

**RECONSTRUCTION
BOAT PEN 414A & 414B
NORTH LAKE HARBOUR, PEI**

PROJECT NO.: R.094623.001

August 14, 2018

TABLE OF CONTENTS

	Pages
Division 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS	
Section 00 01 15 - List of Drawing Sheets	1
Division 01 - GENERAL REQUIREMENTS	
Section 01 10 10 - General Instructions	7
Section 01 14 10 - Scheduling and Management of Work	4
Section 01 33 00 - Submittal Procedures	3
Section 01 35 14 - Special Procedures for Traffic Control	3
Section 01 35 24 - Special Procedures on Fire Safety Control	4
Section 01 35 25 - Special Procedures on Lockout Requirements	5
Section 01 35 29 - Health and Safety Requirements	12
Section 01 35 43 - Environmental Procedures	3
Section 01 35 44 - Environmental Protection Plan	3
Section 01 45 00 - Testing and Quality Control	3
Section 01 50 00 - Temporary Facilities and Controls	4
Section 01 61 00 - Common Product Requirements	4
Section 01 74 11 - Cleaning	1
Section 01 74 21 - Construction/Demolition Waste Management and Disposal	5
Section 01 77 00 - Closeout Procedures	1
Section 01 78 00 - Closeout Submittals	2

Division 02 - EXISTING CONDITIONS

Section 02 41 13 - Selective Site Demolition 2

Division 03 - CONCRETE

Section 03 10 00 - Concrete Forming and Accessories 3

Section 03 20 00 - Concrete Reinforcing 3

Section 03 30 00 - Cast-in-Place Concrete 7

Division 05 - METALS

Section 05 50 00 - Metal Fabrications 3

Division 06 - WOOD, PLASTICS, AND COMPOSITES

Section 06 14 00 - Pressure Treated/Untreated Timbers 2

Division 26 - ELECTRICAL

Section 26 05 00 - Common Work Results - Electrical 6

Section 26 05 03 - Electrical Removals and Alterations 2

Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings 2

Section 26 27 26 - Wiring Devices 2

Section 26 28 16.02 - Moulded Case Circuit Breakers 2

Section 26 50 10 - Street Lighting 2

Division 31 - EARTHWORK

Section 31 23 10 - Excavating, Trenching and Backfilling 8

Section 31 32 21 - Geotextiles 2

Section 31 37 10 - Riprap 2

Section 31 61 13 - Pile Foundations, General 4

Section 31 62 19 - Timber Piles 3

Division 32 - EXTERIOR IMPROVEMENTS

Section 32 12 00 - Asphalt Pavement 3

Section 32 15 60 - Dust Control 1

Division 33 - UTILITIES

Section 33 65 76 - Direct Buried Underground Cable Ducts 2

PART 1 General

1.1 LIST OF DRAWINGS

- .1 M1 of 8: Existing Site Plan & Borehole Records
- .2 M2 of 8: Existing Wharf Sections & Details
- .3 M3 of 8: New Wharf Site Plan
- .4 M4 of 8: New Site Plan and Wharf Elevation South Side
- .5 M5 of 8: New Site Plan and Wharf Elevation North Side
- .6 M6 of 8: New Site Plan and Wharf Elevation West Side
- .7 M7 of 8: New Wharf Sections & Details
- .8 M8 of 8: New Wharf Typical Details
- .9 E1 of 2: Electrical Site Plan & Details
- .10 E2 of 2: Electrical Details

END OF SECTION

PART 1 General

1.1 DESCRIPTION OF WORK

- .1 The work of this portion of the contract involves reconstruction to the wharf structure 414A & 414B, located at North Lake Harbour, Kings County, Prince Edward Island which includes but is not limited to:
 - .1 Excavation to allow construction of wharf structure;
 - .2 Removal of existing timber and concrete decks, treated pile caps, Steel H piles, concrete panels, fender, wales and other items as indicated, and curbs at location of Work to limits and extents shown on plans;
 - .3 Provision for treated piles, cast-in-place concrete pile caps, and concrete decks, cross bracing, wales, fender system, sheathing, ladders, cleats, curbs, blocking, tie rods, concrete anchor walls, and miscellaneous work related to the reconstruction;
 - .4 All related site work including asphalt paving, sandstone fill, imported gravel, imported riprap, filter fabric and environmental protection;
 - .5 Provision for relocation of electrical, disconnection of older service and installation of new power pole, c/w Marine grade LED light fixtures and photo cell, electrical services and panels, as indicated;
 - .6 Provision for relocation and reinstatement of site services, including but not limited to water, drain pipes, barricades, fuel pumps, fuel lines, etc.
- .2 All in accordance with the requirements of these specifications and drawings listed on the Index to Specifications and Drawings, construction schedule and Time and Order of Completion.

1.2 CODES AND STANDARDS

- .1 All work to be performed in conformity with applicable codes and standards.
- .2 Perform work in accordance with the latest editions of the National Building Code of Canada, Canadian Electrical Code, Canadian Standards Association (CSA), P.E.I. Occupational Health and Safety Act, Canada Labour Code Part II, and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements will apply.
- .3 Meet or exceed the requirement of specified Standards, Codes, and referenced documents.
- .4 Unless otherwise indicated, the latest editions of

referenced Standards, Codes, and Documents will apply.

1.3 DOCUMENTS REQUIRED

- .1 Maintain one copy of each of the following at the job site:
 - .1 Construction Document CCDC2;
 - .2 Contract drawings;
 - .3 Project manual;
 - .4 Addenda;
 - .5 Reviewed shop drawings;
 - .6 Change orders;
 - .7 Test reports;
 - .8 Copy of updated approved work schedule;
 - .9 Manufacturers' installation and application instructions;
 - .10 Health and Safety Plan and related documents;
 - .11 Permits, Codes and Acts;
 - .12 Specifications;
 - .13 Waste Management Plan;
 - .14 Fire Safety;
 - .15 Other requested documents.

1.4 SITE EXAMINATION

- .1 All bidders submitting tenders for this Work shall first examine the site of the Work in its entirety prior to submission of tenders and make themselves acquainted with site conditions, tides and all information necessary for the proper execution of the Work covered by the tender documents. All tenders shall take into consideration all such conditions as may affect the Work under this Contract.
- .2 Before visiting the site the bidders MUST apply for and receive permission to visit the site from the Departmental Representative.
- .3 Must review Section 01 35 29 for potential hazards, wearing safety gear at site, and taking precautionary measures.
- .4 No extra payment will be made to the Contractor, above the Contract Price, for costs resultant from failure to determine the conditions that affect the work.

1.5 SITE CONDITIONS

- .1 Geotechnical Investigation: Borehole logs for this site are indicated on the design drawings.

1.6 CONSTRUCTION SCHEDULE AND PROGRESS REPORTS

- .1 Submit a consolidated schedule in weekly increments

- within ten (10) days of Contract award.
- .2 Discuss work proposed schedule with Departmental Representative to ensure incorporation of any specific scheduling requirements of Departmental Representative related to work being carried out simultaneously by Departmental Representative.
 - .3 Make allowance in the construction schedule for the following specific activities:
 - .1 Deficiency review.
 - .2 Deficiency clean-up.
 - .3 Construction close-out.
 - .4 Substantial completion.
 - .5 Project Record Drawings (As-built) submission.
 - .6 Warranties submission.
 - .4 Update and re-issue the work schedule as required to conform to monthly progress reviews.
- 1.7 MEASUREMENT FOR PAYMENT
- .1 Contractor to refer to Unit Price Component Table for unit price item Measurement for Payment descriptions.
- 1.8 PERMITS
- .1 Contractor will apply and pay for any necessary permits/certificates.
 - .2 Provide notification to inspection authorities.
 - .3 Compliance certificates.
 - .4 Submit copies to Departmental Representative.
- 1.9 CONTRACTOR'S USE OF SITE
- .1 Do not unreasonably encumber site with materials or equipment.
 - .2 Move stored products or equipment, which interfere with operations of Departmental Representative or other Contractors.
 - .3 Obtain and pay for use of additional off-site storage or work areas needed for operations.
 - .4 Maintain all roads, streets, lanes, walks, driveways free from mud and debris tracked from construction site, on a daily basis.
 - .5 Wharf face at area of work is not available between 15th of April and 15th of July to accommodate Spring fishing season. Contractor to coordinate work schedule with Department Representative.
- 1.10 SECURITY
- .1 Watch the site at all times including weekends and holidays. No compensation will be paid by the

Departmental Representative for materials of work stolen, lost, damaged, or destroyed.

1.11 PROJECT MEETINGS

- .1 Hold bi-weekly project meetings at the site and at a time approved by the Departmental Representative and the Departmental Representative. In addition, hold any additional meetings as the need arises or as directed by the Departmental Representative.
- .2 Notify all parties concerned of such meetings.
- .3 Contractor will record minutes of such meetings and distribute to all parties within three (3) working days of the meetings.

1.12 SETTING OUT THE WORK

- .1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.
- .2 Protect and maintain all survey/reference points.
- .3 Provide devices and qualified personnel as required to layout and construct work.
- .4 Supply all stakes and markers required for laying out work.

1.13 FIELD DIMENSIONS

- .1 Take all field measurements required to supplement drawing dimensions. The Departmental Representative's review of shop drawings and erection diagrams does not relieve the Contractor of this responsibility.

1.14 LOCATIONS OF EQUIPMENT AND FIXTURES

- .1 Unless dimensioned, locations of equipment and systems as indicated or specified are to be considered as approximate.
- .2 Inform Departmental Representative of impending installations and obtain Departmental Representative's approval of actual locations.
- .3 When required by the Departmental Representative, submit field drawings to indicate the relative positions of various services and equipment.

1.15 COORDINATION AND COOPERATION WITH OTHER CONTRACTS

- .1 The construction scheduling for the work of this project necessitates that the Contractors for the work of this Contract should anticipate the requirement to coordinate and cooperate with the Departmental Representative and also with other independent contractors, engaged directly by the Departmental Representative, working

- simultaneously on other related work as may be required.
- .2 Coordination and cooperation with other contractors under the control and direction of the Departmental Representative, and with independent contractors, electric/telephone utilities and cable companies, will include, but not be limited to:
 - .1 Sharing access to site and various areas of work within and adjacent to the construction site.
 - .2 Sharing storage of reasonable quantity of materials in areas as directed by the Departmental Representative.
 - .3 Incorporating flexibility into work schedule as would normally be required to integrate Work with work of other trades working under separate contracts.
 - .4 Attend coordination meetings called by the Departmental Representative and maintain on-going consultation with on-site superintendents or foremen of other separate contracts, primarily, but not necessarily limited to, activities required to coordinate installation of services or other components proposed or built in, with the work of this Contract.
 - .5 Directly arrange for work relating to the relocation of electric and/or telephone, and/or cable poles, and/or lines to be carried out by the utility companies to meet the Contractor's schedule.
 - .3 Before starting the Work of this Contract, it is the responsibility of this Contractor to confirm to the satisfaction of this Contractor, that the existing work of other contractors, whether fully completed, or being completed simultaneously with the Work of this Contract, upon which the Work of this Contract will be installed, attached to or abut against, or in any other way be affected by the condition of the existing work, is acceptable to this Contractor for the installation of the work of this Contract. If the existing work is deemed by this Contractor to be unacceptable for the installation of the Work of this Contract, this Contractor shall stop work and notify the Departmental Representative, in writing, stating clearly the conditions, which in the opinion of this Contractor are unacceptable. If written notification of unacceptable conditions has not been received by the Departmental Representative, the commencement or continuation of the Work of this Contract, insofar as it is affected by the work of other contractors shall be considered by the Departmental Representative as an acknowledgement by this Contractor

that the existing work of the other contractors is acceptable.

- .4 If required, prepare co-ordination drawings of installation for the efficient use of available space, for proper sequence of installation and to resolve conflicts. Consult with, and obtain the Departmental Representative's approval.

1.16 CUTTING, FITTING AND PATCHING

- .1 Do all cutting, fitting, boring, and patching as required to complete the work of this Contract.

1.17 EXISTING SERVICES

- .1 Where work involves breaking into, re-routing or connecting to existing services, submit work schedule to Departmental Representative sufficiently in advance to allow Departmental Representative to provide Owner with minimum seven (7) days notice of interruption of any active service or facility. Confirm each interruption 24 hours immediately prior to scheduled date of implementation.
- .2 Obtain Departmental Representative and Departmental Representative's approval of schedule of interruptions before proceeding with work and where applicable, coordinate with Local Authority or Public Utility.
- .3 Make all required connections to existing services, carry out such operations at the times directed by governing authorities, and with minimum disturbance to facilities and vehicular traffic.
- .4 Before starting the Work establish the locations and extents of service lines in the area of the Work. Notify Departmental Representative if findings in conflict with information or intent shown on drawings or in specifications.
- .5 Submit schedules to, and obtain approval from the Departmental Representative for any shut-down or closure of active services or facilities. Adhere to approved schedules and provide notice to affected parties.
- .6 Where unknown services are encountered, immediately advise the Departmental Representative and confirm such findings in writing.
- .7 Record the locations of maintained, re-routed, and abandoned service lines. Include on the record drawings specified in Section 01 78 00 - Closeout Submittals.

1.18 ADDITIONAL DRAWINGS

- .1 The Departmental Representative may furnish additional drawings to assist the proper execution of work. These

drawings will be issued for clarification only. Such drawings will have the same meaning and intent as if they were included with plans referred to in the contract documents.

1.19 RELICS AND ANTIQUITIES

- .1 Relics and antiquities and items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during the excavation work, shall remain property of the Government, except when excavation is on private property when items become the property of the property Owner. Protect such articles and request directives from Departmental Representative.
- .2 Give immediate notice to Departmental Representative if evidence of archaeological finds are encountered during construction, and await Departmental Representative's written instructions before proceeding with work in this area.

1.20 TRAFFIC REQUIREMENTS

- .1 See Section 01 35 29 - Health and Safety Requirements.
- .2 See Section 01 35 14 - Special Procedures for Traffic Control.

1.21 DUST CONTROL

- .1 See Section 32 15 60 - Dust Control.

END OF SECTION

PART 1 General

1.1 SUBMITTALS

- .1 Upon acceptance of bid and prior to commencement of work, submit to Departmental Representative the following work management documents:
 - .1 Work Schedule as specified herein.
 - .2 Waste Management Plan specified in Section 01 74 21.
 - .3 Environmental Plan specified in Section 01 35 44.
 - .4 Health and Safety Plan specified in Section 01 35 29.

1.2 WORK SCHEDULE

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

during review of schedule.

- .6 Completed schedule shall be approved by Departmental Representative. When approved, take necessary measures to complete work within scheduled time. Do not change schedule without Departmental Representative's approval.
- .7 Ensure that all subtrades and subcontractors are made aware of the work restraints and operational restrictions specified.
- .8 Schedule Updates:
 - .1 Submit when requested by Departmental Representative.
 - .2 Provide information and pertinent details explaining reasons for necessary changes to implementation plan.
 - .3 Identify problem areas, anticipated delays, impact on schedule and proposed corrective measures to be taken.
- .9 Departmental Representative will make interim reviews and evaluate progress of work based on approved schedule. Frequency of such reviews will be as decided by Departmental Representative. Address and take corrective measures on items identified by reviews and as directed by Departmental Representative. Update schedule accordingly.
- .10 In every instance, change or deviation from the Work Schedule, no matter how minimal the risk or impact on safety or inconvenience to tenant or public might appear, will be subject to prior review and approval by the Departmental Representative.

1.3 PROJECT PHASING

- .1 Be aware that the harbor must be kept operational for the full duration of work of this contract.
- .2 Construction to start on the north structure first.

1.4 OPERATIONAL RESTRICTIONS

- .1 The Contractor must recognize that harbor users will be affected by implementation of this contract. The Contractor must perform the work with utmost regard to the safety and convenience of building occupants and users. All work activities must be planned and scheduled with this in mind. The Contractor will not be permitted to disturb any portion of the structure without providing temporary facilities as necessary to ensure safe and direct passage through disturbed or otherwise affected areas.
- .2 Contractor to meet with the Departmental Representative

on a weekly basis to identify intended work areas, activities and scheduling for the coming week.

- .3 Safety Signage:
 - .1 Provide onsite, and erect as required during progress of work, proper signage, mounted on self-supporting stands, warning the public of construction activities progress and alerting need to exercise caution in the area.
 - .2 Signage to be professionally printed and mounted on wooden backing, coloured and to express messages as directed by the Departmental Representative.
 - .3 Include costs for the supply and installation of these signs in the bid price.
- .4 Stock pile materials on site in a location that does not affect the normal operation of the harbor and is agreed upon by the departmental representative and the local Harbor Authority.
- .5 Dust and Dirt Control:
 - .1 See section 01 50 00 and 01 74 11 for dust control and cleaning requirements.
 - .2 Effectively plan and implement dust control measures and cleaning activities as an integral part of all construction activities. Review all measures with the Departmental Representative before undertaking work, especially for major dust generating activities.
 - .3 Do not allow demolition debris and construction waste to accumulate on site and contribute to the propagation of dust.
 - .4 As work progresses, maintain construction areas in a tidy condition at all times.

1.5 PROJECT MEETINGS

- .1 Schedule and administer project meetings, held on a minimum bi-weekly basis, for entire duration of work and more often when directed by Departmental Representative as deemed necessary due to progress of work or particular situation.
- .2 Prepare agenda for meetings.
- .3 Notify participants in writing 4 days in advance of meeting date.
 - .1 Ensure attendance of all subcontractors.
 - .2 Departmental Representative will provide list of other attendees to be notified.
- .4 Hold meetings at project site or where approved by Departmental Representative.
- .5 Preside at meetings and record minutes.

- .1 Indicate significant proceedings and decisions. Identify action items by parties.
- .2 Distribute to participants by mail or by facsimile within 2 calendar days after each meeting.
- .3 Make revisions as directed by Departmental Representative.
- .4 Departmental Representative will advise whether submission of minutes by Email is acceptable. Decision will be based on compatibility of software among participants.

