KiwiRail

Track Safety

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Table of Contents

TS01 Planning Work in the Railway Corridor 5
1. Principles 5
2. Purpose 5
3. General 5
4. Protection Arrangements 7
5. Job Planning 8
6. Communication Plan 12
7. Working in Tunnels 12
8. Identifying the Worksite Location 13
9. Work Trains 13
10. Planning Secondary Protection 13
TS02 Protected Work Area 15
1. Principles 15
2. Purpose 15
3. General 15
4. Worksites 15
5. Worksite Register and Locking On/Off 20
6. Rail Vehicles in Worksites 24
7. Mobile Plant Controller 25
8. Rail Protection Officer 26
9. Travelling through a PWA 27
10. Communication within a PWA 28
11. Handover of PWA/Worksite 29
12. Secondary Protection 29
13. Temporary Releasing of Protection 31
14. Attendance at Protection 32
TS03 Mis.60 33
1. Principles 33
2. Purpose 33
3. General 33
4. Maintenance Work 34
TS04 Compulsory Stop Protection 38
1. Principles 38
2. Purpose 38
3. General 38
4. Permission to Obstruct Line 39
5. Emergency Protection 40
6. Missing Boards 40
7. Safety Buffer Zone 40
TS05 Lockout Zones 42
1. Principles 42
2. Purpose 42
3. General 42
TS06 Blocking 44
1. Principles 44
2. Purpose 44
3. General 44
4. Blocking Use 45
5. Signalling Failure 46
6. Additional Track Occupancies 47
TS07 Emergency Protection 48
1. Principles 48
2. Purpose 48

3. General 48
4. Communication with the Signaller 48
5. In Track Warrant Control Territory 49
6. Automatic Signalling Locations 49
7. Approaching Rail Vehicle in Obstructed Section 50
TS08 Working Within Non-Interlocked Areas 51
1. Principles 51
2. Purpose 51
3. General 51
4. Movements 51
5. Non-Terminal Operations Activities 51
6. Protection Requirements 52
7. Rubber Tyre Shunt Vehicles 53
8. Motive Power Units 53
9. Rail Vehicles 54
TS09 Foul Time 55
1. Principles 55
2. Purpose 55
3. General 55
4. Activities Permitted Using Foul Time 55
5. Requesting Foul Time 56
6. Conflicting Rail Movements 56
7. Altered Circumstances 57
8. Completion of Foul Time 57
TS10 Individual Train Detection 58
1. Principles 58
2. Purpose 58
3. General 58
4. Individual Train Detection Safety Check 59
5. Individuals Moving on Foot Alone 59
6. Observer Appointed 59
7. Completed Mis.70R 60
TS11 Mobile Track Maintenance Vehicles 61
1. Principles 61
2. Purpose 61
3. General 61
4. Authority to Move 62
5. Protection Rule Requirements 64
6. Operation of Main Line Hand Points 64
7. Speed 65
8. MTMV Moving Within Station Limits 65
9. Passing of Signals at Stop 65
10. Stabling MTMVs 65
TS12 Hi-Rail Vehicles 66
1. Principles 66
2. Purpose 66
3. General 66
4. Protection Requirements 67
5. HRV Operations 69
6. HRV Off-Tracking 72
TS13 Danger Stop Signals and Boards 73
1. Principles 73
2. Purpose 73
3. General 73
4. Protection Arrangements 73

5. Variations to Distances 76
TS14 Authorised Fencing 77
1. Principles 77
2. Purpose 77
3. General 77
4. Use of Authorised Fencing 78
5. Erection of Authorised Fencing 78
6. Operating behind Authorised Fencing 79
7. Moving Plant Outside of a Worksite 80
8. Moving Plant within a Worksite 81

TS01 Planning Work in the Railway Corridor

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.
- **Principle 9** - People must be protected from the hazards associated with electrical infrastructure.

2. Purpose

To prescribe the rules for planning work within the railway corridor.

3. General

Protection Planner

You must ensure:

- work planned for the railway corridor is assessed for safety, and its potential to intrude into the danger area
- work in the danger area uses an authorised protection method.

When planning work in the rail corridor, you must also consider:

- potential obstructions to adjacent railway lines
- potential hazards within or near the work area (including electrical hazards)
- the possibility of trains entering the work area from other lines, e.g., from nearby junctions, crossing loops, marshalling yards and depots
- allowing for rail vehicle overruns when using signals for protection
- safe place requirements.

Rail Personnel

Where the protection method requires, a Rail Protection Officer must be present to work in the danger area.

Any work affecting track circuits, level crossings, signals or other track safety equipment must be performed in accordance with the relevant **Rail Operating Rules**.

NOTE

For details on the Rail Protection Officer's responsibilities, refer to **GR08 General Responsibilities**.

3.1 Protection Systems

Rail Personnel

You must ensure that all work in the danger area is conducted in accordance with the rules for the selected approved protection method, as detailed in Table 1.

Table 1: Types of Protection Methods

#	Types of Protection Methods	Rule Reference
1	Track Warrant (TWC areas only)	SO08
2	Mis.60 (not used in TWC areas)	TS03
3	Compulsory Stop Protection	TS04
4	Lockout Zones	TS05
5	Blocking	TS06
6	Emergency Protection	TS07
7	Work within Non Interlocked Area	TS08
8	Foul Time	TS09

NOTE

Vehicles travelling on formed access roads adjacent to the railway line are exempt, provided no part of the vehicle is closer than 2.5 metres from the track centre.

IMPORTANT

When using a track warrant as a protection method, you must apply **RP02 Using Track Warrant Control**.

3.2 Unplanned Work

Rail Personnel

You must obtain permission from the Rail Protection Officer before any unplanned work or activity is undertaken in the PWA.

Rail Protection Officer

Provided you are satisfied that the additional work can be managed safely:

- a new worksite may be established, or
- work may be incorporated within an existing worksite.

You must ensure:

- a Site Protector manages any new worksite
- the Site Protector of other fixed and mobile worksites affected by a new worksite is advised, including worksite limits.

You must tell details of all unplanned work to the person responsible for planning the protected work area.

4. Protection Arrangements

Rail Personnel

You must always arrange protection before the commencement of all work that is/or has the potential to be within four metres from the centre line of the closest railway line.

CAUTION
When working in multi-line areas, adjacent lines within four metres must also be protected.

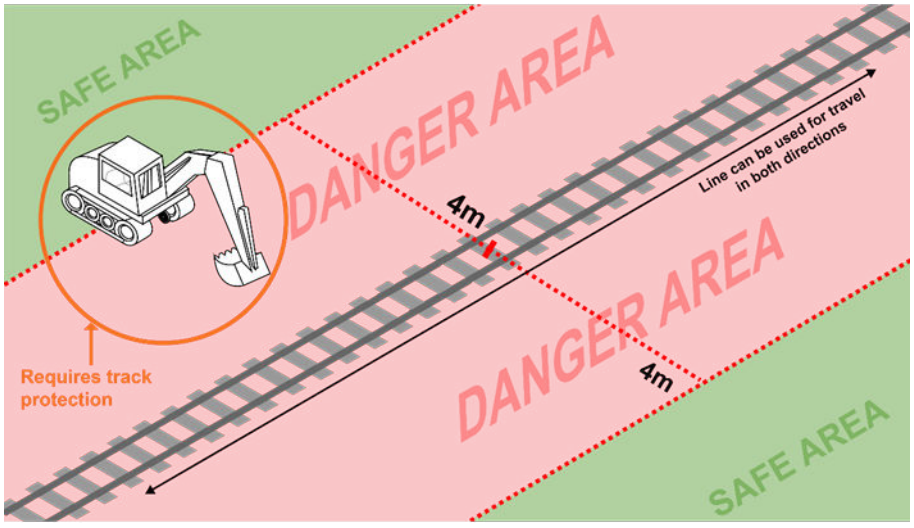
Protection Planner

You may approve a reduction of four metres provided:

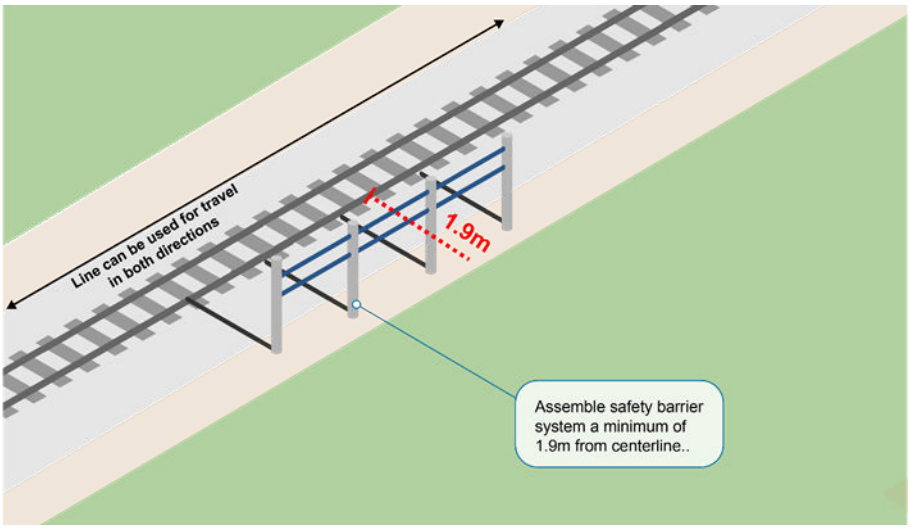
- a risk assessment has been conducted, and
- appropriate control measures are implemented.

These control measures may include substantial barriers or speed restrictions.

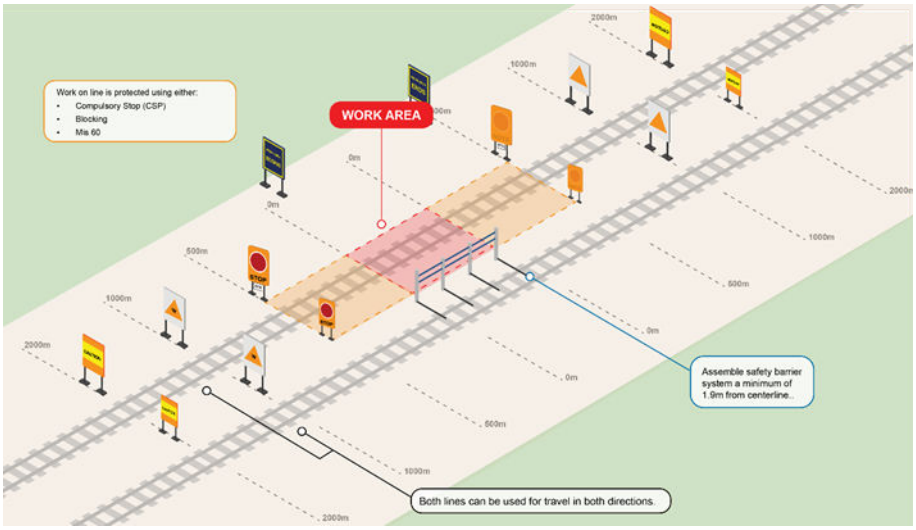
NOTE
Vehicles travelling on formed access roads adjacent to the railway line are exempt, provided no part of the vehicle is closer than 2.5 metres from the track centre.



Protection Requirements in a Single Line Area



Example of Working Behind a Safety Barrier System in a Single-Line Area



Example of Working Behind a Safety Barrier System in a Multi-Line Area

5. Job Planning

5.1 Planning Protection Arrangements

Protection Planner

You must use the following tools to assist in planning:

NOTE
Key For Table 2

✓ Indicates the type of protection that can be used.

X indicates the type of protection that must not be used.

also refers to Train Frequency Guide.

@ this process may be used in other locations, as shown in the Local Network Instructions.

- Track Safety Procedure Matrix detailed in Table 2 to determine the type of procedure appropriate to apply in your work situation.
- Train Frequency Guide detailed in Table 3 for planning maintenance with heavy tools, broken track or where welding occurs.

Table 2: Track Safety Procedure Matrix

Type of Protection and Rule Unit	Occupancy of track on foot	Maintenance with light tools	Trolleys and HRVs	Maintenance with heavy tools/ equipment and/or track broken ##	MTMV ##	Major track/ bridge/ tunnel work ##	Work trains ##
Track Warrant (SO08)	✓	✓	✓	✓ **##**	✓ **Also refer to TS11**	✓	✓
Mis.60 (TS03)	**X**	**X**	✓ **Also refer to TS12**	✓	✓	✓	✓
Compulsory Stop Boards (TS04)	**X**	✓	✓ **Also refer to TS12**	✓ **##**	✓ **Also refer to TS11**	✓	✓
Lockout Zones (TS05)	✓	✓	✓	✓ **##**	✓	✓	✓
Blocking (TS06)	✓	✓	✓	✓ **##**	✓ **Also refer to TS11**	**X**	✓
Emergency Protection (TS07)	When an obstruction occurs, tell the Train Controller so that approaching rail vehicles may be stopped. If unable to contact the Train Controller immediately, emergency protection must be arranged.						
Foul Time (TS09)	✓	✓	✓ **Midland @ Restricted**	**X**	**X**	**X**	**X**

Type of Protection and Rule Unit	Occupancy of track on foot	Maintenance with light tools	Trolleys and HRVs	Maintenance with heavy tools/ equipment and/or track broken ##	MTMV ##	Major track/ bridge/ tunnel work ##	Work trains ##
Individual Train Detection (TS10)	✓	✓	**X**	**X**	**X**	**X**	**X**

NOTE
Key For Table 3

✓ indicates the type of protection that can be used.

X indicates the type of protection that must not be used.

Table 3: Train Frequency Guide

Type of Protection	Train Frequency Over Work Period (8 Hours)		
	Low	**Medium**	**High**
	0 – 3	**4 – 5**	**6+**
Track Warrant	✓	**X**	**X**
Blocking	✓	✓	**X**
Lockout Zones	✓	✓	✓
Compulsory Stop Protection	✓	✓	✓

Protection Planner

When planning protection, you must always consider:

- potential obstructions to adjacent railway lines
- potential hazards within or near the work area (including electrical)
- the possibility of rail vehicles entering the work area from other lines
- allowing for rail vehicle overruns when using signals for protection
- safe place requirements.

