

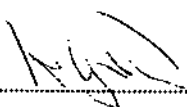
Ref	NR/PS/ELP/27196
Issue	2
Date	February 2006

Business Process Document

Specification for outdoor ancillary cubicles for 25 kV a.c. isolation transformers

Endorsement & Authorisation

Endorsed by:



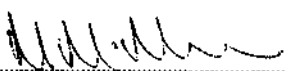
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Issue record

Issue	Date	Comments
2	February 2006	Re-issued as a SAF3 Business Process Document

Implementation

4 February 2006

Compliance

This Network Rail product specification is mandatory and must be complied with by Network Rail and its contractors from 4 February 2006

When this product specification is implemented, it is permissible for all projects, which have formally completed GRIP Level 4 to continue to comply with the Issue of any relevant Network Rail standards current when GRIP Level 4 was reached and not to comply with requirements contained herein unless the head of electrification and plant has stipulated otherwise in the accompanying briefing note.

Where the head of electrification and plant has specified that all projects will comply with the requirements, specific authority not to comply can be sought in the usual manner using the appropriate non-compliance authority processes described in Network Rail standard, [NR/SP/STP/045](#) *Managing the process for non-compliance authority* (formerly RT/LS/P/045).

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I Purpose

Outdoor ancillary cubicles are required to interface between five 25 kV isolating transformers. The cubicles shall be provided with 230 V a.c. electrical supply and 48 V d.c. to the supervisory and protection equipment housed within the cubicle.

2 Scope

This specification covers the electrical supply and pilot cables to the isolating transformers, from outdoor ancillary cubicles, installation and commissioning of outdoor ancillary cubicles and the electrical equipment housed within the cubicle. Electrical equipment shall include a 230 V a.c. isolator, distribution board, intertripping relay, battery charger, plant marshalling box and supervisory equipment, (the supervisory equipment will be supplied under another contract). This specification includes the design, manufacture, erection, factory & site testing/commissioning and for the supply and installation testing/commissioning of the cubicle and electrical installation.

3 Reference documentation

Network Rail Standards

- [NR/SP/ELP/21028](#) Ancillary wiring of electrical distribution equipment on a.c. and d.c, electrified lines
- [NR/SP/ELP/21030](#) Prefabricated and modular steel housings for electrical distribution equipment
- [NR/SP/ELP/21035](#) Protection equipment for 25 kV electrification
- [NR/SP/ELP/21041](#) Battery and battery charging equipment for electrification equipment

British Standards

- [BS 5499](#) Graphical symbols and signs. Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout
- [BS 7671](#) Requirements for electrical installations: IEE Wiring Regulations

European Standards

- [EN 60529](#) Specification for degrees of protection provided by enclosures (IP code)
- [EN 60617](#) Graphic symbols for diagrams
- [EN 60721](#) Classification of environmental conditions, Section 3.4 Stationary use at non-weather protected locations

For the purpose of this product specification the following definitions shall apply:

British Standard	A standard published by the British Standards Institution. Its alphanumeric identity is prefixed by BS.
Equipment	The equipment covered by this specification, including all component parts and accessories.
European Standard	A standard published by the European Committee for Standardisation or by the European Committee for Electrotechnical Standardisation. Its alphanumeric identity is prefixed by EN.
International Standard	A standard published by the International Electrotechnical Commission. Its alphanumeric identity is prefixed by IEC.
Network Rail Standard	A collective term for a Network Rail documents published by a directorate of Network Rail PLC. Its alphanumeric identity is prefixed by NR/, followed by a unique reference.
Procurement specification	Network Rail's contract specific documentation, such as, Invitation to Tender or Technical Workslope.

4 General clauses

4.1 Safety

At all times the equipment shall be safe. Measures shall be taken to ensure the safety of persons concerned in its installation, operation, maintenance, repair and its eventual disposal. All apparatus and connections for the safe and satisfactory operation, control and protection of the equipment concerned, shall be provided whether or not specifically mentioned.

The equipment shall be adequately earthed, insulated, screened, enclosed etc.. Safe and appropriate access shall be provided for operation and maintenance purposes.

4.2 Design, manufacture and workmanship

All material shall be of the quality and of the type most suitable for working under the conditions specified for the full service life of the equipment.

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4.3 Spare parts and consumables

The supplier shall make recommendations to the purchaser for holdings of spare parts and consumables based on estimated replacement rates and delivery periods to ensure that the equipment complies with this specification throughout its specified service life. The supplier shall indicate the extent of commonality with equipment previously supplied.

4.4 Drawings

Drawings of the equipment covering each of the following aspects shall be submitted to the purchaser for scrutiny:

- a) general arrangement of the layout of the wiring routes;
- b) detailed wiring diagram or schedules including the identity code, colour, size and type of each wire and the identity of each terminal.

All drawings shall be of good, legible quality. Four copies of each drawing or as varied by the procurement specification shall be provided.

Where it is essential for clear understanding of the circuits, block or circuit diagrams shall include details of components which are existing or are not being provided by the supplier. Wiring diagrams shall include any unused wires, contacts, plugs, sockets, terminals and the like.

As an alternative to separate circuit and wiring diagrams, combined diagrams may be provided. In this case, the position of each wire termination shall be indicated either on the drawing or by means of a schedule of terminations.

A short description of each revision shall be provided under consecutive revision letters or numbers together with the date.

Wherever feasible, some means shall be used to identify the location of the most recent revision, for instance by circling the locations.

All drawings shall be brought up to date as necessary, to provide a permanent as-fitted record and shall be supplied in the software format specified in the procurement specification.