SPECIFICATION

Lower Terra Nova

Infrastructure Upgrades

DFO Project No. F6879-179013

(Issued for Tender)

PROVINCE OF NEWFOUNDLAND AND LABRADOR

PEG Newfoundland and Labrador
PROFESSIONAL ENGINEERS AND GEOSCIENTISTS

PERMIT HOLDER
This Permit Allows

Meridian Engineering Inc.

To practice Professional Engineering
in Newfoundland and Labrador.
Permit No. as issued by PEG N0453
which is valid for the year 2017

PREPARED FOR

Department of Fisheries & Oceans

DATE

October, 2017

List of Appendices

DRAWING NUMBER	DRAWING TITLE
C1 of 7	Existing Site Plan with Demolition
C2 of 7	Existing Accommodations Building with Demolition
C3 of 7	New Site Plan
C4 of 7	New Repairs – Accommodations Building
C5 of 7	New Equipment Shed
C6 of 7	New Patio Deck/Boardwalk Sections & Details
C7 of 7	Miscellaneous Details

PART 1 - GENERAL

1.1 SCOPE

.1 The work covered under this project consists of the furnishing of all plant, labour, equipment, hardware and materials, complete and in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of contract. Bidders are advised that opportunities and requirements may arise that may warrant changes to the work that are in keeping with this general scope of work. Such changes will be made through the change order processes as outlined in the contract documents.

1.2 DESCRIPTION

.1 The work will generally consist of but will not necessarily be limited to the following:

.1 Demolition and removal of the existing timber boardwalks, patio decks, and equipment shed, as indicated on the drawings;
.2 Removal of the existing formwork tie rods located at the existing fishway entrance, as indicated on the drawings;
.3 Repairs to the accommodations building, including replacement of underlying footings and new metal roofing, as indicated on the drawings;
.4 Construction of new timber boardwalks and patio decks, as indicated on the drawings;
.5 Construction of a new equipment shed, as indicated on the drawings;
.6 Replacement of the existing on-demand propane water heater and propane space heater, as indicated on the drawings;
.7 Upgrades to the off-grid power supply system (solar power system), as indicated on the drawings, including replacement of the charge controller/regulator, batteries and insulated enclosure, and inverter power board assembly;
.8 Repairs to the concrete diversion wall, as indicated on the drawings, including construction and maintenance of temporary dewatering devices and structures as required;
.9 Construction of handrailing on one side of existing timber bridge approach, as indicated on the drawings;
.10 Site clean-up;
.11 Note: See Part 1.7 Examination of Site and Part 1.16 Site Access for details regarding DFO provided helicopter services.
.12 Note: See part 1.5 scheduling and work methodology for construction deadline details.

1.3 FISH HABITAT/DOMESTIC USAGE

.1 Contractors are advised that this project is being carried out in an area where fish habitat may be affected. The contractor will perform the work to conform with all rules and regulations governing fish habitat and in accordance with governing authorities.

.2 There shall be no fishing in and around the construction site during the regulated fishing season, even if the employees are in possession of a legal fishing license.

.3 The Contractor shall confirm the times, dates, and extent of work required with local fish habitat authorities.

.4 Contact the Department of Fisheries and Oceans (DFO) at least 48 hours in advance of starting any work on site.

.5 For inquiries regarding fish habitat please contact the Departmental Representative (Contracting Officer).

1.4 SITE OF WORK

.1 Work will be carried out at the existing site at Lower Terra Nova Fishway, NL, in the location as shown on the accompanying drawings. The Lower Terra Nova Fishway site is located on the Terra Nova River approximately 9km upstream from Glovertown, NL. The work site is remote and not accessible by road. For the purpose of this work, DFO will be providing helicopter services. Refer to part 1.16 of this section for additional information.

1.5 SCHEDULING AND WORK METHODOLOGY

.1 Construction must be substantially complete by March 31, 2018, which requires work to be completed during the winter of 2017/2018.

.2 All work must be carried out in the dry. Where berms are required to accomplish this, the design of such berms is to be carried out by a professional engineer licensed to practice in Newfoundland and Labrador. Drawings of the berm design, stamped by the engineer, are to be submitted to the Departmental Representative before any work starts.

1.6 DATUM

.1 All bearings on the Drawings are grid based on NFLD 3 Transverse Mercator Projection. Coordinates are derived from static GPS referenced from control station 637001 (N 5,374,798.968 E 215,351.423). PWC control point coordinates are listed on the drawing.

.2 Bidders are advised to consult the Department of Environment and Conservation and the Government of Canada Wateroffice in order to make sure of changing water level conditions affecting work.

1.7 EXAMINATION OF SITE

.1 Before submitting a bid, it is mandatory that bidders visit the site and its surroundings to review and verify the form, nature and extend of work, materials necessary for the completion of the works, 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. 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. DFO will provide helicopter services for the mandatory pre-tender site visit. See below.

.2 DFO will schedule a site visit during the tender period. The site visit will occur over a one day period with helicopter flights leaving from and returning to Clarenville. Contractor is responsible for all costs associated with getting to and from Clarenville. Specific meeting location will be clarified at the tender stage. Departmental Representative will pay for helicopter services associated with the one day site visit held during the tender period. Contractors wishing to visit site shall contact the Departmental Representative to obtain flight times/schedule.
Please note the following:

- If weather doesn't permit flying on the scheduled site visit day, it will occur on the following day.
- A maximum of 1 person per Contractor will be permitted.
- Time allocated on site will be a maximum of 2 hours.
- 2 days advance notice is to be given to the Departmental Representative with respect to the company and individuals attending the visit.
- The Site visit will occur within 8 calendars days after the project is tendered.

.3 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.

1.8 ARCHIVAL PHOTOGRAPHS

.1 Archival photographs of the existing site are included in Appendix B. These photos are intended to give the contractors an appreciation of site conditions and general understanding of the project scope of work. These photos should in no way be considered a replacement to an actual site visit. Contractors are required to visit the site as per part 1.7 of this specification section. Any interpretations and/or assumptions made with respect to these photos are the contractor's responsibility.

1.9 TERMS

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

.2 In cases where submittals are required to be submitted under seal of a professional Engineer licensed to practice in NL, this does refer to an Engineer, and not the Departmental Representative.

1.10 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 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 This project will be lump sum. All work items and costs to be included.

1.11 WORK SCHEDULE

.1 Submit within seven (7) working 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 (e.g., show target dates for completion of each structure element, if applicable). Breakdown the structure elements to indicate target dates for completion of each element. Generally, bar charts derived from commercially available computerized project management systems 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 the 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.

.7 Should contractor find that he cannot maintain schedule as originally intended, he will immediately submit a revised schedule without being requested to do so by Departmental Representative.

.8 Work schedule to be consistent with scheduling and methodology restrictions previously noted in Part 1.5.

1.12 ABBREVIATIONS

.1 Following abbreviations of standard specifications have been used in this specification and on 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 tender call will be considered as applicable.

1.13 LAYOUT OF 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.

.6 Contractor will be responsible to complete and submit as-built survey of all new work.

1.14 QUARRY AND EXPLOSIVES

.1 Contractor will 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.

1.15 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. All arrangements for space and access will be made by contractor and to the approval of the Departmental Representative. All clearing and grubbing work, including tree preservation, to be in accordance with applicable specification sections.

.2 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.

.3 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.

1.16 SITE ACCESS

.1 The existing fishway site is in a remote location that is not accessible by roadway. Therefore, helicopter access will be approved for site access. The Contractor shall submit a Helicopter Site Access

Plan/Timeline to the Departmental Representative no later than seven (7) days following the contract award.

.2 DFO will provide helicopter services for slinging purposes, to a maximum of 50 hours helicopter flying time. Any additional helicopter time required to complete the work in accordance with the contract documents will be at the Contractor's expense. Coordinate all helicopter service work with the Departmental Representative.

.3 The Contractor may require temporary site access measures, once at the site. These on-site measures must be removed upon completion of the project, and all distributed features must be reinstated, as per the existing conditions. If any temporary on-site access measures require approval from governing authorities, it is the responsibility of the Contractor to obtain these approvals/permits and submit them to the Departmental Representative prior to the start of work.

1.17 PROJECT MEETING

.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 Departmental Representative.

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

.4 Have a responsible member of firm present at all Project Meetings.

1.18 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, and at no cost to, the Departmental Representative.

1.19 DOCUMENTS REQUIRED

.1 Maintain at job site, one (1) 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 Permits and Regulatory Approvals and Requirements.
.12 Other documents as stipulated elsewhere in the Contract Documents.

1.20 TAXES AND 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.

.7 See Appendices for Regulatory Approvals and Responses already obtained by Canada for this project.

1.21 EXISTING SUB-SURFACE CONDITIONS

.1 There is no previous information pertaining to the existing sub-surface conditions.

1.22 CONTRACTOR'S USE OF SITE

.1 The contractor is advised that the construction operations, including storage of materials, for this contract must not interfere with the normal operations at the site.

.2 The contractor will be solely responsible for arranging the storage of materials on or off the site.

.3 Exercise care so as not to obstruct or damage public

or private property in the area.

1.23 WORK COMMENCEMENT

.1 Mobilization to project site is to commence immediately after acceptance of bid and submission of site specific Safety Plan, unless otherwise directed by Departmental Representative.

.2 Construction activities/project work on site to begin as soon as possible after notice of tender award, with a continuous reasonable workforce unless otherwise directed by Departmental Representative.

.3 Weather conditions, winter construction, site restrictions, delivery challenges, project completion deadlines (substantially complete by March 31, 2018), and the location of the work site may require the use of longer working days and additional workforce 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.