You must arrange protection before the commencement of all work that is/or has the potential to be within four metres from the centre line of the closest railway line.

You must protect the adjacent lines within four metres when working in multi-line areas.

You may approve the reduction of four metres provided:

- a risk assessment has been conducted
- appropriate control measures are implemented.

NOTE
These control measures may include approved barriers or speed restrictions.

Rail Personnel

Before you access the railway corridor, you must have information about the following:

- the maximum speed for the line
- the direction from which rail vehicles normally approach
- any location with restrictions that can put you in an unsafe position
- times at which rail vehicles are scheduled to run, including additional rail vehicles listed on the information bulletin
- the location(s) of a safe place(s).

5.2 Information Bulletin

Protection Planner

You must arrange for the information bulletin to notify of planned work when using:

- E-Protect in accordance with the **E-Protect Systems Manual**, if applicable
- Mis.60
- Blocking / Lockout Zone (where the track is broken, or welding occurs)
- MTMV use
- Track Warrant
- Compulsory Stop Protection

IMPORTANT

Applications for planned work using any of the above protection methods must be made on the approved form(s) to the Network Access Planning office at least two days before the planned work.

You must ensure that the information in the information bulletin provides the following details:

- the line where work is being carried out
- work area protection
- protection rule to be applied
- work details including:
  - type of work, and
  - work area hours.
- Rail Protection Officer details:
  - mobile phone number / radio identification (when applicable)
  - call sign when using compulsory stop protection.

IMPORTANT

Emergencies and work of an urgent nature that is arranged on the day will be added to the appropriate bulletin by the Train Controller, and Operators will be advised accordingly.

5.3 Level Crossings

Protection Planner

If the work being performed has the potential to foul the level crossings or affect their operation, you must plan to protect the safety of:

- workers
- road users and pedestrians
- rail vehicles.

6. Communication Plan

Protection Planner

You must ensure that the protected work area has a communication plan which details communication methods:

- within the protected work area/worksites, and
- with rail vehicles at the boundary of the protected work area.

You must submit a communication plan with the application for planned work when the Rail Protection Officer is required to communicate with rail vehicles at the boundary of the protected work area.

IMPORTANT
When communication methods are unavailable between the Rail Protection Officer and the Operator or Driver, communication protocols must be detailed and notified by bulletin.

Rail Protection Officer

You must be equipped with a multi-channel radio and a mobile phone.

7. Working in Tunnels

Rail Protection Officer

You must undertake work in a tunnel in accordance with the **KiwiRail Standard 14-STD-005-SHE Working in Tunnels**.

You must tell the Train Controller how many people are working in the tunnel.

CAUTION
Track vehicles not fitted with exhaust scrubbers must be shut down immediately when stopped in a tunnel.

Rail Personnel

You must ensure that rail vehicles that are not associated with the work have cleared the tunnel before you can:

- travel through the tunnel, or
- commence work in the tunnel, or
- commence work near the tunnel portal areas.

NOTE
Work trains planned to work in the tunnel are not required to be clear of the tunnel.

8. Identifying the Worksite Location

Rail Protection Officer

During the pre-start briefing, you must consult and agree with the workgroup members that the worksite location is as detailed in the bulletin.

You must tell the Train Controller of the proposed worksite location as detailed in the bulletin in accordance with **RP13 Identification and Verification of Location**.

Train Controller

You must repeat the worksite information to the Rail Protection Officer and verify the proposed worksite location in accordance with **RP13 Identification and Verification of Location**.

When you doubt the location of a Rail Protection Officer, you must only allow work to commence when the location has been confirmed.

9. Work Trains

Rail Personnel

Work trains must be planned and work in accordance with the **Rail Operating Company's Operating Code**.

Train Controller

You may allow work trains to conduct other work and convey other wagons only when arranged with the Person in Charge of Infrastructure in accordance with the **Rail Operating Company's Operating Code**.

NOTE
Although a work train is under the direction of the Rail Protection Officer, the Locomotive Engineer is responsible for its safe running.

10. Planning Secondary Protection

Protection Planner

When requiring secondary protection for work, you must:

- submit the applications to Network Access at least five working days before the work date, and

- prepare a Form 9 Secondary Protection Plan providing a diagram showing the protection arrangements, including placement of boards, secured points, and detonator positions.

IMPORTANT
Only the Network Access Planner can arrange assessment and approval of the work and must use the Protected Work Area Application / Approval Checklist.

TS02 Protected Work Area

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.
- **Principle 9** - People must be protected from the hazards associated with electrical infrastructure.

2. Purpose

To prescribe the rules for managing a Protected Work Area (PWA) in the network.

3. General

Rail Protection Officer

When managing a PWA with personnel and/or machinery within, you must:

- ensure all personnel and vehicles are accounted for in a safe place before authorising any rail movement to enter the PWA
- positively identify MTMVs/work trains that are requesting permission to enter the PWA are shown on the information bulletin or special bulletin, and confirm:
  - the destination within the PWA and the designated work to be performed, or
  - if it is traversing through the entire PWA limits,
- coordinate the movement of rail vehicles involved in the construction or maintenance activity.

4. Worksites

Rail Personnel

This section must be applied in accordance with **Managing a Protected Work Area Job Aids** (single and multiple worksites). A PWA may include the types of worksites shown in Figures 1 to 4.

Figure 1.

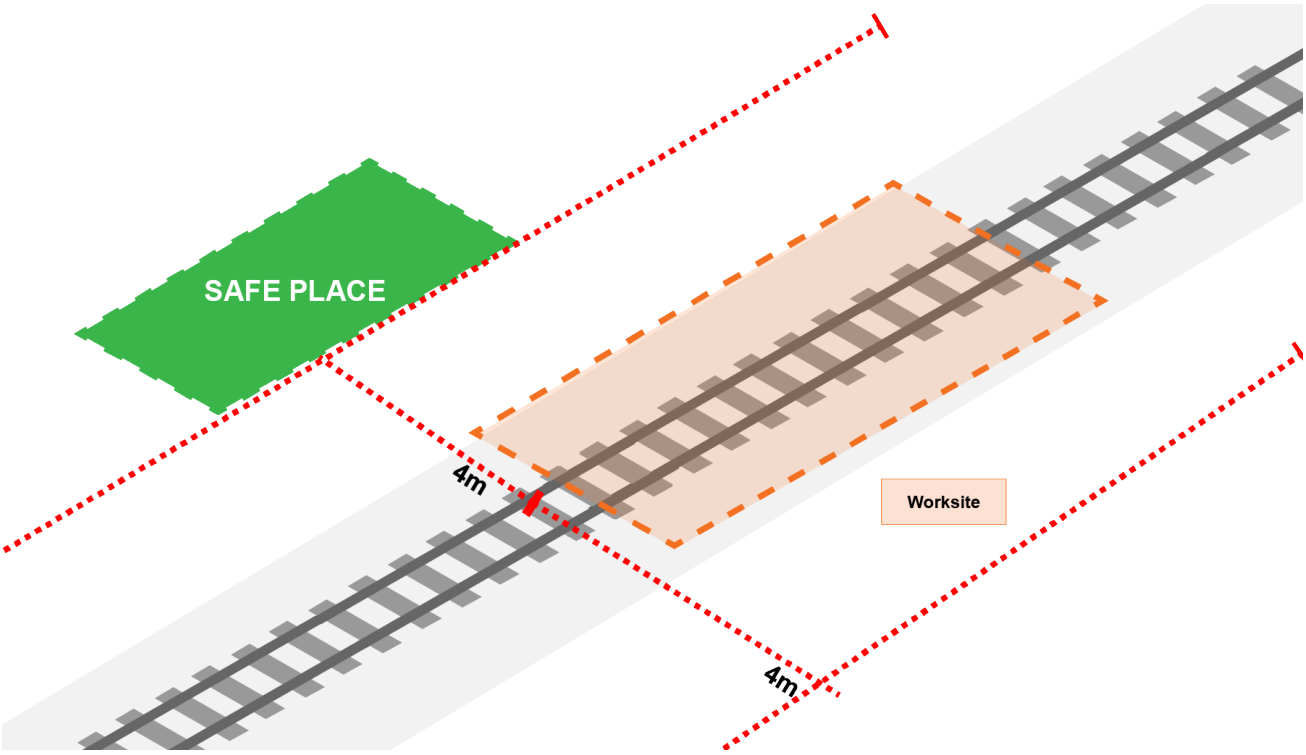


Figure 1: A Single Worksite - 1 Safe Place

Figure 2.

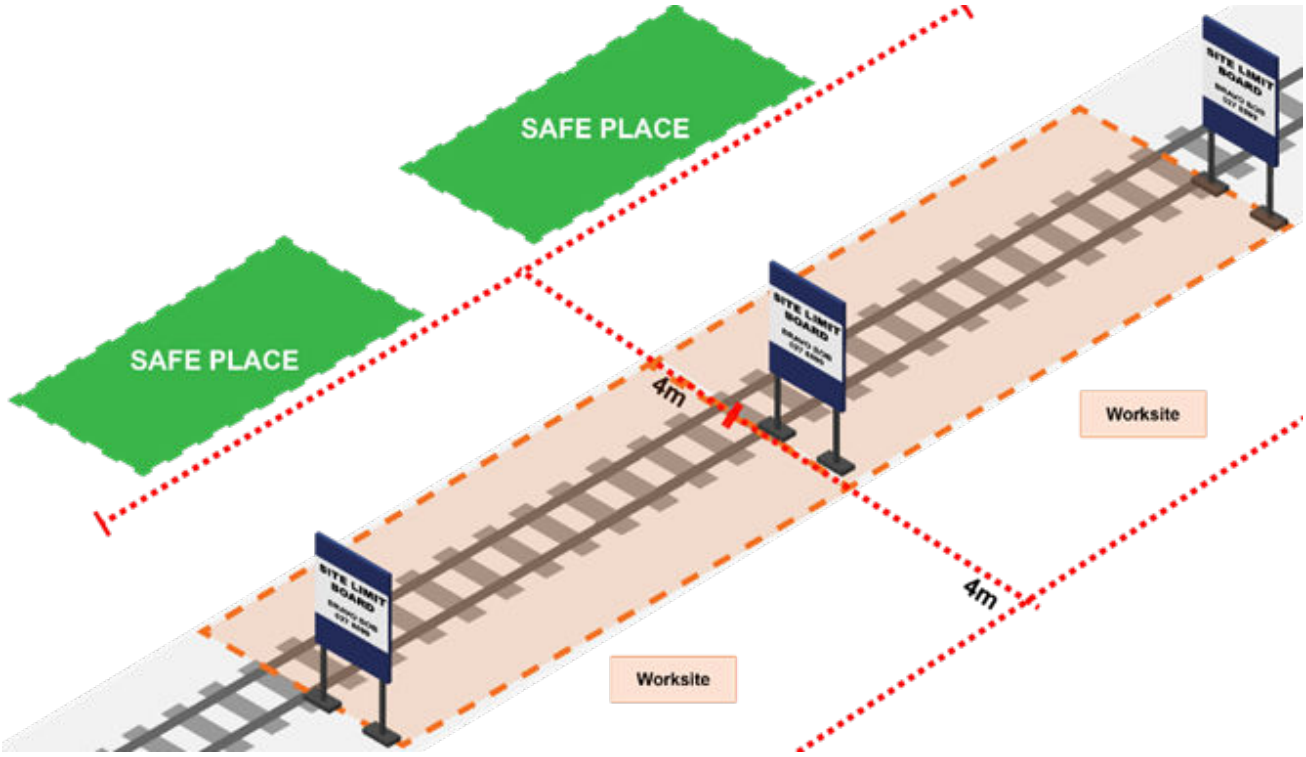


Figure 2: Multiple Worksites – More than 1 Worksite/Safe Place

A single worksite must have one Rail Protection Officer responsible for coordinating rail safety.

Figure 3.

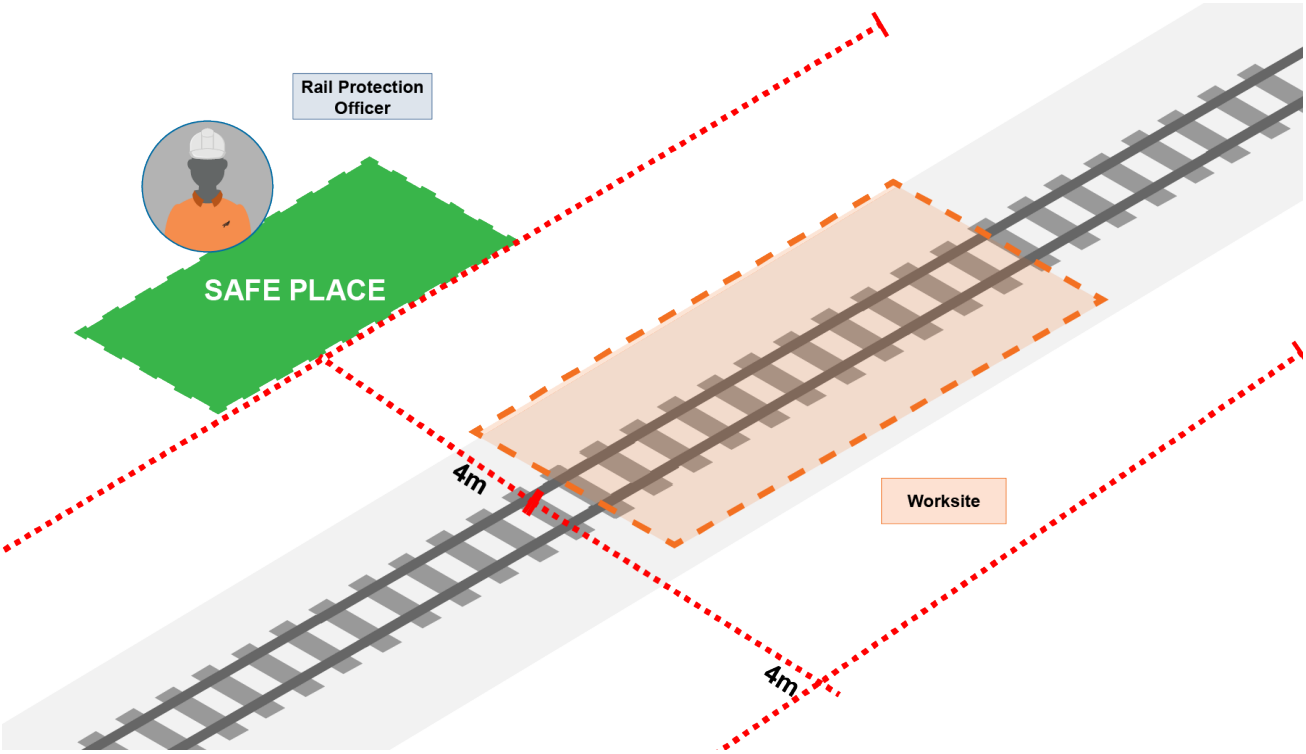


Figure 3: Single Worksite

The Rail Protection Officer may directly control one of these worksites. A Site Protector must be appointed to each additional worksite where a PWA has more than one safe place.

