

PORT EDWARD – HARBOUR FIRE PROTECTION REPAIRS
F1571-175061/A

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END OF SECTION

Section 01 11 00 – Summary of Work

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 29.06 HEALTH AND SAFETY REQUIREMENTS
- .2 Section 01 45 00 QUALITY CONTROL
- .3 Section 21 05 05 FIRE PROTECTION

1.2 DEFINITIONS

- .1 Throughout contract documents, the words “Owner,” “Contracting Authority,” “Engineer/Departmental Representative,” “Contractor,” or “Department,” shall be defined as follows:
 - .1 Owner /Department
Small Craft Harbours Program of the Department of Fisheries and Oceans,
200-401 Burrard Street Vancouver B.C. V6C 3S4
 - .2 Engineer/Departmental Representative
An employee of the Owner or Engineer assigned by the Owner as the Engineer for this project, or the Engineer’s representative assigned by the Engineer as his representative for the project.
 - .3 Contractor
The party accepted by the Owner with whom a formal contract is entered to complete the work of this project.
 - .4 Contracting Authority
Public Works and Government Services Canada (PWGSC).

1.3 DRAWINGS

PE-8	PORT EDWARD INVENTORY
102901(370696)- E1	PORT EDWARD, BC – HARBOUR IMPROVEMENT ELECTRICAL SYSTEM - SITE PLAN
703411	PORT EDWARD, BC – BUILDINGS NEW FIRE EXITS - FLOOR PLANS - BUILDINGS 1001,1002 & 1003 / BUILDINGS 1004 & 1005
800922	PORT EDWARD, BC – HARBOUR IMPROVEMENTS SPRINKLER INSTALLATIONS BUILDINGS 3,4&5 - MAIN FLOOR PLAN / SECOND & THIRD FLOOR PLANS
N/A	PORT EDWARD, BC – BUILDING 1004 SPRINKLERS – GROUND & UPPER FLOOR PLAN
N/A	PORT EDWARD, BC – BUILDING 1005 SPRINKLERS – GROUND PLAN / UPPER FLOOR PLAN

1.4 PROJECT SITE

- .1 The Port Edward Small Craft Harbour (The Project Site) is located 15km South of Prince Rupert, British Columbia in the District of Port Edward situated on the Tsimpean Peninsula.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work covered in this section comprises of the supply and installation of various piping and fixtures for a building fire protection sprinklers system. Work also includes but is not limited to dry pipe valve rebuild, pancake valve replacement, compressor replacement and backflow preveter testing.

1.6 COMMENCEMENT AND COMPLETION

- .1 All work on-site is to commence no earlier than January 1st, 2018 and is to be completed no later than March 2nd, 2018.

1.7 OWNER SUPPLIED MATERIALS

- .1 All materials required to complete this project to be supplied new by contractor.

1.8 SCHEDULE OF QUANTITIES

The following are in reference to items as detailed in the Unit Price Table

MANDATORY ITEMS

.1 MOBILIZATION / DEMOBILIZATION

.1 MOBILIZATION/DEMOBILIZATION

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Mobilization/Demobilization of crew and equipment to Project Site.
- .2 All crew living expenses and other associated costs.
- .3 Any overhead costs not covered in other items.
- .5 Site clean-up.

.2 BUILDING 1001/1002/1003 FIRE PROTECTION SYSTEM REPAIRS

.1 51mm (2") SCHEDULE 10 PIPE REPLACEMENT W/ SPRINKLERS

The unit cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 51mm (2") Schedule 10 galvanized steel pipe.
 - Nominal OD 60.33mm,

- Nominal ID 54.8mm,
 - Nominal wall thickness 2.77mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Supply and install new sprinkler heads
- Supply and install Sprinkler head
 - Sprinklers installed in-line at 3.1m (10') spacing with Victaulic mounts.
- .3 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 4.9m (16') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.2 76mm (3") SCHEDULE 10 PIPE REPLACEMENT

The unit cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 76mm (3") Schedule 10 galvanized steel pipe.
- Nominal OD 88.9mm,
 - Nominal ID 82.8mm,
 - Nominal wall thickness 3.05mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 4.9m (16') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.3 102mm (4") SCHEDULE 10 PIPE REPLACEMENT W/ SPRINKLERS

