Network Operating Guide - Part A Route Operating Protocols

Applicable to Bulk Central
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1. Description

This document details the route operating protocols on Aurizon Bulk Central Network Infrastructure between Northgate Block Point, north of Tarcoola, to Berrimah. This document must be read in conjunction with Part B Facilities En route.

2. Scope

This document applies to all Rollingstock Operators who undertake or supervise rail safety work, including train operations over the railway network from the Northgate Block Point, north of Tarcoola, to Berrimah.

3. Network Access

The railway line from the Northgate Block Point to Berrimah is part of the Defined Interstate Rail Network (DIRN), which is also referred to as the Australian Rail Network (ARN). Access to the network must be carried out under the provisions of the Code of Practice for the Australian Rail Network, the Aurizon Bulk Central Addendum to the Code of Practice for the Australian Rail Network, Aurizon Network Operating Guide RS-NOG-032 Parts A and B and ARTC / ABC interface procedures relating to the management of train services at the Northgate Block Point (510.850 km).

Appropriate contractual arrangements and interface coordination plans must be in place before railway services can be operated on the Network.

Aurizon manages all movements that occur on the Network.

3.1 Accreditation of Operators

Operators shall arrange and receive accreditation from the appropriate Rail Safety Regulator for their intended operation before railway safety work on the network can commence.

3.2 Train Consist Information

Operators shall provide Aurizon with accurate train consist documentation as set out in clause 17.1 of Volume 3, Part 2, of the Code of Practice for the Australian Rail Network. Operators shall provide an effective means of accurately determining and reporting the lengths of trains (including locomotives). Operators shall ensure that the specified maximum length of trains shall not be exceeded at any time and shall make allowance for rollingstock that is to be attached en-route.

3.3 Train Dimensional Maxima

3.3.1 Train Length

The length of the train must not exceed 1800 metres unless prior authority has been granted in writing by Aurizon. A train that is detected to be in excess of 1800 metres long, without approval of Aurizon, must not be permitted to enter or continue to operate on the network. The train must forgo train priority entitlement, and in addition, must be reduced to standard length at the discretion and convenience of Aurizon.

3.3.2 Train Height and Width

Operators planning operation of trains on the network must ensure that the

structure and static rollingstock outlines must comply with Outline F as detailed in the RISSB Standard AS 7507 Railway Rolling Stock – Outlines.

Aurizon may approve the operation of trains which are out of gauge and do not conform to the above dimensions, subject to a written application by the Operator, for operation of such services, being registered with Aurizon.

- Before entry of the train service to the network
- Before Out of Gauge loading is attached to trains

Such registration of any application must be carried out at least one business day prior to the anticipated operation of the train service over the network.

Aurizon may choose to not approve an out of gauge application, where such approval would impact on the transit performance of other trains on the network.

3.3.3 Train Mass

The gross trailing mass of trains is limited only by the hauling capacity of the locomotives working the train and the overall permissible length of the train, as referred to in clause 2.2.2 above.

It is the responsibility of each Operator to ensure that their trains are operated within the hauling capacity of locomotives allocated and that trains may achieve sectional running times as stipulated from time to time.

Axle loads of 23.0 tonnes/axle must not be exceeded without the prior approval of Aurizon (refer document RO-WIN-005, Management of Overloaded Wagons).

4. Safeworking Arrangements

4.1 Safeworking Management

Aurizon will, from the organisation's Dry Creek Operations Centre, Adelaide, or other site of its choosing, manage Safeworking over the network utilising the Train Order Working system of safeworking.

4.2 Safeworking Rules and Procedures

The principle safeworking document for the operation of train services over the route must be the Code of Practice for the Australian Rail Network (ARN), Issue 2, Volume 3, Parts 1 and 2, (CoP ARN).

The principal document supporting the CoP DIRN must be the ORA Addendum to the CoP (ARN) OP-COP-001.5

This document i.e. Section A of the Network Operating Guide and an additional document i.e. Section B of the Network Operating Guide must provide supporting instructions, conditions, and information for the operation of trains over the network.

All personnel who are required to undertake or supervise rail safety work (as defined in the applicable rail safety legislation) over the network, irrespective of their employ, must undertake training and be assessed as being competent relevant to the duties performed.

Each Operator must ensure that personnel employed by them who are required to undertake or supervise rail safety work over the network have access to these documents.

4.3 Safeworking Equipment

a. Aurizon must make keys available for the purpose of access to locks used to secure safeworking equipment such as points, derailers, level crossing switches etc.
b. These keys must be made available to Operators and Infrastructure Maintainers at their cost in the quantities required by them. The issuing of such keys to employees and /or contractors must be controlled by the Operator or Infrastructure Maintainer in accordance with procedures defined by the Infrastructure Owner.
c. The provision of safeworking communications (including those used for the activation of motorised self-restoring points) must be the responsibility of the Operator who must also be responsible for ensuring that their rollingstock is presented to the Network with such equipment in operable condition.
d. The provision of signalling equipment, including motorised self-restoring points must be the responsibility of Aurizon who must also be responsible for ensuring that their equipment is in operable condition.
e. The provision of safeworking forms must be the responsibility of the Operator who must also be responsible for ensuring that their trains or equipment is presented to the Network carrying sufficient safeworking forms for the journey to be undertaken.

4.4 Safeworking Communications Equipment

4.4.1 Trains Services and Heavy Track Machines

As a minimum, the leading locomotive of freight and passenger trains and heavy track machines operated on the Network by Operators and Infrastructure Maintainers must be provided with the following equipment.

a. A primary communications device.
b. A secondary communications device.

c. A fixed UHF transceiver capable of operation between 403MHz and 470MHz, particularly 450.050MHz and of DTMF operation on 418.250 MHz (with a CTCSS frequency of 123 Hz).
d. A portable handheld UHF transceiver (capable of operation on 450.050 MHz).

In addition, the following equipment should be provided:

e. A Personal Locating Beacon (PLB).

Please note that for the purpose of this guide, heavy track machines must mean any item of track maintenance equipment that cannot be readily taken off-track at any location without the aid of lifting equipment and requires TOA working.

