

E.10/4 : BALLASTING AND TAMPING

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1. SCOPE

This specification covers the work necessary for the offloading, distribution and tamping of ballast.

2. INTERPRETATIONS

2.1 SUPPORTING SPECIFICATION

2.1.1 Where this specification is required for a project, the following specifications, shall, inter alia, form part of the contract documents:

- a) The E.10 Gen - General
- b) The E.10/11 - Survey and setting out of track alignment and referencing

2.1.2 In addition the following specifications, inter alia, may be required:

- a) The E.10/2 - Laying of sleepers
- b) The E.10/9 - Slewing and alignment
- c) The E.10/10 - Drain cleaning

2.2 DEFINITIONS

Void.

3. MATERIALS

3.1 BALLAST SPECIFICATION

Ballast shall comply with Transnet specification S406.

3.2 SUPPLY OF MATERIAL

When the Contractor has any doubts as to the quality of the ballast in any truck, he shall not offload such truck unless the Engineer has inspected the ballast and issued the necessary instructions.

4. PLANT

Ballast forks only shall be used for handling ballast when ballast is distributed by hand.

5. CONSTRUCTION

5.1 GENERAL

Void.

5.2 SAFETY

Void.

5.3 PROGRAMME AND METHOD STATEMENT

Void.

5.4 METHODS AND PROCEDURES**5.4.1 TRANSPORT OF BALLAST.**

5.4.1.1 Should the Contractor be required to convey ballast by road, he shall provide the Engineer with a list of all lorries which he will use for the purpose. The list shall show the following:

- (i) The registration number of each lorry.
- (ii) The capacity of each lorry in m³ when loaded to the maximum allowable tonnage, and when loaded level to the top of the body.
- (iii) The dimensions of the body.

5.4.1.2 When a lorry is loaded at a ballast quarry, the Contractor shall enter in the book provided to the driver in accordance with clause 5.4.1 of specification E.10 Gen., in addition to the information listed in that clause, the quantity of ballast loaded as stated by the quarry official, and obtain his signature. The quarry official will retain the original sheet of each set of three.

5.4.2 BALLASTING

5.4.2.1 To avoid damage to new rails, the track shall be ballasted as soon as practicable after the rails have been laid.

5.4.2.2 The height that the track may be lifted in a single lift may not be greater than that which can be effectively tamped.

5.4.2.3 The Contractor shall not lift the track on open lines if such action will reduce the dimension Y and K in Annexure C sheet 2 of specification E.10 Gen. to less than the minimum shown in that Annexure, unless a speed restriction is in force in which case the ballast profile must conform to the C standard as per Annexure C sh. 2 of specification E.10 Gen. before the track is opened to traffic. The lift must preferably be done after new ballast has been offloaded.

5.4.2.4 Ballast shall not at any time be left mounded up higher than the underside of the crown of the running rail. On track-circuited sections, except at level crossings, the top of the ballast after trimming shall be level with the top of the sleeper.

- 5.4.2.5 Wheel flangeways between running rails and guard or check rails and between rails and points rails, shall be kept clear of ballast.
- 5.4.2.6 Care shall be taken that ballast is not wasted. Where specified in the Project Specification, shoulders of embankments shall be made up to the full width and height before ballast is offloaded.
- 5.4.2.7 On open lines the track shall be boxed in on completion of the day's work.
- 5.4.2.8 The Contractor shall be aware of the fact that unequally offloaded ballast wagons can cause derailments and shall therefore ensure that ballast is offloaded equally and simultaneously from both sides of ballast wagons.
- 5.4.2.9 Before a locomotive or railway vehicle is allowed on any track which has not been tamped, the Contractor shall pack all sleepers that are not properly supported.
- 5.4.2.10 The ballast required to achieve the desired quantity per kilometre shall be offloaded and the track lifted, tamped and aligned as soon as possible thereafter.
- 5.4.2.11 When approved by the Engineer, excess ballast may be distributed on the profile shoulders as follows:

Straight track:	Symmetrical
Curves	: To a maximum ballast width of 300 mm preference from the sleepers on the high leg, after which further excess is placed symmetrical.

- 5.4.2.12 The Contractor shall remove all ballast and muck spilled or deposited in the drains (concrete lined or earth) by his activities.

5.4.3 TAMPING

- 5.4.3.1 Each sleeper shall be tamped to the same degree of firmness. Sleepers shall be firmly tamped underneath the rails but only lightly tamped at the centre. Joint sleepers should be the last sleepers to be tamped. The ends of steel sleepers shall not be tamped until the track has been aligned properly.

5.5 STANDARDS

Void.

5.6 COMPLETION

Void.

6. TOLERANCES

Tolerances permissible for ballast stone and ballast profile will be as specified in specification E.10 gen, specification S406 and the Project Specification.

7. TESTING

The Contractor shall provide to the Engineer who may do random checks, the as built rail levels and dimensions of the ballast profile specified, before any length of track on which ballasting and tamping has been done is accepted.

8. MEASUREMENT AND PAYMENT

8.1 SCHEDULED ITEMS

8.1.1 Transport and distribute ballast with lorries Unit: ton

The mass of ballast transported with lorries and distributed will be measured. The mass will be taken from the weighbridge slips accompanying the lorries from which the ballast is offloaded.

8.1.1.1 Separate items will be scheduled for the following:

- a) New track.
- b) Existing track.
- c) Track in tunnels, on bridges, under bridges and at platforms.

8.1.1.2 The rates tendered shall include for the following:

- a) Transporting over free haul distance.
- b) Distributing ballast.
- c) Keeping the track clear of ballast.
- d) Ensuring that all drains are clear of ballast.

8.1.2 Offload and distribute ballast from wagons Unit: ton

The mass of ballast offloaded from wagons and distributed will be measured. The mass will be taken from the weighbridge slips accompanying the railway wagons from which the ballast is offloaded.

8.1.2.1 Separate items will be scheduled for the following:

- a) From hopper wagons.
- b) From drop-sided wagons.
- c) From other type wagons.
- d) New track.
- e) Existing track.
- f) Track in tunnels, on bridges, under bridges and at platforms.

8.1.2.2 The rates tendered shall include for the following:

- a) Offloading the ballast.
- b) Distributing the ballast.
- c) Keeping the track clear of ballast.
- d) Ensuring that all drains are clear of ballast.

8.1.3 Boxing in and trimming ballastUnit: m or km

The length of track boxed in and trimmed will be measured along the centre line of the track.

8.1.3.1 Separate items will be scheduled for the following:

- a) New track.
- b) Existing track.
- c) Track in tunnels and on bridges.

8.1.3.2 The rates tendered shall include for the following:

- a) Trimming the ballast to the profile specified.
- b) Clearing wheel flangeways of ballast.

8.1.4 Lift and tamp trackUnit: m or km

The length of track lifted and tamped will be measured along the centre line of the track.

8.1.4.1 Separate items will be scheduled for the following:

- a) The following different categories of total lift.
 - i) 0 mm - 20 mm
 - ii) > 20 mm - 100 mm
 - iii) > 100 mm - 200 mm
 - iv) > 200 mm - 300 mm
- b) New track.
- b) Existing track.
- c) Track in tunnels and on bridges.

8.1.4.2 The rates tendered shall include for the following:

Lifting and tamping to get the track to the correct level.