1.6 WORK COORDINATION

- .1 The General Contractor is responsible for coordinating the work of the various trades or other contractors on site and predetermining where the work of such trades or other adjacent contractors interfaces with each other.
 - .1 Designate one person from own employ having overall responsibility to review contract documents and shop drawings, plan and manage such coordination.
- .2 No extra costs to the Contract will be considered by the Departmental Representative as a result of Contractor's failure to effectively coordinate all portions of the Work. Disputes between the various trades or other contractors on the worksite as a result of their not being informed of each other's work areas and extent of interface work shall be the sole responsibility of the General Contractor and to be resolved at their own cost.

END OF SECTION

PART 1 General

1.1 GENERAL

- .1 This section specifies general requirements and procedures for contractor's submissions of shop drawings, product data, samples and mock-ups to Departmental Representative for review.
- .2 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submissions.
- .5 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review of submission, unless Departmental Representative gives written acceptance of specific deviations.
- .7 Make any changes in submissions which Departmental Representative may require consistent with Contract Documents and resubmit as directed by Departmental Representative.
- .8 Notify Departmental Representative, in writing, when resubmitting, of any revisions other than those requested by Departmental Representative.

1.2 SUBMISSION REQUIREMENTS

- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2 Allow 7 working days for Departmental Representatives review of each submission.
- .3 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .4 Submissions shall include:
 - .1 Date and revision dates.

- .2 Project title and number.
- .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractors authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Relationship to adjacent work.
- .5 After Departmental Representative's review, distribute copies.

1.3 SHOW DRAWINGS

- .1 Shop drawings: original drawings, or modified standard drawings provided by Contractor, to illustrate details of portions of Work, which are specific to project requirements.
- .2 Maximum sheet size: 850 x 1050mm
- .3 Submit shop drawings as follows:
 - .1 Opaque diazo prints or photocopies of number Contractor requires for distribution plus 4 copies which will be retained by Departmental Representative.
 - .2 Indicate materials, methods of construction, connection details, etc.
- .4 Cross-reference shop drawing information to applicable portions of Contract documents.

1.4 PRODUCT DATA

- .1 Product data: manufacturers catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
- .2 Submit 6 copies of product data.
- .3 Sheet size: 215x280mm, maximum of 3 modules.
- .4 Delete information not applicable to project.
- .5 Supplement standard information to provide details

applicable to project.

- .6 Cross-reference product data information to applicable portions of Contract Documents.

1.5 SAMPLES

- .1 Samples: examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

1.6 MOCK-UPS

- .1 Mock-ups: field-erected example of work complete with specified materials and workmanship.
- .2 Erect mock-ups at locations acceptable to Departmental Representative.
- .3 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be verified.

1.7 SHOP DRAWINGS REVIEW

- .1 The review of shop drawings by Departmental Representative is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that Departmental Representative approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents. Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.

END OF SECTION

PART 1 General

1.1 REFERENCES

- .1 Manual of Uniform Traffic Control Devices for Streets and Highways - 2014.

1.2 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 Review with Departmental Representative all precautions to be taken and safety measures to be put in place and obtain acceptance before proceeding with work.
- .3 When working on traveled way:
 - .1 Place equipment in position to present minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together when working conditions permit and preferably on same side of traveled way.
 - .3 Do not leave equipment on traveled way overnight.
- .4 Do not close any lanes of road without approval of Departmental Representative. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in Part D of UTCD.
- .5 Keep traveled way graded, free of pot holes and of sufficient width for required number of lanes of traffic.
 - .1 Provide minimum 7m wide temporary roadway for traffic in two-way sections through Work and on detours.
 - .2 Provide minimum 5m wide temporary roadway for traffic in one-way sections through Work and on detours.
- .6 As indicated, provide graveled detours or temporary roads to facilitate passage of traffic around restricted construction area.
- .7 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, unless other means of road access exist that meet approval of Departmental Representative.

1.3 INFORMATION AND WARNING DEVICES

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and

miscellaneous warning devices as specified in Part D, Temporary Conditions Signs and Devices, of UTCD Manual.

- .3 Place signs and other devices in locations recommended in UTCD manual.
- .4 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.
- .5 Continually maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Removing or covering signs which do not apply to conditions existing from day to day.

1.4 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag persons, trained in accordance with, and properly equipped as specified in, UTCD manual in following situations:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of traveled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on traveled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 Provide full time flag person during daylight hours to control both construction activities and public traffic and to permit pedestrians safe passage.
 - .6 For emergency protection when other traffic control devices are not readily available.
 - .7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .8 Delays to public traffic due to contractor's operators: maximum 10 minutes.
 - .9 Flag person to have two-way radio communications at all times.

END OF SECTION

PART 1 General

1.1 RELATED WORK

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

1.2 REFERENCES

- .1 Fire Protection Standards issued by Fire Protection Services, Labour Program Division of Service Canada:
 - .1 FCC No. 301-June 1982 Standard for Construction Operations.
 - .2 FCC No. 302-June 1982 Standard for Welding and Cutting.
- .2 FCC standards may be viewed at:
 - .1 <http://www.hrsdc.gc.ca/en/lp/lo/fp/standards/commissioner.shtml>
 - .2 Fire Protection Services - Atlantic Region office, Halifax, N.S, Tel. (902) 426-6053.

1.3 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.
 - .4 Use of open flame torches such as for roofing work.

1.4 SUBMITTALS

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

1.5 FIRE SAFETY REQUIREMENTS

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code.
 - .2 Fire Protection Standards FCC 301 and FCC 302.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations.
- .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 HOT WORK AUTHORIZATION

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot Work on site.
 - .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
 - .3 Upon review and confirmation that effective fire safety measures will be implemented and followed during performance of hot work, Departmental Representative will give authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Subdivide the work into pre-determined, individual activities, each activity requiring a separately written authorization to proceed.
 - .4 Requirement for individual authorization will be based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
 - .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.
 - .6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the Departmental Representative. When directed, perform Hot Work only during non-operative hours of the Facility. Follow Departmental Representative's directives in this regard.
- 1.7 HOT WORK PROCEDURES
- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
 - .2 Hot Work Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate work area beforehand for each hot work event in accordance with Safety Plan specified in section 01 35 29.
 - .2 Use of a Hot Work Permit system with individually written permit issued by Contractor's Superintendent

- to specific worker or subcontractor granting permission to proceed with Hot Work.
- .3 Permit required for each Hot Work event.
 - .4 Designation of a person on site as a Fire Safety Watcher responsible to conduct a fire safety watch for a minimum duration of 60 minutes immediately following the completion of the Hot Work.
 - .5 Compliance with fire safety codes, standards and occupational health and safety regulations specified.
 - .6 Site specific rules and procedures in force at the site as provided by the Facility Manager.
- .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Label document as being the Hot Work Procedures for this contract.
 - .4 Procedures shall clearly establish responsibilities of:
 - .1 Worker performing hot work,
 - .2 Person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractor(s) and Contractor.
 - .5 Brief all workers and subcontractors on Hot Work Procedures and of Permit system. Stringently enforce compliance.
 - .6 Failure to comply with fire safety procedures may result in the issue of a Non-Compliance notification as specified in Section 01 35 29 Health and Safety Requirements.

1.8 HOT WORK PERMIT

- .1 Hot Work Permit to include the following:
 - .1 Project name and project number;
 - .2 Date of issue;
 - .3 Description of hot work type needed;
 - .4 Special precautions to be followed, including type of fire extinguisher needed;
 - .5 Name and signature of permit issuer.
 - .6 Name of worker to which the permit is issued.
 - .7 Permit validity period not to exceed 8 hours. Indicate start time/date and termination time/date.
 - .8 Worker's signature with time/date of hot work completion.
 - .9 Stipulated time period of safety watch.
 - .10 Fire Safety Watcher's signature with time/date.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is

included on form.

- .3 Each Hot Work Permit to be completed in full, signed and returned to Contractor's Superintendent for safe keeping on site.

1.9 FIRE PROTECTION AND ALARM SYSTEMS

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

1.10 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.

END OF SECTION

PART 1 General

1.1 RELATED WORK

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

1.2 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 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.
- .5 All standard mentioned above shall be of latest edition.

1.3 DEFINITIONS

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

1.4 COMPLIANCE REQUIREMENTS

- .1 Comply with the following in regards to isolation and

lockout of electrical facilities and equipment:

- .1 Canadian Electrical Code.
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations.
 - .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.

1.5 SUBMITTALS

- .1 Submit copy of proposed lockout procedures and sample of lockout permit or lockout tags to Departmental Representative for review, within 14 calendar days of acceptance of bid.
- .2 Submit in accordance with Section 01 33 00 - Submittal Procedures.

1.6 ISOLATION OF EXISTING SERVICES

- .1 Obtain Departmental Representative's written authorization prior to working on existing live or active electrical facilities and equipment and before proceeding with isolation of such item.
- .2 To obtain authorization, submit to Departmental Representative the following documentation:
 - .1 Written request to isolate the particular service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.
- .3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, as follows:
 - .1 Fill-out standard form in current use at the Facility as provided by Departmental Representative or;
 - .2 Where no form exists, make written request indicating:
 - .1 The equipment, system or service to be isolated and their location;
 - .2 Duration of isolation period (i.e.: start time & date and completion time & date).
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.

- .4 Do not proceed with isolation until receipt of written notification from Departmental Representative granting the Isolation Request and authorizing to proceed with the work.
 - .1 Note that Departmental Representative may designate another person at the Facility being authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shutdown of equipment or facility. De-energize, isolate and lockout power and other sources of energy feeding the equipment or facility.
- .6 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require isolation of existing services.
- .7 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of Facility operations. Follow Departmental Representative's directives in this regard.
- .8 Conduct hazard assessment as part of the process in accordance with health and safety requirements specified Section 01 35 29 - Health and Safety Requirements.

1.7 LOCKOUTS

- .1 De-energize, isolate and lockout electrical facility, mechanical equipment and machinery from all potential sources of energy prior to working on such items.
- .2 Develop and implement clear and specific lockout procedures to be followed as part of the Work.
- .3 Prepare typed written Lockout Procedures describing safe work practices, procedures, worker responsibilities and sequence of activities to be followed on site by workforce to safely isolate an active piece of equipment or electrical facility and effectively lockout and tagout it's sources of energy.
- .4 Include as part of the Lockout Procedures a system of lockout permits managed by Contractor's Superintendent or other qualified person designated by him/her as being "in-charge" at the site.
 - .1 A lockout permit shall be issued to specific worker providing a Guarantee of Isolation before each event when work must be performed on a live equipment or electrical facility.
 - .2 Duties of person managing the permit system to include:
 - .1 Issuance of permits and lockout tags to workers.

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

1.8 CONFORMANCE

- .1 Brief all workers and subcontractors on requirements of this section. Stringently enforce use and compliance.
- .2 Failure to follow lockouts procedures specified herein may result in the issuance of a Non-Compliance notification as specified in Section 01 35 29 - Health and Safety Requirements.

1.9 DOCUMENTS ON SITE

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

Representative or to authorized safety Representative for
inspection.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

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

1.2 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures and copies of the following documents, including updates:
 - .1 Submit site-specific Health and Safety Plan;
 - .2 Building permit, compliance certificate and other permits obtained.
- .2 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets.
- .6 Name of contractor's representative designated to perform full time health and safety supervision on site.

1.3 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, for the Province of PEI, and the Occupational Health and Safety Act Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code - Part II Canada Occupational Safety and Health Regulations made under part II of the Canada Labour Code.
- .3 Observe and enforce construction safety measures required by:
 - .1 National Building Code of Canada;
 - .2 Provincial Worker's Compensation Board;
 - .3 Municipal statutes and ordinances.
- .4 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.
- .5 A copy of the Canada Labour Code Part II may be obtained by contacting:
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

- .6 Maintain Workers Compensation Coverage for duration of Contract. Submit letter of good standing to Departmental Representative upon request.

1.4 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to the site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.5 SITE CONTROL AND ACCESS

- .1 Control work site and entry points to construction areas.
 - .1 Delineate and isolate construction areas from other areas of site by use of appropriate means.
 - .2 Post notices and signage at entry points and at other strategic locations identifying entrance onto site to be restricted to authorized persons only.
 - .3 Signage must be professionally made, bilingual in both official languages or display internationally understood graphic symbols.
- .2 Approve and grant access to site only to workers and authorized persons.
 - .1 Immediately stop non-authorized persons from circulating in construction areas and remove from site.
 - .2 Provide site safety orientation to all persons before granting access. Advise of site conditions, hazards and mandatory safety rules to be observed on site.
- .3 Secure site at night time to extent required to protect against unauthorized entry. Provide security guard where protection cannot be achieved by other means.
- .4 Ensure persons granted access to site wear appropriate personal protective equipment (PPE) suitable to work and site conditions.
 - .1 Provide such PPE to authorized persons who require access to perform inspections or other approved purposes.
- .5 Ensure persons granted access are familiar with the

Health and Safety Plan defined in sub-section 1.2

1.6 PROTECTION

- .1 Carry out work placing emphasis on health and safety of the Public, Facility personnel, construction workers and protection of the environment.
- .2 Erect safety barricades, lights and signage on site to effectively delineate work areas, protect pedestrian and vehicular traffic around and adjacent to work and to create a safe working environment.
 - .1 Erect fences, hoarding, protective barriers and temporary lighting as required. See Section 01 50 00 - Temporary Facilities and Controls for minimum acceptable barricades.
- .3 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.7 FILING OF NOTICE

- .1 File Notice of Project and other Notices with Provincial authorities prior to commencement of Work.
 - .1 Departmental Representative will assist in locating address for Filing Notice of Project if needed.

1.8 PERMITS

- .1 Post on site permits, licenses, compliance certificates specified in Section 01 10 10 - General Instructions.
- .2 Where particular permit or compliance certificate cannot be obtained at the required stage of work, notify Departmental Representative in writing and obtain his/her approval to proceed before carrying out that portion of work.

1.9 HAZARD ASSESSMENTS

- .1 Conduct site specific health and safety hazard assessment before commencing project and during course of work identifying risks and hazards resulting from site conditions, weather conditions and work operations.
 - .1 Perform on-going assessments addressing new risks and hazards as work progresses including when new sub trade or sub-contractor arrives on site.
 - .2 Also, conduct assessment when the scope of work has been changed by Change Order and when potential hazard or weakness in current health and safety practices are identified by Departmental Representative or by an authorized safety

Representative.

- .2 Record results in writing and address in Health and Safety Plan.
- .3 Keep copy of all assessments on site.

1.10 PROJECT/SITE CONDITIONS

- .1 The following are known or potential project related health, environmental and safety hazards at the site which must be properly managed if encountered during course of work:
 - .1 There are no known existing hazardous or contaminated building materials on site.
 - .2 Safety hazards due to existing site conditions and conduct of work are:
 - .1 overhead electrical wires
 - .2 tidal waters
 - .3 winter work, freezing conditions (ice, wind and water)
 - .4 unpredictable marine weather and wave conditions
 - .5 sharp or protruding objects
 - .6 heavy vehicle movement
 - .7 loading and unloading materials
 - .8 moving and working with large and heavy materials
 - .9 creosote timber and jagged wharf materials
 - .10 working over, near or on the water
 - .11 falling in the water
 - .12 uneven and jagged travelling and working surfaces
 - .13 slippery surface conditions
 - .14 slipping and falling
 - .15 falling materials
 - .16 unknown load carrying ability of structure and access to site
 - .17 structure not posted for loads
 - .18 structure partially barricaded
 - .19 Harbour users, activities and traffic
 - .20 pedestrians, vehicles and Harbour operation traffic
 - .2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work. Include above items into hazard assessment process.

1.11 HEALTH AND SAFETY MEETINGS

- .1 Attend pre-construction health and safety meeting, conducted by Departmental Representative. Have following persons in attendance:
 - .1 Site Superintendent.
 - .2 Contractor's designated Health and Safety Site Supervisor.
 - .3 Departmental Representative will advise of date, time and location.
- .2 Conduct health and safety meetings and tool box briefings on site. Hold on a regular and pre-scheduled basis during entire work in accordance with requirements and frequency as stipulated in provincial occupational health and safety regulations.
 - .1 Keep workers informed of potential hazards and provide safe work practices and procedures to be followed.
 - .2 Take written minutes and post on site.
 - .3 Conduct formal meetings on a minimum monthly basis.

1.12 HEALTH AND SAFETY PLAN

- .1 Develop written site-specific Project Health and Safety Plan, based on hazard assessments, prior to commencement of work.
 - .1 Submit copy to Departmental Representative within 7 calendar days of contract award.
 - .2 Submit updates as work progresses.
- .2 Health and Safety Plan shall contain three (3) parts with following information:
 - .1 Part 1 - Hazards: List of individual health risks and safety hazards identified by hazard assessment process.
 - .2 Part 2 - Safety Measures: engineering controls, personal protective equipment and safe work practices used to mitigate hazards and risks listed in Part 1 of Plan.
 - .3 Part 3a: Emergency Response: standard operating procedures, evacuation measures and emergency response in the occurrence of an accident, incident or emergency.
 - .1 Include response to all hazards listed in Part 1 of Plan.
 - .2 Evacuation measures.
 - .3 List names and telephone numbers of officials to contact including:
 - .1 General Contractor and all Subcontractors.
 - .2 Officials from PWGSC and site facility management. Departmental Representative

- will provide list.
- .4 Part 3b: Site Communications:
 - .1 Procedures used on site to share work related safety issues between workers, subcontractors, and General Contractor.
 - .2 List of critical tasks and work activities, to be communicated with the Facility Manager, which has risk of affecting tenant operations, or endangering health and safety of Facility personnel and the general public. Develop list in consultation with the Departmental Representative.
 - .3 Prepare Health and Safety Plan in a three column format, addressing the three parts specified above, as follows:

Column 1	Column 2	Column 3
Part 1	Part 2	Part 3a/3b
Identified Hazards	Safety Measures	Emergency Response Site Communications
 - .4 Develop Plan in collaboration with subcontractors. Address work activities of all trades. Revise and update Plan as Sub-Contractors arrive on site.
 - .5 Implement and enforce compliance with requirements of Plan for full duration of work to final completion and demobilization from site.
 - .6 As work progresses, review and update Plan. Address additional health risks and safety hazards identified by on-going hazard assessments.
 - .7 Post copy of Plan, and updates, on site.
 - .8 Submission of the Health and Safety Plan, and updates, to the Departmental Representative is for review and information purposes only. Departmental Representative's receipt review and any comments made of the Plan shall not be construed to imply approval in part or in whole of such Plan by Departmental Representative and shall not be interpreted as a warranty of being complete and accurate or as a confirmation that all health and safety requirements of the Work have been addressed and that it is legislative compliant. Furthermore, Departmental Representative's review of the Plan shall not relieve the Contractor of any of his legal obligations for Occupational Health and Safety provisions specified as part of the Work and those required by provincial legislation.

