labour.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular base fill (Class "A") will consist of clean, hard, durable crushed gravel or stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested to ASTM C136 and ASTM C117 and giving a smooth curve without sharp breaks when plotted on a semi-chart.

ASTM Sieve Designation	% Passing
19.0 mm	100
9.51 mm	50-80
4.76 mm	35-60
1.20 mm	15-35
300 um	7-20
75 um	3-6 (Pit Source)
	3-8 (Rock Source)

.2 Physical Requirements for Class "A":

.1 Liquid Limit ASTM D4318: Maximum 25

.2 Plasticity Index ASTM D4318: Maximum 0

.3 Los Angeles Abrasion ASTM C131-81 Maximum % loss by weight: 35

.4 Crushed Fragments: 50%. The percent of crushed particles will be determined by examining the fraction retained on the 4.76mm sieve and dividing the weight of the crushed particles by the total

weight retained on the 4.76 mm sieve.

.5 CBR: ASSHTO T193-72 Min 100 when compacted to 100% of AASHTO T180-74 Method D.

.3 Granular base fill (Class "B") will consist of clean, hard, durable crushed gravel or stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested to ASTM C136 and ASTM C117 and giving a smooth curve without sharp breaks when plotted on a semi-chart.

ASTM Sieve Designation	% Passing
50.8 mm	100
25.4 mm	50 - 100
4.76 mm	20 - 55
1.20 mm	10 - 35
300 um	5 - 20
75 um	2 - 6 (Pit Source)
	2 - 8 (Rock Source)

.4 Physical Requirements for Class “B”:

.1 Liquid Limit ASTM D4318: Maximum 25

.2 Plasticity Index ASTM D4318: Maximum 0

.3 Los Angeles Abrasion ASTM C131-81 Maximum % loss by weight: 35

.4 Crushed Fragments: 50%. The percent of crushed particles will be determined by examining the fraction retained on the 4.76 mm sieve and dividing the weight of the crushed particles by the total weight retained on the 4.76 mm sieve.

.5 CBR: ASSHTO T193-72 Min 100 when compacted to 100% of AASHTO T180-74 Method D.

.5 Materials from deposits acceptable as to the quality of the particles, but deficient in sizes to provide the required gradation, may be accepted if the contractor furnishes and satisfactorily incorporates into the product supplementary sizes from other sources to produce the required grading. If the deficiencies occur in Class “A” or Class "B" materials, corrections may be attempted by crushing to a smaller maximum particle size. In that event, the Departmental Representative will furnish special grading limits on the actual maximum particle size.

.6 Material shall be considered unsuitable even though particle sizes are within the specified gradation limits if particle shape or any other characteristic precludes satisfactory compaction or fails to provide a roadway suitable for traffic. If, in the opinion of the Departmental Representative, an improved particle shape can be achieved by using a different crushing unit for that proposed by the contractor, then the Contractor shall supply and use a crushing unit of the type directed by the Departmental Representative.

.7 Class “A” and Class "B" shall be processed by crushing and, when necessary, to eliminate surplus fines passing the 4.76 mm sieve, shall be screened and washed.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Place granular base after sub-base surface is inspected and approved by Departmental Representative.

.2 Placing:

.1 Construct granular base to depth and grade in area indicated.

.2 Ensure no frozen material is placed.

.3 Place material only on clean unfrozen surface, free from snow and ice.

.4 The contractor shall place all granular bases in such a manner as to prevent contamination by other materials and to prevent segregation. If, in the opinion of the Departmental Representative, the methods and techniques used by the Contractor cannot overcome contamination or segregation, then the Departmental Representative may direct a modification in these methods which may require the use of an approved spreader box or other acceptable device.

.5 All granular bases shall be placed in uniform layers such that the thickness of the compacted layer does not exceed 50 mm.

.6 Prior to closing down operations for each working day, all granular materials shall be bladed and compacted to the specified density.

.7 The materials shall be sprayed with water when and as directed by the

Departmental Representative, either to aid compaction or reduce dust nuisance or both. When water is added to aid compaction, it shall be applied immediately ahead of the compacting unit

.8 Each layer of granular base shall be bladed shaped and compacted as necessary to produce the required profile and cross-section. The finished surface shall not deviate at any place on a 3 m straight edge by more than 10mm for Class “A” and Class "B". The upper layer shall be maintained to these tolerances and to the specified density until compaction of the contract. This may require keeping the moisture content at the appropriate value during periods of dry weather in addition to regarding and re-compacting as frequently as may be deemed necessary by the Departmental Representative.

