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Preface

This standard was prepared by the Rail Corridor Access Development Group, overseen by the RISSB Infrastructure Standing Committee.

THIS PRODUCT DISCUSSES TOPICS RELATING TO SUICIDE AND SELF-HARM WHICH SOME READERS MAY FIND DISTRESSING.

Objective

The objective of this Standard is to outline requirements that encourage rail organizations to adopt a whole-of-life approach to the management of rail corridor access. This approach includes the requirements in relation to rail corridor access in terms of design, supply, construction, and maintenance of access controls for a range of operational railways in Australia.

Compliance

There are four types of provisions contained within Australian Standards developed by RISSB:

(a) Requirements.

(b) Recommendations.

(c) Permissions.

(d) Constraints.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term ‘shall’.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term ‘should’.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied or other controls are more appropriate or better.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term ‘may’.

Constraints – provided by an external source such as legislation. Constraints are identified within the text by the term ‘must’.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities or interfacing organizations where the risk may be shared.

RISSB Standards address known hazards within the railway industry. Hazards, and clauses within this Standard that address those hazards, are listed in Appendix A.

Appendices in RISSB Standards may be designated either “normative” or “informative”. A "normative" appendix is an integral part of a Standard and compliance with it is a requirement, whereas an "informative" appendix is only for information and guidance.

Commentary

Commentary *C Preface*

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

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Figures

Section 1 Scope and general

1.1 Scope

This Standard covers rail networks as classified in AS 7630, *Railway Infrastructure – Track Classification*.

The Standard includes the requirements for managing access to the rail corridor to control the level of risks posed by intentional or unintentional trespass or authorized access.

The recommended control requirements are selected to appropriately reflect site features, type of access and activities by the involved parties, including:

(a) operations personnel and vehicles;

(b) maintenance personnel and vehicles;

(c) construction personnel and vehicles;

(d) third-party services personnel and vehicles; and

(e) travelling public (passengers), adjacent landowners and general public.

RISSB does not intend for this standard to cover urban on-street tramway or light rail networks, cane railways, or heritage railways operating on private reservation, but the relevant Railway Infrastructure Manager may apply items from this Standard to such systems as deemed appropriate.

1.2 Normative references

The following documents are referred to in the text in such a way that *some* or all of their content constitutes requirements of this document:

- AS 4687, *Temporary Fencing and Hoardings*
- AS 4799, *Installation of Underground Utility Services and Pipelines within Railway Boundaries*
- AS 5100, *Bridge Design*
- AS 7367, *Hydrology and Hydraulics*
- AS 7460, *Remotely piloted aircraft systems (Drones) – Operational Requirements*
- AS 7630, *Railway Infrastructure - Track Classification*
- AS 7632, *Railway Infrastructure Signage*
- AS 7658, *Railway Infrastructure - Railway Level Crossing*
- AS 7660, *Radio Communication in the Rail Corridor*
- AS/NZS 3845, *Road Safety Barrier Systems*
- *RISSB Guideline – Rail Emergency Management Planning*
- *ONRSR Code Of Practice – Train Visibility at Level Crossings*

NOTE:
Documents for informative purposes are listed in a Bibliography at the back of the Standard.

1.3 Defined terms and abbreviations

For the purposes of this document, the following terms and definitions apply:

1.3.1

anti-glare screen
screens or barriers intended to reduce visual glare from sunlight or vehicle lights

1.3.2
anti-throw screen
screens designed to prevent objects from being thrown onto railway corridor, infrastructure or assets

1.3.3
boundary
limits that define the land owned and managed for railway purposes

Note 1 to entry: Barriers can provide a physical definition of the boundary lines of the rail corridor and may be constructed of a variety of materials including (but not limited to) fences, walls, natural or manufactured materials.