4.4.2 Road Rail Vehicles and Light Track Machines

As a minimum, road-rail vehicles, light track machines and light vehicles operating on the Network by Operators and/or Infrastructure Maintainers must be equipped with the following:

- Two forms of verbal communication equipment. This can include two of the following:
  - A mobile telephone that can be used within mobile telephone range
  - A primary communications device fixed to the vehicle.
  - A secondary communications device that is portable.
  - A fixed UHF transceiver capable of operation between 403MHz and 470MHz, particularly 450.050MHz.
- In addition, the following equipment should be provided:
  - A portable handheld UHF transceiver capable of operation on the frequencies above.
  - A Personal Locating Beacon (PLB).

Please note that for the purpose of this guide light track machines must mean any item of track maintenance equipment that can be readily lifted off-track by two (2) men at any location without the aid of lifting equipment or a road rail vehicle working under Train Running Information (TRI) that can be easily removed at level crossings.

4.4.3 Light Vehicles Accessing the Corridor

As a minimum, light vehicles accessing the Rail Corridor by Aurizon or non-Aurizon must be equipped with the following:

- Two forms of verbal communication equipment. This can include two of the following:
  - A mobile telephone that can be used within mobile telephone range
  - A primary communications device.
  - A fixed UHF transceiver capable of operation between 403MHz and 470MHz, particularly 450.050MHz.
- In addition, the following equipment should be provided:
  - A portable handheld UHF transceiver capable of operation on the frequencies above.
  - A Personal Locating Beacon (PLB).

Please note for the purpose of this guide light vehicles accessing the rail corridor must mean any vehicle used by Aurizon or non-Aurizon staff for the purposes of undertaking safeworking duties or rail related activities.

4.5 Issue of Train Timetable

Aurizon will provide timetables as required.

4.6 Train Running Information Notices (TRI)

Notices of service details, where these deviate from the norm, or where specific instructions apply to the running of services must be published in an electronic form. Such information must be made available to operators and maintainers through Aurizon's Freight Management System (FMS) accessible via internet access.

The status of Temporary Speed Restrictions must be entered/ edited/ removed in FMS by the Infrastructure Maintainer.

Notice of special train movements or of conditions affecting train movements, such as the presence of out of gauge loading, must be published as necessary prior to the date on which such affected train service is to enter the network.

4.7 Rail Safety Workers

Operators and Infrastructure Maintainers must establish systems to regularly ensure that rail safety workers engaged in such work on the network are:

- Competent to perform technical and communicative tasks on the Network.
- Physically fit to perform the tasks required of their duties.

4.7.1 Rail Safety Worker Safeworking Competence

Operators and Infrastructure Maintainers must establish systems for the development, maintenance, and verification of Rail Safety Worker competence.

Rail Safety Workers must be qualified in the Code of Practice for the Defined Interstate Rail Network and the ABC Addendum to the Code of Practice for the Australian Rail Network.

Organisations must maintain records of competency and provide them to Aurizon upon written request.

Rail Safety Workers must produce identification and evidence of competency when requested, whilst performing rail safety duties.

4.7.2 Train Control Communications

Train Control functions are conducted by Aurizon Network Control located at Dry Creek, Adelaide, South Australia. Telephone contact for all operations between Northgate BP and Berrimah are conducted on:

Safeworking	**(08) 8343 7711**
Emergency	**0419 819 136**

5. Time

Twenty-Four (24) hour time must be observed.

5.1 Time Zones

The network extends from the state of South Australia into the Northern Territory. Each shares the same time zone except during summer (October to April) when Daylight Savings time applies in South Australia only.

Operation of the network is run under the following time zones:

Track Section	Time Zone
Northgate BP to Alice Springs Yard	South Australian time
Alice Springs Yard to Berrimah	Northern Territory time

This means that North-bound trains enter Alice Springs on SA time and depart on NT time while South-bound trains enter Alice Springs on NT time and depart on SA time.

6. Deployment

Operators and Infrastructure Maintainers must only deploy personnel who are:

- Competent to perform technical and communicative tasks on the Network.
- Physically fit to perform the tasks required of their duties.

Operators and Infrastructure Maintainers must establish systems to regularly ensure that rail safety workers engaged to take charge of the driving of trains or track machines on the network have been assessed as competent to do so.

A robust program of route training and familiarisation must be developed by Operators and Infrastructure Maintainers to ensure that a uniform standard of competency is achieved.

Rail safety workers, especially those engaged in the operation of trains, must be deployed in a manner that promotes the operation of services/equipment with a view to managing alertness and the effects of fatigue.

Where rail safety workers are to be changed or rested en-route, the proposed timetable of crew changes or rest periods must be communicated to Aurizon when the train is presented for entry to the network.

Aurizon must advise of the location at which the crew changes or rest periods are to take place based on this information.

The deployment of train crews comprising a single person must be operationally transparent and must have no negative effect on the running of that or other train services or operational requirements. Operators intending to employ Driver Only Operations on the Network must be in possession of the appropriate accreditation from the relevant Regulator.

7. Block Locations

7.1 Block Locations by Line Kilometre

Block Locations are located on the line as follows:

Block Location Name	Line Kilometres		
	South YLB	Centre	North YLB
NORTHGATE BP		510.850	
CARNES	565.318	566.500	567.581
GINA BP		600.000	
WIRRIDA	638.078	641.000	644.022
RANKIN DAM	667.578	670.380	673.180
MANGURI	703.200	706.500	709.500
POOTNOURA BP		767.000	
CADNEY PARK	829.400	830.500	831.658
MARLA	907.980	909.000	909.926
CHANDLER	955.343	956.500	957.398
MARRYAT	1019.507	1021.000	1022.958
KULGERA	1080.398	1081.500	1082.646
IMPADNA	1162.277	1163.500	1164.556
HUGH RIVER	1243.395	1244.500	1245.667
MEREENIE SIDING	1312.814	1313.000	1313.580
ROE CREEK	1317.300	1318.000	1319.538
ALICE SPRINGS	1325.400	1335.000	1338.600
1400 BP		1400.000	
1449 BP		1449.000	
1503 BP		1503.000	
ILLOQUARA	1561.250	1564.250	1567.200
1622 BP		1622.000	
1664 BP		1664.000	
1735 BP		1735.000	
TENNANT CREEK	1799.600	1802.500	1805.600
ARGYLE	1816.870	1820.000	1822.810
1849 BP		1849.000	
1900 BP		1900.000	
MUCKATY	1929.930	1932.000	1934.500
1952 BP		1952.000	
2004 BP		2004.000	

