

**Engineering System Integrity
Electrical Network Safety Rules**

**Engineering Procedure
Electrical Distribution Unit**

Working Near or On/Within

**PR D 78503
Low Voltage Access Permits**

Version 1.4

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Document control

Version	Date	Author/ Prin. Eng.	Summary of change
1.0	6 July 2015	Chris Leung	First issue as a Sydney Trains document, rebranded from previous RailCorp SMS-06-EN-0584 V1.2
1.1	2 July 2018	Chris Leung	3 Yearly Review
1.2	19 February 2019	Nick Loveday	Updated PR D 78503 "Approved by" to Associate Director Electrical Distribution Unit
1.3	1 February 2022	ENSR Project Team	Reviewed as part of the ENSR Project.
1.4	4 November 2022	W. Halls	Sections, 1, 6 and 7 revised

Summary of changes from previous version

Summary of change	Section
Section 1 now refers only to Low Voltage Access Permit (PR D 78503 FM 01 Low Voltage Access Permit) - as per previous practice per version 1.2	1
"Authorised Person" defined at section 2.	2
Section 6 revised to reflect PR D 78503 FM 01 Low Voltage Access Permit.	6
Requirements in Section 7 reverted to previous practice per version 1.2	7
Grammar and formatting throughout	

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1 Purpose and scope

To describe the procedures required for the issuing and cancellation of a Sydney Trains Low Voltage Access Permit (*PR D 78503 FM 01 Low Voltage Access Permit*).

A Low Voltage Access Permit is the primary safety document used in relation to work near or on/within low voltage equipment outside Substations where the work requires the equipment to be isolated to allow the work to proceed.

Refer to *PR D 78700 Working around Electrical Equipment* for situations when a Low Voltage Access Permit needs to be issued. For further information on the applicability of a Low Voltage Access Permit, refer to *PR D 78500 Electrical Permits*.

Throughout this instruction and for simplicity, the term 'Low Voltage Access Permit' is, where appropriate, abridged as just 'Permit'.

2 Definitions

Refer to the **Electrical Safety Definitions** page available on the **RailSafe** site.

"Authorised Person" in the context of this document specifically means

- a. an Authorised Traction Operator, or
- b. an Authorised Officer (Mains), or
- c. an Authorised Person (Low Voltage),

as defined in *PR D 78701 Personnel Certification – Electrical Authorisations*.

3 Responsibility

Nominated Authorised Officers in the area concerned are responsible for reviewing Permits upon completion of the work covered by the Permits.

This instruction sets out specific responsibilities for persons undertaking the following tasks:

- a. Writing and checking Permits
- b. Instructing Permit Holders
- c. Issuing and retrieving Permits
- d. Carrying out electrical tests – Persons undertaking the tests are responsible for ensuring that the testing is carried out safely.

These persons shall have the appropriate Authorisation (refer section 2).

The responsibilities of the Permit Holder and the persons in the work party are set out in *PR D 78502 Substation Access Permit*. That instruction includes the procedures the Permit Holder shall follow if Personnel Registers are used.

4 Overview of the Electrical Permit System

A Low Voltage Access Permit is issued by an Authorised Person to a Permit Holder confirming:

- a. The specified low voltage equipment has been isolated and proved dead to provide an Electrically Safe Work Area; and
- b. The isolated condition will remain as stated until the Permit has been returned and cancelled.

The person to whom the Permit is issued will normally be the person in charge of the work party. If only one person in the work party is required to work near or on/within the equipment, the Permit shall be issued to that person. This person shall understand the Electrically Safe Work Area.

When the Authorised Person issuing the Permit is also the person in charge of the work party, the Permit may be issued to themselves. This person shall understand the Electrically Safe Work Area.

A Low Voltage Access Permit may be used to define an area which is clear from exposed low voltage equipment and where it is safe to work. In this case, no low voltage equipment need be isolated and the section of the Permit specifying switching operations is to be marked "NOT REQUIRED".

A Low Voltage Access Permit is not required for work on disconnected equipment.