1.13 SAFETY SUPERVISION AND INSPECTION

- .1 Designate one person to be present on site at all times, responsible for supervising health and safety of the work.

- .1 Person to be competent in Occupational Health and Construction Safety as defined in the Provincial Occupational Health and Safety Act.
- .2 Assign responsibility, obligation and authority to such designated person to stop work as deemed necessary for reasons of health and safety.
- .3 Conduct regularly scheduled informal safety inspections of work site on a minimum bi-weekly basis.
 - .1 Note deficiencies and remedial action taken in a log book or diary.
- .4 Conduct Formal Inspections on a minimum monthly basis.
 - .1 Use standardized safety checklist forms.
 - .2 Prepare written report of each inspection. Document deficiencies, remedial action needed and assign responsibility for rectification to appropriate subcontractor or worker.
 - .3 Distribute monthly reports to subcontractors for their pursuance.
 - .4 Follow-up and ensure appropriate action and corrective measures are taken.
 - .5 Keep inspection reports on site.

1.14 TRAINING

- .1 Ensure that all workers and other persons granted access to site are competently trained and knowledgeable on:
 - .1 Safe use of tools and equipment.
 - .2 How to wear and use personal protective equipment (PPE).
 - .3 Safe work practices and procedures to be followed in carrying out work.
 - .4 Site conditions and minimum safety rules to be observed on site, as given at site orientation session.
- .2 Maintain evidence and records of worker training.

1.15 MINIMUM SITE SAFETY RULES

- .1 Notwithstanding the requirement to abide by federal and provincial health and safety regulations, the following safety rules shall be considered minimum requirements to be obeyed by all persons granted site access:
 - .1 Wear personal protective equipment (PPE) appropriate to function and task on site; the minimum requirements being hard hat, safety footwear, and eye protection.
 - .2 Immediately report unsafe activity or condition at site, near-miss accident, injury and damage.
 - .3 Maintain site in tidy condition.

- .4 Obey warning signs and safety tags.
- .2 Brief workers on site safety rules and on disciplinary measures to be taken by Departmental Representative for violation or non compliance of such rules. Post rules on site.
- .3 The following actions or conduct by Contractor, workers and sub-contractors will be considered as non conformance with the health and safety requirements of the contract for which a Non-Compliance Notification will be issued to the General Contractor by the Departmental Representative.
 - .1 Failure to follow the minimum site safety rules specified above.
 - .2 Negligence resulting in serious injury or major property damage.
 - .3 Deliberate non-compliance with federal and Provincial Acts and Regulations.
 - .4 Falsification of information in Workers Compensation Reports, safety reports and other health and safety related documents submitted to Departmental Representative or to Authority having jurisdiction.
 - .5 Possession of firearms on site.
 - .6 Possession of non-prescriptive illegal drugs or alcohol.
 - .7 Action, or lack thereof, resulting in the issuance of Warning, Fines or Stop Work Orders from a Provincial Authority having jurisdiction.
 - .8 Violation of other specified health and safety rules and requirements as determined by Departmental Representative.
- .4 See elsewhere in this section for details on Non-Compliance Notifications and resulting disciplinary measures.

1.16 ACCIDENT REPORTING

- .1 Investigate and report the following incidents and accidents:
 - .1 Those as required by Provincial Occupational Safety and Health Act and Regulations.
 - .2 Injury requiring medical aid as defined in the Canadian Dictionary of Safety Terms - 1987, published by the Canadian Society of Safety Engineers (C.S.S.E.) as follows:
 - .1 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by province in which the injury was incurred.

- .3 Property damage in excess of \$5,000.00.
- .4 Interruption to Facility operations with potential loss to a Federal Department in excess of \$5000.00.
- .5 Those which require notification to Workers Compensation Board or other regulatory agencies as stipulated by applicable law or regulations.
- .2 Send written report to Departmental Representative for all above cases.

1.17 TOOLS AND EQUIPMENT SAFETY

- .1 Routinely check and maintain tools, equipment and machinery for safe operation.
- .2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.
- .3 Tag and immediately remove from site items found faulty or defective.

1.18 HAZARDOUS PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site. Post on site. Submit copy to Departmental Representative.

1.19 BLASTING

- .1 Blasting or other use of explosives is not permitted.

1.20 POWDER ACTUATED DEVICES

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

1.21 POSTING OF DOCUMENTS

- .1 Post on site a copy of all health and safety documentation and reports specified to be produced as part of the work and received from authorities having jurisdiction.

1.22 SITE RECORDS

- .1 Maintain on Site a copy of all health and safety related documentation and reports specified to be produced as part of the work and received from authorities having jurisdiction.
- .2 Upon request, make available to Departmental Representative, or authorized Safety Representative, for review. Provide copy when directed by Departmental Representative.

1.23 NON COMPLIANCE AND DISCIPLINARY MEASURES

- .1 Immediately address and correct health and safety

- violations and non-compliance issues.
- .2 Negligence or failure to follow occupational health and safety provisions specified in the Contract Documents and of those of applicable laws and regulations could result in disciplinary measure taken by the Departmental Representative against the General Contractor.
 - .3 PWGSC uses a system of Non-compliance Notifications and Disciplinary Measures on project as follows:
 - .1 A non-compliance notification is issued to the General Contractor, by the Departmental Representative, whenever there is a violation of non compliance of the project's health and safety requirements and of those of Provincial and Federal regulations by any worker, subcontractor or other person to whom the Contractor has granted access to the work site.
 - .2 Non-Compliance notifications are progressive in nature resulting in disciplinary measures imposed depending on the frequency, nature and severity of the infraction.
 - .3 Disciplinary measures could include:
 - .1 Removal of the offending person or party from site;
 - .2 Financial penalties in the form of progress payment reduction or holdback assessments made against the Contract and;
 - .3 Taking the Work out of Contractor's hands in accordance with the General Conditions.
 - .4 Departmental Representative will make final decision as to what constitutes a violation and when to issue a Non-Compliance Notification.
 - .5 Non-Compliance Notifications issued by Departmental Representative shall not be construed as to overrule or disregard warning, orders and fines levied against Contractor by a regulatory agency having jurisdiction.
 - .6 Each non-compliance notification issued is given a numerical rating based on a three level numbering system. Each level is progressive in nature to reflect:
 - .1 The seriousness of the infraction as viewed by the Departmental Representative.
 - .2 The degree of disciplinary action which will be taken by the Departmental Representative.
 - .7 Numerical ratings are as follows:
 - .1 Non-Compliance Notification - Level No. 1 Rating:
 - .1 Situation: Occurrence of a first time infraction by a person or party on site.
 - .2 Action: Verbal warning to general contractor,

documented in departmental files and copy sent to the general contractor.

- .2 Non-Compliance Notification - Level No. 2 Rating:
 - .1 Situation:
 - .1 The second occurrence of a previous infraction by the same person or party on site or;
 - .2 Accumulation of several level-1 notifications for different infractions by the same person or party on site or;
 - .3 Non-action on the part of the Contractor or subcontractor to rectify non-compliance infractions previously identified in one or several Level-1 notifications or;
 - .4 Violation or non observance of a Federal or Provincial Safety law or Regulation by subcontractor or Contractor or;
 - .5 Negligence by a person or party resulting in injury or major property damage.
 - .2 Action: written notice to General Contractor complete with an order for immediate remedial action to be taken. Depending on the severity of the offense, the order may include request for the immediate removal of the offending person or party from site.
- .3 Non-Compliance Notification - Level No. 3 Rating:
 - .1 Situation:
 - .1 Continued and repeated non-compliance with health and safety requirements by the General Contractor or by subcontractor(s) or;
 - .2 The occurrence of a serious accident on site resulting in serious bodily or death.
 - .2 Action:
 - .1 Formal letter issued to General Contractor with an order to "Immediately Stop Work" until so notified to proceed.
 - .2 Review of all non compliance and/or accident occurrences in the project with possible investigation by the Department of PWGSC.
 - .3 Based on outcome of the review/ investigation, work could be suspended or taken out of the Contractor's hands in accordance with the General Conditions.
 - .3 The term "serious accident" used herein shall have the same meaning as defined in the Canadian

Dictionary of Safety Terms - 1987 issue from
the Canadian Society of Safety Engineers
(C.S.S.E.)

- .8 Decision on which rating level to be placed on any given Non-Compliance Notification will be determined solely by Departmental Representative.
- .9 Be responsible to fully brief workers and subcontractors on the operation and importance of this system.

END OF SECTION

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 FIRES

- .1 Fires and burning of rubbish on site not permitted.
- .2 Where fires or burning permitted, prevent staining or smoke damage to structures, materials or vegetation which is to be preserved. Restore, clean and return to new condition stained or damaged work. Be responsible for obtaining all necessary burning permits. Be responsible for any damage which may result from such fires.
- .3 Provide supervision, attendance and fire protection measures as directed.

1.4 HAZARDOUS MATERIAL HANDLING

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

1.5 DISPOSAL OF WASTES

- .1 Do not bury rubbish and waste materials on site. Dispose in accordance with project waste management requirements specified in Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel

into waterways, storm or sanitary sewers or waste landfill sites.

- .3 Dispose of hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

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 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 SITE AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties where indicated.
- .2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m.
- .3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .4 Minimize stripping of topsoil and vegetation.
- .5 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.8 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial, federal and 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 under water or 100 m of spawning beds.

- .8 Do not refuel any type of equipment within 100 meters of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.
- .9 Construct, install and maintain in-water silt containment devices (silt booms) around the construction site to prevent sediment laden water from seeping out beyond the silt boom. Provide suitable anchors, chairs, and other devices. Maintain and repair silt boom on a regular basis and in a like new condition.

1.9 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 Have appropriate emergency spill response equipment and rapid clean-up kit on site located adjacent to hazardous materials storage area. Provide personal protective equipment required for clean-up.
- .6 Report, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment to Federal and Provincial Department of the Environment.
 - .1 Notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

1.10 WILDLIFE PROTECTION

- .1 Should nests of migratory birds in wetlands be encountered during work, immediately notify Departmental Representative for directives to be followed.
 - .1 Do not disturb nest site and neighbouring vegetation until nesting is completed.
 - .2 Minimize work immediately adjacent to such areas until nesting is completed.
 - .3 Protect these areas by following recommendations of Canadian Wildlife Service.

END OF SECTION

PART 1 General

1.1 WATER QUALITY MITIGATION

- .1 Visual monitoring of the turbidity near the work site must be undertaken. If any changes occur in the turbidity of the water produced by this activity, the work must be immediately stopped and Mrs. Delephina Keen, Oceans and Habitat Area Chief, DFO, Charlottetown, PE, must immediately be contacted (902) 566-7823. (NOTE: Ms. Delephina Keen must be notified a minimum of 48 hours prior to the commencement of any project works.)
- .2 The construction material used must be clean and non-toxic (free of fuel, oil, grease, and/or any contaminants).
- .3 Any debris entering the marine environment will be immediately retrieved when it is safe to do so.
- .4 All work equipment shall be free from loose petroleum fluid or lubricants harmful to the marine environment.
- .5 Any equipment that has been in the marine environment will be cleaned of any sediments, plants or animals and pressure washed with freshwater and/or sprayed with undiluted vinegar prior to being mobilized, and prior to leaving, the project site.
- .6 To minimize and control the release or resuspension of sediments or contaminants resulting from in-water activities the following measures shall be implemented:
 - .1 Work is scheduled so as to avoid periods of heavy precipitation.
 - .2 Any disturbed areas along the shoreline are to be stabilized to prevent erosion.
- .7 Machinery must be checked for leakage of lubricants or fuel and must be in good working order. Refuelling must be done at least 30 m from any water body and on an impermeable surface. Basic petroleum spill clean-up equipment must be on-site. All spills or leaks must be promptly contained, cleaned up and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633).
- .8 Machinery and equipment fuel level must be inspected on a daily basis to ensure there is no leakage to the surrounding environment.
- .9 Storage of fuels and petroleum products shall comply with safe operating procedures, including facilities in case of a spill.
- .10 Careful maintenance and monitoring of all equipment must be carried out to minimize the risk of spills or leaks of petroleum based products.

- .11 Do not use creosote, petroleum and pentachlorophenol timbers. Timber treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be CSA or AWPA approved. Freshly treated wood should be seasoned for at least 30 days before they are to be in contact with water. All newly treated wood must be treated in accordance with the methods outlined in the most recent Canadian version of the document entitled 'Best Management Practices for the Use of Treated Wood in Aquatic Environments'.

1.2 WASTE MANAGEMENT MITIGATION

- .1 Any construction or demolition debris will be disposed of in a Provincially approved manner.

1.3 NOISE AND DISTURBANCE MITIGATION

- .1 All machinery shall be well muffled.
.2 The contractor must supply adequate signage and safety measures during transportation of materials and equipment to the harbor.

1.4 OTHER MITIGATION

- .1 During the proposed project activities, if hydrocarbon fumes are detected as a result of soil disturbance in the vicinity of Structures being repaired, then PWGSC-ES should be contacted for further advice.
.2 If any material is excavated (i.e. in the vicinity of repaired structures) then the material shall be tested before it leaves DFO-SCH property.
.3 Workers who may come in contact with hazardous materials or soil must be provided with and use appropriate personal protective equipment.
.4 Site access must be restricted to authorized workers only.
.5 Concentrations of seabirds, waterfowl, or shorebirds shall not be approached when anchoring equipment, accessing wharves, or ferrying supplies.
.6 Contractors shall ensure that food scraps and garbage are not left at the work site.
.7 All work to be conducted in accordance with the Migratory Birds Convention Act, which outlines that no migratory bird nests or eggs will be moved or obstructed during the construction or operational phase of the project.
.8 Project vehicles will keep to Harbour Authority/ Departmental Representative designated transportation routes.
.9 No staging of vehicles or equipment/material storage will take place on any beach or dune.

- .10 Employees will be trained in health and safety protocols (e.g. safe work practices, emergency response).
- .11 Any and all federal, provincial, or municipal legislation and regulations and their authorities or their officers must be strictly followed. Any discrepancies must be successfully resolved before the pertinent work may begin.
- .12 Construction will be carried out during daylight hours unless special arrangements are made with the Harbour Authority/Departmental Representative to facilitate work at night.
- .13 Contractor to co-ordinate construction activities with Harbour Authority/Departmental Representative to mitigate any impact to function of Harbour.

END OF SECTION

PART 1 General

1.1 INSPECTION

- .1 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.
- .2 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.
- .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.
- .4 Pay costs to uncover and make good work disturbed by inspections and tests.

1.2 TESTING

- .1 Tests on materials, equipment and building systems as specified in various sections of the Specifications is the responsibility of the Contractor except where stipulated otherwise.
 - .1 Provide all necessary instruments, equipment and qualified personnel to perform tests.
- .2 At completion of tests, turn over 2 sets of fully documented tests reports to the Departmental Representative. Submit in accordance with Section 01 33 00.
 - .1 Obtain additional copies for inclusion of a complete set in each of the maintenance manuals specified in Section 01 78 00.
- .3 Unspecified tests may also be made by Departmental Representative, at the discretion of the Departmental Representative. The costs of these tests will be paid for by the Departmental Representative.
- .4 Where tests or inspections reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests and inspections incurred by Departmental Representative as required verifying acceptability of corrected work.

1.3 INDEPENDENT INSPECTION AGENCIES

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

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

- .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
- .2 Inspection and testing performed exclusively for Contractor's convenience.
- .3 Testing, adjustment and balancing of mechanical and electrical equipment and other building systems.
- .4 Performance verification tests before building commissioning procedures commences.
- .5 Mill tests and certificates of compliance.
- .6 Tests as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
- .7 Additional tests as specified in Clause 1.3.4 above.
- .2 Provide sufficient advance notice to Departmental Representative of time when the Work will be ready for testing by designated Testing Agency in order for Departmental Representative to make attendance arrangements with such Agency. When directed by Departmental Representative notify the Agency directly.
- .3 When specified or directed, submit Representative samples of materials, in required quantities, to Testing Agency for testing purposes. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .4 Provide labour and facilities to obtain, handle and deliver samples.
- .5 Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.
- .6 Employment of Independent Inspection and Testing Agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.4 ACCESS TO WORK

- .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 Furnish labour and facility to provide access to the work being inspected and tested.
- .3 Co-operate to facilitate such inspections and tests.

1.5 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 new and existing construction and finishes resulting from removal or replacement of defective work.

1.6 MOCK-UPS

- .1 Prepare mock-ups of certain work as specified in various sections of the Specifications. 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 Dismantle and remove mock-up when directed by Departmental Representative, unless approval is given for mock-up to remain as part of the Work.

END OF SECTION

PART 1 General

1.1 SITE ACCESS AND PARKING

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

1.2 CONTRACTOR'S SITE OFFICE

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

1.3 MATERIAL STORAGE

- .1 Material storage spaces on site is limited. Coordinate delivery to minimize storage period on site before being needed for incorporation into work.

