

Special conditions of Contract for Metal Beam Fencing Work

- 1- All steel members shall be as per specification of approved drawing. Railing posts and W- beam shall be made of steel of the section, weight and length as per specification of IS code mentioned in the drawing.
- 2- All complete steel rail elements, terminal sections, posts, bolts, nuts, hardware, "W" beam section and other steel fittings shall be hot dip galvanized as per specified in drawing. All elements of the railing shall be free from abrasions, rough or sharp edges and shall not be kinked, twisted or bent. Damaged galvanized surfaces, edges of holes and ends of steel sections cut after galvanizing shall be cleaned and re-galvanized as per instruction of site in charge. The "W" beam, the posts, spacers and fasteners for steel barriers shall be galvanized by hot dip process (zinc coated, 0.55 kg per square meter; minimum single spot) unless otherwise specified. The galvanizing on all other steel parts shall conform to the relevant IS Specifications. All fittings (bolts, nuts, washers) shall conform to the IS:1367 and IS:1364. All galvanizing shall be done after fabrication.
- 3- The "W" beam type safety barrier shall consist 2 mm thick "W" beam as per IS: 5986 grade-205 or equivalent rail element erected on channel steel post as per approved drawing's specification. The end part of "W" corrugation should be equal to or less than the total depth of "W". The vertical steel channel post section should be 150 mm x 75 mm x 4 mm thick as per IS: 5986 grade -355 or equivalent as specified in the approved drawing. The steel post shall be 1.50 m above the ground level & 1.2 m below the ground level and posts shall be spaced as per approved drawings and as per site requirements and instruction of site in- charge. The "W" beam barrier shall be fixed as indicated in the approved drawing.

4. Technical Requirements

Components of Metal Crash Barriers

W Beams

W beams should be 2 mm thick corrugated sheet as specified in the drawing. Raw material conforming to IS 5986 grade - 205 or equivalent. Hot dip galvanized minimum of 550 gm/sq.m thickness on all surfaces as per IS: 4759 as per specification of drawing.

Posts

Raw material conforming to IS: 5986 grade - 355 or equivalent. Hot dip galvanized minimum of 550 gm/sq.m thickness on all surfaces as per IS: 4759.

Fasteners

M20 and M16 fasteners as per IS 1367 Grade 4.6/8.8 and Hot dip galvanized as per S: 4759.

5- QUALITY ASSURANCE Railway reserves the right to inspect the materials prior to dispatch from the factory and lab test (From NABL approved Lab) as per instruction of Engineer In charge.

B. CONSTRUCTION OPERATIONS

1. The line and grade of railing shall be true to that shown on the drawing. The railing shall be carefully adjusted prior to fixing in place, to ensure proper matching at abutting joints and correct alignment and camber throughout their length. No site holes to be done which may damage the galvanizing.

2. Splices and end connections shall be of the type and designs specified as shown on the drawing and shall be of such strength as to develop full design strength of the rail elements.

C. INSTALLATION OF POSTS

1. Insertion of post below G.L. may be adopted by the three processes as per site feasibility and Approved Drawing i.e.by Driven Mechanism By Hand or mechanical operated Auger of diameter of 0.30 meter by Open Excavation process Note:

a) The rates for the insertion of posts by the above mentioned three processes are Inclusive in item rates, no any extra payment will made for any other type of insertion activity.

b) Concrete will be paid extra in the relevant items as per instruction of engineer in-charge and shuttering will be paid only where open excavation is done as per site conditions.

2. Holes shall be drilled to the depth indicated on the plans and only drilled holes are permitted as per drawing, no hole by punching in sheets/members is allowed. Posts to be driven by approved methods, equipment and machinery and are to be erected in proper position and should be free from distortion and burring or any other damage. The diameter of Hand Auger used shall be 0.30 M, after placing of the post in position the hole shall be filled by the M 20 (1:1.5:3 Mix) CC and payment for the same will be made in the relevant item. Wherever it is not possible to drive the post due to soil condition the same should be

erected after making CC foundation M 20(1:1.5:3 Mix) CC or as advised by site engineer for stability of the foundation. The payment for the M 20(1:1.5:3 Mix) CC and the shuttering used shall be paid in the relevant item.