A Low Voltage Access Permit may not be required for work on isolated Low Voltage equipment if the following conditions are met:

- a. All work party members are either an Authorised Person (Low Voltage) or Qualified Electrician as defined in *PR D 78701 Personnel Certifications – Electrical*, and
- b. A risk assessment has established the work can be safely performed in accordance with:
 - i. *PR D 78402 Work on the Low Voltage Distribution System*
 - ii. *D2013/80873 Work on Low Voltage Installations*

5 General Requirements

5.1 Additional Work Not to be Carried Out

No work is to be carried out near or on/within the isolated equipment other than that specified on the Permit.

5.2 Deletions or Alterations

No deletions or alterations may be made to the work or operating details on the Permit once it has been issued or if the Permit Holder has been instructed in accordance with Section 10.2. Should it be necessary to vary the work specified after the Permit has been issued, the Permit shall be cancelled and a new Permit issued for the revised work.

5.3 Multiple Permits

Where a single person in charge can adequately and safely control the work to be undertaken, the person may hold a number of Permits, i.e. they shall be the Permit Holder. A separate Permit shall be issued for each:

- a. work location
- b. group of work locations.

In assessing if it is practicable for a single person to effectively supervise the work, the Permit Holder shall consider:

- a. the extent of the Electrically Safe Work Area
- b. the proximity of the electrical hazards
- c. the number of persons working under the Permit
- d. the physical separation of work locations
- e. the mobility of the work process.

5.4 Personnel Registers

If the work is to extend over several shifts, or there is insufficient space on the Permit for all the work party to sign on, then the Permit Holder shall use one or more Personnel Registers.

One or more Personnel Registers shall be used in association to the Low Voltage Access Permit to be issued. Personnel Registers are included with the Low Voltage Access Permits.

Each Personnel Register forms part of the Permit, and persons signing onto a personnel register are subject to the same conditions as if they had signed onto the Permit form itself.

Only one Personnel Register can be in use with any Permit at any one time.

At the commencement and completion of each shift, the Permit Holder shall sign onto the Personnel Register.

At the completion of the last shift, the Permit Holder shall sign off the Personnel Register as well as signing off at items (10) of the Permit. For extended shift working, the

procedure for the management of Personnel Registers, which has been authorised by the Electrical Engineer/Manager for the project, shall be complied with.

Personnel Register forms *PR D 78502 FM02 Substation/Low Voltage Personnel Register* shall be downloaded and printed from the intranet as required.

5.5 Multiple Shifts

For work extending over several shifts, several prospective Permit Holders may be instructed and the Permit issued to one Approved Permit Holder at the beginning of the first shift. The Permit may then be transferred to other Approved Permit Holders for the subsequent shifts. This process can only be deployed if all the conditions below are confirmed prior to the commencement of each shift:

- a. The electrical isolation and the Electrically Safe Work Area remain unchanged.
- b. The scope of work, including the extent and type of work, remains unchanged.
- c. Only one Permit Holder is in charge of the Permit at any one time.
- d. A separate Personnel Register (PR D 78502 FM02) is used for each shift.
- e. The members comprising the work party have been instructed as required.
- f. No additional electrical hazards have been introduced to the work area.
- g. A procedure for the management of the Permit in between shifts is nominated by the Electrical Engineer/Manager for the project.

If any one condition cannot be met, the Permit shall be cancelled and then a new Low Voltage Access Permit shall be issued for each shift.

For **each** shift, members of the work party shall sign on to the Personnel Register prior to commencing work and shall sign off the Personnel Register at the completion of their shift.

NOTE

At the beginning of each shift, the shift Permit Holder shall check and ensure that the previous shift Permit Holder has signed off the related Personnel Register.

The Permit Holder for the final shift, shall, in addition to signing off the Personnel Register, also sign off on item (11) of the Permit, declaring that the work has been totally completed and that the Permit is no longer required. This will enable the Permit to be cancelled and supply restored after all necessary checks and/or tests have been undertaken.

5.6 Relief of Permit Holder

Relief of a Permit Holder caters for unforeseen circumstances only, rather than a normal change of shift.