.3 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

.4 Compaction Equipment:

.1 Compaction equipment to be capable of obtaining required material densities.

.5 Compacting:

.1 All Class “A” and Class "B" materials shall be compacted to not less than 100% of the maximum Standard Proctor Dry Density ASTM D698-07e1 Method D.

.2 Compaction operations shall be carried out as closely as possible

behind the placing and spreading operation. At the end of each working day, all materials placed shall have been compacted to the specified density.

.3 Each layer of material shall be graded and compacted as specified before the next layer is placed.

.4 Where necessary to obtain the required compaction, the contractor shall apply sufficient water by means of an approved distributor.

3.2 INSTALLATION

.1 Testing of materials and compaction will be carried out by testing laboratory designated by the Departmental Representative.

.2 Contractor will pay costs for inspection and testing.

.3 Sieve Analysis: proposed granular material will be tested to confirm suitability for intended use and conformity with specifications.

.4 Frequency of Tests: to be determined by the Departmental Representative.

3.3 TOLERANCES

.1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

3.4 PROTECTION

.1 Maintain finished base in condition conforming to this section until succeeding material is applied or until acceptance by Departmental Representative.

PART 1 - GENERAL

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)
.1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
.2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.2 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire.
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 SUBMITTALS

.1 Submit to Departmental Representative for approval, 4 weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting and other pertinent details. Submit subsequent changes to Departmental Representative before proceeding.

.2 Submit to Departmental Representative complete photographic and descriptive record of buildings, roads and structures in general area of Project Work, before blasting is started. Describe buildings both inside and out. Record existing cracks in walls or structural components.

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

.2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 2 weeks prior to commencing Work.
.3 Submit 20 to 70 kg samples representative of quarry, minimum 2 weeks prior to beginning Work.
.4 Ship samples prepaid to Departmental Representative for approval.

1.4 INTERFERENCE TO NAVIGATION

.1 Be familiar with vessel movements and fishery activities in area affected by construction operations.

.2 Plan and execute work, in a manner that will not impede navigation, including movement of vessels at the facility.

.3 Plan and execute work, in a manner that will not interfere with fishing operations or access to marine structures by land or water.

.4 Departmental Representative will not be responsible for loss of time, equipment, material or any other charges related to interference with moored vessels in the harbour or other Contractor's operations.

.5 Keep the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of construction operations, in order that necessary Notices to Mariners may be issued.

1.5 REGULATORY REQUIREMENTS

.1 Comply with municipal, provincial and national codes and regulations relating to project. Refer to the attachments.

.2 Mark floating equipment with sound and light signals in accordance with Collision

Regulations made pursuant to the Canada Shipping Act and Notice to Mariners.

1.6 MEASUREMENT FOR PAYMENT

.1 New Armour Rock 4-6 tonne size: Measured in cubic metres of material and supplied and placed (m^3) in the work within the limits specified on the drawings.

.2 New Filter Stone 300-500kg size: Measured in cubic metres of material and supplied and placed (m^3) in the work within the limits specified on the drawings.

.3 There will be no payment made for any material or stone placed beyond limits indicated on the drawings. The final contract grade must be within 200 mm of the specific elevation. Quantities will be based on an as-built survey. Any material placed outside the lines and grades as shown on the drawings will not be measured.

.4 There will be no additional payment for delays resulting from fishing operations.

.5 There will be no additional payment for delays caused by vessel traffic.

.6 There will be no additional payment for downtime.

.7 There will be no payment for any filter stone or armour stone that is washed out, removed, missing or deteriorated by weather or wave action.

.8 Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings over each type of material. Measurement for

payment for this will be considered included in the cost of the supply and installation of the materials. There will be no separate payment.

.9 Construction and maintenance of haul roads will not be measured for payment.

.10 Contractor to salvage, stockpile, sort and reinstall any armour stone, as indicated on the drawings. Contractor to make their own assessment of the location where to stockpile material. There will be no separate payment.