The unit cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 102mm (4") Schedule 10 galvanized steel pipe.
- Nominal OD 114.3mm,
 - Nominal ID 108.2mm,
 - Nominal wall thickness 3.05mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)

- .2 Supply and install new sprinkler heads
 - Supply and install Sprinkler head
 - Sprinklers installed in-line at 3.1m (10') spacing with Victaulic mounts.
- .3 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 4.9m (16') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.4 102mm (4") SCHEDULE 10 PIPE REPLACEMENT

The unit cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 102mm (4") Schedule 10 galvanized steel pipe.
 - Nominal OD 114.3mm,
 - Nominal ID 108.2mm,
 - Nominal wall thickness 3.05mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 4.9m (16') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.5 152mm (6") SCHEDULE 10 PIPE REPLACEMENT

The unit cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 152mm (6") Schedule 10 galvanized steel pipe.
 - Nominal OD 168.3mm,
 - Nominal ID 161.5mm,
 - Nominal wall thickness 3.40mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 4.9m (16') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.6 DRY PIPE VALVE REBUILD

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install three (3) Viking Model E1 (08116) Dry Valve rebuild kits.

.7 PANCAKE VALVE REPLACEMENT

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install one (1) 8" Pancake Valve, Watts 8-BF03-1214G Valve.

.8 BACKFLOW PREVENTER TESTING

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Inspect and test system backflow preventers per NFPA 25, including full forward flow functional test.

.3 BUILDING 1004/1005 FIRE PROTECTION SYSTEM REPAIRS

.1 DRY PIPE VALVE REBUILD

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install three (3) Gem 4" Dry Valves Model F3021 rebuild kits.

.2 COMPRESSOR REPLACEMENT

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install one (1) compressor, 18 CFM @ 100 PSI, 5hp with 6 gallon tank, 208/230 1 PH.

.3 BACKFLOW PREVENTER TESTING

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Inspect and test system backflow preventers per NFPA 25

OPTION ITEMS

.4 BUILDING 1001/1002/1003 ROOF FIRE PROTECTION SYSTEM REPAIRS

.1 1ST FLOOR BUILDING 1001 PIPE REPLACEMENT W/ SPRINKLERS

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 51mm (2") Schedule 10 galvanized steel pipe.
 - Nominal OD 60.33mm,
 - Nominal ID 54.8mm,
 - Nominal wall thickness 2.77mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Supply and install new sprinkler heads
 - Supply and install Sprinkler head
 - Sprinklers installed in-line at 3.1m (10') spacing with Victaulic mounts.
- .3 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 10.7m (35') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh. Use of Aerial Work Platforms (AWP) may be possible, and is to be verified by contractor.

.2 2ND FLOOR BUILDING 1002 PIPE REPLACEMENT W/SPRINKLERS

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 51mm (2") Schedule 10 galvanized steel pipe.
 - Nominal OD 60.33mm,
 - Nominal ID 54.8mm,
 - Nominal wall thickness 2.77mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Supply and install new sprinkler heads
 - Supply and install Sprinkler head
 - Sprinklers installed in-line at 3.1m (10') spacing with Victaulic mounts.
- .3 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 10.7m (35') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

.3 3RD FLOOR BUILDING 1003 PIPE REPLACEMENT W/ SPRINKLERS

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install new 51mm (2") Schedule 10 galvanized steel pipe.
 - Nominal OD 60.33mm,
 - Nominal ID 54.8mm,
 - Nominal wall thickness 2.77mm,
 - Underwriters Laboratories of Canada(ULC) Rated,
 - Majority of replacements are full 6.4m (21') pipe lengths,
 - Existing couplers are Victaulic style 107N,
 - Existing fittings are Victaulic Advanced Groove System (AGS)
- .2 Supply and install new sprinkler heads
 - Supply and install Sprinkler head
 - Sprinklers installed in-line at 3.1m (10') spacing with Victaulic mounts.
- .3 Contractor to supply all other material, equipment or scaffolding required to access repairs in building. Ceiling height is approximately 10.7m (35') high. Majority of the buildings are divided by storage lockers walls constructed with timber and steel wire mesh.