5.6.1 Relief of Permit Holder While Personnel Register in Use

If the Permit Holder is to be relieved prior to the completion of a shift and a Personnel Register is in use, then the Personnel Register shall be signed off by all members of the work party and a new Personnel Register is to be used for the relieving Permit Holder. All members of a work party shall be advised of the change of Permit Holder.

5.6.2 Relief of Permit Holder While Personnel Register is Not in Use

If the Permit Holder is to be relieved prior to completion of a shift and a Personnel Register is not in use, then the Permit shall be cancelled and a new Permit issued.

6 Details Specified on the Permit

The Low Voltage Access Permit specifies the following:

- a. Location of the work.
- b. Permit No.
- c. Planned dates and times for the work – item (1).
- d. Extent and type of work (including plant) for which the Permit is required – item (2).
- e. Person responsible for the work to be carried out, including contact phone number – item (3).
- f. Details of other electrical permits / Operating Agreements required and received – item (4).
- g. Switching operations to be carried out to achieve the isolation, detailing the switch number, location and action – item (5).
- h. Low voltage equipment that has been isolated and proved dead for the Permit – item (6).
- i. Details and identification of the Electrically Safe Work Area and relevant special instructions and warnings – item (7). These warnings shall include warnings about any live equipment on or near, such as live overhead wiring on adjacent tracks or live joint use circuits.
- j. Prospective Permit Holders who have been instructed by an Authorised Person (refer section 6) in accordance with section 8.2 and who may hold the Permit, together with the name of the Authorised Person who instructed each Permit Holder – item (8).
- k. Permit issuer (refer section 6) – item (9).
- l. Permit Holder – item (10). This serves to record the name and sign-on details of the Permit Holder for each shift. If a Personnel Register is not in use, item (10) also records the names of the members of the work party.
- m. Permit Holder signoff – item (11) is completed at the end of the final shift by the Permit Holder of the final shift.
- n. Permit cancellation – item (12).
- o. Supply restoration confirmation – item (13).

7 Writing, Checking, Instructing, Issuing and Retrieving Permits

The Low Voltage Access Permit may be written by either an Authorised or unauthorised person (e.g. an apprentice).

The checking, instructing, issuing and retrieving of a Low Voltage Access Permit shall be carried out by an Authorised Person.

It is not necessary that the Authorised Person who instructed the prospective Permit Holder be the same Authorised Person who will issue the Permit.

8 Permit Holders

8.1 Eligible Persons

NOTE

For Low Voltage Access Permits, it is not mandatory for eligible Permit Holders to be an Accredited Electrical Permit Holder as defined in PR D 78701.

Only one Permit Holder may be in charge of the Permit at one time.

9 Responsibility of the Person Instructing the Permit Holder

9.1 Preparation

The Authorised Person (refer to Section 7) instructing a prospective Permit Holder shall:

- a. be aware of the details of the work for which the Permit is being issued, and
- b. be satisfied the isolation and relevant special instructions and warnings, as shown, for which the Permit will be issued allows the work to be carried out safely, and
- c. check with the prospective Permit Holder the work planned can be carried out safely within the Electrically Safe Work Area as shown on the Permit and in accordance with the special instructions as shown on the Permit.

9.2 Instructing Permit Holders

Permit Holders shall be instructed at the worksite either:

- a. immediately prior to a Permit being issued
- b. at a meeting prior to the date of issue of the Permit.

If required, additional Permit Holders may be instructed after work has commenced.

The Authorised Person instructing the prospective Permit Holder shall ensure:

- a. The prospective Permit Holder understands:
 - i. the location, date and time restrictions of the Permit

- ii. which electrical equipment is covered by the Permit and is safe to work near or on/within
 - iii. which electrical equipment shall be treated as live
 - iv. any special instructions and warnings on the Permit
 - v. the Permit only applies to electrical equipment specified on the Permit; all other electrical equipment shall be treated as live unless a separate Permit is received;
 - vi. no work shall be carried out near or on/within the isolated electrical equipment other than the work specified on the Permit;
 - vii. the Permit shall be retained by the Permit Holder at all times whilst the work is required is being carried out, or until such time as it is transferred in accordance with the instructions for the Relief of the Permit Holder (refer to Section 5.6), or signed off and returned;
 - viii. the Permit Holder shall control the work process so that persons carrying out the work do not work beyond the limits of the Electrically Safe Work Area;
 - ix. the responsibilities set out on both sides of the Permit;
 - x. the obligations of the Permit Holder for the electrical safety of staff working under their control.
- b. The prospective Permit Holder is instructed to ensure that all persons carrying out the work are warned:
- i. not to allow any part of their body, clothes, tools, material or machinery they may be using or carrying to come within the Safe Approach Distances of any exposed equipment other than the isolated equipment in the electrically safe work area; and
 - ii. not to pass over or under work area or access markers, safety fences or special barriers.