3. ERECTION All column rail anchors shall be set and attachments made and placed as indicated on the plans or as directed by the Engineer. All bolts or clips used for fastening the column rail or fittings to the posts shall be drawn up tightly as per drawing. Each bolt shall have sufficient length and at least 10 mm beyond the full nut, except where such extensions might interfere with or endanger movement nearby in which case the bolts shall be cut off flush with the nut. All railings shall be erected, drawn and adjusted so that the longitudinal tension will be uniform throughout the entire length of the rail. During erection and fixing, of column post. if it is required to increase the column height more than 2.70 M to negotiate the natural gradient, the additional length will be paid under relevant item, In any circumstances it is required to reduce the overall column height less than 2.70 M the same will be recovered as per rate of relevant item. The anti-theft arrangement on fittings and fastenings should be provided as per the direction of Engineer in-charge.

4. TOLERANCE

a. The railing barrier shall be erected true to line and grade as per specification of approved drawing.

5. MEASUREMENTS FOR PAYMENT

a) Metal beam railing barriers will be measured by linear metre of completed length as per plans and accepted in place.

b) No extra measurement for payment will be made for backfilling performed in connection with this construction.

c) All the excavation & backfilling activity is inclusive in the rate of NS item itself.

d) Nothing shall be paid for leveling of ground for locations where W-beam type fencing is to be constructed without prior approval of Engineer-in charge.

D. RATE

The item rate should include with materials, labours, lead, lift, loading, unloading, Tools and plants, all taxes, site cleaning, bush cutting, preparation of approach path, manual carting of materials due to unavoidable site requirement, etc with contractors own materials and labours necessary for doing all the work involved in constructing the metal beam railing

barrier complete in place in all respects as per the Specifications. Work will be carried out as per direction and instruction of Engineer in charge of work/ Engineer representative. (No any extra payment shall be paid by Railway).

E. Progress of work should be maintained as per mentioned below: -

1. Drone survey should be conducted as required as per instruction of engineer in-charge for monitoring of progress of the work. Drone report should be submitted in hard/soft copy as per instruction of engineer in-charge. No extra payment shall be paid for this activity.

2. Contractor **is bound to achieve physical progress of work within stipulated time.**

F. The entire work covered under the scope of this tender shall be carried out in accordance to, NER Headquarters letter No CE/NER/track circular/2007/pt-ii/W-4A/dated 11.04.22 (attached with tender schedule) for procedure for ensuring safety at work site. At no cost the safe movement of trains shall be compromised to during the execution of the work and contractor shall be solely held responsible for any accidents arising out of noncompliance of safety instructions and shall be liable to pay for the damage to railway assets and other charges as applicable.

G. Special Conditions for works associated with S &T

1. All precautions have to be taken by the contractor to avoid damage to Railway assets, track, signalling and OHE gears while working & carting out materials. Contractor will be completely responsible for safety of materials and his labour.

2. The Cable Route Plans may be collected from concerned senior divisional engineer office.

3. Further, the contractor shall thoroughly scan the marked site selected for erection of crash barrier posts with the help of cable route tracer/ cable path finder having the capability to trace the cable at a depth of 5 meters at least (for example - Stanley meter STLOC3, STLOC10 or equivalent of similar features bearing meter) under supervision of S&T Staff to ensure that there are no cables buried under the marked location. No extra payment shall be admissible.

4. After scanning of cable is completed and contractor is sure not having any cables underneath the location, he shall carry out the drilling work.

5. However if after scanning, a cable is found laid underground in the route, the area should not be utilised for post erection and instead a new location nearby shall be selected within boundary wall range and procedure stated in Sr No 3 and Sr No 4 shall be followed again.

6. The Contractor has to ensure no trenching work is started before joint survey with signal department for tracing of cables and marking done. Contractor is liable to pay a penalty damaging the cable as per railway rules. Further, damage to any other railway assets, if any are liable to be recovered from the bills of the contractor at the prevailing market rates

H. Detailed action plan to be submitted contractor within 15 days after issuing of LOA.

J (1) During execution & fixing of channel post, it is required to increase the column height more than 2.70 mt. The additional length will be paid under this item. (by weight).

(2) In any circumstances it is required to reduce the overall column height less than 2.70 mt., the same will be recovered as per rate of relevant item.

(3) Any elements not described in item No. NS/1 but required during execution of work will be paid under item No. NS/2 of Schedule-B.