

PART 1 - GENERAL

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| <u>1.1 DESCRIPTION</u> | .1 | The work under this section will include the supply and fabrication of timber floating wavebreaks, complete with polystyrene billets, miscellaneous connectors and fasteners and all associated timber members. |
| <u>1.2 MEASUREMENT FOR PAYMENT</u> | .1 | No separate payment will be made under this section. Include all cost in bid item located in Section 35 51 24, Floating Wavebreak Installations. |
| | .2 | Acceptably constructed floating wavebreaks will include the supply and construction of all timber components, bolts, lag screws, washers, spikes, polystyrene, wavebreak connectors, pressure treatment, fasteners, steel sections, concrete anchors and all other items necessary to complete the work as specified in this contract or as shown on the drawings. |
| <u>1.3 RELATED WORK</u> | .1 | Section 03 30 00: Cast-in-Place Concrete |
| | .2 | Section 05 50 00: Miscellaneous Metals |
| | .3 | Section 06 30 00: Preservative Treatment of Timber |
| | .4 | Section 35 51 24: Wavebreak Installations |
| <u>1.4 DIMENSIONS</u> | .1 | Construct and install dimension timber, to dimensions indicated on drawings. |
| | .2 | Check dimensions before commencing work and report discrepancies to Departmental Representative in writing. |
| <u>1.5 SHOP DRAWINGS</u> | .1 | Submit shop drawings as per Section 03 30 00. |

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Timber:
 - .1 Species (to CAN3-086-M80):
 - .1 Treated - Douglas Fir, Pacific Coast Hemlock or Eastern Hemlock.
 - .2 Grade: No. 1 structural
 - .3 Grading Authority: NLGA
 - .2 Preservative Treatment: All timber will be treated in accordance with Section 06 30 00.
 - .3 Machine bolts, lag screws, nuts, washers, spikes, inter float connectors, etc.: All anchorage fasteners used in the work will be as specified in Section 05 50 00.
- .2 Polystyrene:
 - .1 Billets shall have an average density 24 kg/cu.m. and a minimum compressive strength of 0.11 MPa (Value at yield or 10% deflection whichever occurs first, to ASTM D1621-73). Maximum water absorption, 4.0% by volume to ASTM D2842-69.
- .3 Galvanizing:
 - .1 All bolts, anchors, nuts, lag screws, plates, washers, spikes, pipes, angles, HSS sections, straps, channels, bars, etc., shall be hot dipped galvanized in accordance with Section 05 50 00.
- .4 Rubber Units for Inter Float Connections: 178 mm x 254 mm x 200 mm marine engineered rubber. Weight: 57.3 kg/m. Reaction: 119 tonne/m. Energy: 4.5 tonne/m.
- .6 Metals in accordance with Section 05 50 00.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Install fasteners in accordance with Section 05 50 00.
- .2 Do installation of dimension timber to CSA 086-M84.
- .3 Pre-cut timber prior to preservative treatment.
- .4 Ensure that all timber, including any blocking fillers are straight, true, square and fit neatly to abutting surfaces.

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- .5 Bore holes for machine bolts to same diameter as bolts.
- .6 Countersunk machine bolts where required as detailed on Plan.

3.2 HANDLING TREATED TIMBER

- .1 Handle treated material to avoid damage causing alteration in original treatment.
- .2 Treat in field, cuts and damage to surface of treated material with appropriate preservative as described in CSA 080-M1983.
- .3 Ensure that all holes, cuts and damaged areas are thoroughly saturated with field treatment solutions as per CSA 080-M1983.

3.3 FLOATING WAVEBREAK CONSTRUCTION

- .1 Install machine bolts in accordance with Section 05 50 00.
- .2 Standard plate steel washers suitable for the sizes of the bolts specified will be placed under the heads and nuts of all machine bolts bearing on timber surfaces, except where specified otherwise.
- .3 All timber components are to be secured using 19 mm machine bolts as indicated on the plan, unless otherwise noted.
- .4 Secure 50 mm x 150 mm x 2640 mm timber straps, on top and bottom of every billet, as indicated on the plan.
- .5 Install the polystyrene billets in each bay as indicated on the plan.
- .6 Secure 200 mm x 200 mm x 455 mm long mooring posts with two (2) 37 mm diameter machine bolts, in pipe sleeves through the sheathing and 200 mm x 200 mm x 2280 mm long posts.
- .7 Every piece of 100 mm thick x 150 mm wide sheathing is to be attached to the 200 mm x 200 mm x 2280 mm long posts with 19 mm machine bolts, and staggered across the face of the wavebreak as to avoid having joints align.

- .8 Secure 100 mm x 200 mm brace to the 200 mm x 200 mm x 2280 mm long posts and to the 200 mm x 200 mm x 455 mm long block using 19 mm machine bolts.
- .9 200 mm x 200 mm x 1220 mm long spacers are to be bolted through the deck timbers and the 200 mm x 200 mm x 6100 mm long timbers, using 19 mm diameter machine bolts.
- .10 Inner float connections are to be secured in place at the locations shown on the plan, with 19 mm diameter machine bolts, long enough to accommodate two nuts, as shown on the detail.
- .11 200 mm x 200 mm deck timbers are to be bolted through the 200 mm x 200 mm x 6100 mm long timbers as shown on the plan.