1.3.4
crash barriers
specialized safety barrier systems installed at the interface between roads and railway corridors

1.3.5
electrification screen
specialized screens designed to protect people from electrocution by preventing access to overhead line equipment (OHLE)

1.3.6
maintenance
maintaining the integrity of the rail infrastructure including boundary measures to a standard acceptable to the rail infrastructure manager

Note 1 to entry: In the context of this document, maintenance focuses on the boundary and access infrastructure and obtaining access to perform maintenance and less on the actual act of maintaining rail network infrastructure.

Note 2 to entry: Maintenance is commonly conducted post inspection or upon report of damage or repair necessary.

1.3.7
major works
projects or activities that involve significant technical or operational changes such as the introduction of new rolling stock or railway infrastructure.

Note 1 to entry: This can include works with a high level of complexity due to intricate, multi-party organizational or contractual structures.

1.3.8
residential fence
fence which separates the rail corridor from a residential property.

Note 1 to entry: Residential boundaries can be constructed of materials other than fencing.

1.3.9
restricted access
area where access is available to authorized key holders and rail infrastructure manager approved personal only

1.3.10
urban fence
fence which separates the rail corridor from a populated environment. For example, the boundary between the rail corridor and a roadway or footpath

Note 1 to entry: Urban boundaries can be constructed of materials other than fencing.

General rail industry terms and definitions are maintained in the RISSB Glossary. Refer to: https://www.rissb.com.au/glossary/

Section 2 Design and rating

2.1 General

The rail infrastructure manager (RIM) should undertake a risk assessment of the rail network boundary. Design and rating of controls shall be site specific and appropriate for the level of risk posed by intentional or unintentional trespass or authorized access.

The design shall enable ease of barrier maintenance tasks including cleaning, repair and replacement of components.

2.2 Design

The designer shall apply a risk-based approach specific to the individual sites when designing authorized access points or the controls required to protect the railway from unwanted intrusion and unauthorized access.

The designer should assess, but is not limited to, the following:

(a) public, third-party and staff education campaigns as an alternative or supplement to physical measures and other methods that may be used;

(b) the risk of unauthorized access;

(c) the need for authorized access by people (train passengers, workers, emergency services, etc.) while deterring access by others;

(d) the risk and impacts of suicide or self-harm incidents;

(e) the hazards associated with and specific design requirements relating to access points in proximity to electric traction equipment;

(f) the arrangements at barriers and structures supporting equipment above or adjacent to the railway;

(g) the arrangements at any level crossings;

(h) pedestrian access crossings and footpaths;

(i) the activities adjacent to the railway, including third-party operations;

(j) the provision of crash barriers where roads are adjacent to the railway;

(k) visual distractions such as coloured or beams of light from road vehicles adjacent to the railway;

(l) safe movement of protected native animals compliant with legislative obligations;

(m) the proximity of turnouts;

(n) any other special track work;

(o) proximity of high-risk operations access or works;

(p) proximity of above and below ground utilities and services;

(q) electrolysis and earthing issues; and

(r) the proximity of airports, airstrips, and alignment of runways including issues such as path infringement and runway lights.

2.3 Assessing unauthorized intrusion or access

Assessment should be conducted where known or high-risk areas of unwanted intrusion and unauthorized access to the rail corridor occurs or is likely to occur. The assessment should factor the rail traffic types, and their operating characteristics, as detailed in AS 7630.

2.4 Investigation and planning

Adopting a risk-based approach to determine the type of boundary protection measures appropriate to safeguard any location allows a balanced approach to managing the issues and the whole-of-life costs of preventing trespass.

Areas that are assessed to be a greater risk or locations known to be frequently accessed without authority, shall be specifically identified and appropriate design measures taken.

The RIM shall assess the hazards at the location when deciding on the types of boundary control measures to be taken.

Controls should not be limited to physical infrastructure. Controls should include other risk mitigation strategies such as educational or behavioural change strategies, such as:

(a) advertising at the site;

(b) campaigns using conventional or social media;

(c) risk group engagement, e.g., school visits; and

(d) stakeholder partnerships, e.g., development of community groups.

2.5 Design investigation

Consultation with local statutory bodies may be undertaken prior to commencing the investigative works.

