

Access Control and Protection – Train System

Engineering Standard

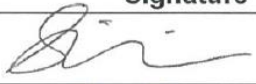


Rail Commissioner

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TABLE OF CONTENTS

1. Introduction 5

2. Purpose 5

3. Scope 5

4. Related Documents..... 5

5. References..... 5

6. Acronyms 6

7. Definitions 6

8. Fences and Gates 6

 8.1. Design 6

9. Railway Station Environs 7

 9.1. Passenger Platforms 7

 9.1.1. Platform Surfaces and Ramps 7

 9.1.2. Pedestrian Crossings at Passenger Platforms 7

 9.1.3. Platform fencing 7

 9.2. Pathways, Ramps, Stairs and Handrails 7

 9.3. Overpasses and Subways..... 7

 9.4. Commuter Car Parks 7

 9.4.1. DPTI Car Parks..... 7

 9.4.2. Commuter car parks off DPTI property 7

10. Pedestrian Crossings 7

 10.2. Design 8

 10.2.2. Signage 8

11. Level Crossings 8

 11.1. Design 8

 11.1.1. Sleepers 8

 11.1.2. Roadway Surface..... 8

 11.1.3. Approach Fencing (Wing Fences) 8

 11.1.4. Signage 9

12. Non-Operational Signage 9

 12.1. Design 9

 12.1.1. Advertising..... 9

 12.1.2. Protection from Graffiti 9

13. Maintenance Roadways within the Rail Corridor 9

 13.1. Design 9

14. Corridor Landscaping..... 10

 14.1. Design 10

14.1.1. Clearances to Rail Line 10
14.1.2. Additional Clearance at Curves 11
14.1.3. Security 11

1. Introduction

The Department of Planning, Transport and Infrastructure (DPTI) operates and maintains the Adelaide Metropolitan Passenger Rail Network (AMPRN) under the Rail Accreditation assigned to the Rail Commissioner.

This standard supersedes CP-TS-965 Access Control and Protection with the exception of sections 2.4, 3.5, 4.2, 5.4, 6.4 and 7.2 which are superseded by CS1-DOC-002905 Access Control and Protection – Train System Technical Maintenance Plan.

2. Purpose

The purpose of this standard is to ensure that infrastructure used by the public to gain access to DPTI property is safe and fit for purpose, that So Far As Is Reasonably Practicable (SFAIRP) there is adequate security against unauthorised entry into DPTI property, and that there is safe access to infrastructure for DPTI workers. This standard may be used as a guide to rate the condition of assets relating to access control and protection on the AMPRN.

3. Scope

This standard specifies general procedures for the design and inspection of the following:

- Fences and gates;
- Passenger platforms;
- Pathways, ramps, stairs, handrails;
- Subways and footbridges;
- Commuter car parks;
- Pedestrian crossings;
- Level crossings;
- Non-Operational Signage;
- Roadways in the rail corridor including vehicle, plant and other equipment access; and
- Corridor landscaping.

4. Related Documents

DOCUMENT NAME	DOCUMENT NUMBER
Level/Pedestrian Crossings with concrete sleeper – Details of standard hot mix bitumen construction	304-A3-10-010 KNet #10691650
Rail Electrification Vegetation Planting Guidelines	KNet #12056270

5. References

- AS 1742.7 Manual of Uniform traffic control devices – Part 7: Railway Crossings
- RISSB/AS 7631-2015 Railway Infrastructure Sighting.
- *Disability Discrimination Act (DDA)*
- *Disability Standards for Accessible Public Transport (DSAPT)*
- *Disability (Access to Premises – Buildings) Standards 2010*

DPTI Documents

DOCUMENT NAME	DOC NUMBER
Access Control and Protection – Train System Technical Maintenance Plan	CS1-DOC-002905 KNet #15392115

Condition Assessment of Level Crossings – Manual	CS3-DOC-002338 (KNet #14507430)
Development and Approval of Engineering Waivers	PR-AM-GE-807
DPTI Railway Crossing Policy	KNet #9763929
Drainage – Train System	CS1-DOC-001218 (KNet #13060577)
Fencing and Gates for Rail Corridors and Facilities	CS1-DOC-000454 (KNet #9266821)
Operational Signage	CP-TS-954
Standard for Railway Pedestrian Crossings	CS4-DOC-000446 (KNet #8315249)
Station Parking – Train System	AR-PW-PM-SPE-00129012 (KNet #5415550)
Station Pedestrian Access – Train System	AR-PW-PM-SPE-00129006 (KNet #5414389)
Station Platforms – Train System	AR-PW-PM-SPE-00129003 (KNet #5413264)
Station Overpasses – Train System	AR-PW-PM-SPE-00129004 (KNet #5413295)
Structural Clearances Design and Rating	PTS-MS-10-TR-STD-00000047 (KNet #5459495)
Structures – Train System	TC1-DOC-001642 (KNet #14200174)
Track Support Systems	CP-TS-960