1.24 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 INTERPRETATION OF DOCUMENTS

.1 Supplementary to the General Conditions, the Division 01 sections of the specifications take precedence over technical specification in other divisions of the specifications.

1.27 BIODEGRADABLE HYDRAULIC OILS

.1 Equipment working in and adjacent to water way shall be equipped with biodegradable hydraulic oils specifically intended for environmentally sensitive areas. Contractor shall submit MSDS and Technical Data sheets on hydraulic oil to be used for approval by the Departmental Representative.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 GENERAL

.1 Canada will supply certain materials in the Contract for installation and incorporation into the Work by the Contractor.

1.2 MATERIAL SUPPLIED

.1 Canada will supply: New Solar Batteries - 12 x Deca Solar Photovoltaic Batteries, Cell Type AVR95-25L.

The above materials supplied by Canada is not a complete list required to complete the work in accordance with the drawings and specifications. Additional accessories may be required, including wiring, conduit, etc., any of these items are the responsibility of the Contractor, and may not be supplied by Canada.

.2 The materials supplied by Canada are to be picked-up by the Contractor and delivered to the site. The location of all Canada supplied materials to be picked-up, is at the CCG Base in Stephenville, NL. The contact person is Jackie Rodway (709-772-6409). Contractor to provide three (3) day notice prior to pick-up of materials.

1.3 DELIVERY REQUIREMENTS

.1 Materials supplied by Canada will be available for pick-up following acceptance of Bid. Once turned over to the Contractor, the Contractor will be responsible for delivery to the work site.

.2 The Contractor will become responsible to supply all missing materials and repair or replace damaged items and missing parts discovered during transportation to site.

.3 Failure of the Contractor to make a complete check of the Canada-supplied material and to acknowledge receipt of same once picked up at the DFO storage

facility in Mount Pearl, shall not relieve him of this contractual responsibility to replace or repair any item subsequently found to be missing or damaged.

.4 Departmental Representative will make final determination as to whether an item can be repaired or must be replaced.

1.4 CONTRACTOR'S DUTIES

.1 Pick-up Canada-supplied material, at the CCG Base in Stephenville, NL.

.2 Take possession of Canada-supplied material immediately upon pick-up and be responsible for transportation to site.

.3 Obtain and pay for services to load and transport to site.

.4 Unload and handle at site, including lifting, uncrating, etc.

.5 Store material on site at a location approved by Departmental Representative. Provide protection against inclement weather and site damage by use of appropriate covers.

.6 Be responsible for the protection of such material against damage, loss, theft and fire from date of receipt, during transportation, loading, unloading, temporary storage and until final installation of work is accepted by the Departmental Representative.

.7 Any damage or loss of such material shall result in the Contractor being responsible for replacement or repair of equipment at no cost to Canada.

.8 The decision as to whether damaged items may be repaired or must be replaced with new equipment shall be the Departmental Representative's decision.

.9 Install such material and incorporate into the work. Perform assembly and

make all connections as required to make item functional.

.10 Dispose of containers, crating and protective covering off site as directed by the Departmental Representative.

PART 1 - GENERAL

1.1 SECTION INCLUDES

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

.2 Contractor shall submit for approval by Departmental Representative the name any qualifications of independent testing companies/agencies required to carry out testing as specified under contract plans and specifications.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

.1 Particular requirements for inspection and testing to be carried out by testing agency/laboratory approved 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 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 test or inspections by approved testing agency/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 PRECEDENCE

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.2 DEFINITIONS

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

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

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

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

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

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

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

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

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

1.3 REQUIREMENTS

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

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

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

1.4 SUBMITTALS

.1 Submit to Departmental Representative within 5 working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

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

1.5 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule. Identify and submit to Departmental Representative.

1.6 MASTER PLAN

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

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

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

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

1.7 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

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

.1 Award.
.2 Shop Drawings, Samples.
.3 Permits.
.4 Mobilization.
.5 Dewatering.

.6 Site Access.
.7 Demolition and Removal.
.8 Debris Removal.
.9 Rock Removal.
.10 Concrete Work.
.11 Site Clean-up/Site Restoration.
.12 Close-out Documentation
.13 Demobilize.

1.8 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule every 2 weeks reflecting activity changes and completions, as well as activities in progress.

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

1.9 PROJECT MEETINGS

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

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 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.

.11 Make changes or revisions 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.

.12 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means 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 four (4) 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 has 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 ten (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 from 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.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Fire Safety Requirements

.2 Hot Work Permit

1.2 RELATED WORK

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

1.3 REFERENCES

.1 National Fire Code – latest edition. FCC standards, may also be viewed at the Regional Labour Canada Office located at Baine Johnson Centre, 10 Fort William place, St. John's, NL, A1C 1K4; Telephone 1-800-641-4049; fax 1-709-772-5985.

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 28.

.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 (1) 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 28.

.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 sub-contractor to proceed with hot work.
.5 Provision of a designated person to carry out a Fire Safety Watch for a minimum of 30 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 28.

.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 Sub-contractors and Contractor.

.5 Brief all workers and sub-contractors 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 28.

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 floor, room or area where hot work will be performed;
.3 Date when permit issued;
.4 Description of hot work to be performed;
.5 Special precautions required, including type of fire extinguisher needed;
.6 Name and signature of person authorized issue the permit;
.7 Name of worker(s) (clearly printed) to whom the permit is being issued;

.8 Time duration that permit is valid (not to exceed 8 hours). Indicate "Start" time & date and "Completion" time & date;
.9 Worker signature with date and time upon hot work termination;
.10 Specified period of time requiring Safety Watch;
.11 Name and signature of person designated as Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that the surrounding area was under continual surveillance and inspection during the full time period specified in permit and commenced immediately upon the completion of Hot Work.

.2 Permit to be in 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(s) upon completion of Hot Work;
.3 Fire Safety Watcher upon termination of safety watch and;
.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.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

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 28 - Health and Safety Requirements.

1.3 REFERENCES

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

.2 CAN/CSA C22.3 No. 1-06 - Overhead Systems.

.3 CAN/CSA C22.3 No. 7-06 - Underground Systems.

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

1.4 DEFINITIONS

.1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.

.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment 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 28.
.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 for review.

.2 Submit documentation within seven (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 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 exists at facility, make request in writing identifying:

.1 Identification of system or equipment to be isolated, including its 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 Requirements Section 01 35 28.

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 28.

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.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

1.1 RELATED WORK

.1 Section 01 35 24 - Special Procedures on Fire Safety 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 personalknowledge, 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 (5) work days of notification of Bid and Acceptance Form.
.2 Departmental Representative will review Health and Safety Plan and provide comments.
.3 Revise the Plan as appropriate and resubmit within five (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 Health and 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 in 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 MDS – Material Safety Data Sheets, unless otherwise directed by the Departmental Representative.

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.

.5 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof through submission of Letter in Good Standing

.6 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.

.6 Given the remote location of the site, the Contractor shall provide or plan for a method of site access and communication in case of an on-site emergency.

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 in 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 potential health, environmental and safety hazards at site for which work may involve contact with:
- .1 Isolated site location.
- .2 Wet and slippery conditions.
- .3 Inclement weather conditions.
- .4 Working during the winter.
- .5 Heavy lifting.
- .6 Falls.
- .7 Drowning.
- .8 Working at heights.
- .9 Cutting tools and other construction power tools.
- .10 Working in close proximity with other contractors.
- .11 Flooding and high water levels.
- .12 Rapid flowing water.
- .13 River falls and steep drop-offs.
- .14 Sharp objects.

.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.

1.12 MEETINGS

.1 Contractor to hold pre-construction health and safety meeting prior to commencement of Work. Ensure attendance of:
- .1 Superintendent of Work.
- .2 Contractor’s designated Health & Safety Site Representative.
- .3 Subcontractor’s Health and Safety Site Representative.
- .4 Health and Safety Site Coordinator.

.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 firefighting 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 PWGSC and Facility Management contact.

.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 & 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 daily 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 Keep inspection reports and supervision related documentation on site.
.7 Cooperate with Facility's Occupational Health & Safety representative should one be designated by the Departmental Representative.

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.

.4 All workers dealing with hazardous materials are required to provide evidence of training, in accordance with Provincial regulations.

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 safety vest 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 $5,000.

.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).

1.21 POWDER ACTUATED DEVICES

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

1.22 CONFINED SPACES

.1 Abide by occupational health and safety regulations regarding work in confined spaces.

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 the latest editions of CSA Standard Z275.2 “Occupational Safety Code for Diving Operations”, CSA Z275.4, “Competency Standards for Diving Operations”, and CSA Z180.1, “Compressed Breathing Air and Systems”.

.2 Dive personnel must meet the minimum competency requirements of the latest edition of CSA Z275.4 and all divers must possess a valid Category I Diving Certificate, or an unrestricted surface supply 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 from a licensed diving physician in Newfoundland and Labrador, who is knowledgeable and competent in diving and hyperbaric medicine, for all dives.

PART 1 - GENERAL

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 SUBMITTALS

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

.2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

.3 Address topics at level of detail commensurate with environmental issue and required construction tasks.

.4 Environmental protection plan: include:
.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
.3 Names and qualifications of persons responsible for training site personnel.
.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.7 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.8 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.9 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.

.10 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

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

1.4 FIRES

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

1.5 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, paint thinner, 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. Carry out 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 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.

1.6 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.

1.7 PERMITS

.1 All guidelines and instructions stated on permits must be strictly adhered to.

1.8 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways, unless approved in writing by the Departmental Representative.