Block Location Name	Line Kilometres		
	South YLB	Centre	North YLB
2058 BP		2058.000	
NEWCASTLE WATERS	2091.530	2094.500	2095.500
2147 BP		2147.000	
2222 BP		2222.000	
2268 BP		2268.000	
2343 BP		2343.000	
2388 BP		2388.000	
KATHERINE	2441.900	2446.500	2451.100
2495 BP		2495.000	
UNION REEF	2548.652	2554.000	2557.103
2606 BP		2606.000	
2662 BP		2662.000	
2713 BP		2713.000	
BERRIMAH	2740.100	2750.000	

7.2 Block Location Facilities

The following facilities are available at block locations along the route:

Block Location	Type	Loop Length (m)
NORTHGATE BP	Block Point	Nil
GINA	Block Point	Nil
CARNES	Crossing Loop / Yard	1824
WIRRIDA	Crossing Loop / Yard	1830
	Balloon Loop	3768
RANKIN DAM	Goods Loop	1462
MANGURI	Crossing Loop/ Yard	1828
POOTNOURA BP	Block Point	Nil
CADNEY PARK	Crossing Loop / Yard	1826
MARLA	Crossing Loop / Yard	1503
CHANDLER	Crossing Loop / Yard	1785
MARRYAT	Crossing Loop / Yard	988
KULGERA	Crossing Loop / Yard	1815
IMPADNA	Crossing Loop / Yard	1839
HUGH RIVER	Crossing Loop / Yard	1839
MEREENIE SIDING	Yard	Nil

Block Location	Type	Loop Length (m)
ROE CREEK	Crossing Loop / Yard	1800
ALICE SPRINGS	Terminal	Nil
1400 BP	Block Point	Nil
1449 BP	Block Point	Nil
1503 BP	Block Point	Nil
ILLOQUARA	Crossing Loop	1831
1622 BP	Block Point	Nil
1664 BP	Block Point	Nil
1735 BP	Block Point	Nil
TENNANT CREEK	Crossing Loop / Yard	1905
ARGYLE	Goods Loop	2160
1849 BP	Block Point	Nil
1900 BP	Block Point	Nil
MUCKATY	Yard	Nil
1952 BP	Block Point	Nil
2004 BP	Block Point	Nil
2058 BP	Block Point	Nil
NEWCASTLE WATERS	Crossing Loop	1829
2147 BP	Block Point	Nil
2222 BP	Block Point	Nil
2268 BP	Block Point	Nil
2343 BP	Block Point	Nil
2388 BP	Block Point	Nil
KATHERINE	Crossing Loop / Yard	1827
2495 BP	Block Point	Nil
2606 BP	Block Point	Nil
UNION REEF	Crossing Loop	1937
2662 BP	Block Point	Nil
2713 BP	Block Point	Nil
BERRIMAH	Terminal	Nil

7.3 Block Location Management

a. Access to the Main Line and Crossing Loop at Block Locations must be managed in accordance with the procedures set out in the Code of Practice (DIRN) for the crossing of trains on Train Order Territory, clause 3.9, and the ABC Addendum to the Code of Practice (ARN) clause 13.

b. Access to the private siding at the Wirrida Balloon Loop must be managed in accordance with the relevant access agreements with Aurizon.
c. Access to Aurizon Terminal Locations at Alice Springs and Berrimah must be managed in accordance with the procedures established by the Terminal Manager for each Terminal. Please note that both Terminals are unattended at certain times during the day.

8. Speed of Trains

The maximum speed at which a train may travel over the network from Northgate to Berrimah, is the lowest of any of the following speeds which may apply:

- The maximum permitted speed applicable for the network (115km/hr).
- The maximum permitted speed for the motive power unit.
- The maximum permitted speed for the rollingstock attached to the train.
- The maximum permitted speed applicable due to local permanent speed restrictions.
- The maximum permitted speed applicable due to local temporary speed restrictions.
- Any emergency speed restrictions.

8.1 Permanent Speed Restrictions

The maximum speed applicable for the Network under normal operating circumstances, excluding crossing loops and secondary tracks, as defined in Section 7.2, is 115 kilometres per hour. This is subject to trains meeting the requirements set out in Section 7 above.

All Permanent Speed Restrictions on the network are sign posted and listed in the Aurizon Bulk Central Freight Management System (FMS). Train Crews will receive all Permanent Speed Restrictions, along with any Temporary Speed Restrictions, in the daily Speed Restriction Listing as part of their normal information pack.

8.2 Speed Limits for Crossing and Passing Movements

On the Northgate to Berrimah railway, the train to take the Main Line during a crossing or passing movement must not exceed a speed of 50 km/h until both trains are confirmed as being complete and a roll by inspection has been conducted.

8.3 Speed Limits through Block Locations

Unless a lower speed has been stipulated, the speed of all movements at Block Locations must not exceed:

At locations **North** of Alice Springs with colour light indicators and Rankin Dam. In the straight direction over Main Line facing and trailing points, when the point stand indication displays the proper indication that the points are correctly set and locked, and a green light indication is displayed.	**115km/h**
At locations **South** of Alice Springs with colour light indicators (Carnes, Wirrida and Manguri only). In the straight direction over Main Line facing and trailing points, when the colour light indicator displays a green light (all points are correctly set and locked). Train crews must confirm that the facing and trailing points are correctly set and maintain this speed until the entire train has passed over the trailing points at which time they may accelerate to normal speed.	**70km/h**
At locations **South** of Alice Springs and Argyle, **North** of Alice Springs with point-stand indicators. In the straight direction over Main Line facing and	**70km/h**

trailing points, when the point stand indicator displays the proper indication (all points are correctly set). Train crews must confirm that the facing and trailing points are correctly set and maintain this speed until the entire train has passed over the trailing points at which time they may accelerate to normal speed.	
Over Main Line facing points set for the Crossing Loop	**30km/h**
Over crossing loop points set for Crossing Loop	**30km/h**
Along any Crossing Loop	**30km/h**
Over main line or Crossing Loop points set for Goods Loop or other track	**15km/h**
On goods Loop or other track	**15km/h**

8.4 Conditional Speed Limits

Speed limits are imposed on trains and track machines/equipment under certain conditions where the height and width of the train may impinge on certain structures or for any other safety consideration.

