

Ref:	NR/L3/TRK/7004
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Date:	05 March 2011
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Level 3

Track Standard Drawings (RE/PW Series)

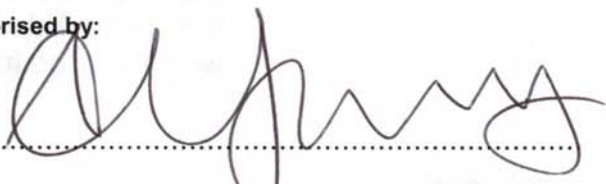
Endorsement and Authorisation

Endorsed by:



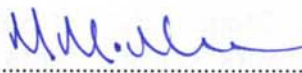
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Issue record

Issue	Date	Comments
—	May 1995	Published as (Railtrack) Code of Practice RT/CE/C/007 to replace BR (InterCity) document with same title – version 3.1 (issued March 1994).
1	Dec 2005	New Technical Specification but content unchanged from RT/CE/C/007.
2	August 2008	To reflect Phase 2 and Engineering re-organisations.
3	March 2011	Standard Level revised to L3 – was L2. Completely revised to reflect the fact that all Standard Track Drawings are now produced using CAD (Computer Aided Design). Software enhancements have permitted the inclusion of new and revised CAD techniques. Detail on hand drawing techniques has been summarised into an appendix. The revised standard is structured such that it supports Network Rail's new Specification for Computer Aided Design (NR/L2/INI/EDT/CP0091) which is to be introduced at the same time.

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 04 June 2011.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 3 (Option Selection) to continue to comply with the issue of any relevant Network Rail standards current when GRIP Stage 3 was completed and not to comply with requirements contained herein, unless stipulated otherwise in the scope of this standard.

Reference documentation

NR/L2/INI/EDT/CP0091	Specification for Computer Aided Design.
NR/L2/TRK/2049	Track Design Handbook.
NR/L2/TRK/2500	Technical Approval in the Design of Track Infrastructure.
BS ISO 128	1982: Technical Drawings. General Principles of Presentation. Part 20: 2001 Basic conventions for Lines. Part 21: 2001 Preparation of Lines by CAD systems. Part 22: 1999 Conventions and applications for leader and reference lines. Part 23: 1999 Lines on construction drawings.

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Part 24: 1999 Lines on mechanical engineering drawings.

Part 30: 2001 Basic conventions for views.

Part 34: 2001 Views on mechanical engineering drawings.

Part 40: 2001 Basic conventions for cuts and sections.

Part 44: 2001 Sections on mechanical engineering drawings.

Part 50: 2001 Basic conventions for representing areas on cuts and sections.

BS ISO 129-1	Technical Drawings. Dimensions and tolerances. General Principles.
BS 1192-5	1998 Construction Drawing Practice. Guide for structuring and exchange of CAD data.
BS EN ISO 3098-0	1998 Technical product documentation. Lettering. General Requirements.
BS EN ISO 5455	1995 Technical Drawings. Scales.
BS EN ISO 5457	1980 Technical product documentation. Sizes and layout of drawing sheets.

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1 Purpose

The purpose of this standard is to specify a consistent presentation style for the production of Network Rail's Standard Track Component and General Arrangement drawings.

The standard defines:

- a) a style of drawing that should be implemented at the draft/development stage and carried through to the final authorised drawing(s) stage, the intent of which is to reduce the need for reworking;
- b) CAD procedures to be used for the management of CAD data files when producing Network Rail Standard Track Component and General Arrangement drawings (RE/PW series);
- c) CAD procedures for Bentley MicroStation 2D software.
- d) defines data transfer procedures which enable data produced by Network Rail and external organisations to be compatible thereby enabling ease of data exchange.

*NOTE 1: NR/L2/INI/EDT/CP0091 is Network Rail's Specification for Computer Aided Design, it sets out the **general** principles to be followed relating to style, structure and methods of presentation.*

NOTE 2: Bentley MicroStation 2D is the CAD software normally specified for the production of standard track drawings.

NOTE 3: CoCreate Designer Drafting 2D CAD software (often referred to as 'ME10') may be specified where it is more appropriate.

2 Scope

Use of the standard is mandatory for all Network Rail staff, contractors and suppliers involved in the production of Standard Track Component, Assembly and General Arrangement drawings.

The standard applies to:

- a) all drawings that define the form and inter-relationship of standard track engineering components and general arrangements produced by CAD or hand draughting methods;
- b) all development drawings, excluding sketches, that may form the basis of future standard drawings.

