

Technical Specification

T0434 Longitudinal Bridge Timber Design



**Please read the Written Notices
attached to this standard**

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1 Purpose

- 1.1 The purpose of this Specification is to specify the minimum requirements for the design of longitudinal timbers for use on bridges and the minimum requirements for the design of associated components.
- 1.2 For details of material for longitudinal bridge timber and packings refer to T0416.
- 1.3 For longitudinal bridge timber maintenance refer to S1158

NOTE: This document has been reclassified and reformatted as a Technical Specification. The requirements are unchanged.

2 Scope

- 2.1 This Specification applies to longitudinal timbers for use on bridges

3 Longitudinal Bridge Timber design

3.1 General requirements

- 3.1.1 Works for the design of longitudinal bridge timbers and associated features shall conform with this specification.
- 3.1.2 Where conformity with a specific drawing is required, the latest approved version shall be used. Staff applying this specification shall obtain confirmation of the status of drawings from The Track Engineer.
- 3.1.3 The design of longitudinal bridge timbers shall facilitate cost-effective and labour-saving construction and shall recognise the need to minimise maintenance requirements.

3.2 Introduction

3.2.1 General

- a) Longitudinal timbers are provided on some existing underbridges and at certain other locations.
- b) On underline bridges the rails and their direct support (usually chairs or baseplates) are carried by either longitudinal bridge timbers or sleepers laid on ballast. LUL policy is to replace bridge decks with longitudinal timbers with ballasted decks, where possible. It is not always possible to replace longitudinal bridge timbers with ballasted decks for such reasons as:
 - 1. the existing bridge structure may have insufficient strength to carry the extra mass of the ballasted track;
 - 2. there may be insufficient vertical clearance at a particular site to allow the installation of the ballasted deck.



3.2.2 Longitudinal bridge timbers provide direct support for the running rail through chairs and baseplates and are tied together with tie rods and transoms.

3.2.3 Longitudinal bridge timbers transmit dynamic loads from trains and the dead load of track components to either the bridge superstructure or other load bearing substructure.

3.3 Preliminary design

3.3.1 The aim shall be to achieve both the optimum vertical and horizontal alignment of the track over the bridge, having regard to site constraints.

3.3.2 The following information shall be referred to or used as appropriate in the preliminary design process:

- a) up-to-date site survey information;
- b) existing site specific drawings or documentation.

3.3.3 The designed track alignment shall conform with the requirements of S1157.

3.4 Longitudinal bridge timbers and associated components design

3.4.1 Timbers

- a) Standard section sizes for timbers shall be used wherever possible and shall be in accordance with the schedule shown on drawing PW/BM7891.
- b) Longitudinal bridge timbers shall be laid in pairs under each rail and held together by means of through bolts in order to provide sufficient width for chairs or baseplates, details are shown on drawing P50529.
- c) The maximum length of longitudinal bridge timbers shall be 6100mm.
- d) Joints between the longitudinal bridge timber ends shall fall on cross-girder centre lines and therefore timber length shall be governed by cross-girder spacing.
- e) Consecutive longitudinal bridge timber pairs shall be spliced together vertically.
- f) The longitudinal bridge timber splice shall cover one girder bay.
- g) The timbers shall be chamfered as shown in drawing P50529 where required to suit a curved track. Only through bolts shall pass through a splice i.e. there shall not be any tie-rods, transoms or insulator stool bolts.

3.4.2 Positive insulator stools

- a) The positive insulator stools shall be located on the outside face of the longitudinal bridge timber on the same side as the positive rail. Positive insulator stools are attached to the side of the pair of longitudinal bridge timbers by means of stool bolts.
- b) The maximum distance between centre lines of each stool shall be 3050mm.
- c) The maximum distance between centre lines of end stools and the nearest sleeper with an insulator shall be 3200mm.
- d) Details of location of stools are shown on drawing P50529.
- e) Top of stools shall be flush with the top of the longitudinal bridge timbers.
- f) Stools must not be placed at a splice position of the longitudinal bridge timbers.