Site investigation should be undertaken to provide input into the design of the proposed controls, their implementation and maintenance, as determined by the RIM.

Subject matter experts from the rail operations should be included, where relevant, in the investigation process.

Investigations may include the following:

(a) a desktop study to determine existing and future operational and maintenance access requirements

(b) an assessment of local hazards such as vehicular traffic at speed and adjacent highways or motorways

(c) a site visit to observe any visible signs of regular trespass

(d) an assessment of known suicide or self-harm locations or areas

(e) signage in prevalent locations which offers support to persons in distress or contemplating suicide or self-harm

(f) examination of route or area-based crime statistics to determine the number and nature of any previously recorded instances of unauthorized access

(g) consultation with local residents and other groups e.g., conservation groups who might be materially affected by the erection of a new or alteration of an existing barrier

(h) examination of barrier maintenance and repair records to determine the effectiveness of the existing arrangements

(i) technology options such as electronic fence detection systems, motion detection, local audio visual annunciators

(j) the application of Crime Prevention Through Environmental Design (CPTED) methodologies

(k) investigate opportunities and audience for community education programs and media campaigns as appropriate

(l) an assessment of the requirements for signage or other non-physical controls to be used in conjunction with or as an alternative to physical barriers

(m) the authorized and emergency access requirements

(n) examination of protected native animal habitat records including animal hits and movement patterns

(o) security, safety and environmental outcomes

(p) access to and from stations or station platforms

(q) an assessment of the requirements for site specific personnel protective equipment

Where there is increased likelihood of unauthorized access due to the number of people or configuration of the infrastructure or geography, adequate measures shall be taken to mitigate the risk.

Suitable measures should be taken for the safety of rail traffic near runways, air traffic and where other hazards might impinge upon the railway, such as potential flight path conflicts. Such measures may include, but are not limited to:

(r) restrict access to runways;

(s) develop worker access and traffic management plans;

(t) personal protective equipment; and

(u) signage.

Additional fencing or signage might be required at public footpaths, stock routes, vehicular and other crossings of the railway line to encourage the public and animals to cross at the safe location.

Sight lines at level crossings and authorized access points shall not be infringed by any access control measures.

Unofficial crossing points should be assessed and managed in line with the assessed risk.

Commentary *C2.5*

TrackSAFE Foundation actively target prevention of suicide incidents in the rail corridor and additional information can be found on their website TrackSAFE Foundation.com.au that designers may use.

2.6 Design inputs

The barrier shall be designed to mitigate the level of risk as determined by the RIM.

The RIM should ensure that the design process factors in:

(a) relevant historical events;

(b) access for maintenance;

(c) level of security required for the location;

(d) other authorized access;

(e) emergency access or egress;

(f) barrier type;

(g) constructability;

(h) maintainability;

(i) upgradability; and

(j) ease of demolition.

Sufficient access to support regular inspection and maintenance of the barrier and signage should be assessed during the design process.

Where third parties require access, barrier designs shall include measures that will control such access in a safe manner without interfering with normal rail operations. These measures may include third-party access agreements or other procedural arrangements.

Barriers should be designed to withstand prevailing weather extremes, and the ground-borne vibrations and additional wind turbulences created by the normal passage of rail traffic.

Section 3 Prevention of unauthorized access

3.1 General

This section provides guidance on the provision of boundary controls to prevent unauthorized access to the rail corridor.

3.2 Protection methods and devices

This Standard describes the methods and types of protection devices that may be used to protect the rail corridor from unplanned and uncontrolled access.

The implementation of the methodologies and devices shall be determined by statutory requirements and the outcomes from risk assessments and be approved by the RIM.

3.3 Raising awareness

Raising awareness among those who might access the rail corridor without authorization should be targeted in accordance with the assessed risk and the target group's potential responsiveness.

Examples of target groups can include:

(a) road users;
(b) school children;
(c) contractors;
(d) general public;
(e) rail passengers; and
(f) tourists.

The design and delivery of any campaigns should be inclusive and allow for different levels of exposure and awareness in the target groups.