6. Acronyms

ACRONYM	FULL NAME
AMPRN	Adelaide Metropolitan Passenger Rail Network
CPTED	Crime Prevention Through Environmental Design
DPTI	Department of Planning, Transport and Infrastructure
SFAIRP	So Far As Is Reasonably Practicable

7. Definitions

TERM	DEFINITION
Defect	Defects are typically a discrete fault that may not be reflective of the overall condition of the asset.
Maintenance	Combination of all technical and administrative actions, including supervision intended to retain an item in, or restore it to, a state in which it can perform a required function
Non-Operational Signage	All signage not defined as operational signage in CP-TS-954 Operational Signage.

8. Fences and Gates

8.1. Design

Fencings and Gates should be designed and installed in accordance with CS1-DOC-000454 Fencing and Gates for Rail Corridors and Facilities.

9. Railway Station Environs

9.1. Passenger Platforms

9.1.1. Platform Surfaces and Ramps

Platform surfaces and ramps shall comply with AR-PW-PM-SPE-00129003 Station Platforms and AR-PW-PM-SPE-00129006 Station Pedestrian Access.

9.1.2. Pedestrian Crossings at Passenger Platforms

Pedestrian crossings at passenger platforms shall comply with Section 10 of this standard.

9.1.3. Platform fencing

Passenger platform fencing shall comply with CS1-DOC-000454 Fencing and Gates for Rail Corridors and Facilities.

9.2. Pathways, Ramps, Stairs and Handrails

The general procedures for the design and construction of pathways, ramps, stairs and handrails shall be in accordance with AR-PW-PM-SPE-00129006 Station Pedestrian Access.

9.3. Overpasses and Subways

Overpasses and subways shall be designed in accordance with AR-PW-PM-SPE-0012904 Station Overpasses, PTS-MS-10-TR-STD-00000047 Structural Clearances Design and Rating, TC1-DOC-001642 Structures – Train System and AR-PW-PM-SPE-00129006 Station Pedestrian Access.

Drainage shall comply with CS1-DOC-0001218 Track and Civil Infrastructure – Drainage – Train System

9.4. Commuter Car Parks

9.4.1. DPTI Car Parks

The design of DPTI car parks at railway stations shall comply with AR-PW-PM-SPE-00129012 Car Parking – Train System.

9.4.2. Commuter car parks off DPTI property

Commuter car parks at railway stations on adjacent properties shall be the responsibility of the owners of the land. As a minimum, wayfinding signage shall be provided.

10. Pedestrian Crossings

10.1. General

No new pedestrian crossings are to be planned for installation on the AMPRN, in accordance with the DPTI Railway Crossing Policy of 2015. Any proposed new pedestrian crossings shall be active pedestrian crossings and will require an engineering waiver in accordance with PR-AM-GE-807 Development and Approval of Engineering Waivers.

10.2. Design

Pedestrian Crossings shall be designed in accordance with CS1-DOC-000446 Standard for Railway Pedestrian Crossings.

10.2.1. Maze Way Fencing

Maze way fences at pedestrian crossings shall be in accordance with the following drawings:

- S7071 Sheet 14 Pedestrian Maze Arrangement (Passive Control) Standard Details
- TC1-DRG-200000 Pedestrian Crossing Arrangement Active Control Standard Details
- TC1-DRG-200001 Pedestrian Crossing Arrangement Active Control Fence Layout

10.2.2. Signage

Signage at pedestrian crossings shall be provided in accordance with the following drawings:

- CS1-DRG-350290 Standard Drawing Passive Pedestrian Crossing – Single or Multiple Tracks Signage & Pavement Marking Layout
- CS1-DRG-350291 Standard Drawing Passive Pedestrian Crossing – Unidirectional Track Signage & Pavement Marking Layout
- CS1-DRG-350292 Standard Drawing Passive Pedestrian Crossing – Adjacent Level Crossing Signage & Pavement Marking Layout
- CS1-DRG-350293 Standard Drawing Active Control /Autogates – Signage & Pavement Marking Layout

11. Level Crossings

11.1. Design

11.1.1. Sleepers

Sleepers shall be made of concrete and shall be spaced at minimum 600mm in accordance with CP-TS-960 Track Support Systems. The same spacing can be used between baseplates for slab track design at a level crossing.