The standard excludes:

- a) development drawings that are only sketches of outline proposals;
- b) survey, feasibility and scheme drawings for revisions to track geometry unless track components form part of the detailed information.

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3 Roles and responsibilities

Professional Head (Track)

Responsible for instigating (design) Remits. Responsible for the authorisation of new/revised Standard Track Drawings, *prior* to the introduction of the portrayed component/assembly/general arrangement into Network Rail Managed Infrastructure.

Principal Engineer (S&C) or Principal Engineer (Track Technology)

Responsible for the production of (design) Remits. Responsible for the checking and approval of new/revised Standard Track Drawings, prior to recommending their authorisation by the Professional Head (Track).

Drawings Engineer/ Manager

Responsible for day to day management of Standard Track Drawings and the index thereto. Responsible for the publication of new/revised Standard Track Drawings, following authorisation by the Professional Head (Track).

4 Definitions

Assembly Drawing

Two or more components in assembled form.

Authorised RE/PW Drawing

A drawing, authorised by the Network Rail Professional Head (Track), for use in the appropriate application as a standard component or arrangement.

Component Drawing

One or more individual (unassembled) components.

Development Drawing

A sketch or drawing that is not yet authorised as a Network Rail standard drawing. Development drawings may be used for production of trial/test components or assemblies; they shall not be used for general production of components.

NOTE: The word "DRAFT" should appear in the signature cell of the title block of all development drawings.

Diagram

Simplified representation of function or parts.

Draft Document

A new document, or proposed amendment to an existing document, which is in preparation but which is yet to be authorised.

Drawing List

List of drawings associated with an assembly.

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General Arrangement Drawing

- a) a layout drawing of a switch/lead, turnout, crossover, switch diamond, tandem, single of double slip, scissors crossover, single junction, double junction etc.
- b) shows complete product and includes important functional/performance features.

Item List

List of component parts for an assembly.

Network Rail Track Engineer

The Network Rail Professional Head (Track) or his/her Nominated Representative; a Network Rail Principal Engineer (S&C) or Principal Engineer (Track Technology).

Nominated Representative

A person formally appointed or delegated by the Network Rail Professional Head (Track).

Outside Party, Consultant or Contractor

Any organisation or legal entity other than Network Rail.

(design) Remit

A document defining the drawings required and their purpose; as well as delivery dates/milestones and guidance on drawing style etc. (Refer also to 5.1.2 below).

RE/PW

(Railway Executive/Permanent Way). Prefix applied to all Network Rail Standard Track Component, Assembly and General Arrangement drawings.

S&C (Switch & Crossing)

Generic term for any part of the track infrastructure that is *not* plain line.

Technical Contractor

A consultant, contractor or supplier engaged by Network Rail to supply a technical service.

Track Component

A constituent part of the structure of the track including assembly tools and fixtures (but excluding permanent signalling equipment), track ballast and sub-ballast material or drainage.

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5 RE/PW Drawing Layout

5.1 (design) Remit and Retention of Development Drawings and Calculations

5.1.1

All new drawings, and significant revision of existing drawings, shall be subject to a (design) Remit by the Network Rail Professional Head (Track), or his/her Nominated Representative.

5.1.2

A (design) Remit, specifying target requirements, shall be drawn up between Network Rail and all parties involved in a project. This remit is required to describe the primary purpose of the item(s) and provide essential guidance concerning matters such as:

- a) performance;
- b) reliability;
- c) style and appearance;
- d) grade;
- e) conditions of use;
- f) conformity;
- g) maintenance and health and safety considerations.

NOTE: This is not an exhaustive list.

All parties concerned shall jointly agree the feasibility of the (design) Remit within the project timescale.

5.1.3

A (design) Remit may be revised as necessary following evaluation.

5.1.4

During the development of a drawing, the Drawings Engineer/Manager shall retain copies of the stage drawings sent for comment or approval as a record of the project's evolution. Stage drawings shall be kept, as a minimum, until the initial authorisation of the final drawing and ideally until the project is complete and all costs approved.

Following completion of any requisite testing of prototype components or assemblies, the "as built" development drawings, incorporating all development amendments, shall be the basis of the final (authorised) RE/PW drawing(s).

NOTE: Prior to any new component, assembly or general arrangement being generally introduced into Network Rail Track Infrastructure, the drawing(s) showing said component, assembly or general arrangement is/are to be authorised by the Network Rail Professional Head (Track). Revisions to existing components, assemblies or general arrangements are to be similarly authorised prior to their general introduction into the infrastructure.