Examples of tools that may be used in awareness campaigns include:

(g) roadside billboards;
(h) school visits;
(i) social media,
(j) internet;
(k) radio and television;
(l) briefings;
(m) passenger information display messages;
(n) printed media or posters; and
(o) announcements over public address systems.

3.4 Vehicle barriers

Vehicle barrier design shall eliminate the risk of intrusion into the rail corridor and/or onto the railway track by an errant vehicle, cargo or debris. Standards and other documents that should be reviewed include:

(a) AS 5100.1

(b) AS/NZS 3845

(c) safety interface agreements (e.g., road rail interface agreements)

The design of a vehicle barrier shall minimize the risk of:

(d) loss of life;

(e) damage to vehicle(s) and rail traffic;

(f) derailed rail traffic being struck by rail traffic on an adjacent track;

(g) disruption to railway operations;

(h) damage to railway infrastructure; and/or

(i) service delays due to the time taken to resume rail traffic movement and resume normal operations.

A risk assessment shall be undertaken at locations where there is a road rail interface. This risk assessment shall determine the form of any barrier requirements which might be required external to or inside the rail corridor.

Examples of suitable barriers may include reinforced concrete or visual demarcation.

Where risk mitigation measures are best installed outside the jurisdiction of the RIM, negotiations should be undertaken with the appropriate authority or body responsible to install such mitigation measures.

Examples of instances where mitigation is best installed outside the rail corridor include:

(j) over-height vehicle warning systems or protective overhead barriers ahead of a rail over road bridge structure to protect the safe operation and integrity of the railway; and

(k) product spillage barriers on a road over rail bridge structure and its approaches to protect the rail corridor against any vehicle borne bulk material spillage falling onto the rail corridor.

3.5 Boundary controls

Fences or an approved barrier shall be provided at the boundary of the rail corridor. Where applicable, fences and approved barriers must be designed and installed in accordance with local and state legislation. The RIM should undertake risk assessments to determine the level of risk mitigation to:

(a) afford a measure of security and safety by deterring unauthorized access;

(b) discourage stock from straying into the rail corridor;

(c) delineate the railway boundary; and

(d) allow the safe movement of protected native animals where applicable without creating hazards for rail traffic.

Where practicable, structures adjacent to boundary barriers should be located and configured in a manner that prevents them from becoming a climbing aid to surmount the barrier.

Examples of barrier types that may be used are:

(e) boundary delineator;

(f) stock fence;

(g) residential fence;

(h) urban fence;

(i) security fence;

(j) noise abatement barriers; and

(k) high security fence.

Noise reduction may be incorporated as a function of a barrier if required.

If the fence is also a noise reduction barrier, it shall meet the acoustic requirements detailed in manufacturer's specifications and the RIM's requirements.

Where a retaining wall exists on the rail boundary, an appropriate fence type may be erected on top of the wall.

Cattle grids can be installed to prevent stock from straying from fenced to unfenced areas.

Other types of boundary controls may be used at specific sites subject to the approval of the RIM.

For all types of barriers or fencing, access for infrastructure and rail corridor maintenance shall be assessed.

Wherever such maintenance access is warranted, an appropriate level of security should be implemented, e.g., provision of lockable access gates.

The installation of a new maintenance access point in boundary barriers adjoining urban residential areas should be minimized. The potential impacts to urban residences any new installations pose (such as noise, access or aesthetics) should be assessed and controlled in so far as is reasonably practicable.

A rail boundary gate sign should be attached to access gates as determined by the RIM. An example of a boundary gate sign is provided in Appendix B.

When designing signage, the subsequent items can be included:

(l) direction of rail travel;

(m) line speed;

(n) personal protective equipment;

(o) Emergency Services information such as Signalling Electrical Operating Control Centres;

(p) kilometrage; and

(q) longitude and latitude co-ordinates.

AS 7632 provides the requirements for signage design, construction, inspection, monitoring, maintenance and decommissioning of railway signage.