1.9 WORK SEQUENCE AND OWNER OCCUPANCY

- .1 A pre-construction site meeting, a minimum seven (7) days prior to the start of construction will be mandatory to review/survey existing site conditions and identify where access is required to complete repairs.
- .2 Owner to coordinate moving materials in storage lockers to provide access to contractor during construction.
- .3 Contractor to provide a minimum 7-day notice to the Owner and receive a written response from Owner that existing vessels have been relocated prior to mobilization to site as per clause 1.6.1.
- .4 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.
- .5 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.
- .6 Contractor to provide detailed work plan and schedule within seven (7) days of Contract Award.

1.10 CONTRACTOR USE OF PREMISES

- .1 Co-ordinate use of premises under direction of Owner.
- .2 Protect existing structures from damage during the course of work.
- .3 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Engineer.
- .4 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.11 EXISTING SERVICES

- .1 Notify Engineer and utility companies of intended interruption of services and obtain required permission.
- .2 Establish location and extent of service lines in area of work before starting Work. Notify Engineer of findings which conflict with scope of work.
- .3 Where unknown services are encountered, immediately advise Engineer and confirm findings in writing.
- .4 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .5 Record locations of maintained, re-routed and abandoned service lines.
- .6 Construct barriers around existing services as necessary.

1.12 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings, Specifications and any Addenda.
 - .2 Change Orders and other Modifications to Contract.
 - .3 Copy of Approved Work Schedule.
 - .4 Health and Safety Plan and Other Safety Related Documents.
 - .5 All regulatory permits required for the work.
 - .6 Associated Best Management Practices documentation.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Section 01 20 60 – Demolition of Structures

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 00 SUMMARY OF WORK
- .2 Section 01 35 29.06 HEALTH AND SAFETY REQUIREMENTS
- .3 Section 01 35 43 ENVIRONMENTAL PROCEDURES

1.2 SCOPE OF WORK

- .1 This sections refers to all demolition and removal of existing building fire protection system piping, fittings and equipment and any other items identified for removal in the course of completing float reconstruction work.

Part 2 Products

2.1 EQUIPMENT

- .1 Furnish all labour, materials, tools, plant and services required incidental to the completion to the full extent of the drawings and specifications for execution of all demolition salvage and protection work specified herein.

Part 3 Execution

3.1 REMOVAL OF DEMOLISHED MATERIAL

- .1 All materials, which are not to be salvaged for the Owner, shall become the Contractor's property and the Contractor must remove them from the site.
- .2 If not specifically identified, the Engineer shall decide as to which material shall be salvaged for the Owner and which shall become the property of the Contractor.

3.2 SALVAGED MATERIAL

- .1 Material to be salvaged for the Owner shall be stored as directed by the Engineer.
- .2 Remove items to be reused, stockpile and re-install as directed by Engineer.
- .3 Designate appropriate security resources/measures to prevent vandalism, damage and theft of salvaged items.
- .4 Contractor is responsible for lost, stolen or damaged materials.

3.3 PROTECTION OF STRUCTURES TO REMAIN

- .1 Protect remaining structural elements, services and equipment against damage from demolition works.
- .2 Contractor is liable for any damage caused to structures not specified for removal as a result of completing work.

3.4 SERVICES

- .1 All services that must be removed from existing structures in order to perform work must be removed so as not to damage them.
- .2 All service materials including miscellaneous hangers, fasteners and supplies required to reinstall the services shall be supplied by the Contractor and will be of equivalent quality to the new conditions of such materials being replaced.
- .3 All materials that are not reusable shall be disposed of by the Contractor.
- .4 The Contractor shall be responsible for the handling and storage of services lines, lamps standards and other equipment during construction. All materials damaged by the Contractor shall be replaced at the Contractor's expense.

3.5 CLEANING AND RESTORATION

- .1 Keep site clean and organized throughout demolition procedure.
- .2 Upon completion of project or as appropriate, walkways, light standards, electrical and water services and other items affected by Work to condition which existed prior to beginning of Work.

END OF SECTION

Section 01 35 29.06 – Health and Safety Requirements

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 00 SUMMARY OF WORK
- .2 Section 01 20 60 DEMOLITION OF STRUCTURES
- .3 Section 01 35 43 ENVIRONMENTAL PROCEDURES

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
- .4 Province of British Columbia
 - .1 Workers Compensation Act, RSBC 1996 - Updated 2012.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operations.
- .2 Submit 3 copies of Contractor's authorized representative's work site health and safety inspection reports 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 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative 5 days after receipt of comments from Departmental Representative.

