



Australian Government

Australian Transport Safety Bureau

Collision between track worker and passenger train at Petrie, Queensland

on the 29 May 2017

ATSB Transport Safety Report
Rail Occurrence Investigation
RO-2017-003
Preliminary – 22 August 2017

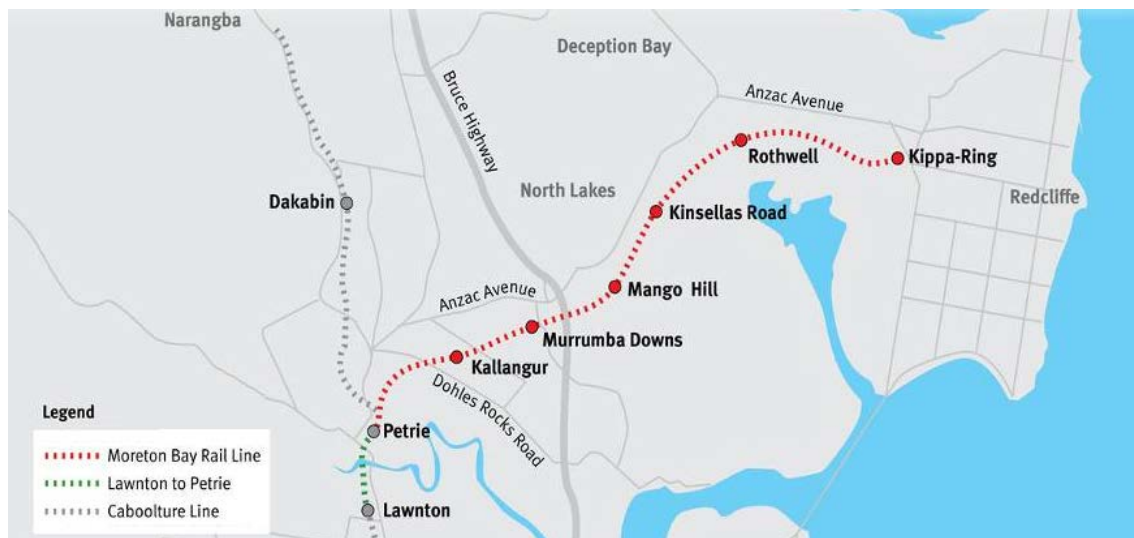
The occurrence

On Monday 29 May 2017 at about 2225, a suburban passenger train struck a protection officer at Petrie station while he was implementing protection for a track closure on the recently opened Moreton Bay rail corridor. The protection officer received life threatening injuries as a result of the accident and subsequently died later that evening.

Petrie railway station is located 28.5 km north of Brisbane Central on the North Coast Line in Queensland, Australia. It services the suburb of Petrie in the Moreton Bay Region, and is the junction for the main lines between Brisbane, Caboolture, and Moreton Bay rail corridor to Kippa-Ring.

Around 26 April 2017, planning commenced for a scheduled closure of the Moreton Bay rail corridor on 29 May from Petrie Railway Station to the end of the line at Kippa-Ring railway station (Figure 1). The closure was required to facilitate planned maintenance works on overhead traction wiring equipment and the realignment of rail turnouts.

Figure 1: Moreton Bay Region, showing rail lines from Brisbane through Lawnton, the Caboolture line continuing after Dakabin towards Narangba, and the new Moreton Bay rail corridor from Petrie to Kippa-Ring (depicted in red).



Source: Queensland Rail, annotated by ATSB

On Monday 22 May 2017, one week prior to the day of the closure, the planning was complete and a Train Notice¹ associated with the Moreton Bay corridor closure was published. The Train Notice detailed the purpose of the closure, the proposed work, the type of protection required and the extent of the closure including the signal numbers protecting the closure and the name and contact details of the protection officer in charge.

The implementation of the track closure involved the participation of four protection officers, whose job it was to manage the rail safety component of the Moreton Bay corridor closure.