9.3 Feedback From the Permit Holder

The Authorised Person (refer to Section 7) instructing the prospective Permit Holder shall obtain an acknowledgment from the prospective Permit Holder that the work can be carried out safely within the Electrically Safe Work Area shown on the Permit.

The instructing person shall provide the prospective Permit Holder with any advice or assistance required in order for the prospective Permit Holder to make an informed assessment prior to giving the required acknowledgment.

The instructing person shall read items (1), (2) and (7) of the Permit to the prospective Permit Holder, and, as each item is completed, require the prospective Permit Holder to give verbal confirmation that:

- a. They have understood that item of the Permit.
- b. The information in that item of the Permit matches the work they will undertake.

9.4 Instructing Person to ensure Prospective Permit Holders sign the Permit

The Authorised Person instructing the prospective Permit Holder shall ensure the Permit Holder prints their name and signs the Permit in the space(s) provided at item (8) of the Permit in acknowledgement of Section 9.2 of this instruction.

9.5 Permit Instructor to Sign the Permit

The Authorised Person instructing the Permit Holder shall confirm they have instructed the prospective Permit Holder by printing their name and signing in the adjacent space(s) provided at item (8) of the Permit.

9.6 Instructing Permit Holder Prior to the Work

If the prospective Permit Holder is being instructed at a meeting prior to the work, the Authorised Person shall ensure:

- a. items (1), (2), (3), (4), (5), (6) and (7) are completed prior to the commencement of instruction of prospective Permit Holders at the meeting
- b. item (8) of the Permit is completed at the meeting
- c. items (9), (10), (11), (12) and (13) of the Permit are not completed at the meeting,
- d. all copies of the Permit remain in the book
- e. the Permit book is retained and arrangements are made for it to be forwarded to the Authorised Person issuing the Permit
- f. the Permit is not numbered until the permit is issued.

10 Responsibility of the Person Issuing the Permit

10.1 Preliminary Checks

The Authorised Person issuing the Low Voltage Access Permit shall:

- a. Be aware of the details of the work for which the Permit is being issued.
- b. Be satisfied the isolation and relevant special instructions and warnings, as shown, for which the Permit will be issued allows the work to be carried out safely.
- c. Ensure:
 - i. All the relevant information including any relevant special instructions or warnings is entered on the Permit. The Permit shall be made out in duplicate; check the information is clearly legible on the self-duplicating copy.
 - ii. The Permit is numbered correctly. The Permit Number is a unique number. The format comprises the issuer's initials (upper case), date of issue and the respective consecutive number of the permit issued for the day e.g. LM250107/1, LM250107/2, etc.
 - iii. The switching operations listed on the Permit are correct to isolate all the low voltage equipment required to be isolated for the work.
 - iv. The switching operations necessary to isolate the required low voltage equipment are carried out with the prior knowledge and agreement of the Electrical System Operator, where applicable.
 - v. Access Permits or Operating Agreements from other Network Operators have been received, where required.
 - vi. The low voltage equipment has been proved dead.
 - vii. Work area markers have been set where it is necessary to restrict persons to an Electrically Safe Work Area.
 - viii. Special barriers have been erected where necessary to provide a safeguard for persons working.

10.2 Issuing a Permit

The Authorised Person issuing the Permit shall:

- a. then ensure the Permit Holder prints their name and signs the Permit in the space provided at item (10) in acknowledgment and acceptance of the associated responsibilities
- b. make the Permit 'in force' by printing their name and signing at the space provided, entering the time and date 'in force' (item (9) of the permit) and issue the Permit
- c. then issue the Permit.

