551- STEEL BOX BEAM BARRIER OPSS 551

551.1 General

Recognizing the fact that guide rail itself is a roadside hazard, the basic principle should be to avoid or minimize its necessity by:

- flattening side slopes
- altering geometric design
- removing hazards within the design critical range
- considering breakaway bases when poles are required

Only when design adjustments are technically not feasible or economically unjustified should the use of guide rail be considered.

The basic criteria controlling the design of guide rail systems with regard to efficiency are as follows:

(a) the barrier must be positive, i.e., it must prevent the vehicle from entering the hazardous area.

(b) the impacting vehicle must be re-directed parallel to the barrier so as not to interfere with other traffic.

(c) vehicle-barrier interaction must be such that minimum injury is sustained by the occupants.

On the basis of dynamic testing and operational experience the guide rail systems in this and the following sections satisfy the above criteria:

551.2 Steel Box Beam Guide Rail

Steel Box Beam Guide Rail and Steel Box Beam Barrier consist of the galvanized Steel Box Beam, Steel Post, and the required hardware such as Splice Plates, Nuts and Bolts.

The end treatment of the system is anchored by anchor blocks

For warrants in choosing the appropriate length of guide rail and/or barrier consult the Traffic Barrier Manual and the appropriate Ontario Provincial Standards in the 900 series of the Ontario Provincial Standards Drawing Manual.

551.3 Tender Items

- Steel Box Beam Guide Rail
- Steel Box Beam Median Barrier
551.4 **Specifications**

The requirements for Steel Box Beam Guide Rail and/or Median Barrier are contained in OPSS 551

**Special Provisions**

The designer should refer to chapter ‘E’ of this Manual to review the applicable special provisions.

551.5 **Standard Drawings**

Applicable standard drawings are contained in the 900 series of the Ontario Provincial Standard Drawings Manual.

551.6 **COMPUTATION**

This is a Plan Quantity Payment Item.

Quantities will be computed in metres, or scaled from centre to centre of the anchor blocks horizontally along the centre line of the steel Box Beam Guide Rail.

551.7 **DOCUMENTATION**

- Steel Box Beam Guide Rail quantities, scaled from plans will be entered onto the Quantities Miscellaneous 2 sheet showing station to station and location with offset if required.
- A separate column entry should document flared end treatment depicting station to station, location and the total from the above are to be transferred to the tender document.

The guide rail is depicted on the contract drawing with the Ontario Provincial Standards (OPS) number shown adjacent to the symbol.

**Note:** Guide Rail End treatment structure anchorage should depict the appropriate OPSD number.

**Documentation Accuracy**

Station and quantity entries are recorded to the nearest whole metre.

Offsets are only recorded when the installation is not according to standard drawings to 0.1 of a metre.
eg. When steel box beam guide rail is to be mounted beside a curb and gutter the appropriate offsets should be documented in the contract drawings.

Spot checking required.