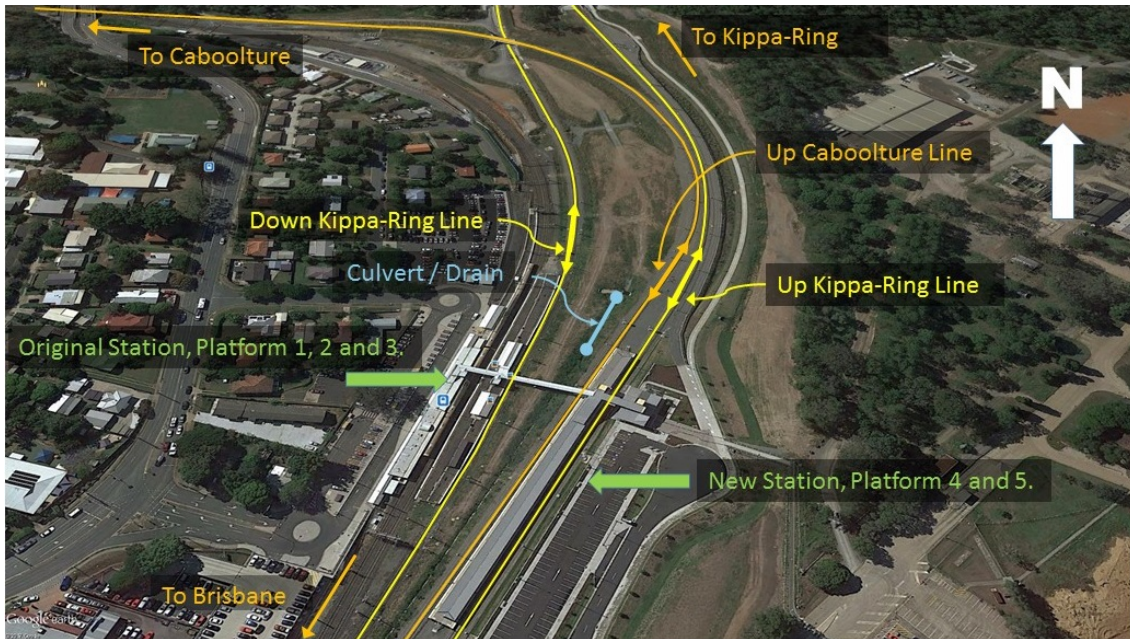
On the night of the closure, Monday 29 May three of the four protection officers were assigned to Petrie station, while the other was assigned to Kippa-Ring at the other end of the closure.

The protection officer supervisor on the night of the accident informed one of the protection officers that he was to be the protection officer in charge. The protection officer in charge was presented with the Train Notice associated with the work, and a diagram of Petrie rail precinct which had the protection arrangements 'marked-up'.

¹ A notice issued by an Access Provider which contains safeworking information for workers. Source Queensland Rail (QR) Queensland Network Rules and Procedures Glossary.

The three protection officers, including the protection officer in charge, travelled to Petrie station (Figure 2). The fourth protection officer travelled to Kippa-Ring. Prior to commencing protection work at Petrie, a pre-start brief for the implementation of protection was signed by the three protection officers. A short time after, the protection officer in charge contacted the network control officer² to confirm their location at Petrie. This was done by clearing and restoring the aspect of a signal on the Down Kippa-Ring line.

Figure 2: Layout of the Petrie Railway Station showing platform numbers (depicted in green), location of the Culvert/Drain (depicted in blue), Up³ Caboolture line feeding platform 4 (depicted in orange) and Up Kippa-Ring line feeding platform 5 (depicted in yellow).⁴



Source: Google Earth, annotated by ATSB

On hearing that blocking facilities had been applied, two protection officers proceeded into the rail corridor to erect permanent way stop signs.⁵ One of the protection officers proceeded to erect a stop sign adjacent to signal PE73 (Figure 3), which was located near to the protection officers' vehicle and at the northern end of No.5 platform (Figure 3). This was to block the Up Kippa-Ring line for down rail movements.

Another protection officer proceeded to erect a stop sign on the Down Kippa-Ring line adjacent to signal PE67 (Figure 3). This was to block the Down Kippa-Ring line. As a culvert and small drain (Figure 2) blocked a direct route from the protection officers' vehicle to signal PE67, the protection officer chose to walk 20 metres in a northerly direction along the middle of the Up Caboolture line (which was open for rail traffic) until there was clear access to walk across to signal PE67.