.11 There will be no payment for any material settling below the existing bottom. The existing harbour bottom represents the pay limit which will be used for calculating final quantities.

PART 2 - PRODUCTS

2.1 ROCK MATERIAL

.1 Hard, angular rock free from cracks, seams and other defects which may impair durability.

.2 Relative density, 2.65 minimum.

.3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.

.4 Durability, less than 35% abrasion Wear, ASTM C535 test procedure.

.5 Sulphate Soundness Determination maximum 12% by ASTM C88.

2.2 FILTER STONE

.1 Material for filter stone to be blasted rock or field stones.

.2 Stone size to be well graded between 300 kg

to 500 kg, in categories specified, well graded within each category.

.3 Greatest dimension of each stone not to exceed two (2) times the least dimension.

2.3 ARMOUR STONE

.1 Material for armour stone to be blasted rock or field stones, size as per drawing.

.2 Stone sizes to be in the ranges noted on the drawings, well graded.

.3 Greatest dimension of each stone not to exceed two (2) times least dimension.

PART 3 - EXECUTION

3.1 GENERAL

.1 Contractors take note, there are existing light poles, power lines, paved roads, public traffic and guard rail in the area of work. At times there is very high tourist activity in this area. Contractor to take precaution when excavating, salvaging and placing all material. Any damage will be the responsibility of the contractor to repair.

3.2 PREPARATION

.1 The Contractor is solely responsible for the construction and maintenance of haul roads. Haul roads are to be removed after completion of work and sites returned to their original condition. Contractor should note the accessibility to this site will consist of narrow roads and steep hills. It is the Contractor’s responsibility to maintain all roads getting to and from site when hauling material.

.2 Contractor must protect work site at the end of each day with armour stone to stop any

washout that may occur from wave or sea action. The contractor will be responsible for any wash out that occurs even if protected.

.3 Contractor will have to provide verification that each type of material was installed to the limits.

3.3 FILTER STONE

.1 Place filter stone layers to grades, dimensions, profiles and cross sectional elements indicated on the drawings. Contractor should realize the large distance required to place the filter stone out into the water, supply necessary equipment to complete as shown on drawings.

.2 Place filter stone in layers as indicated on the drawings.

.3 Side slopes to be as indicated on the drawings.

.4 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.5 The Contractor is to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Filter stone rock must be installed to +/-100mm of the grade lines provided on the drawings. Quantities will be adjusted to the installed grade or to the max of +/-100mm of the lines shown on the drawings. Measurement for payment for this will be included in the cost of the supply

and installing the above item.

3.4 ARMOUR STONE

.1 Place armour stone to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the armour stone out into the water, supply necessary equipment to complete as shown on drawings.

.2 Dumping of armour stone will not be permitted. Each stone will be lifted and individually placed.

.3 Side slopes to be as indicated on the drawings.

.4 Choose stones and place them in such a way that the whole structure will be bonded and consolidated to as great an extent as nature or rock will allow. Rocks should vary in size so they don't create steep slopes when placing to the grade lines as indicated on the drawings.

.5 Do not transport different categories of material in the same truckload. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.

.6 Contractor to provide cross sections to the Departmental Representative at 10 metre stations to show that lines and grades have been achieved as shown on the drawings. Armour stone must be installed to +/-200mm of the grade lines provided on the drawings. Quantities will be adjusted to the installed grade or to the maximum of +/-100mm of the lines shown on the drawings Measurement for

payment for this work will be included in the cost of the supply and installing the above item.

3.5 ROCK MATERIAL WASHED OUT OF WORK

.1 Should during the progress of the Work, any rock material be washed out of the Work, or through neglect of carelessness of the Contractor or their employees or from any other cause, be dumped into the water near the Work or anywhere within the harbour or channel so as to interfere in the opinion of the Departmental Representative with actual depths of water and/or impede navigation, it will be removed by the Contractor when ordered to do so by the Departmental Representative. Any material washed out of the Work or displaced beyond the contract limits will be replaced by the Contractor at no cost to Canada.

3.6 TOLERANCES

.1 Note: These tolerances are not to be considered pay limits but are specified to ensure contractor keeps within acceptable lines and grades.

.2 Completed component layers to be within the following tolerances of lines and grades indicated:

.1 Filter stone +/-100 mm.
.2 Armour stone +/-200 mm.