3.6 Demarcation barrier

Demarcation barriers should be provided to delineate the boundary of planned major and temporary work areas that have potential to increase risk of unauthorized access. Further detail on temporary works is included in Section 4.3.

Demarcation barriers provide a clear boundary in situations which might include:

(a) separation of open and closed lines in multiple track situations;

(b) separation of live tracks and off-track worksites;

(c) separation of worksite and rail corridor areas, including worksites temporarily taken into the rail corridor;

(d) separation of worksite and public areas; and

(e) separation of worksite and environmental no-go, or significant cultural heritage areas.

Demarcation barriers do not replace the requirements for worksite protection. A demarcation barrier may be one of the following approved configurations:

(f) star pickets and wire or demarcation tape;

(g) safety fence;

(h) temporary fencing;

(i) temporary barriers such as concrete or water filled 'Jersey' barriers;

(j) site type mesh fencing;

(k) temporary hoardings (AS 4687 provides system details); and

(l) securable removable panels.

3.7 Screens and barriers

The use of screens and barriers can enhance the safety of the rail corridor for rail safety workers, pedestrians and road users and may serve multipurpose functions subject to risk assessment and approval by the RIM.

Anti-glare screens may be suitable for multiple use as anti-throw and/or electrification screens. The RIM shall determine and document the suitability of anti-glare screens for multiple use. The height of screens used for alternate purposes may be factored into the height of crash barriers.

The requirements for inclusion of anti-throw screens should be assessed:

(a) on roadway and pedestrian bridges passing over the railway; and

(b) by the side of the road or path nearest to the railway, where the horizontal distance from the road edge, fence line or traffic barrier to the nearest track centre line is less than six (6) metres.

The design and installation of electrification screens shall be in accordance with applicable standards and as defined by the RIM.

Where infrastructure passes over the rail corridor and are a potential spill risk which might impact the rail corridor, the need for burst protection and product spillage containment should be assessed.

3.8 Modified natural features

Natural features that form a partial barrier or demarcation line may be used for enhancement to create a deterrent barrier or demarcation.

Natural features that may be used can include:

(a) rock formations;

(b) thorn bush growth; and

(c) waterways and watercourses.

Enhancements could include the following:

(d) fences or walls to fill gaps (as per Section 3.5);

(e) boulders positioned to fill gaps;

(f) repositioning fallen trees;

(g) planting; and

(h) ditches and bunds.

3.9 Enhancement of earthworks and surface drainage

In appropriate situations, railway formation earthworks and surface drainage works that form a partial barrier or demarcation line may be used and enhanced to create a deterrent barrier or demarcation.

Enhancements can include the following:

(a) Batter slopes and longitudinal surface-cut drains in railway cuttings (e.g., cut-off and mitre drains) and/or windrows;

(b) batter slopes and longitudinal surface-cut drains on railway embankments or windrows; and

(c) cross-track access blocked on public-approach side/s of transition points from cutting to embankment by the strategic placing of large rocks, boulders, longitudinal surface-cut drains, or windows.

The requirements for the design of these formations is referenced in AS 7367.

3.10 Special protective measures

Special protective measures should be assessed to control a particular issue. These special protective measures may include:

(a) anti-climb paint on structures that minimize trespass;

(b) palisade fencing; and

(c) electric stock fences.

Provision of access to the opposite side of the rail corridor for legitimate users may be allowed (e.g., for adjacent land occupiers, other authorized persons, and for wildlife or stock).

These provisions may include:

(d) enabling use of selected under-track crossings (see Note 1);

(e) provision of a special-purpose under-track structure or over-bridge structure;

(f) provision of a locked-gate protected passive level crossing that requires network control permission to unlock and use (see Note 2);

(g) provision of a lockable-gate for a protected passive level crossing that is only available for use by vehicles driven by authorized persons and normally does not require network control permission to access (see Note 3);

(h) creation of a Restricted Access section along a defined length of the rail corridor by providing lockable gates at both public-approach ends, accompanied by localized fencing or by appropriate forms of non-drive-around blockades;

(i) occupation passive level crossings located wholly within a Restricted Access section of the rail corridor which might not require protection by additional lockable gate/s on one or both of their approaches; and

(j) in a Restricted Access section wherever a railway access road traverses the railway, appropriately signed lockable gates may be used for both approaches where unauthorized use of the access road is deemed possible.

