



A Division of Transnet Limited

# TECHNOLOGY MANAGEMENT CONFIGURATION MANAGEMENT

## SPECIFICATION

### PREPARATION OF DRAWINGS FOR TRANSNET FREIGHT RAIL

**“PREVIEW COPY ONLY”**

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## 1.0 SCOPE

This specification deals with standards and conventions to be used for the preparation of drawings as required by Transnet Freight Rail, Technology Management, Configuration Management; Infrastructure and Rolling Stock.

## 2.0 ASSOCIATED DOCUMENTS

The following documents are referred to in this specification:

BBB0005: Document Registration Form.

BBB0036: Document Certification Form.

BBB0042: Practice and Conventions Regarding Document Identification.

BBB4354: Preparation of Signal Drawings.

CEE-0224: Drawings, Catalogues, Instruction Manuals and Spares Lists for Electrical Equipment Supplied Under Contract.

RT/TE/SPC/0241: Specification for Supply of Drawings on TFR Locomotive Projects.

SANS 10111: Code of Practice for Engineering Drawing.

BS 308: Engineering Drawing Practise.

## 3.0 STANDARDS

3.1 **SANS 10111:** Code of Practice for Engineering Drawing, shall be adhered to in every possible way with the exceptions as detailed in this instruction or in the various documents that deal with the conventions for specific types of work.

3.2 **BS 308:** Engineering Drawing Practice can be used as a guideline for specific aspects that are not covered in SANS 10111.

3.3 **BBB4354:** Preparation of Signalling Drawings shall be read in conjunction with this specification and shall take preference when preparing Signalling drawings.

3.4 **CEE-0224:** Drawings, Catalogues, Instruction Manuals and Spares Lists for Electrical Equipment Supplied Under Contract, shall be read in conjunction with this specification and shall take preference when preparing Electrical drawings.

3.5 **RT/TE/SPC/0241:** Specification for Supply of Drawings on TFR Locomotive Projects, shall be read in conjunction with this specification and shall take preference when preparing Rolling Stock drawings

## 4.0 CAD SOFTWARE

Microstation (and all its specific tools), by Bentley Systems, Inc. is the Transnet Freight Rail standard and shall be used for the preparation of all drawings.

## 5.0 LANGUAGE AND UNITS OF MEASURE

Drawings shall be prepared in English and the ISO unit of measure.

## 6.0 STYLE AND APPEARANCE

6.1 Drawings shall be of a uniform standard, with pre-determined settings i.e. frame, title block, font size and line thickness.

6.2 Seed files (with predetermined settings for the creation of new drawings), Font files (with all relevant fonts) and Standard Frame files are available, on request, from Documentation Management via the Transnet Freight Rail Project Manager.

6.2 Drawings shall be prepared for ISO; "A" series size sheets.

6.2.1 The maximum preferred size is A1.

- 6.2.2 In exceptional cases, depending on the circumstances, an A0 size may be considered.
- 6.2.3 Long drawings, where necessary for wiring/circuit diagrams, cable run diagrams, track layouts etc. shall be prepared with widths equal to the widths of "A" series sheets, as required.
- 6.3 Scaled drawings shall be prepared at full size and plotted to the required scale.
- 6.3.1 All drawings shall be prepared using the smallest possible standard sheet size without compromising the quality of the drawing.

**7.0 REGISTRATION AND NUMBERING**

- 7.1 Applications for registration of drawings should be submitted, via the Transnet Freight Rail Project Manager, to Documentation Management on the appropriate form, BBB0005.
- 7.2 The numbering of drawings and the naming of electronic files shall be in accordance with Policy, **BBB0042**.

**8.0 TEXT CHARACTERISTICS ON DRAWINGS**

The following text characteristics shall apply:

Sheet size:	A4	A3	A2	A1	A0
Orientation:	Portrait /Landscape			Landscape	
Standard Text Type:	Arial*				
Drawing number and title:	4 mm			6 mm	
All other text:	2 mm			3 mm**	

\*For Signal applications the font shall be Arial with additions.

\*\*For Signal applications the font height on A2 sheets shall be 2.5mm

**9.0 COLOUR TABLE**

The default Microstation colour table shall be used.

**10.0 LINE WEIGHT ALLOCATIONS**

The active line thickness or line weight as referred to in Microstation shall be as follows:

Line weight No.	Plotted thickness
0	0,25 mm
1	0,35 mm
2	0,5 mm
3	0,7 mm
4	1,0 mm

**11.0 AMENDMENTS TO DRAWINGS**

- 11.1 The Enterprise Change Proposal (ECP) reference, supplied by Documentation Management, shall appear against the "CP Ref" prompt in the title block.
- 11.2 A concise description detailing the change shall be noted against the "Version Info" prompt.
- 11.3 The version reference below the drawing number shall be updated.
- 11.4 Where applicable, the previous Central Drawing Office (CDO) reference shall be replaced with the latest reference.
- 11.5 The name of the person who checked the drawing shall be updated.

- 11.6 In the event of a major drawing and/or design change, the corresponding "Drawn" and "Designed" prompts shall be refreshed to reflect the new appropriator's name.
- 11.7 The validity of information referred to within a drawing e.g. other documents, etc. shall be checked and updated if necessary.
- 12.0 MATERIAL LIST AND NOTES FEATURED ON DRAWINGS**
- 12.1 A material list, which forms part of a drawing, shall be appropriately positioned in the bottom right hand corner above the title-block.
- 12.1.1 The material list shall have a header row consisting of column names in the following order (from the left): Item, Description, Quantity, Stores Item No, and Drawing No.
- 12.2 All descriptive notes necessary on a drawing shall be grouped together and positioned as close as possible to the drawing number and numbered in ascending order.
- 13.0 SYMBOLS**
- 13.1 Due to the unique circumstances of applications for signalling and electrical circuitry, existing Transnet Freight Rail symbol charts shall take preference over all other symbol specifications. However, the migration to use uniform national and international standards should be a common practice.
- 13.2 If it is necessary to use symbols which are not on an approved Transnet Freight Rail symbol chart or are not a standard national or international symbol, the symbol with its description must be tabled on the applicable drawing, after approval by Transnet Freight Rail.
- 14.0 GLOBAL POSITIONING SYSTEM (GPS) WAYPOINTS ON DRAWINGS**
- 14.1 When GPS waypoints are called for on drawings, the format shall be as follows:  
 Position format: Decimal degrees (hdd.ddddd°)  
 Map datum: WGS 84  
 North reference: True
- 14.2 A minimum of 5, preferably 8, decimal places shall be shown at position coordinates.
- 14.3 A note (refer clause 12.2 for position of notes) confirming the GPS settings when waypoints were taken shall be placed on the drawing i.e.:  
 Note:  
 GPS settings at time of taking waypoints:  
 Map datum - WGS 84  
 North Reference - True.
- 15.0 COMPLETION OF DRAWINGS**
- 15.1 Drawings will be considered as complete once:
- 15.1.1 A signed paper print is handed to Documentation Management
- 15.1.2 The Electronic file has been received and transferred to the documentation management system
- 15.2 All completed drawings shall be accompanied by a Document Certification Form, BBB0036.
- 16.0 AMENDMENT**
- This specification was revised and updated under cover of Enterprise Change Proposal (ECP) No. BBD6406.

**END**