1.4 SITE ENCLOSURES

- .1 Provide temporary fence to enclose various construction areas of work site.
- .2 Erect plastic mesh fence constructed as follows:
 - .1 1200 mm height, constructed of high density polyethylene mesh fence fabric, orange in color.
 - .2 Supported by steel T-bar posts or other similar framing, of sufficient quantity, adequate spacing

and set firmly in ground to secure fence against sags.

- .3 Inspect fence regularly, repairing sags and damaged sections.
- .4 Incorporate within fence one operable truck gate and one pedestrian gate.
- .3 Make all gates lockable and provide keyed padlocks.
- .4 Obtain Departmental Representative's approval beforehand of location and layout of all temporary fence enclosures.
- .5 Provide battery powered lanterns around the perimeter of the site enclosure to clearly mark its location at night.
- .6 Provide warning signs affixed to all fenced areas, identifying those enclosed areas as "Construction Zones" with access restricted to only those persons so authorized by General Contractor.
- .7 Do not construe fencing as an acceptable replacement for pedestrian walkway and hoarding requirements specified below.

1.5 PEDESTRIAN WALKWAYS AND HOARDING

- .1 Ensure maximum safety and security to facility users during the course of work.
- .2 Maintain access and egress to building entrances and fire exits to remain in use.
- .3 Adequately frame and brace [hoarding] [and walkways] to resist wind, and other weather or site conditions.
- .4 Erect such protective devices during Facility's non-operational off hour periods.
- .5 Obtain Departmental Representative's concurrence prior to removal of hoarding and walkways.

1.6 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.
- .3 Sanitary facilities are available at the site and may be used by Contractor's work force. Make arrangements for the use of such facility- ties through the Departmental Representative.

1.7 ENCLOSURE OF STRUCTURE

- .1 Design enclosures to withstand wind pressure and snow loading.

1.8 POWER

- .1 Power supply is available and will be provided for

construction usage.

- .1 Make arrangements for the use of such services through the Departmental Representative.
 - .2 Departmental Representative will designate and approve each location of existing power source to which connections can be made to obtain temporary power service.
 - .3 Connect to existing power supply in accordance with Canadian Electrical Code.
- .2 Provide and maintain temporary lighting to conduct work. Ensure illumination level is not less than 162 lx in all locations.
 - .3 Electrical power and lighting systems installed under this Contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage. Replace lamps which have been used over period of 3 months.

1.9 WATER SUPPLY

- .1 Water supply is available on site and will be provided for construction usage at no cost. Make arrangements for the use and transportation of such services to work area through the Departmental Representative.

1.10 CONSTRUCTION SIGN AND NOTICES

- .1 Upon request by Departmental Representative, erect a self-supporting project sign in location indicated.
- .2 Departmental Representative will provide a vinyl sign facing for installation by Contractor on sign framework. Sign frame to be plywood face of approximately 1200 x 2400 mm in size complete with required wood framing at 400 mm o.c and support posts.
- .3 Install sign plumb and level in neat wood framework and securely anchor in ground by posts to withstand wind pressure of 160 km/h.
- .4 Contractor or subcontractor advertisement signboards are not permitted on site.
- .5 Safety and Instruction Signs and Notices:
 - .1 Signs and notices for safety and instruction shall be in both official languages and commonly understood graphic symbols conforming to CAN3-Z321-96(R2006).
- .6 Maintenance and Disposal of Site Signs:
 - .1 Maintain approved signs and notices in good condition for duration of project and dispose of offsite on completion of project or earlier if directed by Departmental Representative.

1.11 REMOVAL OF TEMPORARY FACILITIES

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

END OF SECTION

PART 1 General

1.1 GENERAL

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
 - .1 Name and address of manufacturer.
 - .2 Trade name, model and catalogue number.
 - .3 Performance, descriptive and test data.
 - .4 Compliance to specified standards.
 - .5 Manufacturer's installation or application instructions.
 - .6 Evidence of arrangements to procure.
 - .7 Evidence of manufacturer delivery problems or unforeseen delays.
- .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

- .1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.
- .2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions of the Contract.

1.3 ACCEPTABLE MATERIALS AND ALTERNATIVES

- .1 **Acceptable Materials:** When materials specified include trade names or trademarks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.
- .2 **Alternative Materials:** Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period

following procedures indicated in the Instructions to Bidders.

- .3 Substitutions: After contract award, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 MANUFACTURERS INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

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

1.6 WORKMANSHIP

- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.
- .2 Remove unsuitable or incompetent workers from site as stipulated in the General Conditions of the Contract.
- .3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.
- .4 Coordinate work between trades and subcontractors. See section 01 14 10 in this regard.
- .5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS - GENERAL

- .1 Use non-corrosive fasteners, anchors and spacers for securing work.
- .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 on Health and Safety Requirements in this regard.

1.8 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and galvanized finish.

1.9 STORAGE, HANDLING AND PROTECTION

- .1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Immediately remove damaged or rejected materials from site.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.10 CONSTRUCTION EQUIPMENT AND PLANT

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

Reconstruction
Boat Pen 414A & 414B
North Lake, Kings Co., PE
Project No.: R.094623.001

Common Product
Requirements

Section 01 61 00

Page 4
August 14, 2018

END OF SECTION

PART 1 General

1.1 GENERAL

- .1 Conduct cleaning, dust control and dirt disposal operations during construction to comply with local ordinances and anti-pollution laws.
- .2 Store volatile wastes in covered metal containers, and remove from premises at end of each working day.
- .3 Prevent accumulation of wastes, which create hazardous conditions.
- .4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 MATERIALS

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

1.3 CLEANING DURING CONSTRUCTION

- .1 Maintain the site free from accumulations of waste materials and debris on a daily basis.
- .2 Provide on-site metal containers for collection of waste materials, and debris.
- .3 Remove waste materials and rubbish from site on a daily basis.
- .4 Wash down new paved surfaces as required or directed by Departmental Representative to remove mud, dirt and other debris and also existing paved surfaces where mud and dirt has been tracked on to existing roads from the construction area.
- .5 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.4 FINAL CLEANING

- .1 Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from exposed finished surfaces.
- .2 Broom clean and wash all paved surfaces, rake clean other areas.
- .3 Clean catch basin sediment traps affected by construction activity.

END OF SECTION

PART 1 General

1.1 DEFINITIONS

- .1 Waste Reduction Workplan (WRW): Written report which addresses opportunities for reduction, reuse, or recycling of materials.
- .2 Materials Source Separation Program (MSSP): Consists of a series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .3 Waste Management Coordinator (WMC): Designate individual who is in attendance on-site, full-time. Designate, or have designated, individuals from each Subcontractor to be responsible for waste management related to their trade and for coordinating activities with WMC.
- .4 Separate Condition: Refers to waste sorted into individual types.

1.2 DOCUMENTS

- .1 Maintain at job site, one copy of following documents:
 - .1 Waste Reduction Workplan.
 - .2 Material Source Separation Plan.

1.3 USE OF WORK SITES AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility provide temporary security measures approved by Departmental Representative.

1.4 SUBMITTAL

- .1 Submit requested submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit the following submittals prior to project start-up:
 - .1 Submit 2 copies of completed Waste Reduction Workplan (WRW).
 - .2 Submit 2 copies of Materials Source Separation Program description.

1.5 WASTE REDUCTION WORKPLAN

- .1 Prepare WRW prior to project start-up.
- .2 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .3 Describes management of waste.
- .4 Identify opportunities for reduction, reuse, and/or

recycling (3Rs) of materials. Based on information acquired from WA.

- .5 Post workplan or summary where workers at site are able to review its content.

1.6 MATERIALS SOURCE SEPARATION PROGRAM

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as approved by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials.
- .4 Provide containers to deposit reusable and/or recyclable materials.
- .5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition. Transport to approved and authorized recycling facility to users of material for recycling.
- .8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition. Ship materials to site operating under Certificate of Approval premises of Departmental Representative. Materials must be immediately separated into required categories for reuse of recycling.

1.7 WASTE PROCESSING SITES

- .1 Province of Prince Edward Island
 - .1 Name: Island Waste Management Corporation
 - .2 Telephone: 1-888-280-8111
 - .3 Fax: 1-902-436-8401
- .2 Burning of waste is not permitted.

1.8 DISPOSAL OF WASTES

- .1 Burying of rubbish and waste materials is prohibited unless approved by Departmental Representative
- .2 Disposal of waste volatile materials mineral spirits oil paint thinner into waterways, storm, or sanitary sewers is prohibited.

1.9 STORAGE, HANDLING AND PROTECTION

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

- .2 Unless specified otherwise, materials for removal do become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.

1.10 SCHEDULING

- .1 Coordinate work with other activities at site to ensure timely and orderly progress of the work.

1.11 APPLICATION

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

1.12 CLEANING

- .1 Remove tools and waste materials on completion of work, and leave work area in clean and orderly condition.
- .2 Clean-up work areas as work progresses.
- .3 Source separate materials to be reused/recycled into specified sort areas.

1.13 DIVERSION OF MATERIALS

- .1 From following list, separate materials from general waste stream and stockpile in separate piles or containers, to approval of Departmental Representative, and consistent with applicable fire regulations. Mark containers or stockpile areas. Provide instruction on disposal practices.
- .2 On-site sale of salvaged recovered reusable recyclable materials is permitted is not permitted.
- .3 Demolition Waste

Material Type	Recommended Diversion%	Actual Diversion%
Metals	100	
Rubble	100	
Wood (treated)	100	
Other		

.4	Construction Waste		
	Material	Recommended	Actual
	Type	Diversion%	Diversion%
	Cardboard	100	
	Plastic Packaging	100	
	Rubble	100	
	Steel	100	
	Wood (uncontaminated)	100	
	Other		

1.14 WASTE REDUCTION WORKPLAN

.1	(1)	(2)	(3)	(4)	(5)	(6)
	Material Category	Responsible Persons	Total Quant. of Waste (Unit)	Actual Reused Amount (Units)	Actual Recycled Amount (Unit)	Material Destination Projected
	Wood and Plastic Material					
	Descrip.					
	Chutes					
	Warped Pallet					
	Forms					
	Plastic Packaging					
	Cardboard Packaging					
	Other					
	Doors and Windows Material					
	Descrip.					
	Painted Frames					
	Glass					
	Wood					
	Metal					
	Other					

1.15 CANADIAN GOVERNMENT DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Province: Prince Edward Island Department of Fisheries, Aquaculture and Environment, 11 Kent Street, PO Box 2000, Charlottetown, PEI C1A 7N8 General Inquiries: (902) 368-5000 Fax: (902) 368-5830.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

- .1 Administrative procedures preceding inspection and acceptance of Work by Departmental Representative.

1.2 RELATED SECTIONS

- .1 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.
 - .1 Notify Departmental Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Departmental Representative's inspection of the completed work.
- .2 Departmental Representative's Inspection: Accompany Departmental Representative during all substantial and final inspections of the Work.
 - .1 Address defects, faults and outstanding items of work identified by such inspections.
 - .2 Advise Departmental Representative when all deficiencies identified have been rectified.
- .3 Note that Departmental Representative will not issue a Certificate of Substantial Performance of the work until such time that Contractor performs following work and turns over the specified documents:
 - .1 Project record as-built documents;
 - .2 Reports resulting from designated tests;
 - .3 Correct all discrepancies before Departmental Representative will issue the Certificate of Completion.

END OF SECTION

PART 1 General

1.1 SECTION INCLUDES

- .1 Project Record Documents.

1.2 PROJECT RECORD DOCUMENTS

- .1 Departmental Representative will provide 2 white print sets of contract drawings and 2 copies of Specifications Manual specifically for "as-built" purposes.
- .2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.
- .3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative upon request.
- .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of work, neatly transfer notations to second set (also by use of red ink).
 - .2 Submit both sets to Departmental Representative prior to application for Certificate of Substantial Performance.
 - .3 Stamp all drawings with "As-Built Drawings". Label and place Contractor's signature and date.
 - .4 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
 - .5 Record following information:
 - .1 Horizontal and vertical location of various elements in relation to chart Datum;
 - .2 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure;
 - .3 Field changes of dimension and detail;
 - .4 Location of all capped or terminated services and utilities.
 - .5 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings;
 - .6 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.

- .5 As-built Specifications: legibly mark in red each item to record actual construction, including:
 - .1 Changes made by Addenda and Change Orders.
 - .2 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.
- .6 Maintain As-built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Failure to maintain as-builts current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.

1.3 REVIEWED SHOP DRAWINGS

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

END OF SECTION

PART 1 General

1.1 RELATED WORK

- .1 Health and Safety Requirements: Section 01 35 29.
- .2 Temporary Facilities and Controls: Section 01 50 00.

1.2 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for all demolition work required to complete the Work of this Contract in accordance with the requirements of this Section and as shown on the Drawings, which includes, but is NOT necessarily limited to:
 - .1 Removal of existing curb, pile caps, bracing, wales, piles (timber & steel), fenders, concrete panels, and other wharf components indicated to be removed on plans.
 - .2 Where required, removal and reinstatement of All site services.

1.3 PROTECTION

- .1 Protect existing items designated to remain. In event of damage, immediately replace such items or make repairs to approval of Departmental Representative and at no additional cost to the Owner.
- .2 Prevent movement, settlement or damage of adjacent utilities and structures. Provide bracing, shoring and underpinning required. Make good damage and be liable for injury caused by demolition.
- .3 If safety of structure being demolished or adjacent structure appear to be endangered, cease operations and notify Departmental Representative. Take precautions to support structures.

1.4 SAFETY CODE

- .1 Carry out demolition work in accordance with ALL applicable codes and regulations and as outlined in Section 01 35 29 Health and Safety Requirements.

1.5 MEASUREMENT FOR PAYMENT

- .1 Demolition and removal of all items indicated shall be paid as a lump sum.

1.6 PREPARATION

- .1 Inspect site and verify items designated for removal and items to be preserved.
- .2 Locate and protect all utility services.
- .3 Protect and provide temporary shoring to existing wharf

structure and adjacent structures prior to and during the execution of work.

- .4 Any damage to existing structures, utilities and services shall be immediately repaired to the satisfaction of the Departmental Representative and Owner.

1.7 DISPOSAL OF MATERIAL

- .1 Dispose of all removed materials off-site.
- .2 Pay all fees that may be charged to dispose of materials at licensed disposal sites.
- .3 Remove all soil contaminated with oil, gasoline, calcium chloride or other toxic or dangerous materials and dispose of in manner to minimize danger at site and to a location off site approved by Provincial Authority governing such disposal.

1.8 RESTORATION

- .1 Upon completion of work, remove debris, trim surfaces and leave work site clean.
- .2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

PART 2 Products

2.1 NOT USED

- .1 Not used.

PART 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

PART 1 General

1.1 MEASUREMENT FOR PAYMENT

- .1 No measurement will be made under this Section. Include costs in items of work for which concrete formwork and falsework are required.

1.2 RELATED SECTIONS

- .1 Section 03 20 00 - Concrete Reinforcing.
- .2 Section 03 30 00 - Cast-in-Place Concrete

1.3 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA-O86.1, Engineering Design in Wood (Limit States Design).
 - .3 CSA O121-M1978, Douglas Fir Plywood.
 - .4 CSA O151-M1978, Canadian Softwood Plywood.
 - .5 CSA O153-M1980, Poplar Plywood.
 - .6 CAN3-0188.0-M78, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
 - .7 CSA O437 Series-93, Standards for OSB and Waferboard.
 - .8 CSA S269.1-M1975, Falsework for Construction Purposes.
 - .9 CAN/CSA-S269.3-M92, Concrete Formwork.

1.4 SHOP DRAWINGS

- .1 Submit shop drawings for formwork and falsework in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings.
- .3 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.
- .4 Each shop drawing submission shall bear stamp and signature of qualified professional engineer registered or licensed in Province of PEI, Canada.

1.5 QUALITY CONTROL

- .1 Pre-Pour Meeting
 - .1 Attend a quality control meeting including all relevant sub-trades to review the quality of the

formwork reinforcement installation, exposed concrete finishes, under floor services, pour sequence and related issues.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 Waste Management and Disposal.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal.
- .4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

PART 2 Products

2.1 MATERIALS

- .1 Formwork materials:
 - .1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-0121.
 - .2 For concrete with special architectural features, use formwork materials to CAN/CSA-A23.1.
- .2 Form ties:
 - .1 High tensile strength fiberglass ties (Guenette) fixed or adjustable length free of devices leaving holes larger than 25mm diameter in concrete surface.
- .3 Form release agent: non-toxic, chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing concrete from sticking to forms.
- .4 Falsework materials: to CSA-S269.1.

PART 3 Execution

3.1 FABRICATION AND ERECTION

- .1 Examine lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.
- .2 Hand trim sides and bottoms of excavation and remove loose earth from earth forms before placing concrete.
- .3 Fabricate and erect falsework in accordance with CSA S269.1 and COFI Exterior Plywood for Concrete Formwork.
- .4 Do not place shores and mud sills on frozen ground.
- .5 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within

tolerances required by CAN/CSA-A23.1.

- .6 Align form joints and make watertight. Keep form joints to minimum.
- .7 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise.
- .8 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .9 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.
- .10 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.

3.2 REMOVAL AND RESHORING

- .1 Leave formwork in place for following minimum periods of time after placing concrete:
 - .1 3 days for walls and sides of beams.
 - .2 3 days for columns.
 - .3 28 days for beam soffits, slabs, decks and other structural members, or 7 days when replaced immediately with adequate shoring to standard specified for falsework.
 - .4 3 days for footings and abutments.
- .2 Remove formwork when concrete has reached 80% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.
- .3 Provide all necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.
- .4 Re-use formwork and falsework subject to requirements of CAN/CSA-A23.1.