11.1.2. Roadway Surface

Where the road surface material consists of bitumen, this shall be laid in accordance with drawing no. 304-A3-10-010 Level/Pedestrian Crossings with concrete sleeper – Details of standard hot mix bitumen construction. Flangeways shall be formed against the gauge face of each running rail in accordance with the dimensions shown on drawing no. 304-A3-10-010. Other designs of infill between rails at level crossings may be submitted to DPTI/Unit Manager Track & Civil Engineering for approval

11.1.3. Approach Fencing (Wing Fences)

Standard approach fencing (wing fences) refers to fencing between the roadway and adjacent pedestrian access paths, around level crossings and pedestrian crossings. This fencing shall be 1200mm pool type fencing in accordance with CS1-DOC-000454 Fencing and Gates for Rail Corridors and Facilities, and shall comply with AS1742.7 Clause 6.3.5.

11.1.4. Signage

Standard signage for vehicular traffic at level crossings shall be manufactured and installed in accordance with AS 1742.7 Manual of uniform traffic control devices – Part 7: Railway crossings.

12. Non-Operational Signage

12.1. Design

The design and detailed drawings of non-operational signage shall include consideration of the following factors:

- a) size and shape;
- b) colour, lettering and reflectivity; and
- c) support requirements.

The size and shape of a specific sign will depend on the signs purpose and the designated user. This information shall be determined using the criteria of RISSB/AS 7631-2015 Railway Infrastructure Sighting.

Where required for use of the public, non-operational signage shall comply with DSAPT, DDA and Disability (Access to Premises – Buildings) Standards 2010.

A register of non-operational signage shall be maintained.

12.1.1. Advertising

Advertising signage shall not be installed in front of any sign that may obscure safety, maintenance or passenger information.

12.1.2. Protection from Graffiti

All permanent signs shall be protected by graffiti-proof laminated cover adhering to the display side of the sign.

Properties of graffiti-proof film should be:

- Minimum life 10 years;
- Clear film not a spray type laminate; and
- Single piece, the exact size of the printed sign.

13. Maintenance Roadways within the Rail Corridor

13.1. Design

Roadways within the corridor which are provided for access to the lineside for maintenance of track, signalling and other facilities, shall be designed to comply with the following specification:

- a) Roads shall preferably be located both sides of double tracks (or more) and one side of single track;
- b) Roads shall be located within the maintenance access zone in accordance with figure 1;
- c) Roads shall be located with their near edge a minimum distance from track centre of 3.8m. Where there are obstructions such as signals, permanent speed limit boards or similar, roads shall be deviated a minimum distance to avoid these facilities;

- d) Where the track is built in cuttings or on embankments and there is insufficient width between the track and the edge of the formation to comply with (b) and (c), roads shall be constructed on the land between the edge of the earthworks and the boundary fence but as close to the track as practicable;
- e) Where roads are built on top of cuttings, they shall be a sufficient distance from the edge of the cutting to ensure the safety of vehicles and personnel using the road; and
- f) Roadways shall not interfere with the any drainage, including track drainage.

14. Corridor Landscaping

14.1. Design

All landscaping within the corridor must consider species type and growth habit to provide for the following requirements:

- a) shall not obstruct sightlines for train drivers, road traffic, pedestrian crossings, or public safety security;
- b) shall consist of non-deciduous plants - leaves shed by deciduous plants may find their way on to the tops of rails causing wheel slide, problems of train braking and acceleration and low conductivity of track circuits causing signal failure;
- c) shall incorporate species with fire retardant characteristics (i.e. high salt and moisture content and low volatile oil content in their leaves);
- d) shall not interfere with the annual weed and growth control programme;
- e) shall be self-sustainable;
- f) shall incorporate plants that help control erosion - avoid inappropriate species that interfere with erosion control and bank stability (plants that have allopathic characteristics);
- g) shall not restrict access to signalling equipment cabinets, cable runs, maintenance tracks etc.;
- h) shall improve aesthetics;
- i) shall have no impact on signals, cables, drains, fences, etc.; and
- j) may be used to satisfy screening and graffiti control requirements.

