

**INFRASTRUCTURE REHABILITATION  
STEEL SHEET PILING REPAIRS  
NAUFRAGE & NORTHPORT HARBOURS, PEI  
PROJECT NO. R.076459.001**

**PREPARED FOR: PUBLIC WORKS/  
GOVERNMENT SERVICES CANADA**

**PREPARED BY: COLES ASSOCIATES LTD.**

**AUGUST 2015**

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1.1 SCOPE OF WORK

- .1 The work of this portion of the contract involves repairs to the steel sheet piling of the west breakwater at Naufrage Harbour in Kings County and the southwest wharf at Northport Harbour, Prince County, Prince Edward Island which includes but is not limited to:
- .1 where required, excavation to access backside of wharf structure;
  - .2 Removal and reinstatement of existing fender, ladders and other items as required to complete the work;
  - .3 Provision for structural and miscellaneous steel sections, welding, cast-in-place concrete, ladders, cleats, and miscellaneous work related to the repairs;
  - .4 All related site work including reinstatement of asphalt paving, concrete deck, sandstone fill, imported gravel, imported rip rap, filter fabric and environmental protection;
- .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: N/A.

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 COST  
BREAKDOWN

.1 N/A.

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.

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

- .1 The construction scheduling for the

AND COOPERATION  
WITH OTHER  
CONTRACTS

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

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Infrastructure Rehabilitation

Steel Sheet Piling Repairs

Northport and Naufrage, PEI

Project No. R.076459.001

INSTRUCTIONS

TO BIDDERS

Section 01 10 10

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1.21 DUST CONTROL .1 See Section 32 15 60 - Dust Control and

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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 SHOP 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 coordination of the work of all sub-trades.

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1.1 REFERENCES

- .1 Manual of Uniform Traffic Control Devices for Streets and Highways - 2009.

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.

1.3 INFORMATION AND  
WARNING DEVICES

- .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 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-----

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|-------------------------------------|----|---|
| <u>1.1 RELATED WORK</u>             | .1 | Section 01 35 28 Health and Safety Requirements   |
| <u>1.2 REFERENCES</u>               | .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 | <a href="http://www.hrsdc.gc.ca/en/lp/lo/fp/standards/commissioner.shtml">http://www.hrsdc.gc.ca/en/lp/lo/fp/standards/commissioner.shtml</a>             |
|                                     | .2 | Fire Protection Services - Atlantic Region office, Halifax, N.S, Tel. (902) 426-6053.   |
| <u>1.3 DEFINITIONS</u>              | .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.   |
| <u>1.4 SUBMITTALS</u>               | .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.   |
| <u>1.5 FIRE SAFETY REQUIREMENTS</u> | .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 28.
  - .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 28.

#### 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.

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### 1.1 RELATED WORK

.1 Section 01 35 29: Health and Safety

### 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.

#### 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 28.

#### 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.

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-----

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;
  - .2 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 56 00 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.

- .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 Federal and Provincial Departments as stipulated by laws and regulations and local emergency resource organizations, as needed based on nature of emergency or accident.

.3 Officials from PWGSC and site facility management. Departmental Representative will provide list.

.3 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

- .1 Notwithstanding the requirement to

RULES

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-----

1.1 RELATED WORK

- .1 Waste Management and Disposal: Section 01 74 21.

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.
- .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

- .1 Protect trees and plants on site and

PLANT PROTECTION

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-----

- 1.1 WATER QUALITY    .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-----

- 1.1 RELATED WORK
- .1 Special Procedures for Traffic Control: Section 01 35 14
  - .2 Health and Safety Requirements: Section 01 35 29
- 1.2 DESCRIPTION OF WORK
- .1 The work of this Section comprises the supply, installation, maintenance and removal of temporary barricades to isolate the work sites, for the work of this Contract, from both public streets and private property.
- 1.3 MATERIALS
- .1 Barricades:
    - .1 All pedestrian or vehicular traffic control devices required by Municipal Regulations, as interpreted by the Authority having jurisdiction, to safely direct and/or control all traffic in the areas of construction.
    - .2 All pedestrian or vehicular traffic control devices as required to safely direct and/or control all traffic in the areas of construction on the wharf and as directed by the Departmental Representative.
- 1.4 INSTALLATION
- .1 Erect temporary barricades as directed and where required before any construction work takes place.
  - .2 Barricades to remain in place and be maintained by Contractor during entire construction period, except as noted in Par. 1.5 below.
- 1.5 REMOVAL
- .1 Barricades may be removed in areas of work where all site work restitution is completed and the area has been accepted by the Departmental Representative.

-----END-----

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-----

### 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 Type	Recommended Diversion%	Actual Diversion%
Cardboard	100	
Plastic Packaging	100	
Rubble	100	
Steel	100	
Wood (uncontaminated)	100	
Other		

1.14 WASTE REDUCTION  
WORKPLAN

(1) Material Category	(2) Persons Responsible	(3) Total Quantity of Waste (Unit)	(4) Actual Reused Amount (Units) Projected	(5) Actual Recycled Amount (Unit) Projected	(6) Material Destination
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					

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Infrastructure Rehabilitation	CONSTRUCTION/DEMOLITION	Section 01 74 21
Steel Sheet Piling Repairs	WASTE	
Alberton/Naufrage Harbours, PE	MANAGEMENT	Page 6
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1.15 CANADIAN	.1	Province: Prince Edward Island
GOVERNMENT DEPARTMENTS		Department of Fisheries, Aquaculture
CHIEF RESPONSIBILITY		and Environment, 11 Kent Street, PO
<u>FOR THE ENVIRONMENT</u>		Box 2000, Charlottetown, PEI C1A 7N8
		General Inquiries: (902) 368-5000 Fax:
		(902) 368-5830

-----END-----

**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, 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 ASTM 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)

.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.
- .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 MATERIALS**

- .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/m<sup>3</sup> 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 repair s  
directed by Departmental  
Representative.

3.5 SITE TOLERANCE

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

-----END-----

## **PART 1 - GENERAL**

- |                                    |    |  |
|------------------------------------|----|--|
| <u>1.1 RELATED WORK</u>            | .1 | Submittal Procedures: Section 01 33 00   |
|                                    | .2 | Construction/Demolition Waste Management and Disposal: Section 01 74 21  |
| <u>1.2 DESCRIPTION OF WORK</u>     | .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. |
| <u>1.3 MEASUREMENT FOR PAYMENT</u> | .1 | Payment for the mooring cleats will be measured as individual units for elements incorporated into work.   |
|                                    | .2 | Measurement for Payment of other items indicated shall be paid as a lump sum.  |

## **PART 2 - PRODUCTS**

- |                                |    |  |
|--------------------------------|----|--|
| <u>2.1 MOORING CLEATS</u>      | .1 | Size and material as indicated on drawings and to Departmental Representative's requirement. |
| <u>2.2 MISCELLANEOUS METAL</u> | .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.  |

2.3 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 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.

3.3 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.

3.4 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-----