Figure 4.

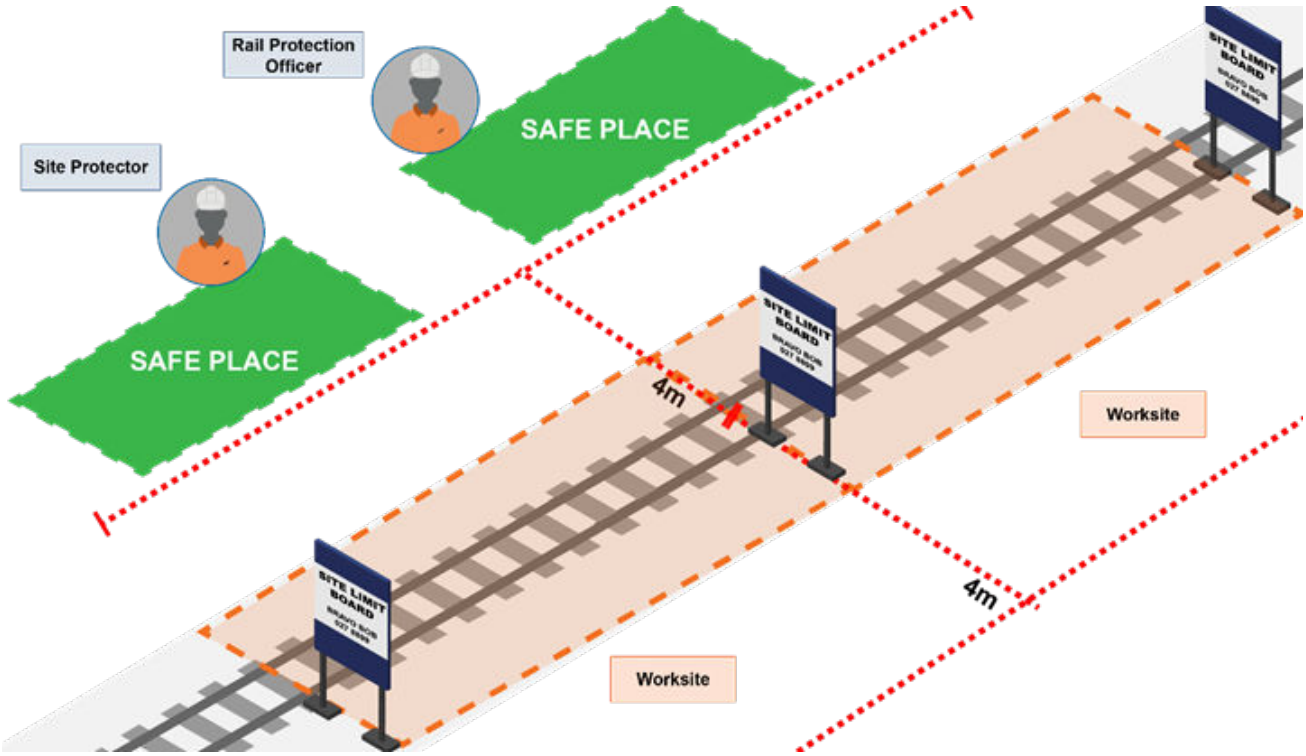


Figure 4: Multiple Worksites

Rail Protection Officer, Site Protector

You must only undertake worksite activities when:

- you can safely cope with combining work activities and the protection role
- completing protection tasks, you are not distracted by work-related activities
- you are always contactable for protection related tasks.

4.1 Multiple Worksites

Rail Protection Officer

When a PWA has multiple worksites and more than one safe place, you must appoint a Site Protector for each additional worksite.

You may appoint additional Assistant Rail Protection Officers to reduce the workload for part of the PWA if necessary.

NOTICE

A PWA can include a single worksite with at least one safe place and a Rail Protection Officer responsible for coordinating rail safety.

Site Protector

You must confirm the activities that are required with the Rail Protection Officer.

Site Limit boards must define fixed worksite limits, where the PWA comprises multiple worksites.

Figure 5.

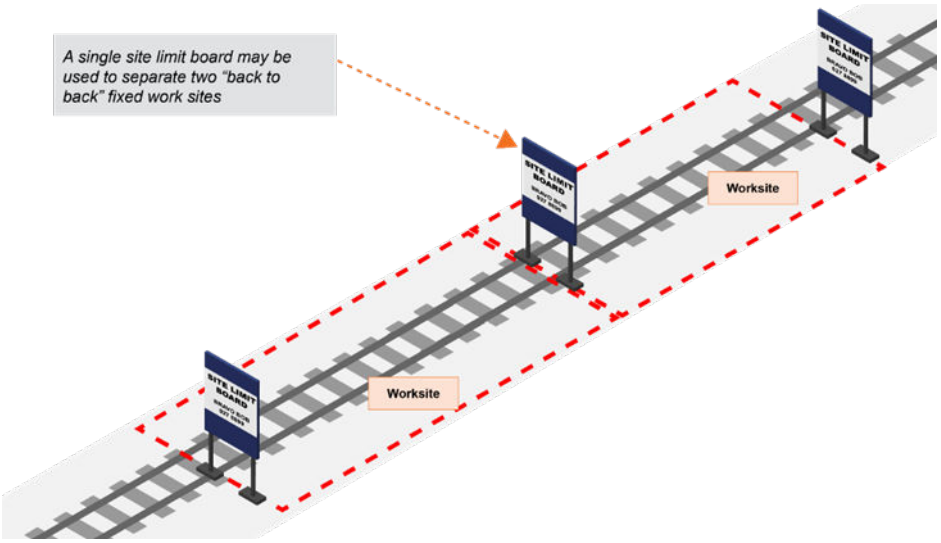


Figure 5: Site Limit Boards

4.2 Managing Multiple Worksites

Rail Protection Officer

You must only use the following worksites within a PWA:

- fixed worksite at a single location within a PWA, or
- mobile worksite used for work trains, MTMV and HRVs, required to operate at various locations in a PWA.

You must ensure that site limit boards define fixed worksite limits.

NOTE
The boards will only be required where the PWA comprises multiple worksites.

IMPORTANT
A PWA with multiple worksites must be notified by issuing a bulletin.

You must place reflectorised site limit boards:

- adjacent to the track, where they can be seen by approaching rail vehicles in a single-line area
- between the tracks (not exceeding 850mm in height), in a position where they can be seen from all lines, in a multi-line area
- before work commences by the Site Protector.

NOTE
Mobile worksite limits may be defined by:

- Fixed signals (number)
- Station / Block Entry boards
- Level crossings
- Station platforms
- Sidings
- Site Limit boards
- Bridges
- Tunnel portals

Operator
Where a fixed worksite is located within the mobile worksite limits, you must stop at the site limit board and obtain authority from the Site Protector before entering the fixed worksite.

Rail Protection Officer
You must coordinate all worksite rail movements with the Site Protector at the mobile worksite.

4.3 Pre-Start/Visitor Worksite Briefings

Rail Protection Officer
You must ensure that all Rail Personnel and Visitors who enter the worksite:

- undertake a pre-start worksite brief, and
- sign the TS90 Worksite Register to confirm they understand the following:
  - location of the safe place
  - rail protection arrangements for the PWA
  - rail specific hazards
  - communication arrangements

5. Worksite Register and Locking On/Off

Rail Protection Officer

You must ensure that all Rail Personnel and Visitors entering the danger area apply their lock to the lock on frame or lock on board before leaving the safe place unless:

- Rail Personnel working alone will not be required to use a lock on frame. If any person subsequently joins the worksite, the lock on frame must be used
- a maximum of three Rail Personnel engaged in the same activity near each other when protected by a track occupancy authority will not be required to lock on, if:
  - moving on foot (e.g., inspections, investigations, site familiarisations)
  - making minor corrections (e.g., replacing a fish-plate bolt), which will not interfere with the safe running of trains
  - crossing the line at a maintenance crossing.
- Rail Personnel operating work trains and MTMVs will not be required to lock on provided they do not leave the rail vehicle

NOTE

MTMV, work train, NDT car and EM80 Rail Personnel required to leave the vehicle in a multi-line worksite where one line is being used as a running line are not required to “lock on” if they stay within the safe place, which is the outside of the non-running line, or at least four metres from the centre line of the running line.

- Operators of other rail movements passing through a PWA will not be required to lock on
- a supervised vehicle driver is picking up/delivering material at a designated location clear of the track and on the same side as the road access
- when working behind an approved barrier.

IMPORTANT

If personnel or vehicles are required to cross a maintenance crossing located within the worksite, it must be controlled by a barrier or by the Rail Protection Officer/Site Protector before authorising rail movements.

You must maintain a TS90 Worksite Register and lock on frame or lock on board detailing the Rail Personnel and rail vehicles within the worksite.

IMPORTANT

All personnel and visitors on site must attach a padlock for themselves and a padlock for any vehicle under their control that will foul the track. All personal padlocks must be clearly named with the name matching the entry on the TS90 Register. The Rail Protection Officer or Site Protector must check the number of padlocks against the entries on the TS90 Register to confirm all Rail Personnel and vehicles have locked on.

IMPORTANT

The Rail Protection Officer or Site Protector must carry spare padlocks for persons or vehicles not issued with padlocks. These padlocks must be clearly named before being attached to the lock on frame or lock on board.

IMPORTANT

Rail Personnel must retain their personal padlock key and are not permitted to give it to other Rail Personnel under any circumstances.

Lock On Frame and Lock on Board (Worksite Register Board)

5.1 Securing Rail Vehicles

Rail Personnel

You must secure all rail vehicles under your control in safe mode, clear of the track, before returning to the safe place and locking off.

NOTE
When one line remains impassable, vehicles may be locked off when they remain on that line, secured in safe mode and clear of any adjacent running line.

After removing your padlock, you must only foul the track when authorised to resume work by the Rail Protection Officer or Site Protector.

Rail Protection Officer or Site Protector

You must only authorise rail movements when all padlocks have been removed, and the clear lock on frame has been exhibited to Rail Personnel.

You must maintain a view of the track and safe place until the movement has passed.

5.2 Leaving Worksite or Completion of Work

Rail Personnel

When leaving the worksite, you must remove your personal (and vehicle) padlock(s) and sign out on the TS90 Worksite Register.

Rail Protection Officer or Site Protector

You must only report that the worksite has finished when all Rail Personnel padlocks have been removed, and all have signed off the TS90 Worksite Register.

5.3 HRVs On/Off Tracking

Driver

Before on-tracking within the PWA, vehicles must be locked on.

Rail Protection Officer or Site Protector

When HRVs return to the off-tracking location on completion of work, you must travel to the off-tracking location to lock off the personnel/vehicles.

NOTE
The requirement to lock on/off will not apply for vehicles travelling clear of the track on access roads.

5.4 Remote From Rail Protectors Location

Rail Protection Officer or Site Protector

Should the entry/exit path be remote, you must:

- apply the **Managing a Protected Work Area Job Aid Procedure**
- ensure requests to enter or depart from worksites are completed individually
- not accept group requests to enter or depart from worksites.

IMPORTANT
This procedure must not be used when the Rail Protection Officer or Site Protector can travel to the entry/exit location to complete the worksite register and lock on frame / lock on board requirements.

5.5 Lost Key or Defective Padlock

Rail Protection Officer

If a padlock cannot be removed, you must:

- record the padlock as ‘Out of Use’ on the TS90 Worksite Register
- sign to acknowledge that the padlock is ‘Out of Use’, along with the padlock owner.

5.6 Rail Personnel and Visitors Not Locking Off

Rail Protection Officer

You must:

- immediately contact any Rail Personnel or Visitors who have left a worksite without signing or locking off
- instruct them to return to the worksite to sign off and remove the padlock(s).

If the Rail Personnel or a Visitor cannot return or be contacted, you must contact the Network Control Manager.

Network Control Manager

Before giving authority for the RPO to take the padlock temporarily 'Out of Use', you must have direct communication with the padlock owner and be satisfied that they are safe and clear of the worksite and will not return.

If direct communication with the padlock owner is not possible, you must:

- make enquiries with the padlock owner's colleagues and direct Line Manager, and
- be satisfied that the RPO has inspected the worksite and that it is safe and clear, and that based on all information reasonably obtainable, be satisfied that there is no risk of the padlock owner returning to foul the line.

If there still remains a risk that the padlock owner may return to foul the line, you must direct that:

- further search or inspections are undertaken, and/or
- a staff member is posted at the worksite to monitor for the padlock owner returning and prevent them from fouling the line while trains operate, and/or
- apply a speed restriction past the worksite for trains.

Rail Protection Officer

You must enter the Network Control Manager's name in the ‘User Signature’ column on the TS90 Form.

You must only authorise rail movements to enter the PWA when:

- the Rail Personnel or Visitor has returned and removed the padlock, or
- the Rail Personnel or Visitor has been contacted, or the Network Control Manager has completed the prescribed procedures

6. Rail Vehicles in Worksites

Site Protector

You must coordinate all worksite rail movements with the Work Supervisor and any other Site Protector sharing overlapping worksite limits.

You must pilot all work trains and track vehicles through the worksite and must:

- be qualified in Pilot duties
- ride in the leading cab of the leading vehicle
- ride in an authorised safe riding position when propelling in accordance with **TO09 Setting Back and Propelling**
- brief the Operator of the work train on intended movement, worksite location and restrictions before authorising the movement.