- .7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.4 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Contractor shall be responsible and assume the Principal Contractor role for each work zone location and not the entire complex. Contractor shall provide a written acknowledgement of this responsibility within 3 weeks of contract award.
- .3 Work zone locations include:
 - .1 Port Edward Small Craft Harbour.
- .4 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.5 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.6 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.7 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 Port Edward Harbour Authority.

1.8 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.9 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to 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.

1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Workers Compensation Act, B.C. Reg.
- .2 Comply with R.S.Q., c. S-2.1, an Act respecting Health and Safety, and c. S-2.1, r.4 Safety Code for the Construction Industry.
- .3 Comply with Occupational Health and Safety Regulations, 1996.
- .4 Comply with Occupational Health and Safety Act, General Safety Regulations, O.I.C.
- .5 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.11 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of the Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise the Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of the Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.12 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities associated with.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

1.13 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of the Province having jurisdiction, and in consultation with Departmental Representative.

1.14 CORRECTION OF NON-COMPLIANCE

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

1.15 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Section 01 45 00 – Quality Control

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Not Used.

1.2 REFERENCES

- .1 Construction General Conditions

1.3 INSPECTION

- .1 Refer to Construction General Conditions for stipulated interpretation.
- .2 Allow Owner access to Work. If part of Work is in preparation at locations other than Place of Work; allow access to such Work whenever it is in progress.
- .4 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals.
- .5 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .6 Owner will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

- .1 Refer to Construction General Conditions for stipulated interpretation.
- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Owner it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by The Engineer.

1.7 REPORTS

- .1 Submit 4 copies of inspection and test reports to Owner.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Section 21 05 05 – Fire Protection

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 00 SUMMARY OF WORK
- .2 Section 01 20 60 DEMOLITION OF STRUCTURES
- .3 Section 01 35 43 ENVIRONMENTAL PROCEDURES
- .4 Section 01 45 00 QUALITY CONTROL

1.2 REFERENCES

- .1 National Fire Protection Association (NFPA)
 - .1 NFPA13-[2007], Standard for the Installation of Sprinkler Systems.
 - .2 NFPA 25-[2011], Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
- .1 Underwriter's Laboratories of Canada (ULC)
 - .1 CAN4 S543-[M1984], Standard for Internal Lug Quick Connect Coupling for Fire Hose.

1.3 SCOPE OF WORK

- .1 This section refers to the furnish of all permits, materials, labour and miscellaneous equipment necessary for the installation and repairs of the building fire protection systems as specified in Section 01 11 00 SUMMARY OF WORK.

1.3 QUALITY ASSURANCE

- .1 QUALIFICATION OF THE CONTRACTOR
 - .1 The Contractor shall be a qualified installation company whose employees are familiar with the installation of materials as specified. List of past installation to be submitted with tender.
 - .2 Supply grooved joint couplings, fittings, valves, grooving tools and specialties from a single manufacturer. Use date stamped castings for coupling housings, fittings, valve bodies, for quality assurance and traceability.
- .3 AUTHORITIES AND AGENCIES

All work is to be installed to the approval or acceptance of the following:

- a) Small Craft Harbours
- b) Local Authorities
- c) Fire Department

1.4 SUBMITTALS

.1 Product Data:

- .1 Provide manufacturer's printed product literature and data sheets for equipment and systems, applicable series designation or style and include product characteristics, performance criteria, physical size, finish and limitations.

.2 AS-BUILT DRAWINGS

- .1 Record in red pencil daily as the work proceeds, on one (1) set of white prints, all deviations from the original contract drawings. Record items of importance to future operations and maintenance, and to future alterations and additions, including all access panel and drain locations.

Keep "As-Build drawings" neat and legible and on site available for review at any time. At completion of all work and after verifications by the Contractor of the "as-built" conditions, submit the "As-Built drawings" to the Owner.