END OF SECTION

PART 1 General

1.1 MEASUREMENT FOR PAYMENT

- .1 No measurement will be made under this Section. Include costs in items of work for which concrete formwork and falsework are required.

1.2 RELATED SECTIONS

- .1 Section 03 10 00 - Concrete Forming and Accessories.
- .2 Section 03 30 00 - Cast-in-Place Concrete

1.3 REFERENCES

- .1 American Concrete Institute (ACI)
 - .1 ACI 315R-80, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.
- .2 American National Standards Institute American Concrete Institute (ANSI/ACI)
 - .1 ANSI/ACI 315-80, Details and Detailing of Concrete Reinforcement.
- .3 American Society for Testing and Materials (ASTM)
 - .1 ASTM A775/A775M-91c, Specification for Epoxy-Coated Reinforcing Steel Bars.
- .4 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1-14, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN3-A23.3-14, Design of Concrete Structures for Buildings.
 - .3 CSA G30.3-M1983 (R1991), Cold Drawn Steel Wire for Concrete Reinforcement.
 - .4 CSA G30.5-M1983(R1991), Welded Steel Wire Fabric for Concrete Reinforcement.
 - .5 CSA G30.14-M1983 (R1991), Deformed Steel Wire for Concrete Reinforcement.
 - .6 CSA G30.15-M1983 (R1991), Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
 - .7 CAN/CSA-G30.18-09 (R2014), Billet-Steel Bars for Concrete Reinforcement.
 - .8 CAN/CSA-G40.21-13, Structural Quality Steels.
 - .9 CAN/CSA-G164-M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .10 CSA W186-M1990 (R2016), Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.4 SOURCE QUALITY CONTROL

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks

prior to commencing reinforcing work.

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

1.5 SHOP DRAWINGS

- .1 Submit shop drawings including placing of reinforcement in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate on shop drawings, bar bending details, lists, quantities of reinforcement, sizes, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings. Indicate sizes, spacings and locations of chairs, spacers and hangers. Prepare reinforcement drawings in accordance with Reinforcing Steel Manual of Standard Practice - by Reinforcing Steel Institute of Canada.
- .3 Design detail lap lengths and bar development lengths to CAN3-A23.3, unless otherwise indicated. Provide type A tension lap splices where indicated.
- .4 Each drawing shall bear the signature and stamp of qualified professional engineer registered to practice in Prince Edward Island.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Dispose of waste materials in appropriate on-site bins in accordance with Waste Management Plan, Section 01 74 21.

PART 2 Products

2.1 MATERIALS

- .1 Substitute different size bars only if permitted in writing by Departmental Representative.
- .2 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.
- .3 Cold-drawn annealed steel wire ties: to CSA G30.3.
- .4 Welded steel wire fabric: to CSA G30.5. Provide in flat sheets only.
 - .1 All 152 x 152 MWE x 18.7 x 18.7
- .5 Chairs, bolsters, bar supports, spacers: to CAN/CSA-A23.1. Chairs and bar supports shall be plastic on stainless steel.
- .6 Mechanical splices: subject to approval of Departmental Representative.
- .7 Plain Round Bars: to CAN/CSA-G40.21.

2.2 FABRICATION

- .1 Fabricate reinforcing steel in accordance with CAN/CSA-A23.1 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2 Obtain Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.
- .3 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.
- .4 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

PART 3 Execution

3.1 FIELD BENDING

- .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars which develop cracks or splits.

3.2 PLACING REINFORCEMENT

- .1 Place reinforcing steel as indicated on reviewed placing drawings and in accordance with CAN/CSA-A23.1.
- .2 Use plain round bars as slip dowels in concrete. Paint portion of dowel intended to move within hardened concrete with one coat of asphalt paint. When paint is dry, apply a thick even film of mineral lubricating grease.
- .3 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
- .4 Ensure cover to reinforcement is maintained during concrete pour.
- .5 Provide concrete half-bricks to support welded wire mesh in proper position in floor slabs during placing of concrete.

3.3 FIELD TOUCH-UP

- .1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcing steel with compatible finish to provide continuous coating.

END OF SECTION

PART 1 General

1.1 MEASUREMENT FOR PAYMENT

- .1 Cast-in-place concrete supplied and installed under this contract will be measured for payment by the cubic metre. Include costs in items of work for which concrete formwork and falsework, reinforcing rebar, studs, sleeves, and other miscellaneous items are required.

1.2 RELATED SECTIONS

- .1 Section 05 50 00 - Metal Fabrications.

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM C109/C109M-95, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or 50mm Cube Specimens).
 - .2 ASTM C 260-94, Specification for Air-Entraining Admixtures for Concrete.
 - .3 ASTM C 309-94, Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
 - .4 ASTM C 332-87(1991), Specification for Lightweight Aggregates for Insulating Concrete.
 - .5 ASTM C 494-92, Specification for Chemical Admixtures for Concrete.
 - .6 ASTM C 827-95a, Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
 - .7 ASTM C 939-94a, Test Method for Flow of Grout for Preplaced-Aggregate Concrete.
 - .8 M D1751-83(1991), Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 - .9 ASTM D1752-83(1992), Specification for Preformed Sponge rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- .2 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .3 Canadian Standards Association (CSA) Latest Edition:
 - .1 CAN/CSA-A5 Portland Cement.
 - .2 CAN/CSA-A23.1, Concrete Materials and Methods of Concrete Construction.
 - .3 CAN/CSA-A23.2, Methods of Test for Concrete.
 - .4 CAN/CSA-A23.5-98, Supplementary Cementing Materials.

.5 CAN/CSA A363-98, Cementitious Hydraulic Slag.

1.4 CERTIFICATES

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

- .1 Testing and inspection of concrete and concrete materials will be carried out by testing laboratory engaged and paid by the Contractor. Frequency of tests will be determined by the testing laboratory.
- .2 Remove defective concrete and embedded debris and repair as directed by Departmental Representative.

1.6 QUALITY ASSURANCE

- .1 Pre Pour Meeting:
 - .1 Convene a pre-pour meeting 2 weeks prior to beginning concrete works.
 - .2 Ensure concrete forming, finishing and concrete supplier personnel, attend.
 - .3 Verify project requirements.
 - .4 Review all aspects of the work including construction sequence, access to work by other Trade Contractors, Quality of falsework for trueness to dimensions, quality of finish expected at exposed concrete and all other aspects of the work.
- .2 Submit to Departmental Representative, minimum 4 weeks prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
- .3 Minimum 4 weeks prior to starting concrete work, submit proposed quality control procedures for review by Departmental Representative on following items:
 - .1 Falsework erection
 - .2 Hot weather concrete
 - .3 Cold weather concrete
 - .4 Curing
 - .5 Finishes
 - .6 Formwork removal
 - .7 Joints

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Dispose of waste material in appropriate on-site bins in accordance with Waste Management Plan, Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Designate a cleaning area for tools and concrete trucks 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.
- .5 Prevent plasticizers, water-reducing agents and air-entraining agents from entering drinking water supplies or streams. Using appropriate safety precautions, collect liquid or solidify liquid with an inert, noncombustible material and remove for disposal. Dispose of all waste in accordance with applicable local, provincial and national regulations.
- .6 Choose least harmful, appropriate cleaning method which will perform adequately.

PART 2 Products

2.1 MATERIAL

- .1 Portland cement: to CAN/CSA-A5.
- .2 Blended hydraulic cement: to CSA A362-03.
- .3 Supplementary cementing materials: to CAN/CSA-A23.5.
- .4 Cementitious hydraulic sag: to CAN/CSA-A363.
- .5 Water: to CAN/CSA-A23.1.
- .6 Aggregates: to CAN/CSA-A23.1. Coarse aggregates to be normal density.
- .7 Air entraining admixture: to ASTM C 260.
- .8 Chemical admixtures: to ASTM C 494. Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.
- .9 Shrinkage compensating grout: premixed compound consisting of non-metallic aggregate, Portland cement, water reducing and plasticizing agents.
 - .1 Compressive strength: 50 MPa at 28 days.
 - .2 Consistency:
 - .1 Fluid: to ASTM C 827. Time of efflux through flow cone (ASTM C939), under 30s.
 - .2 Flowable: to ASTM C 827. Flow table, 5 drops in 3s, (ASTM C109, applicable portion) 125 to 145%.
 - .3 Plastic: to ASTM C 827. Flow table, 5 drops in 3 s, (ASTM C109, applicable portions) 100 to

125 %.

- .4 Dry pack to manufacturer's requirements.
- .3 Net shrinkage at 28 days: maximum 0%.
- .10 Curing compound: to CAN/CSA-A23.1 white and to ASTM C 309, Type 1-chlorinated rubber.
- .11 Premoulded joint fillers:
 - .1 Bituminous impregnated fiber board: to ASTM D 1751.
- .12 Weep hole tubes: PVC on galvanized steel.
- .13 Dovetail anchor slots: minimum 0.6 mm thick galvanized steel with insulation filled slots.
- .14 Dampproofing:
 - .1 Emulsified asphalt, mineral colloid type, unfilled to: CAN/CGSB-37.2.
- .15 Polyethylene film: 6 mil and 10 mil thickness to CAN/CGSB-51.34.
- .16 Joint Sealer: chemical curing, multi-component, Class B, Type I for horizontal joints, Type II for vertical joints to CAN/CGSB 19.24.

2.2 MIXES

- .1 Proportion normal density concrete in accordance with CAN/CSA-A23.1. Alternative 1 to give the following properties:
 - .1 All Concrete:
 - .1 Cement: use Type 10 Portland Cement. M/N cement coated 386 kg/m³ of concrete.
 - .2 Minimum compressive strength at 28 days: 35 MPa
 - .3 Class of exposure: C-1
 - .4 Nominal size of coarse aggregate: 20mm all except 10mm for concrete mix for longitudinal joints between precast panels and for overlay.
 - .5 Slump at point and time of discharge: Mass Concrete 40mm +/-20 & Structural Concrete 80mm +/-20
 - .6 Air content: 5-8% and to Table 4.
 - .2 Provide certification that plant, equipment, and all materials to be used in concrete comply with the requirements for CAN/CSA-A23.1.
 - .3 Use of calcium chloride not permitted.

2.3 ADMIXTURES

- .1 Admixtures will be permitted only to correct deficiency in mixture or to make correct placement requirements as recommended by Testing Laboratory and approved by Departmental Representative.

- .2 Use of accelerating admixtures, if approved by Departmental Representative, will not relax cold weather placement requirements of CAN/CSA-A23.1. Use of calcium chloride not permitted.

PART 3 Execution

3.1 PREPARATION

- .1 Obtain Departmental Representative's approval before placing concrete. Provide 24 hours notice prior to placing of concrete.
- .2 Pumping of concrete will be permitted. Place concrete in accordance with CAN/CSA-A23.1 to meet all requirements of mix design at point of placement.
- .3 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .4 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .5 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .6 In locations where new concrete is dowelled to existing work, drill holes in existing concrete. Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout to anchor and hold dowels in positions as indicated.
- .7 Do not place load upon new concrete until authorized by Departmental Representative.

3.2 CONSTRUCTION

- .1 Do cast-in-place concrete work in accordance with CAN/CSA-A23.1.
- .2 Sleeves and inserts.
 - .1 No sleeves, ducts, pipes or other openings shall pass through joists, beams, column capitals or columns, except where indicated or approved by Departmental Representative.
 - .2 Where approved by Departmental Representative, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere. Sleeves and openings greater than 100 x 100 mm not indicated, must be approved by Departmental Representative.
 - .3 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located

as specified, obtain approval of modifications from Departmental Representative before placing of concrete.

- .4 Check locations and sizes of sleeves and openings shown on drawings.
- .3 Anchor bolts.
 - .1 Set anchor bolts to templates under supervision of appropriate trade prior to placing concrete.
- .4 Drainage holes and weep holes:
 - .1 Form weep holes and drainage holes in accordance with Section 03 10 00 - Concrete Forming and Accessories. If wood forms are used, remove them after concrete has set.
 - .2 Install weep hole tubes and drains as indicated.
- .5 Dowels: In locations where new concrete is dowelled to existing concrete drill holes in existing concrete to depths, diameters and spacing indicated and install dowels using natural aggregate grout mixed to flow consistency to suit application, in strict accordance with manufacturers instructions.
- .6 Placing Grout: Place shrinkage compensating grout under base plates for structural steel and other equipment, using procedures in accordance with manufacturer's recommendations which result in 100% contact over grouted area.
- .7 Finishing.
 - .1 Finish concrete in accordance with CAN/CSA-A23.1.
 - .2 Rub exposed edges of concrete with Carborundum to produce 3mm radius edges unless otherwise detailed.
- .8 Joint Fillers:
 - .1 Furnish filler for each joint in single piece for depth and width required for joint, unless otherwise authorized by Departmental Representative. When more than one piece is required for a joint, fasten abutting ends and hold securely to shape by stapling or other positive fastening.
 - .2 Locate and form isolation joints as indicated. Install joint filler.

3.3 FIELD QUALITY CONTROL

- .1 Inspection and testing of concrete and concrete materials will be carried out by a Testing Laboratory designated by Departmental Representative in accordance with CAN/CSA-A23.1.
- .2 Departmental Representative will pay for costs of tests as specified.
- .3 Departmental Representative will take additional test

cylinders during cold weather concreting. Cure cylinders on job site under same conditions as concrete which they represent.

- .4 Non-destructive Methods for Testing Concrete shall be in accordance with CAN/CSA-A23.2.
- .5 Inspection or testing by Departmental Representative will not augment or replace Contractor quality control nor relieve him of his contractual responsibility.

3.4 DEFECTIVE CONCRETE

- .1 Remove defective concrete and repairs directed by Departmental Representative.

3.5 SITE TOLERANCE

- .1 Concrete tolerance in accordance with CAN/CSA-A23.1 straight edge method.

END OF SECTION

PART 1 General

1.1 RELATED WORK

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and installation of items of work specifically listed under Part 2 - PRODUCTS of this Section, as specified in this Section and shown on the Drawings.

1.3 MEASUREMENT FOR PAYMENT

- .1 Payment for the ladders and mooring cleats will be measured as individual units for elements incorporated into work.
- .2 Payment for steel tie rods and accessories will be measured as individual units for elements incorporated into work.
- .3 Measurement for Payment of steel plates indicated shall be paid as per lump sum installed, indicated as Miscellaneous Steel under Unit Price Component Table.
- .4 Measurement for Payment of other items indicated shall be paid as a lump sum, indicated as Miscellaneous Steel under Unit Price Component Table.

PART 2 Products

2.1 MOORING CLEATS

- .1 Size and material as indicated on drawings and to Departmental Representative's requirement.

2.2 STEEL TIE RODS

- .1 Steel tie rods and accessories to ASTM A615 (Grade 75). Size and length as indicated on Drawings.

2.3 MISCELLANEOUS METAL

- .1 Steel sections and plates: to CAN/CSA G40.21, Grade 350W except where specified otherwise.
- .2 Steel pipe and handrails: to ASTM A53, CSA S16.1, Schedule 40 and as indicated on drawings.
- .3 Ladder rungs: to CSA C-40.21 round bars to size as indicated.
- .4 Welding materials: to CSA W59.
- .5 Bolts and anchor bolts: to ASTM A307.

2.4 GALVANIZING

- .1 Hot dip galvanize bolts, nuts and washers and unless otherwise specified, staples, cable clamps, pipe sleeves, spikes and nails to CAN/CSA-G164. All steel materials shall be hot dipped galvanized (min. 700gr/m3) suitable for marine environment.

PART 3 Execution

3.1 CLEATS

- .1 Install at locations indicated on drawings.

3.2 TIE RODS

- .1 Install tie rods at elevation as indicated on Drawings. Provide all nuts, washer, plate as required to ensure structural adequate assembly and in conformance with supplier's instructions.

3.3 MISCELLANEOUS METALS

- .1 Do miscellaneous steel work in accordance with CAN/CSA S16.1.
- .2 Welding in accordance with CSA W59. Install miscellaneous site items as indicated on drawings.

3.4 FABRICATION GENERAL

- .1 Fabricate steel, as indicated, in accordance with CAN/CSA-S16.1 and in accordance with reviewed shop drawings.
- .2 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .3 Use welded connections for both interior and exterior metal work unless otherwise indicated or approved by Departmental Representative.
- .4 Use self-tapping, shake-proof countersunk flat headed screws on items requiring assembly by screws, or as indicated.
- .5 Where possible, fit and shop assemble work, ready for erection.
- .6 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.
- .7 Grind and polish all exposed edges and corners to leave smooth surface free from burrs or other sharp protrusions.
- .8 All holes shall be punched or drilled. Burning holes in any steel member is NOT permitted.

3.5 CONNECTION TO EXISTING WORK

- .1 Examine dimensions, alignment, elevations and condition

of work before commencing fabrication and report any discrepancies and potential problem areas to Departmental Representative and await instructions.

END OF SECTION

PART 1 General

1.1 DESCRIPTION

- .1 This Section specifies the requirements for the supply and installation of pressure treated timber caps, wales, bracing, blocking, and other items as indicated on plans.

1.2 MEASUREMENT FOR PAYMENT

- .1 Dimension Timber: Pressure treated and untreated dimension timber supplied and secured in the work will be measured for payment by the cubic metre. This item includes all timbers indicated on the drawings, together with all bolts, anchor bolts, washers, nuts, and rubberized sealant required to secure the above items to the timber piles and to each other.