.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 Equipment working in and adjacent to water way shall be equipped with biodegradable hydraulic oils specifically intended for environmentally sensitive areas. Contractor shall submit MSDS and Technical Data sheets on hydraulic oil to be used for approval by the Departmental Representative.

1.9 REFUELING

.1 Refueling of equipment to be performed in locations as directed by Departmental Representative.

.2 Do not refuel equipment within 100 metres of any watercourse or storm water catch basin unless protection against spills is in place and location is approved by Departmental Representative.

.3 Use petroleum containers approved for products with no spill fill spouts for dispensing fuels. The sure pour nozzle to have self closing valve, prevent any flow of fuel until the nozzle is inserted into the receiving container. On removal from the receiving container the slide valve closes to eliminate any fuel spill. Nozzle to be equipped with its own automatic vent eliminating the need for the user to open or close air inlets on the pouring container.

.4 Nozzle to support the weight of the pouring container. Nozzles to automatically stop the flow when the receiving container becomes full. The nozzle to be such that it reduces evaporative losses of volatile organic compounds during the fuel transfer.

.5 All spills of hydrocarbon based products such as

gasoline, kerosene, naphtha, lubricating oils, engine oils, greases and de-icing fluids or antifreeze no matter how large or small to be reported to Departmental Representative.

.6 Oil changes or equipment repairs in the field are not permitted.

.7 Refueling to be performed on level surfaces, PCC Portland cement concrete or HMAC surfaces when approved by the Departmental Representative unless otherwise directed.

.8 Contractor to have drip pans sized for amounts of product to be recovered and customized to fit under pieces of equipment to perform routine maintenance to equipment while maintaining equipment on property. Drip Pans to be used whenever leaving equipment on site or parking overnight when not in use.

.9 Parking of equipment on site to be on level ground in locations away from watercourses and as approved by Departmental Representative. Equipment with leaks or poor mechanical repair to be removed from site when so ordered by Departmental Representative.

1.10 SPILL CONTROL KIT

.1 Contractor to have at the work site a spill control kit consisting of the following minimum types of equipment:

.1 a spaded shovel;
.2 a stable broom;
.3 a broad nosed shovel;
.4 a container(s) suitable, compatible to and of sufficient size to contain petroleum products being used with equipment;
.5 Absorbents;
.6 rags;
.7 metal container for soiled rags;
.8 Booms when working next to a watercourse that will traverse the width of the watercourse by two times; and
.9 Spill control kit to be inspected and approved by Wing Environment Office prior to Work commencing. Spill control kits to be available to Contractor employees at all areas where Work of the Contract is being performed and at all times during the course of the Contract.
.10 Contractor employees to be trained in the use of the spill control kit and the equipment they contain.

1.11 SPILLS

.1 Disposal of spilled materials to be off the work site/property and at approved locations for materials to be disposed of.

.2 When parking of equipment on site, the equipment is to be secured from entry, inspected for leaks and the ground protected from leaks.

.3 Contractor to protect all wells, catch basins, drywells, drains and watercourses from contamination in event of a spill.

.4 All equipment to be used for the Work of the Contract to be inspected by the Departmental Representative for leaks. Equipment not in good repair to be removed/repaired when directed by Departmental Representative.

.5 Spills in excess of 74 litres to be reported immediately to Departmental Representative and the Newfoundland and Labrador Department of Environment and Conservation.

.6 For spills occurring the Contractor to immediately remove as much or all of the contaminated soils created by the spill from Work of the Contractor as possible.

.7 Contaminated soils/materials to be placed in containers compatible to the contaminants.

.8 Any remaining clean-up to be performed at no extra cost to Canada. Clean-ups to be to the Departmental Representative's satisfaction.

1.12 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 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.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Inspection and testing, administrative and enforcement requirements.

.2 Tests and mix designs.

.3 Mock-ups.

.4 Mill tests.

.5 Equipment and system adjust and balance.

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 will 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 Mill tests and certificates of compliance.
.4 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
.5 Additional tests specified in Clause 1.4.2.

.2 Where tests or inspections by approved 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 Inspection and testing completed by approved agencies 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 Cooperate 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 approved 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 two (2) copies of fully documented test reports to Departmental Representative. Additionally, obtain other copies in sufficient quantities to enable one (1) complete set of test reports to be placed in each of the maintenance manuals specified in Section 01 78 00.

.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.

1.9 MOCK-UPS

.1 Prepare mock-ups for Work specifically requested in various trade sections. Include in each mock-up all related work components representative of final assembly.

.2 Construct in locations acceptable to Departmental Representative.

.3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in an orderly sequence, so as not to cause any delay in Work.

.4 Failure to prepare mock-ups in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.5 If requested, Departmental Representative will assist in preparing a schedule fixing dates for preparation.

.6 Remove mock-up at conclusion of Work or when directed

by Departmental Representative unless approval is given to remain as part of Work.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 CONTRACTOR'S SITE OFFICE

.1 Be responsible for and provide own site office, if required. Locate site office as directed by Departmental Representative.

1.2 SANITARY FACILITITES

.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.

1.3 POWER

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

1.4 SCAFFOLDING

.1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with CAN/CSA-S269.2-M87 (R2003).

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

1.5 CONSTRUCTION SIGNS AND NOTICES

.1 Contractor or sub-contractor 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. Graphic symbols shall conform to CAN/CSA-Z321-96 (R2001).

.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.

1.6 REMOVAL OF TEMPORARY FACILITIES

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

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

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 BARRICARDS

.1 Provide secure, rigid guard rails and barricades around open excavations, steep cliffs, and as required to protect against falls.

.2 Provide as required by governing authorities.

1.5 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.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

.2 Be responsible for damage incurred.

PART 1 - GENERAL

1.1 GENERAL

.1 Use new material and equipment unless otherwise specified.

.2 Within seven (7) days of written request by Departmental Representative, submit following information for any 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 & 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 rests 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 MANUFACTURER'S 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 unforseen 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 or workers in laying out work. Maintain efficient and continuous supervision on site at all times.

.4 Coordinate work between trades and sub-contractors.

.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 – EQUIPMENT

.1 Use fastenings of standard commercial sizes 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 (1) 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, HANDING 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, clean-up and dispose in an environmentally responsible manner.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Progressive cleaning.

.2 Final cleaning.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 RELATED SECTION

.1 Section 01 77 00 - Closeout Procedures.

1.4 PROJECT CLEANLINESS

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

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

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

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

.5 Provide and use clearly marked separate bins for recycling.

.6 Remove waste material and debris from site and deposit in waste container at end of each working day.

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

.8 Dispose of waste materials, and debris off site at approved facilities.

1.5 FINAL CLEANING

.1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

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

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

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

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

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.

.8 Remove dirt and other disfiguration from exterior surfaces.

.9 Sweep and wash clean paved areas.

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 RELATED SECTIONS

.1 Section 01 35 43 - Environmental Procedures.

.2 Section 02 41 16 - Demolition and Removal.

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 (such as gypsum board, plywood, ceiling tiles, insulation, etc.) 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 of work are properly isolated, stored on site and disposed of 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 REQUIREMENT

.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.

PART 2 – PRODUCTS

2.1 NOT USED

PART 3 – EXECUTION

3.1 NOT USED

PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Administrative procedures preceding preliminary and final inspections of Work.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 RELATED SECTIONS

.1 Section 01 78 00 - Closeout Submittals.

.2 Section 01 74 11 - Cleaning.

1.4 INSPECTION AND DECLARATION

.1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
.2 Request Departmental Representative's Inspection.

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

.3 Completion: submit written certificate that following have been performed:
.1 Work has been completed and inspected for compliance with Contract Documents.
.2 Defects have been corrected and deficiencies have been completed.
.3 Certificates required by Newfoundland Department of Labour and Environment have been submitted.
.4 Operation of systems have been demonstrated to Departmental Representative's personnel.
.5 Work is complete and ready for Final Inspection.

.4 Off-Grid Power Supply System Inspection: If the off-grid power supply system is not installed by a certified technician, approved by the Departmental Representative, it must be inspected and commissioned by such a technician, to the approval of the Departmental Representative and prior to project completion.

.5 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative, and Contractor. If Work is deemed incomplete by Departmental Representative the Contractor shall complete outstanding items and request re-inspection.

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 As-built, samples, and specifications.

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

.4 Operation and maintenance data.

.5 Spare parts, special tools and maintenance materials.

.6 Warranties and bonds.

.7 Final site survey.

1.2 PRECEDENCE

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedure.

.2 Section 01 45 00 – Testing & Quality Control.

.3 Section 01 77 00 - Closeout Procedures.

1.4 SUBMISSION

.1 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.2 Copy will be returned after final inspection, with Departmental Representative's comments.

.3 Revise content of documents as required prior to final submittal.

.4 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English.

.5 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.6 If requested, furnish evidence as to type, source and quality of products provided.

.7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.8 Pay costs of transportation.

1.5 FORMAT

.1 Organize data in the form of an instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.5 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: Manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 Provide 1:1 scaled CAD files in dxf or dwg format on diskettes or CD.

1.6 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project;
.1 date of submission; names,
.2 addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;
.3 schedule of products and systems, indexed to content of volume.