.3 PRESSURE TEST CERTIFICATES

- .1 Upon completion of all pressure tests and before the substantial completion inspection, submit four (4) completed copies of the "Contractor's Material and Test Certificate" to the Consultant. (Copy of the form included in Appendix 'A')

.4 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Materials: Provide spare sprinklers and tools in accordance with NFPA 13.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

Part 2 Products

2.1 MATERIALS

- .1 All materials, equipment, valves and devices installed and/or furnished under this section shall be new and be listed and/or approved for use in fire protection installations by the following authorities:
 - a) Underwriters' Laboratories of Canada (ULC);
Or, if not available
 - b) Underwriters' Laboratories Inc. (UL);
 - c) Factory Mutual Engineering Association.

- .2 PIPE, FITTINGS AND VALVES
 - .1 Pipe:
 - .1 Ferrous: to NFPA 13.
 - .2 Fittings and joints to NFPA 13:
 - .1 Ferrous: roll grooved.
 - .1 *Grooved joints designed with two ductile iron housing segments, flush seal gasket for dry service, and zinc-electroplated steel bolts and nuts. Cast with offsetting angle-pattern bolt pads for rigidity and visual pad-to-pad offset contact.*
 - .3 Auxiliary valves:
 - .1 ULC listed for fire protection service.
 - .2 Up to NPS 2: bronze, screwed ends, grooved, OS
 - .3 Swing or spring-actuated check valves.
 - .4 Ball drip.
 - .5 Tamper devices wired back to fire alarm panel.
 - .4 Pipe hangers:
 - .1 ULC listed for fire protection services.

- .3 SPRINKLER HEADS
 - .1 General: to NFPA 13 and ULC listed for fire services.

- .4 DRY PIPE VALVE
 - .1 ULC listed.
 - .2 Cast or ductile iron, flanged or grooved end type, sized to suit water main.
 - .3 Components:
 - .1 Accelerator.
 - .2 Air maintenance device with low pressure alarm.
 - .3 Alarm pressure switch with supervisory capability.
 - .4 Pressure gauges.
 - .5 Drain valve.

- .6 Test valve with associated piping.
- .7 Shut off valve - OS
- .4 Provide valve complete with internal components that are replaceable without removing valve from installed position.
- .5 HANGERS, SEISMIC SWAY-BRACING & PIPING RESTRAINTS
 - .1 Hangers and seismic sway bracing and piping restraints shall conform to current NFPA No. 13.
- .6 ACCESS PANELS
 - .1 Install access panels as required at control and drain valve locations. Manufactured type and style to suite structural conditions. Size to be as required for intended use (i.e. hand only or full access). Access panels to be painted fire red.

Part 3 Execution

3.1 GENERAL

- .1 INSTALLATION
 - .1 Install, Inspect and test to acceptance in accordance with NFPA 13 and NFPA 25.
- .2 IDENTIFICATION
 - .1 Provide control valves and drains with factory produced lamicaid identification tags. All standpipe risers and equipment to be painted fire red.
- .3 DRAINS
 - .1 System and auxiliary drains shall be piped to drainage systems and/or to a point where they are easily accessible and equipped with valve, nipple and cap. Access panels are to be provided where necessary.

A copy of the location and size of all drains and low points on all systems must be submitted with the as-built drawings.
- .4 CLEANING
 - .1 Maintain the work in a tidy condition and free from the accumulation of waste products and debris. Material accumulated by cutting and opening up shall be removed as work is performed.

Unless otherwise noted, all equipment demolished or removed and not to be handed over to the Owner shall become the property of the Contractor and removed from the site.

.5 TESTING OF PIPING

- .1 Contractor shall hydrostatic pressure test the piping system as required by the Contractors Material & Test Certificate. Prior to pressure test, flush all piping in accordance with NFPA No. 13 to ensure removal of all foreign material and debris within the system. These tests shall involve the local Fire Department and be witnessed by the Owner or his representative.

Any leaks found as a result of this testing shall be repaired by the Contractor.

.6 INSPECTIONS AND TESTS

- .1 The Contractor shall provide field labour and equipment to facilitate all inspections, examinations and tests required by the authorities and/or agencies specified under Section 1.3.2 of the specifications, as necessary, to obtain complete interim and final acceptance of the fire protection system.

The tests required shall be in the presence of representatives of the agencies having jurisdiction.

.7 PLACING IN SERVICE

- .1 When the entire fire protection system has been completed to the satisfaction of the Owner, the Contractor shall demonstrate the complete operation and maintenance required to the Fire Department designated personnel and obtain their acceptance.

END OF SECTION