The following conditional speed restrictions apply:

- 19 tonne axle limit at 115 km/h
- 21 tonne axle limit at 110 km/h
- 23 tonne axle limit at 80 km/h

9. Level Crossings

There are two types of traffic control provided at level crossings

- Active protection – flashing lights and gongs, with or without boom gates.
- Passive protection – STOP.
- Crossings are also divided according to their legal status being either.
- Public Roads.
- Occupational crossings - provided for the use of adjacent property owners.

9.1 Occupational Level Crossings

Occupational Crossings have been created where the railway has divided parcels of land to allow controlled points at which the occupier may cross the railway or in a few cases to allow access to facilities for the owners of utility services.

The use of Occupational Crossings to the North of Alice Springs is subject to conditions defined by RS-WIN-004 Aurizon Bulk Central Protocol-Request for use of Occupational Crossing, including users requiring permission to cross the railway with large vehicles and for livestock movements.

9.2 Passive Level Crossing Protection

The majority of level crossings, both public and occupational are on roads carrying low to medium traffic volumes and have only Passive Protection devices installed to control road users. Public road crossings have advance warning and crossing signs complying with AS1742.7, while occupational crossings generally have signs erected at the crossing.

9.3 Active Level Crossing Protection

Active level crossing protection is provided at crossings where traffic density or local conditions demand a greater level of protection. The crossing signals are activated by the presence of trains on a section of electrically circuited track or axle counter track with flashing lights, gongs and boom gates where fitted to operate during the approach of trains and while the train is passing through the crossing.

9.4 Operation of Active Level Crossing Protection Equipment

The operation of active level crossing equipment on the network is achieved automatically by the completion of a track circuit or axle counter detection by the presence of rolling stock on the track approaching a level crossing. (Note road/rail vehicles and other light track maintenance machines are insulated and will not operate level crossing equipment on electrically circuited track but will activate axle counter crossings).

In Alice Springs, the crossings at both ends of the terminal (Larapinta Drive & Lovegrove Drive) are activated by track circuits for all movements into the yard but require activation by push button switch for movements departing the yard. The level crossing protection equipment is self-cancelling once the rollingstock has cleared the roadway.

North of Alice Springs most level crossings are controlled by a Grade Crossing Predictor (GCP) which detects the speed of the approaching train and calculates when to activate to give all trains a consistent approach warning time irrespective of the approach speed. To aid correct operation, train drivers are required to maintain a constant speed from the time the train enters the track circuit until the lead locomotive clears the level crossing.

9.5 Failure of Active Level Crossing Equipment

Train crews are required to report any failure or abnormal operation of active level crossing equipment to Network Control.

9.5.1 White Strobe Light

All active level crossings except those within the Alice Springs Town area are equipped with a white strobe light to give greater visual confirmation of operation to crews of approaching trains. Non-operation of the white strobe light may indicate the level crossing protection has failed, and crews should initiate the following Emergency Actions:

- Initiate prolonged activation of the train audible warning device.
- Use all means available to bring the train to a stop prior to entering the crossing.
- Immediately report the circumstances to Aurizon Network Control.
- Inspect the operation of the crossing warning devices.
- Manually protect the crossing.
- Proceed over the crossing in accordance with procedures contained in the ABC Addendum to the Code of Practice.
- Confirm circumstances and actions with Aurizon Network Control.

9.5.2 Blue Strobe Light

Most level crossings North of Alice Springs are also equipped with a blue strobe light on the control cubicle. This light indicates the healthy state of the solar charged battery power supply. If the blue strobe is not seen illuminated by the train crew this must be reported to Aurizon Network Control for immediate attention by the signal maintainers.

9.5.3 Level Crossing Locations

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
511.370	OC		134.517	-30.689
514.400	OC		134.518	-30.662
521.017	OC		134.519	-30.602
522.517	1		134.52	-30.588
529.970	OC		134.521	-30.521
535.970	OC		134.523	-30.467
540.640	OC		134.525	-30.425
549.810	OC		134.53	-30.342
554.400	OC1	access to ARTC 555km Quarry	134.533	-30.301
557.400	OC		134.533	-30.274
560.892	OC		134.534	-30.242
563.890	OC		134.534	-30.215
567.505	OC1	access to Carnes outstation	134.534	-30.183
570.905	OC1	access to kangaroo shooter's camp	134.535	-30.152
576.840	1	to Commonwealth Hill & Challenger Mine	134.535	-30.099
583.290	OC		134.536	-30.04
590.390	OC		134.537	-29.976
598.205	1	to Commonwealth Hill	134.538	-29.906
605.060	OC		134.538	-29.844
609.574	OC		134.539	-29.803
616.593	OC1		134.539	-29.74
617.700	OC		134.54	-29.73
620.060	OC		134.54	-29.707
622.850	OC		134.54	-29.684
625.970	OC		134.54	-29.655
635.090	OC	Wirrida Emergency Airstrip Road	134.541	-29.573

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
639.230	OC		134.544	-29.536
646.889	OC		134.55	-29.467
655.995	OC		134.561	-29.385
658.190	OC		134.563	-29.366
658.615	OC		134.564	-29.362
666.300	OC		134.525	-29.303
671.200	OC		134.492	-29.269
676.110	1	access to Lake Phillipson	134.462	-29.235
687.863	OC		134.424	-29.135
693.420	OC		134.409	-29.086
696.500	OC		134.401	-29.059
705.200	1	Coober Pedy - Mabel Creek Rd (Old Stuart Highway)	134.378	-28.984
707.927	1	to Mabel Creek	134.371	-28.96
711.970	OC		134.36	-28.925
715.530	OC1		134.347	-28.894
717.790	OC		134.336	-28.877
722.300	OC		134.323	-28.839
731.400	OC		134.322	-28.757
734.650	OC1	dog fence crossing	134.322	-28.728
741.800	OC		134.31	-28.664
751.768	OC		134.275	-28.581
758.760	OC		134.229	-28.534
761.100	OC		134.214	-28.517
767.973	OC		134.19	-28.458
771.530	1	Old Stuart Highway	134.181	-28.428
776.326	OC		134.172	-28.385
786.136	OC		134.154	-28.298
791.333	OC		134.145	-28.252
797.607	OC		134.134	-28.196
801.110	OC		134.127	-28.165