.2 For each product or system:
.1 list names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate

relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.7 AS-BUILTS AND SAMPLES

.1 Maintain at the site for Departmental Representative one record copy of:
.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Change Orders and other modifications to the Contract.
.5 Reviewed shop drawings, product data, and samples.
.6 Field test records.
.7 Inspection certificates.
.8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.8 RECORDING ACTUAL SITE CONDITIONS

.1 Record information on set of opaque drawings, provided by Departmental Representative.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
.1 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
.2 Measured locations of internal utilities and

appurtenances, referenced to visible and accessible features of construction.
.3 Field changes of dimension and detail.
.4 Changes made by change orders.
.5 Details not on original Contract Drawings.
.6 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:
.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.9 FINAL SURVEY

.1 Submit final site survey certificate, certifying that elevations and locations of completed work are in conformance, or non-conformance with Contract Documents.

1.10 WARRANTIES AND BONDS

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

1.11 MATERIALS AND FINISHES	.1	Building Products, Applied Materials, and Finishes: include produce data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.

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

1.2 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, Departmental Representative.

PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

3.1 Execution .1 Inspect site and verify with Departmental Representative full scope of removal, as shown on the drawings.

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

.2 Do not disturb items designated to remain in place, if any such items exist.

3.3 Disposal of Material .1 The Departmental Representative will have the first right of refusal (at no cost) to all demolished/removed materials (including all off-grid power system components) except those designated for reuse. If the Owner does not want any of the materials, such materials will become the property of the contractor to be removed from the site and disposed of to satisfaction of Departmental Representative and in accordance with all applicable permits.

3.4 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 Description .1 This section specifies requirements for supply and installation of concrete formwork and accessories.

1.2 Reference Standards .1 Do concrete formwork to CSA A23.1,except where indicated otherwise.

1.3 Shop Drawings .1 Submit shop drawings.

.2 Clearly indicate method and schedule of construction, materials, arrangement of joints, ties, shores, liners and location of temporary embedded parts. Comply with Clause 3 of CSA S269.1 for falsework drawings.

PART 2 - PRODUCTS

2.1 Materials .1 Formwork lumber: plywood and wood formwork materials to CSA A23.1.

.2 Falsework materials: to CSA S269.1
.1 Materials shall bear grade marks, or be accompanied with certificates, test reports or other proof of conformity. Materials shall be appropriate for use in a fresh water source with no impact to the aquatic habitat.

.3 Form release agent: 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. Materials shall be appropriate for use in a fresh water source with no impact to the aquatic habitat.

.4 Form ties: removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm dia in concrete surface.

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

.2 Construct forms to produce finished concrete conforming to the shape, dimensions, locations and elevations shown on drawings within tolerances required by CSA A23.1.

.3 Construct falsework to CSA S269.1.

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

.5 Expansion and control joints as specified in Sections 03 30 00.

.6 Unless otherwise directed by the Departmental Representative, leave formwork in place for minimum of seven (7) days when work is completed in-water and three (3) days when work is complete in the dry, with moisture curing.

.7 All exposed formwork to be stripped after concrete cured.

.8 Reuse of formwork subject to requirements of CSA A23.1 Clause 11.9.

3.2 Joint Fillers

.1 Locate and form expansion joints as indicated. Install joint filler.

.2 Use 13 mm thick joint filler to separate slabs-on-grade and extend joint filler from bottom of slab to within 25 mm of finished slab surface unless indicated otherwise.

3.3 Workmanship

.1 Place concrete in accordance with CAN3-A23.1-M90, Section 03 30 00.

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

.3 Obtain Departmental Representative’s approval of proposed method for protection of concrete during placing and curing in adverse weather, prior to placing of concrete.

3.4 Inserts

.1 Set sleeves, ties and other inserts in concrete as required.

.2 All sharp and protruding ties and sleeves shall be removed to the face of the concrete with a smooth, non-abrasive surface.

3.5 Defective Concrete

.1 Remove defective concrete, blemishes and embedded debris and repair as directed by Departmental Representative, and at no cost to the Owner.

PART 1 - GENERAL

1.1	Description	.1	This section specifies requirements for supplying and placing reinforcing steel for concrete work.
1.2	Reference Standards	.1	Do concrete reinforcement work to CSA A23.1.
1.3	Source Sampling	.1	Provide Departmental Representative with certified copy of mill test of steel supplied, showing physical and chemical analysis, minimum four (4) weeks prior to commencing work.
1.4	Shop Drawings	.1	Submit shop drawings and bar list of rebar.
1.5	Delivery and Storage	.1	To CSA A23.1

PART 2 - PRODUCTS

2.1	Materials	.1	Reinforcing Steel - to CSA G30.12 billet steel, deformed bars having yield stress of 400 Mpa.
		.2	Wire Ties - to CSA G30.3, plain, cold drawn annealed steel wire.
		.3	Supports - to CSA A23.1.
2.2	Fabrication	.1	Ship bundles of bar reinforcement, clearly identified in accordance with bar list to be supplied upon request.

PART 3 - EXECUTION

3.1	Field Bending	.1	Do not field bend reinforcement except where indicated or authorized by Departmental Representative.
		.2	When authorized, bend without heat, applying a slow and steady pressure.
3.2	Placing	.1	Accurately place the reinforcing steel as indicated on the drawings and hold firmly during placing, compacting and setting of the concrete.

.2 Use approved type chairs to locate the reinforcing 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.

3.3 Cleaning

.1 Clean reinforcing before placing concrete to CSA A23.1.

3.4 Inspection

.1 Do not place concrete until Departmental Representative has inspected and approved reinforcement work in place.

PART 1 - GENERAL

1.1 Description

.1 This section specifies requirements for supplying, placing, finishing, protecting and curing concrete.

1.2 Reference Standards

.1 Do structural concrete work to CSA-A23.1 and CSA A23.3.

1.3 Submittals

.1 Qualifications of personnel performing the work.

.2 Mix designs including compressive test data used to establish proportions. Material certificates for materials, including cements, aggregates and admixtures.

1.4 Source Sampling

.1 At least two (2) weeks prior to commencing work inform Departmental Representative of proposed source of following material to be supplied and forward samples to testing laboratory to be designated by the Departmental Representative.
.1 Coarse and fine aggregate
.2 Portland cement
.3 Admixtures
.4 Joint filler
.5 Joint sealant
.6 Curing compound
.7 Blended hydraulic cement
.8 Supplementary cementing materials

.2 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.

.3 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.
.4 Stockpile aggregates in accordance with good standard practice.

1.6 Quality Assurance

.1 Minimum two (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 & 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 water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with an inert, non-combustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations.

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

PART 2 - PRODUCTS

2.1 Materials

.1 Cement to CAN/CSA-A3001, Type GUb, Portland Cement (blended).

.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 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 Pre-moulded joint fillers:
.1 Sponge rubber: to ASTM D1752, Type 1, flexible grade.
.2 Joint sealer: to CGSB 19-GP-24M and CSA A23.1, chemical curing, multi-component, Class 'B', Type 1 for horizontal joints.

.11 Bonding Agent
.1 Bonding agent to be weld-crete or approved equal.

.12 Water Stops
.1 Flexile butyl rubber and swellable clay waterproofing compound that swells upon contact with water to form a compression seal.
.1 Swellstop Waterstop by Greenstreak or approved equal.

2.2 Concrete Mixes .1 Concrete shall be mixed and proportioned in accordance to CSA A23.1, Clause 4.3.

.2 Concrete shall be proportioned to comply with Alternative 1, Table 2 in CSA A23.1 and following requirements:
.1 Cement: Type GUb, Portland Cement (blended).
.2 Minimum compressive strength of all concrete to be 35 MPa at 28 days.
.3 Class "F1" exposure.
.4 Nominal size of course aggregate 20 mm.
.5 Slump range at point of discharge 50 mm to 100 mm.
.6 Air Content 5 - 8 percent.
.7 Density of air-dry concrete will be in range of 2240 to 2400 kg/m^3.
.8 Minimum cement content: 385 kg/m^3.
.9 Maximum w/c ratio : 0.40
.10 High range water reducing agents (superplasticizers) may be used at the Contractor's request, if so indicated when the mix design is submitted. The Contractor must demonstrate competence and experience in their use and specific approval must be obtained. The Contractor shall state his method of concrete placement when submitting his concrete mix design.
.11 If superplasticizers are used, the maximum concrete slump in a superplasticized condtion shall be limited to 230 mm. The mix design shall state the design slump before and after the addition of superplasticizers along with the appropriate tolerances. Note that the slump in the above may not be applicable when using superplasticizers.

.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 his plant and equipment is certified and all materials to be used in the concrete comply with the requirements of CSA Standard 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, he shall 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 General

.1 Comply with additional requirements of CSA A23.1, Clause 15, for concrete exposed to seawater environments.

.2 Place concrete in hot weather to CSA A23.1.

.3 Place concrete in cold weather to CSA A23.1.

.4 Keep concrete surfaces moist continually during protection stage.

.5 Place, consolidate, finish, cure and protect concrete to CSA A23.1.

.6 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.

3.2 Scheduling and Work Methololology

.1 Prior to commencing any work, obtain all requirements and approvals of fish habitat and related regulatory authorities for carrying out the work.

.2 Develop a detailed work schedule and methodology for all excavation and construction work and submit to Departmental Representative and applicable regulatory authorities for review and approval. Contractor's schedule and methodology shall address all restrictions placed on work by regulatory authorities and indicate how the work plan will address such issues.

.3 All work must be carried out in the dry, unless otherwise approved by the Departmental Representative. Where berms are required to accomplish this, the design of such berms is to be carried out by a professional Engineer licensed to practice in Newfoundland. Drawings of the berm design, stamped by the Engineer, are to be submitted to and approved by the Departmental Representative before any work starts.