PART 2 Products

2.1 MATERIALS

- .1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.
- .2 Species:
 - .1 Softwood timber: Coast Douglas Fir, Eastern Hemlock, Eastern Hemlock, Pacific Coast Hemlock, White or Red Pine conforming to CSA 0141-1970 for softwood lumber, Group A, select grade, free from splits, checks and wane.
 - .2 Hardwood timber: Birch or Maple to National Hardwood Lumber Association (NHLA) requirements, construction grade.
- .3 Preservative Treatment: to CSA 080-Series97 Commodity Standard .18, Table 1 for coastal waters, chromated copper arsenate (CCA) or ammoniacal copper arsenate (ACA). Use of creosote oil NOT permitted.
- .4 Miscellaneous steel: Bolts, nuts, washers: to ASTM A307-83A. All steel material shall be hot dipped galvanized

PART 3 Execution

3.1 INSTALLATION

- .1 Construct softwood timber, wales, splice blocks, and cribwork to dimensions and configurations indicated on plans and connect to timber piles to the elevation shown on the plans using the wale connection detailed on the

- plans. Secure pile caps to pile with 25mm diameter x 700 long drift pins.
- .2 Wales timbers will be 250mm x 250mm in cross-section supplied in approximately 6000mm lengths.
 - .3 Wale splices will be so arranged such that the splice block is placed at approximately the midpoint of two pile bents and shall be staggered such that the top and bottom wales are not spliced between the same pile bents.
 - .4 Construct softwood timber curbing and edge cap to dimensions and configurations indicated on plans and connect to timber or concrete decks to the elevation shown on the plans using connections detailed on the plans.
 - .5 Curbing & Blocking:
 - .1 The work comprises the furnishing of all equipment, labour and materials necessary for the provision of all curbing, blocks, etc. and related work as specified herein and indicated on the drawings.
 - .2 Blocking shall be pressure treated softwood.
 - .6 Hardware including pins, bolts, washers, nails and all other items necessary to be incorporated into the work shall be as specified and as indicated.
 - .7 Construct hardwood timber sheathings to dimensions and configurations indicated on plans and bolt to timber wales at locations shown on plans using galvanized machine bolts at both the top and bottom wales.
 - .8 Construct softwood timber cross bracing to dimensions and configurations indicated on plans and bolt to timber piles at locations shown on plans.
 - .9 Construct ladders of hardwood timber and galvanized steel to dimensions and configurations indicated on plans and bolt to both timber wales with 20mm diameter bolts in locations shown on plans.
 - .10 All washers and bolt heads will be countersunk such that the bolt heads to not extend past the harbour side plan of the timbers or the contractor may use carriage-head bolts to fasten the fenders and ladders to the timber wales.
 - .11 Where it is necessary to cut or countersink pressure treated timber on site treat sawn face with two (2) liberal coats of brush applied copper naphthanate preservative. Allow first coat to fully penetrate wood before applying second coat.

END OF SECTION

PART 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CSA C22.1-15, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
 - .2 CAN3-C235-83(R2000), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.
 - .3 CSA Z462-12, Workplace Electrical Safety.
- .2 Institute of Electrical and Electronics Engineers (IEEE) / National Electrical Safety Code Product Line (NESC).
 - .1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standard Terms, 7th Edition.

1.2 DEFINITIONS

- .1 Electrical terms used in electrical specifications and on electrical drawings are those defined by IEEE SP1122.

1.3 CARE, OPERATION AND START-UP

- .1 Instruct Consultant and operating personnel in the operation, care and maintenance of systems, system equipment and components.
- .2 Operating instructions to include following:
 - .1 Start up, proper adjustment, operating, maintenance, and shutdown procedures.
 - .2 Safety precautions.
 - .3 Procedures to be followed in event of equipment or component failure.
 - .4 Other items of instruction as recommended by manufacturer of the system or equipment.

1.4 DESIGN REQUIREMENTS

- .1 Operating voltages: to CAN3-C235-83(R2000).
- .2 Distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.

1.5 SITE VISIT

- .1 Prior to tender submission visit the site and become familiar with the job and all conditions which may affect the overall cost. Ignorance of existing conditions will not be considered as basis for extra claims. Refer to Division 01 - General Requirements for additional information.

1.6 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Division 01 - General Requirements.
 - .1 Submit shop drawings for all electrical equipment unless otherwise indicated.
 - .2 If changes are required, resubmit corrected shop drawings.
- .2 Upon completion of work submit As-Built Drawings, Maintenance Manuals, and Submittals in accordance with Division 01 - General Requirements.

1.7 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Division 01 - General Requirements.
- .2 All electrical work is to be carried out by qualified, licensed electricians or apprentices for the province of Prince Edward Island and the electrical contractor must have a valid contractor license issued by the province of Prince Edward Island.
 - .1 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.
- .3 The Consultant reserves the right to approve the quality of material and workmanship, and to call for any tests which they deem necessary to establish the integrity of the installation during the progress of the work and a complete test of each system at the completion of the work. The cost of such tests are not to be considered as extras.
- .4 Health and Safety: in accordance with Division 01 - General Requirements.
 - .1 Protect exposed live equipment during construction for personnel safety.
 - .2 Shield and mark all live parts "LIVE 120 VOLTS", or with appropriate voltage in English.
- .5 Quality Control: in accordance with Division 01 - General Requirements.
 - .1 Provide CSA certified equipment and material. Where CSA certified equipment and material is not available, submit such equipment and material to the authority having jurisdiction for approval before delivery to site.
 - .2 Submit test results of installed electrical systems and instrumentation.

1.8 PERMITS, FEES AND INSPECTION

- .1 Submit to Electrical Inspection Division and Supply

Authority necessary number of drawings and specifications for examination and approval prior to commencement of work.

- .2 Pay all associated fees.
- .3 Notify Consultant of changes required by Electrical Inspection Division prior to making changes.
- .4 Submit Certificates of Acceptance from Electrical Inspection Division or authorities having jurisdiction on completion of work to Consultant.

1.9 CO-ORDINATION

- .1 Co-ordinate all work with work of other divisions to avoid conflict and notify Consultant if any changes are required.
- .2 Locate electrical systems, equipment, and materials to provide minimum interference and maximum usable space.
- .3 Contractor to locate all existing underground services before commencing work and be responsible for any damages caused by failure to coordinate with and preserve underground services.
- .4 Where interference occurs, the Consultant must approve relocation of equipment and materials regardless of installation order.
- .5 Notwithstanding the review of shop drawings, the Electrical Contractor may be required to relocate electrical equipment which interferes with the equipment of other trades, due to lack of co-ordination of the Electrical Contractor with other trades. The cost of this relocation will be the responsibility of the Electrical Contractor and the Consultant will determine the extent of relocation required.
- .6 Verify that the spaces in which the equipment is to be installed is sufficient and install all equipment to maintain clearances, to conserve space, comply with codes, and to ensure adequate space for future servicing.
- .7 The Drawings for the Electrical work are diagrammatic performance Drawings only and are intended to convey the scope of work and indicate the general arrangement, locations, and size of equipment, fixtures and outlets. The Drawings do not show Architectural, Civil, Mechanical or Structural details.
- .8 Do not scale or measure Drawings, but obtain information regarding accurate dimensions, by site measurements. Follow the Electrical Drawings for laying out the work.

1.10 DELIVERY, STORAGE AND HANDLING

- .1 Arrange for delivery access and unloading and/or storage areas with General Contractor.

1.11 INSPECTION OF WORK

- .1 Periodic visits to the site during construction phase will take place to ascertain reasonable conformity to plans and specifications. The Contractor will be responsible for the execution of their work in conformity with the construction documents, the Contract, and the requirements of the inspection authority.

1.12 SCHEDULING OF WORK

- .1 Note that the Owner intends to carry on business as usual and work activities must be coordinated to maintain electrical services in occupied areas. Provide any required temporary work.
- .2 All power shutdowns which affect activities at the wharf must have prior approval of Owner and must be scheduled in writing at least 48 hours in advance with the Project Manager.

PART 2 Products

2.1 PRIOR APPROVAL OF PRODUCTS

- .1 The use of any product not listed by name in the specification must be approved by Consultant prior to tender submission.
- .2 By using pre-approved product substitutions the Contractor accepts the responsibility and associated costs for all required modifications to circuitry, devices and wiring. The Contractor is to submit shop drawings with deviation from the original design highlighted to the Consultant for review and approval prior to rough-in.

2.2 MATERIALS AND EQUIPMENT

- .1 Provide materials and equipment in accordance with Division 01 - General Requirements.
- .2 Equipment and material to be CSA certified. Where there is no alternative to supplying equipment which is not CSA certified, obtain special approval from Electrical Inspection Division prior to delivery and submit such approval as described in Part 1 - Submittals.

2.3 WIRING TERMINATIONS

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors, as required.

2.4 EQUIPMENT IDENTIFICATION

- .1 Identify electrical equipment with nameplates and labels

as follows:

- .1 Nameplates: Lamicoid 3 mm thick plastic engraving sheet, black white face, black white core, mechanically attached with self tapping screws.
- .2 Sizes as follows:

NAMEPLATE SIZES:

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 line	6 mm high letters

- .2 Labels:
 - .1 Embossed plastic labels with 6 mm high letters unless specified otherwise.
- .3 Wording on nameplates and labels to be approved by Consultant prior to manufacture.
- .4 Allow for average of twenty-five (25) letters per nameplate and label.
- .5 Identification to be English.
- .6 Lamicoid nameplate installed on panelboards shall indicate the following:
 - .1 Designated name of equipment.
 - .2 Voltage, number of phases and wires.
 - .3 Designation of power source.
 - .4 The following is an example:

PANEL LT-24	120/208V - 3PH - 4W
FED FROM DISTRIBUTION BOARD LD-T1	

PART 3 Execution

3.1 NAMEPLATES AND LABELS

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.2 LOCATION OF EQUIPMENT

- .1 Change location of equipment at no extra cost or credit, providing distance does not exceed 3000 mm, and

information is given before installation.

3.3 FIELD QUALITY CONTROL

- .1 All electrical work to be carried out by qualified, licensed electricians or apprentices as per the conditions of the Provincial Act respecting manpower vocational training and qualification. Employees registered in a provincial apprentices program will be permitted, under the direct supervision of a qualified licensed electrician.
 - .1 Permitted activities are to be determined based on the level of training attained and the demonstration of ability to perform specific duties.
- .2 The work of this division to be carried out by a contractor who holds a valid Code 1 Electrical Contractor License as issued by the Province.
- .3 Provide instruments, meters, equipment and personnel required to conduct tests during and at the conclusion of the project.

3.4 CLEANING

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

END OF SECTION

PART 1 General

1.1 DESCRIPTION OF WORK

- .1 Work of this Section consists of the complete removal of all obsolete or abandoned electrical equipment.
- .2 All removal or alteration work of electrical construction to be done in accordance with the safety standards outlined in the Canadian Electrical Code.

1.2 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results - Electrical.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Division 01 - General Requirements.

1.4 SITE SURVEY

- .1 Prior to Tender submission, visit the site and survey and quantify the extent of the removals/alterations required for this contract and include for all costs in the total tendered price. Any existing conditions information indicated on the drawings is for general guidance only.
- .2 In conjunction with site visit, review all drawings and include all costs due to existing conditions in total tendered price.

1.5 PROTECTION

- .1 The Contractor is responsible for any damages to existing structures or systems as a result of the work.

1.6 SALVAGE MATERIAL

- .1 Existing equipment and devices designated for reuse are to be removed, stored, cleaned and re-installed as indicated on the drawings.
- .2 Identify any damaged equipment or materials intended for reuse prior to demolition and point out deficiencies to the Consultant at that time.

PART 2 Products

2.1 NOT APPLICABLE

- .1 Not Applicable.

PART 3 Execution

3.1 GENERAL REMOVALS

- .1 Where indicated remove all obsolete or abandoned equipment or electrical services including wire and

conduit back to the source.

- .2 Coordinate work of this Section with other trades.
- .3 Schedule all removal work with the Owner. Do not disrupt building operations except as permitted by the Schedule.
- .4 Any existing conduit, wiring, boxes or equipment that is to remain in service is to be properly supported as required by the Canadian Electrical Code. Any additional hangers, straps or fasteners required are to be supplied under this contract.
- .5 Make alterations to existing electrical services as required and make good all circuits affected by the renovations.
- .6 Any existing electrical circuits and/or equipment that are interrupted during construction to accommodate alterations but are to remain in service are to be reconnected and circuits made good.
- .7 Any relocating of existing equipment and any rerouting of existing wire and conduit to coordinate with new work to be included in total tendered price.

3.2 IDENTIFICATION OF EXISTING CIRCUITS AND EQUIPMENT

- .1 All circuits in existing panelboards serving renovated areas are to be traced out to identify any devices not labeled on existing directories and to confirm all circuits indicated on directories are accurate. Provide new, updated, typewritten circuit directories in all panelboards modified by the renovations.
- .2 Provide identification indicating circuit and panel number at all new and existing wiring devices in renovated area.
- .3 Provide equipment nameplates and labels for all new and existing equipment in renovated area.
- .4 Equipment identification, wiring identification and conduit and cable identification is to be in accordance with Section 26 05 00 - Common Work Results - Electrical.

3.3 CUTTING

- .1 Cutting required for removals and alterations to be to the approval of the Consultant and performed with appropriate power tools.

3.4 CLEANING

- .1 Reused existing equipment to be cleaned in accordance with Division 01 - General Requirements.

END OF SECTION

PART 1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CSA C22.2 No. 211.2 (R2011), Rigid PVC (Unplasticized) Conduit.
 - .2 CSA C22.2 No. 18.3-12, Conduit, Tubing, and Cable Fittings (Tri-National Standard with ANCE NMX-J-017 & UL 514B).
 - .3 CSA 22.1-15, Canadian Electrical Code, Part 1, 23rd Edition.

1.2 SUBMITTALS

- .1 Provide shop drawings and product data in accordance with Division 01 - General Requirements.

PART 2 Products

2.1 CONDUITS

- .1 Rigid pvc conduit: to CSA C22.2 No. 211.2.

2.2 CONDUIT FITTINGS

- .1 Fittings: To CAN/CSA C22.2 No. 18.3, manufactured for use with conduit specified. Coating: same as conduit.
- .2 Factory "ells" where 90° bends are required for 25 mm and larger conduits, unless indicated otherwise.
- .3 Ensure conduit bends other than factory "ells" are made with an approved bender. Making offsets and other bends by cutting and rejoining 90 degree bends is not permitted.

2.3 EXPANSION FITTINGS FOR RIGID CONDUIT

- .1 Weatherproof expansion fittings with internal bonding assembly suitable for 100 mm linear expansion.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection in all directions.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

2.4 FISH CORD

- .1 Polypropylene.

2.5 SEALANT

- .1 Low VOC mastic compound.
 - .1 Acceptable material:
 - .1 DS-321.

- .2 Flex Grip.
- .3 Kingco 11-600.

PART 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

- .1 Install all conduit, conduit fittings and accessories in accordance with the latest edition of the Canadian Electrical Code in a manner that does not alter, change or violate any part of the installed system components or the certification of the components.
- .2 Use rigid PVC conduit underground.
- .3 Install fish cord in empty conduits.
- .4 Remove and replace blocked conduit sections. Do not use liquids to clean out conduits.
- .5 Dry conduits out before installing wire.

3.3 CONDUITS UNDERGROUND

- .1 Slope conduits to provide drainage.

3.4 CLEANING

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

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results - Electrical.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CSA-C22.2 No.42, General Use Receptacles, Attachment Plugs and Similar Devices.
 - .2 CSA-C22.2 No.42.1, Cover Plates for Flush-Mounted Wiring Devices (Bi-national standard, with UL 514D).

1.3 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Division 01 - General Requirements.

PART 2 Products

2.1 RECEPTACLES

- .1 Duplex receptacles, CSA type as indicated, U ground, to: CSA-C22.2 No.42 with following features:
 - .1 Marine grade housing, yellow receptacle, and gray backbox.
 - .2 Suitable for # 10 AWG conductor for side wiring.
 - .3 Four side wiring screws.
 - .4 Specification grade.
 - .5 Acceptable material:
 - .1 Standard Duplex, CSA type 5-20 R:
 - .1 Hubbell #HBL53CM62 c/w #HBL6083 gray backbox or equal by Cooper, Leviton or Pass & Seymour.
- .2 Single receptacles, 240V, 50A, grounded, to: CSA-C22.2 No. 42 with following features:
 - .1 Corrosion resistant, marine grade, CSA 4X enclosure complete with weatherproof cover and stainless steel mounting hardware. Mounted in corrosion resistant rigid PVC outlet box suitable for separately mounted devices.
 - .2 Suitable for No. 6 AWG back and side wiring.
 - .3 Triple wipe contacts and riveted grounding contacts.
 - .4 Acceptable materials for single outlets:
 - .1 Receptacle c/w cover: Hubbell #CS8269 c/w HBL77CM74WO.
- .3 Receptacles of one manufacturer throughout project.

2.2 GFCI MODULES

- .1 Faceless, manual set, watertight, GFCI modules rated 20A, 120V.
 - .1 Acceptable material:
 - .1 Hubbell #GFM20 c/w Hubbell #HBL6083 gray backbox or equal by Cooper, Leviton or Pass & Seymour.

2.3 COVER PLATES

- .1 Cover plates for wiring devices to: CSA-C22.2 No.42.1.
- .2 Cover plates from one manufacturer throughout project.
- .3 Marine grade polycarbonate cover plates as indicated, c/w stainless steel screws and neoprene gasket.
- .4 Acceptable material or approved equal:
 - .1 Hubbell Taymac #MM420C for 20A duplex.
 - .2 Hubbell #HBL5226 for GFCI modules.

PART 3 Execution

3.1 INSTALLATION

- .1 Receptacles:
 - .1 Mount receptacles at heights as shown on the drawings.

3.2 TESTING

- .1 All receptacles to be tested for voltage drop and results recorded where branch circuit voltage drop exceeds 3%, the wire will have to be replaced to meet the 3% requirement.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 26 05 00 - Common Work Results - Electrical.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE)
 - .1 ANSI/IEEE C37.13, Low Voltage AC Power Circuit Breakers Used in Enclosures.
- .2 Canadian Standards Association (CSA)
 - .1 CSA C22.2 No. 5, Moulded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures (Tri-national standard with UL 489, tenth edition, and the second edition of NMX-J-266-ANCE).

1.3 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Division 01 - General Requirements.