The Authorised Person issuing the Permit is not required to remain near or on/within of the work unless holding the Permit.

11 Returning the Permit

The Permit Holder is required to return the Permit to an Authorised Person retrieving the Permit. The Permit Holder shall check and ensure all members of the work party have signed off before leaving the work site.

12 Responsibility of the Person Retrieving the Permit

12.1 Preliminary Checks

Prior to cancelling the Permit the Authorised Person retrieving the Low Voltage Access Permit shall:

- a. Check the Permit Holder has certified (item 10 of the Permit) that the Permit may be cancelled.
- b. Check all persons signed on to the Permit and any associated Personnel Registers have signed off. If it appears any work party member may not have signed off, confirm the Permit Holder:
 - i. Has made reasonable attempts to ensure any person failing to sign off has left the work site and it is impracticable to get them back for signing off.
 - ii. Accepts responsibility for that person, and an appropriate notation shall be made on the Permit/Personnel Register.
 - iii. Is required to undertake a joint site inspection with the Person retrieving the Permit to ensure all persons, tools and machinery are outside the minimum Safe Approach Distance for safe energisation of supply.

If the Permit Holder has not signed off and/or already left the work site and is not reasonably practicable for them to return to sign off the Permit, then the Person retrieving the Permit has to undertake a site inspection to ensure all persons, tools and machinery are outside the minimum Safe Approach Distance for safe energisation of supply and report the matter to the Sydney Trains Safety Incident and Injury Hotline 1800 772 779 and the Electrical System Operator.

- c. Confirm the part of the electrical equipment for which the Permit was issued has been inspected, tested if required, safe to be energised and fit for service.

12.2 Cancelling the Permit

Once the preliminary checks have been satisfactorily completed, the Authorised Person cancelling the Low Voltage Access Permit shall:

- a. Cancel the original copy of the Permit by signing in the space provided and entering the time and date – item (10);
- b. The Permit need not be placed back in the Permit book to be cancelled;
- c. Sign off all other electrical permits and Operating Agreements if received – refer item (4);
- d. Remove work area markers, special barriers and Danger Tags;
- e. Arrange to energise the low voltage equipment in accordance with *PR D 78401 Isolation and Energisation of Low Voltage Equipment*;
- f. Certify supply has been restored by advising ICON Electrical; and
- g. Forward the cancelled Permit to the nominated Electrical Authorised Officer in the area concerned.

13 Procedure in Case of a Permit Being Lost

If the Low Voltage Access Permit is lost, the Permit Holder shall immediately report the loss to the Authorised Person who issued or is retrieving the Permit or to the Electrical System Operator.

If work is still in progress, the Authorised Person shall issue a duplicate Permit with the same number. This duplicate Permit shall be endorsed "Replacement for Lost Permit". The Authorised Person issuing the replacement Permit shall instruct the Permit Holder to ensure all persons still engaged in the work sign on to the duplicate Permit. The Authorised Person shall also ensure the loss and replacement action is recorded at item (10) of the book copy of the lost Permit.

If work has been completed and a replacement Permit has not been issued, the Authorised Person who would have retrieved the Permit shall obtain written notification from the Permit Holder confirming

- a. All persons, tools, material or machinery are clear of the low voltage equipment for which the Permit was issued.
- b. All persons who signed on the original Permit (and any associated Personnel Register) have been instructed to treat the equipment as live.
- c. If the book copy of the Permit is available, this written notification may be provided by making a notation on the book copy that "the original Permit has been lost" and ensuring all persons signed on to the original Permit, sign off on the book copy.

14 Referenced Documents

D2013/80873 Work on Low Voltage Installations

PR D 78401 Isolation and Energisation of Low Voltage Equipment

PR D 78402 Work on the Low Voltage Distribution System

PR D 78500 Electrical Permits

PR D 78502 Substation Access Permit

PR D 78502 FM02 Substation/Low Voltage Personnel Register PR D 78503 FM01 Low
Voltage Access Permit

PR D 78700 Working around Electrical Equipment PR D 78701 Personnel Certifications –
Electrical