NOTE 1:

waterway bridges or large-sized culverts for example

NOTE 2:

for infrequent use by or under the control of authorized persons where rail traffic approach visibility is limited

NOTE 3:

for general use by authorized persons, where rail traffic approach visibility is good

Section 4 Construction

4.1 General

This section details the control of access during construction or other activities that compromise the level of protection given by the existing boundary measures.

Prior to and during construction works within the rail corridor, consultation should occur with persons conducting any adjacent works, inside and external to the rail corridor, to ensure interface requirements such as access and boundary delineation are managed.

4.2 Temporary measures

Temporary measures shall only be used where works are for a short period of time and are intended to be only interim or non-permanent activity. A risk assessment shall be undertaken to ascertain whether the use of temporary measures is appropriate for the duration, complexity and type of work being undertaken.

Temporary measures shall be put in place that offer the equivalent level of risk mitigation as the permanent control measures, as agreed by the RIM.

4.3 Supporting measures

Supporting measures may be used to supplement barriers and raise awareness. Some examples are listed below:

(a) signage;
(b) lighting;
(c) attended access control;
(d) targeted community consultation; and
(e) advertising, including:
    (i) social media;
    (ii) internet;
    (iii) radio and television;
    (iv) billboards;
    (v) print media, e.g., posters and newspapers; and
    (vi) letter drop.

4.4 Records

The need for and the level of inspections to confirm the integrity of the temporary and permanent access control measures in a construction zone shall be agreed with the RIM before any works are undertaken on the site.

When inspections and actions are needed, records shall be kept and retained as required by the RIM.

Section 5 Level crossings

The requirements for the management of authorized access and for the prevention of unauthorized access at level crossings are contained in AS 7658.

Where assessed as appropriate by the RIM, a road or pedestrian level crossing that allows access to a bridge supporting the railway should be provided with appropriate:

(a) signs;

(b) fences; and/or

(c) barriers which prohibit unauthorized persons from accessing the bridge.

All such bridges should have appropriate warning signage provided at the approach ends of its superstructure, prohibiting unauthorized access to the bridge.

ONRSR Code of Practice – *Train Visibility at Level Crossings* provides additional information to support the management of access risk so far as is reasonably practicable.

Section 6 Stations and platforms

Where assessed as appropriate by the RIM, train stations and platforms that allow access to the rail corridor should have the following:

(a) Appropriate and clear signage to direct public and rail safety workers; and

(b) fencing or barriers which prohibit unauthorized persons as necessary.

Maintenance shall occur to ensure signage is visible and clear for members of the public, rail safety workers and rail traffic crew sight lines.

Section 7 Third-party services

7.1 General

AS 4799 provides the minimum requirements while also allowing the railway authority to impose additional requirements.

Above and below ground services and utilities such as electrical substations, cabling and signalling air pipes should be assessed for their proximity to the rail corridor boundaries to ensure there is no infringement which might impact railway operations.

So far as reasonably practicable, service infrastructure and cabling shall be laid within suitable protection.

7.2 Inspection chambers and pits

No inspection chambers, pits, or anchor blocks should be installed in the rail corridor as part of services solely owned by non-railway authorities.

For pipelines carrying gases or liquids under pressure, a valve should be installed in the pipeline, on the inlet side, outside of the rail corridor. A second valve on the outlet side also installed outside the rail corridor should also be assessed for use.

Where an inspection chamber or catch pit is located in an area that can increase the risk of unauthorized access to the rail corridor, additional arrangements should be made to minimize the risk.

Section 8 Emergency access to the rail corridor

8.1 General

This section provides guidance on the provision of emergency access to the rail corridor.