PART 2 Products

2.1 MOULDED BREAKERS GENERAL

- .1 Moulded-case circuit breakers, to CSA C22.2 No. 5.
- .2 Bolt-on moulded-case circuit breaker: quick-make, quick-break type, for manual and automatic operation with temperature compensation for 40 deg. C ambient.
- .3 Common-trip breakers: with single handle for multi-pole applications.
- .4 Moulded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection. Magnetic instantaneous trip elements in circuit breakers to operate only when value of current reaches setting.
- .5 Breakers are to be by the same manufacturer as the panelboard in which they are being installed.
- .6 Circuit breakers to have minimum 10 kA symmetrical rms interrupting capacity rating to match panelboard.
- .7 Breakers must be new, complete with original factory warranty and supplied from an authorized manufacturer's distributor.

PART 3 Execution

3.1 INSTALLATION

- .1 Connect main secondary service to line terminals of breaker.
- .2 Connect load terminals of breaker to feeders.

3.2 FIELD QUALITY CONTROL

- .1 Perform tests in accordance Section 26 05 00 - Common Work Results - Electrical.
- .2 Check factory made connections for mechanical security and electrical continuity.
- .3 Ensure proper working operation and protection of components.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results - Electrical.

1.2 RELATED WORK

- .1 Concrete foundation: to Division 03 - Concrete.

1.3 SUBMITTALS

- .1 Submit shop drawings and product data in accordance with Division 01 - General Requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Division 01 - General Requirements.

PART 2 Products

2.1 LUMINAIRES

- .1 Type A:
 - .1 LED luminaire with cast aluminum weather-proof housing, IP66, 150 mm mounting arm.
 - .1 Min 26, 500 lumens, 4000K, 70 CRI, Type 2 Distribution, full cut-off.
 - .2 Tested for 5000 hours of elevated ambient salt and fog as per ASTM B117.
 - .3 Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards.
 - .4 Built-in electronic LED driver, >0.9 power factor, <20% THD, 120V.
 - .5 Finish: silver.
 - .6 Acceptable material:
 - .1 Cree #OSQ ANM 2ME U 40K UL + OSQ-DASV mounting arm.

2.2 FUSES

- .1 Type C fuse fitting and Type HRCII-C miniature fuse, rated 2A and mounted in handhole of pole.

PART 3 Execution

3.1 INSTALLATION

- .1 Install luminaires on wooden utility poles and connect to pole wiring.
- .2 Connect pole wiring to underground light circuit.
- .3 Perform tests in accordance with Section 26 05 00 - Common Work Results - Electrical.

Reconstruction
Boat Pen 414A & 414B
North Lake, Kings Co., PE
Project No.: R.094623.001

Street Lighting

Section 26 50 10

Page 2

August 14, 2018

END OF SECTION

PART 1 General

1.1 MEASUREMENT FOR PAYMENT

- .1 Measurement for payment under this section shall be paid for at the unit bid price per cubic meter and this price shall be full compensation for hauling, shaping placement, compaction, equipment, labour and incidentals necessary to complete the work.

1.2 RELATED WORK

- .1 Submittal Procedures: Section 01 33 00.
- .2 Health and Safety Requirements: Section 01 35 29.
- .3 Environmental Procedures: Section 01 35 43.
- .4 Construction/Demolition Waste Management and Disposal: Section 01 74 21.
- .5 Environmental Protection Plan: Section 01 35 44.

1.3 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for all excavation, trenching, backfilling, compaction including saw cutting of existing asphalt paving and concrete surface, required to complete the work of this Contract, as specified in this Section and as shown on the Drawings.
- .2 The requirements of the following Prince Edward Island, Department of Transportation, Infrastructure & Energy (TIE) Specifications are to be followed for all work relating to the material specifications for fill materials and bedding sand.

1.4 REFERENCES

- .1 ASTM C117-13, Standard Test Method for Material Finer Than: 0.075mm Sieve in Mineral Aggregates by Washing.
- .2 ASTM C136M-14, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D698-12e2, Test Method for Laboratory Compaction Characteristics of Soil using Standard Effort.
- .4 ASTM D1557-12, Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- .5 CAN/ULC -S701-11, Thermal Insulation, Polystyrene, Boards and Pipe Covering.
- .6 CAN/CGSB-51.34-M86, Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .7 CAN/CGSB-71-GP-24M Adhesive, Flexible for Bonding Cellular Polystyrene Insulation.

1.5 DEFINITIONS

- .1 Rock excavation: excavation of material from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass and was unable to be removed by a Caterpillar 235 Excavator, or equivalent, machine.
- .2 Common excavation: excavation of materials of whatever nature, which are not included under the definition of rock excavation, including dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment.
- .3 Top Soil: Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .4 Cohesionless soil: For compaction purposes, cohesionless soil is:
 - .1 Materials having less than 20% passing 75 micrometres sieve, regardless of plasticity of fines.
- .5 Cohesive soil: For compaction purposes, cohesive soil is soil not having properties to be classified as cohesionless.

1.6 PROTECTION OF EXISTING FEATURES

- .1 Existing buried utilities and structures:
 - .1 Size, depth and location of existing utilities and structures as indicated are for guidance only; completeness and accuracy are not guaranteed.
 - .2 Prior to commencing any excavation work, notify applicable Departmental Representative or authorities, establish location and state of use of buried utilities and structures. Clearly mark such locations to prevent disturbance during work.
 - .3 Confirm locations of buried utilities by careful test excavation.
 - .4 Maintain and protect from damage, water, sewer, gas, electric or other utilities encountered. Obtain direction of Departmental Representative before moving or otherwise disturbing utilities or structures.
 - .5 Where indicated re-route existing lines in area of excavation. Pay costs for such work.
 - .6 Remove abandoned utility lines to distance of 1.5m from foundations. Cap or otherwise seal lines at cut-off points.
 - .7 Record locations of maintained, re-routed and abandoned underground lines on "As-Built" drawings.

- .8 Make good and pay for damage to any lines resulting from work.
- .2 Existing surface features:
 - .1 Protect existing surface features which may be affected by work from damage while work is in progress and repair damage resulting from work.
 - .2 Where excavation necessitates root or branch cutting do so only under direct control of Departmental Representative.
 - .3 Provide adequate protection around bench markers, layout markers, survey markers, geodetic monuments and signage.
- 1.7 SHORING, BRACING AND UNDERPINNING
 - .1 Comply with Section 01 35 29 - Health and Safety Requirements and applicable local regulations and to protect existing features.
 - .2 Whenever shoring, sheeting, timbering and bracing of excavations or underpinning is required engage services of a Professional Engineer registered in Canada, to design and assume responsibility for adequacy of shoring, bracing and underpinning.
 - .3 Design and supporting data submitted to bear the stamp and signature of qualified Professional Engineer registered in Canada.
- 1.8 COMPACTION DENSITIES
 - .1 Compaction densities indicated are Standard Proctor Maximum Dry Densities.
- 1.9 SITE CONDITIONS
 - .1 The Contractor is responsible to visit the site, assess the setting and become familiar with the existing site conditions.
 - .2 Before visiting the site the BIDDERS MUST APPLY FOR AND RECEIVE PERMISSION TO VISIT THE SITE from the Project Officer at Departmental Representative office.
 - .3 No extra payment will be made to the Contractor, above the Contract Price, for costs resultant from failure to determine the conditions that affect the work.

PART 2 Products

2.1 MATERIALS

- .1 Type 1 Fill: Crushed rock composed of hard sound, durable uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, to comply with the PEI Dept of TI&E

Specification 401 - Aggregate, for Class "A" material graded within the following limits:

ASTM Sieve Size	Percent Passing
31.5mm	100
25.0mm	95-100
12.5mm	50-83
4.75mm	30-60
1.18mm	15-40
600um	10-32
300um	5-22
75um	3-9

- .2 Type 2 Fill: Crushed rock composed of hard sound, durable uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, to comply with the PEI Dept of TIE Specification 401 - Aggregate, for Class "B" material graded within the following limits:

ASTM Sieve Size	Percent Passing
31.5mm	100
25.0mm	95-100
12.5mm	50-83
4.75mm	30-60
1.18mm	15-40
600um	10-32
300um	5-26
75um	3-7

- .3 Type 3 Fill: imported, classified as Common Fill, or material from excavation or other sources, approved by Departmental Representative for use intended, unfrozen, free from rocks larger than 75mm, cinders, ashes, sods, refuse or other deleterious materials.
- .4 Type 4 Fill: natural sand or crushed rock screening, free from clay, shale or organic matter, to comply with PEI Dept of TI&E Specification 402 - Bedding Sand, graded with the following limits.

ASTM Sieve Size	Percent Passing
9.5mm	100
4.75mm	87-98
2.36mm	55-95
1.18mm	30-90
600um	10-70
300um	0-35
150um	0-15
75um	0-8

- .5 Type 5 Fill: to requirements of PEI Dept of TIE

Specification #206.02.02 - Select Borrow as follows:
Borrow shall be non-plastic and composed of clean, uncoated particles free from lumps of clay or other deleterious material with a maximum particle size of 100mm, and a maximum of 30% of the material passing the 4.75 sieve shall pass the 0.075 mm sieve.

- .6 Type 6 Fill: clean, washed coarse sand free from clay, shale and organic matter and graded within the following limits:

ASTM Sieve Size	Percent Passing
12.5mm	100
4.75mm	90-100
0.85mm	40-100
0.35mm	0-75
0.25mm	0-38
0.75mm	0-8

- .7 Type 7 Fill: Crushed rock, composed of hard, sound, durable, uncoated, cubical fragments of consistent quality produced from non-sedimentary bedrock or non-sedimentary boulders, graded within the following limits, to comply with the PEI Dept of TI&E Specification 401 - Aggregate for Class "D" Material.

ASTM Sieve Size	Percent Passing
50.0mm	100
38.0mm	60-100
31.5mm	50-100
25.0mm	35-70
19.0mm	20-50
12.5mm	10-35
9.5mm	5-25
4.75mm	0-10

- .8 Geotextile filter fabric: Refer to Section 31 32 21.

PART 3 Execution

3.1 SITE PREPARATION

- .1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
- .2 Where applicable, strip topsoil from within limits of excavation and stockpile as directed by Departmental Representative, for re-spreading.
- .3 Sawcut pavement or concrete neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 STOCKPILING

- .1 Stockpile fill materials in areas designated by Departmental Representative. Stockpile granular materials in manner to prevent segregation.
- .2 Protect fill materials from contamination and freezing.

3.3 DEWATERING OF EXCAVATIONS

- .1 Keep excavations free of water while work is in progress.
- .2 Protect open excavations, trenches and completed installations against damage due to rainwater, surface run-off, spring water, groundwater, backing up of drains, sewers, flooding from watermains and all other water. Provide pumps, equipment and enclosures required for such protection.
- .3 Dispose of water in a manner not detrimental to public and private property, or any portion of work completed or under construction, and in accordance with the requirements of the Environmental Protection Plan.
- .4 All new and existing work damaged by failure to provide protection shall be removed and replaced with new work at the expense of the Contractor.

3.4 SAW CUTTING

- .1 Existing pavement to be saw cut to produce neat, straight vertical cuts at interface between existing asphalt roadway and new pavement, where excavation meets with asphalt driveways, and at limits of Contract, or as directed by Departmental Representative.

3.5 EXCAVATION

- .1 Excavate to lines, grades, elevations and dimensions indicated or required to construct roadways and to install site services.
- .2 Remove demolished foundations, rubble and other obstructions encountered during excavation.
- .3 Excavations must not interfere with normal 45° splay of bearing from bottom of any footing.
- .4 Do not obstruct flow of surface drainage or natural watercourses.
- .5 Earth bottoms of excavations to be dry undisturbed soil, level, free from loose or organic matter.
- .6 Notify Departmental Representative when soil at bottom of excavation appears unsuitable and proceed as directed by Departmental Representative.
- .7 Obtain Departmental Representative's approval of completed excavation.
- .8 Remove unsuitable material from bottom of excavation to extent and depth directed by Departmental Representative.
- .9 Where required due to unauthorized over-excavation,

correct as follows:

- .1 Fill under other areas with Type 2 compacted to 98% density.
- .10 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed compact foundation soil to density at least equal to undisturbed soil.
- .11 Rock excavation: For the purpose of bidding it is to be assumed that solid sandstone bedrock, as defined under Par. 1.4 above, will not be encountered during the work of this Section.

3.6 FILL TYPES AND COMPACTION

- .1 Dimensions specified in following paragraphs are minimum dimensions of fill after compaction.
- .2 Paved areas:
 - .1 Use fill types and thickness as indicated on drawings. Compact top 100 mm of sandstone sub-base directly under granular base to 100% density.
- .3 Underground services:
 - .1 Use Type 4 Fill (bedding sand) to provide bedding and cover as indicated compacted full width of trench to minimum 95% density.
 - .2 Use Type 3 Fill to underside of topsoil at landscaped areas compacted to density at least equal to adjacent undisturbed soil or minimum 95%.

3.7 BACKFILLING

- .1 Do not proceed with backfilling operations until Departmental Representative has inspected and approved installations.
- .2 Areas to be backfilled to be free from debris, snow, ice, water or frozen ground.
- .3 Do not use backfill material which is frozen or contains ice, snow, or debris.
- .4 Backfilling around site installations.
 - .1 Place bedding and surround material as specified and indicated in applicable Section for service or utility to be installed.
 - .2 Do not backfill around or over cast-in-place concrete within 24 hours after placing.
 - .3 Place layers simultaneously on both sides of installed work to equalize loading.
 - .4 Where temporary unbalanced earth pressures are liable to develop on walls or other structures:
 - .1 Permit concrete to cure for minimum of 14 days or until it has sufficient strength to

withstand earth and compaction pressure and approval has been obtained from Departmental Representative or;

- .2 If approved by Departmental Representative erect bracing or shoring to counteract unbalance, and leave in place until removal is approved by Departmental Representative.
- .5 Place material by hand under, around and over installations until 600mm of cover is provided, except where specifically permitted otherwise. Dumping material directly on installations will not be permitted.
- .5 Place backfill material in uniform layers up to grades indicated. Compact each layer before placing succeeding layer. Use methods to prevent damage to installations.

3.8 TESTING AND INSPECTION

- .1 Refer to Section 01 45 00.

3.9 RESTORATION

- .1 Upon completion of work, remove surplus materials and debris, trim slopes and correct defects noted by Departmental Representative.
- .2 Clean and reinstate areas affected by work to satisfaction of Departmental Representative.

3.10 SURPLUS MATERIAL

- .1 Remove all surplus material from site, and pay all fees as may be charged at disposal site.
- .2 Remove all soil contaminated with oil, gasoline, calcium chloride or other toxic or dangerous materials and dispose of in manner to minimize danger at site and in a manner and to a location off site approved by Provincial Authority governing such disposal.

END OF SECTION

PART 1 General

1.1 RELATED WORK

- .1 Section 31 23 10 - Excavating, Trenching and Backfilling.
- .2 Section 31 37 10 - Rip Rap.

1.2 REFERENCES

- .1 CAN/CGSB-4.2-2004 (2013), Textile Test Methods.
- .2 CAN/CGSB-148.1-92, Methods of Testing Geotextiles and Geomembranes.
- .3 ASTM D4595-11, Test Method for Tensile Properties of Geotextiles by the Wide Width Strip Method.
- .4 ASTM D4751-99a, Test Method for Determining the Apparent Opening Size of a Geotextile.

1.3 DELIVERY AND STORAGE

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

1.4 MEASUREMENT FOR PAYMENT

- .1 Geotextile filter fabric will be measured in square metres of material incorporated in this work.
- .2 Supply and installation of accessories and other attachments will not be measured but considered incidental to work.

PART 2 Products

2.1 MATERIALS

- .1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls of minimum 3.5 meters width and in one length.
 - .1 Standard of Acceptance: Synthetic Industries 1001 or an approved equal.
- .2 Synthetic fibre to be rot proof, unaffected by action of oil or salt water and not subject to attack of insects or rodents.
- .3 Seams or joints to be constructed in accordance with manufacturer's recommendations.
- .4 Thread for sewn seams: equal or better resistance to chemical and biological degradation than geotextile.
- .5 Physical properties:
 - .1 Thickness: minimum 2.54 mm.
 - .2 Mass per unit area: minimum 600 g/m².
 - .3 Tensile strength and elongation (in any principal direction):
 - .1 Tensile strength: minimum 1000 N, wet

- condition.
- .2 Elongation at break: 50%.
- .3 Mullen burst strength: minimum 3600 kPa.
- .4 Apparent opening size (AOS): 50 to 250 micrometres.
- .6 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CSA G164.

PART 3 Execution

3.1 INSTALLATION

- .1 Place geotextile material by unrolling onto graded surface and against panels in orientation, manner and locations indicated and retain in position with weights.
- .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
- .3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.
- .4 Place geotextile material behind concrete panel surfaces in one continuous length from bottom of harbour to upper extent of panels as indicated.
- .5 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

3.2 PROTECTION

- .1 Do not permit passage of any vehicle directly on geotextile at any time.

END OF SECTION

PART 1 General

1.1 RELATED WORK

- .1 Section 31 23 10 - Excavating, Trenching and Backfilling.
- .2 Section 31 32 21 - Geotextiles.

1.2 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and installation of imported riprap on slopes as indicated, as specified and to lines, grades and typical cross sections shown on drawings.
- .2 Do not remove harbour material from water during shaping and construction of riprap slope protection.

1.3 MEASUREMENT FOR PAYMENT

- .1 Riprap material will be paid for at the unit bid price in tonne and this shall be full compensation for supplying and placing rocks, hauling, shaping of underlying material, equipment, tools, labour and incidentals necessary to complete the work in acceptable manner to Departmental Representative and shall be based on weigh slips.
- .2 Toeing in of the stone will be incidental to the supply and placement of the Stones.