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
806.644	OC		134.117	-28.116
814.560	OC		134.097	-28.047
818.090	OC		134.089	-28.016
822.148	OC		134.084	-27.979
825.110	OC		134.077	-27.954
829.520	1	Cadney Park	134.059	-27.917
831.175	1	Cadney Park	134.052	-27.904
836.267	OC		134.034	-27.861
843.466	OC		134.013	-27.799
851.350	OC		133.979	-27.735
854.735	OC		133.952	-27.716
869.873	OC		133.86	-27.611
882.060	OC		133.788	-27.522
896.780	OC		133.698	-27.416
909.795	1	Marla Airport Road	133.625	-27.318
915.031	1	Mintabie Road	133.594	-27.279
920.280	1	to Mintabie	133.563	-27.241
936.607	1	to Mintabie	133.474	-27.118
944.845	OC		133.427	-27.056
947.040	OC		133.413	-27.041
954.975	OC	access to Indulkana community - back road	133.371	-26.983
957.650	1	to Indulkana community	133.369	-26.959
971.050	4	Stuart Hwy Overpass		
976.936	1	Old Stuart Highway	133.339	-26.79
985.650	OC		133.367	-26.716
988.210	OC		133.383	-26.698
990.300	OC		133.399	-26.686
1000.800	OC		133.407	-26.597
1003.730	OC		133.404	-26.57
1007.130	OC		133.403	-26.539

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
1012.345	OC		133.407	-26.492
1015.720	OC		133.407	-26.462
1020.015	OC		133.407	-26.423
1022.434	OC1		133.407	-26.402
1023.902	OC		133.406	-26.388
1050.160	OC		133.397	-26.151
1056.898	OC		133.402	-26.091
1061.940	OC		133.406	-26.045
1067.150		**SA - NT Border**		
1077.526	OC		133.412	-25.905
1080.016	1	Finke Road	133.415	-25.883
1080.534	OC1	Kulgera Station	133.415	-25.878
1084.510	OC	access to old Kulgera Quarry	133.419	-25.842
1088.332	OC1	access to Umbearra Station	133.425	-25.808
1103.559	OC		133.443	-25.672
1108.650	OC		133.447	-25.626
1123.855	OC		133.473	-25.492
1143.808	OC		133.519	-25.316
1154.525	OC		133.534	-25.222
1159.700	OC		133.547	-25.177
1162.367	OC		133.563	-25.158
1168.580	1	Idracowra Station Access	133.615	-25.129
1177.025	OC		133.631	-25.06
1187.364	OC		133.637	-24.968
1203.965	OC		133.667	-24.835
1212.224	OC		133.68	-24.762
1221.168	OC		133.705	-24.687
1241.980	OC		133.723	-24.5
1245.550	OC1	access to Chamber's Pillar	133.718	-24.468
1247.183	OC		133.715	-24.453

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
1249.600	1	Hugh River Stock Route to Maryvale Station	133.711	-24.432
1256.410	OC1	access to John Holland bore settlement	133.724	-24.373
1260.370	OC		133.725	-24.338
1272.848	OC		133.757	-24.23
1276.945	OC		133.765	-24.194
1278.675	OC		133.777	-24.183
1282.985	OC		133.789	-24.146
1292.620	OC		133.794	-24.059
1295.200	OC		133.798	-24.037
1303.985	OC		133.827	-23.962
1305.640	OC		133.834	-23.948
1309.260	OC		133.846	-23.918
1316.574	OC		133.839	-23.852
1321.353	OC1		133.853	-23.811
1322.942	4	Stuart Highway	133.861	-23.8
1325.700	1	Norris Bell Avenue	133.865	-23.775
1328.090	1	Karnte Road	133.869	-23.754
1329.250	3	Ilparpa Road	133.869	-23.744
1330.810	1	Commonage Road	133.863	-23.732
1332.000	P	Pedestrian Crossing	133.866	-23.722
1332.020	3	Bradshaw Drive	133.866	-23.722
1333.213	P	Pedestrian Crossing	133.871	-23.712
1333.900	3	Espie Street	133.874	-23.706
1334.479	3	Larapinta Drive	133.876	-23.701
1336.445	3	Lovegrove Drive	133.863	-23.690
1336.446	P	Pedestrian crossing to align with the Lovegrove Drive western footpath	133.863	-23.690
1341.553	P	Walking trail	133.851	-23.647
1344.088	OC1	Mountain Bike Track	133.866	-23.631
1346.823	OC2	Quarry Road	133.871	-23.608
1349.817	OC		133.868	-23.582

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
1351.668	4	Stuart Hwy, Road over rail grade separated crossing	133.873	-23.566
1358.855	OC1		133.855	-23.504
1363.743	OC1		133.842	-23.463
1367.703	OC1		133.831	-23.427
1380.454	OC		133.795	-23.317
1384.918	1	Clareville Rd	133.783	-23.278
1388.643	OC		133.773	-23.246
1394.148	1	Yambah Access	133.761	-23.198
1406.343	OC		133.769	-23.088
1414.050	OC		133.774	-23.019
1419.316	2	Plenty Highway	133.783	-22.972
1445.373	OC		133.827	-22.740
1464.450	OC		133.860	-22.571
1480.712	OC		133.887	-22.426
1495.153	OC		133.912	-22.297
1507.648	1	Mount Skinner Access	133.933	-22.186
1529.054	OC		133.969	-21.996
1535.312	OC		133.989	-21.943
1556.395	OC		134.151	-21.842
1569.290	OC		134.199	-21.736
1576.062	OC		134.210	-21.679
1598.589	OC		134.242	-21.483
1631.567	1	Murray Downs Access	134.225	-21.188
1655.281	4	Stuart Hwy, Road over rail grade separated crossing	134.204	-20.974
1656.690	OC		134.204	-20.962
1675.211	OC1	Gas pipeline access road	134.204	-20.794
1678.405	OC		134.203	-20.765
1683.028	OC		134.203	-20.724
1694.948	OC		134.191	-20.619
1701.561	OC		134.197	-20.563