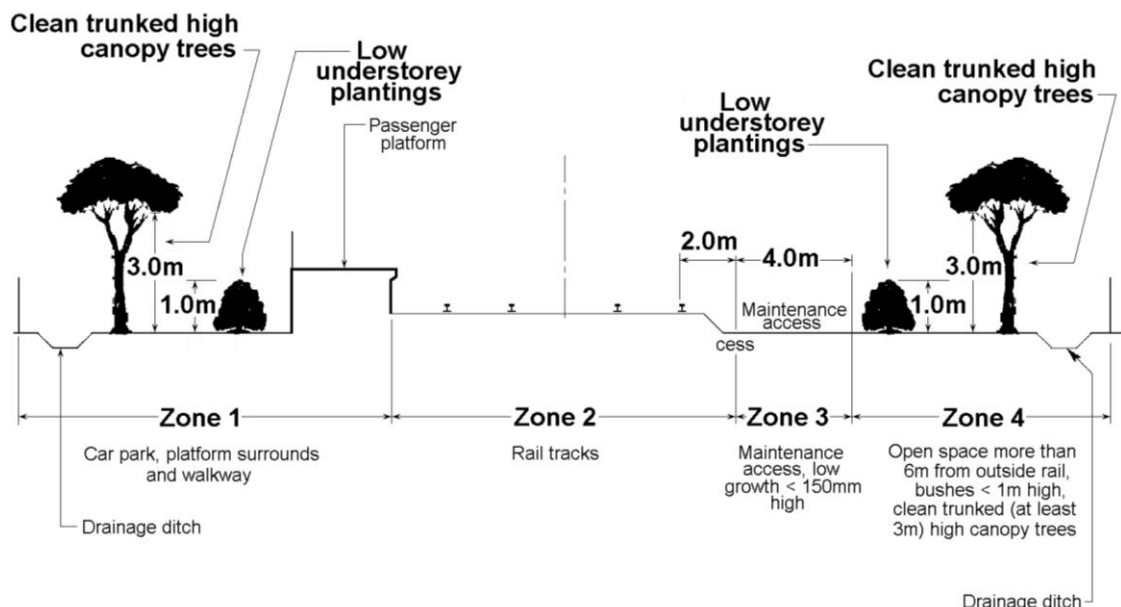


Figure 1 – Cross section showing zones

14.1.1. Clearances to Rail Line

In order to ensure appropriate sightlines for train drivers, planting in the corridor is restricted to areas outside the envelope shown in Figure 1. This specifies a restricted zone encompassing the track structure and an area 6 metres either side of the outer rails of the near track. Note that where the rail corridor is only 20 metres wide, zone 4 may be less than 1.2m wide and after allowing for drainage the scope for landscaping may not exist.

The planting of low growth reaching a height no greater than 150mm may be tolerated in the maintenance access space (zone 3) although not preferred. This growth will be subject to heavy motor vehicle traffic by maintenance workers and will need to be hardy in nature. In some locations a maintenance roadway of hard compacted quarry rubble may be constructed and growth will not be feasible.

14.1.2. Additional Clearance at Curves

To accommodate the increased risk of blocking sightlines on curves, zone 3 in Figure 1 is to be increased from 4 metres to 8 metres (but not beyond the corridor boundary) for the entire curve length.

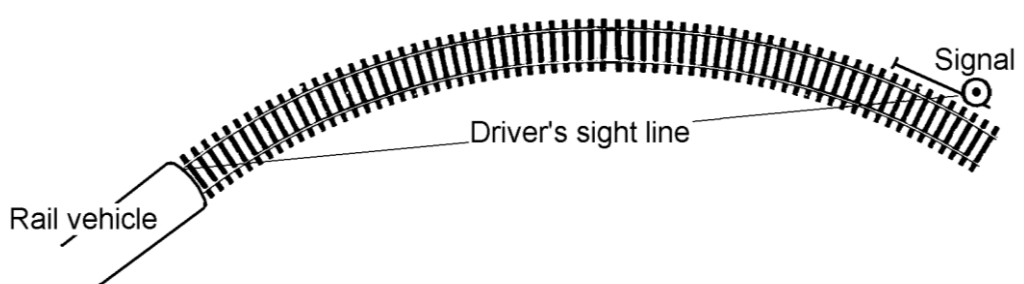


Figure 2: Curve Sightlines

14.1.3. Security

To ensure the safety of customers at platforms, comply with the requirements of Crime Prevention Through Environmental Design (CPTED) principles and ensure train driver sightlines, a viewing area through plantings is essential. This is effected by keeping low understory plants below 1 metre high and clean trunked high canopy trees clear up to 3m above ground level as shown in Figure 1.