1.4 MATERIALS

- .1 To requirements of PEI Department of Transportation, Infrastructure and Energy Specification # 213 (General Provisions and Contract Specifications for Highway Construction latest edition) as it relates to imported metamorphic or igneous rock.
- .2 Stone: Imported metamorphic or igneous stones. Random rip rap shall consist of clean hard, durable quarried stone, free from seams, cracks or other structural defects having a density of not less than 2.65 tonne/m³.
- .3 The rock material is subject to Los Angeles Abrasion Test (ASTM C131), shall have a loss not greater than 35%.
- .4 When tested for soundness, five cycles of magnesium sulphate (ASTM C88), the rock material shall have a loss not greater than 15%.
- .5 Geotextile in accordance with Section 31 32 21 - Geotextiles.

1.5 PLACING

- .1 Where rip-rap is to be placed on slopes, excavate toe in slope in accordance with dimensions as indicated or as directed by Departmental Representative.

- .2 Fine grade area to be rip-rapped to uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .3 Place geotextile on prepared surface. Place rip-rap on geotextile so as to avoid puncturing geotextile. Do not drive vehicles directly on geotextiles.
- .4 Place riprap in accordance with thickness and details as indicated or as directed by Departmental Representative.
- .5 Place riprap in manner approved by Departmental Representative to secure surface and create a stable mass. Place larger stones at bottom of slopes and face of slopes.

PART 2 Products

2.1 NOT USED

- .1 Not used.

PART 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 31 23 10 - Excavating, Trenching and Backfilling.
- .2 Section 31 62 19 - Timber Piles.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Protect piles from damage due to excessive bending stresses, impact, abrasion or other causes during delivery, storage and handling.
- .2 Replace damaged piles to satisfaction of Departmental Representative.
- .3 Load transport and deliver piles.
- .4 Supply piles as required to complete work.

1.3 PROTECTION

- .1 Protect public and construction personnel, adjacent structure, services and work of other sections from hazards due to pile driving operations.

1.4 EXISTING CONDITIONS

- .1 Sub-surface investigation report is available at offices of PWGSC in Charlottetown.
- .2 Notify Departmental Representative in writing if subsurface conditions at site differ from those indicated and await further instructions from Departmental Representative.

1.5 SCHEDULING OF WORK

- .1 Submit schedule of planned sequence of driving to Departmental Representative and Departmental Representative for review, not less than 2 weeks prior to commencement of pile driving.

PART 2 Products

2.1 MATERIALS

- .1 Material requirements for piles are specified in Section 31 62 19.
- .2 Supply full length piles and provide equipment of sufficient capacity to handle full length piles without cutting and splicing.
- .3 Piles to be driven to bedrock and as required by Geotechnical investigation and Boreholes information as indicated on drawings.
- .4 Do not splice piles without written permission of Departmental Representative.

PART 3 Execution

3.1 EQUIPMENT

- .1 Prior to commencement of pile installation, submit to Departmental Representative for approval, details of equipment for installation of piles.
- .2 Hammer: Use hammers capable of developing a blow at operating speed with sufficient energy to drive tip of piles to required penetration.
- .3 Leads: Construct pile driver leads to provide free movement of hammer. Hold leads in position at top and bottom, with guys, stiff braces, or other means approved means, to ensure support to pile while being driven.

3.2 PREPARATION

- .1 Ensure that ground conditions at pile locations are adequate to support pile driving operation. Make provision for access and support of piling equipment during performance of work.

3.3 FIELD MEASUREMENT

- .1 Maintain accurate records of driving for each pile, including:
 - .1 Type and make of hammer, stroke or related energy.
 - .2 Other driving equipment including water jet, driving cap, cushion.
 - .3 Pile size, length and location.
 - .4 Sequence of driving piles in group.
 - .5 Number of blows per metre for entire length of pile and number of blows per 100mm for last 1000mm.
 - .6 Final tip and cut-off elevations.
 - .7 Other pertinent information such as interruption of continuous driving, pile damage.
 - .8 Record elevation taken on adjacent piles during driving of each pile.
 - .9 Provide Departmental Representative with three copies of records.

3.4 DRIVING

- .1 All piles must be driven to established resistance in one continuous operation to avoid freeze.
- .2 Use driving caps and cushions to protect piles. Reinforce pile heads if necessary. Piles with damaged heads will be rejected by Departmental Representative.
- .3 Hold piles securely and accurately in position while driving.
- .4 Deliver hammer blows along axis of pile.

- .5 Do not drive piles within 8m of concrete which has been in place less than 3 days.
- .6 Ensure no contact between pile and structure takes place when driving batter piles adjacent to existing structures.
- .7 Redrive piles lifted during driving of adjacent piles.
- .8 Remove loose and displaced material from around piles after completion of driving, and leave clean, solid surfaces to receive foundation concrete.
- .9 Use of water jet not permitted.
- .10 Cut off piles neatly and squarely at elevations as indicated. Provide sufficient length above cut-off elevation so that part damaged during driving is cut off.
- .11 Remove cut-off lengths from site on completion of work.

3.5 CAPACITY AND PENETRATION

- .1 Required pile penetration depth to refusal and as indicated.
- .2 Installation of each pile will be subject to approval of Departmental Representative. Departmental Representative will be sole judge of acceptability of each pile with respect to final driving resistance, depth of penetration or other criteria used to determine capacity and penetration depth.
- .3 Drive each pile to practical refusal in bedrock and to elevation indicated on the project drawings. Do not overdrive to cause damage to piles in bedrock. Refusals defined as 4 blows for the last 25mm of pile with a hammer delivering an energy in the order of 750 joules times the pile tip diameter in centimeters. Use protective shoe as indicated. Re-tap some piles (e.g., 20 percent) within a 48-hour period is recommended to assess relaxation effects, and the requirement to re-tap additional piles.
- .4 Refer to geotechnical investigation for piling recommendations in Soil Subsurface Investigation.

3.6 TEST PILES

- .1 With a view to determining the required lengths of the piling requirements the contractor may, at his discretion, carry out test driving of piles. The location and number of test piles is left to the discretion of the contractor.

3.7 DRIVING TOLERANCE

- .1 Install piles to the following tolerances: pile heads to be within 75mm of locations shown on drawing and to permit installation of concrete pile caps.

- .2 Top of piles to be aligned to approval of Departmental Representative. Take measure to correct alignment as required.

3.8 DAMAGED OR DEFECTIVE PILES

- .1 Departmental Representative will reject any pile that is driving out of position, twisted or is damaged during driving or handling.
- .2 Remove rejected pile and replace with a new, and if necessary, a longer pile.
- .3 No extra compensation will be made for removing and replacing or other work made necessary through rejection of defective piles.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 31 61 13 - Pile Foundations, General.

1.2 MEASUREMENT PROCEDURES

- .1 Consider shoes, cap plates, straps and preservative treatment incidental to supply of piles.
- .2 Unit of measurement for supplying piles will be based on per meter measurement from estimated tip elevation to design cut-offs plus 1.5m. Any additional length supplied due to market availability shall not be paid extra and shall be accounted for at the bid price.
- .3 Measure installation of piles in number of piles and lengths actually driven, and approved by Departmental Representative including those for test purposes.
- .4 Mobilization of equipment will not be considered as a separate item and will be included in the price quoted for the supply and installation of the piles.
- .5 Departmental Representative will establish actual number and lengths of piles installed from driving records.
- .6 Unit of measurement for install piles will be per metre measured from tip toe elevation to cut-off elevation at pile cap.

1.3 REFERENCES

- .1 CSA B111-1974, Wire Nails, Spikes and Staples.
- .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN3-O56-M79, Round Wood Piles (metric version).
- .4 CAN/CSA-O80 Series-M89, Wood Preservation (including CSA Preliminary Standard O80.31-M1989).
- .5 ASTM A 123-89a, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .6 ASTM A 153-82(1987), Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
- .7 ASTM A 307-92a, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

1.4 PROTECTION

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Avoid breaking surfaces of treated piles.
- .3 Do not damage surfaces of treated piles below cutoff elevation.
- .4 Treat cuts, breaks or abrasions on surfaces of treated piles, bolt holes and field cuts in accordance with CAN/CSA-O80.18 Series.

PART 2 Products

2.1 MATERIALS

- .1 Round wood piles: all piles will conform to the requirements of CAN3-056, with minimum butt size of 330mm and tip diameter related to length as indicated in table A-1. All piles to be peeled and shod with a steel point as shown on plans or a substitute point approved by Departmental Representative.
- .2 Pile species: Coast Douglas Fir or Red Pine.
- .3 Preservative Treatment: to CAN/CSA-080.18 Series. All timber piles shall be pressure treated with CCA preservatives in accordance with CSA 080.18 (latest revision).
- .4 Departmental Representative will be sole judge as to quality and dimension of piles. Remove rejected piles from site of work.
- .5 Wire nails, spikes, staples: to CSA B111.
- .6 Bolts, nuts and washers: to ASTM A 307.
- .7 Hot dip galvanize bolts, nuts and washers and unless otherwise specified, staples, cable clamps, pipe sleeves, spikes and nails to CAN/CSA-G164. Other hardware to be galvanized to ASTM A 123.

PART 3 Execution

3.1 WOOD PRESERVATION

- .1 Treat wood piles with wood preservative treatment as specified herein.

3.2 PREPARATION

- .1 Select piles in each bent group for uniformity of size and straightness to facilitate placing of brace timbers.
- .2 Where necessary, protect pile heads by means of heavy steel straps or wrought iron rings.
- .3 Equip piles with metal shoes or other tip protection of approved design. Submit details of proposed method of tip protection to Departmental Representative for approval.

3.3 INSTALLATION

- .1 Install piles in accordance with Section 31 61 13 - Pile Foundations, General.
- .2 Submit full details of method and sequence of installation of piling to Departmental Representative for approval prior to start of pile installation work.
- .3 Provide temporary guide frames and/or bracing to hold piles in proper alignment during setting and driving.

- .4 Provide proper guide frames to insure the batter piles achieve the specified angle and can be driven to the specified penetration.
- .5 Should an obstruction be encountered during driving, leave obstructed pile and proceed to drive remaining piles. Return and attempt to complete driving of pile later.
- .6 Secure a hardened steel point to each pile before driving.
- .7 Treat all end cut offs and field drilled bolt holes with preservative.

3.4 PILE CAPS

- .1 Install cast-in-place pile caps as indicated.
- .2 Cut off piles to elevation indicated.

3.5 BRACING & WALES

- .1 Install bracing as indicated.

3.6 SPLICES

- .1 Splices of wood piles will not be permitted.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 - Testing and Quality Control.

1.2 DESCRIPTION OF WORK

- .1 This Section specifies the requirements for the materials, equipment and methods to be followed for production, placement and compaction of hot mix, hot laid asphalt concrete for pavement construction for the parking areas, including access driveways.
- .2 The following Prince Edward Island Department of Transportation, Infrastructure & Energy Specifications will be followed for all work related to Hot Mix Asphalt Concrete Paving.
 - .1 501 Asphalt Cement
 - .2 502 Asphalt Prime
 - .3 503 Asphalt Emulsions
 - .4 601 Tack Coat Application
 - .5 602 Prime Coat Application
 - .6 603 Hot Mix Asphaltic Concrete
 - .7 705 Cold Plane Construction Joint
 - .8 907 Vehicle Configurations and Restrictions

1.3 MEASUREMENT FOR PAYMENT

- .1 Asphalt pavement material will be paid for at the unit bid price in square meters and this shall be full compensation for shaping of underlying material, supplying, placing, compaction, equipment, tools, labour and incidentals necessary to complete the work in acceptable manner to Departmental Representative.

1.4 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D995-95b(2002), Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
 - .2 ASTM D1559-89, Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus, was withdrawn in 1998 with no replacement.
- .2 Asphalt Institute (AI)
 - .1 AI MS-2-1993, Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types.
- .3 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-16.1-M89, Cutback Asphalts for Road Purposes.
- .2 CAN/CGSB-16.3-M90, Asphalt Cements for Road Purposes.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse in accordance with Waste Management Plan.
- .2 Divert unused asphalt materials from landfill.
- .3 Divert unused aggregate materials from landfill for reuse as approved by Departmental Representative.
- .4 Unused protective coating material must be disposed of at an official hazardous material collections site as approved by Departmental Representative.
- .5 Unused protective coating material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.

PART 2 Products

2.1 MATERIALS

- .1 Asphalt paving mixture: The current Prince Edward Island Department of Transportation, Infrastructure & Energy Specifications 603 and 501 for hot-mixed, hot-laid asphalt concrete shall govern the materials and composition of the asphalt concrete pavements.
 - .1 Base: Mix designation 'A' - as per Specification 501
 - .2 Seal: Mix designation 'C' - as per Specification 501
- .2 Asphalt prime: In accordance with the PEI Department of Transportation, Infrastructure & Energy Specification 502.
- .3 Asphalt emulsions: In accordance with the PEI Department of Transportation, Infrastructure & Energy Specification 503.

PART 3 Execution

3.1 ASPHALT PRIME

- .1 Apply asphalt prime over imported granular base in accordance with the requirements of PEI Department of Transportation, Infrastructure & Energy Specification 602, Paragraphs 602.01 to 602.04 inclusive.

3.2 ASPHALT CONCRETE PAVING

- .1 Place and compact asphalt concrete base and seal courses

in accordance with the requirements of PEI Department of Transportation, Infrastructure & Energy Specification 603 to thickness indicated on drawings.

3.3 ASPHALT TACK

- .1 Apply asphalt tack between base and seal courses and elsewhere as applicable in accordance with the requirements of PEI Department of Transportation, Infrastructure & Energy Specification 601.

3.4 JOINTS

- .1 Provide cold plane joint at intersection with existing roads and elsewhere as required in accordance with PEI Department of Transportation, Infrastructure & Energy Specification 705, Paragraphs 705.01 and 705.02.

3.5 VEHICLE REQUIREMENTS

- .1 In accordance with PEI Department of Transportation, Infrastructure & Energy Specification 907.

3.6 TESTING AND INSPECTION

- .1 Testing of asphalt materials and inspection and testing of placement and compaction to be carried out by testing laboratory engaged and paid by the Contractor, in accordance with Section 01 29 83 - Payment Procedures for Testing Laboratory Services. Frequency of tests to be determined by the testing laboratory.

3.7 SURPLUS MATERIALS

- .1 Remove all surplus materials from site.
- .2 Dispose off site at a location approved by Provincial Authority governing such disposal and pay all fees that may be charged to dispose of materials.

3.8 ASPHALTIC CURBS

- .1 Form asphalt curbs by machine to profiles as indicated. Curve curbs uniformly.

3.9 PROTECTION

- .1 Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38 degrees C. Do not permit stationary loads on pavement until 24 hours after placement.
- .2 Provide access to buildings as required. Arrange paving schedule so as not to interfere with normal use of premises.

END OF SECTION

PART 1 General

1.1 MEASUREMENT FOR PAYMENT

- .1 Dust Control will be considered incidental to the work and not measured separately for payment.

1.2 DESCRIPTION OF WORK

- .1 The work of this Section comprises the furnishing of all labour, materials and equipment necessary for the supply and application of water for prevention of dust nuisance caused by traffic, and/or weather conditions.

PART 2 Products

2.1 MATERIALS

- .1 Water: to Departmental Representative's approval.

2.2 SUPPLY

- .1 At least one mobile unit of at least 4.5 KL capacity for applying water shall be available on the project at all times.
- .2 The intake hose to the tank shall be equipped with a device satisfactory to the Departmental Representative to prevent fish from being pumped into the tank.

PART 3 Execution

3.1 APPLICATION

- .1 Apply water, when and where required, in location directed by Departmental Representative, with distributors equipped with a spray system that will ensure uniform application and with positive means of shut-off.

END OF SECTION

PART 1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 - Common Work Results - Electrical.
- .2 Section 31 23 00 - Excavation and Fill.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA).
 - .1 CSA C22.2 No. 211.1, Rigid Types EBI and DB2/ES2 PVC Conduit.

PART 2 Products

2.1 PVC DUCTS AND FITTINGS

- .1 Rigid PVC duct: to CSA C22.2 No. 211.1, type rigid PVC for direct burial with minimum wall thickness at any point of 1/10". Nominal length: 10' plus or minus 0.5". Type DB2 (thinwall) PVC conduits unacceptable.
- .2 Rigid PVC split ducts as required.
- .3 Rigid PVC bends, couplings, reducers, bell end fittings, plugs, caps, adaptors same product material as duct, to make complete installation.
- .4 Rigid PVC 90° and 45° bends as required.
- .5 Rigid PVC 5° angle couplings as required.
- .6 Expansion joints as required.
- .7 Preformed, interlocking intermediate duct spacers for duct size as indicated

2.2 SOLVENT WELD COMPOUND

- .1 Solvent cement for PVC duct joints.

2.3 CABLE PULLING EQUIPMENT

- .1 Use 1/4" stranded nylon pull rope tensile strength 5 kN.

2.4 MARKERS

- .1 6" wide, polyethylene marker tape in all trenches. Use red colored tape. Install at depth as per drawings.

PART 3 Execution

3.1 INSTALLATION

- .1 Install duct in accordance with manufacturer's instructions.
- .2 Clean inside of ducts before laying.
- .3 Ensure full, even support every 1.5 m and smooth transitions throughout duct length.
- .4 Slope ducts with 1 to 400 minimum slope.

-
- .5 During and after construction, cap ends of ducts to prevent entrance of foreign materials.
 - .6 Pull through each duct a wooden mandrel not less than 300 mm long and of diameter 6 mm less than internal diameter of duct, followed by stiff bristle brush to remove sand, earth and other foreign matter. Pull stiff bristle brush through each duct immediately before pulling-in cables.
 - .7 In each duct install pull rope continuous throughout each duct run with 3 m spare rope at each end.
 - .8 Install continuous strip of marker tape above duct before backfilling.
 - .9 Notify Departmental Representative upon completion of direct buried ducts and obtain acceptance prior to backfill.

END OF SECTION