RIMs should assess the potential requirement for emergency access to the corridor.

Emergency access should be planned and managed through organizational emergency response plans.
Access methods and facilities

This standard describes the access methods and facilities that may be used to access the rail corridor in emergencies.

The implementation of the methodologies and facilities should be determined by the outcomes from risk assessments.

8.2 Investigation and planning

A risk-based approach shall be adopted to determine the means of access and the type of access support measures provided to known or high-risk locations within the rail corridor.

The RIM should assess the risks in the corridor combined with the difficulty of access.

Scenarios to assess should include sections of rail corridor prone to:

(a) fire;
(b) flood;
(c) spills;
(d) derailment;
(e) rock falls;
(f) landslips; and
(g) equipment failure.

The importance of the infrastructure to the operation of the railway and maintenance requirements should also be assessed when planning access.

Infrastructure factors to assess include:

(h) loops;
(i) junctions;
(j) communication installations;
(k) bridges;
(l) viaducts;
(m) turnouts;
(n) level crossings; and
(o) adjacent public roads and highways.

8.3 Access strategies

8.3.1 General

Access strategies can include:

(a) transport options to achieve access;

(b) ingress and egress routes to access locations;

(c) infrastructure that can pose limitations such as viaducts, highways, bridges;

(d) infrastructure to aid access on or near the rail corridor;

(e) communication systems to reduce the need or increase time needed for access; and

(f) equipment carried on rail traffic or held lineside.

8.3.2 Transport means

Transport means that should be assessed, particularly for remote areas, include:

(a) Hi-Rail vehicles;

(b) light vehicles;

(c) emergency vehicles;

(d) helicopters;

(e) light aircraft;

(f) boats;

(g) neighbouring land holder's vehicles; and

(h) rail traffic.

The selection of means to achieve access will be influenced by many factors, including:

(i) urgency;

(j) nature of the access requirement;

(k) location of the site; and

(l) weather.

8.3.3 Transport support

To make a transport mode viable, supporting infrastructure might need to be identified, assessed and supplemented. Examples include:

(a) Hi-Rail railroad exchange points;

(b) helipad clearance; and

(c) airstrip clearance.

Provision of landing sites is undertaken to support emergency access in remote or poor access locations.

8.4 Communication

Communication and data can provide a means to avoid the need for access, reduce the urgency, or make the access intervention more effective.

Medical and other support can also be provided over communications links.

Requirements for radio communications should be referenced in AS 7660.

8.5 Emergency preparedness

In the event of an emergency or incident, measures should be taken to control and limit the access to the incident site. Detailed information on planning for such events can be found in *Guideline Rail Emergency Management Planning.*

Section 9 Inspection assessment and maintenance

9.1 General

The RIM shall develop appropriate schedules that enable effective maintenance of the measures installed to deter unplanned and uncontrolled access to the rail corridor to a serviceable condition.

Rail corridor sections which have a history of trespass, intent to commit or attempt suicide or self-harm, vandalism or other unauthorized access issues, should be identified and managed according to the identified risk.

Inspections of the rail corridor boundary may be conducted using drones. The requirements for the operational usage of these devices are found in AS 7460.

Inspection frequencies and maintenance schedules should be reassessed following changes in demographics, incident levels, risk profile or other changes that may impact the efficacy of the access method.

Records shall be maintained for all rail corridor boundaries that identifies the:

(a) boundary type;

(b) condition of asset;

(c) neighbouring land use;

(d) changes to neighbouring land use;

(e) inspection frequency; and

(f) safety interface agreement required.

9.2 Inspections

9.2.1 Scheduled inspections

Scheduled inspections may comprise of regular periodic general visual inspections based upon the history of the site and assessed risk. The frequency and detail of inspection are to be determined by the RIM.

Inspection frequencies and maintenance schedules should be reassessed following changes in demographics, incident levels, risk profile, or other identified changes.

9.2.2 Non-scheduled inspections

Inspections can be triggered by an event or incident occurrence or through the reporting by rail safety worker observation during their duties.