3.3 Preparation

.1 Prior to installing rock/concrete anchors or concrete formwork, remove all loose and fractured rock/concrete to sound competent material, to satisfaction of Departmental Representative. This will provide a clean and competent rock/concrete surface for dowelling and concrete placement. Roughen rock/concrete surface to approval of Departmental Representative, prior to placement of bonding agent and fresh concrete.

.2 Hardened concrete which shall receive new concrete shall be roughened to a full amplitude of no less than 5 mm, and have bonding agent applied prior to placement.

.3 Over excavation for rock removal will not be accepted. Additional work to correct over excavation, to the approval of the Departmental Representative, will be at the contractors expense.

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

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

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

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

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

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

.10 Apply approved bonding agent on all concrete to rock interfaces and all concrete to concrete interfaces prior to pouring fresh concrete.

3.4 Formwork .1 Install and strip formwork to CSA A23.1 and Section 03 10 00.

3.5 Inserts .1 Position and secure anchor bolts/pre-engineered, C.I.P. anchors (by Simpson Strong-tie, or approved equal) in formwork to maintain line and grades.

3.6 Placing Concrete .1 Place and consolidate concrete to CSA - A23.1.

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

.3 Place concrete continuously from joint to joint. Unless otherwise specified, consolidate concrete with high speed internal vibrators.

.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.

.5 If proposed by the Contractor, alternate placement methods to those described herein (which yield, the desired results), can be reviewed by the Departmental Representative with necessary submittals from the Contractor.

3.7 Bonding Agent .1 Apply bonding agent to all concrete/rock interfaces and hardened concrete to fresh concrete interfaces, in accordance with manufacturer's instruction prior to pouring concrete. Bonding agent to be weldcrete or approved equal. Rock surfaces to be roughened to approval of the Departmental Representative before placement of fresh concrete. Hardened concrete surfaces to be roughened to a full amplitude of at least 5 mm prior to placement of fresh concrete.

3.8 Strike Off and Consolidation .1 Internal poker vibrators shall be used to consolidate the concrete during placing.

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

.3 Ensure that the concrete conforms to the elevations and slopes as shown on the drawings.

3.9 Finishing

.1 Refer to Section 03 35 00: Concrete Finish.

3.10 Protection and Curing

.1 Cure to CSA-A23.1.

.2 Concrete shall be cured by protecting it against loss of moisture, rapid temperature change and mechanical injury for at least seven 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 Contractor shall 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 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 height to maintain concrete at following curing temperatures.

.2 For initial three (3) days at a temperature of not less than 15 degrees C nor more than 27 degrees C at surface.

.3 Maintain concrete at 10 degrees C for an extra four (4) days plus the initial three (3) days.

.4 In addition to the protective housing, the concrete must be cured as outlined in Clause 3.10.2 above.

3.11 Testing

.1 Contractor will appoint a concrete testing company approved by the Departmental Representative to test all work under this section of specification as per CSA A23.1.

.2 Cost of comprehensive strength tests shall be paid for by the Contractor.

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

.4 Contractor shall notify Departmental Representative at least seven (7) days prior to start of placing concrete. He shall provide for testing purposes an adequate quantity of approved test cylinders.

.5 At least one (1) set of three (3) cylinders each shall be taken from 25 m^3 or fraction thereof of each day's pour, whichever is less. One (1) cylinder shall be tested at seven (7) days and other two (2) tested at twenty-eight (28) days.

.6 Cylinders will be crated and delivered to the testing laboratory within forty-eight (48) hours after casting in accordance with 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 CSA-A23.1.

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

.9 Inspection or testing enforced by the Departmental Representative will not replace Contractor quality control or relieve him of his contractual responsibility.

3.12 Placement Tolerance

.1 All concrete work shall be within ± 12 mm of the dimensions and elevations indicated on the drawings. Failure to meet this condition may result in rejection of the work and replacement at the Contractor's expense.

PART 1 - GENERAL

1.1 Reference Standards

.1 Do concrete finishing to CSA-A23.1 unless specified otherwise.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Concrete Finish

.1 Finish concrete in accordance with CAN3-A23.1-M90.

.2 Rub exposed sharp edges of concrete with carborundum to produce 3 mm radius edges unless otherwise detailed.

.3 All concrete surfaces, unless specified otherwise, that will be visible on completion of the work shall conform to surface finish Class 2. The surface shall be uniform in colour and texture when viewed from a distance of 15 m.

.4 Class 2 - Rubbed Finish

.1 Immediately following the removal of forms, all fins and irregular projections shall be removed from all interior and exterior surfaces except from those which are not to be exposed. On all surfaces, the cavitied produced by form ties and all other holes, honeycombs, spots, broken corners or edges and other defects shall be cut back to sound concrete and thoroughly cleaned. No feather edging is permissible.

.2 After having been kept saturated with water for a period of not less than three hours, the cavities shall be carefully pointed and trued with a 40 mPa non-shrink grout. The patches shall be placed and cured as specified by the manufacturer. The resulting surfaces shall be true and uniform. After removal of forms, the rubbing of concrete shall be started as soon as its condition will permit. However, before starting this work the concrete shall be kept thoroughly saturated with water for a minimum period of three hours but sufficient time shall have elapsed before the wetting down to allow the grout used in the pointing of rod holes and defects to thoroughly set. Surfaces to be finished shall be rubbed with a medium coarse carborundum stone, using a small amount of mortar on its face. The mortar shall be composed of extra cement and fine and mixed in proportions such as to match

existing concrete verified by a patch test. Rubbing shall be continued until all form marks, projections and irregularities have been removed, all voids filled, and a uniform surface has been obtained. The paste produced by this rubbing shall be left in place at this item. After all concrete above the surface being treated has been cast, the final finish shall be obtained by rubbing with a fine carborundum stone and water. This rubbing shall be continuous until the entire surface is of a smooth texture and uniform colour. After the final rubbing is completed and the surface has dried, it shall be rubbed with burlap to remove loose powder and shall be left free from all unsound patches, paste, powder, and objectionable marks.

.3 Steel trowel concrete surfaces by means of hand trowel. Do not leave any hard, smooth, polished or burnished surface area.

.4 Do not bring water and fines to the surface by over trowelling.

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

.6 The surface shall be true and accurate within a tolerance acceptable to the Departmental Representative. Refer to Section 03 30 00, for acceptable concrete placement tolerances.

PART 1 - GENERAL

1.1 RELATED SECTIONS

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

1.2 REFERENCES

.1 Canadian General Standards Board (CGSB).
.1 CAN/CGSB-51-32, Sheathing, Membrane, Breather Type.

.2 Canadian Standards Association (CSA).
.1 CSA B111, Wire Nails, Spikes and Staples.
.2 CAN/CSA-G064, Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 CSA O112 Series, CSA Standards for Wood Adhesives.
.4 CSA O121, Douglas Fir Plywood.
.5 CAN/CSSA-O141, Softwood Lumber.
.6 CSA O151, Canadian Softwood Plywood.
.7 CAN/CSA-O325.0, Construction Sheathing.

.3 National Lumber Grades Authority (NLGA)
.1 Standard Grading Rules for Canadian Lumber.

1.3 QUALITY ASSURANCE

.1 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Plywood, particleboard, OSB and wood based composite panels in accordance with CSA and ANSI standards.

1.4 SUBMITTALS

.1 Submit proof of compatibility between Alkaline Copper Quaternary (ACQ) pressure treated lumber and fasteners to be utilized.

PART 2 - PRODUCTS

2.1 FRAMING AND LUMBER MATERIALS

.1 Lumber: unless specified otherwise, softwood, No. 1 or No. 2 grade, S4S, moisture content 19%

(S-dry) or less in accordance with following standards:
.1 CAN/CSA-O-141.
.2 NLGA Standard Grading Rules for Canadian Lumber.

.2 Framing and board lumber: in accordance with NBC.

.3 Furring, blocking, nailing strips, grounds, rough bucks, fascia backing and sleepers:
.1 Board sizes: "Standard" or better grade.
.2 Dimension sizes: "Standard" light framing or better grade.
.3 Post and timbers sizes: "Standard" or better grade.

.4 Pressure treated material to be Alkaline Copper Quaternary (ACQ).

2.2 PANEL MATERIALS

.1 Plywood, OSB and wood based composite panels: to CAN/CSA-O325.0.

.2 Douglas fir plywood (DFP): to CSA O121, standard construction.

.3 Canadian softwood plywood (CSP): to CSA O151, standard construction.

2.3 ACCESSORIES

.1 General purpose adhesive: to CSA O112 Series.

.2 Nails, spikes and staples: to CSA B111.

.3 Bolts: to ASTM A307 Grade, galvanized c/w nuts and washers. Diameter as indicated on the drawing.

.4 Proprietary fasteners: toggle bolts, expansion shields and lag bolts, screws and lead or inorganic fibre plugs, explosive actuated fastening devices, recommended for purpose by manufacturer.

2.4 FASTENER FINISHES

.1 Galvanizing: to ASTM A153/A153M , use galvanized fasteners for exterior work.

2.5 WOOD PRESERVATIVE

.1 Surface-applied wood preservative: clear or copper napthenate or 5% pentachlorophenol solution, water repellent preservative.

2.6 PRE-ENGINEERED GALVANIZED METAL CONNECTORS

.1 Use metal connectors, hangers, caps, bases, hold-downs and plates for all wood to wood and wood to concrete connections as indicated on the drawings.

.2 Steel:

.1 Sheet: ASTM A36, ASTM A653, ASTM A1011 2. Fasteners: ASTM A307, ASTM F1554, ASTM F1667, SAE C1022 (SDS Screws).

.3 Finishes:

.1 Hot-dipped galvanized or electro-plated galvanized: G90, G185 (ZMAX or HDG).