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
1714.130	OC		134.250	-20.476
1718.398	1	McLaren Creek	134.246	-20.437
1730.305	OC	McLaren Creek entrance	134.232	-20.330
1741.743	OC1	Telstra access road	134.200	-20.235
1760.883	OC		134.187	-20.062
1771.120	OC1	existing NT Gas access	134.180	-19.970
1776.262	OC		134.190	-19.926
1783.322	OC		134.187	-19.863
1790.825	OC1		134.182	-19.795
1792.646	OC1		134.181	-19.778
1795.543	OC		134.179	-19.750
1800.508	OC		134.176	-19.704
1801.550	1		134.175	-19.695
1807.915	OC1	Access to Chariot Mine	134.143	-19.652
1809.082	OC1	Gas pipeline access	134.137	-19.643
1813.720	OC		134.114	-19.608
1821.240	OC1	Access to Ivanhoe Mine	134.070	-19.554
1830.881	OC1		134.015	-19.484
1836.602	2	Warrego Road	133.984	-19.442
1847.336	OC1		133.915	-19.374
1855.267	OC1		133.864	-19.323
1878.407	OC1		133.747	-19.154
1886.518	OC1		133.735	-19.081
1893.047	OC		133.725	-19.023
1923.631	OC		133.616	-18.768
1931.953	OC		133.583	-18.700
1945.081	OC		133.523	-18.596
1974.531	OC		133.411	-18.353
1983.057	OC		133.382	-18.281
1996.531	OC		133.335	-18.168
2017.081	OC		133.259	-17.997

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
2032.081	OC		133.212	-17.870
2045.081	OC		133.186	-17.755
2055.681	OC		133.164	-17.663
2070.531	OC		133.130	-17.532
2093.449	OC		133.064	-17.336
2109.539	OC		133.018	-17.197
2120.539	OC		132.986	-17.102
2132.746	OC		132.951	-16.997
2147.332	1	Murranji Stock Route	132.902	-16.876
2159.959	OC1		132.819	-16.794
2165.039	OC		132.795	-16.757
2166.056	2	Buchanan Highway	132.795	-16.748
2167.070	OC		132.794	-16.739
2175.070	OC		132.788	-16.667
2185.158	OC		132.816	-16.583
2195.570	OC		132.811	-16.489
2205.370	OC		132.810	-16.402
2214.670	OC		132.817	-16.320
2225.470	OC		132.825	-16.223
2226.270	OC		132.825	-16.216
2232.300	OC		132.819	-16.162
2239.501	OC		132.824	-16.098
2247.576	OC		132.827	-16.026
2255.622	OC		132.808	-15.955
2260.670	OC		132.798	-15.911
2272.820	OC		132.781	-15.803
2282.686	OC		132.800	-15.718
2289.720	2	Western Creek Road	132.805	-15.654
2292.311	OC		132.798	-15.632
2300.078	OC		132.777	-15.565
2304.230	OC		132.774	-15.528

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
2312.533	OC		132.771	-15.453
2318.756	1	Gorrie Road	132.759	-15.398
2322.856	OC		132.758	-15.361
2328.570	OC		132.774	-15.315
2341.050	OC		132.760	-15.203
2344.144	OC		132.761	-15.175
2351.960	OC		132.769	-15.105
2360.403	OC		132.766	-15.029
2373.470	OC		132.737	-14.915
2385.770	OC	Bend Camp	132.702	-14.809
2395.650	OC		132.614	-14.785
2397.560	OC		132.600	-14.775
2402.110	OC		132.564	-14.754
2407.970	OC		132.520	-14.723
2414.570	OC		132.470	-14.690
2419.356	OC		132.431	-14.668
2422.715	OC		132.406	-14.651
2424.895	OC		132.389	-14.640
2426.620	OC		132.376	-14.631
2434.284	OC		132.323	-14.585
2441.949	OC		132.275	-14.534
2446.120	OC	Katherine North End access	132.247	-14.508
2446.244	4	Victoria Hwy, Road over rail grade separated crossing	132.246	-14.507
2447.084	1	Novis Quarry Road	132.240	-14.502
2448.275	3	Shadforth Road	132.231	-14.496
2449.868	3	Florina Road ADX 122	132.220	-14.487
2459.123	4	Stuart Hwy, Road over rail grade separated crossing	132.200	-14.408
2463.989	OC	Quarry Access	132.172	-14.374
2473.064	OC		132.115	-14.315
2490.325	2	Edith Falls Access ADX 126	132.038	-14.185

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
2494.185	OC1	Public road. Jarwon Assn & Mt Todd mine	132.015	-14.158
2505.696	OC		131.976	-14.066
2510.240	OC		131.950	-14.037
2517.958	OC		131.919	-13.976
2534.896	OC2	Bonrook access	131.847	-13.842
2536.442	OC	Mango Farm access	131.843	-13.829
2537.169	1	Road to cemetery	131.842	-13.822
2538.572	3	Kakadu Highway	131.837	-13.811
2549.917	OC2	Ping Que Road, Union Reef Mine	131.778	-13.728
2555.094	OC	Union Reef North End Access	131.766	-13.683
2556.286	1	Burrundie to Francis Creek Road	131.767	-13.673
2561.841	OC1	Burrundie to Union Extended Mine	131.749	-13.628
2563.656	OC		131.738	-13.616
2573.821	1	Burrundie to Grove Hill Road	131.701	-13.537
2577.984	1	Burrundie to Grove Hill Road	131.670	-13.515
2590.396	OC	Grove Hill	131.562	-13.481
2599.552	1	Ban Ban Springs Road	131.478	-13.471
2603.951	OC1	Brocks Creek Mine access	131.437	-13.469
2614.438	OC		131.352	-13.430
2619.008t	OC		131.319	-13.406
2633.220	4	Stuart Hwy, Road over rail grade separated crossing	131.212	-13.340
2649.400	2	Dorat Road	131.111	-13.243
2649.680	P	Pedestrian crossing	131.108	-13.241
2650.390	P	Pedestrian crossing	131.270	-13.238
2650.755	2	Coach Road	131.101	-13.236
2657.270	P	Pedestrian crossing	131.101	-13.177
2661.486	OC1		131.105	-13.139
2663.131	OC		131.106	-13.124
2671.928	4	Crater Lake Road, Underpass. Rail over road	131.106	-13.048