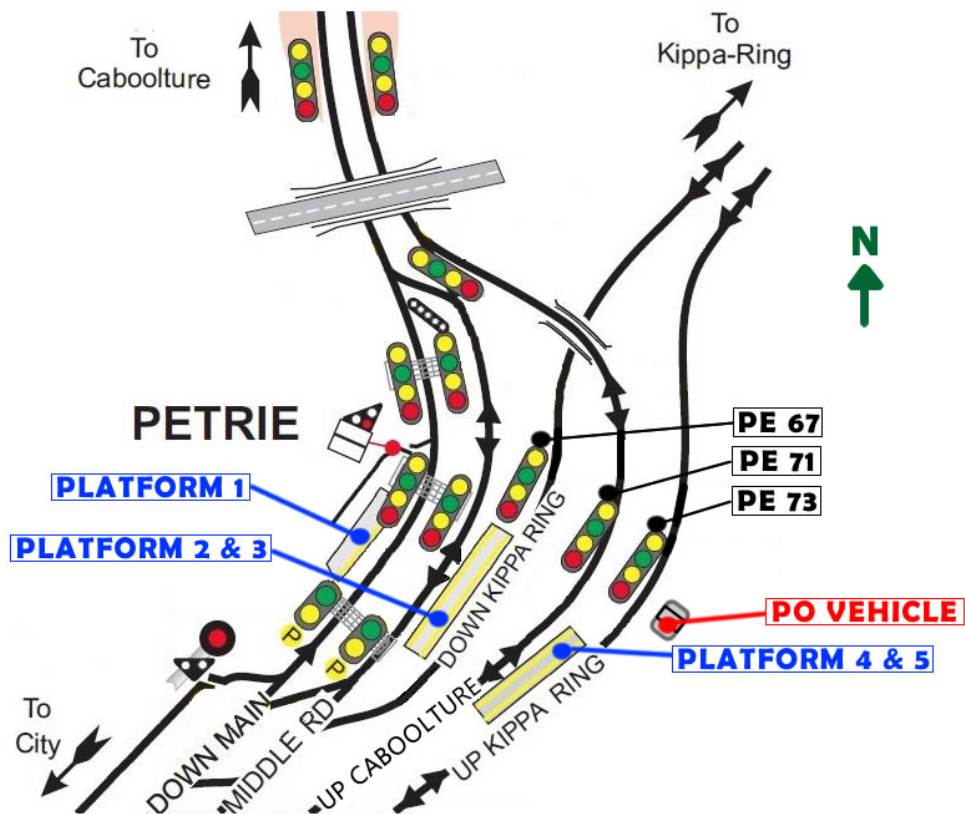
² A Competent Worker who authorises, and may issue, Occupancy Authorities, and who manages rail traffic paths to ensure safe and efficient transit of rail traffic in the Network. Source QR Queensland Network Rules and Procedures Glossary.

³ In a double line area, the lines are generally referred to as the 'Up line' and 'Down line'. The 'Up' line is predominantly used by trains travelling towards a state capital.

⁴ The Petrie Railway Station and rail infrastructure experienced an upgrade and redesign when connecting to the new Moreton Bay rail corridor in October 2016. The station gained two new platforms to facilitate train and passenger activity. The new platforms 4 and 5 are an island configuration between the Up Caboolture and Up Kippa-Ring main lines.

⁵ A Stop Sign is used to warn rail traffic to stop and marks the outer limits of protection for a worksite or obstruction. Source QR Queensland Network Rules and Procedures Signs-General.