.4 Install in strict accordance with the manufacturers specifications.

.5 Standard of acceptance: Manufactured products by Simpson Strong-Tie Co., Inc. or approved equal. See drawings for specific connector details.

2.7 BOARDWALK/PATIO AND HANDRAILING MATERIALS

.1 Timber Materials:

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

.2 Species: Spruce/Pine/Fir (S-P-F)(CCA or ACA Treated).

.3 Grade: No. 1/No. 2.

.4 Grading Authority: NLGA

.5 Preservative Treatment: Treated material to be Alkaline Copper Quaternary (ACQ), to CSA O80. Timbers will be treated in the lengths required. Unnecessary field

cutting will not be permitted.

.2 Footing Materials: Provide new concrete footings, as depicted on the drawings, c/w the following:
- .1 140 mm x 140 mm timber post;
- .2 Precast concrete footing, 4-way deck block for 140 mm post, by Shaw Brick and Stone, or approved equal.

PART 3 – EXECUTION

3.1 PREPARATION

.1 Treat cut surfaces of plant treated material with wood preservative, before installation.

.2 Apply preservative by dipping, or by brush to completely saturate and maintain wet film on surface for minimum 3 minute soak on lumber and one minute soak on plywood.

.3 Re-treat surfaces exposed by cutting, trimming or boring with liberal brush application of preservative before installation.

.4 All material to be treated unless specifically noted otherwise on the drawing or directed by the Departmental Representative.

3.2 INSTALLATION

.1 Comply with requirements of NBC latest edition.

.2 Install members true to line, levels and elevations, square and plumb.

.3 Construct continuous members from pieces of longest practical length.

.4 Install spanning members with “crown-edge” up.

.5 Select exposed framing for appearance. Install lumber and panel material so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.6 Install rough bucks, nailers and linings to rough openings as required to provide backing for frames and other work.

.7 Use dust collectors and high quality respirator masks when cutting or sanding wood panels.

.8 Construct new boardwalks to follow existing site topography. Install steps/stairs as required.

.9 New section from Accommodation Building, to New Equipment Shed, including New Patio Deck #2, New Patio Deck #3, and New Timber Boardwalk #3, is to contain no steps or stairs. Ramp the boardwalk as required in this area, in place of steps (maximum slope = 1:12).

.10 Contractor may construction boardwalks in prefabricated sections and transport completed sections to site for installation, if desired.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink bolts where necessary to provide clearance for other work.

.3 Use nailing disks for soft sheathing as recommended by sheathing manufacturer.

PART 1 - GENERAL

1.1 DESCRIPTION

.1 This section covers the construction of the New Equipment Shed and Renovations to the Existing Accommodations Building, including all associated building equipment (propane heater, solar controls, propane water heater, solar batteries, etc.), as detailed on the drawings and outlined in the specifications.

.2 Contractor will coordinate work with other trades responsible for related work. Examine all drawings, details and specifications to coordinate work with the work of other trades. No claim for any extra work will be entertained for delays occasioned by such activities.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Materials specified herein shall be of the best quality available for the use intended. Materials deemed by the Departmental Representative as being unsuitable shall be rejected and replaced by acceptable material.

.2 Materials shall conform to the requirements and details indicated on the drawings and to the latest standards of the following regulatory agencies:
- .1 Canadian Government Specification Board;
- .2 Canadian Standards Association;
- .3 Canadian Lumbermen’s Association Standard Grading Rules;
- .4 Plywood Manufacturer’s Association of British Columbia;
- .5 British Columbia Lumber Manufacturer’s Association;
- .6 National Building Code of Canada.

.3 New Equipment Shed:

.3 Dimension Lumber: to CSA 0141-05 and species group to CSA 086-01 as listed and to National Grades Authority Standard Grading Rules 1970 - Grade category as follows:
- .1 Structural light framing: species Group D, No. 1 grade.
- .2 See Section 06 10 00 – Rough Carpentry.

.4 Plywood shall be as follows:
- .1 Plywood shall be good one side (GIS), waterproof, Douglas Fir Plywood, conforming to CSA Standard 0121-08.
- .2 See Section 06 10 00 – Rough Carpentry.

.5 Rigid Vinyl Siding - prefinished:
.1 Rigid vinyl: extruded polyvinylchloride to CAN/CGSB-41.24-95. Style and colour to be selected by the Departmental Representative.
.2 Accessories: internal corners, external corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of extruded plastic, same material and colour as siding, with nailing strip pre-punched.
.3 Exterior wall sheathing membrane: to CAN/CGSB-51.32 spunbonded olefin type as indicated.
.4 Fasteners: nails to CSA B111, screws to ANSI B18.6.4 aluminum purpose made.
.5 Galvanized steel sheet: commercial grade to ASTM A652M with Z275 zinc coating.
.6 Aluminum sheet: mill finish plain utility sheet, 0.80 mm thick.
.7 Include gable end roof vent, both sides.

.6 Nails, spikes, and staples to CSA Bill-1974 (R2003); galvanized for exterior work, interior highly humid areas and for treated lumber; plain finished elsewhere. Use spiral thread nails except where specified otherwise.

.7 Paint:
.1 Exterior Door: factory paint, colour as selected by Departmental Representative, prior to ordering.
.2 Interior walls and ceiling: quality grade alkyd primer and finish paint, as approved by the Departmental Representative. Egg shell finish and colour selected by Owner.
.3 Interior plywood floor: quality grade primer and finish paint for wooden floor surfaces with non-slip additive as approved by the Departmental Representative. Colour selected by Owner.

.8 Metal Roofing:
.1 Metal Roofing shall be SuperVic by Vicwest, or approved equal. Colour to be selected by the Departmental Representative, prior to ordering.
.2 Provide all trim and accessories required, including but not limited to;
.1 Ridge Cap
.2 Gable Trim
.3 Eave Trim
.4 Sidewall/Endwall Flashing
.5 Foam Closures/Sealers
.6 Metal Building Tape
.7 Timber Strapping
.8 Fasteners and Hardware
.3 Install new metal roofing, as recommended

by the manufacturer.

.9 Door and Hardware: Insulated Hollow Metal Door, pressed steel frames 1 ½ pair stainless steel hinges with non-removable pins, 1 only deadbolt and stainless steel passage set, 1 only aluminum door closure cush operation, 1 set weatherstripping W14, 1 only aluminum threshold weatherstripped and suitable for an in-swing door.

.10 Insulation:
.1 As noted on drawings.

.11 Aluminum Thread Plate: to CSA HA.4.

.12 Shop-Fabricated Wood Trusses
.1 Design Requirements:
.1 Design trusses, bracings, and bridging in accordance with CAN/CSA-086.1 for loads indicated and minimum uniform and minimum concentrated loadings stipulated in NBC commentary.
.2 Limit live load deflection to 1/360th of span where plaster gypsum board ceilings are hung directly from trusses.
.3 Limit live load deflection to 1/240th of span unless otherwise specified or indicated.
.4 Provide camber for trusses as indicated.

.2 Submittals:
.1 Each shop drawings submission shall bear signature and stamp of professional Engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

.3 Materials:
.1 Lumber: Spruce (S-P-F) species, No. 1 grade, softwood, S4S, with maximum moisture content of 19% at time of fabrication and to following standards:
.1 CAN/CSA-0141.
.2 NLGA (National Lumber Grading Association), Standard Grading Rules for Canadian Lumber.
.3 See Section 06 10 00 – Rough Carpentry.
.2 Fastenings: to CAN/CSA-086.1.

.4 Fabrication:
.1 Fabricate wood trusses in accordance with reviewed shop drawings.
.2 Provide for design camber and roof slopes when positioning truss members.

.3 Connect members using metal connector plates.

.13 Foundation: Provide new foundation, as depicted on the drawings, c/w the following:
.1 Treated timber knee wall, including: 38 x 140 double top plate, 38 x 140 bottom plate, 38 x 140 studs, 38 x 140 blocking, and levelling timbers as shown on the drawings;
.2 Treated timber footing including: 140 x 140 x 600 treated bearing timbers, 38 x 140 strapping pieces, 8 mil polyethylene vapour barrier, granular base levelling material, 12.7 mm galvanized bolts, and any required fasteners, all as shown on the drawings;
.3 Knee wall to timber beam fastening hardware, including: 12.7 mm Ø galvanized lag screws, 16 mm thick treated plywood gusset plates, and any required fasteners and/or blocking timbers, all as shown on the drawings;
.4 Treated timber cross bracing, including: 38 x 89 cross bracing, blocking timbers, and any required fasteners, as shown on the drawings.
.5 All timbers to be treated.

.4 Accommodations Building Renovations:

.1 Foundation (Timber Beam Support): Provide new foundation, as depicted on the drawings, c/w the following:
.1 Treated timber knee wall, including: 38 x 140 double top plate, 38 x 140 bottom plate, 38 x 140 studs, 38 x 140 blocking and levelling timbers, as shown on the drawings;
.2 Treated timber footing, including: 140 x 140 x 600 treated bearing timbers, 38 x 140 strapping pieces, 8 mil polyethylene vapour barrier, granular base levelling material, 12.7 mm galvanized bolts, and any required fasteners and/or blocking timbers, all as shown on the drawings;
.3 Knee wall to timber beam fastening hardware, including: 12.7 mm Ø galvanized lag screws, 16 mm thick treated plywood gusset plates, and any required fasteners, all as shown on the drawings;
.4 Treated timber cross bracing, including: 38 x 89 cross bracing, blocking timbers, and any required fasteners, as shown on the drawings.
.5 All timbers to be treated.

