

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Section 01 33 00 - Submittal Procedures. |
| | .2 | Section 05 51 00 - Pile Protection. |
| <u>1.2 REFERENCES</u> | .1 | American Society for Testing and Materials International, (ASTM)
.1 ASTM A 53/A53M-latest edition, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
.2 ASTM A 269-latest edition, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
.3 ASTM A307-latest edition, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength. |
| | .2 | Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.40-latest edition, Anti-corrosive Structural Steel Alkyd Primer.
.2 CAN/CGSB-1.181-latest edition, Ready-Mixed, Organic Zinc-Rich Coating. |
| | .3 | Canadian Standards Association (CSA International)
.1 CAN/CSA-G40.20/G40.21-latest edition, General Requirements for Rolled or Welded Structural Quality Steel.
.2 CAN/CSA-G164-latest edition, Hot Dip Galvanizing of Irregularly Shaped Articles.
.3 CAN/CSA-S16.1-latest edition, Limit States Design of Steel Structures. |

.4 CSA W48-latest edition, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-latest edition, Welded Steel Construction (Metal Arc Welding).

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 Shop Drawings:
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 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.

<u>1.5 DELIVERY, STORAGE, AND HANDLING</u>	.1	Packing, Shipping, Handling and Unloading: .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
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PART 2 - PRODUCTS

<u>2.1 MATERIALS</u>	.1	Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W or better.
	.2	Welding materials: to CSA W59.
	.3	Welding electrodes: to CSA W48 Series.
	.4	Bolts and anchor bolts: to ASTM A 307.
	.5	All materials for underwater welding to meet the "Specification for Underwater Welding" - AWS D3.6M.

<u>2.2 FABRICATION</u>	.1	Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
	.2	Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
	.3	Where possible, fit and shop assemble work, ready for erection.
	.4	Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Steel members to be encased in concrete pile jackets to be left unpainted.

PART 3 - EXECUTION

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise. All underwater welding work to be carried out in accordance with AWS D3.6M - "Specification for Underwater Welding".
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .4 Make field connections with bolts to CAN/CSA-S16.1, or weld as shown on drawings.
- .5 Hand items over for casting into concrete to appropriate trades together with setting templates.
- .6 Weld steel bearing plates to H piles at sound steel having a minimum remaining thickness of 12.5mm.

3.3 CLEANING

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

PART 1 - GENERAL

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| <u>1.1 DESCRIPTION</u> | .1 | This section specifies requirements for the supply and installation of structurally reinforced concrete pile jackets as indicated. |
| <u>1.2 SUBMITTALS</u> | .1 | Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. |
| | .2 | Indicate materials, thickness, finishes, connections, details and accessories. |
| | .3 | Indicate method of supporting form system during grout/concrete placement and curing. |
| | .4 | Provide manufacturer's technical sheets. |
| | .5 | Contractor shall submit grout/concrete mix design for review and approval prior to start of work. Mix design shall be sealed by a professional engineer registered to practice in the province of Nova Scotia. |
| <u>1.3 QUALITY ASSURANCE</u> | .1 | Shrinkage compensating grout/concrete shall be strength tested:
.1 For all pours. |

PART 2 - PRODUCTS

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| <u>2.1 MATERIAL - JACKET</u> | .1 | Materials used during installation shall comply with the manufacturer's specifications for the pile jacket form system selected. |
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- .2 Proportion shrinkage compensating grout/concrete mix in accordance with CSA A23.1-14 to give following properties:
 - .1 Minimum compressive strength at 28 days: 35 MPa.
 - .2 Class of exposure: C-1.
 - .3 Admixture: quantity to manufacture's recommendations.
 - .4 Do not use calcium chloride or products containing calcium chloride in concrete mix.
- .3 Contractor shall coordinate with pile jacket manufacture to determine materials and procedure to be used for spacers, pumping ports, and bottom seal for form system.

PART 3 - PRODUCTS

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's specifications have more stringent requirements, they shall be followed in lieu of those listed in this section.

3.2 EXECUTION

- .1 The manufacturer's guidelines shall be followed for the installation of pile jackets/form system.

- .2 Any sagging or deformation of the pile jacket during installation will require replacement or repair at no cost. The contractor shall consult with the Departmental Representative during this process.