Driver, Operator

You must ensure that you undertake rail movements as follows:

- rail movements travelling through the worksite may travel at line speed unless a lower speed is instructed
- rail movements that are part of the planned work within worksite limits must not exceed 30 km/h, or must operate at a lower speed when instructed by the Rail Protection Office or Site Protector

In both instances above, being able to stop short of an obstruction within half the distance of clear line that is visible ahead, considering the physical characteristics of the track and the environmental conditions.

Rail Personnel

When rail vehicles enter the worksite for the purpose of working inside the worksite, you must be:

- locked off, and
- in the safe place

for the movement.

Once the movement has entered the worksite and has come to a complete stop at a predetermined point, all rail personnel must attend a pre-start briefing before locking on and recommencing work.

NOTE
Only rail personnel necessary to complete the work will lock on with the relevant RPO / SP.

6.1 Work Area Tracking Board

Rail Protection Officer

When managing a PWA containing multiple worksites, you must use a work area tracking board to display the status of the activity and include:

- all lines within the PWA (using the S&I diagrams)
- all fixed and mobile worksites, including occupied or clear status.

IMPORTANT
Additional information must be limited to ensure the details above are exhibited.

7. Mobile Plant Controller

Rail Protection Officer

When Rail Personnel and mobile plant are working within a PWA, you must ensure a Mobile Plant Controller controls the movement of any mobile plant.

You must instruct the Mobile Plant Controller only to undertake activities related to the controlling of the mobile plant unless they:

- can safely cope with combining work activities and the controlling role
- remain contactable for controlling activities.

Mobile Plant Controller

Where the mobile plant is in rail mode, you must:

- not perform any other work activities except those related to controlling the mobile plant, and
- confirm the conditions with the Person in Charge.

NOTE
The Mobile Plant Controller may combine controlling and work activities if a workgroup is engaged near a mobile plant (in road mode).

7.1 Requirements of Mobile Plant Controller

Mobile Plant Controller

You must:

- be trained in KiwiRail radio protocols
- ensure you are identified to the work team, including the Mobile Plant Operator(s), and noted on the amended pre-start/job plan meeting
- ensure that there are no conflicting movements of people and mobile plant within the worksite
- establish an exclusion zone in accordance with **KiwiRail Standard G-ST-AL-9132 Mobile Plant Exclusion Zones** and communicate with the work team. **ZH Alert KRG-ZH-1809-004 Working Around Heavy Mobile Plant** must also apply in all circumstances
- ensure that Rail Personnel do not enter the exclusion zone
- maintain two-way radio communication with the Mobile Plant Operator
- only authorise Rail Personnel access to the defined exclusion zone of the mobile plant during its operation in the worksite once the Mobile Plant Operator has confirmed that the machine has been made safe.

IMPORTANT
A Mobile Plant Controller must be designated to coordinate the activities of the mobile plant and Rail Personnel to minimise the potential of mobile plant collision.

Rail Personnel
Only the Mobile Plant Controller can authorise mobile plant movements or authorisation to work.

Mobile Plant Operator
If radio communication is lost, you must stop immediately until radio communication is re-established.

NOTE
If radio communication cannot be re-established, hand signals and positive communication are permitted for Rail Personnel and mobile plant to make the railway corridor safe for trains.

8. Rail Protection Officer

8.1 Location of Rail Protection Officer

Rail Protection Officer
You must remain within the limits of the PWA unless the coordination of multiple worksite activities can be safely controlled from an approved location named on the information bulletin.

Where protection authorities are held continuously, you may leave the protected work area or authorised location provided final clearances have been received from all Site Protectors.

8.2 Visibility of Rail Protection Personnel

Rail Protection Officer
You must ensure that all Rail Protection Personnel wear a method of identification to distinguish them from other worksite personnel and visitors.

8.3 Liaison With Train Controller

Rail Protection Officer
You, or your authorised delegate, must:

- be the only person within the worksite to communicate with the Train Controller unless an emergency exists, and
- communicate with the Train Controller:
  - at agreed times to be updated on rail movements and report the progress of work
  - on completion of work
  - tell when normal rail movements may be reinstated and any conditions that may affect normal rail vehicle operations.

You must organise the work to ensure that rail vehicle movements are not affected unless a previous agreement with the Train Controller has been obtained.

8.4 Safe Place

Rail Protection Officer

You must identify a safe place on one side of the railway corridor so passing rail movements cannot strike people and equipment.

You must tell all Rail Personnel before the safe place is changed.

IMPORTANT
The safe place must be visible using an approved identification sign and documented on worksite briefing forms.

NOTE
The above responsibilities are shared if a Site Protector is appointed.

8.5 HRV Access Locations

Rail Protection Officer

You must identify all on-track or off-track access locations for HRVs, and tell the Site Protectors, Work Supervisors and Drivers of these locations at the pre-start briefing.

9. Travelling through a PWA

9.1 Pilot

Pilot

Before travelling through a PWA, you must have the appropriate qualification for the protection needed as follows:

- RPO CSP Boards
- RPO Blocking
- RPO TWC Protection
- RPO Foul Time
- RPO Lock Out Zones
- RPO Block of Line (Mis.60).

You must guide Operators of work trains and track maintenance vehicles within a PWA by:

- riding with Operators as directed by the Rail Protection Officer in PWAs with multiple worksites, and
- guiding (from the ground) track vehicles and other vehicles with restricted clearances to prevent damage to either vehicle or infrastructure.

9.2 Low Loader Pilot

Pilot

When you are piloting the low loader, you must guide low-speed movements from a safe ride position:

- within PWAs only
- whenever the low loader is being driven in the reverse direction of travel
- when the load height exceeds 1.5 metres from the deck
- when piloting low-speed movements under the direction of the Operator
- advising the Operator of any possible obstructions and call signal indications and lineside features.

9.3 Rail Movements

Rail Protection Officer

When a rail movement must travel through a PWA on the Rail Protection Officer's track warrant (Mis.88), you must ensure the following:

- Single worksite - All rail movements travelling through the PWA must be locked on by the Rail Protection Officer applying the procedure described in **Managing a Protected Work Area Job Aid**
- Multiple worksites - All rail movements travelling through the PWA will be mobile worksites and protected accordingly.

10. Communication within a PWA

Rail Personnel

You must use radio communication where equipment and coverage are available.

If radios or radio coverage is unavailable, you may use mobile phones for internal PWA communications.

IMPORTANT

A communication link must always be available between the Rail Protection Officers, Assistant Rail Protection Officers, Site Protectors and Drivers/Operators of other rail movements.

10.1 Call Signs

Rail Protection Officer

You must:

- assign call signs to each Assistant Rail Protection Officer and Site Protector
- record the call signs and mobile phone numbers on the TS94 and TS96 Log Books
- ensure the call signs are used for all internal communication.

10.2 Internal Communication Protocols

Rail Personnel

You must use the protocols in the **Managing a Protected Work Area Job Aid** – multiple worksites when communicating:

- the authority to start work
- confirming worksite clearances
- authorising the resumption of work
- confirming final clearance when work is finished.

You must use communication protocols in accordance with **GR02 Network Communications** when using radios or mobile phones.

10.3 Rail Vehicles at PWA Boundary

Rail Protection Officer

When you are unable to communicate with rail vehicles due to the limitations of radio channel 1, you must:

- move to a location to contact the Operator on channel 1, or
- request the Train Controller to relay communications (by radio) between you and the Operator, or
- request permission to use the Train Control radio system to contact the Operator.

11. Handover of PWA/Worksite

Rail Protection Officer

When a PWA and associated worksites are handed over between you, Assistant Rail Protection Officers or Site Protectors, the procedures in the **Managing a Protected Work Area Job Aid** must be applied.

12. Secondary Protection

Rail Personnel

You must apply secondary protection before granting authority to occupy the track when any work is undertaken in the controlled network using:

- multiple worksite areas, or
- line impassable, and

a train is scheduled to arrive within 60 minutes of the planned worksite completion time.

IMPORTANT
If no trains are scheduled to arrive within 60 minutes of the planned worksite completion time, secondary protection is discretionary.

If secondary protection is not initially required as listed above, but it is established that the worksite completion will then overrun into the 60 minute time period of a scheduled train, you must:

- request a time extension for the primary protection from the Signaller, then
- immediately prioritise applying secondary protection.

12.1 Additional Protection Requirements

Rail Protection Officer

Where the impassable and running lines change during work hours, you must re-establish secondary protection on the new impassable line before work recommences.

You must ensure that secondary protection is always maintained if the next train is scheduled to arrive within 60 minutes of the planned worksite completion time.

When the planned work hours overrun, and a scheduled train service is due to arrive within 60 minutes, you must establish secondary protection.

You must use secondary protection, as detailed in Table 1.

Table 1: Secondary Protection

Primary Protection	Secondary Protection
If you use one of the following authorised protection methods: • Mis.60 • Blocking • Compulsory Stop Protection • Track Warrant	Then you must use one of the following: • Detonator protection in conjunction with danger stop signals erected in accordance with Emergency Protection – Unplanned Obstruction (distance may be varied after a risk assessment has been conducted) with details to be supplied on Form 1 • Lockout Zone • Points leading into the line impassable secured with the points set away from the line impassable (by a Competent Worker), provided it will not affect rail vehicle movements • Automatic Train Warning System fails to safe trackside system (approved by Signals Engineering)
If you use a Lockout Zone, then:	• Secondary protection will not be required for the running line • In addition to the Rail Protection Officer padlock, a workgroup padlock must be secured to the lockout zone control switch by the Work Supervisor (or another member of the workgroup if the Work Supervisor is the Rail Protection Officer)

12.2 Establishment of Worksite Protection

Rail Protection Officer

When establishing worksite protection, you must:

- have an approved marked S&I diagram showing primary and secondary protection and supply a copy to all Site Protectors
- brief all Rail Personnel on establishing primary and secondary protection arrangements before commencing work
- implement secondary protection if required as per the approved marked S&I diagram only once primary protection has been established and before giving authority to occupy the track
- record each item of secondary protection on the TS94 as a separate worksite. This includes recording when secondary protection is established and removed for rail vehicle movements.

12.3 Removal of Worksite Protection

Rail Protection Officer

When disestablishing a worksite which uses secondary protection, you must confirm all personnel and vehicles have locked off before removing the secondary protection.

12.4 Points

Rail Protection Officer

If points within a PWA are to be secured to protect entry to the line impassable, you must only authorise work to start before the points are secured when:

- primary and secondary protection is in place at the limits of the worksite
- no rail vehicles are authorised to enter the PWA until the points are secured.

You must consult with the Signaller before authorising the movement of any points within the PWA, as detailed in Table 2.

Table 2: Securing of Points

Securing of Points	Actions
Points secured by clamp and padlock (padlock must be visible)	The Signals Maintenance Representative must advise the Signaller and Rail Protection Officer when the points are secure
Points secured by the removal of fuses and links	The Signals Maintenance Representative must place a visual indicator on the points and advise the Signaller and Rail Protection Officer that the points have been electrically disabled

IMPORTANT
The points must be secured in accordance with **KiwiRail Task Instruction S-TI-PM-2218 – Security of Turnouts**.

Signals Maintenance Representative
You must tell the Rail Protection Officer when the points are resecured following the movement.

IMPORTANT
When securing interlocked points, it must be assured that this does not prevent the operation of other signals that may be required for use due to interlocking design.

13. Temporary Releasing of Protection

Rail Protection Officer
After confirming with the Operator that the movement has stopped at the entrance to the protected work area, you may then authorise the removal of secondary protection when required for the movement.

Only you may authorise the removal of primary or secondary protection to admit rail movements during the shift.

Competent Worker
When authorised by the Rail Protection Officer to replace detonators, you must undertake this task using Individual Train Detection in accordance with **TS10 Individual Train Detection**.

13.1 Substituting Blocking

Train Controller
When altering signal blocking to signal non-conflicting movements, you must ensure that the sequence used to substitute the original signal blocking maintains a continuously applied tag or collar to prevent entry into the occupied section.

NOTE
For example, if 29 points at Wellington Junction are blocked in reverse to protect the NIMT Up Main, 29 points can be unblocked and set for normal to signal a train to the Wairarapa Line through 7 points in reverse, provided that 34 signal is blocked before the tag is removed from 29 points to operate them.

IMPORTANT
Blocked areas are not to be released to allow an opposing or following train to enter a section or permission given for a train to enter onto the main line from a switch lock siding in that section until advice has been received that the track occupancy is clear of the section.

14. Attendance at Protection

Rail Protection Officer

Unless you have reason to believe signals and/or boards will be interfered with, continuous attendance is not required at:

- danger stop signals, or
- advance warning boards, or
- compulsory stop boards.

Rail Personnel

When you are establishing emergency protection and not in possession of danger stop signals, you must:

- remain at the place at the detonator protection, and
- exhibit an emergency hand signal or red flag.

IMPORTANT
A safe distance (minimum of 50 metres) from the three pairs of detonators placed on the rails must be maintained.

TS03 Mis.60

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using a Mis.60 (Track and Time Permit) in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

You must only use a Mis.60 issued by the Train Controller for specific situations in accordance with these rules and **RP03 Using a Mis.60**.

Train Controller

You must ensure the Mis.60 is transmitted to and repeated back by the Addressee(s) on the Mis.60 in the following role order:

I. Signaller
II. Rail Protection Officer.

NOTE
When necessary, any portion of the main line may be temporarily closed to traffic by the issue of a Mis.60.

NOTE
The line is blocked for the period stated in the Mis.60 except for rail vehicles and MTMVs authorised on the Mis.60.

NOTE
Trolleys and HRVs will not be specified on the Mis.60. These will operate as directed by the Addressee within the limits of the Mis.60.

4. Maintenance Work

Rail Protection Officer

When a Mis.60 is issued for maintenance work, you must obtain permission from the Train Controller before work commences.

When the work is completed, you must confirm to the Train Controller that the line is clear and safe for rail vehicle movements.

If the work cannot be completed by the time stated on the Mis.60, you must tell the Train Controller to issue a further Mis.60 for the remaining work period.

You must ensure:

- the pre-start briefing is completed for all Rail Personnel, and
- protection is in place for MTMVs and/or work trains when operating with other work.

IMPORTANT
The number of the Mis.60 held by the Rail Protection Officer and other particulars on the Mis.60 must be advised to the Operator of the MTMVs and/or work trains before commencing work or entering the affected area.