Route Chainage	Crossing Type	Comments	GPS Coordinates to GDA94	
			X-Coord	Y-Coord
2676.560	3	Batchelor Road	131.117	-13.008
2679.913	OC1	Woodcutters Mine entrance	131.116	-12.977
2682.057	OC1		131.118	-12.958
2691.522	1	Manton Dam recreation area	131.140	-12.877
2695.694	OC1	Access to PAWA facility	131.134	-12.841
2696.212	4	Manton Dam pumping station, Realigning road under Manton River bridge	131.133	-12.837
2701.489	3	Leonino Road	131.111	-12.795
2706.441	2	Old Bynoe Road	131.098	-12.754
2707.831	2	Kentish Road	131.092	-12.743
2709.193	2	Livingston Road	131.089	-12.731
2711.575	2	Abattoir Road	131.085	-12.709
2713.848	OC		131.071	-12.695
2716.191	3	Cox Peninsula Road	131.057	-12.679
2717.250	3	Middle Arm Road No. 1	131.054	-12.670
2719.693	3	Middle Arm Road No. 2	131.039	-12.654
2723.081	3	Finn Road	131.009	-12.645
2727.944	OC1	Crossing for NT Gas & PAWA	130.994	-12.617
2731.697	3	Jenkins Road	130.969	-12.581
2732.394	3	Channel Island Road	130.968	-12.575
2735.584	OC1	Crossing for NT Gas, PAWA & DME	130.973	-12.547
2736.902	3	Boat ramp entrance	130.979	-12.537
2741.351	3	Catalina Road	130.956	-12.505
2744.501	3	Wishart Road No. 1	130.963	-12.479
2748.077	3	Wishart Road No. 2	130.942	-12.460
2749.173	OC1	PAWA	130.934	-12.462
2750.194	4	Berrimah Road, Road over rail grade separated crossing	130.925	-12.464

9.5.4 Crossing Types

Crossing Type Code	Description
P	Pedestrian crossing
OC	Occupation crossing

Crossing Type Code	Description
OC1	OC with greater public usage, Type 1 signage displayed
OC2	OC with greater public usage, protected by signs, gongs and flashing lights
Type 1	Protected by stop signs
Type 2	Protected by signs, gongs, and flashing lights
Type 3	Protected by signs, gongs, flashing lights and boom gates
Type 4	Road overpass

10. Road Overpasses

The following road overpasses exist along the route:

Location (km)	Name
971.050	Stuart Highway overpass
1322.942	Stuart Highway overpass
1351.668	Stuart Highway overpass
1655.281	Stuart Highway overpass
2446.244	Victoria Highway overpass
2459.123	Stuart Highway overpass
2633.220	Stuart Highway overpass
2750.194	Berrimah Road overpass

11. Stream Flow Detectors

Stream flow Detectors (SFD's) have been installed at 6 river locations north of Katherine yard. Coloured LED indicators have been installed to notify train drivers of the river conditions at the following locations:

Location (km)	Indicator Name
2446.100	Katherine River South
2450.645	Katherine River North
2488.050	Edith River South
2493.272	Edith River North
2501.150	Fergusson River South
2508.010	Fergusson River North
2507.990	Cullen River South
2513.683	Cullen River North
2647.033	Adelaide River South
2652.374	Adelaide River North
2733.561	Elizabeth River South

Location (km)	Indicator Name
2738.651	Elizabeth River North

The following details the coloured LED's and their meaning:

- Green LED Indicator – River level is well below the bridge girder and trains are to proceed at normal speed.
- Yellow LED Indicator– River level is at or above the bottom of the bridge girder or equipment has failed and trains are to proceed with caution.

No Indicator (Black out) – Indicator has failed, and trains are to proceed with caution until river level is proven, and track integrity has been confirmed (Report failure to Network Control).

12. Track Machine Turnouts / Sidings

Temporary track turnouts/ sidings have been installed at 9 locations for the stabling of the tamper and regulator at the following locations:

Location (km)	Name
1564.250	TMT11 - Illoquara Siding
1622.000	TMT8 - Davenport
1686.100	TMT7 - Wauchope
2003.600	TMT6 - Renner Springs
2094.500	TMT10 - Newcastle Waters Siding
2165.100	TMT5 - Buchanan Hwy
2247.900	TMT4 - Avago Station
2335.200	TMT3 - Gorrie Road
2387.200	TMT9 - Bend Camp
2603.100	TMT2 - Brocks Creek
2648.150	TMT10 - Adelaide River
2695.000	TMT1 - Manton Dam

When the turnout is in active use a TSR of 20km/h will be imposed over the turnout at the stabling location. Each stabling location is nominally 70 metres in length and suitable for light track vehicles only. The maximum weight of any track machine using the temporary turnout/ siding is 45 tonnes.

13. Curve Lubricators / Greasers

Curve lubricators/ greasers have been installed at 9 locations.

Location (km)	Name
Wirrida Balloon loop	LGP16 - No. 2
Wirrida Balloon loop	LGP15 - No. 1
1334.250	LGP14 - Alice Springs South end
1346.700	LPG13 - Alice Springs North end
1931.800	LPG12

Location (km)	Name
2464.600	LPG11
2473.200	LPG10
2484.500	LPG9
2500.300	LPG8
2504.400	LPG7
2510.200	LPG6
2519.900	LPG5
2584.500	LPG4
2607.030	LPG3
2629.900	LPG2
2754.100	LPG1

14. Wayside Monitoring Equipment / Weighing Stations

Three wayside monitoring stations exist on the network. Two stations use advanced technology, RailBAM (identification of bearing defects), WCM (wheel condition monitoring) & WIM (weigh in motion) and the third station is a TBOGI unit (wheel hunting monitoring).

Location (km)	Name
514.550	Northgate - RailBAM & WCM-WIM
2720.880	Berrimah - RailBAM & WCM-WIM
2720.905	Berrimah - TBOGI

Two weigh stations have been installed on the network.

Location (km)	Name
642.260	Wirrida, WWB1
1820.868	Argyle Goods Loop, AWB1

15. Out Of Gauge Monitoring System

Two out of gauge monitoring systems have been installed to detect loads exceeding the specified dimensions of the rail corridor load profile. The current height is set at 6500mm above rail height and width of 1250mm from the centreline of the track.

Location (km)	Name
1334.300	Alice Springs
2750.130	Berrimah

16. Adjoining Landholders

For information in the event of an emergency response situation.

