

PART 1 - GENERAL

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| <u>1.1 REFERENCES</u> | .1 | American Association of State Highway and Transportation Officials (AASHTO). |
| | .1 | AASHTO M180, Corrugated Sheet Steel Beams for Highway Guardrails. |
| | .2 | American Society for Testing and Materials (ASTM) |
| | .1 | ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products. |
| | .2 | ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process. |
| | .3 | Canadian Standards Association (CSA). |
| | .1 | CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles. |
| <u>1.2 MEASUREMENT FOR PAYMENT</u> | .1 | <u>Guiderail</u> : will be measured by the linear metre of guiderail installed in the work, including all plant, equipment and labour. Include all costs in the unit price, including but not limited to, guiderail W-sections, W-section posts, end sections, base plates and bolts. |

PART 2 - PRODUCTS

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| <u>2.1 RAIL SECTIONS AND POSTS</u> | .1 | The rail elements shall consist of a corrugated steel W-beam with corrugations symmetrical about the horizontal axis and such that the edges and centre of the rail element may contact each post. |
| | .2 | The individual rail elements shall be of the Standard Type (W-beam) consisting of 2.75 mm thick (12 gauge) rail of length not less than required to span between steel supports spaced as per drawings. |
| | .3 | The rail metal shall be open hearth oxygen furnace or electric furnace steel having an elongation of not less than 12 per cent in 50 mm and shall withstand a cold bend, without |

cracking, of 1800 around a mandrel of a diameter equal to $2 \frac{1}{2}$ times the thickness of the plate.

- .4 The rail elements shall be hot-dip galvanized before or after fabrication. In accordance with the specifications of ASTM Designation A-515 (Class $2 \frac{1}{2}$ oz) or A123.
- .5 Rail element joints shall be capable of withstanding a tensile load of not less than 350 kN without failure. The rail element shall not deflect more than 140 mm when tested as a simple beam with the traffic face up and with an 8.9 kN load applied at the centre of a 3650 mm span through a 76 mm wide flat bearing.
- .6 Workmanship shall be equivalent to good commercial practice and all edges, bolt holes and surfaces shall be free of torn metal, burns, sharp edges and protrusions.
- .7 Rail sections and all components for a complete installation shall be supplied by the contractor.
- .8 Two certified copies of mill test reports of each batch from which the rail element is formed, shall be furnished to the Departmental Representative, if so required.
- .9 Posts to be standard W-section, galvanized, as noted on the drawings. Base plate and connection of posts to top of retaining wall, as per drawings.
- .10 Bolts, Nuts, Washers:
 - .1 All bolts, nuts and washers shall conform to the specifications of ASTM Designation A-307 or A-325, except that rail splice bolts shall be button headed.
 - .2 Post bolts and splice bolts shall have shoulders of such shape and size that they fit into the bolt slots in the rails and thus prevent the

bolt from turning.

.3 Post bolts and washers shall be supplied to fit in accordance with manufacturer's recommendations. Bolts, nuts, washers and other fittings shall be hot-dip galvanized in accordance with the specification of ASTM Designation A-153.

PART 3 - EXECUTION

3.1 INSTALLATION

- .1 Galvanized materials shall be loaded, hauled and handled in such manner that galvanizing will not be damaged. All bare, abraded, and damaged surfaces shall be cleaned, pre-treated if required and coated with cold galvanizing compound.
- .2 All posts shall be set plumb and to the established lines and grades and shall be placed as per drawings.
- .3 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc rich paint to damaged areas. Pre treat damaged surfaces according to manufacturer's instructions for zinc rich paint.
- .4 Silver signal reflectors to be installed on guiderail posts, sized 75mm x 100mm. Provide attachment details acceptable to Departmental Representative.