.2 Foundation (Steel Beam Support): Provide new foundation, as depicted on the drawings, c/w the following:
.1 Treated timber knee wall, including: 38

x 140 double top plate, 38 x 140 bottom plate, 38 x 140 studs, 38 x 140 blocking and levelling timbers, as shown on the drawings;

.2 Treated timber footing, including: 140 x 140 x 600 treated bearing timbers, 38 x 140 strapping pieces, 8 mil polyethylene vapour barrier, granular base levelling material, 12.7 mm Ø galvanized bolts, and any required fasteners and/or blocking timbers, all as shown on the drawings;

.3 Knee wall to steel beam fastening hardware, including: 38 x 140 treated timber blocking (if required), 12.7 mm galvanized bolts, and any required fasteners, as shown on the drawings;

.4 Treated timber cross bracing, including: 38 x 89 cross bracing, blocking timbers, and any required fasteners, as shown on the drawings.

.5 All timbers to be treated.

.3 Metal Roofing:

.1 Metal Roofing shall be SuperVic by Vicwest, or approved equal. Colour to be selected by the Departmental Representative, prior to ordering.

.2 Provide all trim and accessories required, including but not limited to;
.1 Ridge Cap
.2 Gable Trim
.3 Eave Trim
.4 Sidewall/Endwall Flashing
.5 Foam Closures/Sealers
.6 Metal Building Tape
.7 Timber Strapping
.8 Fasteners and Hardware

.3 Install new metal roofing, as recommended by the manufacturer.

.4 Touch-up Paint (walls and ceiling):

.1 Quality grade alkyd primer and finish paint as approved by the Departmental Representative. Finish and colour to match adjacent surfaces.

.5 Building Equipment (off-grid power supply):

.1 Propane Space Heater: Provide one (1) gas space heater, DV25 model by Empire Heating Systems, or approved equal.

.2 Solar Controls: Provide one (1) 60 amp solar charge controller/regulator c/w digital display and proper overload protections, Outback FM-60 or, or approved equal.

.3 Propane Water Heater: Provide one (1) on-demand gas hot water heater, ProTankless GWH 260 PN model by Bosch, or approved equal.

.4 Solar Batteries: Batteries to be supplied by Canada. See Section 01 16 10 – Material Supplied by Canada. Contractor to provide insulated battery enclosure box, to the

approval of the Departmental Representative. Do not stack new batteries within new enclosure. Batteries to be installed in a single row-only.

.5 Inverter Power Board Assembly: Provide one (1) Inverter power board assembly, c/w all AC/DC wiring, overload protection safety disconnect, and remote monitor display, Magnum PBMS-2812, or approved equal.

.6 All connecting wires (indoor and outdoor), fittings, conduit, mounting equipment, and any other items required to completely install and operate the off-grid power supply and propane heaters, are to be included.

.7 All off-grid power supply components to be supplied by a single supplier, to ensure compatability.

PART 3 - EXECUTION

3.1 WORKMANSHIP

.1 Rough and finished carpentry shall be executed by mechanics skilled in the trade. All work shall be neatly and accurately erected, scribed and fitted to produce closed joints and connections. Only expert workmanship will be accepted and work which, in the opinion of the Departmental Representative, is not of first class quality, will be rejected and replaced at no cost to Canada.

.2 Install rough blocking securely to pre-set anchor bolts. Blocking shall be of the proper size to accurately align to adjoining surfaces to receive can't boards, frames and other items detailed on the drawings and to be installed under this section.

.3 Finish carpentry to receive paint or varnish, as noted on the drawings, finished shall be neatly erected, joined, sanded and have all nail heads set and puttied, ready for finishing.

3.2 INSTALLATION

.1 Install new siding and attachments sequentially to manufacturer's instructions.

.2 Install exterior corners, fillers and closures trips with carefully formed and profiled work using concealed fasteners.

.3 Maintain joints in exterior sheets, true to line, tight fitting.

.4 Caulk and seal in accordance with paragraphs 4.6.2 and 4.6.3 of CGSB 93-GP-5M with sealant.

.5 Provide all components including drip and cap flashings, screws and fasteners as required to

complete installation.

.6 Apply paint material to CGSB 85-GP series standards and in accordance with materials manufacturer’s recommendations. Apply one primer and two finish coats to intersurfaces as recommended by the paint manufacturer.

.7 Install metal roof and eave flashings in accordance with manufacturer’s recommendations.

.8 Install pressed steel door frame plumb, square, level and at correct elevation. Insulate exterior frames with batt insulation. Secure anchors and connections to adjacent construction.

.9 Install insulated metal doors and hardware in accordance with manufacturer’s instructions.

.10 All building equipment included in the off-grid power supply, including Propane Heater, Solar Controls, Inverter, Propane Water Heater, and Solar Batteries should be installed by a certified technician, familiar with off-grid electrical systems and approved by the Departmental Representative. If the system is not installed by such a technician, it must be inspected and commissioned by a such a technician, to the approval of the Departmental Representative and prior to project completion.

.11 Install all components to any applicable manufacturers’/supplier’s recommendations.

PART 1 - GENERAL

1.1 CLEARING

.1 Do not clear any areas, or remove any trees beyond the minimum limits required to accommodate the work. Obtain approval of Departmental Representative for any clearing required.

.2 In areas of clearing, reinstatement to be carried out following completion of work to leave it in a clean and natural state, free of any dead or cut organic debris.

1.2 SCHEDULING

.1 Obtain approval from Departmental Representative of schedule indicating commencement of work.

PART 2 - EXECUTION

2.1 IDENTIFICATION AND PROTECTION

.1 Identify plants and limits of root systems to be preserved to satisfaction of Departmental Representative.

.2 Protect plant and root systems from damage, compaction and contamination resulting from construction to satisfaction of Departmental Representative.

.3 Ensure no pruning is done inside drip line.

2.2 ROOT CURTAIN SYSTEM

.1 Identify limits to required construction excavation to satisfaction of Departmental Representative.

.2 Prune exposed roots cleanly at side of trench nearest plants to be preserved. Pruned ends to point obliquely downwards.

.3 Protect root curtain from damage during construction operations.

.4 Water plants and root curtain sufficiently during construction to maintain optimum soil moisture condition until backfill operations are complete.

.5 Protect root curtain before and during backfill operations.

2.3 LOWERING GRADE AROUND EXISTING TREE

.1 Commence work in accordance with schedule approved by Departmental Representative.

.2 Cut slope not less than 500 mm from tree trunk to new grade level.

.3 Excavate to depths as indicated. Protect from damage root zone which is to remain.

.4 When severing roots at excavation level, cut roots with sharp tools.

.5 Cultivate excavated surface manually to 15 mm depth.

.6 Place soil mixture over area of excavation to finished grade level. Compact to 85% Standard Proctor Density.

.7 Water entire root zone to optimum soil moisture level.

.8 Install surface cover of hydroseed in accordance with Section 32 92 21.

2.4 PRUNING

.1 Prune crown to compensate for root loss while maintaining general form and character of plant.

2.5 ANTI-DESSICANT

.1 Apply anti-dessicant to foliage where applicable and as directed by Departmental Representative.

PART 1 - GENERAL

1.1 RELATED SECTIONS

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

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.

.2 ASTM C131-96, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

.3 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.4 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft^3) (600kN-m/m^3).

.5 ASTM D1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft^3) (2,700kN-m/m^3).

.6 ASTM D1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.

.7 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 WASTE MANAGEMENT AND DISPOSAL

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

.2 Divert unused granular material from landfill to local facility as approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Granular base: material in accordance with Section 31 05 17 - Aggregate Materials and following requirements:

.1 Crushed stone or gravel.

.2 Gradations to be within limits specified when tested to ASTM C136 and ASTM C117. Sieve sizes to CAN/CGSB-8.1 and CAN/CGSB-8.2.

.1 Gradation Method to:

Sieve Designation	% Passing
19 mm	100
9.5 mm	55-100
4.75 mm	35-60
1.20 mm	17-35
0.300 mm	39648
0.075 mm	39514

.2 Liquid limit: to ASTM D4318, maximum 25.

.3 Plasticity index: to ASTM D4318, maximum 6.

.4 Los Angeles degradation: to ASTM C131. Max. % loss by weight: 45.

.5 Crushed particles: at least 60% of particles by mass within each of following sieve designation ranges to have at least 1 freshly fractured face. Material to be divided into ranges using methods of ASTM C136.

Passing		Retained on
19.0 mm	to	4.75 mm

PART 3 - EXECUTION

3.1 SEQUENCE OF OPERATION .1 Placing

.1 Place granular base upon existing, undisturbed ground to level area under new footings and to ensure footings are fully bearing.

.2 Ensure no frozen material is placed.

.3 Do not place material on snow or ice.

3.2 SITE 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.

3.3 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 DESCRIPTION

.1 The work covered under this section includes the supply and installation of all labour and materials necessary for the following:
.1 Dewatering of the area of construction.
.2 Maintaining this area in a developed condition during construction.

.2 The contractor shall submit a dewatering plan to the Departmental Representative for review and approval prior to construction and dewatering activities.

.3 All work on the diversion wall must be carried out in the dry.

1.2 CODES AND STANDARDS

.1 Carry out all work in accordance with applicable Federal, Provincial and Municipal Codes and Regulations. In each and every instance of application, the Code, Regulation, Statute, By-Law, or specification having the most stringent requirements applies.

1.3 PERMITS AND FEES

.1 Obtain and pay all permits and fees related to the work contained in this division of the specifications.