Location (km)		Landholder Details	
From	To	Property	Contact Number
Tarcoola	550.000	Wilgena	08 8672 2039

Location (km)		Landholder Details	
550.000	620.000	Bulgunnia Homestead	08 8672 8935
550.000	620.000	Bulgunnia Outstation	08 8672 1910
620.000	671.000	Ingomar	08 8672 1919
671.000	767.000	Mt Clarence	08 8672 5212
		Mt Clarence	08 8667 5274
767.000	850.000	Mt Willoughby	08 8670 7993
850.000	890.000	Wintinna	08 8670 7936
890.000	960.00	Welbourne Hill – Granite Downs	088670 7970
890.000	960.000	De Rose Hill	08 8956 0901
1040.000	1080.000	Mt Cavenagh	
1080.000	1130.000	Umbearra	08 8956 0972
1130.000	1220.000	Idracowra	08 8956 0981
1245.000	1320.000	Orange Creek	08 8956 0924
1340.000	1376.000	Bond Springs	08 8952 9888
1376.000	1415.000	Yamba	08 8956 9494
1415.000	1460.000	Aileron	08 8956 8526
1460.000	1470.000	Bushy Park	08 89569704
1535.000	1545.000	Mount Skinner	08 8956 9731
1545.000	1570.000	Stirling	0488 473 787
1570.000	1590.000	Murray Downs	08 8964 1958
1590.000	1680.000	Neutral Junction	08 8956 9756
1680.000	1710.000	Singleton	08 8964 1542
1700.000	1750.000	McLaren Creek	08 8964 1904
1750.000	1815.000	Tennant Creek	08 8962 2080
1815.000	1885.000	Phillip Creek	08 8964 4710
1885.000	1931.000	Tanami Desert	
1931.000	1983.000	Muckaty Freehold	08 8964 4514
1983.000	2100.000	Newcastle Waters	08 8964 4527
2100.000	2164.000	Murranji	08 8964 4507
2164.000	2185.000	Buchanan Downs	08 8975 9533
2185.000	2232.000	Hidden Valley	08 8975 9999
2232.000	2260.000	Avago	08 8975 9974
2260.000	2294.000	Tarlee	08 8975 9777
2294.000	2305.000	Cow Creek (east side)	
2294.000	2313.000	Gorrie (west side)	08 8975 9965

Location (km)		Landholder Details	
2313.000	2329.000	Wyworrie	08 8975 9869
2329.000	2346.000	Bloodwood Downs	08 8975 9888
2346.000	2361.000	Lakefield	08 8978 6448
2361.000	2426.000	Lands Trust	
2426.000	2443.000	Manbulloo	08 8971 2563
2445.000	2511.000	Various Freehold	
2511.000	2536.000	Bonrook	08 8976 1450
2536.000	2566.000	Mary River West	08 8975 4783
2566.000	2569.000	Ban Ban Springs	08 8978 2438
2569.000	2575.000	Mary River West	08 8975 4793
2575.000	2600.000	Douglas (west side)	08 8978 2883
2575.000	2600.000	Ban Ban Springs (east side)	08 8978 2438
2600.000	2606.000	Government Land	
2606.000	2618.000	Douglas	08 8978 2883
2618.000	2628.000	Bridge Creek (east side)	08 8976 0808
2618.000	2628.000	Douglas (west side)	08 8978 2883
2628.000	2631.000	Freehold Land	
2631.000	2636.000	Bridge Creek	0409 760 959
2650.000		Adelaide River	

17. Reference Documents

- Code of Practice for the Defined Interstate Rail Network (DIRN) Volume 3 Parts 1 & 2
- Aurizon Bulk Central Addendum to the Code of Practice
- RISSB Standard AS7507 Rollingstock – Outlines
- RO-WIN-005: Management of Overloaded Wagons
- RS-WIN-004: Aurizon Bulk Central Protocol-Request for use of Occupational Crossing
- AS1742.7-2007: Manual of Uniform Traffic Control Devices – Railway Crossings

18. Revision History

Version No.	Section No.	Description of Change	Preparer (P) / Reviewer (R)	Date of issue
1	All	First Release		01/08/2016
2	All	Formatting update to align with other SMS documents and addition of infrastructure added	Kym Fullgrabe (P) Zoe Lambeff (R)	5/05/2025

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			Melissa Mullen (R)	

19. Key Words

Term	Definition
Rail Safety Workers	Rail safety worker means an individual who has carried out, i s carrying out, or is about to carry out, rail safety work.
Train Running Information	Details of rail traffic movement and frequency provided for a particular location on the network
Level Crossing	A level crossing includes each of the following areas: (a) an area where a road and a railway (other than a tramway) meet at substantially the same level, whether or not there is a level crossing sign on the road at all or any of the entrances to the area; (b) an area where a road and a tramway meet at substantially the same level and that has a level crossing sign on the road at each entrance to the area; (c) a pedestrian crossing- (i) being an area where a footpath or shared path crosses a railway (other than a tramway) at substantially the same level, whether or not there is a level crossing sign on the path at all or any of the entrances to the area; or (ii) being an area where a footpath or shared path crosses a tramway at substantially the same level and that has a level crossing sign on the path at each entrance to the area;
Passive level crossing	A level crossing where the movement of vehicular or pedestrian traffic across a level crossing is controlled by signs and devices, none of which are activated during the approach or passage of Rolling Stock, and which rely on the road user including pedestrians detecting the approach or presence of Rolling Stock by direct observation.
Safeworking	An integrated system of operating procedures and technology for the safe operation of rail traffic and the protection of people and property on or in the vicinity of the railway
Road Rail Vehicle	A road rail vehicle, or RRV, is a vehicle which can operate on rail tracks and a conventional road. They are also known as 'hi-rail'. Some vehicles are converted road vehicles which keep their normal rubber tyres and are also fitted with steel rail wheels that can be lowered and raised as required. Road Rail Vehicles are considered Rolling Stock when operating on rail track.
Crossing Loop	A length of track connected to the main line by switches at both ends to provide a facility that permits trains to both cross and pass each other.

Term	Definition
Yard	A system of tracks in including sidings, marshalling yards, depots, freight terminals, balloon loops. Station yards are not considered yards for this purpose and are considered running line.
Balloon Loop	A circular portion of a line primarily used for loading and unloading of bulk commodities.