9.3 Maintenance

9.3.1 General

The RIM shall determine the maintenance schedule to maintain the integrity of the access control measures installed.

Asset information and construction records shall be kept and maintained for future maintenance and asset planning.

Any repair undertaken on the barrier control measures shall maintain the integrity of such measures.

Where a repair cannot maintain the integrity of the original barrier control measure, replacement shall be undertaken.

9.4 Roles and responsibilities

The RIM shall ensure that the responsibilities of all persons engaged in the asset management of barriers, fences, and other measures installed to deter unplanned and uncontrolled access, are clearly identified in writing and understood by those persons.

The RIM shall be responsible for arranging any boundary, barrier and access point inspections.

9.5 Records

The RIM shall establish and maintain records of all inspections, defined events assessments, and remediation.

To promote consistency, the RIM should develop templates, forms or a database for inspection and remediation records.

9.6 Remedial action, rehabilitation and renewal

The RIM shall determine and arrange remedial action or rehabilitation taken due to the inspection and assessment process.

The RIM should incorporate inspection outcomes and boundary usage into maintenance schedules and long-term renewal plans.

9.7 Audits

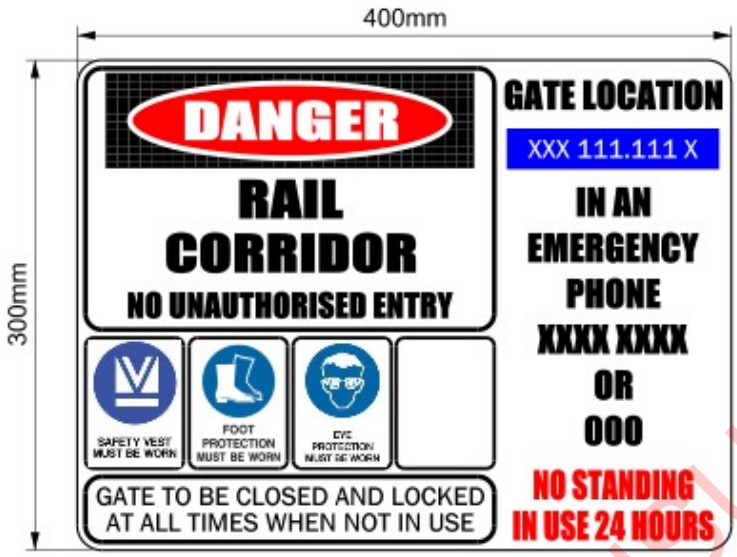
The RIM shall arrange regular audits of all records in relation to the provision, inspection, repair, and replacement of authorized access control barriers.

As a minimum, audit reporting shall include areas of compliance, non-compliance and recommendations for improvement.

Appendix A Hazard Register (Informative)

Hazard number	Hazard
3.1.1.1	Threat or assault on railway property
3.1.1.3	The public being exposed to railway hazards
3.1.1.4	A passenger being assaulted, threatened or assaulted on railway property
3.1.1.6	A worker being assaulted, threatened or assaulted on railway property
3.1.1.8	Inadequate access prevention
3.1.1.10	Inadequate site security
3.1.1.11	Inadequate fencing
3.1.1.23	Suicide attack
3.2.1.17	Organisational failure to provide adequate terminal or yard security, e.g. CCTV, fencing, etc.
3.2.1.22	Unauthorized access to restricted facilities
3.2.1.25	The failure to control authorized access to station
3.2.1.28	The failure to identify suspicious persons and or item(s)
3.2.1.29	The failure to prevent Trespass
7.2.1.10	Vandalism
8.3.1.12	Unauthorized motor vehicles on rail tracks
8.5.1.1	Being struck by trains
8.5.1.2	Being struck by objects
8.5.1.3	Being struck by motor vehicles

Appendix B Boundary Gate Sign (Informative)



Appendix Figure B-1 Boundary gate sign

Bibliography (Informative)

- TBD

Bibliography sub-heading for grouping entries (if needed)