

PART 1 - GENERAL

- 1.1 Reference Standards .1 American Society for Testing and Materials International (ASTM)
- .1 ASTM A53/A53M-18, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - .2 ASTM A307-14, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
 - .2 ASTM F3125-18 (or latest edition), Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.
- .2 Canadian General Standards Board (CGSB)
- .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
- .1 CSA-G40.20-13/G40.21-13 (of latest edition), General Requirements for Rolled or Welded Structural Quality Steel / Structural Quality Steel.
 - .2 CSA G164-18 (or latest edition), Hot Dipped Galvanizing of Irregularly Shaped Articles.
 - .3 CSA-S16.1-14 (or latest edition), Design of Steel Structures.
 - .4 CSA W48-18, Filler Metals and Allied Materials for Metal Arc Welding.
 - .4 CSA W59-18 (or latest edition), Welded Steel Construction (Metal Arc Welding).
- 1.2 Shop Drawings .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Indicate materials, core thicknesses, finishes, connections, joint, method of anchorage, number of anchors, supports, reinforcement, details and accessories.
- 1.3 Quality Assurance .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with

specified performance characteristics and criteria and physical requirements.

PART 2 - PRODUCTS

- 2.1 Materials
 - .1 Steel Sections (including HSS): to CAN/CSA-G40.21, Grade 350W.
 - .2 Steel plate and angles: to CAN/CSA-G40.21, Grade 300W or better.
 - .3 Welding materials: to CSA W59.
 - .4 Welding Electrodes: to CSA W48 series.
 - .5 Bolts: to ASTM F3125 Grade A325
 - .6 Anchor bolts: to ASTM A307
 - .7 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CSA G164.
 - .8 Zinc primer: Zinc rich, ready mix to CGSB 1-GP-181.
 - .9 All materials for underwater welding to meet AWS D3.6M - Specification for Underwater Welding.
- 2.2 Fabrication
 - .1 Build work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
 - .2 Fabricate items from steel unless otherwise noted.
 - .3 Where possible, fit and shop assemble work, ready for installation.
 - .4 Ensure exposed welds are continuous for length. All members to be seal welded. File of grind welds smooth after fabrication.
- 2.3 Finishes
 - .1 Steel members to be encased in concrete pile jackets to be left bare steel (un-painted and un-galvanized). Hot dip galvanize all other items to CSA G164, unless noted otherwise.
- 2.4 Miscellaneous
 - Metal Work Items
 - .1 Miscellaneous anchors, bolts and inserts:
 - .1 Where size, spacing and the like are not indicated, provide as necessary for the purpose.

- .2 Galvanize all miscellaneous anchors, bolts and inserts.

PART 3 - EXECUTION

3.1 Erection

- .1 Install metalwork square, plumb, straight and true, accurately fitted, with tight joints and intersections.
- .2 Make field connections with bolts to CAN/CSA-S16.1, or as otherwise shown on drawings.
- .3 Do welding work in accordance with CSA W59 unless specified otherwise. All underwater welding to be carried out in accordance with AWS D3.6M - Specification for Underwater welding.
- .3 Touch-up bolts and scratched surfaces of galvanized items after completion of erection with zinc primer, minimum of two coats.
- .4 Touch-up painted surfaces damaged during transportation and installation with coating to match factory or shop applied finishes.
- .5 Exposed fastening devices to match finish and be compatible with materials through which they pass.
- .6 Weld steel bearing plates to H-Piles at sound steel having a minimum remaining thickness of 12.5mm.

END OF SECTION

PART 1 - GENERAL

- | | | | |
|-----|-------------------|----|---|
| 1.1 | Description | .1 | This section specifies requirements for the supply and installation of structurally reinforced concrete pile jackets as indicated. |
| 1.2 | Shop Drawings | .1 | Submit shop drawings in accordance with Section 01 33 00. |
| | | .2 | Indicate materials, core thicknesses, finishes, connections, joint, method of anchorage, number of anchors, supports, reinforcement, details and accessories. |
| | | .3 | Indicate method of supporting formwork system during concrete placement and curing. |
| | | .4 | Submit manufacturer technical data sheets for pre-engineered formwork, items, or assemblies. |
| | | .5 | Concrete mix design and pre-construction test results shall be submitted for Departmental Representative review prior to starting work. Mix design shall be stamped by a Professional Engineer registered to practice in the province of Nova Scotia. |
| 1.3 | Quality Assurance | .1 | Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties. |
| | | .2 | Shrinkage compensating concrete shall be tested for all pours. |

PART 2 - PRODUCTS

- | | | | |
|-----|-----------|----|---|
| 2.1 | Materials | .1 | Proportion concrete in accordance with section 03 37 26 - Underwater Concreting. |
| | | .2 | Materials used during installation shall comply with the manufacturer printed specifications for the pile jacket form system selected. Stop work and notify Departmental Representative if manufacturer specifications differ from concrete specifications included in this specification. Do not proceed until instructed in writing by the Departmental Representative. |
| | | .3 | Contractor shall coordinate with pile jacket form manufacturer to determine materials and procedures to be used for spacers, plumbing ports, and seals for system. |

- 3.1 Cleaning
- .1 Clean entire surface of piles where concrete pile protection jackets are to be installed.
 - .2 Clean surfaces of piles by wire brushing and high pressure jetting ensuring that all debris and marine growth are completely removed.
 - .3 If more than 48 hours have elapsed between cleaning and installation of the jackets, clean surfaces again with high pressure jetting.
 - .4 If manufacturer specifications have more stringent requirements, they shall be followed in lieu of those listed in this section.
- 3.2 Execution
- .1 Follow the manufacturer printed specifications for the installation of pile jackets and form systems.
 - .2 Any sagging or deformation of the pile jacket during installation will require replacement or repair at no additional cost to the Departmental Representative. The contractor shall consult with the Departmental Representative during this process.

END OF SECTION