4.1 Special Conditions

Train Controller

You must specify on the Mis.60:

- any special conditions or Train Control requirements
- any work trains which are authorised to work in either direction, as required by the Rail Protection Officer.

IMPORTANT
When a Signaller or adjacent Train Controller controls signals entering or within the affected area, the Signaller must receive the Mis.60. Where possible, the from and to locations on the Mis.60 must also include specific signals at these locations. The special conditions portion of the Mis.60 includes instructions for unusual signalling.

IMPORTANT
A Mis.60 must not be used in track warrant control territory.

4.2 Protection In Automatic Signalling Areas

Train Controller

Before the Mis.60 is issued, you must arrange for signals at the entrance to the affected section to be held at stop for the period the permit is in operation by maintaining signal blocking on:

- relevant signals, and/or
- points.

At an interlocked station where the signal or block entry board at the entrance to the affected area is at a crossover, the limits of the Mis.60 may be from or to a:

- point alongside the outermost controlled signal on the opposite line
- signal
- block entry board.

IMPORTANT
Where a Signaller controls the signals for the affected section, they must receive the Mis.60 before other Addressees.

NOTE
Entry into Mis.60 areas must be in accordance with **SO02 Automatic Signalling Rules**.

IMPORTANT
The use of Mis.60's in the Midland Line Automatic Signalling Area is restricted to multiple activities sites and emergencies only. The Train Controller must control the departure signals at the entrance to the affected section (signals at interlocked stations only).

4.3 Advice of Mis.60 Arrangements

Train Controller

When it is necessary to issue a Mis.60, and a bulletin has not notified this, you must tell the Operator of any trains which will be affected or may encroach on the limits of the Mis.60.

NOTE
A bulletin usually advises the use of the Mis.60.

4.4 Transfer of Mis.60 Authorities

Signaller
When you are issued a Mis.60, you must endorse the particulars in the Track Occupancy Register when handing over during a Signaller change.

IMPORTANT
The new recipient must read the Mis.60 and sign the back to acknowledge that the details are understood.

Train Controller
If the Mis.60 must be transferred to a Rail Protection Officer who is not listed as the Addressee, you must issue a new Mis.60 which cancels the previous Mis.60.

You must read out the Mis.60 to the outgoing Addressee, who will then hand it over to the incoming Addressee to repeat back.

NOTE
When the RPO is identified on the bulletin by an RPO call sign ID with additional RPO contact details, the Mis.60 will stay in effect and be handed over to the incoming RPO.

Rail Protection Officer
When you are the incoming RPO, you must read the Mis.60 and sign the back of the Mis.60 to acknowledge the details are understood, and endorse this in a TS94 Book.

4.5 Cancelling Mis.60 Authorities

Addressee
As the Addressee of the Mis.60, you must report to the Train Controller when the limits of the Mis.60 have been cleared.

Train Controller
You must correctly acknowledge the Mis.60 being cancelled with the Addressee and complete the appropriate portions of the Mis.60.

Addressee
As the Addressee, you must confirm by the words ‘That is Correct’ and then destroy the Mis.60.

Train Controller

You must tell any other Addressees that the Mis.60 has been cancelled and the appropriate portion of the Mis.60 is to be completed.

IMPORTANT

Care must be taken after the limits clear portion on the Mis.60 has been completed to ensure the correct permit is crossed off the train control diagram.

TS04 Compulsory Stop Protection

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Compulsory Stop Protection (CSP) in the network.

3. General

3.1 Compulsory Stop Protection Use

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

IMPORTANT
CSP work and the meterages of the CSP boards must be notified by bulletin.

You must only use CSP for:

- work that involves breaking the track, or
- work that will interfere with the safe operation of rail vehicles.

You must protect adjoining work areas separately and may only combine them as multiple work areas when advised by a bulletin.

IMPORTANT
CSP must not be used as protection for work areas on tracks within non-interlocked areas unless authorised explicitly by bulletin.

You must position compulsory stop boards in accordance with **RP04 Using Compulsory Stop Protection**.

3.2 Radio Protocol

Rail Personnel
You must use the radio protocols for requesting authority to pass through protected work areas (PWA) in accordance with Mis.350 CSP Radio Protocol, as shown in the TS92 and TS94 books.

3.3 E-Protect Use

Rail Personnel
The E-Protect protection for the work area will be activated automatically when Network Access Planning approve the E-Protect application.

E-Protect must be applied in accordance with the **E-Protect Manual.**

4. Permission to Obstruct Line

Rail Protection Officer
You must obtain permission from the Train Controller before the line is obstructed and agree on specific check times to ensure minimal disruption to rail vehicles.

If the line is to be cleared temporarily for rail movements, you must only allow these movements to occur when all workers and equipment are in a safe place and the line is safe.

You must only authorise workers and equipment back into the danger area and allow work to resume once the rail vehicle is clear of the following:

- work area, or
- individual worksites within a major work area.

IMPORTANT
Work involving obstruction of the line must only be carried out between the times shown in the bulletin.

4.1 Sounding Horn

Operator
You must sound the horn when approaching inner warning boards and again at the compulsory stop boards after the Rail Protection Officer has provided permission to proceed.

4.2 Boards to Remain in Place

Rail Protection Officer
When the line is temporarily cleared for rail movements, you must ensure that the compulsory stop protection boards remain in place.

4.3 Authority to Pass Compulsory Stop Boards

Operator or Driver
You must:

- stop at compulsory stop boards
- cross-check the call sign on the board with the information bulletin
- contact the Rail Protection Officer shown on the call sign board for authorisation to pass the compulsory stop board.

You must only pass the compulsory stop board when the Rail Protection Officer has confirmed:

- that all Rail Personnel are in the safe place
- machines and tools, and equipment are clear of the track
- authority for the movement to pass the compulsory stop board.

When authorised, you must pass the compulsory stop board and comply with the instructions of the Rail Protection Officer.

When shunting or terminating at either a station or siding within a CSP worksite, you must obtain further authorisation from the Rail Protection Officer:

- before reversing direction, or
- before re-entering the main line, or
- when circumstances change.

5. Emergency Protection

Rail Protection Officer

When you consider CSP unsuitable due to fog, falling snow or other causes, you must apply emergency protection in accordance with **TS07 Emergency Protection**.

6. Missing Boards

Operator or Driver

When boards are not sighted at the expected positions, you must stop your rail vehicle and contact the Rail Protection Officer.

If unable to contact the Rail Protection Officer, you must tell the Train Controller of the situation and remain stopped until permission has been provided to move again.

Train Controller

You must make every effort to contact the Rail Protection Officer.

Rail Protection Officer

You must tell the Operator or Driver what action to take.

7. Safety Buffer Zone

Competent Worker

You must only work in the Safety Buffer Zone when:

- Emergency Work is required, and
- the Train Controller has applied additional protection to the Safety Buffer Zone

You must not undertake:

- planned work
- non-emergency unplanned work
- on tracking, or off tracking

in the Safety Buffer Zone.

Track Maintenance Representative

When required to travel through the Safety Buffer Zone without undertaking any work, you must ensure the Train Controller has:

- applied additional protection to the Safety Buffer Zone
- authorised your movement through the Safety Buffer Zone

Train Controller

You must only authorise occupancy of the Safety Buffer Zone when:

- additional protection has been applied to the Safety Buffer Zone, and
- Emergency Work is being undertaken, or
- a Track Maintenance Representative is requiring travel through the Safety Buffer Zone

TS05 Lockout Zones

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Lockout Zones in the network.

3. General

3.1 Lockout Zone Use

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

You must only use Lockout Zones in sections of interlocked areas identified in **Local Network Instructions** and in accordance with **RP05 Using Lockout Zones**.

Competent Worker

You must arrange with the Train Controller to operate the local Lockout Zone control box.

3.2 Authority to Operate

Rail Protection Officer

You may use one or several adjoining lockout zones to form a Protected Work Area.

You must hold a License to Operate RPO Lockout Zones (RPO-L) to operate and be permitted to:

- request the Train Controller to operate the lockout control
- operate the signal lockout control switch(s)
- direct any Competent Workers certified in RPO-L and/or qualified as Site Protectors to operate lockout control boxes.

When using Lockout Zones, you must tell the Network Access Planner before the agreed close-off times to enable the planned work to be notified on the Information Bulletin.

NOTE

Unplanned or emergency work is not required to be shown on the bulletin.

3.3 RPO Call Sign ID

Network Access Planner

You must issue a bulletin for planned work when:

- the work extends beyond one work period, or
- you deem it necessary to clearly identify a worksite.

You must include on the bulletin:

- a call sign to identify the RPO, and
- contact details for all additional RPOs.

NOTE

This will allow the protected work area to remain in effect and be handed over to the incoming RPO.

TS06 Blocking

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Blocking in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

You must only use **TS06 Blocking** as a form of protection for track occupancy within automatic signalling areas and interlocked stations (including track warrant control interlocked stations).

3.1 Change of Scope or Time Extension

Rail Personnel

When a change of scope is required for a track occupancy, you must complete a new track call and Mis.71.

When a time extension is required for a track occupancy, you must apply **RP06 Using Blocking, 1.4 Time Extension.**

NOTE

Change of scope or time extension does not apply to **TS06 Blocking, 4.3. Partial Clearance of Blocking.**

3.2 Multiple Activities - RPO Call Sign ID

Network Access Planner

When multiple track activities occur and extend beyond a single work period, and a Mis.60 is not appropriate, you must issue a bulletin to include:

- a call sign to identify the RPO, and

- contact details for all additional RPOs.

NOTE
This will allow the blocking to remain in effect and be handed over to the incoming RPO.

Rail Protection Officer
You must read the Mis.71 to acknowledge the particulars and also endorse this in a TS94 book handover, if being used.

4. Blocking Use

4.1 Requesting Blocking

Competent Worker
When you plan to occupy or obstruct the main line/crossing loop or other lines protected by interlocked signalling, you must provide the following information to the Signaller / Train Controller:

- your identity
- the type of protection requested
- on tracking location
- the lines being occupied or obstructed in multi-line locations
- area, including the off-tracking location
- time required for the work
- type of work to be undertaken.
- other information (i.e., multiple HRVs)

NOTE
When there is more than one HRV in a worksite, this signifies 'multiple HRVs'.

You must positively identify and verify the work location with the Signaller / Train Controller before work commences in accordance with **RP13 Identification and Verification of Location**.

Signaller, Train Controller
You must apply the process of pre-authorisation checks before work commences in accordance with **RP06 Using Blocking**.

4.2 Signaller Providing Signal Blocking for Train Control

Signaller
You must confirm with the Train Controller that signal blocking is applied when you operate the signals/ points governing entry into an area controlled by Train Control.

Train Controller
You must only authorise an occupancy when you receive confirmation from the local Signaller that signal blocking is applied to protect the occupancy.

4.3 Partial Clearance of Blocking

Signaller, Train Controller
You may request the Addressee who has possession of the blocking to call when clear of a specified location to enable another track occupancy of the cleared section.

You must tell the Addressee of any updates to the signal blocking applied.

Addressee
After calling clear of a specified location, you must enter the details on the Mis.71 of any updates to the signal blocking applied and repeat this back to the Signaller / Train Controller.

You must only reoccupy the vacated area when another authority has been obtained.

Signaller, Train Controller
Until advice has been received that the section is clear, you must not release blocked areas:

- to allow an opposing or following rail vehicle to enter a section, or
- permit a rail vehicle to enter the main line from a switch locked siding in that section.

4.4 Track Clearance

Addressee
When Blocking protects the track occupancy, and you hold the Mis.71, you must tell the Signaller / Train Controller when clear of the line to release Blocking.

You must confirm the limits of the Blocking that can be lifted as shown on Mis.71 in accordance with **RP06 Using Blocking**.

Signaller, Train Controller
You must close off the blocking occupancy on the train control diagram or Signal Box Register.

4.5 Completed Mis.71 Form

Addressee
You must draw a diagonal line through the completed Mis.71 and retain completed booklets for at least one month before disposing.

5. Signalling Failure

Signaller, Train Controller
If signal blocking is unavailable due to a signalling failure, you must tell the Addressee that signal blocking cannot be applied.

Addressee
You must enter the information in the 'Other Information' section of the Mis.71.

Signaller, Train Controller
You must ensure that the occupancy has confirmed they are clear of the section concerned or in a safe place before authorising a rail vehicle to pass the signal governing entry into that section at stop.

6. Additional Track Occupancies

Signaller, Train Controller

When required, you must apply double blocking where available.

6.1 ASR Safeguards for MTMVs

Train Controller

Compulsory Stop Protection - Part Block Section:

When a compulsory stop protection activity is for only part of the block section, and the MTMV is using **TS06 Blocking** for the whole block section, you must ensure that:

- the MTMV movements, when entering a compulsory stop protection work area, are in accordance with **TS04 Compulsory Stop Protection, 4.3 Authority to Pass Compulsory Stop Boards**, and
- the **TS06 Blocking** is only lifted when the MTMV is clear of the block section.

Multiple Activities in Block Section:

When Emergency Work requires another user to operate in the same block section as the MTMV (and a Mis.60 is not issued), you must ensure:

- only one other user group may work in the block section when the MTMV is working under **TS06 Blocking**, and
- no overlap of areas is permitted, and
- the worksite limit shown on the Mis.71 will be either a:
  - km peg
  - tunnel portal
  - signal, or
  - switch lock points.

6.2 Additional Track Occupancy with No Overlap

Train Controller

When additional users are required to operate in the same block section as an existing occupancy with no overlap of areas, you must ensure that the worksite limit shown on the Mis.71 forms is either a:

- km peg
- tunnel portal
- signal, or
- switch lock points.

6.3 Conflicting Track Occupancies

Driver

Should you wish to travel through an existing track occupancy, you must apply **RP12 HRV Operations, 2. Existing Track Occupancy.**

Rail Protection Officer

Should you wish to commence a track occupancy which conflicts with an existing HRV or Trolley track occupancy, you must apply **RP12 HRV Operations, 3. Conflicting Occupancy Request.**

TS07 Emergency Protection

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Emergency Protection in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with the **TS01 Planning Work in the Railway Corridor**.

You must apply Emergency Protection in accordance with **RP07 Using Emergency Protection**.

NOTE

The danger signal will consist of three detonators on each rail 10 metres apart, 1550 metres from the obstruction/work area.

IMPORTANT

Detonators must be used in accordance with **GR01 Railway Corridor Safety, 10. Detonator Signals**.

4. Communication with the Signaller

Rail Personnel

When an unplanned obstruction occurs, and Emergency Protection is required, you must tell the Signaller.

Signaller

You must stop any approaching rail vehicles from entering the obstructed section.

4.1 Unable to Contact the Signaller

Person in Charge

If it has not been possible to contact the Signaller immediately, you must:

- use the vehicle's main radio or portable radio to transmit on channel 1 to warn approaching vehicles of the situation, where possible
- in accordance with **RP07 Using Emergency Protection**, immediately arrange for a Competent Worker to go along the line in each direction and:
  - place three detonators 10 metres apart on each rail, 1550 metres from the obstruction
  - exhibit a danger stop signal board/emergency hand signal 1500 metres from the obstruction.
- try to stop the rail vehicle if a rail vehicle approaches before protection is in place.

Competent Worker

If you arrive at a tunnel or bridge before reaching the Emergency Protection limits, you must place three detonators 10 metres apart on each rail outside the tunnel portal/bridge end.

WARNING

Do not proceed through the tunnel or over the bridge if no safe place is available. You must use alternative means to access the required protection location.

4.2 Protection Maintained

Rail Personnel

You must maintain Emergency Protection until the line is clear and safe for rail vehicle movements.

You must only remove the Emergency Protection when the Person in Charge of the Emergency Protection authorises you to do so.

5. In Track Warrant Control Territory

Train Controller

When using Emergency Protection in track warrant control territory, you must:

- apply TWACS blocking to prevent a track warrant from being issued, or
- shorten the extent of authority for a track warrant previously issued if it would encroach on the area to be protected by emergency protection.

6. Automatic Signalling Locations

Signaller

When using Emergency Protection in automatic signalling areas, you must:

- protect the obstructed section by applying signal blocking, and
- when a Competent Worker is available, issue either:
  - a Mis.60, or
  - a Mis.71.

6.1 In the Midland Line Area

Signaller

When using Emergency Protection in the Midland Line area, you must:

- ensure that Mis.50/51 authorities have not been issued to enter the area, or
- shorten the extent of authority for a Mis.50/51 previously issued if it would encroach on the area to be protected by emergency protection, and
- when a Competent Worker is available, issue a Mis.60 to protect the obstructed section.

7. Approaching Rail Vehicle in Obstructed Section

Signaller

When an approaching rail vehicle has entered the obstructed section, you must:

- communicate with the rail vehicle and request it to stop, or
- tell the Person in Charge of the Emergency Protection the direction the rail vehicle is coming from and instruct them to provide Emergency Protection immediately, if unable to contact the rail vehicle.

TS08 Working Within Non-Interlocked Areas

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for working within Non-Interlocked Areas in the network.

3. General

Rail Personnel

You must plan work in accordance with the requirements of the site safety permit and **TS01 Planning Work in the Railway Corridor**.

You must apply this rule when accessing or fouling Non-Interlocked Areas in accordance with **RP08 Working in Non-Interlocked Areas**.

NOTE
The above rule does not apply to Terminal Operations personnel undertaking terminal activities.

4. Movements

Signaller

You must control all movements required to move between non-interlocked and interlocked areas.

5. Non-Terminal Operations Activities

Work Supervisor

You must:

- hold a current site induction
- obtain permission and a site safety permit from the Officer in Charge for movements within the Non-Interlocked Area.

Officer in Charge

You must verbally tell all Rail Personnel working in the area:

- of the work and the protection arrangements
- when the work has been completed and the site is clear
- if work is not completed during shift handover.

6. Protection Requirements

Competent Worker

You must apply protection to all tracks leading to the work area and any adjacent tracks that are impacted by the work activity or the movement of rail vehicles for the following activities:

- infrastructure maintenance
- rail vehicle maintenance activity
- a road vehicle or HRV fouling tracks.

If the adjacent road is in an interlocked area, you must arrange protection for this road before **TS08 Working Within Non-Interlocked Areas** is applied.

If points can be set to prevent entry into the track that is being protected, you must arrange for the points to be:

- locked, spiked, or bolted in this setting, and
- an orange high visibility sock secured over the points lever using personal issue padlocks.

IMPORTANT
Only personal issued padlocks are permitted.

If points cannot be set to prevent entry into the affected track(s), you must arrange for:

- a derailer to be locked across the rail, or
- approved buffer stops to be placed on the affected track(s)

IMPORTANT
The blocks must be 50 metres from the obstruction / work area. This distance can only be varied after a risk assessment has been conducted and referenced to the matrix speed vs distance table.

You must identify the protected area by placing danger stop signals (double-sided where possible) on the affected track(s), where shunting personnel can view them.

You must only remove the protection when it is no longer required.

IMPORTANT
The protection can only be removed by the Competent Worker who applied it.

6.1 Inspection or Track Occupancy on Foot

Officer in Charge

When Rail Personnel or Visitors are to undertake an inspection or track occupancy on foot, you must ensure:

- a completed Site Safety Permit is issued, and
- all persons are site inducted, or
- a Competent Worker accompanies any person(s) not site inducted.

NOTE
The Officer in Charge may also arrange for a Competent Worker to accompany any person(s) who are site inducted.

7. Rubber Tyre Shunt Vehicles

Officer in Charge

Where rubber tyre shunt vehicles are used to move rail vehicles, you must:

- place a sign in the rail vehicle advising that the rail vehicle must not be used on the obstructed track(s) due to temporary closure
- provide the name of the Person in Charge of the work.

On completion of the work, you must arrange removal of the sign.

Mis.188 - Do Not Use sign

8. Motive Power Units

Operator

You must ensure that the motive power unit is secured in accordance with **TO07 Working on Rail Vehicles**.

IMPORTANT
When the conditions of **TO07 Working on Rail Vehicles** cannot be met, the motive power unit must be disconnected and taken forward clear of the protected area until the Work Supervisor authorises it to be reconnected to the train.

9. Rail Vehicles

Operator

You must ensure that any rail vehicle left standing is secured to prevent uncontrolled movement in accordance with the **Rail Operating Company's Operating Code**.

TS09 Foul Time

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 2** - Rail vehicles must maintain safe separation via an appropriate method of signalling and/or operation.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Foul Time in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

You must only use Foul Time in accordance with **RP09 Using Foul Time** and only in the following areas:

- track warrant control territory, except for the operation of hand points
- automatic signalling areas
- Midland Line automatic signalling areas between:
  - Rolleston and Springfield when signalling is suspended in this area
  - Springfield and Arthurs Pass
  - Otira and Stillwater
- areas authorised in **Local Network Instructions**.

4. Activities Permitted Using Foul Time

Competent Worker

You must only use Foul Time for the following activities:

- occupancy of track on foot
- maintenance with light tools / ladders
- HRV and trolley movements in the following areas:
  - Midland Line automatic signalling areas between:
    - Rolleston and Springfield when signalling is suspended in this area
    - Springfield and Arthurs Pass
    - Otira and Stillwater
  - areas authorised in **Local Network Instructions**.

IMPORTANT
Foul Time will not prevent a rail vehicle from entering your work area. Emergency Protection must be established if you are not clear of the line by the clear time and unable to contact the Train Controller.

NOTE
When there is more than one HRV in a worksite, this signifies 'multiple HRVs'.

5. Requesting Foul Time

Competent Worker

You may request Foul Time in the following circumstances:

- one or more of the provisions on the Individual Train Detection safety check form (Mis.70R) cannot be complied with, or
- **TS06 Blocking** is unavailable, partly unavailable, or unable to be used.

You must apply the process of pre-authorisation checks before work commences in accordance with **RP09 Using Foul Time**.

NOTE
You must identify and verify the on and off-tracking locations in accordance with **RP13 Identification and Verification of Location.**

6. Conflicting Rail Movements

Train Controller

You must verify the location of conflicting rail movements by contacting the Operator(s) of the rail vehicles concerned immediately before authorising track occupancy unless:

- an Operator has previously verified their rail vehicle location within the past 15 minutes, or
- the Train Control signalling screen is in use, and the rail vehicle has been observed departing an interlocked station within the past 15 minutes.

You must ensure that the rail vehicles are clear of the following locations:

- ASR single line blocks: confirm arrival at/or clear of the station
- ASR multi-line: confirm arrival at/or clear of the next interlocked station or passenger platform
- Station limits: clear of any fixed, controlled signal clear of the on-tracking location
- Foul Time in TWC areas: confirm arrival at or clear of the next station or intermediate board.

6.1 Safety Buffer

Train Controller

You must apply a safety buffer of 30 minutes between the clearance time and the anticipated arrival time to the occupancy area in accordance with **RP09 Using Foul Time**.

Where signal blocking can be used to protect the occupancy / obstructions from the next movement into the section, no safety buffer is required.

Where signal blocking is used to protect the occupancy / obstructions, you must only alter the order of trains through the protected site when a new track occupancy is issued to the Addressee.

7. Altered Circumstances

Train Controller

If, after granting Foul Time, circumstances change that would allow a rail vehicle to conflict with the designated clearance time, you must apply the requirements in accordance with **RP09 Using Foul Time**.

Competent Worker

You must complete a new track call with the Train Controller and complete a new Mis.71 when a change of scope or time extension is required.

8. Completion of Foul Time

Competent Worker

You must draw a diagonal line through the completed Mis.71 form and retain completed booklets at least one month before disposing.

TS10 Individual Train Detection

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for using Individual Train Detection (ITD) in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with the **TS01 Planning Work in the Railway Corridor**.

If you do not hold the License to Operate ITD, you must arrange to be accompanied by a Competent Worker.

NOTE
A License to Operate ITD is the minimum qualification required to move and work on the railway corridor unsupervised.

You must only use ITD in accordance with **RP10 Using Individual Train Detection** for the occupancy of main lines, crossing loops and all lines within interlocked areas when:

- moving on foot, or
- making minor corrections that will not interfere with the safe running of rail vehicles, or
- when crossing the line at a maintenance crossing.

NOTE
These provisions will not apply to Train Operating Personnel engaged with train operational tasks or Rail Personnel working behind an approved barrier.

You must not use ITD in the following locations:

- tunnels, or
- bridges where there may not be an easily accessible safe place, or
- PWAs unless when directed by the Rail Protection Officer for secondary protection purposes.

IMPORTANT
Where provided in a local site safety plan, **TS06 Blocking** must be used.

4. Individual Train Detection Safety Check

Competent Worker

Unless another means of protection is used, you must complete a Mis.70R when encroaching within two outstretched arm's length of the edge of the rail of the main line, crossing loop or interlocked area.

NOTE
Signals Maintenance Representatives carrying out routine inspections and testing of level crossing alarms which involves crossing the railway corridor over the formed roadway or pedestrian pathway, are not required to complete a Mis.70R.

IMPORTANT
Unless other protection is provided, a Mis.70R must be completed before track occupancy and produced when requested. When one or more of the provisions on the Mis.70R cannot be complied with, Blocking/Foul Time must be requested before track occupancy.

5. Individuals Moving on Foot Alone

Competent Worker

To have protection from rail vehicles when moving on foot alone, you must:

- be able to visually detect the approach of a rail vehicle moving at the maximum speed authorised for the locality and be able to move to and occupy a previously identified safe place at least 15 seconds before the rail vehicle reaches them
- be able to see and hear approaching rail vehicles and other track equipment not impaired by lights, fog, passing or standing rail vehicles, or any other environmental condition
- not occupy a position or engage in any activity that would interfere with your ability to maintain a vigilant lookout for and detect the approach of a rail vehicle or track equipment moving in either direction
- confirm that no power-operated tools or maintenance vehicles are in use within hearing range.

6. Observer Appointed

Rail Personnel

You may appoint an Observer to protect another person or group occupying the track.

Observer

To undertake your duties, you must:

- hold a Licence to Operate ITD (as a minimum)
- be able to give warning in sufficient time to enable each person to move to and occupy a previously identified safe place at least 15 seconds before the rail vehicle reaches them
- devote your full attention to detecting approaching rail vehicles and other track equipment not impaired by lights, fog, passing or standing rail vehicles or any other environmental condition.
- warn all individuals before an approaching rail vehicle reaches the minimum required sight distance
- use an agreed method identified in the pre-start briefing to warn individuals of the approach of a rail vehicle that:
  - is distinctive, clear, and unquestionable
  - does not require individuals to be looking in any direction
  - must be detected by individuals regardless of noise or work distractions.

You must have a whistle or an air horn to use as part of your duties.

Rail Personnel

You must remain in a position that allows you to receive warnings from the Observer.

7. Completed Mis.70R

Rail Personnel

You must retain all completed Mis.70R Forms for one month before disposing.

TS11 Mobile Track Maintenance Vehicles

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 4** - Rail vehicles and other transport modes must be separated or the interface managed.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for operating Mobile Track Maintenance Vehicles (MTMV) in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with the **TS01 Planning Work in the Railway Corridor**.

You must operate MTMVs in accordance with this rule unit and **RP11 MTMV Operations**.

NOTE
MTMV in this rule also refers to multiple MTMVs working together. For HRVs, refer to **TS12 Hi-Rail Vehicles**.

3.1 Entering the Network

Rail Personnel

You must ensure MTMVs:

- are inspected and certified as safe before entering the network
- only occupy a running line with the authority of the Train Controller responsible for the location
- have a Competent Worker qualified in the relevant route and signalling system when travelling in the network.

IMPORTANT
You must only travel in the cab of the MTMV if authorised.

3.2 Operating in TWC Area

Rail Personnel

When MTMV are operating as a train in TWC areas, and the on-tracking movement commences at a meterage, you must apply the following:

- operate as an MTMV from the on-tracking meterage to the next crossing station
- operate as a train from the crossing station to the destination station
- if the destination is a meterage, the train must terminate at the crossing station before the meterage and then operate as an MTMV from there to the off-tracking meterage.

You must work in TWC areas in accordance with **SO08 Track Warrant Control**.

3.3 Equipment

Operator

You must ensure that the MTMV:

- is equipped with two red and two green flags and a supply of detonators
- has headlights and end of train markers in operation
- have operating hazard lights.

4. Authority to Move

Rail Personnel

You must reach an agreement to the protection arrangements before work commences at:

- terminals or yards where permission must be obtained from the Officer in Charge for movements within the area (where necessary from the Signaller), or
- an unattended station or siding where permission must be obtained from the Train Controller.

Operator

When MTMV operations are on the main line, crossing loop or any signalled area, you must communicate with the Signaller as required.

You must travel in the leading MTMV when entering the authorised area.

You may move in either direction when working within a PWA.

IMPORTANT

Planned work must be advised by a bulletin.

IMPORTANT

Protection must be applied when required to work or move outside the designated area shown on the bulletin.

4.1 Activation of Track Circuits

Rail Personnel

MTMVs with a minimum axle load of 10 tonnes and four or more axles when working together may be relied upon to activate track circuits and will:

- be protected by track circuits / axle counters and detected on signal panels
- operate active level crossing alarms.

MTMVs with axle loads under 10 tonnes and/or less than four axles:

- will not be protected by track circuits in automatic signalling areas and may not be detected on signal panels
- may not activate level crossing alarms.

Signaller

For MTMVs with axle loads under 10 tonnes and/or less than four axles and where signals authorise entry into a section, you must:

- place the controlled signal to stop immediately after the MTMV has confirmed they have passed the signal governing the entry into the section, and
- tag, block or collar the levers/controls controlling entry into the section.

NOTE

MTMVs that do not activate track circuits will work in accordance with **TS06 Blocking** or **TO07 Signal Blocking**, as outlined in **RP11 MTMV Operations, 2. Protection Arrangements.**

Operator

When your MTMV is under 10t and or less than four axles, you must tell the Signaller when the MTMV has passed the signal governing entry into the section when requested.

IMPORTANT

You must always obey signals and indicators.

4.2 Working in Either Direction

Rail Personnel

You must operate in accordance with **RP11 MTMV Operations** when MTMVs (e.g., track evaluation cars) are required to move in either direction.

Train Controller

In Automatic Signalling areas, you may authorise the mobile track equipment to set back after the necessary safeguards have been taken in accordance with the regulations.

Network Access Planner

You must provide a bulletin authorising MTMVs to operate in accordance with **TS11 Mobile Track Maintenance Vehicles** and detail:

- the hours of operation in a particular work area
- the work area shown by the meterage and stations between will include side-tracking facilities to allow trains to pass.

If the work is to extend past one section, you must ensure the work area and hours must be split into separate time and meterage blocks.

You must come to an understanding with the Ganger in Charge of the MTMV when planning work as to the method of working that is most suitable for that day, including the options:

- machines or vehicles may work on the main line or crossing loop, and trains may pass on the other line, or
- machines operating under the provisions of rule unit **TS11 Mobile Track Maintenance Vehicles** may enter switch-locked sidings to cross trains.

5. Protection Rule Requirements

5.1 Safeguards

Operator

When berthed / stabled or working within station limits or in a siding, you must apply **RP11 MTMV Operations, 1. Protection Arrangements.**

5.2 Working En Route

Operator

When working an MTMV en route, you must:

- obtain authority from the Train Controller before uncoupling and commencing work, and
- after the authorised work is completed, tell the Train Controller that the machines are recoupled together and ready to proceed.

5.3 Failure of Level Crossing Alarms

Rail Personnel

If the alarms do not operate automatically, you must operate them manually from the ganger test switch before the MTMV can pass over the level crossing.

If the alarms cannot be operated manually, you must signal the MTMVs over the crossing after ensuring it is safe.

Operator

You must not exceed 10 km/h over the level crossing.

6. Operation of Main Line Hand Points

Rail Personnel

Once the compulsory stop protection has been established, you may operate the main line hand points within the protected work area without additional authority.

Operator
You must ensure the points are correctly set and locked for the main line to allow rail vehicles to proceed past the MTMV before authorising rail vehicles to pass the protection.

7. Speed

Operator
You must travel at a speed as specified in **TS02 Protected Work Area, 6. Rail Vehicles in Worksites** when operating within a protected work area.

8. MTMV Moving Within Station Limits

Train Controller
When MTMVs are moving within station limits, you must ensure the following:

- the signals and points are control tagged, and
- these control tags are not removed or the route altered until the Ganger confirms that the MTMV is clear of the points or the interlocked area.

You must record all movements of MTMVs on the train control diagram in black pen.

9. Passing of Signals at Stop

Operator
You must obtain authorisation to pass controlled signals at stop in accordance with **SO02 Automatic Signalling Rules**.

NOTE
You may be authorised to pass a signal at stop over a route to which the signal will not clear, provided the movement is protected in accordance with these **Rail Operating Rules.**

10. Stabling MTMVs

Operator
Unless in a PWA, you must have authority from the Train Controller when stabling MTMVs on crossing loops at a station or in a switch locked siding to cross a train.

You must ensure the MTMVs are secured against unauthorised operation and unintended movement.

TS12 Hi-Rail Vehicles

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 2** - Rail vehicles must maintain safe separation via an appropriate method of signalling and/or operation.
- **Principle 3** - Before any rail vehicle moves, it must have an authority to move that clearly indicates the limits of that authority.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for operating Hi-Rail Vehicles (HRVs) in the network.

3. General

Rail Personnel

You must plan work in the railway corridor in accordance with **TS01 Planning Work in the Railway Corridor**.

For this rule unit, the term HRV also includes trolleys. You must apply these rules to trolleys where it is applicable.

NOTE
HRVs are generally insulated and, as such, do not operate track circuits. They will not activate crossing alarms or be protected by automatic signalling systems.

3.1 Equipment

Driver

You must ensure that HRVs are equipped with the following equipment before operating in the network:

- train control radio with Selcall ability
- handheld radio (HRVs only)
- a minimum supply of detonators in accordance with **GR01 Railway Corridor Safety**
- two red and two green flags.

NOTE
Special Provisions for Infrastructure Inspections

Hands-free mobile phones may be used when operating HRVs for inspections at a speed not exceeding 25 km/h.

3.2 Mandatory Calling of Limits

Driver

When approaching station limits, you must call on radio channel 1 advising:

- designation and name
- the station location being approached
- the terminating limit of the authorised track occupancy.

When calling on the radio, you must ensure that there are no other transmissions on radio channel 1, otherwise the transmission will not be heard correctly.

4. Protection Requirements

Driver

You may set back short distances of up to 100 metres within the limits of a proceed authority, provided you are able to stop within half the clear visible distance and clear of any obstruction.

4.1 Track Warrant Control Territory

Train Controller

Within TWC territory, you must authorise all HRV movements in accordance with **SO08 Track Warrant Control** unless the HRV movement is requesting authority to travel through a track occupancy or there is a conflict in a new track occupancy request in accordance with **RP12 HRV Operations**.

4.2 Midland Line - Automatic Signalling Areas

Train Controller

You must authorise all HRV and trolley movements in Midland Line ASR areas.

You must apply Blocking protection, Foul Time procedures or a combination of both when:

- movements are completely within an interlocked station - protection in accordance with **TS06 Blocking**, or
- blocking is available to protect one end of the occupancy - use rule unit **TS06 Blocking** in conjunction with **TS09 Foul Time**, or
- in all other situations - use **TS09 Foul Time.**

4.3 Automatic Signalling Areas

Signaller

Within automatic signalling areas, you must:

- only authorise HRV movements for the area you control
- apply blocking to protect the movement in accordance with **TS06 Blocking**.

The above rule must be applied unless the HRV movement requests authority to travel through a track occupancy or there is a conflict in a new track occupancy request in accordance with **RP12 HRV Operations**.

4.4 Interlocked Station Controlled by Local Signaller

Signaller

When authorising HRV movements at an interlocked station, you must:

- only authorise HRV movements for the area that you control
- apply **TS06 Blocking** to protect the movement
- route lock the route authorised for travelling movements by clearing subsequent signals in the direction of travel.

The above rule must be applied unless the HRV requests authority to travel through a track occupancy in accordance with **RP12 HRV Operations**.

4.5 Non-Interlocked Areas

Driver

You must obtain authority for movements within station limits from the Officer in Charge and work under their direction while within station limits.

You must work in accordance with **TS08 Working Within Non-Interlocked Areas**.

4.6 Authority for Movements

Rail Protection Officer

Within a protected work area where you are responsible for the worksite protection, you must provide authority for HRV movements to:

- enter the area
- on-track, or
- work.

4.7 HRV Rail Greasing

Train Controller

When a track occupancy request is received for a lube truck carrying out rail greasing, you must only provide authorisation to sections of track that are completely clear of rail movements.

You must not authorise lube trucks carrying out rail greasing to follow any other rail vehicles.

WARNING

Lube trucks must travel at 50 km/h for the correct application of grease on curves, which increases the risk of not stopping short on curves.

You must not authorise an HRV to operate in a section of track that has been greased by a lube truck until a train has transited the affected section unless:

1. you are told that the lube truck has deliberately not greased that section of track, or
2. it is necessary to carry out an inspection using an HRV for:
   a. heat runs,
   b. weather inspections, or
   c. broken rails or other urgent faults, or
3. infrastructure activities would be unduly restricted due to low train frequency.

NOTE
Small HRV wheels may spread grease onto the rail head and cause trains to stall, whereas large train wheels distribute the grease on the inside rail more correctly.

5. HRV Operations

5.1 Safe Operations

Driver

When operating the HRV, you must:

- operate the HRV safely in accordance with **RP12 Hi-Rail Vehicle Operations** and other authorised instructions, and
- ensure that Rail Personnel working and travelling in the HRV are safe.

When completing written operating instructions and authorities, you must ensure:

- the HRV is stationary
- instructions from the Train Controller are written in full and not abbreviated
- authorities are correctly repeated back to the issuer using the correct protocols in accordance with **GR02 Network Communications**.

NOTE
You may only complete the addressee, location, and date portions of the written authority before communicating with the Train Controller.

Rail Personnel

When travelling in the HRV, you must:

- wear seat belts when travelling in the HRV unless the HRV travels at a low speed (less than 25 km/h) and the operation requires frequent stops
- wear the authorised high visibility clothing.

5.2 Route Knowledge

Driver

If you do not have the route knowledge for the location, you must be accompanied by a Competent Worker with route knowledge who holds the licence to operate the HRV.

5.3 Multiple HRVs

Driver

Where two or more HRVs are travelling together, you must travel in the leading vehicle if you hold the occupancy authority and:

- provide information to the Train Controller on the number of HRVs travelling

- provide the information to all other Drivers involved
- tell all other Drivers when the authority to move is given.

You must maintain a 300 metre distance from another rail vehicle moving in the same direction, always being able to stop short of an obstruction within half the distance of clear line that is visible ahead, considering the physical characteristics of the track and the environmental conditions.

You must maintain a 50 metre distance from a stationary rail vehicle and be prepared to remove or reverse should the rail vehicle begin to set back.

5.4 HRV Stopped in Tunnels

Driver

If the HRV stops in a tunnel, you must immediately shut down unless exhaust scrubbers have been fitted.

5.5 Speed of HRVs

Driver

You must ensure the HRV does not exceed the 50 km/h maximum authorised speed, and track conditions are considered.

You must reduce the HRV speed to 30 km/h maximum when:

- approaching level crossings
- approaching turnouts
- travelling with other HRVs
- travelling within a protected work area worksite(s).

You must reduce the HRV speed:

- to 10 km/h maximum when travelling over level crossings
- to 10 km/h less than the speed limit for any curve, with a maximum speed of 50 km/h when travelling on curves
- to 15 km/h in yards, terminals, and sidings
- to no more than 25 km/h:
  - through all turnouts
  - in areas where the track is ballasted up to the head of the rail, or
  - where any materials or equipment extend up to the underside of the railhead
  - when towing a material trolley.

IMPORTANT
All line speeds and other permanent or temporary speed restrictions must be observed.

You must comply with the allocated speed restrictions for operating other HRVs with lower maximum speeds as documented in the relevant Loco 155 or Loco 442.

5.6 Setting of Main Line Points

Driver

When approaching main line points, you must ensure they are correctly set for the intended movement.

Where main line points are required to be moved to the opposite setting, you must request the Signaller to move the points.

Signaller

If the points are within a protected work area, you must obtain permission from the Rail Protection Officer before changing the setting of the points.

5.7 Movement Over Level Crossings

Driver

When approaching a level crossing, you must:

- sound the horn to give warning of the approach
- be prepared to stop on the approach side of the level crossing unless there is no road traffic near the crossing.

Before proceeding onto the crossing fitted with the remote control function, you must confirm:

- the alarms are operating
- any approaching road traffic is acting on the alarms.

If the approaching road traffic does not react to the alarms, you must stop and not enter a crossing.

5.8 Parking HRVs

Driver

When not on track, you must park the HRV:

- clear of the line so that they cannot become an obstruction
- with all the lights extinguished.

Where you cannot extinguish all the lights, you must park the vehicle to ensure the Operators of passing rail vehicles cannot misinterpret the lights and reflectors.

IMPORTANT

Trolleys must be secured with a chain and padlock or parked in a locked shed when not under supervision.

5.9 Use of Lights

Driver

When operating HRVs on track, you must have the following lights switched on:

- headlights
- hazard lights
- taillights

- the roof-mounted flashing light, where fitted.

If the HRV is stopped on track and the motor is switched off, you must ensure the hazard lights and roof-mounted flashing lights are switched on.

IMPORTANT
Lightweight inspection trolleys not fitted with front and rear lights must display an orange flashing light in poor visibility or tunnels.

6. HRV Off-Tracking

Driver

You must not reoccupy the line until additional authority is obtained from the Train Controller when the HRV off-tracks:

- within authorised track occupancy limits, or
- before the authorised time has expired.

TS13 Danger Stop Signals and Boards

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 2** - Rail vehicles must maintain safe separation via an appropriate method of signalling and/or operation.
- **Principle 5** - Rail vehicles must be prevented from entering or moving if the railway infrastructure integrity is suspected of being in an unsafe state and/or line obstructed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles.

2. Purpose

To prescribe the rules for varying the placement of danger stop signals and boards in the network.

3. General

Rail Personnel

In some circumstances, for the safe protection of the obstruction or work area, you must vary the distance between the:

- obstruction or work area, and
- the location of the danger stop signals, compulsory stop boards and advance warning boards.

When the compulsory stop board is more than 500 metres from the obstruction or work area, you must ensure the advance warning board is at least 1500 metres from the compulsory stop board.

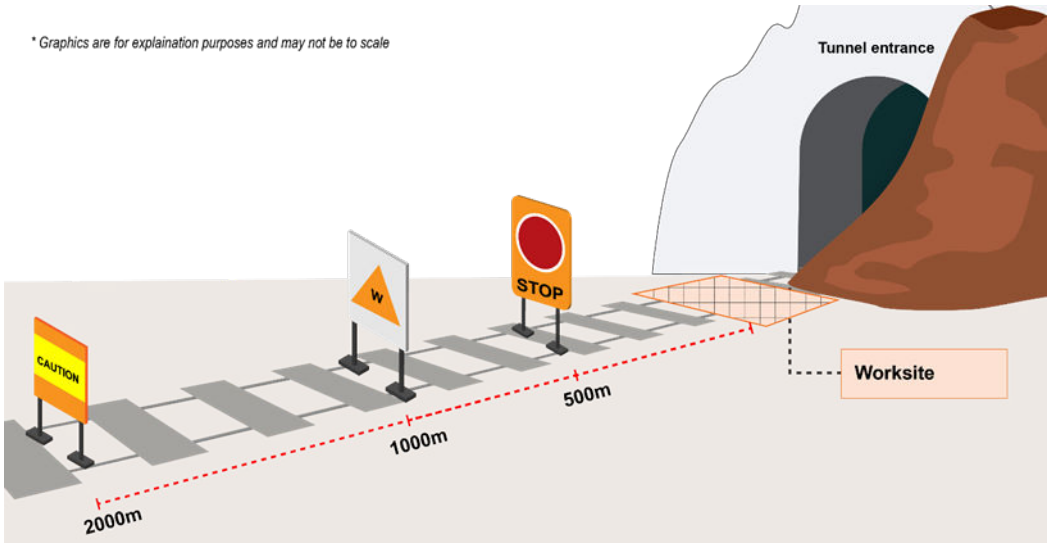
4. Protection Arrangements

4.1 Obstruction Near a Tunnel

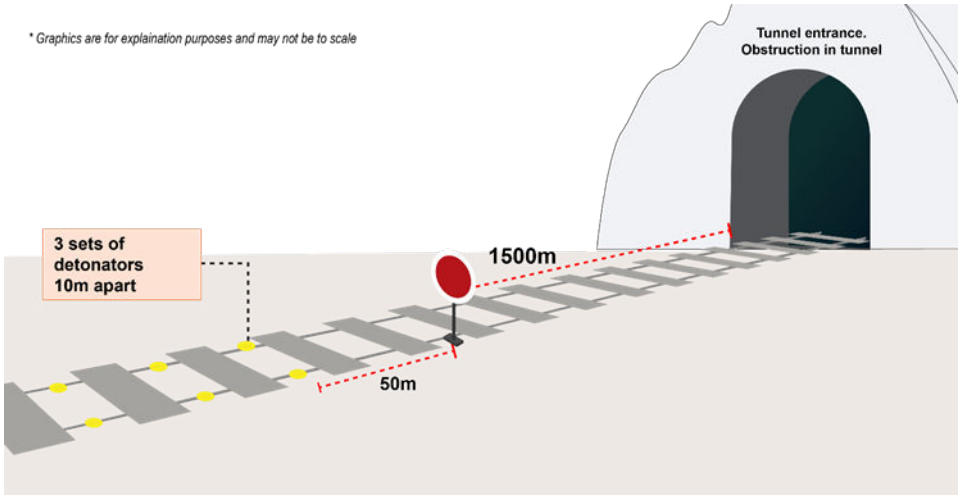
Rail Protection Officer

When placing the protection, you must place the following protection at least 400 metres from the tunnel entrance:

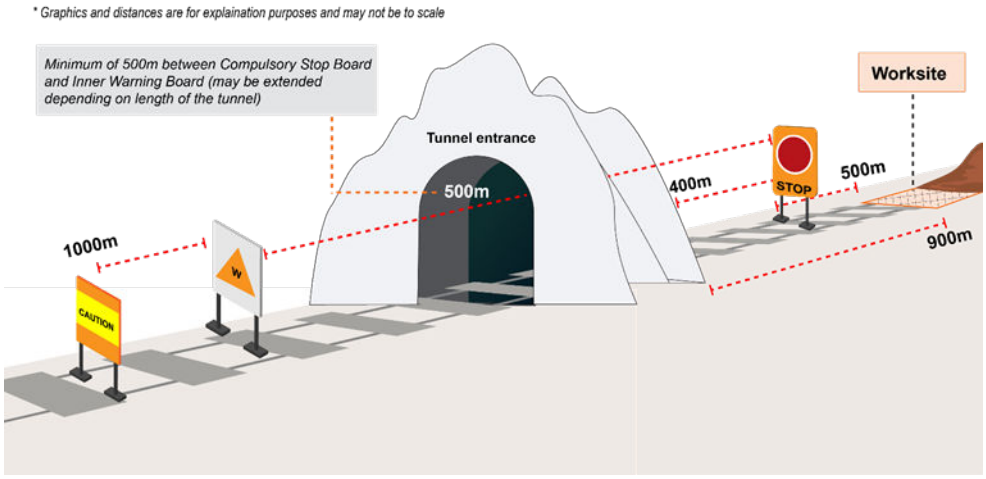
- advance warning boards
- inner warning boards
- compulsory stop boards
- detonators (placed 50 metres beyond the compulsory stop board).



Obstruction Tunnel Entrance



Obstruction within Tunnel



Obstruction beyond Tunnel

CAUTION
Protection must not be erected in tunnels.

4.2 Obstruction Near a Controlled Signal

Rail Protection Officer

When protection is to be placed close to a controlled signal that governs entry into the obstructed section, you must place the following protection at the signal:

- danger stop signals and detonators (placed 50 metres beyond the danger stop signal), or
- compulsory stop boards.

You must:

- communicate with the Signaller / Train Controller.
- arrange for the signals to be held at stop to prevent confusion.

Signaller, Train Controller

You must apply **SO07 Signal Blocking** to the signals being held at stop until the Rail Protection Officer advises that the line is clear and safe for rail vehicle movements.

IMPORTANT
When the Rail Protection Officer or Signaller / Train Controller requires variations to protection arrangements, this must be authorised by bulletin.

When you are required to clear a signal held at stop, you must obtain approval for the rail movement from the Rail Protection Officer to ensure there are no conflicting movements.

After each rail movement, you must reinstate the signal blocking requirements in accordance with **SO07 Signal Blocking**.

4.3 Obstruction Near a Level Crossing

Rail Protection Officer

When an obstruction is near a level crossing, you must ensure that compulsory stop boards are placed in positions that do not allow rail vehicles to foul insulation joints for level crossing alarms.

4.4 Obstruction Near a Curve

Rail Protection Officer

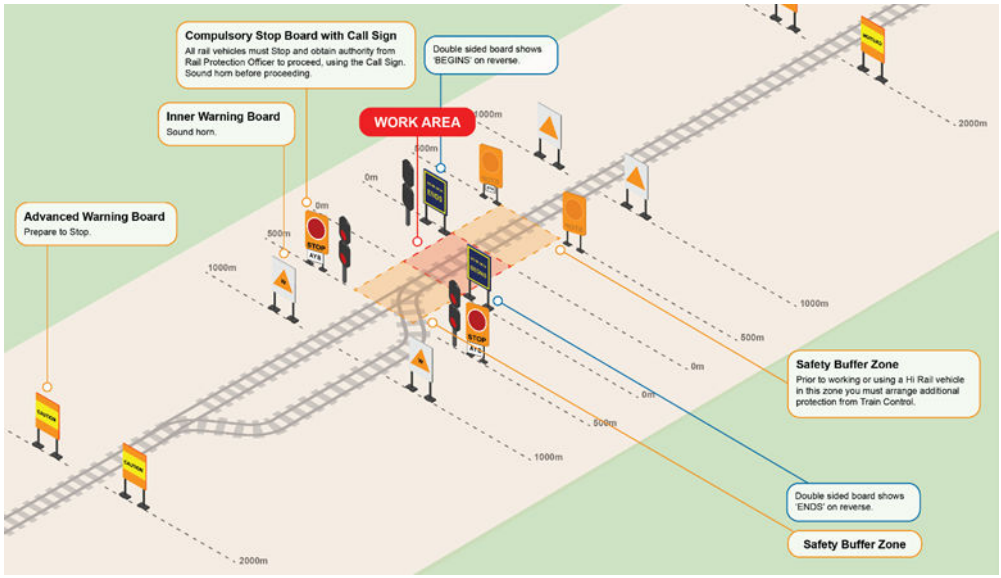
When there is an obstruction near a curve, you must place the protection so the Operator or Driver will have a clear and unobstructed view of the protection before entering the curve.

4.5 Obstruction Near a Station

Rail Protection Officer

Where a station is between the normal location of the advanced warning board and the compulsory stop board at interlocked stations and track warrant stations, you must place compulsory stop boards adjacent to:

- block/station entry boards (automatic signalling)
- starting or departure signals
- directing signals (within station limits)
- home or outer home signals
- trailing indicators (track warrant).



Compulsory Stop Protection

4.6 Obstruction Near a Station in Suburban Areas

Rail Protection Officer

When a station intervenes between the normal location of the advance warning board and the compulsory stop board, you must place the compulsory stop board in a location where the Operator of a rail vehicle stopped at the station will have a clear and unobstructed view of the compulsory stop board.

5. Variations to Distances

Rail Protection Officer

When there is a variation in the distances between boards and the work area, you must arrange for this to be notified on the bulletin authorising the Compulsory Stop Protection work.

NOTE

For permissible modifications to Compulsory Stop Protection Boards, refer to **Train Running and Timetabling Manual, 16. Variation to Compulsory Stop Protection Board Distances.**

TS14 Authorised Fencing

1. Principles

This rule unit is aligned with the following KiwiRail Fundamental Operating Principles:

- **Principle 1** - Rail personnel must take all possible steps to ensure their activities are carried out in a safe manner.
- **Principle 4** - Rail vehicles and other transport modes must be separated, or the interface managed.
- **Principle 8** - Safe separation must be maintained between people, plant, and rail vehicles

2. Purpose

To prescribe the use of authorised fencing in the network.

3. General

The following are types of authorised fencing:

- Vortok Fencing
- RSS Magnetic Safety Barrier

Vortok Fencing

RSS Magnetic Safety Barrier

4. Use of Authorised Fencing

Competent Worker

Before any use of authorised fencing occurs, you must have the approval of the Protection Planner.

Protection Planner

When planning work behind authorised fencing, you must ensure:

- a task analysis is undertaken on all activities that will use the authorised fencing
- the safety plan / Job Safety Analysis identifies the appropriate operating hazards, and all personnel are told of those hazards.

Rail Protection Officer

Before commencing work behind authorised fencing, you must ensure:

- Plant Operators are competent and understand the limitations of their operations within the worksite
- a competent Rail Safety Observer is positioned to observe the approach of trains (from either direction) and can clearly and promptly communicate with the Plant Operator
- that when line of sight is restricted, additional Rail Safety Observer(s) are positioned to provide adequate warning to the Rail Safety Observer of the approaching of trains. A robust communication plan must be in place
- plant is positioned so it is unable to foul the active main, where possible.

5. Erection of Authorised Fencing

Competent Worker

You must only erect authorised fencing using:

- Individual Train Detection (ITD) - with an appointed Observer, or
- RPO Authority - when in a Protected Work Area with multiple worksites.

IMPORTANT
If it is not possible to use ITD safely, a higher level of protection must be used.

You must place authorised fencing a minimum distance of 1.9 metres from the centre of the running line as authorised in **TS01 Planning Work in the Railway Corridor, 4. Protection Arrangements.**

Observer
You must hold a minimum qualification of ITD when appointed to observe the erection of authorised fencing.

6. Operating behind Authorised Fencing
Operating under worksite conditions behind authorised fencing enables Rail Personnel to work without the requirement to establish a Protected Work Area for the line beyond the authorised fencing.

When a line is being occupied and authorised fencing provides separation from an adjacent line, the line being occupied must be protected in accordance with **TS01 Planning Work in the Railway Corridor.**

Rail Protection Officer
When operating behind authorised fencing, you must:

- advise Operators of trains stopped at Compulsory Stop Boards of authorised fencing worksites they will be passing
- stop all plant operations for the passing of trains on the adjacent line.

6.1 No Capability to Foul Adjacent Lines

IMPORTANT
To be incapable of fouling adjacent lines, slew restrictors must be in use on all vehicles

Rail Protection Officer
You must ensure a Rail Safety Observer is positioned adjacent to operating plant to provide adequate warning to the Plant Operator.

NOTE
No additional protection is required.

6.2 Capability to Foul Adjacent Lines

Rail Protection Officer
When there is capability to foul any adjacent lines, you must ensure a Rail Safety Observer is located with each operating plant so that they can communicate with the Plant Operator.

Rail Safety Observer
When an approaching train is sighted, you must arrange for Plant Operators to:

- place the bucket on the ground
- remove / lift their hands off the controls
- make their hands visible to the operator of the rail vehicle.

CAUTION
Should a plant operator foul an adjacent line without being protected, work must be halted, and additional protection arranged, or the plant operator requested to cease work.

6.3 Fouling Adjacent Lines

Protection Planner
When work is planned to foul or obstruct any adjacent line, you must arrange additional protection for those adjacent lines.

Rail Protection Officer
Should a Plant Operator foul or obstruct an unprotected adjacent line, you must:

- tell the Plant Operator to stop work
- arrange protection for that adjacent line
- record the operating irregularity in the Access Provider's Incident Reporting System

7. Moving Plant Outside of a Worksite

Rail Protection Officer
You must ensure that all plant that has the potential to foul the track has an Observer.

Plant Operator
To prevent fouling of adjacent lines when moving between worksites, you must ensure hi-rail diggers / cranes have:

- slew lock engaged, or
- the bucket chained into the central position, and

- authority of the RPO to move, and
- be piloted by the Site Protector

8. Moving Plant within a Worksite

Plant Operator

Before moving mobile plant within the worksite, you must:

- have the permission of the Site Protector and
- be piloted by the Rail Safety Observer.