1.4 TEMPORARY BERMS

.1 All work must be carried out in the dry. Where berms are required to accomplish this, the design of such berms is to be carried out by a professional Departmental Representative licensed to practice in Newfoundland and Labrador. Drawings of the berm design to be stamped by the Engineer and submitted to the Departmental Representative before any work commences.

PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

3.1 DEWATERING

.1 Contractor to determine what is required at this particular site to achieve dewatering of the area of construction. This may involve such things as:
- Utilization of sandbags
- Bypass pumping
- Construction of settling pond if siltation is a problem

.2 Any pumps and appurtenances used in dewatering are to be thoroughly cleaned and disinfected prior to use.

.3 Dispose of water in a manner not detrimental to

public health, environment, public or private property, or any portion of work completed or under construction. Comply with all requirements of the Department of Environment and Conservation and other regulatory agencies having jurisdiction regarding disposal of water.

.4 The Contractor will be responsible to maintain, dewater devices/structures for the duration of time they are required.

Appendix A

Contractor’s Copy of the Regulatory Approvals

Appendix B

Photos

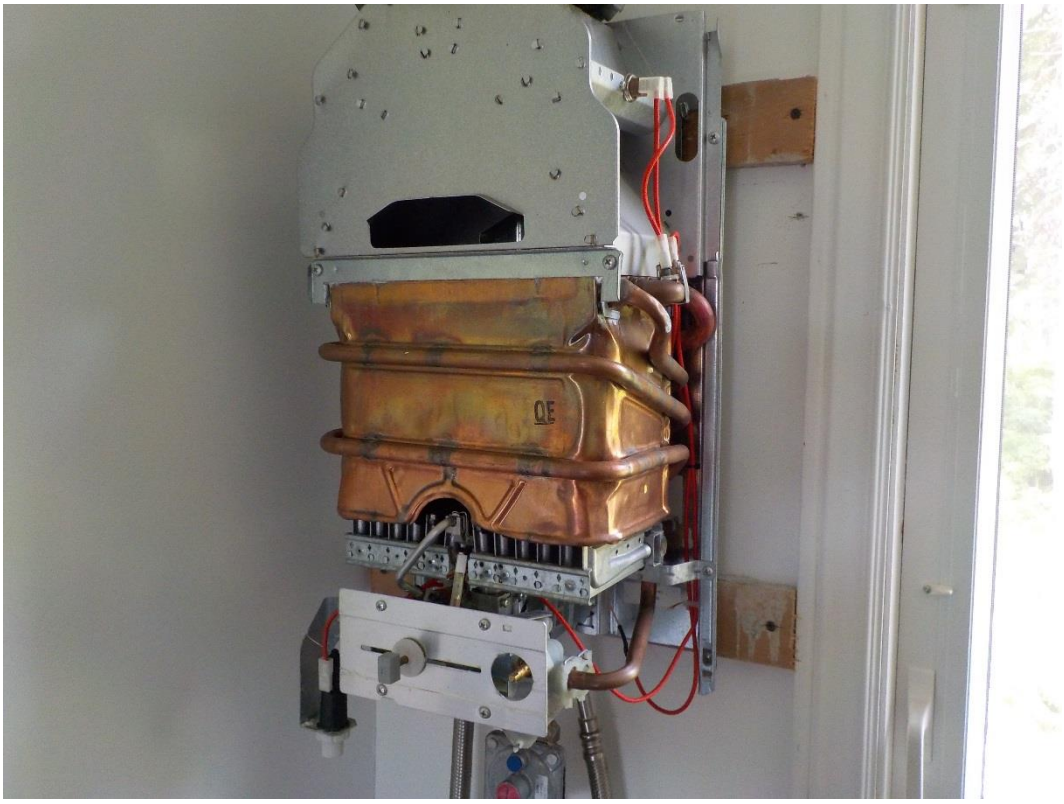
July, 2016:

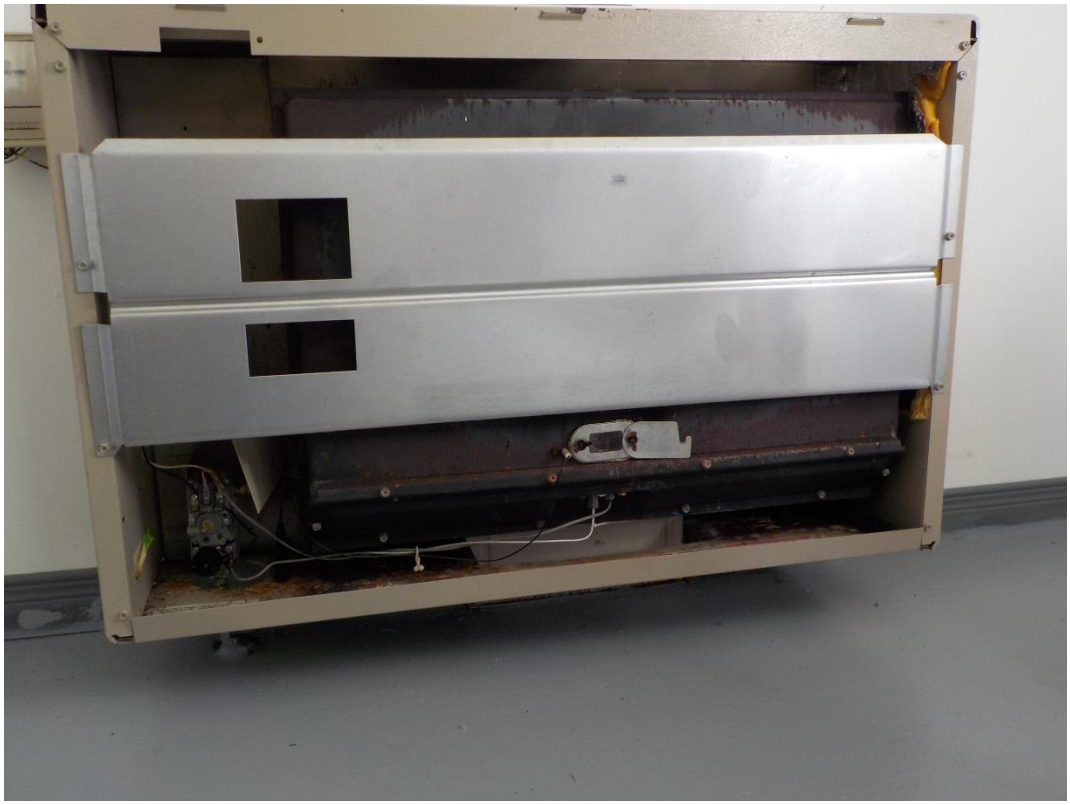
July, 2016:

July, 2016:

July, 2016:

July, 2016:





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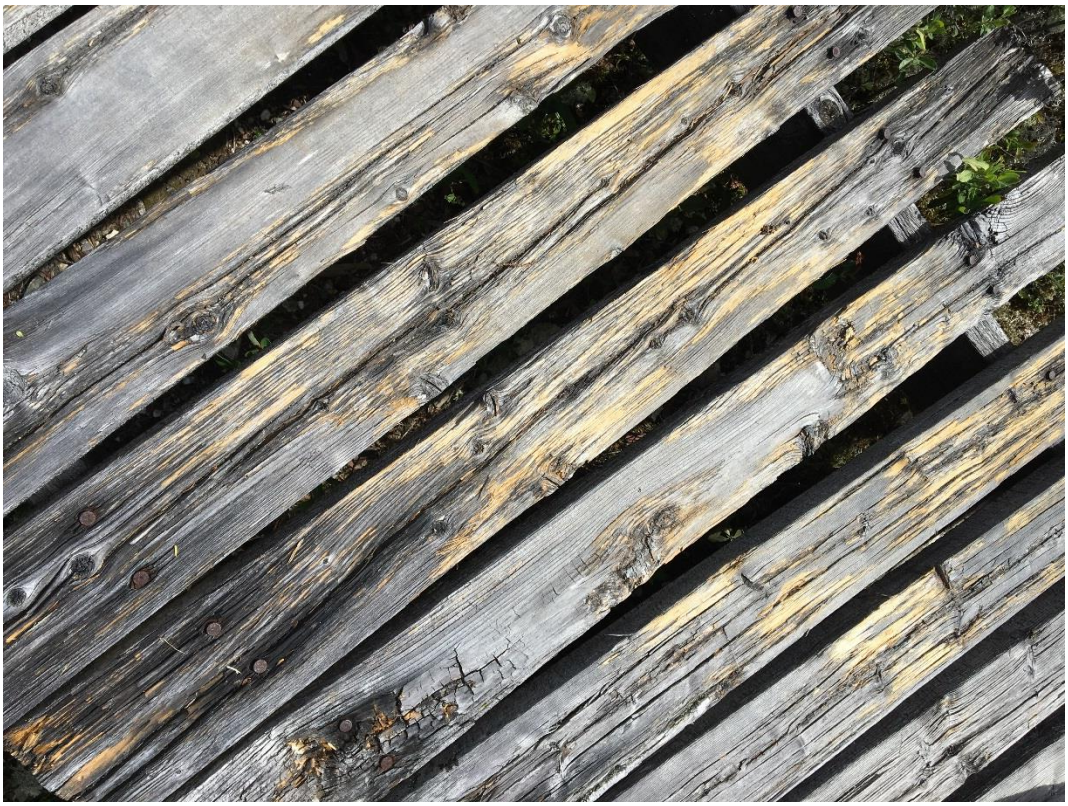

July, 2016:

July, 2016:

August, 2017:

August, 2017: