



Australian Government  
Australian Transport Safety Bureau

# Safeworking irregularity involving Lookout Working

Near Tempe, New South Wales | 31 July 2017



Investigation

**ATSB Transport Safety Report**  
Rail Occurrence Investigation  
RO-2017-009  
Final – 25 July 2019

**Cover photo:** ATSB

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#### Addendum

Page	Change	Date

# Safety summary

## What happened

On 31 July 2017, a team of Sydney Trains<sup>1</sup> infrastructure maintainers were conducting a series of inspections and measurements along the Up and Down<sup>2</sup> Illawarra Main and Up and Down Illawarra Local lines, Tempe. The workgroup were located between 746 points and 748 points when a passenger service 59-J travelling on the Down Illawarra Local line towards Tempe Station narrowly missed the workgroup as it passed their worksite. There were no injuries or damage.

## What the ATSB found

The workgroup had relied on lookout working (LOW) as the method of worksite protection. Two workers were positioned as lookouts for oncoming trains; one trackside watching for the approach of Down trains, using track warning lights<sup>3</sup> (Down lookout), the other positioned at Tempe<sup>4</sup> Station footbridge watching for the approach of Up trains (Up lookout). The Down lookout had diverted his attention away from the warning lights to acknowledge an Up train. When he re-focused on the warning lights, he realised a warning light for approaching Down trains had extinguished. He was not able to sound a warning to the workgroup and give them sufficient time to clear the danger zone to a safe location, before 59-J approached their location.

Additionally, the ATSB found the location of the worksite was considered unsuitable for LOW according to Sydney Trains' Worksite Protection and Hazardous Locations Register (WPHLR).

## What's been done as a result

On 12 November 2017, Sydney Trains made changes to NPR 711 *Using Lookouts*<sup>5</sup>. Instructions mandated that warning lights must not be used to provide warning of approaching rail traffic when using lookouts. Further, this instruction applied to all tracks in the Sydney Trains Network unless specifically exempted in the Network Local Appendices.

Sydney Trains is also reviewing the WPHLR with a view to simplifying the document by only including locations where LOW is specifically prohibited.

## Safety message

Compared to the other worksite protection methods, Lookout Working (LOW) does not warn, or restrict trains from approaching, or entering a work location. Where practicable, rail transport operators (RTOs) must require track workers to continually re-assess the site risks, add/combine safety measures (like Automatic Track Warning System, or audible warning devices), or implement a higher form of protection.

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<sup>1</sup> All trains, employees, roles, Network Rules, Network Procedures and maintenance responsibilities referred to in this report were under the control of Sydney Trains.

<sup>2</sup> Trains that travel away from Sydney are Down trains. The lines that carry them are Down lines. Trains that travel towards Sydney are Up trains. The lines that carry them are Up lines, e.g., 'Up and Down Main' Lines.

<sup>3</sup> A track warning light is defined as an illuminated white or orange warning light provided at locations where workers on track have a restricted view of approaching rail traffic. If rail traffic approaches, the light goes out, giving time for workers to move to, or remain in, a safe place (Network Rule NSG 604).

<sup>4</sup> The rail kilometrage for Tempe Station is 6.770 km by rail South of Central railway station. This was referenced from Network Local Appendices NLA 402.

<sup>5</sup> These changes were advertised on the RailSafe website and cited Safe Notice 1042-2017 (which outlined the specific change to NPR 711 Using Lookouts) and SafeTracks 03 November 2017 (which provided more information about the changes). Refer to [www.railsafe.org.au/](http://www.railsafe.org.au/)

# Contents

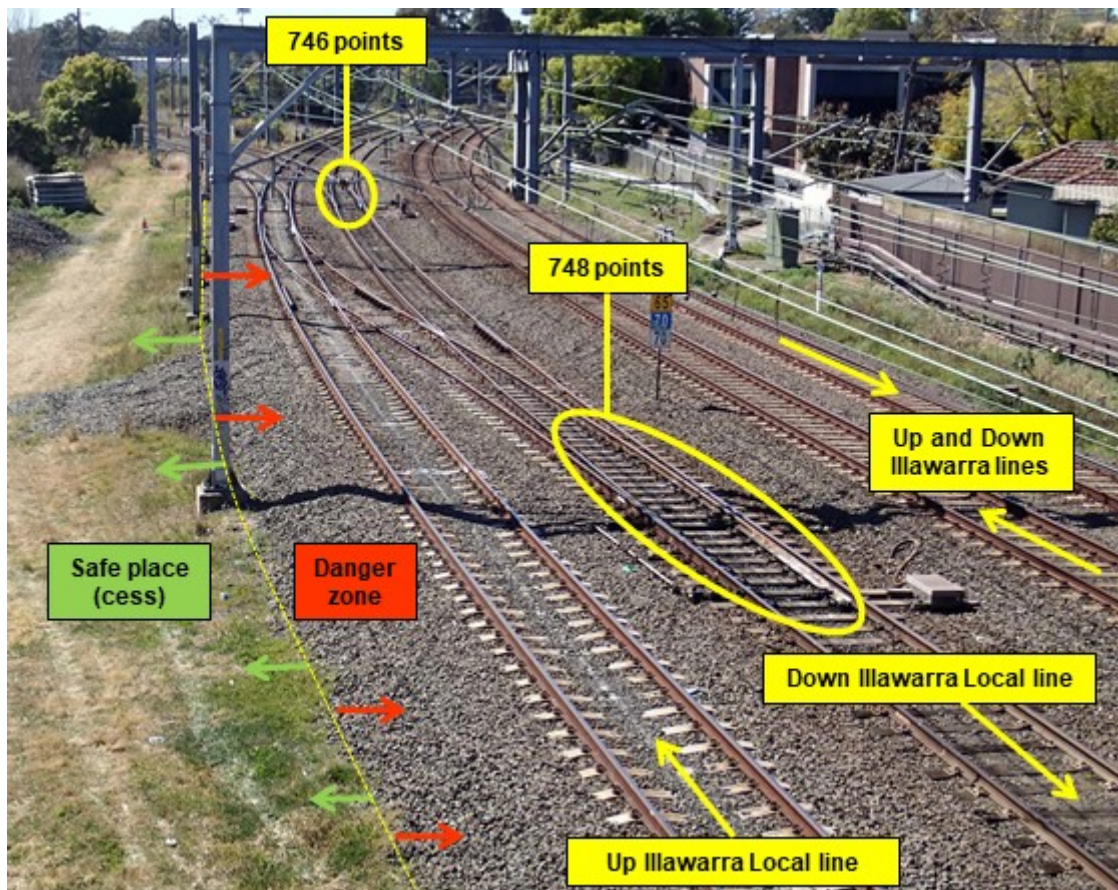
<b>The occurrence</b> .....	<b>1</b>
<b>Context</b> .....	<b>3</b>
Location	3
Worksite protection	3
LOW network procedure	4
Location of the Lookouts	4
Worksite Protection Hazardous Locations Register (WPHLR)	6
Warning lights	6
<b>Safety analysis</b> .....	<b>7</b>
Mobile worksite and re-assessment of risk	7
Responsibilities of the lookout	7
Location of the Lookouts	8
Worksite Protection Hazardous Locations Register (WPHLR)	8
Use of warning lights	8
<b>Findings</b> .....	<b>10</b>
<b>Safety issues and actions</b> .....	<b>11</b>
Use of warning lights	11
Single source of information for Lookout Working prohibition	12
<b>ATSB SafetyWatch</b> .....	<b>13</b>
Safe work on track	13
What can you do	13
Safe work on track across Australia	13
<b>General details</b> .....	<b>14</b>
Occurrence details	14
Train details	14
<b>Australian Transport Safety Bureau</b> .....	<b>15</b>
Purpose of safety investigations	15
Developing safety action	15
Terminology used in this report	16

# The occurrence

## What happened

On the morning of 31 July 2017, a team of four Sydney Trains infrastructure maintainers from their Sydenham Network Base gathered to conduct a series of regular inspections and measurements at several points along the Up and Down Illawarra Main and Up and Down Illawarra Local lines, Tempe. The work involved four sets of points, with the incident occurring between 746 points and 748 points (see Figure 1).

Figure 1: Incident location – Tempe, NSW



Source: ATSB

Two workers forming an inspection team, entered the danger zone and accessed the track in accordance with procedures for the protection of track workers using Network Rule NWT 310 *Lookout Working*. The rules stipulated that all workers and equipment were to be completely within a safe place a minimum of ten seconds before rail traffic entered a worksite (passed their location).

At approximately 1000, empty passenger service 59-J was travelling on the Down Illawarra Local line towards Tempe Station, when the driver observed the workgroup in the danger zone. The driver applied the train brakes, blew the horn and the workers began to move off the line towards a safe place, to the side of the track or 'cess' (see Figure 1). A review of CCTV footage from the train showed that the workers had nearly reached a safe place when the train passed the workers' location (approximately seven seconds after the train first observed the work group). There were no injuries or damage.

The incident involving train 59-J occurred when the Down lookout responded to the horn from the approaching Up train. He turned away from the warning lights to provide an 'all clear'<sup>6</sup> hand signal to the driver of the Up train. He then waited for an acknowledgement from the driver of the Up train, before turning back to re-focus on the warning lights. He realised a warning light for approaching down trains had already extinguished. He was not able to sound the warning to the work group and give them sufficient time to clear the danger zone to a safe location, before 59-J approached their location.

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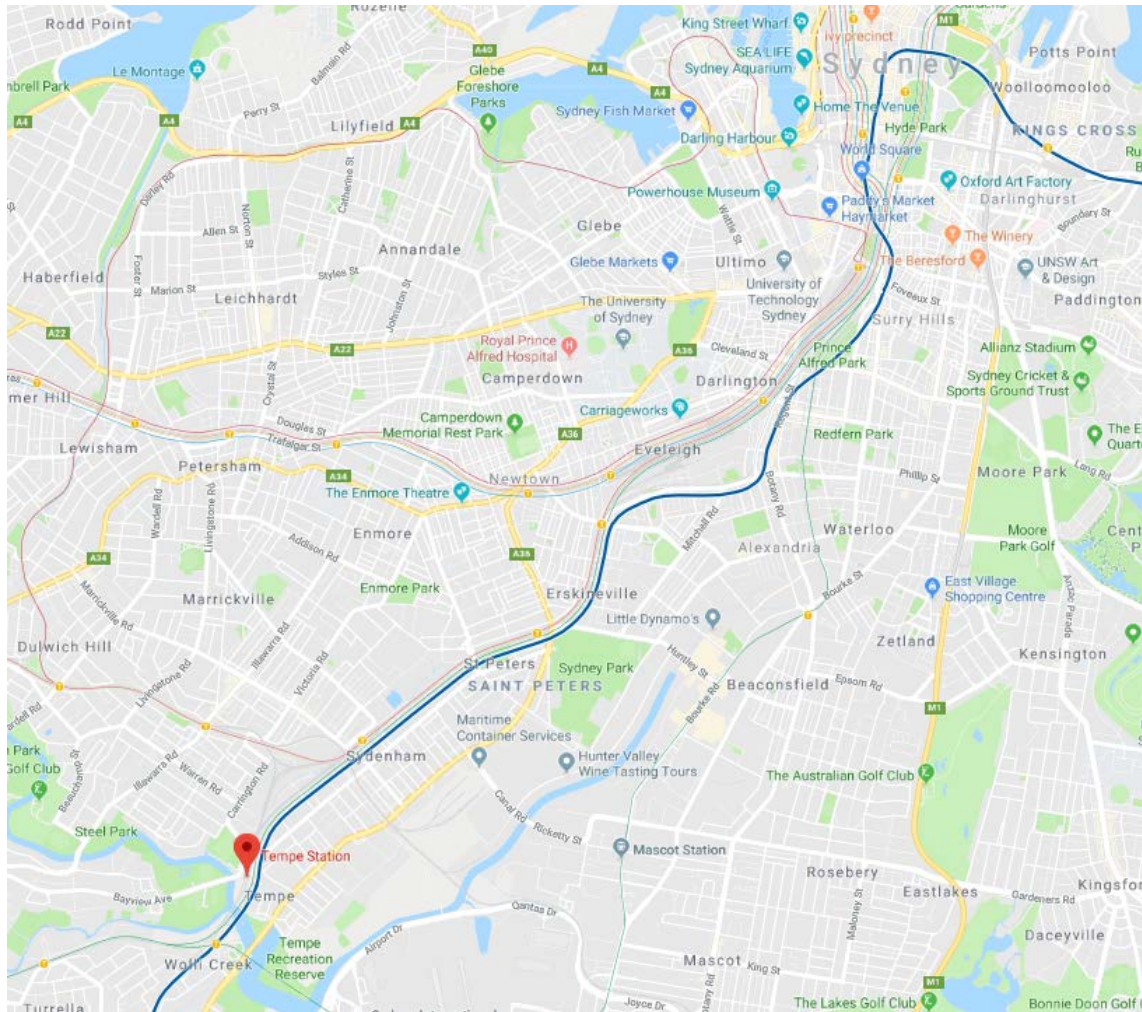
<sup>6</sup> Drivers or Track Vehicle Operators must sound the whistle to acknowledge an ALL CLEAR handsignal given by a white light, or one hand held high (Network Rule NGE 202).

# Context

## Location

The incident location at Tempe is approximately 6.5 km from Sydney’s Central Station and is a multiple-track site consisting of the Up and Down Illawarra Main and Up and Down Illawarra Local lines.

**Figure 2: Location of Tempe Station, NSW**



Source: Google Maps

## Worksite protection

Network Rule NWT 300 *Planning Work in the Rail Corridor* requires work in the danger zone to be planned and carried out using one of five methods of worksite protection<sup>7</sup>. The different methods of worksite protection are implemented according to the risk involved with the work task.

LOW is relatively expedient to implement compared to other worksite protection methods. This is because LOW does not prevent trains from entering the worksite. Protection of workers under LOW is reliant on positive outcomes from human performance and compliance to procedures.

To minimise risk, the Network Rules encourage track workers to assess and reassess the risks at each location, apply additional safety measures, or implement a higher form of protection, where

<sup>7</sup> The five include Local Possession Authority (LPA), Track Occupancy Authority (TOA), Track Work Authority (TWA), Absolute Signal Blocking (ASB) and Lookout Working (LOW).

practicable. NWT 300 states that Local Possession Authorities (LPAs) and Track Occupancy Authorities (TOAs) are the preferred methods of working on track, mainly as they authorise closure, or exclusive occupation of the track. The LOW rule, NWT 310, reinforces this philosophy when it states:

‘If Absolute Signal Blocking (ASB) is available, it is preferred over Lookout Working’.

Some considerations in reducing risk when using LOW are to add, or combine, additional safety measures like Automatic Track Warning System (ATWS), or audible warning devices.

## LOW network procedure

Lookouts are responsible for maintaining minimum allowable sighting distance, remaining vigilant for and detecting the approach of trains, and for warning workers in the danger zone of an approaching train.

The LOW Network Procedure NPR 711 states lookouts must:

1. Agree with the Protection Officer on how workers will be warned about the approach of rail traffic.
2. Stand in a safe place where you can see approaching rail traffic and be within sight and hearing of the workers. If you cannot do both of these safely, tell the Protection Officer.
3. Keep a continuous lookout for the approach of rail traffic.
4. When rail traffic approaches, warn the workers immediately.
5. Only if workers and their equipment are in a safe place, face the approaching train or track vehicle and give the ALL CLEAR handsignal to the Driver or Track Vehicle Operator.
6. Wait for the Driver or Track Vehicle Operator to acknowledge the ALL CLEAR handsignal.
7. Make sure that the line is clear before telling the Protection Officer that it is safe for work to resume.
8. Tell the Protection Officer if you need to move from your designated position. Do not move from your position until:
  - all workers and their equipment are in a safe place
  - a new Lookout is in position
9. Tell the Protection Officer if conditions such as visibility change.

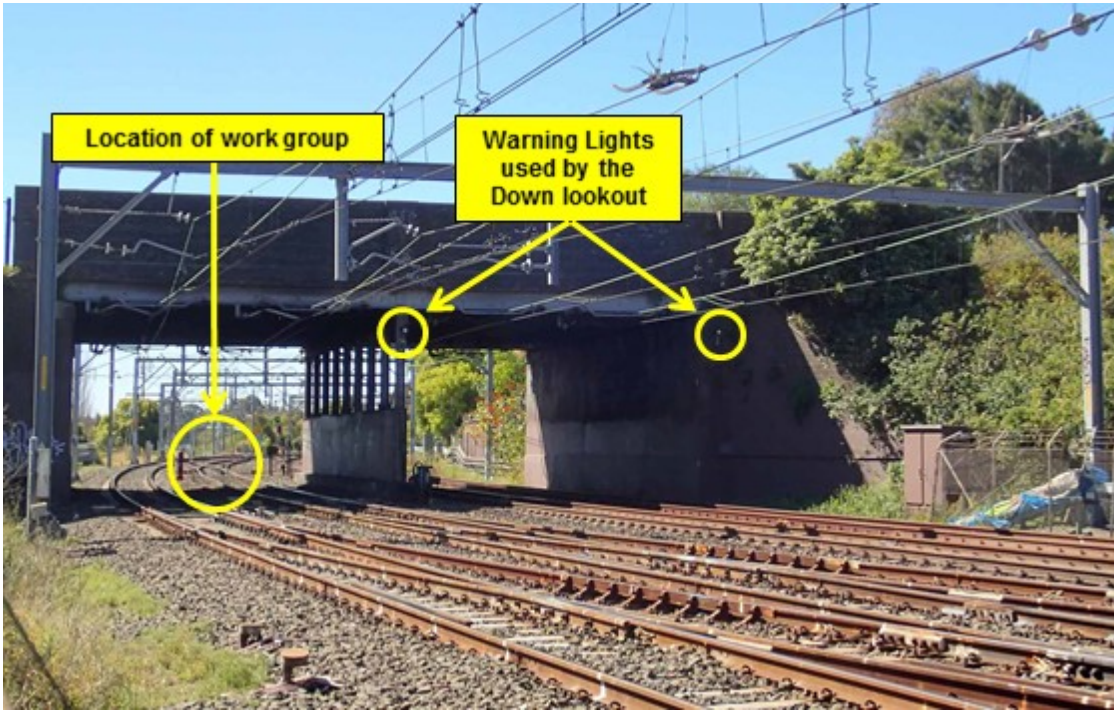
The Network Rules do not stipulate any separate criteria for trains approaching from one direction or another direction.

## Location of the Lookouts

The distance of the work group at 746 points from the Up lookout was approximately 350 metres. The distance of the work group from the Down lookout from 746 points was approximately 170 metres. At these locations the Down lookout was within sighting distance of the work group, however, the sighting distance to the Up lookout was obstructed by the overhead bridge stanchions.

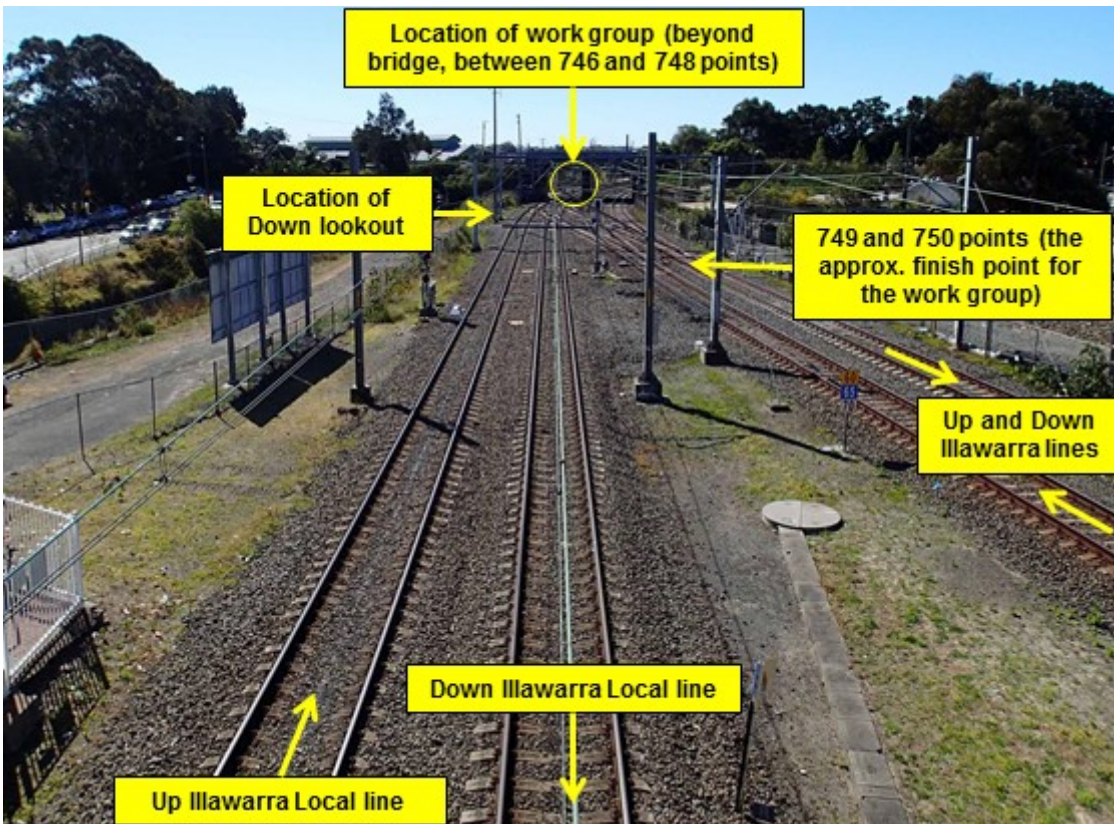


Figure 3: View from the position of the Down lookout



Source: ATSB

Figure 4: View from the position of the Up lookout, looking towards the work group



Source: ATSB

## Worksite Protection Hazardous Locations Register (WPHLR)

The Worksite Protection Hazardous Locations Register (WPHLR) identifies hazardous locations across the Sydney Trains rail network. Its purpose is to help users understand the hazards relating to worksite protection in these hazardous locations and provide recommendations for implementing appropriate worksite protection.

This section of track was included on the WPHLR and was considered an area inappropriate for using LOW. The Up Main and Down Local Illawarra lines were the two inside rail lines of the four rail line corridor. These tracks were identified to have some areas with inadequate sighting distance or no safe place. The recommended precautions were:

'Unless a safe place can be created by taking an ASB on the adjacent track to which the worksite is to be set up, LOW is not permitted'

This WPHLR was available and was consulted by the Protection Officer (PO), who considered the WPHLR as a guide only. The protection plan was put to the Network Controller and was accepted, confirming the PO's thoughts on the WPHLR.

## Warning lights

In the network rule NSG 604 *Indicators and signs*, warning lights are described as;

Illuminated white or orange warning lights are provided at locations where workers on track have a restricted view of approaching rail traffic. If rail traffic approaches, the lights go out.

These lights can provide a warning to workers of approaching rail traffic. On detection of approaching rail traffic, the warning lights extinguish. This is intended to provide a fail-safe operation such that, if the light fails, or is observed to be extinguished, it must be assumed that a train is approaching.

The warning lights used by the Down lookout were illuminated white with a configuration of the example warning light in Figure 5.

**Figure 5: Example of Warning light**



Source: Sydney Trains

# Safety analysis

## Mobile worksite and re-assessment of risk

Although the work itself was considered routine, the worksite area was mobile; that is, it was progressing along the rail corridor/tracks in the danger zone. The constantly changing terrain required the workers to be on both Up and Down tracks simultaneously and on multiple occasions. Both Up and Down lookouts were equipped with the same audible devices (horn and whistle) to warn the work group. In some cases, as in this incident, the position of the work group changed, whilst the position of the lookouts remained static.

In this incident, there were occasions when the workers passed through locations where there was restricted sighting (due to structures) and/or an absence of a safe place. It was likely that the ability of the lookouts to maintain sighting distance and provide timely warnings over the entire worksite area was impacted by the mobility of the work group conducting their inspection tasks.

Network Rule NWT 310 requires POs to reassess safety measures if conditions such as visibility, or work locations change. Additionally, if worksites are established over a large area, minimum warning times (MWTs) must be continually reassessed.

While the nature of the task required the workgroup to move over a large area and potentially affect MWT for the workgroup, there was no evidence of the PO reassessing MWTs.

The PO and Down lookout took on their respective roles at short notice, as other staff to fulfil these roles were not available. The PO also acted as the worksite supervisor and accompanied the inspection worker in the danger zone. The PO was satisfied that these additional duties did not interfere with his primary duty as a PO.

When interviewed, the PO explained his understanding of LOW and safe places. He expressed that when LOW was implemented over multiple rail tracks, safe places were created on adjacent clear rail tracks when a train approached on the same rail track as the workers.

The PO's understanding of a safe place is not consistent with the definition of a safe place as defined in the RailSafe Glossary which states a safe place to be;

'A place where workers and equipment cannot be struck by rail traffic.'

When a worker is on a live rail track there is a possibility of the worker being struck by rail traffic. Although the PO had been in the rail industry for 24 years and had worked as a qualified PO for 16 years, his understanding of a safe place in the rail corridor was no longer consistent with the definition.

The two lookouts and the inspection worker all agreed to the worksite protection plan and agreed with the PO on what constituted a safe place. It is likely the understanding of what constituted a safe place amongst all these workers increased the risk to the workers in the danger zone of being struck by rail traffic.

## Responsibilities of the lookout

At Tempe, the Down lookout focused on acknowledging, by giving an 'all clear' hand signal and waiting for acknowledgement from an Up train. The Up train did not pose an immediate risk to the work group. The Down lookout focusing on acknowledging an Up train increased the risk to the work group of being struck by the Down train.

Where a lookout is required to remain vigilant for trains coming from a specific direction and provide adequate warning to people to get off the track, any distraction from this task increases the risk to the workgroup. NPR 711 stipulates that the lookout can only do this when workers and equipment are in a safe place, the ability for any lookout to perform this task effectively is

questionable as the lookout must be able to establish the workgroup is clear of the track and will remain clear of the track before acknowledging the oncoming rail traffic.

There is limited time for a lookout to be satisfied of this when communication between the lookout and the workgroup is limited to non-verbal and visual communications. The act of acknowledging the oncoming train requires the lookout to face away from the workgroup and focus their attention on the oncoming train. The lookout cannot be sure members of the workgroup are clear and will remain clear when they turn away to acknowledge an oncoming train.

The Down lookout had the necessary competencies and experience to fulfil the role of a lookout. When interviewed, the Down lookout readily recalled the key responsibilities of that role and how they applied to the Tempe location. Notably, he explained that his decision to react to a train horn and provide an 'all clear' towards an Up train, was based on his interpretation and understanding of Network Rule NPR711 and from his practical experience. He reiterated that he reacted the same way to any train driver that sounded their train horn. This had been reinforced during his many years of track work experience, where he had personally received adverse reactions from drivers when they were not in receipt of an appropriate 'all clear' hand signal from lookouts.

## Location of the Lookouts

The distance of the work group at 746 points from the Up lookout was approximately 350 metres. The distance of the work group from the Down lookout from 746 points was approximately 170 metres. At these locations the Down lookout was within sighting distance of the work group, however, the sighting distance to the Up lookout was obstructed by the overhead bridge stanchions.

The location and distance of the Up lookout from the work group would have made it difficult for the work group to hear the audible warning devices during their first two point inspections of 746 points and 748 points (see Figure 4).

Other ambient noise in closer proximity to the work group may have masked the sound of the horn and/or whistle which were the agreed audible devices used by the lookouts. Additionally, the overhead bridge between the Up lookout and the workgroup may have buffered the sound of the horn and whistle, making it harder for the work group to hear the audible warning. It is likely the audible warning devices would have been heard from the Down lookout.

The Down lookout was on the Up side of the work group during the inspections of 746 and 748 points. It is possible the Down lookout's audible alarm coming from the Up side of the work group could have confused workers and delayed their evacuation from the danger zone. In most cases, Lookouts are on the extremities of the workgroup, so audible warnings from a lookout generally come from the direction the train is coming from.

## Worksite Protection Hazardous Locations Register (WPHLR)

Had the WPHLR been a document that required strict adherence, then the Network Controller should have informed the PO and an alternate protection method would have been sought.

Reference and adherence to the WPHLR is not apparent in the Network Rules and Procedures. Having a reference such as this is useful, but only if relevant people are aware of and are required to use it when planning work site protection.

## Use of warning lights

From the approaches to the worksite at Tempe, there are a number of obstructions affecting visibility of the workers from an approaching train. From the down direction, these include an overbridge, stanchions and track curvature towards the Sydney end. Due to the restricted sighting on these track approaches, two illuminated white warning lights were provided for the Down Illawarra and Down Illawarra Local lines near Tempe to assist lookouts.

This warning light system, which relied on a lookout maintaining active observation, was utilised by the Down lookout as the Protection Officer considered the risk associated with using LOW had been successfully mitigated by using the warning lights. The warning lights are not designed with backup mechanisms (such as audible alarms, additional lights) to alert persons in the vicinity that the light/s in fact had extinguished and warned of an approaching train. However, while the purpose of warning lights is included in the Network Rules (NSG 604), they do not stipulate their application to specific worksite protection methods, like LOW. The warning lights at this location were not shown on older diagrams/network maps, worksite protection planning diagrams (WPPDs)<sup>8</sup>, or Drivers Route Knowledge Diagrams (DRKDs).<sup>9</sup> The PO used DRKDs when implementing LOW.

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<sup>8</sup> The RailSafe website stated that Worksite Protection Planning Diagrams (WPPD) were established to support the Rail Corridor Safety Program and were generated from the Sydney Trains Infrastructure GIS (Geospatial Information System). These were organised into books with each book covering a part of the Sydney Trains Infrastructure Network. These were uncontrolled documents and all information should be verified in the field. Refer to [www.railsafe.org.au/diagrams](http://www.railsafe.org.au/diagrams)

<sup>9</sup> The RailSafe website stated that Drivers Route Knowledge Diagrams (DRKD) were a stylised diagram showing the layout of major infrastructure in the Sydney Trains Network approved for train crew knowledge only. These were uncontrolled documents and all information should be verified in the field. Refer to [www.railsafe.org.au/diagrams](http://www.railsafe.org.au/diagrams)

## Findings

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

**Safety issues, or system problems, are highlighted in bold to emphasise their importance.**

A safety issue is an event or condition that increases safety risk and (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

- The incident involving train 59-J occurred during lookout working, when the Down lookout faced an approaching Up train to provide an 'all clear' hand signal to the train driver. At this time the Down lookout missed the change in aspect of the warning light indicating the approach of train service 59-J and could not provide adequate warning to the work group.
- The Workgroup's understanding and establishment of a safe place increased their risk of being struck by rail traffic.
- The Down lookout's interpretation and understanding of NPR711 contributed to his acknowledgment of the Up train.
- The location and distance of the Up lookout from the work group may have made it difficult for the work group to hear the audible warning devices during their first two point inspections of 746 points and 748 points.
- The location of the Down lookout presented a possibility of work group members being confused and delayed in responding to an audible warning.
- **Lookout Working (LOW) was implemented in an area deemed unsuitable for LOW on the Sydney Trains Worksite Protection Hazardous Locations Register (WPHLR). This is likely due to the WPHLR not being clearly stated as a reference with specific requirements that must be adhered to. [Safety issue]**
- **Warning lights were utilised at Tempe to overcome sighting hazards and justify the use of LOW. Warning lights rely on lookouts maintaining continuous observation and their use were not specifically referenced in the LOW Network Rules. [Safety issue].**

## Safety issues and actions

The safety issues identified during this investigation are listed in the Findings and Safety issues and actions sections of this report. The Australian Transport Safety Bureau (ATSB) expects that all safety issues identified by the investigation should be addressed by the relevant organisation(s). In addressing those issues, the ATSB prefers to encourage relevant organisation(s) to proactively initiate safety action, rather than to issue formal safety recommendations or safety advisory notices.

Depending on the level of risk of the safety issue, the extent of corrective action taken by the relevant organisation, or the desirability of directing a broad safety message to the rail industry, the ATSB may issue safety recommendations or safety advisory notices as part of the final report.

All of the directly involved parties were provided with a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

The initial public version of these safety issues and actions are provided separately on the ATSB website to facilitate monitoring by interested parties. Where relevant the safety issues and actions will be updated on the ATSB website as information comes to hand.

### Use of warning lights

<b>Safety issue number:</b>	RO-2017-009-SI-01
<b>Safety issue owner:</b>	Sydney Trains
<b>Operation affected:</b>	Rail
<b>Who it affects:</b>	All track managers

### Safety issue description

Warning lights were utilised at Tempe to overcome sighting hazards and justify the use of Lookout Working (LOW). Warning lights rely on lookouts maintaining continuous observation and their use were not specifically referenced in the LOW Network Rules.

### Status of the safety issue

<b>Issue status:</b>	Adequately addressed
<b>Justification:</b>	The action taken addresses the requirement. Warning lights cannot be used during Lookout Working.

### Proactive safety action:

<b>Action taken by:</b>	Sydney Trains
<b>Action number:</b>	RO-2017-009-NSA-010
<b>Action status:</b>	Closed

On 12 November 2017, Sydney Trains made changes to NPR 711 *Using Lookouts*<sup>10</sup>. Instructions mandated that warning lights must not be used to provide warning of approaching rail traffic when using lookouts. Further, this instruction applied to all tracks in the Sydney Trains Network unless specifically exempted in the Network Local Appendices.

<sup>10</sup> These changes were advertised on the RailSafe website and cited Safe Notice 1042-2017 (which outlined the specific change to NPR 711 *Using Lookouts*) and SafeTracks 03 November 2017 (which provided more information about the changes). Refer to [www.railsafe.org.au/](http://www.railsafe.org.au/)

## Single source of information for Lookout Working prohibition

**Safety issue number:** RO-2017-009-SI-02  
**Safety issue owner:** Sydney Trains  
**Operation affected:** Rail  
**Who it affects:** All track managers

### ***Safety issue description***

Lookout Working (LOW) was implemented in an area deemed unsuitable for LOW on the Sydney Trains Worksite Protection Hazardous Locations Register (WPHLR). This is likely due to the WPHLR not being clearly stated as a reference with specific requirements that must be adhered to.

### ***Status of the safety issue***

**Issue status:** Adequately addressed  
**Justification:** The action being taken will address the requirement when it has been implemented.

### ***Proactive safety action:***

**Action taken by:** Sydney Trains  
**Action number:** RO-2017-009-NSA-011  
**Action status:** Closed

**Safety action taken:** Sydney Trains is reviewing the WPHLR with a view to simplifying the document by only including locations where LOW is specifically prohibited.



# ATSB SafetyWatch

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. SafetyWatch provides information about each safety concern, and strategies to help manage risk areas, along with links to safety resources. One priority is '[safe work on track](#)'.



## ***Safe work on track***

The ATSB has investigated several accidents that have occurred when maintenance work was being carried out on or near railway tracks. Conducting work on or near a railway track can be dangerous if safeworking rules and procedures have not been correctly implemented to protect the worksite. Trains cannot stop quickly and any breakdown in the communication or management of a worksite can leave workers extremely vulnerable to dangerous situations.

## ***What can you do***

Operational safe working on track requires a high level of preparation and organisation. Whenever there is work taking place on or near a track, coordination and communication are essential to ensure adequate worksite protection is implemented. Before authority is granted to occupy or work near a track, it is essential that all information is clearly communicated and verified between the Protection Officer and the Network Control Officer.

An adequate briefing about the work site and effective communications equipment must be made available to the track workers. For track workers, it is vital to ensure that all levels of worksite protection have been fully implemented before commencing work on or near the track.

Similarly, before worksite protection is removed, it is essential that the Protection Officer and the Network Control Officer ensure all plant and workers have ceased operating and are positioned clear of the track.

## **ATSB comment**

### ***Safe work on track across Australia***

The ATSB has also produced a safety issue investigation report, [Safe work on track across Australia: Analysis of incident data, 2009 - 2014](#) (RI-2014-011), that is available from the ATSB website. This safety issue investigation reviews available data from across Australia of incidents and accidents relating to work on track. It is designed to provide industry with insights into the protection arrangements that are failing, and the reasons why, across many occurrences so that safety action can be designed to reduce future safe work on track occurrences.

To minimise risk, rail transport operators must ensure systems for safe work on track encourage workers accessing the rail corridor to communicate sufficient information to validate their worksite location, the adequacy of the protections in place, and their positioning in relation to any approaching train movements.

# General details

## Occurrence details

Date and time:	31 July 2017	
Occurrence category:	Incident	
Primary occurrence type:	Rail safe working irregularity	
Location:	Tempe, NSW	
	Latitude: 33° 55' 28.272" S	Longitude: 151° 9' 23.1804" E

## Train details

Train operator:	Sydney Trains	
Registration:	59-J	
Type of operation:	Passenger	
Departure:	Circular Quay	
Destination:	Kingsgrove Turnback	
Persons on board:	Crew – 2	Passengers – 0
Injuries:	Crew – 0	Passengers – 0
Damage:	None	

# Australian Transport Safety Bureau

The ATSB is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within the ATSB's jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

## Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

## Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

## Terminology used in this report

**Occurrence:** accident or incident.

**Safety factor:** an event or condition that increases safety risk. In other words, it is something that, if it occurred in the future, would increase the likelihood of an occurrence, and/or the severity of the adverse consequences associated with an occurrence. Safety factors include the occurrence events (e.g. engine failure, signal passed at danger, grounding), individual actions (e.g. errors and violations), local conditions, current risk controls and organisational influences.

**Contributing factor:** a factor that, had it not occurred or existed at the time of an occurrence, then either:

- (a) the occurrence would probably not have occurred; or
- (b) the adverse consequences associated with the occurrence would probably not have occurred or have been as serious, or
- (c) another contributing factor would probably not have occurred or existed.

**Other factors that increased risk:** a safety factor identified during an occurrence investigation, which did not meet the definition of contributing factor but was still considered to be important to communicate in an investigation report in the interest of improved transport safety.

**Other findings:** any finding, other than that associated with safety factors, considered important to include in an investigation report. Such findings may resolve ambiguity or controversy, describe possible scenarios or safety factors when firm safety factor findings were not able to be made, or note events or conditions which ‘saved the day’ or played an important role in reducing the risk associated with an occurrence.



## Australian Transport Safety Bureau

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## Investigation

### **ATSB Transport Safety Report** Rail Occurrence Investigation

Safeworking irregularity involving Lookout Working  
Near Tempe, New South Wales on 31 July 2017

RO-2017-009

Final – 25 July 2019