Figure 3: Signal layout information for Petrie Railway Station



Source: Queensland Rail, annotated by ATSB

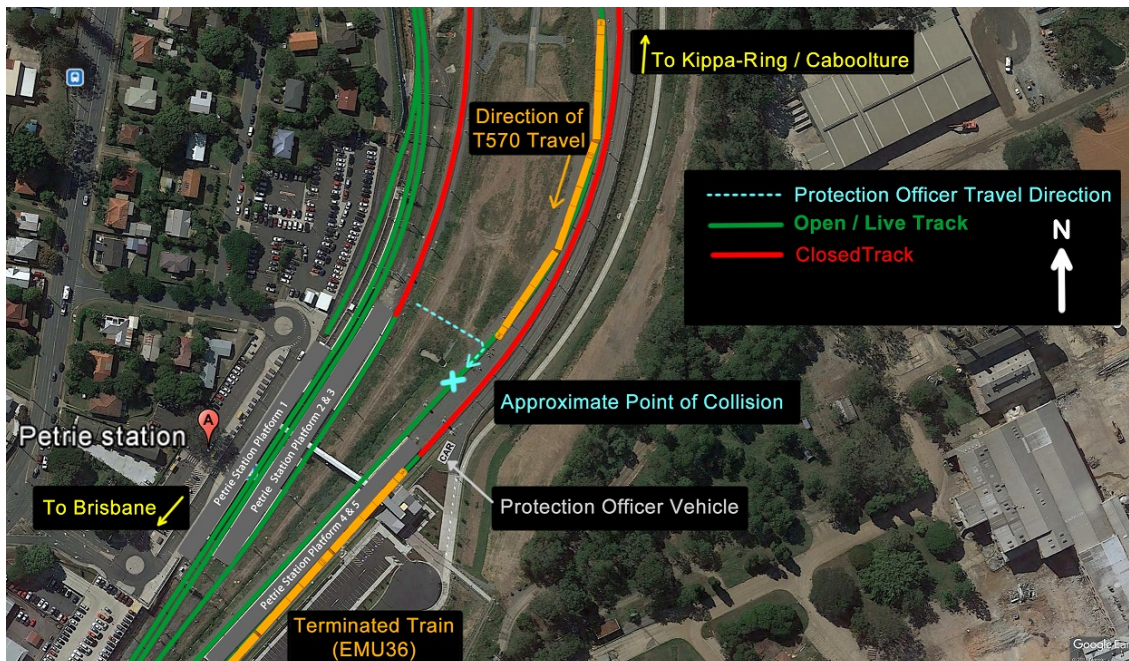
At about 2222, the protection officer who had erected the stop sign adjacent to PE67 signal proceeded to the northern end of No.3 platform where he met with a station officer. They were engaged in conversation for a short time before the protection officer turned and walked in the direction of the protection officers' vehicle.

The protection officer proceeded to walk in the middle of the Up Caboolture line in a southerly direction (Figure 4). The protection officer was walking the same section of track that he had previously used to avoid the culvert and drain. At about this time, suburban train, designation T570, approached Petrie station on the Up Caboolture main line from the north. The ATSB determined that the distance separating the train and the protection officer when the protection officer reached the Up Caboolture line was approximately 400 metres.

The train's headlights and ditch lights were on and functioning correctly, as the train traversed a 50 km/h sweeping right hand curve (Figure 2). The lights only illuminated a short length of track ahead due to the curvature of the track. With his back to the train, the protection officer was not aware of the approaching train and the driver of the train was unaware the protection officer was positioned in the middle of the rail lines.

At about 2225, video footage showed the protection officer stopped in the middle of the rail lines. He remained in a stationary position, for approximately four seconds, with his back to the approaching train. As the train then exited the sweeping curve, the headlights shone directly on the protection officer. Upon sighting the protection officer, the train driver applied an emergency brake and sounded the train horn. The protection officer attempted to vacate the track, however, there was insufficient time and the train collided with the protection officer (Figure 4).

Figure 4: Layout of Petrie accident site, showing details of open (depicted in green) and closed (depicted in red) tracks, protection officer direction of travel (depicted in blue), train details (depicted in orange), and point of collision.



Source: Google Earth, annotated by ATSB

The protection officer sustained serious injuries and was taken by ambulance to hospital. Later that night, he died as a result of these injuries.

The investigation is continuing and will include examination of the following:

- procedures for the planning and implementing of work within the rail corridor
- procedures for protecting workers undertaking work in the rail corridor
- procedures for communication with, and management of, protection officer resources
- human performance and behavioural factors that may have contributed to the accident
- safety management system, as applicable to the accident
- worker training, competence and route knowledge, as applicable to the accident.

The information contained in this web update is released in accordance with section 25 of the Transport Safety Investigation Act 2003 and is derived from the initial investigation of the occurrence. Readers are cautioned that new evidence will become available as the investigation progresses that will enhance the ATSB's understanding of the accident as outlined in this web update. As such, no analysis or findings are included in this update.