

Substation Design Instruction

Toilets in transmission and zone substations

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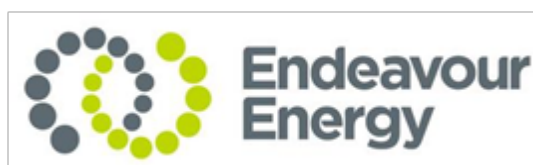
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SUBSTATION DESIGN INSTRUCTION

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SDI 533 Toilets in transmission and zone substations

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1.0 PURPOSE

To set out in detail the minimum installation and technical requirements for toilets in transmission and zone substations.

2.0 SCOPE

This instruction shall be read in conjunction with SDI 505.

It contains the minimum installation and technical requirements for toilets in transmission and zone substations.

3.0 REFERENCES

- Company Policy 4.0 - Environment
- Company Policy 9.2.5 - Network Asset Design
- Company Policy 9.9.1 - Network Asset Maintenance
- Company Procedure GSY 1066 - Worksite Hazard and Risk Assessment
- Earthing Design Instruction EDI 516 - Major substation earthing design, construct and commissioning
- Substation Design Instruction SDI 505 - Minimum design and construction requirements for transmission and zone substations and switching stations
- SDI 510 - Buildings
- SDI 532 - Plumbing and drainage
- Substation Maintenance Instruction SMI 119 - Transmission and zone substation data asset structure and nameplate details
- Electrical Safety Rules
- Network Management Plan December 2013 Review
- ENA National Electricity Network Safety Code (Doc 01-2008)
- *Work Health and Safety Act 2011*(NSW)
- AS/NZS 3000:2007 - Electrical Installations
- AS/NZS 3500.1:2003 - Plumbing and Drainage - Water services
- AS/NZS 1546.1:2008 - On-site domestic wastewater treatment units – Septic tanks

4.0 DEFINITIONS AND ABBREVIATIONS

Ellipse Endeavour Energy asset database

EDI Earthing Design Instruction

SDI Substation Design Instruction

5.0 ACTIONS

5.1 General

Toilet rooms shall have vermin-proof ventilation installed in accordance with SDI 510 – Buildings.

Access to the toilet shall be provided in accordance with SDI 510 – Buildings, so that Endeavour Energy network employees who are required to work in the field can gain access to this area without the need to enter areas within the electrical station where there are live exposed conductors.

Toilet systems shall be connected to an approved sewer system in accordance with the local sewer authority, wherever possible.

Where there is no local sewer system or local mains pressure water supply available, the local sewer authority shall be asked to determine the most appropriate method of installation.

Water flush toilets shall use a dual flush system to reduce water usage.

Ceramic toilet bowls shall be used wherever possible; however other toilet bowl types such as stainless steel can be considered when the standard sewer system cannot be used and incinerator toilets are required.

All toilet bowls shall be fitted with a plastic (or equivalent) moulded seat with lid.

All installations shall comply with the local sewer authority requirement for installation, management and operation.

Items associated with the toilet system shall be installed within the security fence. Where this is not practical, then the items that are installed outside of the security fence shall be adequately protected from vandalism and theft; while still allowing access for maintenance.

5.2 Sewer toilet system

The standard sewer system using a water flush toilet piped to a sewer main is preferred.

5.3 Non-standard toilet system

Septic tank systems shall be used where the standard sewer system cannot be used. However, if required, alternative commercial toilet systems such as incinerator toilets can be considered subject to the satisfactory approval of the Network Substations Manager, Primary Systems.

5.3.1 Septic tanks

Where septic tanks are used, either a gravity fed system or a pump assisted system can be considered.

The minimum capacity of the septic tank shall be 3200L.

A level sensor (float switch) shall be installed within the septic tank; and SCADA shall be used to communicate a *septic tank high sewage level* alarm condition when the sewage level reaches 80% of the septic tank capacity.

Pipes extending beyond the perimeter fence to allow the removal of effluent from pump-out systems shall be non-metallic (plastic). These pipes shall have appropriate signage and they shall not compromise the fence security.

The location of the pump-out line, pump-out points, maintenance access and future plans for the site shall be considered when identifying the most suitable location for the septic system.

Where absorption trenches are used a geotechnical investigation shall be carried out.

5.3.2 Incinerator toilets

Where incinerator type toilets are used they shall be of the electric non-flush type. The system chosen shall be a well-known brand with readily available replacement parts and operating equipment, such as toilet liners.

5.4 Electrical isolation and earthing

Electrical isolation and earthing associated with the toilet and sewage system shall be in accordance with EDI 516.

6.0 AUTHORITIES AND RESPONSIBILITIES

Chief Engineer has the authority and responsibility for approving this instruction.

Manager Primary Systems has the authority and responsibility for making recommendations to the Chief Engineer in respect to this instruction.

Network Substations Manager, Primary Systems has the authority and responsibility for keeping the content of this instruction up to date.

All **Endeavour Energy employees and/or contractors** have the authority and responsibility for:

- meeting the requirements of this instruction and SDI 505;
- working in accordance with local and statutory requirements;
- maintaining public safety; and
- working in accordance with Endeavour Energy's Electrical Safety Rules.

All **Project Managers** have the authority and responsibility for:

- meeting the requirements of this instruction within their area of responsibility;
- overseeing that Endeavour Energy staff and/or contractors engaged to perform the work have appropriate qualifications and experience; and
- overseeing that data is entered into Ellipse in accordance with SMI 119 - Transmission and zone substation data asset structure and nameplate details, and associated drawings are entered in the company document management system.

7.0 DOCUMENT CONTROL

Documentation content coordinator: Network Substations Manager, Primary Systems

Documentation process coordinator: Standards Process Coordinator